POLOKWANE MUNICIPALITY

BID NUMBER:PM32-24/25

TENDER DESCRIPTION:	**UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM**

NAME OF BIDDER: ……..

CSD NUMBER: ……..

CONTACT NUMBER ……

EMAIL ADDRESS: ……...

TOTAL BID AMOUNT: _____

Document Prepared by:

Polokwane Municipality
Corner Landdros Mare and Bodenstein Street
Polokwane
0699

CLOSING DATE: **29 NOVEMBER 2024 @ 10H00**

Documents must be deposited in the bid box not later than **10:00 on 29 November 2024** when bids will be opened in public.

Bidders must contact the following officials for any enquiries:

• Technical enquiries: Mr. Gerrie Craig/ Mr. Wimpie Redelinghuys : (015 290 2683/ 2280) gerriec@polokwane.gov.za/ WimpieR@polokwane.gov.za

• Supply chain enquiries: Mr Tiro Pilusa: (015 290 2148) tirop@polokwane.gov.za

• **Bids will remain valid for a period of 90 days after the closing date.**

Bids received after the closing date and time will not be considered. Polokwane Municipality does not bind itself to accept the lowest or any other bid in whole or in part.

VERY IMPORTANT NOTICE ON DISQUALIFICATIONS

A bid that does not comply with the peremptory requirements stated hereunder will be regarded as not being an “acceptable bid”, and such a bid will be rejected. An “acceptable bid” means any bid which, in all respects, complies with the conditions of the bid and the specifications as set out in the bid documents, including the conditions as specified in the Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000) and related legislation as published in Government Gazette 22549, dated 10 August 2001, in terms of which provision is made for this policy.

1. If any pages have been removed from the bid document and have therefore not been submitted.

2. If the bid document is completed using a pencil. Only black ink must be used to complete the bid document.

3. The bidder attempts to influence or has in fact influenced the evaluation and/or awarding of the contract.

4. The bid has been submitted after the relevant closing date and time.

5. If any bidder who, during the last five years, has failed to perform satisfactorily on a previous contract with the municipality, municipal entity or any other organ of state after written notice was given to that bidder that performance was unsatisfactory.

6. The accounting officer must ensure that, irrespective of the procurement process followed, no award may be given to a person –

(a) who is in the service of the state;

(b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or

(c) who is an advisor or consultant contracted to the municipality in respect of a contract that would cause a conflict of interest.

7. Bid offers will be rejected if the bidder or any of his/her directors are listed on the Register of Bid Defaulters in terms of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004) as a person prohibited from doing business with the public sector.

8. Bid offers will be rejected if the bidder has abused the Polokwane Municipality supply chain management system.

9. Failure to complete and sign the certificate of independent determination or disclosure of wrong information.

Failure to comply with the above will lead to immediate disqualification.

"Polokwane Municipality is committed to maintaining the highest standards of honesty, integrity and ethical conduct and has adopted a zero tolerance to fraud and corruption. Thus, Polokwane municipality urges all stakeholders and potential service providers to exercise extreme caution and be vigilant of imposters in the name of the Polokwane Municipality.

Service Providers are reminded of the importance of verifying the authenticity of any requests for personal information and avoid engaging with unsolicited communications, particularly those involving financial matters or the promise of tenders and jobs. Any suspicious activity, including fraudulent calls or messages, should be reported immediately to the relevant authorities and the police for investigation. Polokwane Municipality does not request potential service providers to pay any gratification to individual in any way whatsoever in exchange for the appointment to render services for the Municipality."

Signed by Bidder

PART A
INVITATION TO BID **MBD1**

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (*NAME OF MUNICIPALITY/ MUNICIPAL ENTITY*)					
BID NUMBER:	**PM32-24/25**	CLOSING DATE:	**29 NOVEMBER 2024**	CLOSING TIME:	**10:00**
DESCRIPTION	**UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM**				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (MBD7).					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT Polokwane Municipality, Civic Centre, corner Bodenstein and Landdros Mare Street not later than 10:00 on **29 November 2024**.

An official and compulsory briefing session will not be applicable for this project
The Bid box is generally open 24 hours, 7 days a week.
Completed Bid document, fully priced and signed must be sealed in an envelope marked " Bid number and Bid description"
Bidders should ensure that bids are delivered timeously to the correct address. If the bid is late, it will not be accepted for consideration.
Bids documents containing the Conditions of Bid and other requirements in terms of the Supply Chain Management Policy will be downloaded from e-tender Publication Portal at www.etenders.gov.za at no fee.

SUPPLIER INFORMATION						
NAME OF BIDDER						
POSTAL ADDRESS						
STREET ADDRESS						
TELEPHONE NUMBER	CODE		NUMBER			
CELLPHONE NUMBER						
FACSIMILE NUMBER	CODE		NUMBER			
E-MAIL ADDRESS						
VAT REGISTRATION NUMBER						
TAX COMPLIANCE STATUS	TCS PIN:		**OR**	CSD No:		
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES OFFERED?	☐Yes ☐No [IF YES, ANSWER PART B:3]		
CIDB GRADING	**6EP OR HIGHER**					
TOTAL NUMBER OF ITEMS OFFERED			**TOTAL BID PRICE**	**R**		
SIGNATURE OF BIDDER	……		**DATE**			
CAPACITY UNDER WHICH THIS BID IS SIGNED						

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:		**TECHNICAL INFORMATION MAY BE DIRECTED TO:**	
DEPARTMENT	SCM	CONTACT PERSON	Mr. Wimpie Redelinghuys
CONTACT PERSON	Mr. Tiro Pilusa	TELEPHONE NUMBER	015 290 2280
TELEPHONE NUMBER	015 290 2148	FACSIMILE NUMBER	N/A
FACSIMILE NUMBER		E-MAIL ADDRESS	WimpieR@polokwane.gov.za
E-MAIL ADDRESS	tirop@polokwane.gov.za		

PART B

TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.

1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED – (NOT TO BE RE-TYPED) OR ONLINE**

1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.

2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.

2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.

2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B:3.

2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.

2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.

2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

3.1. IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?
☐ YES ☐ NO

3.2. DOES THE ENTITY HAVE A BRANCH IN THE RSA?
☐ YES ☐ NO

3.3. DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?
☐ YES ☐ NO

3.4. DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?
☐ YES ☐ NO

3.5. IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?
☐ YES ☐ NO

IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE.

SIGNATURE OF BIDDER:

……

CAPACITY UNDER WHICH THIS BID IS SIGNED:

……

DATE:

……..

POLOKWANE MUNICIPALITY

CONTENTS OF TENDER DOCUMENTATION

Volume 1: Tender requirements, Contract and Pricing Data		
Number	**Heading**	**Colour**
Part T1: Tendering procedures		
MBD 1	Tender Notice and Invitation to Tender	White
	Responsiveness and Evaluation Criteria	White
T1.2	Tender Data	Pink
T1.3	Standard and Particular Conditions of Tender	Pink
Part T2: Returnable Documents		
T2.1	List of Returnable Documents	Yellow
T2.2	Returnable Schedules	Yellow
Part C1: Agreements and Contract Data		
C1.1	Form of Offer and Acceptance	White
C1.2	Contract Data	White
C1.3	Forms for Adjudicators Appointment	White
C1.4	Occupational Health and Safety Agreement	White
Part C2: Pricing data		
C2.1	Pricing Instructions	Yellow
C2.2	Bill of Quantities	Yellow
Part C3: Scope of Work		
C3.1	Description of the Works	Blue
C3.2	List of Drawings	Blue
C3.3	Procurement	Blue
C3.4	Construction	Blue
C3.5	International, National and Polokwane Municipality Standards	Blue
C3.6	Health and Safety Specifications	Blue
C3.7	Environmental Management during Construction	Blue
C3.8	Management of the Works	Blue
Part C4: Site information		
C4	Site Information	Green
	Drawings	White

BID NUMBER: **PM32-24/25**
BID DESCRIPTION: UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM

DIRECTORATE: **ENERGY SERVICES**

BUSINESS UNIT: **ENERGY 66kV MAINTENANCE AND OPERATIONS**

Bids are hereby invited for UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM

The Council also reserves the right to negotiate further conditions and requirements with the successful bidder.

THIS BID IS SUBJECT TO THE, PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATION, 2017, AND THE GENERAL CONDITIONS OF CONTRACT FOR CONSTRUCTION WORKS (THIRD EDITION) (2015) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

The Municipality shall adjudicate and award bids in accordance with Specific goals of contribution on 80/20-point system, 80 points for the price and 20 points for specific goals. Prospective bidders must accept that the bid will be adjudicated, according to the said legislation. Bids will remain valid for 90 (ninety) days.

MS. THUSO NEMUGUMONI
MUNICIPAL MANAGER
CIVIC CENTRE
LANDDROS MARE STREET,
POLOKWANE

POLOKWANE MUNICIPALITY

RESPONSIVENESS AND EVALUATION CRITERIA

1. **RESPONSIVENESS CRITERIA**

The Polokwane Municipality will consider no Bid unless it meets the following responsiveness criteria:

- The bid must be properly received in a sealed envelope clearly indicating the description of the service and the bid number for which the bid is submitted.
- The bid must be deposited in the relevant bid box as indicated on the notice of the bid on or before the closing date and time of the bid.
- A valid Central Supplier Database number to be provided.
- Bid forms must be completed in full and each page of the bid initialed.
- Submission of a Joint Venture Agreement, where applicable, which has been properly signed by all parties.
- Proof of payment of Municipal Rates and Taxes or letter for Tribal Authority or lease agreement must be attached.
- Complies with the requirements of the bid and technical specifications.
- Registered in the relevant contractor category in the Construction Industry Development Board Register of Contractors (CIDB).
- Adheres to Pricing Instructions.
- Financial ability to execute the contract.
- Comply in full and observe the requirements of the Notice to Bidders.
- Experience with similar work – demonstrate a track record of a project of similar scope and size

2. EVALUATION OF BIDS

a) All bids received shall be evaluated in terms of the Supply Chain Management Regulations, Polokwane Municipality Supply Chain Management Policy (on request from Municipality), the preferential procurement regulation 2017, and other applicable legislations.

b) The Council reserves the right to accept all, some, or none of the bids submitted – either wholly or in part – and it is not obliged to accept the lowest bid.

By submitting this bid, bidder authorises the Council or its delegate(s) to carry out any investigation deemed necessary to verify the correctness of the statements and documents submitted and that such documents reasonably reflect the ability of the Bidder to provide the goods and services required by the Council.

PLEASE NOTE

1. **The Municipal Manager may cancel a contract awarded to a person if:**

   a) The person committed a corrupt or fraudulent act during the procurement process or in the execution of the contract, or

   b) An official or other role player committed any corrupt or fraudulent act during the procurement process or in the execution of the contract that benefited that person.

2. **The Municipal Manager may reject the bid or quote of any person if that person or any of its directors has:**

   a) Failed to pay municipal rates and taxes or municipal service charges and such rates, taxes and charges are in arrears for more than three months;

   b) Failed, during the last five years, to perform satisfactorily on a previous contract with the Polokwane Municipality or any other organ of State after written notice was given to that bidder that performance was unsatisfactory;

   c) Abused the supply chain management system of the Municipality or have committed any improper conduct in relation to this system;

   d) Been convicted of fraud or corruption during the past five years;

   e) Wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or

   f) Been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No. 12 of 2004) or has been listed on National Treasury's database as a person prohibited from doing business with public sector.

T1.2 Tender Data

1. CONDITIONS OF TENDER

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement (SFU) of May 2010, as published in Government Gazette No 33239, Board Notice 86 of 2010 of 28 May 2010. Those Standard Conditions of Tender remained the same as those published in the previous edition of the SFU as published in Government Gazette No 31823, Board Notice 12 of 2009 of 30 January 2009 – See www.cidb.org.za.

Each Tenderer shall obtain its own copy of the Standard Conditions of Tender.

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

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

Clause number	Tender Data
2. EMPLOYER **Cl. F1.1**	The "Employer" is "Polokwane Municipality" The Employer's domicilium citandi et executandi (permanent physical business address) is: Polokwane Municipality, Civic Centre, Landdros Mare Street, Polokwane The Employer's address for communication relating to this project is: PO Box 111, Polokwane, 0700
3. TENDER DOCUMENTS **Cl. F.1.2**	"The following documents form part of this tender: **VOLUME 1** **Part T1 Tendering procedures** T1.1 Tender notice and invitation to tender T1.2 Tender data T1.3 Standard and Particular conditions to tender **Part T2 Returnable Documents** T2.1 List of Returnable Documents T2.2 Returnable Schedules that will be incorporated into the Contract **Part C1 Agreements and Contract Data** C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Form for Adjudicators Appointment C1.4 Agreement in terms of Occupational Health and Safety **Part C2 Pricing Data** C2.1 Pricing Instructions C2.2 Bill of Quantities **Part C3 Scope of Work** C3.1 Description of the Works C3.2 List of Drawings C3.3 Procurement C3.4 Construction C3.5 International, National and Eskom Standards C3.6 Health and Safety Specifications C3.7 Environmental Management during Construction C3.8 Management of the Works **Part C4 Site information**

Clause number	Tender Data
4. EMPLOYER'S AGENT **Cl. F.1.4**	The Employer's Agent is: **a)** Principal Agent Volt Consulting Engineers Physical Address: Suite 13 Ficus Park 15 Pierre Street Bendor Polokwane 0699 Postal Address: P.O. Box 11365 Bendor Park Polokwane 0713 Tel.: 015 296 0245 Fax: 086 545 1820 E-mail: info@voltconsulting.co.za
5. TENDERER'S OBLIGATIONS	
5.1. Eligibility **Cl. F.2.1**	A tender offer may only be submitted if the Tenderer satisfies the criteria stated in the Tender Data and if the Tenderer, or any of his principals, is not under any restriction to do business with the Employer.
5.2. Site Visit and Clarification Meeting **Cl. F.2.7**	The arrangements for a compulsory pre-tender meeting are: **Location:** **NOT APPLICABLE** **Date:**
5.3. Insurance **Cl. F.2.9**	No insurance cover will be provided by the Employer.
5.4. Alternative Tender Offers **Cl. F. 2.12**	Unless anything to the contrary has been determined in the Contract Data, a Tenderer may, together with his tender for the original designs contained in the contract documents, submit alternative designs and tender offers for consideration. All designs, calculations, drawings and Operation and Maintenance manuals shall be fully endorsed by a third-party registered engineer, accomplished in such specific field of practice and the cost thereof shall be borne solely by the Contractor. Such alternative designs and offers shall be subject to the following conditions and requirements: 5.4.1. Tenders An alternative offer or design will be considered only if the tender for the original items has been fully priced and completed. The alternative tender offer is to be submitted in **the same envelope as the main tender offer**, together with a schedule that compares the requirements of the tender documents with the alternative requirements the Tenderer proposes. No alternative tender will be considered unless a tender free from qualifications is also submitted. Unless the alternative offer stipulates to the contrary, it shall be assumed that the period for completion of the Works shall be the same as for the original design. Designs, calculations, drawings and a modified schedule of quantities (as determined hereafter) in respect of each alternative offer or design shall accompany the alternative tender offer and shall be endorsed fully by a third-party registered engineer, accomplished in such specific field of practice. 5.4.2. Preliminary calculations Preliminary calculations for an alternative design shall be submitted with the tender. Such calculations shall give adequate details so as to enable an assessment to be made of the general efficacy of the design and of its principal elements, also of the degree to which the design prescriptions and codes of the Employer are being

Clause number	Tender Data
	complied with. The calculations shall be clear and in a logical sequence and shall clearly reflect all the design assumptions. 5.4.3. Preliminary drawings Preliminary drawings of the alternative designs shall also be submitted with the tender. These drawings shall comprise adequate layout plans, elevations and sections and shall clearly illustrate the general efficacy of the design and its principal elements. 5.4.4. Quantities Each alternative offer shall be accompanied by a modified priced schedule of quantities compiled in accordance with the specifications, in so far as it is applicable, which clearly shows the manner in which the price for the alternative offer has been determined and the items in the original schedule of quantities which fall away or are being changed. In addition to the schedule of quantities, a set of calculations shall be supplied to show how the quantities have been determined. All assumptions in regard to factors which will determine quantities shall be clearly and conspicuously marked by underlining or coloring, and shall indicate whether or not the assumptions have been based on information furnished in the Contract Data (with the necessary references). 5.4.5. Further details Should the Employer's Agent find that the calculations and drawings submitted for alternative designs are not complete enough for proper adjudication of the alternative designs, the Employer reserves to itself the right to call on the Tenderer to submit such further calculations and drawings as may be required. If such further details are not submitted within ten days of having been requested, the alternative designs will not be given further consideration. 5.4.6. Preliminary adjudication of alternative designs The Employer's Agent will undertake a preliminary scrutiny of any alternative designs for compliance with the specified requirements of the Employer. Should he find any mistakes or unsatisfactory aspects, he may afford the Bidder the opportunity to rectify them within a period to be determined by the Employer's Agent. However, it is emphasized that the preliminary scrutiny of the design and tender by the Employer's Agent, by its very nature, cannot be comprehensive, and no guarantee can be given in this regard that all the mistakes made by the Bidder will in fact be detected. Any correction of such mistakes shall be made with the tender price of the bidder being retained, and, wherever necessary, the priced schedule of quantities for the alternative design shall be adjusted accordingly. 5.4.7. Acceptance of alternative design The Bidder shall note that the acceptance of a tender which includes alternative designs shall mean that the alternative designs have been approved in principle only. If the final calculations, drawings and details do not comply with the specified requirements, such alternative designs may be rejected, unless they are suitably amended by the Bidder so as to be acceptable to the Employer. 5.4.8. Final drawings and calculations and the priced schedule of quantities Where a tender with an alternative design has been accepted, the Contractor shall, not less than two months before he intends starting with the construction of such design, submit to the Employer's Agent a complete set of working drawings, detailed calculations and a complete schedule of quantities, for approval. The schedule of quantities shall be based on the preliminary schedule of quantities, but with the necessary adjustments in quantities and prices and with the tendered price for the alternative design being retained.

Clause number	Tender Data
	Within three weeks of having received the above, the Employer's Agent will indicate which drawings, calculations, quantities, prices and other particulars are acceptable to him and which not, with reasons furnished. The Contractor shall then submit to the Employer's Agent in good time any modified drawings and other particulars for approval, for which he will require two weeks. Any delay arising from the fact that the amended particulars do not meet the requirements shall be the responsibility of the Contractor. No work which will be affected by an alternative design may be commenced, unless the drawings, schedule of quantities and prices for such alternative design have been approved. Should the Contractor fail to modify any drawings, calculations, quantities, prices or any other particulars to the satisfaction of the Employer's Agent, the alternative design will be rejected and the original design shall be constructed for the same amount as has been tendered for the alternative design. 5.4.9. Responsibility for alternative design The approval of a design by the Employer's Agent shall not in any way relieve the Bidder of his responsibility to produce a design which conforms in all respects to all the specified requirements and which will be suitable for the purpose envisaged. Should it appear later during construction or during the maintenance period that the design does not conform to the specified requirements, the Contractor only, shall be liable for any damage arising there from and he shall, at his own expense, do all the necessary work to ensure that the Works conforms to all the specified requirements. 5.4.10. Indemnity Once the alternative design has been approved, the Contractor shall indemnify and hold harmless the Employer, its agents and assigns, against all claims howsoever arising out of the said design whether in contract or delict.
5.1. Submitting a Tender Offer Cl. F2.13	5.5.1. Whole of the Works (Cl. F.2.13.1) Tenderers shall offer to provide for the whole of the Works identified. 5.5.2. Original tender documents (Cl. F2.13.3) The original tender document, issued to the Bidder, shall be submitted in its entirety. No copies are required. 5.5.3. Marking of Tender Submissions (Cl. F2.13.5) The complete tender documents shall be enclosed and sealed in a single envelope, marked: **"BID NO. PM32-24/25: UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM"** The Employer's address for delivery of tender offers to be shown on each tender submission package is the Tender Box located at: Polokwane Municipality Civic Centre Landdros Mare Street Polokwane 5.5.4. Two envelope system (Cl. F.2.13.6) A two-envelope procedure will not be followed.

Clause number	Tender Data
	5.5.5. Closing time (Cl. F.2.15) The closing time for submission of tender offers is: **10H00** Telegraphic, telephonic, telex, facsimile, e-mail, electronic and late tender offers will not be accepted. 5.5.6. Tender offer validity (Cl. F.2.16) The tender offer validity period is **90 days** after tender closing date. 5.5.7. Clarification of tender offer after submission (Cl. F.2.17) Delete the last part of the second sentence, commencing with the word "and". Furthermore, delete the last two sentences of Cl. F2.17. Add the following sentence: "The rates stated by the Bidder shall be binding". 5.5.8. Provide other Material (Cl. F.2.18.1) Upon request by the Employer, the Bidder shall promptly supply any other material that has a bearing on the tender offer, the bidder's commercial position (including, where applicable, notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair assessment. Should the Bidder not provide the information or material called for, by the time for submission stated in the Employer's request, the Employer will regard the tender offer as being non-responsive. 5.5.9. Certificates (Cl. F.2.23) The following certificates are to be provided with this tender: a) A valid CSD number to be provided. b) Compensation Fund registration certificate c) Certificate of Contractor Registration issued by the Construction Industry Development Board or a copy of the application Form for registration in terms of the Construction Industry Development Board Act (Form F006). (A minimum grading of 6EP is required). **Important Note:** Failure to provide the required particulars as per the above-listed certificates implies a non-responsive tender and warrants rejection of the tender on account of non-compliance with the requirements of the Tender Data
6. EMPLOYER'S UNDERTAKING	
6.1. Opening of Tender Submissions **Cl. F3.4**	The time and location for opening of the tender offers are: **10:00 on** **Location: Tender Box, Polokwane Municipality,** **Civic Centre, Landdros Mare Street, Polokwane**
6.2. Arithmetical Errors **Cl. F.3.9.1**	Delete paragraphs (b) and (c) of Cl. F.3.9.1 and replace with: b) If a bill of quantities (or schedule of quantities or schedule of rates) applies and there is an error in the line item resulting from the product of the unit rate and the quantity, the rate shall be binding and the error of extension as entered in the tender offer will be corrected by the Employer in determining the Contract Price.

Clause number	Tender Data
	c) Where there is an error in addition, either as a result of other corrections required by this checking process or in the Bidder's addition of prices, such error will be corrected by the Employer in determining the Contract Price. d) The Contract Price for the completed Contract shall be computed from the actual quantities of authorized work done and compliant with the Contract Data, valued at rates contracted against the respective items in the bill of quantities, schedule of Quantities or schedule of rates and shall include such authorized Provisional Sums and items of extra work as have become payable in terms of the Contract Data.
7. <u>ACCEPTANCE OF TENDER OFFER</u> Cl. F3.13	Tender offers will only be accepted if: a) A valid CSD report to be provided; b) The bidder is registered with the Construction Industry Development Board in an appropriate contractor grading designation. (A minimum grading of **6EP OR HIGHER** is required for the main contractor); c) The bidder has demonstrated previous experience with the type of work required under this contract having successfully completed a **project of similar scope and size**. d) The bidder or any of its principals 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; and e) The bidder has not abused the Employer's Supply Chain Management System. f) The bidder has not failed to perform on any previous contract. g) has complete the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the bidder's ability to perform the contract in the best interests of the employer or potentially compromise the tender process.
8. <u>PROVIDE COPIES OF THE CONTRACT DOCUMENT</u> Cl. F.3.18	The number of paper copies of the signed Contract to be provided by the Employer to the successful bidder is one

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

This preference form must form part of all tenders invited. It contains general information and serves as a claim form for preference points for specific goals.

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

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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

1.2 To be completed by the organ of state

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

b) The 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

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

(a) Price; and

(b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	**100**

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 in regard to 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:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right) \text{ or } \qquad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

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:

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \qquad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

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 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:

4.2. 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.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

***Note to tenderers: The tenderer must indicate how they claim points for each preference point system.*)**

The specific goals allocated points in terms of this tender	MEANS OF VERIFICATION DOCUMENTS REQUIRED	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Ownership of 51% or more by persons who are black	CSD/Company registration copy and ID Copies of directors	5	
Ownership of 51% or more by persons who are woman	CSD/Company registration copy and ID Copies of directors	5	
Ownership of 51% or more by persons who are disable	Medical report indicating disability	4	
Ownership of 51% or more by persons who are youth	CSD/Company registration copy and ID Copies of directors	4	

Ownership by persons who are residing within jurisdiction of Polokwane Municipality	municipal rates and taxes statement of account/ signed valid leasing agreement/Letter from tribal authority	2	
Total points claimed		**20**	

Table 2: Business entity ownership disclosure

Bidders must list all shareholders and provide ownership information in terms of the business entity registration certificate

Full Names	**Identity Number**	**% of ownership**	**South African (Yes/No)**	**Race**	**Gender**	**Disable (Yes/No)**	**Youth (Yes/No)**	**Local enterprise (Yes/No)**

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm…….

4.4. Company registration number: ……...

4.5. 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]

4.6. 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 wih the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, 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:	……
	……
	……
	……

ANNEXURE A
SUPPLY CHAIN MANAGEMENT

EVALUATION PROCESS AND CRITERIA

The following evaluation process and criteria will be used to evaluate all bids submitted:

1. Administrative Compliance – Phase One

1.1 All bids duly lodged will be examined to determine compliance with bidding requirements and conditions. Bids with obvious deviations from the requirements/conditions, will be eliminated from further evaluation.

1.2 **Critical Criteria**:

The following critical criteria have been identified for this bid and any noncompliance thereto will lead to the bid being regarded as non-responsive and disqualified from further evaluation:

- Authority to sign filled in full
- All Pages initialed
- Certified ID Copies of All Directors/Members/Shareholders of The Company/Business (If JV, For Both)
- Valid original tax compliance status (If JV, For Both)
- CIDB Grade
- Joint venture agreement (Where applicable)
- Pricing Schedule in black ink
- Signed for all alteration and in the BOQ
- Plant and Equipment
- Bank rating/guarantee
- Central Supplier Database (CSD) report (If JV, For Both)
- Company certificate
- Municipal rates and taxes /Lease agreement/Local tribal authority letter (For company and all the directors) not older than 3 months
- Completed and signed Invitation to bid **(MBD1)**
- Completed and signed declaration of interest **(MBD4)**
- Compulsory enterprise questionnaire completed.

- Completed and signed declaration for procurement above R10 million (Including tax) **(MBD5)**
- Completed and signed preference points claim form **(MBD6.1)**
- Completed and signed declaration on past SCM practices form **(MBD8)**
- Completed and signed certificate of independent bid determination **(MBD9)**

2. Functionality – Phase Two (100 points allocation)

Bidders must score a minimum of 70 points for functionality to proceed to the next phase of the evaluation criterion. Only qualifying bidders will be evaluated further on Price and Specific Goals.

TABLE A1: Points Allocation Breakdown

FUNCTIONALITY ASSESSMENT CRITERIA	
CRITERIA	**POINTS (WEIGHT)**
1. Bidder's experience in similar projects	**50**
2. Plant and Equipment	**10**
3. Financial Standing/Ability to execute the project	**40**

OVERALL EVALUATION SCORE	100

The bidders who complied administratively are considered for further evaluation on ability to execute the project.

The assessment of functionality will be done in terms of the evaluation criteria and minimum threshold as specified. A bid will be disqualified if it fails to meet the minimum threshold for functionality as per the bid invitation.

TABLE A2: CRITERIA 1: BIDDER'S EXPERIENCE IN SIMILAR PROJECTS

COMPANY EXPERIENCE	POINTS
Successfully completed projects of a similar nature (substation secondary plant protection system upgrade and SCADA) of **5 or more projects**.	50
Successfully completed projects of a similar nature (substation secondary plant protection system upgrade and SCADA) of **4 projects**.	40
Successfully completed projects of a similar nature (substation secondary plant protection system upgrade and SCADA) of : **3 projects**.	30
Successfully completed projects of a similar nature (substation secondary plant protection system upgrade and SCADA) of **2 projects**.	20
Successfully completed projects of a similar nature (substation secondary plant protection system upgrade and SCADA) of **1 project**.	10

NB. ***Note:*** *to indicate full names and* ***contact details of references*** *for all Similar Projects referred to. Failure to do so will result in Bidders not scoring for those projects. Furthermore, Tenderers should* ***attach copies of appointment letters and completion certificates*** *(or reference letters from clients showing progress) to score maximum points.*

2.1 CRITERIA 2 : Plant and Equipment (10 points)

This will be assessed against a minimum number of different types of plant and equipment required to successfully complete the project within the stipulated construction period as determined by the engineer.

Access to plant may be in a form of ownership, hire or leasing arrangements, orders etc. A letter of intent from hiring or leasing companies stating the number and type of plant and equipment on which arrangement has been made must be submitted. Any changes to the lease/hire agreement must be approved by the Municipality prior commencement.

NB. 50% of points will be allocated to equipment leased/hired.

Consultants Estimation				
(A) Plant and equipment required	**Points allocation**	**(B) Minimum Plant required**	**(C) Bidder Plant own**	**(D) Bidder Plant hire**
LDV's	10	2		

NB. Proof of ownership on equipment indicated above must be submitted with the bid document. Failing to submit will result in disqualification of points.

2.3 TABLE A4: CRITERIA 3: FINANCIAL REFERENCES

CRITERIA 3: FINANCIAL REFERENCE WEIGHT: 20 POINTS		
REQUIREMENT	**POINTS (WEIGHT)**	**ALLOCATED POINTS**
Proof of funding from an Authorized Financial Service Provider OR a Credit facility with a Balance of below R500 000.00	40	
Proof of funding from an Authorized Financial Service Provider OR a Credit facility with a +Balance of R500 000.00 or more.	20	
MAXIMUM POINTS	**40**	

Note: Bidders are required to attach the most recent proof of funding from Registered Financial Institutions. Failure to do so will result in loss of points.

NB: A bid will be disqualified if it fails to meet the minimum threshold of 70% on functionality and to further be evaluated on price and Specific goals.

3. Price and Specific goals– Phase Three

The evaluation will be done by using **80/20**-point system as indicated below:

Preference point system	**Points**
Price	80
Specific Goals	20
Total Maximum Score	**100**

THE EVALUATION WILL BE DONE USING 80/20-POINT SYSTEM, 80 FOR PRICE AND 20 FOR SPECIFIC GOALS

***Notes: Bidders must note that points for specific goals must be claimed in terms with the percentage of ownership within their business entity. The tenderer must indicate how they claim points.*)**

SPECIFIC GOALS	**POINTS ALLOCATED**	**POINTS SCORED**
Ownership of 51% or more by persons who are black	5	
Ownership of 51% or more by persons who are woman	5	

Ownership of 51% or more by persons who are disable	4	
Ownership of 51% or more by persons who are youth	4	
Ownership by persons who are residing within jurisdiction of Polokwane Municipality	2	

Incase ownership of specific goals is below 51% points will be *claimed in terms with the percentage of ownership within their business entity. For example:*

An Entity that has 35% shareholding of able black man who is above age of 35 and residing outside the jurisdiction of Polokwane Municipality. Points will be claimed as follows:

Calculation **= *Black Ownership* X Total number of allocated points**
100

= 35 X 5
100
= 1.75

Points to be score for ownership of black person will be 1.75

OR

Calculation **= *Black Ownership* X Total number of allocated points**
100

= 35 X 3
100
= 1.05

Points to be score for ownership of black person will be 1.05

The specific goals are claimed as per below table for business ownership disclosure. Bidders must list all shareholders and provide ownership information in terms of the business entity registration certificate

Full Names	Identity Number	% of ownership	South African (Yes/No)	Race	Gender	Disable (Yes/No)	Youth (Yes/No)	Local enterprise (Yes/No)

2.4 Commercial Risk Analysis

Prior to being recommended for further evaluation, a bid will be subjected to risk analysis to ensure that it would, if accepted, not place the Municipality or the bidder, at undue risk.

A risk analysis will be performed to ascertain if any of the following might present an unacceptable commercial risk to the Municipality:

- Unduly low tendered sums
- Unduly high individual rates
- Unduly low rates
- Imbalances in pricing

It is in the best interests of the Municipality to amend an error which will cause the bid to be rejected on the basis of it presenting an unacceptable commercial risk.

2.5 Tendered rates

Rates for all the bids which have complied with the bid conditions will be assessed for the following:

- Comparison of rates and amounts with the average tendered amount.
- Sensitivity Analysis of Rates (i.e. whether the rates are balanced, acceptable, etc).
- Expected cash flows requirements.

NB: Bids with unbalanced rates will be disqualified for further evaluation on price and preference points system

3 Business Registration

Prospective bidders shall be registered:

(a) With the South African Revenue Services for all categories of taxes applicable to it.
(b) Central Supplier Database (CSD)
(c) With the Compensation Commissioner
(d) With the Construction Industry Development Board. (A minimum grading of **6EP OR HIGHER** is required).

4 Acceptance of Tender Offer (Cl. F3.13)

Tender offers will only be accepted if:

a) The bidder provides a valid Central Supplier Database (CSD) Full Report;

b) The bidder is registered with the Construction Industry Development Board in an appropriate contractor grading designation. (A minimum grading of **6EP OR HIGHER** is required);

c) the bidder or any of its principals 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; and

d) The bidder has not abused the Employer's Supply Chain Management System.

e) The bidder has not failed to perform on any previous contract.

f) has complete the Compulsory Enterprise Questionnaire and there are no conflicts of interest which may impact on the bidder's ability to perform the contract in the best interests of the employer or potentially compromise the tender process.

5. Provide copies of the Contract Document (Cl. F3.18)

The number of paper copies of the signed Contract to be provided by the Employer to the successful bidder is **one**

Annexure A: Standard Conditions of Tender

F.1 General

F.1.1 Actions

The employer and each bidder submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Tender Documents

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

F.1.3 Interpretation

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

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

F.1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

a) **Comparative offer** means the bidder's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration

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

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

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

F.1.4 Communication and employer's agent

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

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

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

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

F.2 Bidder's obligations

F.2.1 Eligibility

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

F.2.2 Cost of tendering

Accept that the employer will not compensate the bidder for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

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

F.2.5 Reference documents

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

F.2.6 Acknowledge addenda

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

F.2.7 Clarification meeting

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

F.2.8 Seek clarification

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

F.2.9 Insurance

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

F.2.10 Pricing the tender offer

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

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

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

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

F.2.11 Alterations to documents

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

F.2.12 Alternative tender offers

F.2.12.1 Submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

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

F.2.13 Submitting a tender offer

F.2.13.1 Submit a tender offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

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

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

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

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

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

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

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

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

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

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the tender data.

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

F.2.16 Tender offer validity

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

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the total of the prices or substance of the tender offer is sought, offered, or permitted. The total of the prices stated by the bidder shall be binding upon the bidder.

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the bidder's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the bidder not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

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

F.2.19 Inspections, tests and analysis

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

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

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

F.2.21 Check final draft

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

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to clarification

Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all bidders who drew procurement documents.

F.3.2 Issue Addenda

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

F.3.3 Return late tender offers

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

F.3.4 Opening of tender submissions

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

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

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

F.3.5 Two-envelope system

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

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

F.3.6 Non-disclosure

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

F.3.7 Grounds for rejection and disqualification

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

F.3.8 Test for responsiveness

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

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

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

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

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

F.3.9 Arithmetical errors

F.3.9.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

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

F.3.9.2 Consider the rejection of a tender offer if the bidder does not correct or accept the correction of his arithmetical errors in the manner described in F.3.9.1.

F.3.10 Clarification of a tender offer

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

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method that is indicated in the Tender Data and described below:

Method 1: Financial offer	1) Rank tender offers from the most favourable to the least favourable comparative offer.
	2) Recommend highest ranked bidder for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 2: Financial offer and preferences	1) Score tender evaluation points for financial offer.
	2) Confirm that bidders are eligible for the preferences claimed and if so, score tender evaluation points for referencing.
	3) Calculate total tender evaluation points.
	4) Rank tender offers from the highest number of tender evaluation points to the lowest.
	5) Recommend bidder with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3: Financial offer and quality	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data.
	2) Score tender evaluation points for financial offer.
	3) Calculate total tender evaluation points.
	4) Rank tender offers from the highest number of tender evaluation points to the lowest.
	5) Recommend bidder with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4: Financial offer, quality and preferences	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data.
	2) Score tender evaluation points for financial offer.
	3) Confirm that bidders are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing.
	4) Calculate total tender evaluation points.
	5) Rank tender offers from the highest number of tender evaluation points to the lowest.
	6) Recommend bidder with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

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

F.3.11.2 Scoring Financial Offers

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

NFO = W1 x A where:
NFO = the number of tender evaluation points awarded for the financial offer.
W1 = the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data.
A = a number calculated using either formulas 1 or 2 below as stated in the Tender Data.

Formula	Comparison aimed at achieving	Option 1	Option 2
1	Highest price or discount	$A = (1+ \frac{(P - Pm)}{Pm})$	A = P / Pm
2	Lowest price or percentage commission / fee	$A = (1 - \frac{(P - Pm)}{Pm})$	A = Pm / P

Where:

Pm = the comparative offer of the most favourable tender offer.
P = the comparative offer of tender offer under consideration.

F.3.11.3 Scoring quality (functionality)

Score quality in each of the categories in accordance with the Tender Data and calculate total score for quality.

F.3.12 Insurance provided by the employer

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

F.3.13 Acceptance of tender offer

F.3.13.1 Accept tender offer only if the bidder complies with the legal requirements stated in the Tender Data.

F.3.13.2 Notify the successful bidder of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful bidder as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful bidders

After the successful bidder has acknowledged the employer's notice of acceptance, notify other bidders that their tender offers have not been accepted.

F.3.15. Prepare contract documents

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

a) Addenda issued during the tender period,
b) Inclusion of some of the returnable documents,
c) Other revisions agreed between the employer and the successful bidder, and
d) The schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful bidder for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of tender require the bidder to submit, after acceptance by the employer, shall be included.

F.3.17 Complete adjudicator's contract

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

F.3.18 Provide copies of the contracts

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

A: SCHEDULE OF LABOUR CONTENT (IF APPLICABLE)

The Tenderer must complete the table below to reflect the labour force anticipated to be employed on this contract, including labour employed by sub-contractors. The specified target value is 10% of the contract value

Note: **The full amount of this 0% target value should be obtained from Local Labour content. This 0% labour content shall be from the LOCAL COMMUNITY, the contractors own key skilled and unskilled personnel will not be counted towards the said 10% of the contract amount minimum labour content**

Type of Labour	Man-hours	Minimum Wage Rate per Unit	Total Wage Cost (Excl VAT)
Permanent Labour			
Temporary Labour			
SMME/HDI's Labour			
		TOTAL	
		PERCENTAGE	

Notes to Tenderer:

(1) Labour is defined as daily paid personnel.
(2) The penalty will be applied for non-compliance during the contract or for fraudulent disclosure.

SIGNED ON BEHALF OF THE TENDERER: …….

B: EMPLOYMENT OF AFFIRMATIVE BUSINESS ENTERPRISE (ABE)

Target values of work to be executed by and goods & services to be procured from ABEs shall be **10%**.

Schedule Item No	Name of ABE	Item Description/ Goods & Services to be provided	Value	
			Rands (Excl VAT)	% of Tender Sum (Excl VAT)
TOTAL				

Notes to tenderer:

1. **Regardless whether the tenderer fits the classification of an SMME/PDI, as defined in Section 3.3 of this specification, the tenderer nevertheless retains the obligation to commit to the target values prescribed**
2. **Tenderers shall insert "unknown" if an SMME/PDI has not been selected prior to tender closing date.**
3. **The penalty will be applied for non-compliance during the contract or for fraudulent disclosure**

SIGNED ON BEHALF ON THE TENDERER ……

B.1 EMPLOYMENT OF AFFIRMATIVE BUSINESS ENTERPRISE DECLARATION AFFIDAVIT (ABE).

It is understood and agreed that should this contract be awarded to me, an ABE Declaration Affidavit will be completed by each and every ABE employed by me on this contract and will be submitted to the Employer immediately upon demand by the Employer.

SIGNED ON BEHALF OF THE TENDERER: ……

1. GENERIC TRAINING

Name of Training Institution: …….

Name of Programme: ……

Trainer's Name	Qualification	Subject

Notes to tenderer:
Provide details here, or attach hereto, the subjects to be covered and the manner in which the training is to be delivered.

SIGNED ON BEHALF OF THE TENDERER……

2. ENGINEERING SKILLS TRAINING

Name of Training Institution: ……

Name of Programme: ……

Trainer's Name	Qualification	Subject

Notes to tenderer:

1. **Provide details here, or attach hereto, the subjects to be covered and the manner in which the training is to be delivered.**
2. **Provision should also include on-job student / in-service training for the duration of the construction at a stipend of R4 500.00 per month.**
3. **Students in the electrical protection field are preferred.**

SIGNED ON BEHALF OF THE TENDERER……

POLOKWANE MUNICIPALITY

T2.1 List of Returnable Documents

The bidder must complete the following returnable documents:

1. Returnable Schedules required only for tender evaluation purposes

A. Certificate of Authority of Signatory
B. Certificate of Registration with the Construction Industry Development Board
C. Certificate of authority for joint ventures (where applicable)
D. Compulsory Enterprise Questionnaire
E. Record of Addenda to Tender Documents
F. Proposed Amendments and Qualifications
G. Form of Intent to Provide a Demand Guarantee
H. Schedule of Subcontractors
I. Schedule of Available Infrastructure, Resources and Experience
J. Financial Information of the Bidder
K. Certificate for Municipal Services and Payments: Annexure B
L. Authorisation for deduction of outstanding amounts owed to Municipality: Annexure C
M. Declaration of Bidder's Past Supply Chain Management Practices: MBD 8
N. Declaration of interest: MBD 4
O. Declaration for procurement above R10 Million: MBD 5
P. Declaration certificate for local production and content: MBD 6.2
Q. National industrial participation programme: SBD 5
R. Certificate of the Independent Bid Determination: MBD 9
S. Compliance with OHSA (Act 85 of 1993)
T. Original Bank rating letter not older than 30 days and related to the project.
U. Proof of an accredited person, registered and certified as an installation electrician MUST be attached.

2. Other documents required only for bid evaluation purposes

- Compensation Fund Registration Certificate
- Curricula Vitae of Personnel
- Rates of Labour and Materials (Day work Rates)
- A valid CSD number to be provided.
- Schedule of Labour Content
- Employment of ABE'S
- ABE Declaration Affidavit
- Generic Training
- Complete MBD 5 where the bid amount inclusive of VAT exceeds R 10 million
- Complete and signed Declaration of Interest (MBD 4)

3. Other documents that will be incorporated into the contract

3.1 The offer portion of the C1.1 Offer and Acceptance

3.2 C1.2 Contract Data (Part 2)

3.3 C2.2 Bills of Quantity

T2.2 RETURNABLE SCHEDULES

Certificate of Authority of Signatory

Indicate the status of the Bidder by ticking the appropriate box hereunder. The Bidder must complete the certificate set out below for the relevant category.

A	Company	
B	Partnership	
C	Joint Venture	
D	Sole Proprietor	
E	Close Corporation	

A. Certificate for company

I, ……., chairperson of the board of directors of ……

……, hereby confirm that by resolution of the board (copy

attached) taken on ……. 20……, Mr./Ms. ……,

acting in the capacity of ……., was authorized to sign all documents in connection with this tender and any contract resulting from it on behalf of the company.

As witnesses:

1. .....
.....
Chairman

.....
Print Name

.....
Print Name

2. .....
.....
Date

.....
Print Name

B. Certificate of partnership

We, the undersigned, being the key partners in the business trading as ……

....., hereby authorize Mr./Ms. ……, acting in

the capacity of ……..., to sign all documents in connection with

the tender for Contract ……..., and any contract resulting from it on our behalf.

Name	Address	Signature	Date

NOTE: This certificate is to be completed and **signed by each and all of the key partners** upon whom rests the direction of the affairs of the Partnership as a whole.

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize

Mr/Ms …….., authorized signatory of the firm .....

....., acting in the capacity of lead partner, to sign all documents in

connection with the tender offer for Contract …… and any contract resulting from it on our behalf.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the partners to the Joint Venture.

Name of Firm	Address	Authorizing	
		Signature	Name
Lead Partner			

D. Certificate for sole proprietor

I, ……, hereby confirm that I am the sole owner of the

business trading as ……...

As witnesses: -

1. …… ……
Signature: Sole Owner

…… ……
Print Name **Print Name**

2. …… ……
Date

……
Print Name

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as ……..

…… hereby authorize Mr/Ms ……., acting in

the capacity of ……, to sign all documents in connection with

the tender for Contract ……..…… and any contract resulting from it on our behalf.

Name	Address	Signature	Date

Note: This Certificate is to be completed and signed by each and all of the key members upon whom rests the direction of the affairs of the Close Corporation as a whole.

Certificate of Registration with the Construction Industry Development Board

1. <u>General</u>

The Register of Contractors is established by the Construction Industry Development Board in terms of the CIDB Act 38 of 2000 and Construction Industry Development Regulations as published in Government Gazette number 26427 of 2004.

The Act makes it mandatory for public sector clients to apply this register when considering tenders. Any enterprise that submits a tender or enters into contract for construction works with the public sector, must be registered.

Once-off joint ventures do not have to register, provided that each partner of the joint venture is separately registered.

2. Status

Bidders shall fill in the following sections of this form, depending on their status:

2.1 Section A

Bidders who have accomplished registration and can provide proof of their grading designation.

2.2 Section B

Bidders who are in the process of registration of an update to an existing registration or a renewal.

2.3 Section C

Bidders who have submitted the first application.

2.4 Section D

Bidders submitting this Tender offer in Joint Venture and can provide proof that each partner of the Joint Venture is separately registered.

Note: Only complete <u>one</u> of Sections A, B, C or D.

SECTION A							
I, …….. Acting in capacity of ……							
was authorized to sign all documents in connection with this tender an any contract resulting from it on							
behalf of the following entity: ……..							
hereby declare that the above mentioned entity has achieved registration with the Construction							
Industry Development Board on date …… and declare that the grading							
designation is reflected in the following **symbols** on the registration certificate.							
		Contract Value					
		Type of Work					
……..					……..		
Signature of Bidder					Signature of Witness		
……..					……..		
Print Name					Print Name		

SECTION B

I, …….. acting in capacity of …… was authorised to sign all documents in connection with this tender an any contract resulting from it on

behalf of the following entity: ……. hereby declare that the above mentioned entity has achieved registration with the Construction Industry Development Board on date ……., furthermore declare that the existing grading designation is:

Contract Value		
Type of Work		

and the following update has been applied for:

Amendment of category status		mark with "❄"
Change of Particulars		
Annual confirmation of Particulars		
Renewal of Registration		

…….. ……..

Signature of Tenderer Signature of Witness

…….. ……..

Print Name Print Name

SECTION C

I, …… acting in capacity of ……
was authorised to sign all documents in connection with this tender an any contract resulting from it on

behalf of the following entity: …….
hereby declare that the above mentioned entity has submitted its FIRST APPLICATION FOR REGISTRATION with the Contraction Industry Development board on date ……..

I furthermore accept that failure to achieve registration with the Construction Industry Development Board in a category stipulated in the Tender Data within 10 days from the date of closing this tender, implies a non-responsive tender and warrants rejection of the Tender on account of non-compliance with the requirements of the Tender Data.

……..	……..
Signature of Tenderer	Signature of Witness
……..	……..
Print Name	Print Name

SECTION D

I, ……. acting in capacity of the LEAD PARTNER in the Joint Venture

……..

was authorised to sign all documents in connection with this tender and any contract resulting from it, hereby declare that each partner of the Joint Venture is separately registered with the Construction Industry Development Board and declare that the grading designation is reflected in the following **symbols** on the registration certificates:

Name of Lead Partner:		
Contract Value		
Type of Work		

Name of 2nd Partner:		
Contract Value		
Type of Work		

Name of 3rd Partner:		
Contract Value		
Type of Work		

…….. ……..

Signature of Tenderer Signature of Witness

…….. ……..

Print Name Print Name

Certificate of Authority for Joint Ventures (Where applicable)

Employer: ……

Contract Number: ……

NOTE 1 This form need only be completed in the event of a Joint Venture submitting this tender.

NOTE 2 Fill in all the information requested in the spaces provided. Attach additional sheets if required.

NOTE 3 Provide a copy of the Joint Venture agreement. Demonstrate that the partners to the Joint Venture share in the ownership, control, management responsibilities, risks and profits of the Joint Venture. The Joint Venture agreement shall include specific details relating to:

a) the contributions of capital and equipment;
b) portions of the Contract to be performed by the partner's own resources; and
c) portions of the Contract to be performed under the supervision of each partner.

NOTE 4 Provide copies of all written agreements between partners concerning the Joint Venture, including those that relate to ownership options and to restrictions/limits regarding ownership and control.

1. Joint Venture Particulars

Name ……...

Postal Address ……...

Physical Address ……

……...

Telephone ……...

Fax ……...

Name of authorized representative ……

2. Identity of Partner No. 1

Name ……....

Postal Address ……....

Physical Address ……....

……....

Telephone ……....

Fax ……....

Contact Person ……

3. Identity of Partner No. 2

Name ……...

Postal Address ……...

Physical Address ……

……...

Telephone ……...

Fax ……...

Contact Person ……

4. Identity of Partner No. 3

Name ……...

Postal Address ……...

Physical Address ……

……...

Telephone ……...

Fax ……...

Contact Person ……

5. Description of the role of the partners in the joint venture

Partner No. 1: ……...

……

Partner No. 2: ……...

……

Partner No. 3: ……...

……

6. Ownership of the joint venture

(i) Ownership percentage(s) Partner No. 1 …….. %

Partner No. 2 …….. %

Partner No. 3 …….. %

(ii) Partner percentage in respect of:
a) Profit and loss sharing: Partner No. 1 ……...%

Partner No. 2 …….. %

Partner No. 3 …….. %

b) Initial capital contribution Partner No. 1 R……..

Partner No. 2 R…….

Partner No. 3 R…….

(iii) Anticipated ongoing capital contributions:

Partner No. 1 R.....

Partner No. 2 R.....

Partner No. 3 R.....

(iv) Contributions of equipment (specify types, quality and quantities of equipment) to be provided by each partner:

Partner No. 1 …….

……

Partner No. 2 …….

……

Partner No. 3 …….

……

7. Recent contracts performed by partners in their own right or as partners in other joint ventures

a) Partner No. 1

(i) ……..

(ii) ……...

(iii) ……...

(iv) ……...

(v) ……...

b) Partner No. 2

(i) ……...

(ii) ……..

(iii) ……...

(iv) ……...

(v) ……...

c) Partner No. 3

(i) ……...

(ii) ……...

(iii) ……...

(iv) ……...

(v) ……...

8. Control and participation in the joint venture

(Identify by name and firm those individuals who are, or will be, responsible for, and have authority to engage in the relevant management functions and policy and decision making, indicating any limitations in their authority, for example, co-signature requirements and monetary limits).

a) Joint Venture cheque signing

……

……

……

b) Authority to enter into contracts on behalf of the Joint Venture

……

……

……

c) Signing, co-signing or collateralizing of loans

……

……

……

d) Acquisition of lines of credit

……

……
……

e) Acquisition of demand bonds

……

……

……

f) Negotiating and signing of labour agreements

……

……

……

9. Management of the performance of the Contract
(Fill in the name and firm of the responsible person)

a) Supervision of field operations ……

……

b) Major purchasing ……..

……

c) Estimating ……

……

d) Technical management ……

……

10. Management and control of the joint venture

a) Identify the managing partner

……

……

……

b) What authority does each partner have to commit or obligate the other to financial institutions, insurance companies, suppliers, subcontractors or other parties participating in the performance of the contemplated works:

Partner No. 1: ……

……

Partner No. 2: ……

……

Partner No. 3: ……

……

c) Describe the management structure for the joint venture's work under this Contract

Management Function/Designation	Name	Partner

11. Personnel

a) State the approximate number of operative personnel (by trade/function/discipline) needed to execute the Joint Venture contract.

Trade/function/discipline	Number

b) State the number of operative personnel to be employed on the Contract who are currently in the employ of partners:

……

c) State the number of operative personnel who are not currently in the employ of the respective partners and shall be engaged on the project by the Joint Venture:

……

d) State the name of the individual who shall be responsible for hiring Joint Venture employees:

……

e) State the name of the partner who shall be responsible for the preparation of Joint Venture payrolls:

……..……

……..

12. Services

List the firms who provide the following services:

Service	Name	Contact Person	Telephone No.
Accounting			
Auditing			
Banking			
Insurance			
Legal			

13. Control and structure of the Joint Venture

Briefly describe the manner in which the Joint Venture is structured and controlled.

……

……

……

The undersigned warrants that he/she is duly authorized to sign this Joint Venture disclosure form and affirms that the foregoing statements are correct and include all the material information necessary to identify and explain the terms and operations of the Joint Venture and the intended participation of each partner in the undertaking.

The undersigned further covenants and agrees to provide the Employer with complete and accurate information regarding actual joint venture work and the payment therefore, and any proposed changes in any provisions of the Joint Venture Agreement, and to permit the audit and examination of the books, records and files of the Joint Venture, or those of each partner relevant to the Joint Venture, by duly authorized representatives of the Employer.

Duly authorized to sign on behalf of: …….

…… (**the Joint Venture**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Telephone: .....

Date: .....

Duly authorized to sign on behalf of: ……

…….. (**Partner No. 1**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Telephone: .....

Date: .....

Duly authorized to sign on behalf of: ……

……..…… (**Partner No. 2**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Telephone: .....

Date: .....

Duly authorized to sign on behalf of: ……

……. (**Partner No. 3**)

Signature: ..... Print Name: .....

Name: .....

Address: .....

.....

Telephone: .....

Date: .....

Compulsory Enterprise Questionnaire

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

Section 1: Name of enterprise: . . . .

Section 2: VAT registration number, if any: . .. .

Section 3: CIDB registration number, if any: . . . . . .

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

***** Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number . . . . . .

Close corporation number . . . . . .

Tax reference number . . . . . .

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

- ☐ a member of any municipal council
- ☐ a member of any provincial legislature
- ☐ a member of the National Assembly or the National Council of Province
- ☐ a member of the board of directors of any municipal entity
- ☐ an official of any municipality or municipal entity
- ☐ 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)
- ☐ a member of an accounting authority of any national or provincial public entity
- ☐ an employee of Parliament or a provincial legislature

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

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

□ a member of any municipal council □ a member of any provincial legislature □ a member of the National Assembly or the National Council of Province □ a member of the board of directors of any municipal entity □ an official of any municipality or municipal entity	□ 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) □ a member of an accounting authority of any national or provincial public entity □ an employee of Parliament or a provincial legislature

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

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

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed		Date	
Name		Position	
Enterprise name			

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:

	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Attach additional pages if more space is required.

Signed		Date	
Name		Position	
Bidder			

Form of Intent to Provide a Demand Guarantee

If my/our tender is accepted, I/we will, when required and within the time stipulated, provide a guarantee of

(*) Insurance Company (name) ……...

(of address) …….

…….

(*) Commercial Bank (Name) ……...

(Branch) ……...

(of address) …….

……

to be approved by you, the Employer, for the amount stipulated.

(*) : delete whichever is not applicable.

I/we understand that failure to produce an acceptable Demand Guarantee within the stipulated period is a fundamental breach of Contract, entitling the Employer to:

(i) withhold all payments which may be due to the Contractor pending compliance with the stipulated requirements to produce an acceptable Demand Guarantee.

(ii) instruct the Contractor to cease all work pending provision of the Demand Guarantee, and

(iii) cancel the Contract.

Signed	…….	Date	…….
Print Name	…….	Position	…….
Tenderer	…….		

Schedule of Proposed Subcontractors

We notify you that it is our intention to employ the following Subcontractors 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 proposed Subcontractors 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.

We confirm that all Subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	Name and address of proposed Subcontractor	**Nature and extent of work**	**Previous experience with Subcontractor.**
1.			
2.			
3.			
4.			
5.			

Signed		Date	
Name		Position	
Tenderer			

Schedule of Available Infrastructure, Resources and Experience

1. Bidder's List of Third Party Design Engineers

In the event that the Bidder desires to design all or part of the Works or submit any alternative, he/she shall list here-following, the Design Engineers, accomplished in the specific field of practice, which he/she proposes to employ for the purpose of third party certification of all works designed by the Bidder for the Works.

Notes: (i) All costs of third party designs shall be borne solely by the Bidder.
(ii) This Schedule must be accurately completed. Phrases such as "to be advised" will not be accepted.

Section of Works	Name and Address of Registered Engineer				ECSA Registration No.

2. Bidder's Personnel Profile

Key Staff Permanently employed, of foreman level and above	Number of staff
Sub-Total	
Other Permanent Staff	**Number of staff**
Sub-Total	
Temporary Staff	**Number of staff**
Sub-Total	

3. List the Firms who provide the following services:

Service	Name	Contact Person	Telephone
Accounting			
Auditing			
Insurance			
Legal			

4. Identify any amounts of money loaned to your enterprise, indicating the loan source, date and amount

Loan Source	Address	Date of Loan	Loan Amount

5. List a maximum of five contract which your enterprise is engaged in and has not yet completed

Contract Description	Location	Client	Contract Amount	Expected Completion (month & year)

6. List the four largest assignments completed by your enterprise in the last three years

Nature of Work Performed	Client	Consultant Contact Person	Telephone No.	Contract Amount

7. Address of workshop facilities from where maintenance of works will be undertaken

……

……

8. Address of Branch Offices in the RSA

……

……

9. Address of Nearest Representative to Polokwane

……

……

10. Has work previously been performed for the Employer? YES/NO* - Specify

……

……

11. Tenderer's Financial Ability to execute and complete the Works

Provide the estimated cash flow on the project in terms of submissions of payment certificates or payment schedules of the Employer

NOTES APPLICABLE:

(i) Value added tax to be included in all amounts.

(ii) Assume for the purpose of this estimate, payment of certificates within 30 days after receipt by the Employer.

(iii) In calculation of the last column,

j	=	d	m	=	l + g
k	=	j + e	n	=	m + h
l	=	k + f	etc.		

(iv) Failure to detail the required information shall automatically signify that the Bidder lacks the infrastructure and resources necessary to execute and complete the Works.

Month No. in Contract Period	Estimated amount in Rands (VAT included)			
	a Received	b Payments made	a-b Net cash flow	Cumulative cash flow
1	-		d	j
2			e	k
3			f	l
4			g	m
5			h	n
6			etc.	etc.
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
Maximum negative cash flow. Take the largest negative number in the last column and write in here → → → → →				

Signed	……..	Date	…….
Print Name	……..	Position	…….
Tenderer	……		

Financial Information of Bidder

This information sheet has to be filled in by the financier of the Bidder, duly signed and stamped on behalf of the financial institution he represents.

Bidder Details

Tender Description : …….

Contract Period : …….

Name of Bidder : ……..

Bank Account Number : …….

Tendered Amount : …….

Demand Guarantee will be provided by this Bank: YES □ NO □

If yes, state amount of Demand Guarantee: R ……

Financial Institution

Name of Commercial Bank : …….

Branch : …….

Name of Bank Manager : …….

Telephone Number : …….

I / We acting on behalf of the above Commercial Bank confirm that

…… (Bidder)

has operated an account with us for the last ..... years.

We have been requested to provide a bank rating based in relation to the financial capability of the Tenderer, taking into account directives set out in the following two tables.

Financial Capability	
Maximum value of contract that the Bidder is considered capable of	Value on which Bank Rating must be used
up to R300 000	R24 000
R1 000 000	R78 000
R3 000 000	R240 000
R5 000 000	R480 000
R10 000 000	R900 000
R30 000 000	R2 400 000
R100 000 000	R7 800 000

The value on which our Bank Rating of the Bidder is based is R……..

(In words …… only)

The Bank Rating is code: …….....

ANNEXURE: B

Certificate for Municipal Services and Payments

TO: MUNICIPAL MANAGER, POLOKWANE MUNICIPALITY

FROM: _____ (Name of Bidder)

FURTHER DETAILS OF BIDDER(S); DIRECTORS/SHAREHOLDERS/PARTNERS, ETC.

Directors/share holders/Partner	Physical address of the Business	Municipal Account No.	Physical residential address of the Director/ Shareholder/ Partner	Municipal Account No.

NB: Please attach certified copy of ID document(s)

_____ _____

Signatory **Date**

Witnesses

1. _____ _____ _____

Full Names **Signature** **Date**

2. _____ _____ _____

Full Names **Signature** **Date**

ANNEXURE: C

Authorization for Deduction of Outstanding Amounts Owed to Council

TO: MUNICIPAL MANAGER, POLOKWANE MUNICIPALITY

FROM: _____ (Name of the Bidder or Consortium)

I, _____ the undersigned, hereby authorize the Polokwane Municipality to deduct the full amount outstanding by the business organization/Director/Shareholder/Partner, etc. from any payment due by us/me.

Signed at _____ Date_____ Month _____ 20_____

Print Name: _____

Signature: _____

Thus done and signed for and on behalf of the bidder/Contractor

_____ _____
Signatory **Date**

Witnesses

1. _____ _____ _____
Full Names **Signature** **Date**

2. _____ _____ _____
Full Names **Signature** **Date**

MBD 8

Declaration of Bidder's Past Supply Chain Management Practices

1. This Municipal Bidding Document must form part of all bids invited.
2. It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are to combat the abuse of the supply chain management system.
3. **The of any bidder may be rejected if the bidder, or any of its directors have:**
   a) Abused the Municipality's Supply Chain Management System or committed any improper conduct in relation to such system:
   b) Been convicted for fraud or corruption during the past five years:
   c) Wilfully neglected, reneged or failed to comply with any government, municipal or public sector contract during the past five years; or
   d) Been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corruption Activities Act (No 12 of 2004).
4. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

ITEM	▪ QUESTION	YES	NO
4.1	Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? **(Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the audi alteram partem rule was applied).**		
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corruption Activities Act (No 12 of 2004)? **(To access this Register enter the National Treasury's website www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012 326 5445).**		
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?		
4.3.1	If so, furnish particulars:		
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality/municipal entity, or any other municipality/municipal entity, that is in arrears for more than three months?		
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality/municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?		
4.5.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME) _____
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TO BE TRUE AND CORRECT.

I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

_____	_____
Signature	**Date**
_____	_____
Position	**Name of Bidder**

ANNEXURE C

MBD 4

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state[1].

2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorized representative declare their position in relation to the evaluating/adjudicating authority.

3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full Name of bidder or his or her representative: ……..

3.2 Identity Number: ……

3.3 Position occupied in the Company (director, trustee, shareholder): ……..……..…..

3.4 Company Registration Number: ……..…….

3.5 Tax Reference Number: ……

3.6 VAT Registration Number: ……...……

3.7 The names of all directors / trustees / shareholders members, their individual identity Numbers and state employee numbers must be indicated in paragraph 4 below.

3.8 Are you presently in the service of the state? …….. **YES / NO**

3.8.1 If yes, furnish particulars: ……

……..…….

[1]MSCM Regulations: "in the service of the state" means to be –

(a) a member of –
  (i) any municipal council;
  (ii) any provincial legislature; or
  (iii) the national Assembly or the national Council of provinces;
(b) a member of the board of directors of any municipal entity;
(c) an official of any municipality or municipal entity;
(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
(e) a member of the accounting authority of any national or provincial public entity; or
(f) an employee of Parliament or a provincial legislature.

²Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

3.9 Have you been in the service of the state for the past twelve months? ……**YES / NO**

3.9.1 If yes, furnish particulars: ……..……..

……..……

3.10 Do you have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?…….....……**YES / NO**

3.10.1 If yes, furnish particulars: ……

……..……

3.11 Are you, aware of any relationship (family, friend, other) between any other bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid? .....**YES / NO**

3.11.1 If yes, furnish particulars: ……

.....……..…….....

3.12 Are any of the company's directors, trustees, managers, Principle shareholders or stakeholders in service of the state? .....**YES / NO**

3.12.1 If yes, furnish particulars: …….

…….....……

3.13 Are any spouse, child or parent of the company's director's trustees, managers, principle shareholders or stakeholders in service of the state? .....**YES / NO**

3.13.1 If yes, furnish particulars: .....…….…….

.....……

3.14 Do you or any of the directors, trustees, managers, principle shareholders, or stakeholders of this company have any interest in any other related companies or business whether or not they are bidding for this contract? .....**YES / NO**

3.14.1 If yes, furnish particulars: ..……..

.....……..

4. Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	State Employee Number

…….. ……..
Signature **Date**

……. …….
Capacity **Name of Bidder**

This document must be signed and submitted together with your bid

THE NATIONAL INDUSTRIAL PARTICIPATION PROGRAMME

INTRODUCTION

The National Industrial Participation (NIP) Programme, which is applicable to all government procurement contracts that have an imported content, became effective on the 1 September 1996. The NIP policy and guidelines were fully endorsed by Cabinet on 30 April 1997. In terms of the Cabinet decision, all state and parastatal purchases / lease contracts (for goods, works and services) entered into after this date, are subject to the NIP requirements. NIP is obligatory and therefore must be complied with. The Industrial Participation Secretariat (IPS) of the Department of Trade and Industry (DTI) is charged with the responsibility of administering the programme.

1 PILLARS OF THE PROGRAMME

1.1 The NIP obligation is benchmarked on the imported content of the contract. Any contract having an imported content equal to or exceeding US$ 10 million or other currency equivalent to US$ 10 million will have a NIP obligation. This threshold of US$ 10 million can be reached as follows:

(a) Any single contract with imported content exceeding US$10 million. or
(b) Multiple contracts for the same goods, works or services each with imported content exceeding US$3 million awarded to one seller over a 2-year period which in total exceeds US$10 million. or
(c) A contract with a renewable option clause, where should the option be exercised the total value of the imported content will exceed US$10 million. or
(d) Multiple suppliers of the same goods, works or services under the same contract, where the value of the imported content of each allocation is equal to or exceeds US$ 3 million worth of goods, works or services to the same government institution, which in total over a two (2) year period exceeds US$10 million.

1.2 The NIP obligation applicable to suppliers in respect of sub-paragraphs 1.1 (a) to 1.1 (c) above will amount to 30 % of the imported content whilst suppliers in respect of paragraph 1.1 (d) shall incur 30% of the total NIP obligation on a *pro-rata* basis.

1.3 To satisfy the NIP obligation, the DTI would negotiate and conclude agreements such as investments, joint ventures, sub-contracting, licensee production, export promotion, sourcing arrangements and research and development (R&D) with partners or suppliers

A period of seven years has been identified as the time frame within which to discharge the obligation

2 REQUIREMENTS OF THE DEPARTMENT OF TRADE AND INDUSTRY

2.1 In order to ensure effective implementation of the programme, successful bidders (contractors) are required to, immediately after the award of a contract that is in excess of **R10 million** (ten million Rands), submit details of such a contract to the DTI for reporting purposes.

2.2 The purpose for reporting details of contracts in excess of the amount of R10 million (ten million Rands) is to cater for multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as provided for in paragraphs 1.1.(b) to 1.1. (d) above.

4. BID SUBMISSIONS AND CONTRACT REPORTING REQUIREMENTS OF BIDDERS AND SUCCESSFUL BIDDERS (CONTRACTORS)

4.1 Bidders are required to sign and submit this Standard Bidding Document (SBD 5) together with the bid on the closing date and time.

3.2 In order to accommodate multiple contracts for the same goods, works or services; renewable contracts and multiple suppliers for the same goods, works or services under the same contract as indicated in sub-paragraphs 1.1 (b) to 1.1 (d) above and to enable the DTI in determining the NIP obligation, successful bidders (contractors) are required, immediately after being officially notified about any successful bid with a value in excess of R10 million (ten million Rands), to contact and furnish the **DTI with the following information**:

- Bid / contract number.
- Description of the goods, works or services.
- Date on which the contract was accepted.
- Name, address and contact details of the government institution.
- Value of the contract.
- Imported content of the contract, if possible.

3.3 The information required in paragraph 3.2 above must be sent to the Department of Trade and Industry, Private Bag X 84, Pretoria, 0001 for the attention of Mr Elias Malapane within five (5) working days after award of the contract. Mr Malapane may be contacted on telephone (012) 394 1401, facsimile (012) 394 2401 or e-mail at Elias@thedti.gov.za for further details about the programme.

4 PROCESSES TO SATISFY THE NIP OBLIGATION

4.1 Once the successful bidder (contractor) has made contact with and furnished the DTI with the information required, the following steps will be followed:

a. the contractor and the DTI will determine the NIP obligation;
b. the contractor and the DTI will sign the NIP obligation agreement;
c. the contractor will submit a performance guarantee to the DTI;
d. the contractor will submit a business concept for consideration and approval by the DTI;
e. upon approval of the business concept by the DTI, the contractor will submit detailed business plans outlining the business concepts;
f. the contractor will implement the business plans; and
g. the contractor will submit bi-annual progress reports on approved plans to the DTI.

4.2 The NIP obligation agreement is between the DTI and the successful bidder (contractor) and, therefore, does not involve the purchasing institution

Bid number …….. Closing date:……

Name of bidder……

Postal address ……

……

Signature…….. Name (in print)……..

Date……

MBD 5

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED

For all procurement expected to exceed R10 million (all applicable taxes included), bidders must complete the following questionnaire

1 Are you by law required to prepare annual financial statements for auditing?

1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

……

……

3 Do you have any outstanding undisputed commitments for municipal services towards any Municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?

2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards any municipality for more than three months or other service provider in respect of which payment is overdue for more than 30 days.

2.2 If yes, provide particulars.

……

……

……

……

* Delete if not applicable

3 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

YES / NO

3.1 If yes, furnish particulars

……

……

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity are expected to be transferred out of the Republic?

YES / NO

4.1 If yes, furnish particulars

……..

……

CERTIFICATION

I, THE UNDERSIGNED (NAME) …… CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....	**…….....**
Signature	**Date**
.....	**…….....**
Position	**Name**

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:201x.

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 9. (1) and 9. (3) make provision for the promotion of local production and content.

1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Regulation 9.(3) prescribes that where there is no designated sector, a specific bidding condition may be included, that only locally produced services, works or goods or locally manufactured goods with a stipulated minimum threshold for local production and content, will be considered.

1.4. Where necessary, for bids referred to in paragraphs 1.2 and 1.3 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.5. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.6. The local content (LC) as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 201x as follows:

$$LC = 1 - \left(\frac{x}{y}\right) \times 100$$

Where
x imported content
y bid price excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid as required in paragraph 4.1 below.

1.7. A bid will be disqualified if:

- The bidder fails to achieve the stipulated minimum threshold for local production and content indicated in paragraph 3 below; and this declaration certificate is not submitted as part of the bid documentation.

2. Definitions

2.1. **"bid"** includes advertised competitive bids, written price quotations or proposals;

2.2. **"bid price"** price offered by the bidder, excluding value added tax (VAT);

2.3. **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.4. **"designated sector"** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;

2.5. **"Duly sign** "means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility (close corporation, partnership or individual).

2.6. **"imported content"** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;

2.7. **"local content"** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;

2.8. **"stipulated minimum threshold"** means that portion of local production and content as determined by the Department of Trade and Industry; and

2.9. **"Sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
_____	_____%
_____	_____%
_____	_____%

4. Does any portion of the services, works or goods offered have any imported content?

YES / NO

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.6 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za.

Indicate the rate(s) of exchange against the appropriate currency in the table below:

Currency	**Rates of exchange**
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID No. .....

ISSUED BY: (Procurement Authority / Name of Municipality / Municipal Entity):
.....

NB The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

I, the undersigned, ……..... (full names),

do hereby declare, in my capacity as ……..……..

of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286.

(c) The local content has been calculated using the formula given in clause 3 of SATS 1286, the rates of exchange indicated in paragraph 4.1 above and the following figures:

Bid price, excluding VAT (y)	R
Imported content (x)	R
Stipulated minimum threshold for Local content (paragraph 3 above)	
Local content % as calculated in terms of SATS 1286	

If the bid is for more than one product, a schedule of the local content by product shall be attached.

(d) I accept that the Procurement Authority / Municipality / Municipal Entity have the right to request that the local content be verified in terms of the requirements of SATS 1286.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286, may result in the Procurement Authority / Municipal / Municipal Entity imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2017 promulgated under the Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

CERTIFICATE OF INDEPENDENT BID DETERMINATION

1 This Municipal Bidding Document (MBD) must form part of all bids[1] invited.

2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).[2] Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.

3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:

a. take all reasonable steps to prevent such abuse;

b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and

c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.

4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.

5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

[1] Includes price quotations, advertised competitive bids, limited bids and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

in response to the invitation for the bid made by:

_____

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

    (a) has been requested to submit a bid in response to this bid invitation;
    (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
    (a) prices;
    (b) geographical area where product or service will be rendered (market allocation)
    (c) methods, factors or formulas used to calculate prices;
    (d) the intention or decision to submit or not to submit, a bid;
    (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
    (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

[3] Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

…… ……

Signature **Date**

…… ……

Position **Name of Bidder**

Compliance with OHSA (Act 85 of 1993)

Bidders are required to satisfy the Employer and the Engineer as to their ability and available resources to comply with the above by answering the following questions and providing the relevant information required below.

1. Is the Contractor familiar with the OHSA (ACT 85 of 1993) and its Regulations?		**YES**	**/**	**NO**
2. Who will prepare the Contractor's Health and Safety Plan? (Provide a copy of the person/s curriculum vitae/s or company profile).				
3. Does the Contractor have a health and safety policy? (If yes, provide a copy). How is this policy communicated to all employees?		**YES**	**/**	**NO**
4. Does the Contractor keep records of safety aspects of each construction site? If yes, what records are kept?		**YES**	**/**	**NO**
5. Does the Contractor conduct monthly safety meetings? If yes, who is the chairperson of the meeting, and who attend these meetings?		**YES**	**/**	**NO**
6. Does the Contractor have a safety officer in his employment, responsible for the overall safety of his company? If yes, please explain his duties and provide a copy of his CV.		**YES**	**/**	**NO**
7. Does the Contractor have trained first aid employees? If yes, indicate, who.		**YES**	**/**	**NO**
8. Does the Contractor have a safety induction-training programme in place? (If yes, provide a copy)		**YES**	**/**	**NO**

Signature of Bidder: ……

Date: ……

Day work Schedule

This Day work Schedule shall be used for the valuation of any additional or substituted work which cannot conveniently be valued at the rates and prices submitted in the schedule of quantities.

In respect of labour and materials used in the additional or substituted work not covered in the Day work Schedule the Contractor shall be paid the actual cost plus the percentage allowance stated in the schedule of quantities.

The Tenderer shall quote hereunder rates which shall apply for payment purposes if the Engineer orders additional or substituted work to be carried out on a day work basis and shall therefore be in accordance with the requirements of clause 37(2) of the General Conditions of Contract.

1. LABOUR AND MATERIALS

Rates and prices entered in the schedule shall be held to allow for net cost of labour and materials delivered to site respectively with the percentage allowances stated in the schedule of quantities.

2. PLANT AND EQUIPMENT

The Tenderers shall list all major items of plant and equipment to be used on the works and which may be required for use on day works. The proposed hire rates of these items shall be entered against each type of machine, such rates to include for all relevant costs of plant hire inclusive of fuels and lubricants but exclusive of labour charges for the operators, which will be paid for under sub-clause (1) above.

The rates for plant items not listed in the schedule will be the ruling plant hire rates, inclusive of fuels and lubricants but exclusive of labour charges for the operators, inclusive of a 7,5% handling charge. It is therefore in the Tenderers interest to ensure that the list is complete.

Should there be insufficient space on the pages provided; the Bidder shall add further pages as required.

THE RATES FOR THE PLANT AND EQUIPMENT MENTIONED IN THE SCHEDULE SHALL BE FILLED IN FOR THE ITEMS REQUESTED. SHOULD AN ITEM BE OMITTED IT SHALL BE DEEMED TO HAVE BEEN INCLUDED IN THE OTHER DAYWORKS RATES.

A. LABOUR

DESIGNATION		RATE	
		R	C
Artisans	per hour		
Artisan Aid	per hour		
Plant Operators	per hour		
Truck Drivers	per hour		
Labour - unskilled	per hour		
- semi-skilled	per hour		
- skilled	per hour		

B. MATERIALS

DESIGNATION		RATE	
		R	C

C. TRANSPORT

DESIGNATION	RATE	
	R	C
LDV / kilometer		

D. PLANT AND EQUIPMENT

ITEM	DESCRIPTION	NON WORKING RATE*		OPERATING RATE		PER
		R	c	R	C	UNIT
	LDV					

*Only applicable on authority of the Engineer

BID NUMBER: **PM32-24/25**
BID DESRIPTION: **UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM**

PART C1: AGREEMENTS AND CONTRACT DATA

C1.1: FORM OF OFFER AND ACCEPTANCE

C1.2: CONTRACT DATA

C1.3: FORM FOR PERFORMANCE GUARANTEE

C1.4: FORM FOR RETENTION MONEY GUARANTEE

C1.5: AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT No 85 OF 1993

C1.6: FORM FOR ADJUDICATORS AGREEMENT

BID NUMBER: PM32-24/25
BID DESRIPTION: UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM

C1.1 Form of Offer and Acceptance

Offer

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract for the procurement of construction works viz.:

Project Description: UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM

Contract Number: PM32-24/25
The Bidder, 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 Bidder, deemed to be duly authorized, signing this part of this Form of Offer and Acceptance, the Bidder 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

……

……. (amount in words);

R…….. (amount in figures)

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Bidder before the end of the period of validity stated in the Tender Data, whereupon the Bidder becomes the party named as the Contractor in terms of the Conditions of Contract identified in the Contract Data.

Signature(s) ....

Print Name(s) ....

Capacity ....

For the Tenderer .....

…..
(Name and address of Tenderer Organization)

Signature of witness ..... Date: ……..…..

Print Name .....

Important Note

This page to be duly completed by the Bidder before submitting the Tender.

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer accepts the Bidder'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 Bidder's Offer shall form an agreement between the Employer and the Bidder 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 1 : Agreements and Contract Data (which include this Agreement)

Part 2 : Pricing Data

Part 3 : Scope of Work

Part 4 : Site Information

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

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto, as listed in the Tender Schedules, as well as any changes to the terms of the Offer agreed by the Bidder 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 shall be signed by the authorized representative(s) of both parties.

The Bidder shall, within 7 days 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 guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of the 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 Bidder receives one fully completed copy of this original document, including the Schedule of Deviations (if any). Such date should be confirmed in a manner that c and b read, copied and recorded and shall be accepted by the contracting parties as the Commencement Date. This agreement shall constitute a binding contract between the parties.

Signature(s) .....

Print Name(s) .....

Capacity .....

For the Tenderer .....

.....
(Name and address of Employer Organization)

Signature of witness ..... Date: ……..…..

Print Name .....

SCHEDULE OF DEVIATIONS

The extent of deviations from the tender documents issued by the Employer before the tender closing date is limited to those permitted in terms of the Conditions of Tender.

A bidder's covering letter shall not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, be the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.

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.

Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final Contract Document.

3.1 Subject ……...

Details ……...

3.2 Subject ……...

Details ……...

3.3 Subject ……...

Details .....

By the duly authorized representatives signing this Schedule of Deviations, the Employer and the Contractor agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Contractor and the Employer in concluding this process of offer and acceptance; in witness thereof the parties hereto have caused this agreement to be executed. 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 Contractor of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

Signed by:	.....	Signed by:	.....
Print Name:	.....	Print Name:	.....
Address:	.....	Address:	.....
for and on behalf of the **Employer** in the presence of		For and on behalf of the **Contractor** in the presence of	
Witness:	.....	Witness:	.....
Print Name:	.....	Print Name:	.....
Date:	.....	Date:	.....

POLOKWANE MUNICIPALITY

BID NUMBER: **PM32-24/25**
BID DESRIPTION: **UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM**

C.1.2 Contract Data

CONTENTS

C.1.2.1 Part 1: Data provided by the Employer

C.1.2.1.1 Conditions of Contract

C.1.2.1.2 Contract-specific Data

C.1.2.1.2.1 Compulsory Data

C.1.2.1.2.2 Variations to the General Conditions of Contract

C.1.2.1.2.3 Additional clauses to the General Conditions of Contract

C.1.2.1 Part 1: Data provided by the Employer

C.1.2.1.1 Conditions of Contract

The Conditions of Contract are:

- the "General Conditions of Contract" as they appear in the commercially-available publication "General Conditions of Contract for Construction Works, Third Edition, 2015", hereinafter referred to as "GCC 2015"; and

- specific data as contained in this Contract Data.

Each party to the Contract shall purchase its own copy of the GCC 2015 that applies to this Contract, available from its publisher:

South African Institution of Civil Engineering
Private Bag X200
Halfway House
1685
South Africa

Tel +27 (0)11 805 5947

The following Notes apply:

Note 1

The GCC 2015 makes several references to the Contract Data.

Each item of data below is cross-referenced to the clause in the Conditions of Contract to which it applies. Notwithstanding anything specified to the contrary, the Contract Data shall take precedence in the interpretation of any ambiguity or inconsistency between it and the GCC 2015.

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purpose of interpretation, the priority of the documents shall be in accordance with the following order of precedence:

(a) the Form of Offer and Acceptance.
(b) amendments to the General Conditions of Contract within the Contract Data.
(c) additional conditions to the General Conditions of Contract within the Contract Data.
(d) corrigenda to the General Conditions of Contract.
(e) the General Conditions of Contract.
(f) the Specifications, Drawings, Schedules and other documents forming part of the Contract (in that order) contained in the Scope of Work and the Site Information.

If any ambiguity or discrepancy is found in the documents, the Engineer needs to be contacted to issue any necessary clarification or instruction.

Note 2

Certain pro-forma forms and pro-forma agreements contained in the GCC 2015 have been adapted for this particular contract. Those pro-forma forms and pro-forma agreements contained in the GCC 2015 do not apply where replaced by similar pro-forma forms and pro-forma agreements in this document.

C.1.2.1.2 Contract-specific Data

The following contract-specific data, referring to the General Conditions of Contract, are applicable to this Contract:

C.1.2.1.2.1 Compulsory Data

Clause	Data
1.1.1.13	The Defects Liability Period is **12 months**
1.1.1.14	The time for achieving Practical Completion is **09 months**
1.1.1.15	The name of the Employer is Polokwane Municipality
1.1.1.26	The Pricing Strategy of a Re-measurement Contract shall apply
1.2.1.2	The address of the Employer is: Physical address: Civic Centre Landdros Mare Street Polokwane City Postal address: PO Box 111 Polokwane 0700 e-mail address: GerrieC@polokwane.gov.za Contact numbers: Corporate: 015 290 2386 Direct: 083 672 4422
1.1.1.16	The name of the Employer's Agent is: **Volt Consulting Engineers**
1.2.1.2	The address of the Employer's Agent is: **Physical address:** Suite 13 Ficus Park 15 Pierre Street Bendor Polokwane 0699 **Postal Address:** P.O. Box 11365 Bendor Park Polokwane 0713 E-mail: info@voltconsulting.co.za Contact numbers: Corporate: 015 296 0245 Fax: 086 545 1820

<table>
<tr><th>Clause</th><th>Data</th></tr>
<tr><td>3.1.3</td><td>The Engineer shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following table:
<table>
<tr><th>GCC Clause No</th><th>Description</th><th>Requires EWA*</th><th>Delegated to ER*</th></tr>
<tr><td>3.2.1</td><td>Employer’s Agent Representative's appointment and termination</td><td>Y</td><td></td></tr>
<tr><td>3.2.4</td><td>Employer’s Agent Representative acting on Employer’s Agent behalf</td><td>Y</td><td></td></tr>
<tr><td>4.5.4</td><td>Payment for notices and fees</td><td>Y</td><td></td></tr>
<tr><td>4.7.1</td><td>Fossils, etc. on Site</td><td>Y</td><td></td></tr>
<tr><td>5.7.2</td><td>Work at night</td><td>Y</td><td></td></tr>
<tr><td>5.7.3</td><td>Acceleration of rate of progress</td><td>Y</td><td></td></tr>
<tr><td>5.7.3</td><td>Payment for acceleration</td><td>Y</td><td></td></tr>
<tr><td>5.9.1</td><td>Instructions and drawings on Commencement Date</td><td></td><td>Y</td></tr>
<tr><td>5.11.1</td><td>Suspension of the Works</td><td></td><td>Y</td></tr>
<tr><td>5.11.3</td><td>Proceeding with Works after suspension</td><td>Y</td><td></td></tr>
<tr><td>5.12.4</td><td>Acceleration instead of extension of time</td><td>Y</td><td></td></tr>
<tr><td>5.13.2</td><td>Reduction of penalty</td><td></td><td>Y</td></tr>
<tr><td>6.3.1</td><td>Variation orders</td><td>Y</td><td></td></tr>
</table>
</td></tr>
<tr><td></td><td>
<table>
<tr><th>GCC Clause No</th><th>Description</th><th>Requires EWA*</th><th>Delegated to ER*</th></tr>
<tr><td>6.3.2.1</td><td>Confirmation of a Variation Order</td><td>Y</td><td></td></tr>
<tr><td>6.4.1.4</td><td>Day-works as a Variation Order</td><td>Y</td><td></td></tr>
<tr><td>6.5.2</td><td>Materials for day-works</td><td>Y</td><td></td></tr>
<tr><td>6.8.4</td><td>Costs due to changes in legislation</td><td>Y</td><td></td></tr>
<tr><td>6.11.1</td><td>Variations exceeding 20%</td><td></td><td>Y</td></tr>
<tr><td>8.2.2.2</td><td>Damage due to excepted risks</td><td></td><td>Y</td></tr>
<tr><td>10.1.5</td><td>Consultation on Contractor's claim</td><td>Y</td><td>Y</td></tr>
<tr><td>10.1.5</td><td>Ruling on Contractor's claim</td><td>Y</td><td>N</td></tr>
</table>
*The following abbreviations apply:
ER Employer’s Agent Representative
EWA Employer’s Agent Written Action
N No
NA Not Applicable
Y Yes
</td></tr>
<tr><td>3.1.4</td><td>Delete this clause.</td></tr>
</table>

Clause	Data
4.9.1	The Contractor shall deliver to the Employer's Agent, on a monthly basis, a detailed inventory of Construction Equipment kept on Site, full particulars given for each day of the month. Distinction shall be made between Owned Equipment and Hired Equipment as well as Equipment in working order and Equipment out of order. Such inventory shall be submitted by the seventh day of the month following the month to be reported.
4.10.2	The Contractor shall deliver to the Employer's Agent, on a monthly basis, a return in detail of supervisory staff and the number of categorized classes of labour employed each day for the said period by the Contractor for execution of the Contract. Such return shall be submitted by the seventh day of the month following the month to be reported.
5.3.1	The documentation required before commencement with carrying Works execution are: • Health and Safety Plan (Refer to Clause 4.3) • A signed Agreement between the Employer and the Contractor for the Works to be completed by the Contractor in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act No.85 of 1993) and the Construction Regulations promulgated thereunder (Refer to Clause 4.3). • Proof of payment to the Employer, that the Contractor has paid all contributions required in terms of the Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (Refer to Clause 4.3). • Initial Programme of Works (Refer to Clause 5.6). • Security (Refer to Clause 6.2). • Insurance (Refer to Clause 8.6).
5.3.2	The time to submit the documentation required before commencement with Works execution is **14 Days.**
5.4.2	The access and possession of Site shall not be exclusive to the Contractor but shall be as set out elsewhere in the Contract.
5.8.1	The non-working Days are Sundays. The special non-working Days are: Statutory public holidays; and All annual year-end shutdown periods as recommended by the South African Federation of Civil Engineering Contractors (SAFCEC), and which commence after the Commencement Date and which commence before the Due Completion Date.
5.13.1	The penalty for failing to complete the Works is **0,1** percent of contract price per calendar day.
5.16.3	The latent defect period is 10 years, commencing on the Day after the date of certification of Practical Completion.
6.5.1.2.3	The percentage allowance to cover overhead charges is: 50 per cent for labour; and 15 per cent for materials.

Clause	Data
6.8.2	Contract Price Adjustment: The contract shall be subject to Contract Price Adjustment. The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule included in the General Conditions of Contract. The value of “x” is 0.15 The values of the coefficients are: a = 0.25 Labour b = 0.3 Contractor’s equipment c = 0.35 Material d = 0.1 Fuel The Province wherein the larger part of the Site is located in **Polokwane, Limpopo**. The applicable industry for the Producer Price Index for material is Diesel The area for the Producer Price Index for fuel is Example Fuel index area The base month is: June 2024
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%. Proof of ownership is required.
6.10.3	The limit of **retention money is 10%** of the value of the Contract Price. **A Retention Money Guarantee of 50% of the paid retention monies is compulsory at the completion of the project**. A penalty will be applied for non-delivery of the Retention Money Guarantee as required. The penalty will be 10% of the value of the completion Retention Money Amount per calendar month for late delivery of the said Retention Money Guarantee.
8.6.1.1.2	The value of Plant and materials supplied by the Employer to be included in the insurance sum is **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 a maximum of **5% (five percent)** of the Contract Sum.
8.6.1.3	The limit of indemnity for liability insurance is equal to the contract amount.
10.5.1	Dispute resolution shall be by standing adjudication, use GCC 2015, Appendix 5.
10.7.1	The determination of disputes shall be by arbitration.

C.1.2.1.2.2 Variations to the General Conditions of Contract

Clause	Data
1.1.1.16	**Employer's Agent** Add the following after the first paragraph: "Employer's Agent shall have the same meaning and be synonymous with Engineer/engineer throughout the Contract document."
2.5.1	**Cession** *Amend Clause 2.5.1 as follows:* *Delete the words* "without the written consent of the other"
5.3.3	**Time to instruct commencement of the Works** Add the following to Clause 5.3.3 after the last sentence: "The Contractor shall not commence working until they have an approved project specific health and safety plan in terms of the Occupational Health and Safety Act, 1993: Construction Regulations, 2014 and complied with the initial requirements thereof."
5.14.1	**Practical Completion** Replace the last sentence of the second paragraph: "Should the Employer's Agent … on expiry of 14 days." with the following: "Should the Employer's Agent not issue such a list within 14 days, Practical Completion shall be deemed to have been achieved on the said fourteenth day."
5.14.2	**Issue of Certificate of Practical Completion** Replace "the Employer's Agent" in the second and third lines with the following: ", the Contractor shall notify the Employer's Agent, who shall inspect the Works and the Employer's Agent"
5.14.4	**Certificate of Completion** Replace "the Employer's Agent" in the third line of the first paragraph with: ", the Contractor shall notify the Employer's Agent, who shall inspect the works and the Employer's Agent"
5.14.5.1	**Consequences of Completion** *Amend Clause 5.14.5.1 as follows:* *In the second line, substitute the word* 'Guarantor' *with* 'Contractor'.

Clause	Data
6.2	**Security** *Replace Sub-Clauses 6.2.1 and 6.2.2 with:* "The Contractor shall deliver to the Employer within such time as may be stated in the Contract Data, a Demand Guarantee, of an Insurance Company registered in terms of the Short-term Insurance Act (Act 53 of 1998) or of a registered Commercial Bank, in a sum equal to the amount stated in the Contract Data. The Demand Guarantee shall be issued by an entity subject to the approved of the Employer, and shall conform in all respects to the format contained in the Contract Data. The security to be provided by the Contractor shall be a **Demand Guarantee** of **10%** of the Contract Sum. Wherever a joint venture constitutes the contracting party, the Demand Guarantee shall be issued on behalf of the joint venture. Failure to produce an acceptable Demand Guarantee within the period stated in the Contract Data, is a fundamental breach of Contract, entitling the Employer to cancel the Contract by due notice in terms of Clause 9.2 with specific reference to Sub-clause 9.2.2 as amended in the Contract Data."
6.3.1	**Variations** *Amend Clause 6.3.1, as follows:* *In the first paragraph, third line, after the words* "or for any reason appropriate"*, add the phrase* ", including the limiting of contract expenditure so as not to exceed the Employer's budgeted project funding, " *Add the following phrase to the last paragraph of Clause 6.3.1.6, after the words* "ascertaining the amount of the Contract Price": ", and no such variation shall give reason for consideration of any claim in terms of Clause 6.11."
6.3.2	**Orders for Variations to be in writing** Omit the words "Provided that" under Clause 6.3.2 and omit Clause 6.3.2.1.
6.9.2	**Definition of "materials"** *Amend Clause 6.9.2, as follows:* *Substitute the word* 'plant*' with* 'Plant'.
6.10.1	**Interim Payments** *Amend Clause 6.9.2, as follows:* *In the third line, add the words,* 'not yet' *before the words* 'built into'
6.10.4	**Delivery, dissatisfaction with and payment of payment certificate** Replace '28 days' in the seventh line with '35 days'.
6.10.5	**Payment of retention money** *Amend Clause 6.10.5 as follows:* *In the second line, add the words '*, if any,*' after the words '*Defects Liability Period'

Clause	Data
6.10.6	**Set-off and delayed payments** *Amend Clause 6.10.6.2 as follows:* *Delete the words* 'simple interest' *and substitute with the words* 'interest compounded monthly'. *Delete the words* 'Contractor's Bank' *and substitute with the words* 'Employer's Bank'
6.11	**Variations exceeding 15 per cent** *Replace the marginal heading with:* **"Variations exceeding 20 per cent"** *Replace* "**15 per cent**" *with* "20 per cent" *in the text of this Sub-Clause*
7.4.4	**Cost of test specimens and tests** *Amend Clause 7.4.4.2 as follows:* In the <u>second</u> line of paragraph two, add the words '*the requirements of*' before the words '*the Contract*'
7.8.2	**Cost of making good of defects** *Amend Clause 7.8.2.1 as follows:* *In the first line, correct the spelling of* 'therefore'
8.1.3	**Excessive loads and traffic** In the third line, add a comma after the word 'Site' as follows: '…in the vicinity of the Site, from…'.
8.3.1	**Excepted risks** *Amend Clause 8.3.1.12 as follows:* *In the second line, delete the words* 'Employer or any of their' *and substitute with* 'or any of its'.
8.6.6	**Contractor to produce proof of payment** "The Contractor shall before commencement of the Works produce to the Employer's Agent: 8.6.6.1 The policies by which the insurances are effected, 8.6.6.2 Proof that due payment of all premiums there under, covering the full required period has been made, and 8.6.6.3 Proof of continuity of the policies for the required period. Should, during the currency of the Contract, the required period of insurance be extended for any reason, the Contractor shall timeously extend (so as to maintain) the said insurances for the full extended duration. The Employer's Agent shall be empowered to withhold all payment certificates until the Contractor has complied with his obligations in terms of this Clause 8.6.6."

Clause	Data
8.6.7	**Remedy on Contractor's failure to insure** *Delete sub-clause 8.6.7 and substitute with:* "Failure on the part of the Contractor to effect and keep in force any of the insurances referred to in Clause 8.6.1 and its sub-clauses, is a fundamental breach of Contract, entitling the Employer to cancel the Contract by due notice in terms of Clause 9.2 and with specific reference to sub-clause 9.2.2, as amended in the Contract Data."
9.1.2	**State of emergency** *In the fourth line, delete the words* 'supply of' *and substitute with* 'availability of'.
9.2	**Termination by Employer** *Delete the contents of Clause 9.2 and substitute with:* "9.2.1 The Employer may terminate the Contract by written notice to the Contractor if: 9.2.1.1 Sequestration of the Contractor's estate is ordered by a Court with due jurisdiction, or
	9.2.1.2 The Contractor publishes a notice of surrender or presents a petition for the surrender of his estate as insolvent, or makes a compromise with his creditors, or assigns in favour of his creditors, or agrees to carry out the Contract under the supervision of a committee representing his creditors, or (being a company) goes into liquidation, whether provisionally or finally (other than a voluntary liquidation for the purpose of amalgamation or reconstruction), or if the Contractor assigns the Contract without having first obtained the Employer's consent in writing, or if execution is levied on his goods, or
	9.2.1.3 The Contractor, or anyone on his behalf, or in his employ, offers to any person in the employ of the Employer or the Employer's Agent, a gratuity or reward or commission, or
	9.2.1.4 The Contractor furnished materially inaccurate information in his Tender, which had a bearing on the award of the Contract, or
	9.2.1.5 The Contractor has abandoned the Contract.
	9.2.2 If the Contractor: 9.2.2.1 Has failed to commence the Works in terms of Clause 10 hereof, or has suspended the progress of the Works for fourteen (14) days after receiving from the Engineer written notice to proceed, or
	9.2.2.2 Has failed to provide the Guarantee in terms of Clause 7 within the time stipulated in the Contract Data, or
	9.2.2.3 Has failed to proceed with the Works with due diligence, or
	9.2.2.4 Has failed to remove materials from the Site or to pull down and replace work within fourteen (14) days after receiving from the Employer's Agent written notice that the said materials or work have been condemned and rejected by the Employer's Agent in terms of these conditions, or
	9.2.2.5 Is not executing the Works in accordance with the Contract, or is neglecting to carry out his obligations under the Contract, or
	9.2.2.6 Has, to the detriment of good workmanship or in defiance of the Employer's Agent instructions to the contrary, sublet any part of the Contract, or

Clause	Data
	9.2.2.7 Has assigned the Contract or any part thereof without the Employer's consent in writing, then the Employer may give the Contractor 14 days' notice to rectify the default, and if the Contractor fails to rectify the default in said 14 days, then, without further notice, notify the Contractor in writing of the termination of the Contract and expel the Contractor and order the Contractor to vacate the site within 24 hours of issue of the Notice of Termination and to hand the Site over to the Employer, and the Employer may then enter upon the Site and the Works without affecting the rights and powers conferred on the Employer or the Employer's Agent by the Contract and the Employer may himself complete the Works or may employ another contractor to complete the Works, and the Employer or such other contractor may use for such completion so much of the Construction Equipment, Temporary Works and materials brought onto the Site by the Contractor as the Employer may think proper, and the Employer may at any time sell any of the said Construction Equipment, Temporary Works and unused materials and apply the proceeds of sale towards payment of any sums that may be due or become due to the Employer by the Contractor under the Contract. In such circumstances the Contractor shall forthwith vacate the Site and shall not be entitled to remain on the Site on the grounds that he is entitled to do so on a right of retention until amounts due to him have been paid, neither will the Contractor be entitled to any further payments in terms of this Contract.
	9.2.3 If the Contractor, having been given notice to rectify a default in terms of 9.2.2 above, rectifies said default, but later repeats the same or substantially the same default, then the Employer may notify the Contractor of the immediate termination of the Contract, and proceed as stated in the paragraph following the word 'writing' in Clause 9.2.2.7 above.
	9.2.4 Should the amounts that the Employer must pay to complete the Works, exceed the sum that would have been payable to the Contractor on due completion by him, then the Contractor shall upon demand pay to the Employer the difference, and it shall be deemed a debt due by the Contractor to the Employer and shall be recoverable accordingly. Provided that should the Contractor on demand not pay the amount of such excess to the Employer, such sum may be determined and deducted by the Employer from any sum due to or that may become due to the Contractor under this or any previous or subsequent contract between the Contractor and the Employer."

C.1.2.1.2.3 Additional clauses to the General Conditions of Contract:

Clause	Data
1.1	**Definitions** *Add the following at the end of Sub-Clause 1.1.1:* 1.1.1.35 "Client", as used in the Occupational Health and Safety Act - Construction Regulations, means Employer. 1.1.1.36 "Principal Contractor", as used in the Occupational Health and Safety Act - Construction Regulations, means Contractor.
4.12	**Contractor's superintendence** *Add the following sub-clause 4.12.4 to Clause 4.12:* "Where a form is included in the Contract Data for this purpose, the Tenderer shall fill in the name of the person he proposes to entrust with the post of Contractor's Site Agent on this Contract in the space provided therefore. Previous experience of this person on work of a similar nature during the past five (5) years is to be entered on the form. The Contractor's Site Agent shall be on Site at all times when work is being performed. The person shall be subject to approval of the Employer's Agent in writing and shall not be replaced or removed from Site without the written approval of the Employer's Agent."
5.6	**Programme** *Add the following sub-clause 5.6.6 to Clause 5.6:* "Failure on the part of the Contractor to deliver to the Engineer, the • programme of the Works in terms of Clause 5.6.1 and • supporting documents in terms of Clause 5.6.2 Within the period stated in the Contract Data, shall be sufficient cause for the Engineer to retain 25 per centum of the value of the Fixed Charge and Value-related items in assessment of amounts due to the Contractor, until the Contractor has submitted aforementioned first Programme of the Works and Supporting Documents".
5.9.7	**Employer's Agent to approve Contractor's Designs and Drawings** *Add the following sub-clause 5.6.6 to Clause 5.6:* "All designs, calculations, drawings and operation and maintenance manuals shall be fully endorsed by a third-party registered engineer, accomplished in such specific field of practice and the cost thereof shall be borne solely by the Contractor. Once the alternative design has been approved, the Contractor shall indemnify and hold harmless the Employer's Agent, the Employer, their agents and assigns, against all claims howsoever arising out of the said design, whether in contract or delict".

Clause	Data
5.11	**Suspension of the Works** *Add the following sub-clause 5.11.4 to Clause 5.11:* "If the Contractor does not receive from the Employer the amount due under an Interim Payment Certificate within 28 days after expiry of the time stated in sub-clause 6.10.4 within which payment is to be made (except for deductions in accordance with sub-clauses 6.10.1.6 and 6.10.1.7), the Contractor may, after giving 14 days' notice to the Employer, suspend the progress of the Works. The Contractor's action shall not prejudice his entitlements to a claim in terms of Clause 10.1 and to cancellation of the Contract in terms of Clause 9.3. If the Contractor subsequently receives full payment of the amount due under such Interim Payment Certificate before giving a notice of cancellation of the Contract, the Contractor shall resume normal working as soon as is reasonably practicable."
5.12	**Extension of Time for Practical Completion** *Add the following at the end of Sub-Clause 5.12.2.2:* "The extension of time to be allowed due to abnormal rainfall shall be calculated separately for each calendar month or part thereof in accordance with the following formula: $V = (Nw - Nn) + \left(\frac{Rw - Rn}{x}\right)$ where V = Extension of time in calendar days for the calendar month under consideration Nw = Actual number of days during the calendar month on which a rainfall of 10 mm or more has been recorded Nn = Average number of days for the calendar month on which a rainfall of 10 mm or more has been recorded, as derived from existing rainfall records Rw = Actual recorded rainfall for the calendar month Rn = Average rainfall for the calendar month, as derived from existing rainfall records x = 20
	The rainfall records which shall provisionally be accepted for calculation purposes are: Based on records taken at: **Rainfall Station: Polokwane** **Years of record: 2006 – 2016**

Clause	Data

Table 1 – RAINFALL RECORDS FOR PERIOD: 2006 – 2016

RAINFALL STATION: Polokwane Lat: 23.8570 Lon: 29.451 Height 1226m

Average No of Days with Rainfall exceeding 10mm: 9.8 days/year

Average Rainfall: 488.6mm/year station no: 0677802BX

MON	AVE	ST	N DAY	NUM	1	5.1	10.1	20.1	50.1	100.1	MAX R	MAX RAIN
MON		DEV	RAIN	MON	5	10	20	50	100	900	DAY	DATE
MON	AVE	ST	N DAY	NUM	1	5.1	10.1	20.1	50.1	100.1	MAX R	MAX RAIN
MON		DEV	RAIN	MON	5	10	20	50	100	900	DAY	DATE
JAN	65.9	39.3	65.9	11	3.4	2.1	1.3	0.7	0	0	38	1/18/2013
FEB	47.3	49.7	47.3	11	1.6	0.9	1.1	0.6	0	0	49	2/26/2006
MAR	58.4	33.2	58.4	11	3	1.3	1.1	0.7	0.1	0	51.5	3/27/2006
APR	43.3	46.6	43.3	11	1.5	1	0.7	0.5	0.1	0	68	4/4/2011
MAY	10.4	14	10.4	11	0.5	0.4	0.3	0.1	0	0	29.2	5/8/2009
JUN	1.7	3.6	1.7	11	0.3	0	0.1	0	0	0	12	6/10/2009
JUL	2.4	4.3	2.4	11	0.3	0.1	0.1	0	0	0	12.1	7/4/2007
AUG	2.3	5.6	2.3	11	0.2	0	0.1	0	0	00	19.2	8/15/2011
SEP	6.6	8.2	6.6	11	0.4	0.4	0.1	0.1	0	0	22.5	9/4/2015
OCT	48.1	29.5	48.1	11	1.5	0.7	1.4	0.6	0	0	38.2	10/29/2009
NOV	97.7	40.5	97.7	11	3.1	2	1.3	1.5	0.2	0	65.5	11/12/2008
DEC	104.6	56.3	104.6	11	3.8	1	1.7	1.9	0.1	0	55	12/16/2014
YR	488.6		67.9		19.5	9.8	9.2	6.8	0.5	0	488.6	

The factor (Nw - Nn) shall be considered to represent a fair allowance for days during which rainfall exceeds 10 mm and the factor (Rw - Rn)/x shall be considered to represent a fair allowance for those days when rainfall does not exceed 10 mm but wet conditions prevent or disrupt work.

The total extension of time shall be the algebraic sum of all monthly totals for the contract period, but if the algebraic sum is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for a part of a month shall be calculated using pro rata values of Nn and Rn."

For this project the rainfall formula will only apply as background information, or dispute resolution. Extension of time for rainfall will only be granted on Actual Delays experienced; noted and agreed upon by the Employer's Agent.

6.10 **Payments**

Add the following at the end of Sub-Clause 6.10.1:

"The Contractor shall complete the 'Contractor's Monthly Report Schedule', which pro forma documentation is obtainable from the Employer's Agent. Pursuant to Sub-Clause (1), these, duly signed by all concerned, together with the Contractor's statement and a VAT invoice in original format are to be submitted to the Employer's Agent. Issue by the Employer's Agent to the Employer and Contractor of any signed payment certificate is conditional to this information being fully endorsed, accurately and timeously submitted to the Employer's Agent".

Clause	Data
	Add the following at the end of Sub-Clause 6.10.1.5: "All documentary evidence of such materials shall be unambiguous with respect to ownership having fully passed to the Contractor on or before the date of submittal of the Contractor's monthly statement. Should the Contractor fail to supply unambiguous documentary evidence, he shall, prior to submittal of his monthly statement, deliver to the Employer a Guarantor Guarantee in the form contained in the Appendices to the Contract Data."
9.3	**Termination by the Contractor** *Add the following at the end of Sub-Clause 9.3:* 9.3.5 "In addition to, or as an alternative to the rights to termination contained in this Clause 9.3, the Contractor may notify the default to the Employer, with a copy to the Engineer, and if the default is not rectified within 10 days the Contractor may suspend progress of the works until a date 7 days after the default is rectified. The Contractor shall be entitled to extension of time to the extent of delay caused by or resulting from such suspension, and to payment of additional costs caused by or resulting from the suspension. Such extension of time and additional costs shall be promptly ascertained by the Engineer, who shall then grant the extension of time and include the additional costs in all future payment certificates. Such suspension, extension of time and/or payment of additional costs, shall not prejudice the Contractor's rights to cancel the contract."
	Payment for labour-intensive component of the works Payment for works identified in the Scope of Works as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.
	Linkage of payment for labour-intensive component of works to submission of project data The Contractor's payment invoices shall be accompanied by labour information for the corresponding period in a format specified by the employer. If the contractor chooses to delay submitting payment invoices, labour returns shall still be submitted as per frequency and timeframe stipulated by the Employer. The contractor's invoices shall not be paid until all pending labour information has been submitted.
	Applicable Labour Laws The current Ministerial Determination (also downloadable at www.epwp.gov.za), Expanded Public Works Programmes, issued in terms of the Basic Condition of Employment Act of 1997 by the Minister of Labour in Government Notice, shall apply to works described in the scope of work as being labour-intensive and which are undertaken by unskilled workers.

C.1.2.2 Part 2: Data provided by the Contractor

The General Conditions of Contract, as specified in Part 1, shall be used as a basis for this Data which is required to be completed.

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

Clause	Data
1.1.1.9	The Name of the Contractor is: ....
1.2.1.2	The address of the Contractor is: Physical address: ....
1.2.1.2	Postal address: .... e-mail address: ..... Contact numbers: Corporate: ..... Direct: ..... Mobile: ..... Fax: .....

POLOKWANE MUNICIPALITY
(Not to be completed at tender stage)

C1.3 Performance Guarantee

In accordance with clause 6.2.1 of General Conditions of Contract, 3rd Edition 2015

Contract No: ……..

Description of Contract: ……

……

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: ……
(Please put name of Firm)

Physical Address: ……

……

Postal Address: ……

……

Tel: ……

Fax: ……

"Employer" means: **POLOKWANE MUNICIPALITY**

"Contractor" means: ……
(Please put name of Firm)

"Employer's Agent" means: ……
(Please put name of Firm)

"Works" means: Permanent works together with temporary works

"Site" means: The land and other places, made available by the Employer for the purpose of the contract, on under over in or through which the works are to be executed or carried out.

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

"Contract Sum" means: The accepted amount inclusive for tax of R……

Amount in words: ……

"Guarantee sum" means: 10% of the contract sum

"Expiry Date" means: This Guarantee shall expire upon the issue of the **Completion Certificate** issued by Polokwane Municipality signed by the Director of Engineering Services, as such date is advised to the Guarantor in writing confirmed by the Employer.

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and 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. 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. The Guarantor hereby acknowledges that:

   3.1 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 surety ship;

   3.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

   4.1 A copy of a first written demand issues by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent and/ or Employer 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 4.2;

   4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address and / or postal address with a copy to the Contractor stating that period of seven (7) days has elapsed since the first written demand terms of 4.1 and the sum certificate has still not been paid;

   4.3 A copy of the aforesaid payment certificate which entails the Employer to receive payment in terms of the Contract sum in 4.

5. Subject to the Guarantor's maximum liability referred to in 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 and/ or postal address calling up this Performance Guarantee, such demand stating that:

   5.1 The contractor has been termination due to the Contractor's default and this performance Guarantee is called up in terms of 5; or

   5.2 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 5; and

   5.3 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.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, 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 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.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the guarantor.

9. Payment by Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from his Performance Guarantee on account alleged to be prejudicial to the Guarantor.

11. The Guarantor chooses the physical address and postal address as stated above for the service of all notices for all purposes in connection herewith.

12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after on claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Court 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): ……

POLOKWANE MUNICIPALITY
(Not to be completed at tender stage)

C1.4 Retention Guarantee

Contract No: ……..

Description of Contract: …….

……

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: …….
(Please put name of Firm)

Address: …….

…….

Postal Address: …….

…….

Tel: …….

Fax: …….

"Employer" means: **POLOKWANE MUNICIPALITY**

"Contractor" means: …….
(Please put name of Firm)

"Guarantee sum" means: 5% of the works done to date amount

"Employer's Agent" means: ……..
(Please put name of Firm)

"Works" means: Permanent works together with temporary works

"Site" means: The land and other places, made available by the Employer for the purpose of the contract, on under over in or through which the works are to be executed or carried out.

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

"Contract Sum" means: The accepted amount inclusive for tax of R…….

Amount in words: ……..……

……..……

"Expiry Date" means: This Guarantee shall expire upon the issue of the **Final Completion Certificate** issued by Polokwane Municipality signed by the Director of Engineering Services, as such date is advised to the Guarantor in writing confirmed by the Employer.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the Work as defined in the Contract.

RETENTION GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. “Expiry Date" This Guarantee shall expire upon the issue of the final completion certificate issued by Polokwane Municipality signed by the Director of Engineering Services, as such date is advised to the Guarantor in writing confirmed by the Employer

   The Employer’s Agent and/or the Employer shall advise the Guarantor in writing of the date on the Final Completion Certificate of the works has been issued.

3. The Guarantor hereby acknowledges that:

   3.1 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 surety ship;

   3.2 Its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

   4.1 A copy of a first written demand issues by the Employer to the Contractor stating that payment of a sum certified by the Employer’s Agent and/ or Employer 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 4.2;

   4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address and *I* or postal address with a copy to the Contractor stating that period of seven (7) days has elapsed since the first written demand terms of 4.1 and the sum certificate has still not been paid;

   4.3 A copy of the aforesaid payment certificate which entails the Employer to receive payment in terms of the Contract sum in 4.

5. Subject to the Guarantor's maximum liability referred to in 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 and/ or postal address calling up this Performance Guarantee, such demand stating that:

   5.1 The contractor has been termination due to the Contractor's default and this performance Guarantee is called up in terms of 5; or

   5.2 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 5; and

   5.3 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.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the guarantor.

8. Payment by Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

9. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim

his release from his Performance Guarantee on account alleged to be prejudicial to the Guarantor.

10. The Guarantor chooses the physical address and postal address as stated above for the service of all notices for all purposes in connection herewith.

11. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after on claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

12. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

13. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Court 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): ……

POLOKWANE MUNICIPALITY
(Not to be completed at tender stage)

C1.5 OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

This agreement is mandatory for all contractors appointed by the Polokwane Municipality or any other institution that do work for or on behalf of Municipality.

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
AND
CONSTRUCTION REGULATIONS 2014

AGREEMENT WITH MANDATARY
In terms of Section 37(1) and (2) of the OHSACT
WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

POLOKWANE MUNICIPALITY
(Client)

AND

……
(Principal Contractor or Contractor)

Compensation Commissioner Number: ……
(Attach a copy of the Registration Certificate to this agreement)

- **REQUIREMENTS:**

1. The Principal Contractor/Contractor's attention is drawn to "General Duties of Employers to their Employees" as required by Section 8 of the Act.

2. The Principal Contractor/Contractor is required to:

   2.1 Sign a written "Agreement with Mandatary" as required by Sect 37(1)(2) of the Act before commencing any work on site.

   2.2 Ensure that all your employees receive the necessary Induction Training and have proof thereof in their records.

   - Note: You must ensure that all employees under your control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences.

   2.3 Ensure the provision of Welfare Facilities for your employees as per Construction Regulation 30.

   2.4 Provide the Client/Principal Contractor with your SHE Plan and Specifications.

   2.5 Ensure that Method Statements, Risk Assessments and Safe Work Procedures are done and available.

   2.6 Provide the Client/Principal Contractor with written appointment of the person who is going to manage the Construction Work per Construction Regulation 8(1).

   2.7 Provide the Client/Principal Contractor with written designation of your nominated Health and Safety Representative as per Section 17(1).

   - Note: Your Health and Safety Representative will be expected to attend the Client/Principal Contractor safety meetings.

2.8 If you employ more than five (5) persons, you are required to provide your own First Aid Box (GSR 3(2)).

2.9 Where more than ten (10) persons are employed, the Principal Contractor/Contractor are required to provide your own qualified First Aider as per GSR 3(4).

- Note: Where the Principal Contractor/Contractor has difficulty in complying with items 2.7 and 2.8 above, you may arrange/come to an agreement with the Client/Principal Contractor to make use of his First Aid facilities in case of injury. You will be expected to communicate such an agreement to your employees.

2.10 When working with Hazardous Chemical Substances, comply with HCS Reg. 3.

- Note: Asbestos and Lead Regulations are separate.

2.11 When using a Materials Hoist, comply with the requirements of Construction Regulation 19.

2.12 When using Lifting Machines and Lifting Tackle, comply with DMR 19.

- Note: You may be required to appoint a Banks man to control Lifting/Slinging operations.

2.13 When erecting/using Scaffolding comply with the requirements of SANS 10085 “Access Scaffolding”.

2.14 When erecting/using Suspended Scaffolding comply with the requirements of Construction Regulation 17.

2.15 When doing Demolition Work, comply with Construction Regulation 14.

2.16 When doing blasting to comply with Explosives Regulations Chapter 10.

2.17 When doing Excavation Work, comply with Construction Regulation 13.

2.18 When doing Electrical Installations, comply with the requirements of Construction Regulation 24.

- Note: Electrician to provide a copy of registration as per Electrical Installations Regulation 9(3).

2.19 When using Construction Vehicles, comply with Construction Regulation 23.

2.20 When using/erecting Temporary Works, comply with Construction Regulation 12.

2.21 When working over or in close proximity to Water, comply with Construction Regulation 26.

2.22 Ensure that good Housekeeping, Stacking and Storage principles are applied on this project as per Construction Regulations 27 and 28.

2.23 Ensure that appropriate measures are taken to avoid the risk of Fire/Explosion and comply with requirements of Construction Regulation 29.

2.24 If you are going to work at heights a Fall Protection Plan must be submitted (roof work included) as per the requirements of Construction Regulation 10.

2.25 When using explosive actuated fastening devices, comply with Construction Regulation 21

2.26 When Welding, Flame Cutting/Soldering, comply with GSR 9.

2.27 When working in Confined Spaces, comply with GSR 5.

3. The Principal Contractor/Contractor is responsible for providing their own legal safety documents and registers to comply with the Act's requirements. A copy of the OHS Act of 1993 and the Construction Regulations 2014 will be available for perusal in the Principal Contractor's site office.

4. The Principal Contractor/Contractor is required to comply with General Safety Regulations 2 (1) to (7) and provide your employees with:

   Personal protective equipment which will allow them to carry out their work in a safe manner, e.g. hard hats, safety harnesses, gloves, safe footwear, eye protection, ear protection, waterproof clothing etc.

5. Reporting of Incidents of Occupational Diseases shall be done as per General Admin. Regulation 8 (Also see Sect 24 of the Act).

6. Compensation for Occupational Injuries and Diseases Act (No. 130 of 1993).

   You are required to provide the Client/Principal Contractor with proof of registration with the Compensation Commissioner/Federated Employer(s) Mutual when signing this agreement. If you are not registered, the Client/Principal Contractor may deduct the necessary amounts from your progress payments and pay it over to the Commissioner to ensure that you are insured. See Section 80 and 89 of the COID Act.

Thus done and signed at …….. on this …. day of …….. 20….

WITNESSES:

1. …… ……
   CONTRACTOR

2. …… ……
   CLIENT

POLOKWANE MUNICIPALITY
(Not to be completed at tender stage)

C1.6: ADJUDICATORS AGREEMENT

This agreement is made on the ..... day of ..... 20..... between

the Employer ……
(name of company / organisation)

of (address) ……

……

and the Contractor ……
(name of company / organisation)

of (address) ……

……

hereinafter called **the Parties**)

and

(Name) ……
(name of company / organisation)

of (address) ……

……

(hereinafter called **the Adjudicator**)

Disputes or differences may arise/have arisen* between the Parties under a Contract dated

……..... and known as Contract No: .....

(Contract title) .....

.....

and these disputes or differences shall be/have been* referred to adjudication in accordance with the CIDB Adjudication Procedure, (hereinafter called "**the Procedure**") and the Adjudicator may be or has been requested to act.
(* Delete as necessary)

IT IS NOW AGREED as follows:

1. The rights and obligations of the Adjudicator and the Parties shall be as set out in the Procedure.

2. The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the Procedure.

3. The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses in accordance with the Procedure as set out in the Contract Data.

4. The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.

5. The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED by:

(Signature):	(Signature):	(Signature): .....
Name: ..... who warrants that he/ she is duly authorised to sign for and on the behalf of the **First Party** in the presence of	**Name**: ..... who warrants that he/ she is duly authorised to sign for and on behalf of the **Second Party** in the presence of	**Name**: ..... the **Adjudicator** in the presence
Witness:	**Witness:**	**Witness:**
(Signature):	(Signature):	(Signature): .....
Name:	**Name**:	**Name**: .....
Address:	Address:	Address: .....
.....	.....	.....
Date:	Date:	Date: .....

PART C2: PRICING DATA

C2.1: PRICING INSTRUCTIONS

1. GENERAL

The pricing instructions describe the criteria and assumptions which will be assumed in the Contract that the Bidder has taken into account when developing his prices. The Bills of Quantities record the Contractor's rates for providing supplies, services, engineering and construction works in accordance with the Scope of Work.

The terms of payment and the provisions for price adjustment, if applicable, are established in the Contract Data. These items are not described in the Pricing Data.

The Bidder's obligations in pricing the Bidder offer and the Employer's undertakings in the checking and correction of arithmetical errors are dealt with in the Standard Conditions of Bidder contained in Annexure F of SANS 294, as amended in and read in conjunction with the Bidder Data.

2. DOCUMENTS MUTUALLY EXPLANATORY

The documents forming the Contract are to be taken as mutually explanatory of one another. The Bill of Quantities forms an integral part of the Contract Documents and shall be read in conjunction with the Bidder Data, Contract Data, Scope of Work, Site Information General and Special Conditions of Contract, the Specifications and the Drawings.

3. DEFINITIONS

For the purpose of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit	:	The unit of measurement for each item of work as defined in the Scope of Work and Site Information.
Quantity	:	The number of units of work for each item.
Rate	:	The payment per unit of measurement at which the Contractor Contracts to do the work.
Amount	:	The product of the quantity and the rate Bidded for an item.
Sum	:	An amount contracted for an item, the extent of which is described in the Bill of Quantities, the specifications or elsewhere but the quantity of work of which is not measured in any units.

4. DESCRIPTIONS

Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardized Specifications. Clause 8 of each Standardized Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardized Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardized Specification or Scope of Work, as applicable, shall prevail.

5. REFERENCES

The clauses in a specification in which further information regarding the schedule item can be obtained appear under “Reference clause” in the Bill. The reference clauses indicated are not necessarily the only sources of information in respect of scheduled items. Further information and specifications may be found elsewhere in the contract documents. Standardized Specifications are identified by the letter or letters which follow SABS in the SABS 1200 series of specifications, e.g. G for SABS 1200 G.

6. UNITS OF MEASUREMENT

The units of measurement indicated in the Bill of Quantities are metric units.

The following abbreviations are used in the Bill of Quantities:

%	=	per cent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kiloliter
km	=	kilometer
km-pass	=	kilometer-pass
kW	=	kilowatt
l	=	liter
m	=	meter
mm	=	millimeter
MN	=	mega-newton
MN-m	=	mega-newton-meter
MPa	=	mega-Pascal
m^2	=	square meter
m^3	=	cubic meter
m^3-km	=	cubic meter-kilometer
m^2-pass	=	square meter-pass
no	=	number
PC sum	=	Prime Cost sum
Prov Sum	=	Provisional Sum
sum	=	lump sum
t	=	ton (1 000 kg)

7. NET MEASUREMENTS

Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for off-cuts and waste.

8. QUANTITIES

The quantities set out in these Bills of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bills of Quantities.

The Contract Amount to be determined in accordance with the conditions of contract identified in the Contract Data shall be computed from the actual quantities of authorized work done, value at rates determined in terms of the Contract Data, against the respective items in the Bill of Quantities.

9. CURRENCY

All rates and sums of money quoted in the Bill of Quantities shall be in Rand and whole cents. Fractions of a cent shall be discounted.

10. VALUE ADDED TAX

Value Added Tax shall be excluded from the rates and sums contracted for the various items of work included in the Bill of Quantities. VAT will be added as a single entry to the summary.

11. RATES AND PRICES

11.1 General

a) The Contractor must price each item in the Bill of Quantities in **BLACK INK**. Reproduced computer printouts of the Bills of Quantities will not be acceptable.

b) The rates and prices to be inserted in the Bill of Quantities shall cover all the services and incidentals for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Bidder is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

c) Where the Contractor is required to furnish detailed drawings and designs or other information in terms of the Contract Data, all costs thereof shall be deemed to have been provided for and included in the unit rates and sum amounts contracted for the items scheduled in the Bill of Quantities. Separate additional payments will not be made.

d) A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill. The Contractor will not be paid for items against which no rate or lump sum has been entered in the Bill of Quantities.

e) Should the Contractor group a number of items and contract one lump sum for such group of items, this single lump sum shall apply to that group of items and not to each individual item.

f) Should the Contractor indicate against any item that compensation for such item is included in another item the rate for the item included in another item shall be deemed nil.

g) A submission may be regarded as non-responsive if any rates or lump sums in the Bill of Quantities are, in the opinion of the Employer, unreasonable or out of proportion.

11.2 "Rate only" items

The Contractor shall fill in a rate (in the rate column) against all items where the words "rate only" appear in the Amount column, which rate will constitute payment for work which may be done in terms of this item. Such "rate-only" items are used where it is estimated that little or no work will be required under the item or where the item is to be considered as an alternative to another item for which a quantity is given.

11.3 Arithmetic

Excepting where Sum Amounts are required or where Provisional Sums have been indicated, the Contractor shall enter an applicable rate in the Rate Column of the Bill of Quantities for each scheduled item. He shall also enter an appropriate sum in the

Amount column for each scheduled item, by determining in the applicable line item the product of the Quantity and the Unit Rate.

If there is an error in the line item resulting from the product of the unit rate and the quantity, the rate shall be binding and the error of extension as entered in the Bidder offer will be corrected by the Employer in determining the Contract Price.

Where there is an error in addition, either as a result of other corrections required by this checking process or in the Bidder's addition of prices, such error will be corrected by the Employer in determining the Contract Price.

11.4 Labour Intensive work

Item numbers in the schedule of quantities suffixed by the letter "L" shall denote a payment item in respect of work which is required to be executed by labour intensive construction methods. Item numbers with the suffix "L" are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.

Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorized use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

12. VARIATION IN TEXT

No alteration, erasure or addition is to be made in the text of the Bill of Quantities. Should any alteration, erasure or addition be made, it will not be recognized; the original wording of the Bill of Quantities will be adhered to.

C2.2: BILL OF QUANTITIES

This Schedule of Quantities forms part of the Contract Documents as listed in the Schedule of Documents and shall be read in conjunction with the General Conditions, the Specifications and the Drawings must be submitted, duly completed, on the closing date of Tenders.

Bidders must complete the Schedule of Quantities and fill in the unit rate and total amount for each item. Errors of extensions as entered in the Schedule may be corrected by the Employer but RATES WILL BE **FIXED AND NOT SUBJECT TO PRICE VARIATIONS.** (ALL RATES MUST BE COMPLETED, EVEN WHERE NO QUANTITY IS INDICATED)

The short description of items in the Schedule of Quantities are for identification purposes only, the work covered by the items being fully specified in the relevant clauses in the Specifications. The Bidder must therefore allow in the unit price for ordering, obtaining, supplying, delivering to site, installation and commissioning of the relevant equipment with their accessories.

The quantities reflected in the Schedule of Quantities are approximate only and do not necessarily represent the actual amount of work to be done (DO NOT USE BILL OF QUANTITIES FOR ORDERING PURPOSES). Allowance for off-cuts and scrap shall be allowed for in the unit rates. The Contract Price for the completed Contract shall be computed from the actual quantities (quantities can decrease or increase) of authorised work done to the satisfaction of the Engineer valued at the prices tendered against the respective items in the Schedule of Quantities, and shall include such authorised provisional amounts and items of extra work as have become payable in terms of the Contract Documents. Extra material shall not be paid for and shall be removed from site. When no price is shown for a item, it will be taken to be included elsewhere.

Bidders are advised to check their items extensions and total additions as to many arithmetical errors occurring in the priced Schedule of Quantities will disqualify the Bidder.

Except where Sum Amounts are required or where Provisional Amounts have been indicated, the Bidder shall enter an applicable rate in the Rate Column of the Schedule of Quantities for each scheduled item. He shall also enter an applicable sum in the Amount Column for each scheduled item. Should the Schedule not be completed in the manner herein specified, the tender may either be rejected or the Contractor will not be paid for items against which rates or sum amounts, as applicable, have not been entered. In the event of the latter procedure items not paid for will be regarded as covered by other rates entered in the Schedule of Quantities.

Payment based on the rates tendered in the Schedule shall cover all the services and incidentals included in the works covered by the Contract and shall be made in accordance with the General Conditions, the Specifications and the Agreement pertaining to the Contract.

Where the Contractor is required to furnish detailed drawings and designs or other information in terms of the Contract Documents, all costs shall be deemed to have been provided for and included in the unit rates and sum amounts tendered for the items scheduled in the Schedule of Quantities AND SEPARATE ADDITIONAL PAYMENT WILL NOT BE MADE.

Unit prices quoted in the Schedule of Quantities must include for such small installation materials as are required for the complete installation in accordance with the Specifications.

Writing in the Schedule must be done in black to facilitate clear photocopying.

The Contractor shall keep record of all material delivered to site, and shall submit such record to the Engineer at every site inspection. Material not installed shall be kept in the site yard or store and the material shall be kept readily available for inspection.

Application for payment, accompanied by supporting documentation, shall be submitted to the Engineer on a predetermined date which date shall be a suitable date in each month, agreed upon by all parties concerned with the payment. Claims for additional work in a particular month, for which no written instruction has not yet been issued, if applicable, must also accompany the monthly application for payment. Late claims will not be considered.

All units' rates and sum amounts shall exclude Value Added Tax, as applicable and in accordance with the ruling rate as laid down by the Government, and all prices shall be quoted in South African currency.

The work listed hereunder is fully described in the specifications or shown on drawings. The contractor shall, however, refer to the general conditions of contract, special conditions and all the drawings

DAYWORK SCHEDULE

Bidders are to complete the schedule below, **showing all rates**, which will apply to any work ordered by the Engineer. Payment will be made at the rates entered in the Schedule and these rates shall cover the supervision, transport, the use of all tools, etc. and shall include profits.

C2.2 BILL OF QUANTITIES

Section D 1000: Provision for Structured Training

Item	Description	Unit	Quantity	Rate	Amount
D10.01	**Accredited Training**				
	Training allowance paid to targeted labour in terms of formal training days	Person days of Training	(insert No. of Workers to be employed x Training days)	(insert the specified daily wage rate)	**(insert amount)**
	Extra over for the administration payment of training allowances to targeted labour (25% of training allowance)	Sum			**(insert amount)**
	Transport and accommodation of workers for training where it is not possible to undertake the training in close proximity to the site (provisional sum)	Sum			**(insert amount)**

BILL OF QUANTITIES

PROJECT DESCRIPTION:	**UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM**
BID NUMBER:	**TBC**

Item No.	Refer	Description of the item	Unit	Qty	Rate		Price (R)
					Supply	Install	
1	**SANS 1200A**	**PRELIMINARIES**					
1.1	**8.3.2**	**Establishment of Facilities on Site**					
1.1.1		Site Camp, store, personnel, rental, transport, notice board, etc	Month	09			
1.1.2		Payment of Student @ R 4 500/month	Prov Sum	01		R40 500	R40 500
1.1.3		Training - Municipality SCADA operators and other officials	item	1			
1.1.4		Profit on item 1.1.2 (Max 10%)	%				
1.2	**8.3.3**	**Other fixed-charge obligations (specify)**					
1.2.1	8.3.5	Testing, Commissioning and Issuing of Certificate of Compliance	item	1			
1.3		**Facilities for the Contractor**					
1.3.1		Ablution and latrine facilities	month	09			
1.3.2		Arrangement with Municipality Control, obtaining permits, arranging outages, etc. and to energise sub.	Item	1			
1.4		**Construction regulations:**					
1.4.1		Health and safety compliance	item	1			
1.4.2		HV Induction as per Municipality requirement	item	1			
1.5	DISAS AA Q1	**Complete SCADA system Handing Over Document**					
1.5.1		Quality Control Process for the checking of SCADA system installation before handing over for commercial operation	ea	1			
Subtotal carried to Item 1 of Summary							

BILL OF MATERIAL - UPGRADE SCADA AND RTU AT GAMMA 66/11 SUBSTATION AND CONTROL ROOM					
GAMMA SUBSTATION PROTECTION SCHEME RELAY UPGRADE					
ITEM	**DESCRIPTION**	**Unit**	**QTY**	**Unit Price**	**Total**
1	Supply, install and commission a Reticulation Feeder Protection Scheme (Serial SCADA only).	No	19		
2	Supply, Install and commission Bay Controller Units (BCU) that shall be IEC61850 compliant and operate in this mode, and shall have protection functionality, as per specification. Each protection panel shall comprise of the protection relays BCU. The BCU can be a conventional protection relay with protection, control and monitoring, or a programmable bay controller unit with just control and monitoring to protect the 66kV Incomer No. 1, 2-, 3- and 4-Unit Scheme	No	4		
2	Supply, install and commission Bus Zone Protection Scheme (110Vdc + Panel). Complete scheme mounted in a dual entry swing frame panel with blanking plates.	No	1		
3	Supply, Install and commission Two or Three Winding Transformer Protection Scheme (110V DC) including panels	No	3		
4	Supply, Install and commission Tap Change Protection and Control Scheme (110 VDC)	No	3		
5	Supply, install and commission Bus Coupler Control Scheme (Serial SCADA only), consisting of a 4U front plate housing the test blocks, a "Panel Not Healthy" indication light, a relay and a 12U back plate housing all the terminals and auxiliary equipment. The scheme will be installed in a new swing frame cabinet	No	2		
6	4 Core - 4mm (no.1) Armoured cable	m	500		
7	12 Core - 2.5mm (no.1) Armoured cable	m	300		
8	19 Core - 2.5mm (no.1) Armoured cable	m	300		
9	RS 485 cable (with SWA)	m	100		
10	Installation accessories (e.g., lugs, cable markers, cable ties, bandit straps, wire numbers, etc)	ea	1		
11	RS 485/232 convertors for D20 RTU	ea	3		
12	Commission Gamma RTU to SCADA	ea	1		
CONTROL ROOM					
1	Supply, deliver and install fiber drivers as specified	No	2		
2	Supply, deliver and install multiplexer as specified	No	2		
3	Supply, deliver and install 55'' monitor as specified	No	4		
4	Supply, deliver and install server as specified	No	1		
5	Supply, deliver and install printer as specified	No	1		
6	Supply, deliver and install desktop computer as specified	No	1		
6	Supply, deliver and install a 12kW inverter with backup battery, with minimum 2 hr backup	No	1		
PC SUMS					
1	Allow a PC Sum for the modification and furniture of the control room	Sum	1		
2	Allow a PC sum for supply and installation of internal SCADA programming and required software modification, testing and licensing, as well as the supply of all diagnostic and configuration software and licenses	Sum	1		

3	Allow a PC sum for supply and installation of corel draw software and licensing for engraving the substation	Sum	1		
4	Allow PC sum for two-way radio communications system for operators and control room	Sum	0		
5	Allow PC sum for testing and repairing fibre line, between Gamma substation and the control room	Sum	1		
TESTING AND COMMISIONING					
1	Factory Acceptance Test (If required)	Item	1		
2	SCADA Site Acceptance Test (SAT)	Item	1		
Subtotal carried to item 2 of Summary					

SUMMARY

Item No.	Description of the item	Page	Price (R)
1	Preliminaries and General	1	
2	Installation	2	
SUB TOTAL A EXCLUDING 15% VAT R			
CONTINGENCIES 10% (The sum provided here is under the SOLE control of the Employer and may be deducted in whole or in part)			
SUB TOTAL B EXCLUDING 15% VAT			
CONTRACT PRICE ADJUSTMENT @ 3%			
SUB TOTAL C EXCLUDING 15% VAT			
Value Added Tax @15% R			
Total of the Prices including VAT R			

POLOKWANE MUNICIPALITY

GAMMA SUBSTATION RTU'S AND RETROFIT PROTECTION RELAYS AND CONTROL ROOM UPGRADE – PHASE 1A

C3A Scope of Work

This section covers the detailed requirements for the Works. Reference should be made to the General Project Specifications in the application of these Specifications. In case of any apparent discrepancy between the General Project Specification and the Particular Specification, the Particular Project Specifications shall take precedence.

The description for the works includes upgrading of the SCADA system, the supply, installation and commissioning of SCADA system compatible protection equipment at Gamma Substation, and modifications of the central control room for the period of the Contract.

TECHNICAL SPECIFICATIONS

Note: Unless otherwise specified the material shall be in accordance to the specifications listed in the section of this document containing all General and Equipment Specifications.

The following National or International specifications will be applicable to this project:

- SANS 1019 Standard voltages, currents and insulation levels for electricity supply
- SANS 1091 National color standard
- SANS 1186 Symbolic safety signs
- IEC 60794-1-2 Optical fiber cables – Generic specification: Basic optical cable test procedures – General guidance
- IEC 60794-1-F4 Optical fibre cables
- IEC 61850 - Standard for substation automation
- IEC 60870-5-101 Transmission Protocols - Companion standards especially for basic telecontrol tasks
- IEC 60870-5-103 Transmission Protocols - Companion standard for the informative interface of protection equipment
- IEC 60870-5-104 Transmission Protocols - Network access for IEC 60870-5-101 using standard transport profiles
- IEC 60870-5-104 Transmission Protocols - Network access for IEC 60870-5-101 using standard transport profiles
- EN60529 Degrees of protection provided by enclosures (IP code)
- The Electricity Act Republic of South Africa - The Electricity Act, No. 40 of 1958 Machinery and Occupational Safety Act Republic of South Africa - Machinery and Occupational Safety Act 85 of 1993 with special reference to Section 1 (Act & Regulations), Section 2 (Administrative Regulations), Section 6 (Electrical Installation Regulations) and Section 16 (General Safety Regulations)

ABBREVIATIONS

For the purposes of this document, abbreviations used herein or in enclosed documents shall have the following meaning:

- IED - Intelligent Electronic Device
- BCU – Bay Control Unit
- OEM - Original Equipment Manufacturer

- AVR - Automatic Voltage Regulator
- REF - Restricted Earth Fault
- O/C - Over Current E/F Earth Fault
- D/C - Direct Current
- SEF - Sensitive Earth Fault
- SCADA - Supervisory Control and Data Acquisitions
- IDMT - Inverse Definite Minimum Time

PHASE 1 SCOPE OF WORK

Phase 1 of the project include work to be performed at the Gamma substation and the control room, referred hereto as the master station. The general scope of works constitutes:

- Design, supply, installation, and commissioning of RTU/Gateway Panel with network switches.
- Design, supply, installation, and commissioning SCADA system at a central control Centre.

The equipment's will form part of an integrated protection, control, automation, and maintenance engineering system according to the attached Substation Automation System (SAS) overview. Any work not specified in the document that will make the success of the project shall be covered under this contract. Minor items not specifically mentioned in the specification will be taken as having been included in the Contract Price.

The work shall, generally, cover the following:

- The supply, installation, cabling and configuration of complete SCADA gateway, that forms part of an integrated substation protection and control system based on the IEC61850 protocol.
- Supply and installation of all IED to IED and SCADA network and communication equipment, all of which shall be DC powered from the substation battery, by means of an industrial grade DC/DC converter, to be supplied as part of the solution.
- Where an independent DC power supply system other than the substation DC system is proposed for the integrated control and protection system, the offer is to include such a DC battery and charger system, capable of autonomously powering the SCADA interface and hard-wired input and output modules for a minimum of ten hours.
- The supply of all diagnostic and configuration software and licenses for the SCADA system shall be included in the offer.
- All protection relay and SCADA IED configuration, programming and settings application will be the responsibility of the Contractor. The Contractor shall be responsible for the configuration of all aspects of the IED's offered to both the Protection and SCADA configuration of each IED.
- The provision of training to Polokwane municipality nominated SCADA technicians (3) in the use of all related software and system configuration shall be included in the offer.
- Supply and installation of all multicore cabling between SCADA and non-IEC compliant substation devices.
- Transportation and off-loading of any redundant/abandoned equipment, that shall be decommissioned, to the employer's salvage yard or as specified by the Polokwane Municipality.
- Upon completion of the works, the Contractor will be required to provide As-built schematics drawings, logics and settings indicating the full protection scheme for the equipment.

- Factory acceptance testing of IED/SCADA to Master station interface, confirmation of time tagging support, data quality flag support and overall control execution response time.
- Complete commissioning of all SCADA signals within the substation is included in the scope of the contract.
- Final end-to-end commissioning of the Gamma substation SCADA system to the Polokwane municipality Master station.

Specific scope of work related to Gamma Substation and the control room covers the following:

GAMMA SUBSTATION SCOPE OF WORK

- Supply and install and commission 19 reticulation feeder protection schemes (for the 11kV indoor rural feeders on the existing panels (retrofit).
- The reticulation feeder protection schemes will be installed to protect 19 rural feeders at GAMMA Substation and will be connected serially to the SCADA system to ensure effective control room visibility.
- Supply and Install line differential relay with Bay Controller protection relays to protect the 66kV Incomer No. 1, 2-, 3- and 4-Unit Scheme Three-Pole for 110 Volt DC with 1 Amp CT Inputs including panels.
- Supply and Install Bus Zone Protection Scheme (110Vdc + Panel). The complete scheme shall be mounted in a dual entry swing frame panel with blanking plates.
- Supply and Install Two or Three Winding Transformer Protection Scheme (110V DC) including panels.
- Supply and Install Tap Change Protection and Control Scheme (110 VDC).
- Supply and install Bus Coupler Control Scheme (Serial SCADA only), consisting of a 4U front plate housing the test blocks, a "Panel Not Healthy" indication light, relays and a 12U back plate housing all the terminals and auxiliary equipment. The scheme will be installed in a new swing frame cabinet.
- Supply and install the necessary cabling and accessories to complete the installation.

CONTROL ROOM SCOPE OF WORK

The scope includes the supply, installation and configuration of a SCADA system, and related software that allows for Web-based Configuration Interface, User Access Management with Role Based Access Control, Audit Logging to track users' actions, Workspace Support for Different Sets of Configuration Files, Protocol/System Logging with Filters, Drag and drop to map multiple data points in one action, Special Views to see performance metrics and system health, as well as Search and Filter Point List from Web Interface
The control room scope includes the following components

- Supply and install Fiber Drivers
- Supply and install Multiplexer
- Supply and install Monitors
- Supply and install Server
- Supply and install a 12-kW inverter with battery backup
- Supply, Delivery and Installation of furniture as well as modification of the control room

POLOKWANE MUNICIPALITY

GAMMA SUBSTATION RTU'S AND RETROFIT PROTECTION RELAYS AND CONTROL ROOM UPGRADE – PHASE 1A

C3B: SPECIFIC TECHNICAL REQUIREMENTS

GENERAL

This part of the technical specification calls for the design, supply, installation, testing and commissioning of an integrated system of hardware and software for RTU in the substations for control systems requirements, including control, interlocking, automated sequencing, measuring, data recording, event recording, disturbance recoding, communication, engineering, and operator interface for the HV and MV substations for Polokwane Municipality, which forms part of this enquiry.

The specification also includes interfacing a Control Room to remotely monitor, control and manage the station by means of bi-directional communication It is also a requirement of this specification that the integrated hardware and software systems for supervisory and SCADA purposes at the station, shall be designed to be extendable for possible further future extensions.

SUBSTATION RTU SYSTEM AND CONTROL ROOM SCADA

SCOPE OF WORKS

The general scope of works constitutes:

- Design, supply, installation, and commissioning of RTU/Gateway Panel with network switches.
- Design, supply, installation, and commissioning SCADA system at a central control Centre.

The equipment's will form part of an integrated protection, control, automation, and maintenance engineering system according to the attached Substation Automation System (SAS) overview. Any work not specified in the document that will make the success of the project shall be covered under this contract. Minor items not specifically mentioned in the specification will be taken as having been included in the Contract Price.

ACRONYM, ABBREVIATIONS AND DEFINITIONS

ACRONYM AND ABBREVIATIONS

DNP/DNP3	Distributed Network Protocol, Version 3.0.
HMI	Human Machine Interface.
IED	Intelligent Electronic device. Generic name given to all microprocessor-based substation secondary devices e.g., Relays, tariff meters, etc.
I/O	Input / Output.

IRIG-B	Inter Range Instrumentation Group Format B.
SCADA	Supervisory Control and Data Acquisition.
RTU	Remote Terminal Unit

DEFINITIONS

Human-Machine Interface (HMI)	The Substation Automation Systems (SAS) to be provided for the various substations shall include the provision of a suitable and approved IEC61850 compatible HMI. The system offered shall furthermore not be reliant on, nor make use of any personal computers to provide protocol conversion or system functionality. All hardware shall be substation class equipment with high resilience to the harsh environment normally found within a substation.
Intelligent Electronic Device (IED)	A device that performs electrical protection functions, advanced local control intelligence, has the ability to monitor processes and can communicate directly to a SCADA system. Digital protective relays are primarily IEDs, using a microprocessor to perform several protective, control and similar functions as well as self-monitoring function, communication functions etc. and support the IEC61850 standard for substation automation, which provides interoperability and advanced communications capabilities
Integrated Protection, Control, Automation and Maintenance Engineering System	This concept is generally termed a Substation Automation System (SAS) and represents a concept whereby previously segregated protection and control device functionality is merged into single modules. Protection devices therefore offer data gathering functions and control of the protected plant, while control devices may offer supplementary or backup protection functions. The primary purpose of the SAS is to maximise the utilisation of equipment in terms of functionality and information resolution, while minimising the duplication of functions and wiring by making use of data processing and communication facilities inherent in modern numerical devices.
Local area network (LAN):	A LAN is a network normally designed for a limited geographical area, such as a utility substation or an office area. It is generally capable of transmitting data, voice, and image and video information. In most cases a LAN is considered to be an integral part of the facility and is owned by the facility owner. A substation LAN may have sub-networks or segments to manage information flow and access. Segments may also be added to accommodate passing messages over distances exceeding the basic messaging distance inherent in the media. Serial networks can often be

	implemented over a LAN by embedding the serial messages in a network protocol.
Wide area network (WAN):	A WAN provides long-distance transmission of data, voice, and image and video information over a large geographical area. A WAN can be owned by a utility or WAN services can be leased from telecommunication providers. WANs connect LANs together.

NORMATIVE REFERENCES

All equipment offered shall be of the latest proven technology. The protection equipment shall also comply with the requirements of the latest revisions of:

Specification	Description
IEC 60044 Part 7	Instrument Transformers – Electronic voltage and current transformers
IEC 60051	Direct acting indicating analogue electrical measuring instruments and their accessories
IEC 60255	Measuring relays and protection equipment
IEC 60258	Direct acting recording electrical measuring instruments and their accessories.
IEC 60297	Dimensions of mechanical structures of the 482,6 mm (19 inch) series
IEC 60337	Control Switches
IEC 60359	Expression of the Performance of Electrical and Electronic Measuring Equipment
IEC 60414	Safety requirements for indicating and recording electrical measuring instruments and their accessories
IEC 60473	Dimensions for panel-mounted indicating and recording measuring instruments
IEC 60529	Specification for degrees of protection provided by enclosures
IEC 60625	An interface system for programmable measuring instruments.
IEC 60688	Electrical Measuring transducers for converting ac electrical quantities
IEC 60847	Local Area Network Characteristics
IEC 61850 Part 1	Introduction and overview
IEC 61850 Part 2	Glossary
IEC 61850 Part 3	General Requirements
IEC 61850 Part 4	Systems and Project Management
IEC 61850 Part 5	Communications requirements for functions and device models
IEC 61850 Part 6	Configuration description language for communication in electrical substations related to IEDs

Specification	Description
IEC 61850 Part 7-1	Basic communication structure for substation and feeder equipment. Principles and models
IEC 61850 Part 7-2	Basic communication structure for substation and feeder equipment. Compatible logical node classes and data classes
IEC 61850 Part 8-1	Specific Communication Service Mapping (SCSM). Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3
IEC 61850 Part 9-1	Specific Communication Service Mapping (SCSM). Sampled values over serial unidirectional multi-drop point to point link
IEC 61850 Part 9-2	Specific Communication Service Mapping (SCSM) Sampled values over ISO/IEC 8802-
IEC 61850 Part 10	Conformance testing
IEC 60870-6	Telecontrol Equipment and Systems.
IEC 61850	Communication Networks and Systems in Substations.
IEEE Std 525	IEEE Guide for the Design and Installation of Cable Systems in Substations.
IEEE Std 1379	IEEE Recommended Practice for Data Communications between Intelligent Electronic Devices and Remote Terminal Units in a Substation.
IEEE Std 1588	IEEE Precision Clock Synchronization Protocol for Networked Measurement and Control Systems.
IEEE Std 1613	IEEE Standard Environmental and Testing Requirements for Communications Networking Devices Installed in Electric Power Substations.
IEEE Std 1646	IEEE Standard Communication Delivery Time Performance Requirements for Electric Power Substation Automation.
ANSI/IEEE Std C37.115	IEEE Standard Test Method for Use in the Evaluation of Message Communications between Intelligent Electronic Devices in an Integrated Substation Protection, Control, and Data Acquisition System.
ISO 9001	Quality System Model for Quality Assurance in Design/ Development, Manufacture and Testing
ISO 9002	Quality System Model for Quality Assurance in Production, Installation and Servicing

SUBSTATION AUTOMATION (RTU/HMI) SYSTEM REQUIREMENTS

REMOTE TERMINAL UNIT/HMI

All functional capabilities described herein shall be provided by the Contractor even if a function is not initially implemented. As a minimum, the RTU/Gateway shall be a modular type RTU560 or equivalent and must comply with/be capable of performing the following functions:

General

- IEC 61850 compliance and operation in this mode
- Connection to BCUs and protection IEDs via substation LAN with redundancy
- Three separate upstream communication ports (one port each for NCC, ECC and RCC)
- Support upstream communications protocols (IEC 60870-5-101/104/870)
- For communication with IEDs the RTU must be IEC 61850-8-1 compliant and support DNP 3.0, SPA-Bus, Modbus, IEC 60870-5-101, IEC870 (RP570/571), IEC 60870-5-103, IEC 60870-5-104. IEC61850 is preferred.
- Built-in power supply module with redundancy
- Built-in Ethernet switch with single mode fiber ports
- Industrial Design Standard with high availability
- Software licensed to accommodate all data points required to comply with the specification plus 20% spare capacity (with a minimum of 5000 data points)
- Able to connect to substation fault current devices through serial connection.
- Receiving and processing digital commands from the master station(s)
- Capable of directly interfacing with the substation devices through hardwiring
- Capable of integration with third-party IEDs
- All breakers, isolators and earth switches shall be hardwired to the RTUs and be configured.
- as double indications.

Communication unit

- The RTU shall have configuration and maintenance ports at least six serial ports (RS-232 or RS-485) and two ethernet interface(10/100BaseT) and at least one USD port.
- RAM & Boot Flash of the RTU shall be at least 128Mbyte & 8 Mbyte.
- The buffered battery lifetime of the communication shall be at least 10 years & time resolution 1sec,1ms with time sync.
- Optionally, in cases where a station HMI is installed, the RTU will collect the information from the various devices and then distribute that information to the HMI and various control centres.

Hardware Architecture

- The RTU hardware boards and modules shall be mounted in a standard 19-inch cubicles or cabinets with swing frame construction
- It shall consist of the following cards: binary input card, binary output card, binary output. supervision card, analogue input card and communication unit card (CMU) and any other cards the contractor deems necessary.
- All cards shall be rack mounted.

Digital Inputs & Digital outputs

- The RTU shall have at least 32 digital inputs to monitor the substation auxiliary status.
- The RTU shall have at least 16 digital outputs.
- The RTU shall suppress contact bounce and suppression of oscillating signals caused by the process.
- The RTU shall accept single point status inputs and double point status inputs.

- All status inputs shall be sampled and processed by the RTU at a time resolution of no longer than 1 millisecond.
- All digital inputs, digital outputs, analog inputs, analog outputs, and serial parts shall be isolated to provide a minimum of 1,5 kVrms dielectric withstand for 1-minute isolation to IEC 60255.
- Pulse/counter inputs shall be used to collect and transfer summated flow information from the RTU to the Master Station on a periodic basis. The counters will be frozen exactly on the minute, every minute, and shall be synchronized with the Master Station clock.

Analog inputs

- The RTU shall support report-by-exception, with a programmable dead-band for individual analogue points, as supported by the host protocol.
- The RTU shall have at least 16 Analog inputs to monitor the substation auxiliary status.
- The analogue input module shall be capable of providing a resolution of 12 bits plus a sign bit. The accuracy of each input shall be better than 0.25% of the selected input range.
- The analog module(s) shall provide, as a minimum range 4 to 20mA
- The RTU analogue system shall provide analogue events with a 1ms resolution. This implies that the RTU shall, at the time of the event, sample the analogue and record the time for onward transmission to the master station. The date and time reported shall conform to the full-time stamp as specified under Real Time Clock.
- An analogue event shall be initiated by any one or a combination of the following parameters:
  - Reaching an integration time constant
  - The expiry of a periodic time
  - Crossing a specific threshold value
  - Crossing out of a dead band area

Archive Functionality

The RTU/Gateway shall have the following archive functionality:

- Standard function for visualizing security events
- The security event log is also stored on the compact SD-card in the CMU.
- Visualization via web server
- The security event log can be uploaded to local PC (e.g., as .csv)
- Local storage of selected data in the SD-Card memory of a CMU
- Local data is stored as events and indications for all process and system events, command, and HMI login events.
  - Measured Values (AMI, MFI)
  - Counter Values (ITI)
  - Security events
- Data can be visualized and downloaded to the PC from the web server.
- File size is configurable for up to 100,000 entries per file.
- Message text string can be customized.
- Enables disturbance files and meter data to be uploaded and stored in the SD-card memory of a CMU.
- Disturbance files from protection devices

- Uploaded from protection IEDs via IEC 60870-5-103, SPABUS and IEC 61850
- Available conversion to COMTRADE-format.
- RTU/Gateway shall read load profiles from selected alpha meters based on IEC 62056-21 protocol.
- Files shall be forwarded to control centre via file transfer (e.g., with IEC 60870-5-101 and DNP 3.0)

Substation HMI (Optionally)

- The HMI PC will consist of an industrial panel-mounted PC, using a 19" panel mounted industrial screen. An industrial keyboard tray with trackpad will be provided to complete the user interface.
- The HMI PC shall be fanless embedded system powered by and Intel processor. The PC has one USB 3.0 port, three USB 2.0 ports, two Gigabit Ethernet ports, three RS232 ports, one RS422/485 port, and one 8-bit DIO port. The PC will be equipped with 4Gb RAM and a 250Gb SSD drive. The requirements for a single HMI Server/Client computer are as follows.
    a. Industrial with high availability
    b. HMI Server/Client computers will also be loaded with graphical user interface software with the same functionality as the SCADA software on the Workstations (for more info, refer to the look and feel of the software should be as close as practically possible to that of the Workstation software.
    c. The substation HMI shall be Panel mounted HMI & shall be mounted in RTU panel.

HMI Display Specifications (Optionally)

- The HMI Shall indicate different colours on the mimic diagram shall indicate the different voltage levels. Circuit breaker, isolator and earth switch positions shall be indicated using different colours for the breaker symbols. (No dynamic colouring of mimic is required).
- Any trip alarm for a particular circuit breaker shall also be indicated.
- HMI shall be web based.
- Function for station visualization and station control.
- HMI-runtime for visualization of
    - Static and dynamic components (control and monitoring)
    - Events and alarm list
    - System events (text or symbol)
    - Customized symbols (picture editor)
    - Trend charts with fixed or dynamic scaling
- One common data model based on RTU configuration.
- Up to 8 concurrent users.
- Visualization of table components in the HMI runtime system
- Customized visualization of events
- Selection of event classes, text, and qualifiers
- Sorting and filters of events
- Historical presentation
- Pre-selected events can be visualized as alarm list.
- Acknowledge is required.
- Fore- or background colouring of alarm events.
- Audible alarms
- Interlocking between remote and local control authority
- One-click control authority request.
- One- and two- step commands

- Increased control authority security by roles assignment (cyber security)
- One single user control authority
- Analog values as curve
- Archive functionality
- Up to 100,000 entries per archive
- Possibility to display archive values.
- Analog value information
  - Analog measurement information
  - Integrated total information.
  - Improved graphical visualization.
  - Dynamic scaling
  - Fixed scaling

Redundancy

The system shall have the following requirements.

- Redundant power supply
- Redundant pairs of communication Units (CMUs)
- PRP redundancy in TCP/ IP networks.

Reliability

The System shall be designed for high reliability and that hardware and standard existing software used within the System shall have been proven in user service. The basic equipment life shall be at least ten years provided that normal routine maintenance is carried out. The equipment shall be designed to operate safely, reliably, and efficiently over this period. The replacements necessary to achieve this reliability shall be defined in the Tender.

The system shall minimize the possibility for loss of data. If the system loses data, then it should know about this fact and report the state to the user. Such loss of network status data shall be recoverable by suitable means of interrogation of the substation equipment and /or RTU's by the Central Master.

Event and Alarm Listing

All faults and abnormal conditions which may occur in any plant equipment shall generate an alarm and be transferred to the remote and supervisory control system.

Events include.

- Circuit breaker operation
- Isolator operation
- Earth Switch position changes
- Selector switch for remote/supervisory control on/off position change
- Auto reclose setting change
- Supervisory control for particular bays on/off position changed.
- Supervisory control for particular voltage level on/off position changed.
- All events must be transferred to the new Control Centre.

All events and alarms shall be time tagged in the BCUs and protection units. Electrical measurements shall be presented as time-based trend curves. It shall be possible to retrieve and sort selected parts of the alarm and event listings and also group alarms on a per bay basis or on the basis of the alarm type e.g., protection, overload. It should also be possible to sort the alarms in chronological order. All events should be stored sequentially on a mass storage medium in the substation Workstation. Alarms and faults are to be given priority in

relation to status changes. In the archive in the mass storage medium, status indications and fault indications (from protection relays) are to be logged.

All local alarms for each bay will be recorded in the BCUs or protection units and transferred to remote and supervisory control systems. In addition, the alarms should preferably be presented in a display in front of the control or protections units.

Cyber security

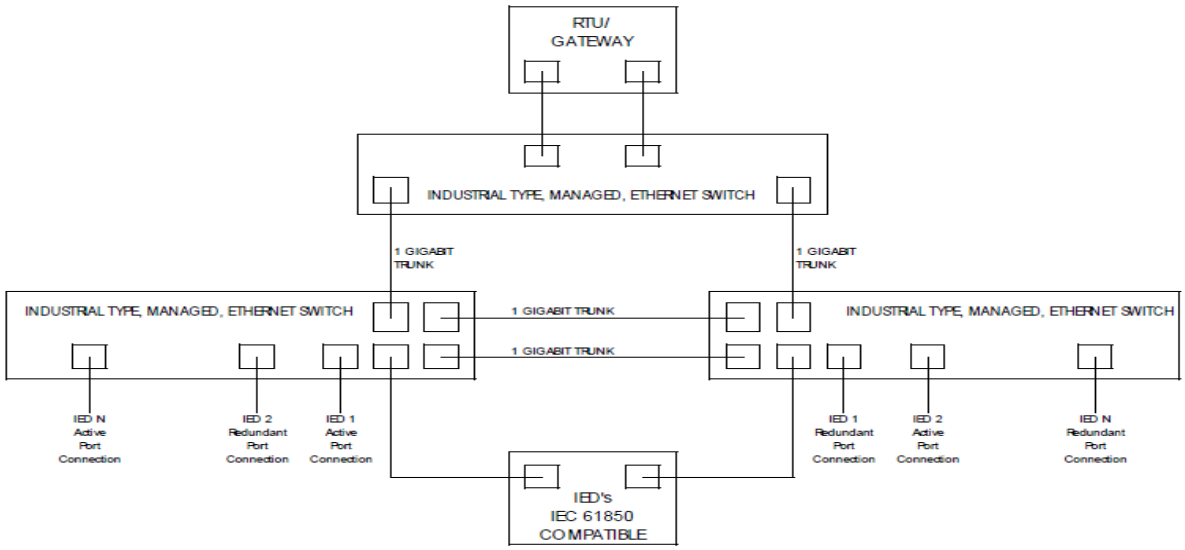
Cyber security has become an issue by introducing Ethernet (TCP/IP) based communication protocols to industrial automation and control systems e.g., IEC 60870-5-104, DNP 3.0 via TCP/IP, or IEC 61850.

Provided RTU/Gateway shall be compatible for at least following standards to secure data.

- IEC 62351
- IEEE 1686,
- NERC CIP

SUBSTATION LAN

The substation LAN serves to interconnect all the substation equipment onto a network and to connect this network to the RTUs to allow external communication. Redundancy and automatic recovery are of critical importance. The typical network topology to be introduced on the project shall in general be as indicated on the diagram below:



The substation LAN will be IEC 61850 compliant and operational in this mode. A network backbone will be created by connecting all the Ethernet switches and the RTU in a ring topology. All IEDs and other critical components will be connected to the nearest Ethernet switch with at least one level of redundancy. The Bidder must explain all redundancies in detail.

The Ethernet Switches will be an AFS670 industrial type or equivalent and must comply with the following:

- IEC 61850 and operation in this mode
- GOOSE messages

SUBSTATION GPS

A GPS time synchronization mechanism for the synchronization of the entire system shall be provided. The preferred method for the synchronization of the SAS devices is via IEEE 15588v2 Power Profile or IRIG-B or as described in IEC 61850-8-1, i.e., SNTP.

Devices that require a direct IRIG-B or other such dedicated synchronization mechanism must be clearly specified and a recommended solution for providing such a signal to the devices must be offered.

FACTORY ACCEPTANCE TEST (FAT)

- The Contract shall include the Factory Accepted Test (FAT) must be done at the supplier's factory before the equipment is delivered to site.
- FAT must be arranged with the relevant Polokwane Municipality representative.
- The contractor must notify Polokwane Municipality representative at-least two weeks' notice before the FAT can commence.
- During FAT, the contractor must carry out all tests required to prove the scheme design and proper operation of equipment's supplied to the satisfaction of the engineer. All protection relays shall be configured before FAT.
- Only after the FAT has been approved by all relevant Polokwane Municipality representatives, shall the equipment be shipped to site.
- Provision shall made for 3 personnel of Polokwane Municipality representative for 5 days for protection included one typical for each protection scheme & 3 days for RTU.

INSTALLATION & SERVICES

The Contract will include the provision, installation and commissioning of all equipment required, including all matters and details to provide a complete installation. The specified requirements shall include.

- Disconnection and removal of the control cables from marshalling kiosk and control panels.
- Disconnection and removal of the existing control panels with the control functions connected.
- Wiring of the new control panels with all protection functions as per specification; will be done at the supplier premises before delivery.
- Laying and pulling of the new control cables.
- Connecting of the new control cables to the control panels.

SITE ACCEPTANCE TEST (SAT)

- Before the equipment has been shipped to site, a site acceptance test must be arranged with relevant Polokwane Municipality representative.
- Contractors must give Polokwane Municipality representative at least one-week notice before commissioning date.
- The Contractor must submit to the Engineer in writing the name of the person(s) who is/are the designated person(s) on site in terms of Occupational Health and Safety Act.
- SAT will include all tests covered in the FAT and any additional tests to the Engineer's satisfaction.
- During the commissioning, all tests' results sheets must be signed by the contractors' representative and a Polokwane Municipality representative who witnessed the tests, all tests' results shall be handed to the Polokwane Municipality representative after each day of testing to take back to his/her office to make copies which will be studied by senior protection branch staff.

- The contractor shall submit to the Engineer after completion of the tests two hard copies and electronic copies of the test certificates, which shall contain details of each test, performed, and shall be prepared as per Engineer's requirements.

TRAINING

It is a requirement of this enquiry that comprehensive and detailed training shall be provided to the Polokwane Municipality staff so that they will be fully informed of all technicalities regarding the protection, control, indication and SCADA systems.

a) Prior to the commissioning phase, the Polokwane Municipality staff's technical staff shall be comprehensively trained in the basic principles of the IEC61850 standard. In this training particular attention shall be given to the application of the IEC61850 standard for the project as a whole. Provision shall be made for training of a minimum of 10 technicians at a time.

b) During commissioning, the above trained technicians shall be fully involved in system testing and commissioning activities to ensure that the protection, control indication and SCADA functionality is fully operational.

c) On completion of all commissioning tests, the Polokwane Municipality's operating staff shall be trained in the proper operation and maintenance of the systems as installed at the various substations. All such operational training shall be structured formally and be done by reference to the Operational and Maintenance Manuals to be provided.

d) Due allowance shall be made by the Tenderer for the costs of comprehensive training of the Employer's and Polokwane Municipality staff.

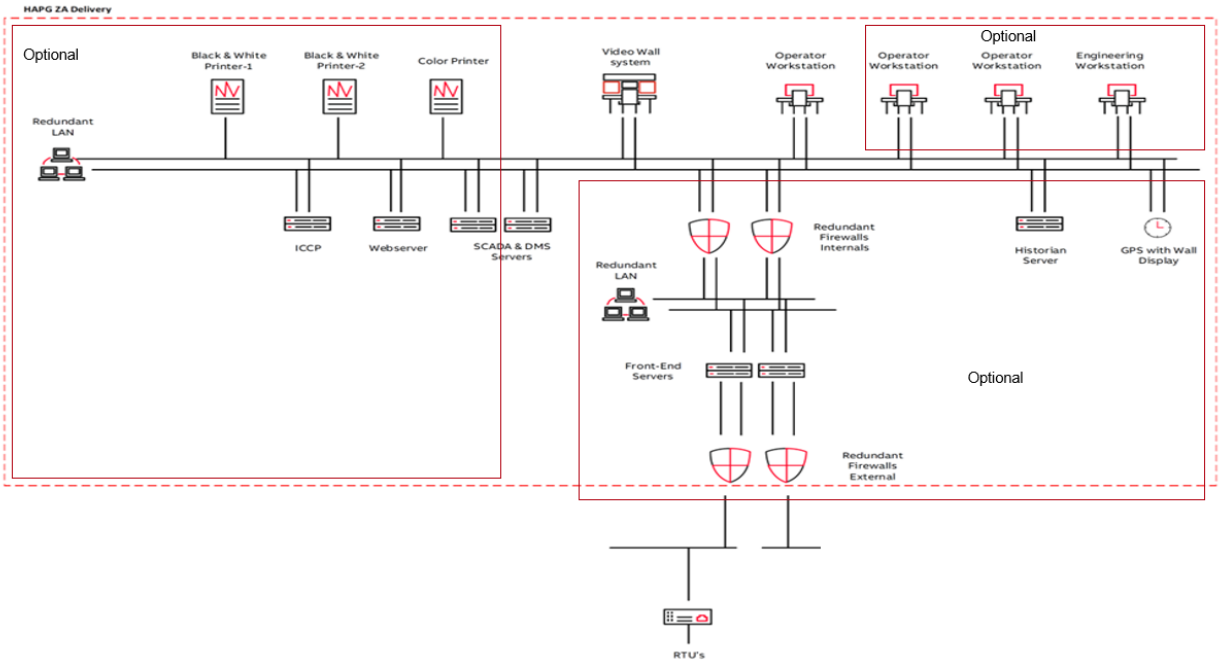
DOCUMENTATION AND MANUALS

- The Contractor will be responsible for the overall detailed electrical design and functional integration of the Control and Protection schemes with the primary plant devices. This will include integration with HV and MV equipment to form a complete working system, which meets the requirements of this specification as a whole.
- The Contractor shall supply a complete set of schematic diagrams of the protective equipment prior to commencing any detailed design or construction of the panels. Approval of the schematic diagrams must be obtained from the Engineer. Work in this line may not proceed until the Engineer has approved the proposed design.
- All protection and control schematics as well as drawings of the cubicle layouts, the positioning of the equipment and the cubicle colour must be provided. All dimensions and colour details must be indicated.
- All terminals must be numbered and indicated on both schematic and wiring diagrams and all ferrule numbers fitted to cable and control wiring shall be indicated on all schematic and wiring diagrams.
- Two hard copies and reproducible versions of all final as built schematic diagrams, dimensioned assembly and main sub-assembly drawings on a CD ROM with AutoCAD DXF or Other approved engineering software files shall be supplied within two months after the handover of the project. Completely detailed schematic diagrams of the control, protection, and interlocking schemes.
- This must include complete logic flow diagrams of all control elements. A proper referencing system will be used between logical inputs, outputs, and actual binary/ analogue signals.
- Detailed drawings to scale of the relay and control panel suite and individual panels, showing the main overall dimensions of the panels, the equipment lay-out on the panels, the panel cut-out, relay dimensions, method of mounting of relays and other equipment and panel floor fixing details. A complete set of marked up drawings (factory acceptance changes included) shall be submitted for approval before site commissioning commences.

- If at any stage during the contract additional drawings are considered necessary, the Contractor shall submit such drawings at no extra cost.

CENTRAL SCADA SYSTEM AT A CONTROL ROOM

The scope of work shall include the supply, installation, and training of the upgraded system with all the software functions and hardware platforms required to realize a fully integrated SCADA solution that shall be used to operate and manage the transmission and distribution system in Polokwane Municipality efficiently and effectively. The system shall be open and have capability to integrate to the Eskom National and Regional SCADA, if required.



The full system to be delivered should comprise the following systems as shown above:

1. SCADA application as outlined and detailed under functional specifications.
2. SCADA servers. (Optional redundant servers)
3. Online Backup Server (Optional)
4. Utility Data Warehouse
5. Active Directory
6. Windows Update Server
7. Operator Workstation PCs
8. System and Data Engineering Server and Client
9. ICCP servers (Optional)
10. Process Communicating Server (Frontends) (Optional)
11. Video Wall
12. UPS (Optional)
13. Network Printers and loggers (Optional)
14. GPS
15. Network Devices e.g., Routers, Firewall (Optional)
16. Integration to external systems (GIS, Eskom National and Regional SCADA, AMI, etc.) (Optional)

FUNCTIONAL PERFORMANCE REQUIREMENTS

All system components shall be of high grade with high availability and shall be specially developed to meet the requirements on control, supervision, and management of a distribution system. The system shall be required to have the performance levels detailed below. This performance shall be maintained if the process is subsequently extended to incorporate additional equipment.

The performance of the system shall be acceptable to all users of the system. All systems requiring data shall be satisfied in time to avoid application failure, bottlenecks, or result in erroneous results.

The system shall incorporate capabilities to handle system activities at levels that exceed the high activity state and conditions to avoid total degradation of system performance. The system should be unmodified real time multitasking, one proven for power network control.

SYSTEM SIZING

The following sections define the sizing, expansion, and upgradability of the delivered SCADA SYSTEM. Selection of the deliverable SYSTEM hardware is also defined.

SYSTEM AS DELIVERED

The SYSTEM hardware shall be expandable, via the addition of modular hardware, to meet the performance requirements for all specified functions at their ultimate hardware sizes.

EXPANSION REQUIREMENTS

In order to maintain the specified performance as ultimate hardware and software sizes are approached and to provide computer capacity beyond the ultimate sizing for future functions and data communications not presently defined, the SYSTEM shall be designed to enable the easy, convenient increase in processing power, main memory, and bulk memory. The expansion requirement efficiencies to conform to the following:

- The contractor shall provide for scalability of hardware and expandability of the software functions to allow for future expansions of the SCADA system.
- Enable upgrade of hardware without modifying the operating and application software
- A new release of the system to be implemented without modifying the application software and hardware.

FAILURE RECOVERY REQUIREMENTS

- All components of the system shall incorporate failure recovery mechanisms to reduce system downtime to a minimum.
- The SCADA system shall be configured so as to avoid single mode failure.
- Features that shall be incorporated to support recovery are:
    - Separate Redundant servers with each server having operating.
    - system, application software, and database
    - Each redundant server shall incorporate at least RAID 1 technology ✓ Physically distributed systems.
    - Oracle replication where applicable

SOFTWARE MAINTAINABILITY

The SYSTEM shall be designed to allow on-line software module integration and on- line modification of database parameters with minimal effect on real-time system operation.

Changes in database definition (including, but not limited to, addition of power system equipment, modification of equipment characteristics, and modification or addition of calculations) shall be possible without regeneration of the entire database.

DATA STORAGE GUARANTEED PERFORMANCE

For all system disturbances generated and regardless of the origin of the disturbance and the duration, no loss or alteration of any information and no disturbance of statistical functions shall be accepted.

The only acceptable disturbance for the functions setting up the event log and the periodical logs shall be a delay in their print-out.

In every case, no operator action shall be needed to reconstitute the information.

GENERAL TECHNICAL REQUIREMENTS

COMPLIANCE TO TECHNICAL SPECIFICATIONS

Whenever the contractor states compliance for any of the requirements stated by Polokwane Municipality, it is expected that the contractor shall explain briefly how they will meet the requirement and what technology if any they shall apply.

The following are the main features of the SCADA system:

- The system configuration shall be fully redundant Hot-standby configuration with respect to all servers required.
- Bump-less automatic failover shall be provided for the following critical SCADA, ICCP, Frontends.
- The system should be delivered with at least two Inter Centre communication protocol (ICCP) licenses to communicate to other control centres (i.e., Eskom National and Regional control Centre), if required.
- The system communication servers should include the following protocols: IEC 61850, RP570/71, IEC60780-5-101, IEC60780-5-104, DNP 3.0 serial, DNP3 IP, and ICCP. The contract shall ensure that these protocols are tested on site before the system is commissioned.
- The supplied systems shall support open system connection protocols to other existing external systems.
- There shall be streamlined logging and authority management within one system.
- There shall be integrated security analysis for substation and circuit operation to check for tags in one area affecting operations in the other.
- The system shall provide operator efficiency by eliminating the need to go to multiple systems with potential differences in data.
- A web server shall be provided in the non-secure zone to provide outage information for both internal and external Polokwane Municipality customers.
- Be able reuse the existing and add new RTUs and Substation Automation Systems.

TIME SYNCHRONIZATION

- The Time Synchronization system comprises a time server with integrated GPS radio clock as the source for the time base, and the necessary interface equipment to synchronize the clocks in the application servers and the Data Acquisition Subsystem and all real time dependant subsystems to be interfaced to the system.

- Further, events occurring in various distributed RTU's throughout the distribution system shall be time synchronized by the SCADA to an accuracy of at least 200 milliseconds.
- The GPS server shall be integrated with frequency display module (FDM).

TECHNICAL REQUIREMENTS FOR THE MAIN SERVERS AND HARDWARE SPECIFICATIONS

The bidder shall give full technical details of the configuration proposed and shall indicate the initial and ultimate capacities of the equipment tendered. The minimum hardware specification should be as outlined in section and the capacity shall be adequate for the existing equipment as well as for future expansion.

HARDWARE SPECIFICATIONS

CENTRAL SYSTEM CONFIGURATION

The bidder shall submit details of his proposal for the design of the hardware configuration to meet technical requirements.

The Central System shall comprise dual SCADA server, due Web server, dual UDW server, AD server, dual PCS, operator workstations, video wall, dual ICCP server, dual LAN, dual GPS, Data Engineering server and clients, thin clients, antivirus server and peripherals interconnected by a Local Area Network (LAN).

The bidder shall submit details of his proposal for the design of the hardware configuration to meet technical requirements.

The exact location of the equipment in the Control building will be agreed upon prior to the installation.

OPERATOR WORKSTATION

- There shall be 3 operator workstations and each Operator´s Workstation shall be equipped with a graphic screen, 55", and it shall be based on Microsoft windows.
- The Workstation shall also include audible alarms.

PRINTERS

- The printers shall be connected to the LAN of the central computer system.
- They shall be accessible from all operator workstations.
- All printers shall be HP or equivalent.

Laser Printer

- The laser printer shall meet the latest standards and be designed for printing A4 and A3 formats. III.
- Colour LaserJet Printer.
- Quantity required =01

Plotter

- The plotter shall meet the latest standards and be designed for printing distribution maps.
- Quantity required =01

CPU Load

The software and hardware of each microcomputer System shall be designed and dimensioned in such a way that the CPU load shall not exceed 50% at the end of site acceptance tests.

For each microcomputer, the Contractor shall supply an on-line software tool in charge of:

- measuring the load: this shall be an object in the data base, and the engineer station shall have a view grouping the loads of all the microcomputers,
- triggering an alarm if the first threshold parameter on the engineer station should be exceeded,
- Causing the microcomputer to go back into a safety position, if a second threshold parameter on the engineer station should be exceeded.

Memory Volume

- The Contractor shall supply a minimum of 50% extra memory space over and above the requirements for each server.

Mass Storage

- Each mass storage device shall be supplied with a minimum of 40% free space for future development.

Storage Memory

- This shall be used during the warranty period and subsequently for operations and maintenance. The storage memory shall have sufficient capacity to store all data.

MINIMUM HARDWARE SPECIFICATIONS

The hardware supplied shall be from reputable suppliers. The contractor shall provide hardware that has the following minimum specifications or better.

SCADA and UDW Servers

- ➢ Intel @ Xeon Silver
- ➢ 64 GB RDIMM
- ➢ 4 x 1.2 Tb RAID10
- ➢ Hot Plug, Redundant Power Supply
- ➢ Dual Network Adapter
- ➢ DVD+/RW SATA Int
- ➢ Windows OS

Data Engineering Server

- ➢ Intel @ Xeon Silver
- ➢ 64 GB RDIMM
- ➢ 4 x 1.2 Tb RAID10
- ➢ Hot Plug, Redundant Power Supply
- ➢ Dual Network Adapter
- ➢ DVD+/RW SATA Int
- ➢ Windows OS

Web Server

- ➢ Intel @ Xeon Silver
- ➢ 64 GB RDIMM
- ➢ 4 x 1.2 Tb RAID10
- ➢ Hot Plug, Redundant Power Supply
- ➢ Dual Network Adapter
- ➢ DVD+/RW SATA Int
- ➢ Windows OS

FE and ICCP Gateway

- ➢ Intel @ Xeon Silver
- ➢ 16 GB RDIMM
- ➢ RAID 400GB SATA
- ➢ Hot Plug, Redundant Power Supply
- ➢ Dual-Port 1GbE
- ➢ 1U

Active Directory

- ➢ Intel @ Xeon Silver
- ➢ 16 GB RDIMM
- ➢ RAID 400GB SATA
- ➢ Hot Plug, Redundant Power Supply ➢ Dual-Port 1GbE
- ➢ 1U

Serial Device Server

- ➢ 1 x Ethernet RJ45 10/100 Mobs
- ➢ 16 x Serial RS-232/422/485 RJ-45 8pin
- ➢ 100 to 240 VAC or 88 to 330 VDC
- ➢ 19- Inch Rackmount Size

Fast/Gigabit Ethernet Switch ABB AFS675

- ➢ GE/FE RJ45(x2) + GE SFP(x2)
- ➢ 2…26 Ports (4 Gigabit Ports): RJ45/LC/SC/MTRJ/ST/SFP
- ➢ 120…250 VDC/110…230 VAC or 24…48 VDC (x2)
- ➢ Temperature 0 C ….60 C
- ➢ Fanless Design
- ➢ Mounting 19" Cabinet
- ➢ Protection Class IP30

Fortinet FGR-30D Firewall

- ➢ ICCP Link Connection

NetShelter SX Deep Enclosure

- ➢ 42U
- ➢ 19 Inch
- ➢ 3 x Cable Organizer
- ➢ 1 x Modular Banking Panel
- ➢ 2 x Basic Rack Power Supply Unit, 42 Sockets

Rack Console

- ➢ KVM Switch
- ➢ 18.5 Inch Display
- ➢ 19" Rack Mounted 1U

GPS NTP Time Server

- ➢ 1 x RJ45
- ➢ 19" Rack mount
- ➢ GPS Antenna
- ➢ Surge Arrester for Antenna
- ➢ 50m Antenna Cable

Workstation Computer

- ➢ Intel Core I5, Quad-Core, 2.90 GHz
- ➢ 8 GB DDR3L
- ➢ 500 GB 3.5 Inch Serial ATA
- ➢ Small Form Factor
- ➢ Intel Ethernet I350 QP 1Gb
- ➢ Windows OS
- ➢ Keyboard and Mouse

Desk Top Monitor

- ➢ 27-Inches
- ➢ 2560 x 1440 at 60Hz
- ➢ 1 x DP, mDP, 2 x 2 x HDMI
- ➢ 4 x USB 3.0

PRINTERS

HP or equivalent Colour LaserJet printer

- ➢ Automatic two side printing
- ➢ Print speed A4, black and colour
- ➢ Multipurpose tray 1: and Tray2:
- ➢ Able to support media sizes of up to A3

NETWORK AND COMMUNICATIONS SPECIFICATIONS

PROCESS COMMUNICATING SERVER (FRONTENDS)

- The interface to all substation RTU's and Substation Automation systems shall be the Process Communication Servers (PCS). PCS shall perform supervision of these devices.
- It shall also pre-process all the raw process data before sending it to the main server. It shall supervise and coordinate the efficient polling of all the remote systems through the protocols that shall be implemented. The PCS shall support the following protocols: IEC 61850, RP570, IEC 60870-5-101, IEC 60870-5-104, DNP 3.0 serial, and DNP3 IP.
- The PCS shall be configured in Hot-Standby redundancy to ensure high availability. The redundancy shall be implemented per communication line.
- The PCS shall have tools for reading and recording of communication traffic for each communication line which shall be used for diagnosis of communication problems.

- The Communication and Data Acquisition Subsystem shall be hot-standby redundant.
- The bidder shall give full technical details of the configuration proposed and shall indicate the initial and ultimate capacities of the equipment tendered.
- The capacity shall be adequate for the existing equipment as well as for future expansion.
- The PCS shall start automatically at a cold start when power is applied to the Process Communication Units (PCUs) following a power failure, or manually on request from an Operator Station
- It shall be possible to monitor all station in case of the standby frontend being unavailable.

CENTRAL SYSTEM LOCAL AREA NETWORK

- The Local Area Network shall be based on optic fiber or untwisted pair (UTP) cable redundant network at 100Mbits/s.
- The system shall be redundant with two LAN connections per server, workstation etc with the exception of printers which may be connected to one LAN only.
- The LAN shall be equipped with Firewalls for connections with equipment outside the secure zone.
- At least 20% extra ports shall be included to allow for expansion with office LAN etc.
- The network shall be segmented according to different types of zones implemented. This is in order to enhance System security.

DATA ACQUISITION AND NETWORK TOPOLOGY

- Electrical switchgear of a Substation consists of a series of standard bays panels interconnected by an open protocol. A bay is a feeder, a transformer, a coupler or a capacitor bank.
- An Intelligent Electronic Device (IED) is a device that implements specific functions in a Substation such as a protection relay.
- A standard bay panel contains the IED's needed for the local control and protection of the bay.
- A Bay Control Unit (BCU) is an IED that controls all devices related to a single bay (transformer, feeder,..) and communicates with relays for functionality. The BCU shall have its own integrated Ethernet communication interfaces (both basic and optical).
- Each bay shall have a local/remote switch enabling or disabling the local control.
- A Gateway (also referred to as RTU or SCADA Controller) provides the interface between the substation control system (SCS) (substation automation system) and the remote SCADA control centres using the protocol IEC 60870-5-104. Within the substation, the Controller supports IEC 61850 GOOSE messaging. The Controller is housed in a cubicle.
- Each bay shall have an autonomous behaviour, i.e. local control and interlocking, sequence of events, etc. It is to be connected to other bays by logical means for system wide functions, such as interlocking or busbar protection, but can have a downgraded mode with complete protection and control of the local bay. Its functioning shall not be affected by any fault occurring in any of the other bay control units of the station.
- An operator interface (HMI), shall provide the local supervision and control of the substation, sequence of events, archiving, printing, etc. It shall be active when the substation is in local mode.
- Additional gateways may be required to interface legacy field bus communicating devices and the IEC 61850 substation bus. The protocols may be serial or TCP/IP versions for IEC 60870-5, DNP3.0 and Modbus.
- The SCS shall allow communication between Bay Control Units (BCU's), and intelligent
- electrical devices (IEDs) of a Substation Automation System on one hand and the Main SCADA System on the other hand.

SCADA SYSTEM KEY FEATURES

The Project Supervisory Control and Data Acquisition (PROJECT SCADA) main functions shall comprise but shall not be limited to:

1. Real time monitoring, diagnostics and control of designated MV and LV network components.
2. Automatically reconfigure and maintain the distribution network as per the approved sequence of operation requirements.
3. Reconfigure the MV loop (for example in case of a fault on one of the incomers).
4. Data acquisition for metering devices, sensors, and other intelligent electric devices
5. Handling of events and alarms.
6. Recording of events, operator actions and measured values.
7. User-composed measurement groups for displaying real-time and historical trends.
8. Power quality analysis (including harmonics, voltage sags/swells, transients and voltage and
   current sinusoids).
9. Power quality compliance reporting for international standards (IEC61000 4-30; EN 50160)
10. Supervise servers, PLC/HMI/RTU communication links and connected workstations status.
11. Flexible filtering of events, alarms and historical data.
12. Graphical displays of information.
13. Reporting tools with standard report templates.
14. Use open system and standard communication protocols.
15. Interoperability with BCU's and Intelligent Electronic Devices IED's including intelligent digital protection relays and metering system.
16. Dual redundant and hot standby system components support.
17. IP-Networking system for SCADA communication.
18. Web-based secure access.
19. System Security: the system shall provide a comprehensive system security policy to prevent un-authorized access to the system

The SCADA system shall allow for Distributed Architecture to support varied amounts of data points by supporting multiple servers:

1. I/O servers
2. alarm servers
3. trend servers
4. report servers
5. historian (archiving) servers
6. PTP servers

The SCADA system shall allow for System Redundancy to limit and minimize the impact of any component failure or maintenance. The SCADA system shall not have any single point of failure.

Redundancy shall cover the following components:

1. Primary and Secondary servers
2. Network: multiple topologies (such as star or self-healing ring) and redundant distribution (PRP or HSR as per IEC 62439-3)
3. Gateway and device dual port attachment
4. Gateway RTU/ PLC (SCADA Controller)

Redundancy of the SCADA system components referenced herein shall mean when a component fails for any reason, a “hot” standby unit of identical functionality shall automatically take over and an alarm will annunciate. Transfer shall be “bumpless” so control will continue uninterrupted.

“Hot Standby” is a method of redundancy in which the primary and secondary systems run simultaneously. The data is mirrored to the secondary system component in real time so that both systems contain identical information.

The SCADA system shall be:

1. scalable to adapt to the planned and potential evolution of the site(s)
2. modular to enhance performance
3. redundant to provide reliability to match requirements
4. able to meet the performance requirements.

NETWORK SECURITY

Network security should be inherent/built-in at all levels of the network. Steps for securing the network and providing reliable operations consist of, but are not limited to:

a. Physical Access: Limit and track physical access to all network and server elements.
b. Virtual Access: Limit, authenticate and track access to every network device and server.
c. Logical Network Separation: Create subnet boundaries between sub-system networks, servers, control rooms, etc.
d. Perimeter Security: Enforce a stringent perimeter security strategy, using network filters and firewalls, to limit and track all traffic between the Internet, intranets and user sub-systems, servers and Control Rooms.
e. Virus Scanning and Host Security: Use a comprehensive virus scanning and server/application security policy.

The overall SCADA data communications network shall be dedicated to the SCADA and shall be independent of the Project Data Communications Network.

Cyber Security: all installations shall meet:
a. IEC/TS 62351, Power systems management and associated information exchange - Data and communications security.
b. IEC 62443, Security for industrial automation and control systems.

PERFORMANCE REQUIREMENTS OF THE OVERALL SCADA SYSTEM

The following minimum performance requirements shall be met:

1. System loading and utilization:

a. Utilization of any processor

1) 30% under normal activity state

2) 70% under high activity state

b. Utilization of any memory device:

1) 30% under normal activity state

2) 70% under high activity state

c. Utilization of any communication device of network bus:

1) 40% under normal activity state

2) 80% under high activity state

2. Response Times: vary from one application to the other and shall be in accordance with the Standard IEC 61850-5.

3. Time Synchronization Class:

a. Class T1 as per IEC 61850-5, designed for general substation automation (sequence of events), for standard IED synchronizing for control and protection events, with an accuracy of 1 milli-second.

The System shall utilize the following Communication Protocols:

1. IEC 61850: for networked communication within the substation (substation automation).

2. IEC 60870-5-101: for remote communication and connection to control center: Standard master/remote SCADA functionality over fixed lines

3. IEC 60870-5-104: for remote communication and connection to control center: Standard master/remote SCADA functionality using TCP/IP over Ethernet.

4. IEC 60870-6 or ICCP (Inter-control center protocol): for all required bidirectional communications functionality for inter-control center communications.

The SCADA System functions shall include full support of the latest versions of the following communication protocols as a minimum:

1. Modbus TCP/IP, including time-stamped data and waveform formats

2. SNMP protocol

3. DNP3.0

4. IEC 61850

5. IEC 60870-5-104

6. IEC 60870-5-101

7. IEC 60870-6

8. OPC UA

9. IEEE 1588 v2 (PTP)

SOFTWARE SPECIFICATIONS

SCADA FUNCTIONAL SPECIFICATIONS

The following minimum basic SCADA functions should be implemented by the contractor:

- It shall be possible to customize menu and tool bar for the operator display picture.
- It shall be possible to define areas of operation for operators.

- If the opened SCADA window has been inactive for a specified period of time, the login user shall be automatically logout after a predefined time.
- Apart from the usual tool bar, menu bars and system date, the head of the graphical user interface shall be able to show the following information:
    - user logged in,
    - Name of SCADA server connected to.
- It shall be possible for each user to personalize the toolbar.
- It shall be possible to enter temporary network changes on single line diagrams. These Network changes can either be line earthed, cut line, temporary line constructed.
- All RTUs shall be synchronised from the central system communication servers.
- It shall be possible for the operator to create or define multiple loads shed list. The operator shall also be able to restore the shed load starting with the load that was shed earliest.
- It shall be possible for the operator to rotate the shed load without dropping the total load shed below desired value.

SCADA OPERATION

The delivered SCADA system servers shall at a minimum have the following operating modes:

- **On-line**. Real-time events from the process shall be executed in these servers.
- **Hot Standby**. In a redundant configuration, the redundant server shall be hot standby. It shall be possible for these servers to become online automatically when there is a failover or manual switchover.
- **Failover/Switchover**: the failover/Switchover from the online server to the standby servers shall be real time and bump less.
- There shall be no loss of operator graphical user interface pictures. The operator will not need to re-login after the either the failover or switchover. Additionally, the picture shall be as before the switchover.

SCADA SYSTEM START UP

- It shall be possible to start up the SCADA system either manually or automatically. Manual start up should be initiated from the monitor window.
- Automatic start up shall be initiated if a switchover has occurred or when system is been restored after a power failure.

SCADA SYSTEM SUPERVISION

- For each monitored device such as servers, Operator workstations, RTUs, communication servers, etc. it shall have the following supervision status: In service, Out of Service, Operable, and Inoperable.
- These statuses shall be shown on: System supervision pictures such as LAN diagram, Alarm, and events lists.

TIME SYNCHRONIZATION

- Time synchronization message of the main servers shall be received from LanTime server GPS. The main servers shall then synchronize all LAN equipment.
- For each remote station (RTU), time synchronization of their respective clocks shall be done by the Front ends.

ALARMS

The alarm function shall be tightly integrated in the SCADA system application software. It shall not be a separate program running in windows. The basic alarm function shall be implemented with the following features.

- Minimum of 3 distinguishable audible alarms.
- Filtering function for alarms shall be included.

- The system shall be able to allow user to set up his or her own alarm priority on his workstation only. This shall be used during high activity periods.
- The system shall have capability to identify who acknowledge the alarm. This action shall be presented in the system event list.
- The system shall be able to display alarms/events to for measurands which are not changing.
- The system shall have capability to identify from what console the alarm was acknowledged from. This action shall also be presented in the system event list.
- There shall be consistent colour difference for persistent, unacknowledged, and acknowledged alarm.
- All unacknowledged alarms shall be flashing until acknowledged.
- The locate function to locate objects in the system shall be possible from the alarm list by either double clicking or right clicking the alarm.
- acknowledgement of a non-persistent alarm shall result in removal of the alarm from the alarm list.
- A two-level acknowledgement shall be implemented for critical alarms whereby the alarm shall be acknowledged by two authorized users for it to be cleared.
- All alarms for objects can be assigned for acknowledgement by up to five different areas of responsibility. For instance, more than one AOR is defined in the system, though Alarm is acknowledged in Area A, it shall be unacknowledged and still flashing in Area B.
- Alarm processing for a point, bay or station shall be possible but be fully supervised. Whenever the alarm processing is blocked, the audible alarm shall also be inhibited.
- It shall be possible to enter a comment for the alarm.
- It shall be possible to select one or more alarms and export the text to other applications, such as Excel (on demand or at a predefined time and periodicity)

EVENTS

- The alarm function shall be tightly integrated in the SCADA system application software. It shall not be a separate program running in windows.
- time tagged events from the RTU shall appear on a separate event list.
- All alarms shall be captured on the event list.
- It shall be possible to display on the event list any alarm blocked, indicating the console and user that carried out the operation.
- The background and foreground colour of alarms and events shall be configured system-wide based on any of the alarm properties, such as alarm priority, alarm class, persistent. This will easily separate which alarms and events are of high priority.

DISPLAY SUMMARIES

The delivered system shall be able to display the following types of summaries on request by the user.

ALARM SUMMARY

- It shall be configurable. The summary shall either be configured to include all alarms from the entire system, or they can be limited to a subset of alarms (defined by a filter). This can for example include all alarms from a part of the system (such as a station) or all alarms within a priority range or all alarms for selected areas of responsibility. These filtered summaries can be saved as project custom alarm summaries.
- It shall present alarms for authority of the current user and console with each summary able to either show all alarms the user is allowed to see, or just show alarms the user is allowed to acknowledge / delete.
- An auto-filtered alarm summary shall be provided where the contents are automatically determined at call up, based on what display is on view in the window. For example, if a

one-line for a particular station is on view, the auto- filtered alarm summary when called up in that window would show only alarms for that station.

- Whenever an alarm summary becomes full, the oldest (configurable) alarms are automatically acknowledged and deleted to make room for new alarms.
- It shall be possible to configure an alert to the user that the alarm summary is becoming full.

EVENT SUMMARY

- It shall have both alarms and events listed.
- It shall be possible that oldest events are automatically removed whenever the event storage is full and new events arrive. All events the user is allowed to see are shown in the event summaries.
- It shall be possible to configure event summary to include all events from the entire system or they can be limited to a subset of events (defined by a filter).
- These filtered summaries can be saved as project custom alarm summaries.
- An auto-filtered event summary shall be provided where the contents are automatically determined at call up, based on what display is on view in the window.
- Except for alarm acknowledgement and deletion, user shall perform the same actions from an event summary as he can from an alarm summary.

ABNORMAL SUMMARY

- It shall show all points in a station that are in abnormal status (either off normal, blocked from data acquisition, alarms processing, or supervisory control, manually entered, not updated)
- It shall be possible for the user to filter these abnormal conditions based on a particular abnormal condition.

SEQUENCE OF EVENTS (SOE) SUMMARY

- Shall shows all SOE events from the real-time event list, to include the millisecond time stamp.
- The filtering for SOE shall be the same as for the alarms and events summary displays.

TAG SUMMARY

- It shall list all active tags for all objects, to include the tag type, date/time the tag was issued, who issued the tag, station and object identifier, job and worker identification, and comment field.
- It shall be possible for the user to filter by any of the columns such as station, date/time the tag was placed, comment, job, and worker.

MANUAL ENTRY SUMMARY

- It shall show all points that are currently manually entered, to include the date/time the manual entry occurred and the user who performed the manual entry.
- It shall be possible for the user to filter by any of the columns such as station, RTU, date/time of the manual entry.

OPERATOR NOTES SUMMARY

- It shall contain all notes (see Operator Notes section) that have been placed on displays and objects, to include the date/time the note was placed and the user that placed the note.
- It shall be possible for the user to select a note and directly go to the display containing the note or to the object associated with the note.

BLOCKING SUMMARY

- There shall be three types of blocking that the user can perform – alarms processing, supervisory control, and data acquisition.
- For each type of blocking there shall be a summary that shows all objects that have been blocked by type of object, to include the date/time the blocking occurred and the user who performed the blocking.
- It shall be possible for the user to filter by any of the columns such as station, RTU, date/time of blocking.

LIMIT OVERRIDE SUMMARY

- Shall contains all points with overridden limits.
- For each overridden limit, it shall contain the default limit value, the overridden limit value, the date/time the override occurred and the user who performed the override.
- It shall be possible for the user to filter by any of the columns such as station, RTU, date/time of override.
- It shall be possible to present tagged lines and limit violations superimposed on SCADA lines. It shall also be possible to configure which limit set to check and colour to use.

AUTHORITY FUNCTION

- The authority function shall be provided to manage user administration. Personalized access with secure passwords shall be granted to all system users according to areas of authority. It shall be possible to assign different authority levels to different users.
- Bidder shall implement Role Based Access Control

CONTROL SYSTEM OPERATION

- The operation of the control system shall be fully managed with possibility to monitor the real-time status of all the control system equipment.
- It shall be possible to monitor and supervise the remote systems i.e., RTU and Substation Control systems. It also shall be possible to either take in or out of use these RTUs or frontend lines.
- All control system activities shall be captured in a separate control system event and alarm list.

DATA ACQUISITION

The data acquisition system connects the control center to the station control equipment - that is, it is a link in the vertical integration.

Remote Terminal Units (RTU) and Substation Automation Systems (SAS) collect data from the power system. Data is transmitted to the servers in the control center via dedicated communication lines, for instance, radio links, power line carriers, optical fiber, etc.

The data acquisition system shall:

- Support multiple RTU protocols namely RP570, IEC 60870 – 101 and 104, DNP 3.0 serial, and DNP3 IP. This allows for integration of both existing and new RTUs, also from a number of suppliers.
- Supports integration of substation automation systems.
- Provide a robust and flexible data acquisition, which will recover from multiple failures as long as the minimum number of critical components is available.
- Provide a suite of efficient tools for maintenance, reconfiguration, and expansion of the data acquisition system itself.
- The supported interfaces on the Process Communication Server are serial and Ethernet interfaces.

DATA PROCESSING

- Data Processing function shall be implemented to handle distribution system data in the SCADA Application Servers. This data shall be acquired, manually entered, or produced by another application.
- The data processing shall deal with the following items: Measured values, Indications or status, Counters, Data Flags, Secondary Source Data, Real-time calculations.
- It shall be possible to list all measurands which are stale in the system.

BOUNCING INDICATIONS

Sometimes RTU or substation automations system do not filter out bouncing indications from the field. This function is typically only used on projects where the RTUs or substation automation does not perform filtering function for bouncing indications. With the bouncing indications:

- It shall be possible to configure such that all indications are monitored for 'bouncing'.
- In cases where system captures bouncing indications, the indication shall be marked invalid, and a persistent alarm shall be generated to say that the indication is bouncing.
- All these events which occur due to bouncing shall not be recorded in the event file.

COMMISSIONING OF SUBSTATION RTU/SAS ON SCADA

Testing or commissioning of substations equipment on SCADA generates a lot of events and alarms which disturb the normal real-times operation of the system. Consequently, during point-to-point test, it shall be.

- Possible to put equipment (RTU or SAS) to be commissioned in test mode such that all events related to testing to not get displayed on the real time event and alarm list. Such Events and Alarms shall be displayed in a separate list.
- The equipment shall be removed from the test mode once the commissioning test are completed by the Engineers.

DYNAMIC COLORING

- It shall be possible for the user to set the colours of the process objects on the online single diagram.
- Dynamic colouring application shall automatically display the following electrical states: energized, de-energized, earthed, one side earthed, one side disconnected, inconsistent and out of service in the one-line diagrams.

TEMPORARY NETWORK CHANGES

- It shall be possible for the operator to enter temporary network changes on-line in world maps and in one-line diagrams.
- It shall be possible to add the following objects in temporary network changes: Line Cut, Ground - Can be placed online, Switch, Transformers (2W and 3W) and Series Compensator and single node devices, like Shunt Compensator and Generator,
- Temporary Line

LOAD SHEDDING AND RESTORATION

Once a while, POLOKWANE MUNICIPALITY experiences power generation deficient. Hence efficient power load shedding and restoration at distribution level is very crucial. POLOKWANE MUNICIPALITY envisages that it shall be possible to:

- To configure a predefined set of loads whose breakers may be opened through the SCADA system.
- To configure multiple sets of predefined loads for load shedding

- Manually enter the required load to be shed. The SCADA shall then open breakers of the load shedding list whose load is equivalent or greater than the entered value.
- Restore load shed loads that has been shed by inputting the amount of load to be restored.
- Restore all loads shed through a single command for the load shedding list without entering a MW value.
- Rotate the shed loads with the not shed loads within a load shed list without dropping the total load shed below the required value.

I/O CAPACITY

The systems shall be able to handle above 40 000 I/O's.

COLD AND HOT STARTS

Cold start shall be carried out in several phases:

- Restitution of the software, the data base, and views on the mass storage of the engineer station,
- Cold start of the engineer station, in a maximum time of 2 minutes,
- A maximum time of 5 minutes for downloading and initialization of a minimum configuration with at least:
    - one server,
    - operator workstations,
    - Downloading and initialization of all the other microcomputers in a maximum time of 5 minutes.
    - Auto start of the main server shall be possible.
- For redundant computers, hot starting during a switch-over shall not last more than 1 s and shall not disturb the operation of the network in any way.

PROCESSING CAPABILITY OF THE COMPUTER SYSTEM (I/O CAPACITY)

The computer set-up of the SCADA system shall be capable of handling a real time data base consisting of at least 50000 (fifty thousand) variables, not necessarily uniformly distributed between the various microcomputers. All of the variables in the real time data base may be used and/or processed by all of the functions of the SCADA systems. The following characteristic or better shall be met:

- Display exchange time better than 1s.
- Real-time Event list for max.1000 or more event
- Real-time Alarm list for max.500 or more alarms

PROCESS CONTROL AND OPERATOR ENTRIES

For the control of devices in the power system, the system shall include facilities, including operation of multiple objects and executing of pre-defined sequences of operations. All dialogs shall include automatic validation and checks and a compulsory multi-step sequence of operator inputs to increase security when performing control actions. All necessary interlocks shall be defined for each control action. The interlocks shall be defined in conjunction with POLOKWANE MUNICIPALITY. It shall be possible to bypass the interlocks' function.

DEVICE CONTROL

The three main types of control facilities that shall be available, each with its dedicated operator dialog are:

- Control command
- Raise/Lower command.
- Set point control.
- Each of these shall have its own dedicated operator's dialog, design, and supervision.

- Two different types of Control commands shall be supported with the difference being in terms of security and performance:
- Direct-operate commands: executed as a single command message transmitted to the target RTU and
- Select-Before-Operate (Check-Back-Before-Execute) commands: executed as two distinct commands to the RTU; a select message and followed by an execute message after the response to the select message has been received.

MANUAL DATA ENTRY

- The manual data entry function shall be provided as an on-line function to enter status and values for indications, measured values, and other power system objects into the database through operator pictures on the operator workstation.
- Manually entered indication values shall be processed in the same way as telemetered.
- Manual data entry on telemetered values shall result in automatic blocking of the data acquisition for the telemetered values. The data acquisition for such an object shall remain blocked until manually released.
- The system shall include extensive security checks at data entry. If a check criterion is not fulfilled, data entry is inhibited, the dialog is terminated, and an error message is presented to the operator.

DEVICE SUPERVISION

The process control and operator entries shall generally be validated as follows:

- The cursor is positioned on an object, which is valid for the operation.
- The object has been defined as controllable from that picture.
- The operator station and user have the necessary authority for operation on that object.
- The object is not blocked for control.
- No other control of the object is currently in progress.
- The RTU and communications channel(s) are currently operable.
- The entered new “value” is within limit values.

RTU & SAS COMMUNICATIONS DISPLAY

- The bidder shall provide RTU & SAS Communications display for easy maintenance of RTUs and their communications.
- The display shall have key information such as putting RTUs/SAS and communication lines in / out, switching RTUs from one communication line to another,

BLOCKING

It shall be possible for the system administrator to block.

- Data acquisition: Prevent data, gathered by the remote terminal units, either as a point, bay, or station from updating the database.
- Alarm processing: Prevent updating of audible alarms and unacknowledged alarms.
- Commands
- Events
- Measurands
- All blocking and de-blocking shall be logged to the control system event list with the name of the administrator who carried out the operation clearly displayed.

EVENT HANDLING & EVENT PROCESSING

Events shall be generated whenever changes are detected in the status of power system objects as well as in the SCADA system. Event processing shall initiate one or more of the following activities using a versatile classification system:

- Event record logged on user definable printer.
- Event record included in an event list.
- Unacknowledged and persistent alarm
- Audible alarm
- Activation of secondary function
- The locate function to locate objects in the system shall be possible from the event list by either double clicking or right clicking the alarm.
- it shall be possible to export the event list to excel format. It shall be possible to query the event list.
- Time tagged events from the RTU shall appear on a separate event list.
- All alarms shall be captured on the event list.
- It shall be possible to display on the event list any alarm blocked, indicating the console and user that carried out the operation.
- Events shall be processed in the order they occur.
  However, presentation of events on pictures and reports shall be possible.

SECURE ICCP SERVER

- Secure ICCP hot standby servers shall be provided for the control room.
- The ICCP application shall be installed on the ICCP server and configured to the extent that functional test is possible to be undertaken.
- The system will be prepared for a possible connection to multiple control centres.
- For ICCP connection with both ABB Network Manager the following conformance blocks shall be supported:
    - The ICCP services supported must be ICCP conformance blocks 1,2,3,5 and 7. Block 8 is NOT required for this implementation.
    - The ICCP version that must be supported is ICCP (TASE 2) version 2000-8.
- Provision should be made by the contractor for additional ICCP links in future.

TAGGING

- A comprehensive function tagging function to allow tagging of power system devices shall be provided.
- It shall support definition, handling, and presentation of a number of tag types. The significance of the different tag types shall be definable by operator. The tag information shall be available not only for operator presentation but also used by other system applications.
- It shall be possible for tags to be conveniently combined with Interlocking and Safety Documents to enhance the operation and security of the power system, for instance, by blocking hazardous control actions.
- A tag may be set for a number of different object types:
    - Bays, bus bars, compensators, generators, indications, loads, sources, stations, switches, transformers, and transmission lines.
    - Several tags may be set for the same object. These tags can be of the same type or of different types. Presentation of tags depends on each tag priority.

The following data shall be defined and implemented:

PARAMETER	VALUE
Number of characters per tag	4
Number of tag types	8*2
Maximum number of tags per type	8
Maximum number of tags per object	64*1
Maximum number of tags in the system	1000

1 = Number of tag types number of tags per type

POLOKWANE MUNICIPALITY does the definition of tag types and their meaning. Tag types are defined by text-based population methods. The position and the layout of the tag for an object are defined together with the picture.

REAL-TIME RESPONSE TIMES

The "system normal load" condition is defined as the continuous repetition for more than 3 minutes of occurrences throughout the system of a total of 25 status changes, 10 alarms, 10 limit excursions, and 20 analogue quantity changes (analogue quantities that exceed their dead bands) during a single 2-second interval.

The "system exceptional load" condition is defined as the continuous repetition for more than 3 minutes of occurrences throughout the system of a total of 250 status changes, 50 alarms, 50 limit excursions, and 50 analogue quantity changes (analogue quantities that exceed their dead bands) during a single 2-second interval.

GUARANTEED PERFORMANCE

The maximum real-time response times and refreshing times for the various components of the SCADA system shall be as shown in the table.

S/N	SYETEM RESPONSE	SYSTEM NORMAL LOAD	SYSTEM EXCEPTIONAL LOAD
1	Real-time database refresh cycle	1s	2s
2	Response time of control action from Workstation or Local HMI	2s	3s
3	Response time of status change to Workstation or Local HMI	2s	4s
4	Response time of calling up new pictures on Workstation and Local HMI	1s	2s
5	Time resolution of events system shall be as shown in the table.	1ms	2ms

CYCLIC UPDATING

The following different periodic picture updates are defined on a system basis bullet 2 is a multiple of the basic frequency.

For telemetered values	5s
For other values	30s
For telemetered values during control dialog	1s

Other dynamic picture data is updated spontaneously.

DIALOGS

- Time out for dialogs for control command and regulation command 25 seconds.
- Time out for other dialogs shall be predefined in the system and shall include timeout for back indication after an operation. For timeout for status change after a control command has been issued shall be 30 sec for breaker status change, 60 sec for Isolator status change etc.

SCADA SERVER FUNCTIONS

The application server shall support the following functions at a minimum.

ADVANCED REAL-TIME CALCULATION

This is to enable basic calculation to be performed by the operator for information that is not telemetered.

SCADA INTERLOCKING

- The Interlock function shall be implemented to prevent prohibited commands and manual entries of inappropriate status. For a two-state device the operator shall be able to define interlock conditions that must be valid to allow switching of a device to ON or OFF.
- Control requests that do not meet these conditions will normally be rejected but can be by-passed in emergency and test situations.
- This function shall allow the user to define an interlock condition, or a sequence of conditions, to be checked each time a control command is given, or a new status of an indication is manually entered.
- Whenever an interlock condition is assigned to an object, the condition or sequence of conditions will be executed each time an ON or OFF function is requested.
- If the operation is not allowed the required control action dialog box shall be terminated and an error message generated, and all violated interlock conditions presented to the operator on the display monitor. The rejection shall be registered as an event.

SCADA POWER AND VALUE CALCULATION

- This function shall help the operator implemented basic logic calculations.

SEQUENCE CONTROL

- It shall be possible to implement sequence control for any automated and predefined switching orders.

USER DEFINED CALCULATIONS

- The system shall provide flexibility for the user to definable non – standard calculations.

SCADA WIDE AREA NETWORK

A SCADA Wide Area Network connecting the servers and control room workstations shall be integrated.

SYSTEM SUPERVISION

- All system functions are supervised to ensure correct operations and to initiate fail-over when necessary.
- Any supervision abnormal condition detected is logged through an event possibly an alarm is generated.

RTU COMMUNICATION SUPERVISION

- The supplied system shall have a RTU communication supervision display.

- Through this display the maintenance engineers shall be able to either put RTUs In or Out of use, manually switching RTUs to other communication channels.

OPERATOR WORKSTATIONS

Two types of HMI clients namely normal high performance rich clients' functions and thin clients (web based) functions shall be provided.

An easy-to-use graphical user interface developed for monitoring and control of the power system shall be implemented with full Human Machine Interface (HMI) features including.

- Operator Authority support that allows the various workplaces to use the same SCADA system in a secure manner and in accordance with its power system areas and application execution and control responsibility. Streamlined access of SCADA information in a single window per operator workstation.
- Ability to use the same displays and general HMI procedures for control and dispatch applications, using the real-time database, and planning applications using a study database.
- Ability to present, using the same displays, if desired, SCADA real-time data, resident in the online database, and historical data,
- Advanced Dynamic Network Colouring (DNC) displays based on SCADA data.
- High level of MS Office tool integration including Excel based reports; and
- Productized, configurable support for Large-Screen Displays

Other operator functions that shall be provided are.

- Auto save data entry and operator notes
- Sequence-of-Events SOE function with 1 ms accuracy.
- Control system and subsystem supervision and switchover of the main to standby.
- High performance rich clients shall use a workstation PC and a number of VDUs per workplace. These clients shall execute some user interactive network applications locally in order to improve performance for the users.
- The user rights of all clients shall be controlled by the System Authority Manager.

GRAPHICAL USER APPLICATION

The graphical user application for the system shall be able to support display of the following document types apart from the process display:

- Documents such as HTML, PDF, word (.doc), and excel (.xls) which are Microsoft Internet Explorer web browser supported document types.
- Generic Microsoft ActiveX based graphical forms type of dialogs.

POKE POINTS

- For each displayed picture/SLD it shall have poke points for easy navigation from one SLD to another during system monitoring and operation.
- The poke point shall have two styles:
- Styled poke point surrounding an arbitrary symbol or text string. Several different 3D skins are available.
- Hyperlink style where the symbol or text string is underlined.

MEASUREMENTS

- It shall be possible to display measurements as either numerical presentation or Bar chart presentation.

HISTORICAL TREND DISPLAY

- It shall be possible to display historical trends as display elements within one-line or system overview displays.
- It shall be possible to show up to 6 Trend diagrams in one display and up to 16 curves in each diagram.
- For each curve, it shall be possible to select, colour, line type, line width, point colour, point type, point size, time offset, if alarm presentation is desired, minimum, and maximum values for the value axis.

ACCESS SECURITY: USER ACCOUNTS

LOGIN

- Login/Logout activities which includes console, and user ID shall be logged in the event list.
- For all events which will be generated because of these user activities on the SCADA system shall be marked with his user identity and console.

AREAS OF RESPONSIBILITIES (AORS)

- Both SCADA users shall be defined on the system with Area of Responsibility.
- It shall not be possible for a user who's AORs is for area A only, and is able to control system for area B.
- Each user shall be assigned one or more roles, where a role is a group of areas of Each user can have more than one role assigned – some roles can be 'view only' and others can be fully operational or a combination.

SHIFT CHANGE LOGIN

- The system shall be used in a Control Room for Power system. Hence the system shall be delivered with Shift Change Login function.
- In a shift change login, once a new user login, it shall be possible for this user to inherit the authority of the previous user.

AUTOMATIC INACTIVITY LOGOUT

The system shall have an automatic Inactivity logout function. It shall be possible to automatically logout any user after a predefined time of user inactivity.

SEQUENCE OF EVENTS (SOE)

All time tagged events from the RTU or substation automation systems shall be stored in separate event list.

The time stamps for these events shall be shown up to milliseconds.

These separate event list shall be used for analysis.

NETWORK PRINTERS AND LOGGERS

- Printing capability shall be implemented for both print on demand and pre- configured scheduled printouts.
- It shall be possible to manage the printers from the SCADA system supervision window.

EXTERNAL SCADA NETWORK PROTECTION

- In order to provide security and protection to the SCADA LAN, insertion of a firewall between Polokwane Municipality Control Centre and Eskom NCC or RCC on the other hand shall be provided.

SYSTEMS INTEGRATIONS

- The delivered SCADA shall be required to be integrated with external systems.
- The bidder shall supply these systems with methods of integrating external systems without the need to modify any basic software code or to have deep knowledge of the system design.
- The following features for integration shall be supported: ODBC which includes an ODBC SQL interface to the database, Oracle stored procedure API, web services supported as xml, and Inter-Control Centre Protocol (ICCP, including secure ICCP).

GENERAL INTELLIGENT ELECTRONIC DEVICES (IEDS) SPECIFICATIONS

BAY CONTROLLER UNITS

Each BCU shall be IEC61850 compliant and operate in this mode, and shall have protection functionality, if required. Each protection panel shall comprise of the protection relays Bay Controller Unit (BCU). The BCU can be a conventional protection relay with protection, control and monitoring, or a programmable bay controller unit with just control and monitoring.

The following requirements are applicable to a BCU:

- Control and monitoring of all switchgear and auxiliary equipment, including all automatic functions, interlock logic, alarm handling and time tagging of alarms and events
- Sequence of event (fault) recording for the purposes of post fault analysis and system monitoring
- The BCU shall have sufficient memory capacity for temporary storage in case of loss of communication with the substation HMI and SCADA
- All breakers, isolators (including bypass and busbar isolators), transformer taps and the alarms
  from the bay shall be connected to the bay BCU
- All alarms and events from relay protection equipment shall either be transferred to the substation HMI using the substation LAN
- All commands from the substation HMI or SCADA shall be transmitted to the BCU which executes the commands
- All logics and settings specified to the individual BCUs shall be stored in non-volatile memory so
  no local logic information will be lost due to power supply failure
- Editing and input of local data and parameters shall be performed locally at the relays by suitable programming equipment. It shall be possible to edit any such local data at a higher engineering control level (substation HMI or SCADA) and download this information
- External interlocks shall be done via the BCU software. Existing mechanical interlocks shall be
  maintained
- Engineering access to the IEDs from the HMI in the substation control room shall be available
- Panel re-trip and CBF initiate to the bus zone protection shall be included as functions

The bay controller protection unit functionality shall include:

Table : BCU protection relay reference

(ANSI)	DESCRIPTION	Required	Not required
50/51	3 Stage 3 phase overcurrent	☒	☐
50N/51N	3 Stage earth fault	☒	☐
67/67N	Directional overcurrent and earth fault	☒	☐
50SG	Sensitive earth fault	☐	☒
50BF	Breaker failure (via Buszone)	☒	☐
60FL	VT fuse failure detection	☒	☐
	Open CT detection	☒	☐
	Re-tripping	☒	☐
79	Auto reclose – multi-shot, single phase and three phase auto reclosing	☒	☐
25	Synchronism check	☒	☐
	Pole discrepancy	☒	☐
	Full local and remote control of the bay, complete with a local mimic and interlocking as required. Local / remote control selection shall be provided. Local and SCADA measurements	☒	☐

TRANSFORMER PROTECTION SCHEME

The power transformer protection scheme shall have duplicate differential protection with Main 1 and Main 2 supplied from different manufacturers, or if supplied from the same manufacturer, be proved to be fundamentally different. Both protection systems will be supplied by different DC sources and any trip must trip both circuit breaker trip coils directly (cross-tripping). Dedicated backup protection shall be required. The transformer protection scheme is summarised in Table 4.

Table 4: Transformer protection scheme relays

Description	Required	Not required
Main 1	☒	☐
Main 2	☒	☐
BCU (Control only)	☐	☒
BCU (Both back-up and control)	☒	☐
Back-up (dedicated relay)	☐	☒
Back-up 2 (dedicated relay)	☐	☒
Mechanical Master trip / lock-out relay	☒	☐
HMI	☒	☐

Main protection functionality shall be provided, according to Table 5.

Table 5: Power transformer main protection relay reference

(ANSI)	DESCRIPTION	Required	Not required
87T	Low impedance transformer current differential	☒	☐
87N	Low impedance restricted earth fault integrated into relay (subject to transformer type below) Autotransformer type ► Primary / Secondary ► Tertiary	 ☒ ☐	 ☐ ☒
87Q	Negative sequence differential	☒	☐
50BF	Breaker failure (via Buszone)	☒	☐
50/51	3 Stage 3 phase over-current primary and secondary	☒	☐
50N/51N	3 Stage earth fault primary and secondary	☒	☐
67/67N	Directional overcurrent and earth fault	☒	☐
N	Transformer neutral earth fault primary	☒	☐
50SG	Sustained earth fault (subject to transformer type below) Autotransformer	 ☐	 ☒
	Inrush restraint / block	☒	☐
	Overexcitation restraint / block	☒	☐
40	Overexcitation (over flux selectable to alarm or trip)	☒	☐
27/59	Undervoltage / overvoltage protection	☒	☐
49	Thermal overload protection	☒	☐
60FL	VT fuse failure detection	☒	☐
	Open CT detection	☒	☐
	RTD (resistive temperature detector) inputs	☒	☐
	Re-tripping	☒	☐

LINE PROTECTION SCHEME

The line protection scheme shall have duplicate distance protection with Main 1 and Main 2 supplied from different manufacturers, or if supplied from the same manufacturer, be proved to be fundamentally different. Both protection systems will be supplied by different DC sources and will trip both trip coils. The BCU shall perform control and back-up protection. The line protection scheme is summarised in Table 7.

Table 7: Line protection scheme relays

Description	Required	Not required
Main 1	☒	☐
Main 2	☒	☐
BCU (Control only)	☐	☒
BCU (Both back-up and control)	☒	☐
Back-up (dedicated relay)	☐	☒
Back-up 2 (dedicated relay)	☐	☒
Mechanical Master trip / lock-out relay	☒	☐
HMI	☒	☐

The auto-reclose scheme for line protection is typically integrated into the BCU. A dedicated relay shall provide backup protection according to Table 10.

Table 10: Back-up protection relay reference

(ANSI)	DESCRIPTION	Required	Not required
50/51	3 Stage 3 phase overcurrent	☒	☐
50N/51N	3 Stage earth fault	☒	☐
67/67N	Directional overcurrent and earth fault	☒	☐
50SG	Sensitive earth fault	☐	☒
50BF	Breaker failure (via Buszone)	☒	☐
60FL	VT fuse failure detection	☒	☐
	Open CT detection	☒	☐
	Re-tripping	☒	☐
79	Auto reclose – multi-shot, single phase and three phase auto reclosing	☒	☐
25	Synchronism check	☒	☐
	Pole discrepancy	☒	☐
	Full local and remote control of the bay, complete with a local mimic and interlocking as required. Local / remote control selection shall be provided. Local and SCADA measurements	☒	☐

Main protection functionality shall be provided, according to Table 9.

Table 9: Line protection main relay reference

(ANSI)	DESCRIPTION	Required	Not required
87L	Low impedance line current differential	☒	☐
21	Impedance / Distance protection	☒	☐
50LC	Switch onto fault	☒	☐
21D	Distance to fault locator	☒	☐
50/51	3 Stage 3 phase overcurrent	☐	☒
50N/51N	3 Stage earth fault	☒	☐
67/67N	Directional overcurrent and earth fault	☒	☐
50G	Sensitive earth fault	☐	☒
27/59	Undervoltage / overvoltage protection	☒	☐
79	Auto-reclose – Multi shot, single phase and three phase auto-reclosing	☒	☐
25	Synchronism check	☒	☐
	PUTT and POTT modes, DTT	☒	☐
68	Power swing blocking	☒	☐
	Weak infeed	☒	☐
81	Underfrequency / over frequency	☐	☒
50BF	Breaker failure (via Buszone)	☒	☐

BUS-COUPLER PROTECTION SCHEME

The bus-coupler protection scheme shall utilise two relays supplied from different manufacturers, or if supplied from the same manufacturer, be proved to be fundamentally different, or one relay and BCU with protection functionality. Both protection systems will be supplied by different DC sources and will trip both trip coils. Dedicated backup protection shall not be required. The required line reactor protection scheme is summarised in Table 14.

Table 14: Bus-coupler and bus-section protection scheme relays

Description	Required	Not required
Main 1	☒	☐
Main 2	☐	☒
BCU (Control only)	☐	☒
BCU (Both back-up and control)	☒	☐
Back-up (dedicated relay)	☐	☒
Back-up 2 (dedicated relay)	☐	☒
Mechanical Master trip / lock-out relay	☐	☒
HMI	☒	☐

The bus-coupler protection relay shall provide Main protection according to Table 15.

Table 15: Bus-coupler and bus-section protection requirements

(ANSI)	DESCRIPTION	Required	Not required
50/51	3 Stage 3 phase overcurrent	☒	☐
50N/51N	3 Stage earth fault	☒	☐
67/67N	Directional overcurrent and earth fault	☒	☐
SOFT	Switch onto fault	☒	☐
50BF	Breaker failure (via Buszone)	☒	☐
	Open CT detection	☒	☐
	Re-tripping	☒	☐

BUSZONE PROTECTION SCHEME

- The busbar shall have low impedance differential Buszone protection with check-zone functionality. The Buszone protection relay shall provide protection according to Table 17.

Table 17: Buszone protection relay reference

(ANSI)	DESCRIPTION	Required	Not required
87T	Low impedance busbar current differential	☒	☐
87T	High impedance busbar current differential	☐	☒
50BF	Circuit-Breaker fail detection	☒	☐
	Check Zone functionality	☒	☐
	Bay and breaker fail isolation	☒	☐
	Dead zone functionality	☒	☐
	Open CT detection	☒	☐

The protection shall have the following properties:

- The protection shall be a phase segregated protection scheme without summation CTs
- The protection shall be sensitive to both short-circuits and earth faults within the bus system
- The protection shall be stabilised for through faults. Spurious tripping caused by CT over excitation during external fault must not occur. For internal faults, tripping shall be possible even during over excitation of the incoming feeder CT
- The protection scheme shall accept single and double busbar systems with a sectionalized busbar
- In the case of low impedance buszone, breaker fail and check zone functionality shall be integrated into the bus zone protection relay
- Bay and breaker fail isolation shall be provided and shall be located on each bay's protection and control panel
- Zone isolation shall be provided and shall be located on the buszone panel in the case of low impedance buszone, differential and restraint current shall be displayed and legible on the relay HMI
- Master trips / lock-out relays shall be provided with electrical resetting and no resetting shall be possible via SCADA. Two dedicated trip outputs shall be provided per bay, one to trip the CB directly and second to trip via the bay BCU. The two outputs shall not be associated with a single lock-out relay
- CT test facilities shall be provided via type PK2 test blocks
- Dedicated CT cores shall be provided with dedicated cables for each bay
- The burden of the scheme on any CT shall not exceed 1 VA
- The maximum operating time of the scheme shall not exceed 25 ms

TRAINING AND KNOWLEDGE TRANSFER

Due to the importance that is attached to this project, the bidder shall provide adequate technical training and user training. The training shall include SCADA and integration functions as outlined in the technical requirements.

Appropriate and comprehensive training in SCADA for both technical and user personnel shall be provided. The contractor shall provide air fare, accommodation, meals, and local transport.

POLOKWANE MUNICIPALITY ENGINEER'S PARTICIPATION

The contractor shall ensure full participation of POLOKWANE MUNICIPALITY engineers throughout the project. They shall provide hands-on training as per schedule below at manufacturer's site. The purpose is to participate in the setup, configuration and hands-on data engineering work of the new system and getting knowledge on the product to be delivered.

- The contractor shall be able to provide adequate training materials for personnel on training.

These trainings will be distributed as below:

- a) SCADA Technical Training for a period of two (02) weeks for four (04) POLOKWANE MUNICIPALITY staff
- b) SCADA Operator Training for a period of one (01) week for six (6) POLOKWANE MUNICIPALITY operators

PROJECT MANAGEMENT

- The selected Contractor will be responsible for providing the project management services to ensure the successful implementation of system and the associated integration including

quality, change and risk management. It is envisaged that the project manager will work together with the POLOKWANE MUNICIPALITY project manager.

- The bidder is required to provide a qualified and experienced project manager for this project.
- During project implementation, the project manager/site engineer for the Contractor shall be resident in South Africa. He/she shall have relevant experience in SCADA systems project implementation. Curriculum Vitae of the proposed Project Manager should be attached.

SYSTEM CHANGE MANAGEMENT

- For successful implementation of SCADA project, the bidder shall ensure that system change Management is part of Project management.
- The project manager for the Contractor shall, together working with the POLOKWANE MUNICIPALITY project manager, ensure that change is effectively managed on both the technical side (system implementation) and the people side (various users who will use the system).

TECHNICAL SUPPORT

PROJECT DELIVERY PERIOD

- The projects delivery period shall be 09 months.

WARRANTY

- The warranty period shall not be less than 1 year from the issue of the Operation Acceptance Certificate. The actual duration of the warranty period is at the discretion of the supplier.
- The Post warranty period shall be considered as the Technical, Operations and Maintenance Support period. This shall constitute a Maintenance Contract for a period of one (01) year.

MAINTENANCE AND SUPPORT SERVICES

- The supplier of the system shall provide detailed evidence of support to the system after handover. This shall be in the form of support contract for an agreed specified period of time with the client.
- The contract shall have details of spare support, technical and functional training support, and annual technical audits and upgrade support.

DOCUMENTATION REQUIREMENTS

The following additional materials shall be supplied.

- Appropriate spare parts shall be provided by the contractor to be agreed with POLOKWANE MUNICIPALITY before implementation.
- A network configuration document describing the hardware included shall be provided by the contractor for approval.
- Sufficient and appropriate Documentation in English.
- A Project implementation specification
- Project schedule definition
- Standard system documentation (e.g.: Operators Guide)
- Maintenance documentation
- Training documentation
- Test procedures documentation (FAT and SAT) shall be provided for approval before implementation.
- Network configuration documentation

- Project management and status reports shall be provided during project planning and execution and appropriate quality audit to ensure project success.
- Administration/maintenance training.

CONSTRUCTION REQUIREMENTS OF PANELS

In case the equipments that are mounted in panel type of enclosures, then such enclosures shall meet the following requirements:

- shall be free-standing, floor mounted and shall not exceed 2200 mm in height.
- Enclosures shall be floor mounted with front and rear access to hardware and wiring through lockable doors.
- Cable entry shall be through the bottom. No cables shall be visible, all cables shall be properly clamped, and all entries shall be properly sealed to prevent access by rodents.
- The safety ground shall be isolated from the signal ground and shall be connected to the ground network Each ground shall be a copper bus bar. The grounding of the panels to the owner’s grounding network shall be done by the contractor.
- All enclosures shall be provided with, 230 VAC 15/5A duplex type power socket & switch for maintenance purpose.
- All panels shall be provided with an internal maintenance lamp and space heaters, gaskets.
- All panels shall be indoor, dust-proof with rodent protection, and meet IP41 class of protection.
- There shall be no sharp corners or edges. All edges shall be rounded to prevent injury.
- Document Holder shall be provided inside the cabinet to keep test report, drawing, maintenance register etc.
- Cooling air shall be drawn from the available air within the room.
- All materials used in the enclosures including cable insulation or sheathing, wire troughs, terminal blocks, and enclosure trim shall be made of flame-retardant material and shall not produce toxic gasses under fire conditions.
- Suitable sized terminal blocks shall be provided for all external cablings.

ASSEMBLY AND COMPONENT IDENTIFICATION

Each assembly in the system, to the level of printed circuit cards, shall be clearly marked with the manufacturer's part number, serial number, and the revision level. Changes to assemblies shall be indicated by an unambiguous change to the marked revision level. All printed circuit card cages and all slots within the cages shall be clearly labelled. Printed circuit cards shall be keyed for proper insertion orientation.

INTERCONNECTIONS

All signal cabling between component units of the computer systems shall be supplied by the Contractor. Plug-type connectors shall be used for all signal interconnections. The connectors shall be polarized to prevent improper assembly. Each end of each interconnection cable shall be marked with the cable number and the identifying number and location of each of the cable's terminations. Each cable shall be continuous between

components; no intermediate splices or connectors shall be used. Terminations shall be entirely within the enclosures.

CONSUMABLES

The Contractor shall supply, at its own expense, all consumables required for use during all phases of the project through completion of the system availability test. The consumable items shall include as minimum:
(a) Magnetic cartridges (DAT)/ MOdisks
(b) Printer paper
(c) Printer toner, ink. Ribbons and cartridges
(d) Special cleaning materials
(e) CDs/DVDs

ENVIRONMENTAL CONDITIONS

Ambient Temperature and Noise Level

Equipment to be located in the SCADA/DMS control centre building shall operate over an ambient temperature range of 16^0C to 37^0C, with a maximum rate of change of 5^0C per hour. Relative humidity will be less than 80% non-condensing.

Acoustic Noise Level

The noise level of any equipment located in the control room shall not exceed 60dbA measured at three feet from equipment especially for the printers.

POLOKWANE MUNICIPALITY
Coherent Health & Safety Specifications

UPGRADING OF SCADA & RTU'S AND RETROFIT PROTECTION RELAYS – PHASE 1A

INSERT OHS SPECIFICATION HERE!!

POLOKWANE MUNICIPALITY

C4 Site Information

Gamma substation and the control room are situated at the following areas:

- *Ladanna*

POLOKWANE MUNICIPALITY

C5 Drawings

Figure 1: Single Line Diagrams for the 11kV Feeders

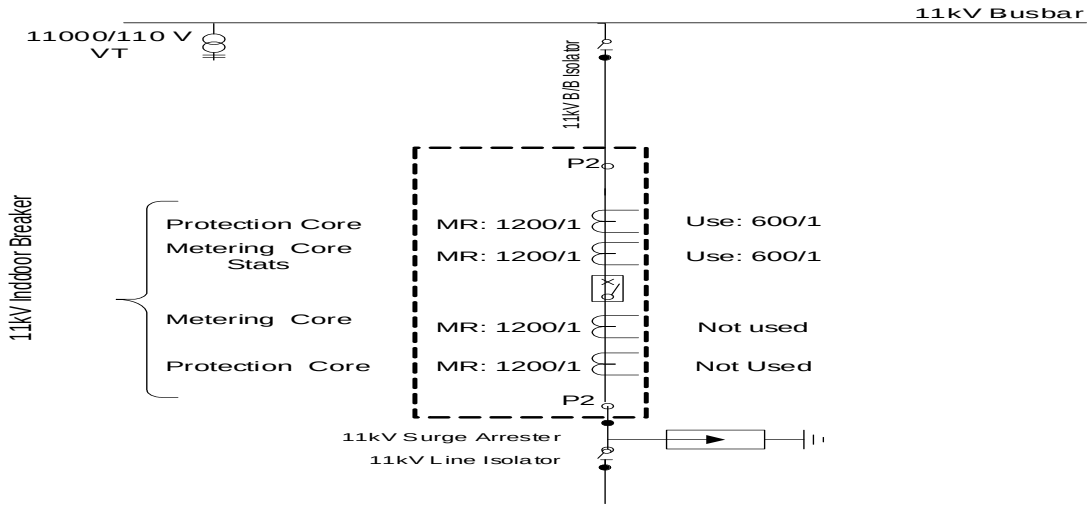


Figure 2: Cabling Diagram for the 66kV Feeders

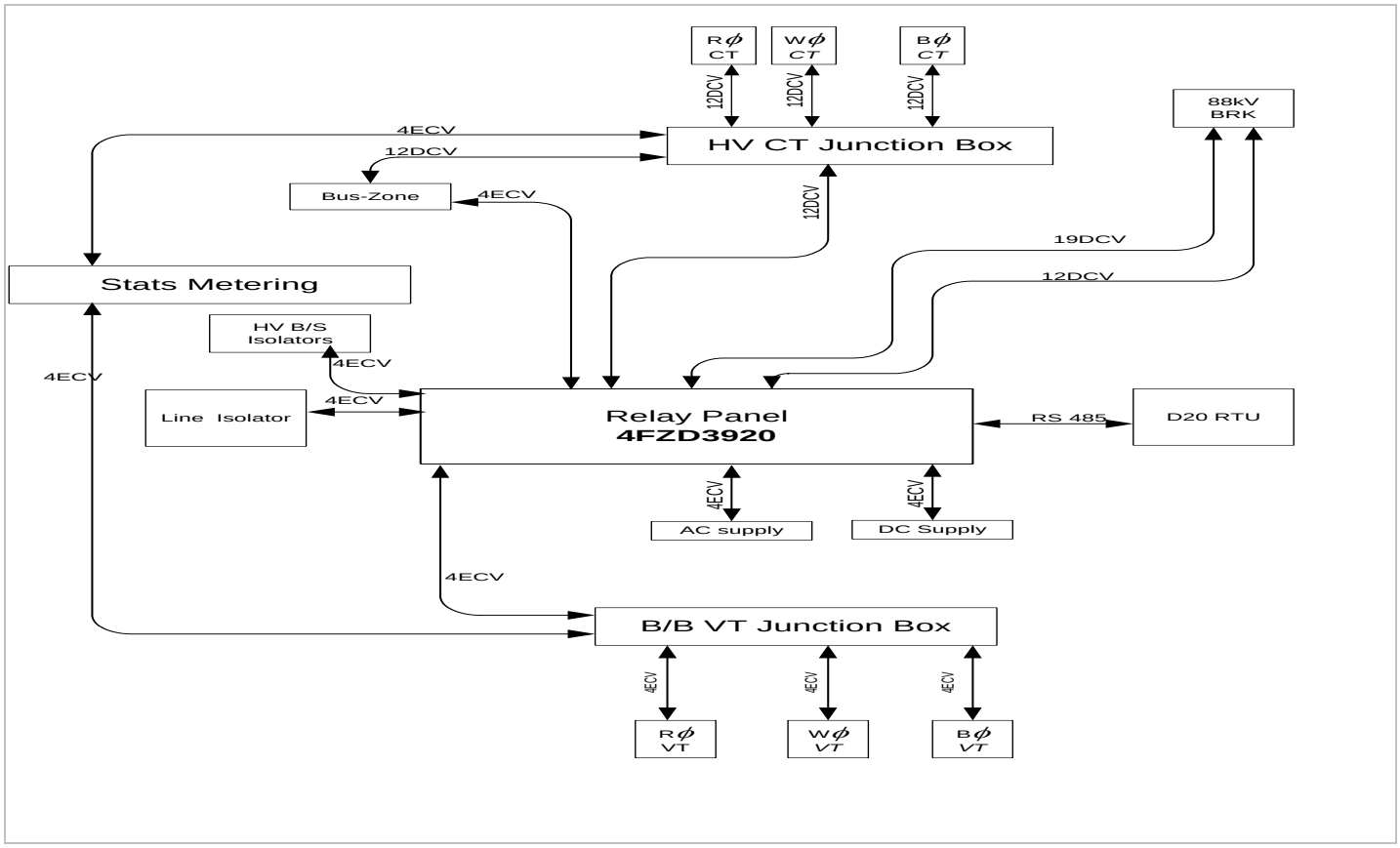


Figure 3: Single Line Diagram for the 66kV Feeders

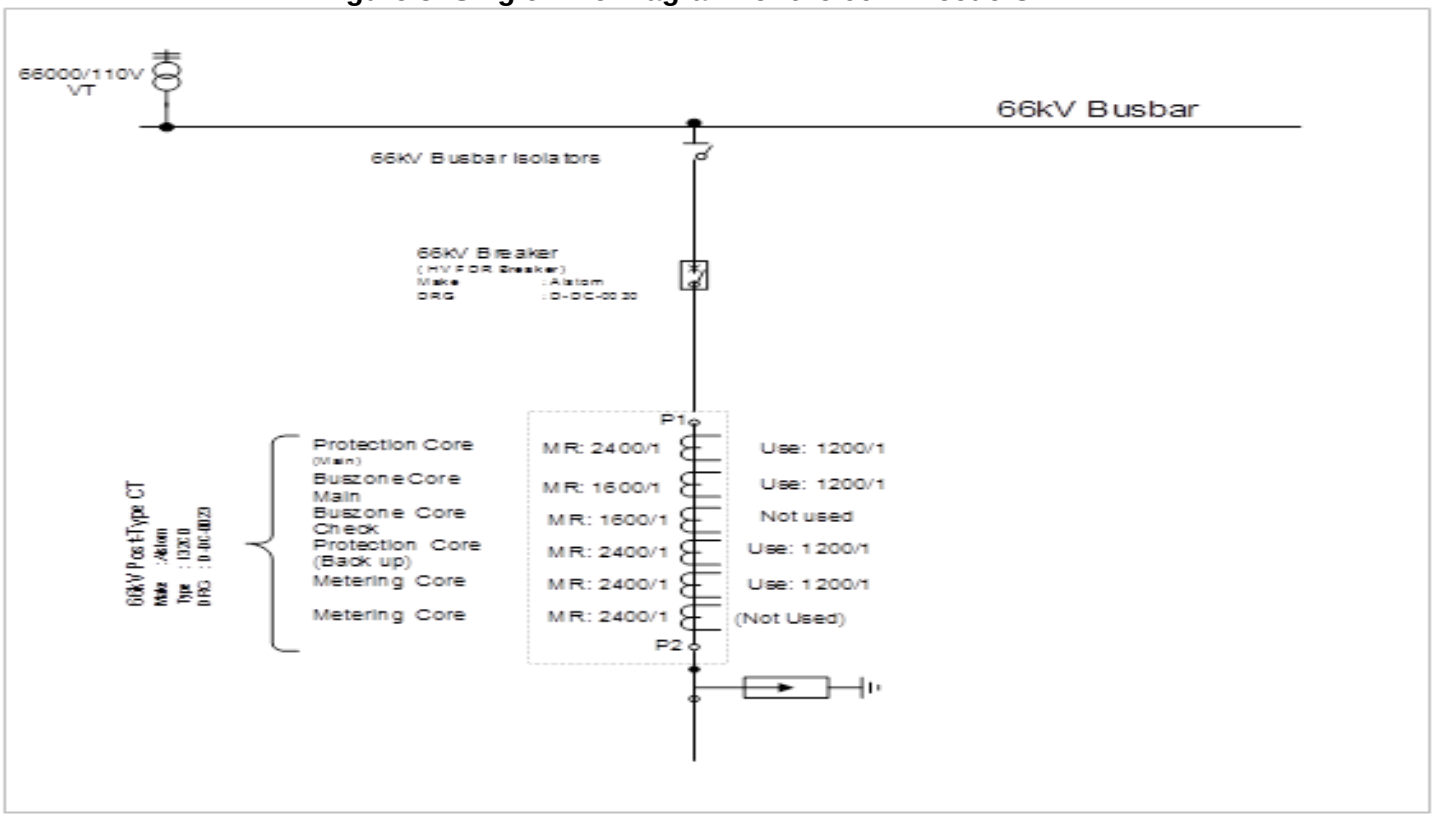


Figure 4: Buszone Cabling diagram

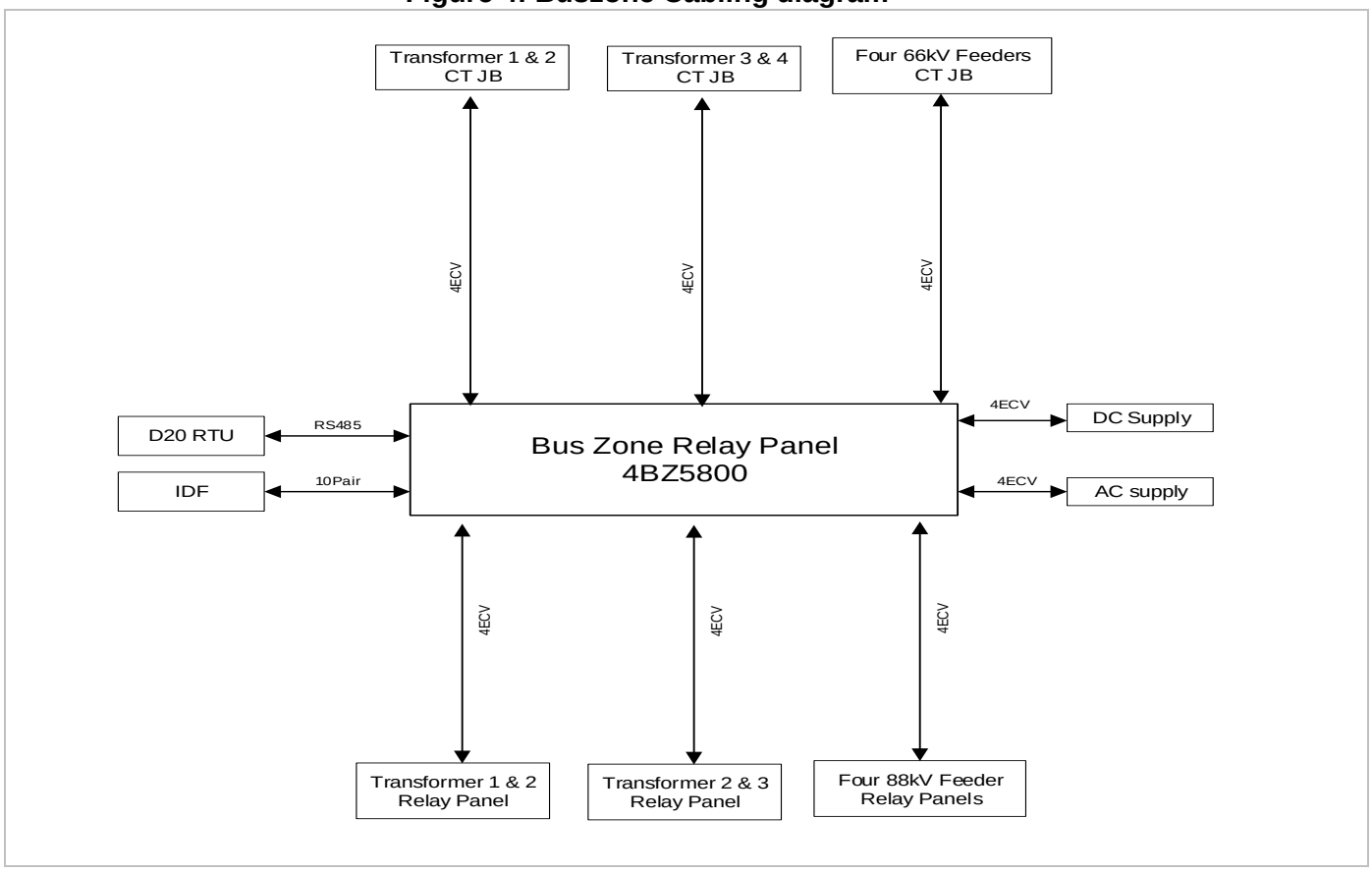


Figure 5: Bus Section Cable Diagram

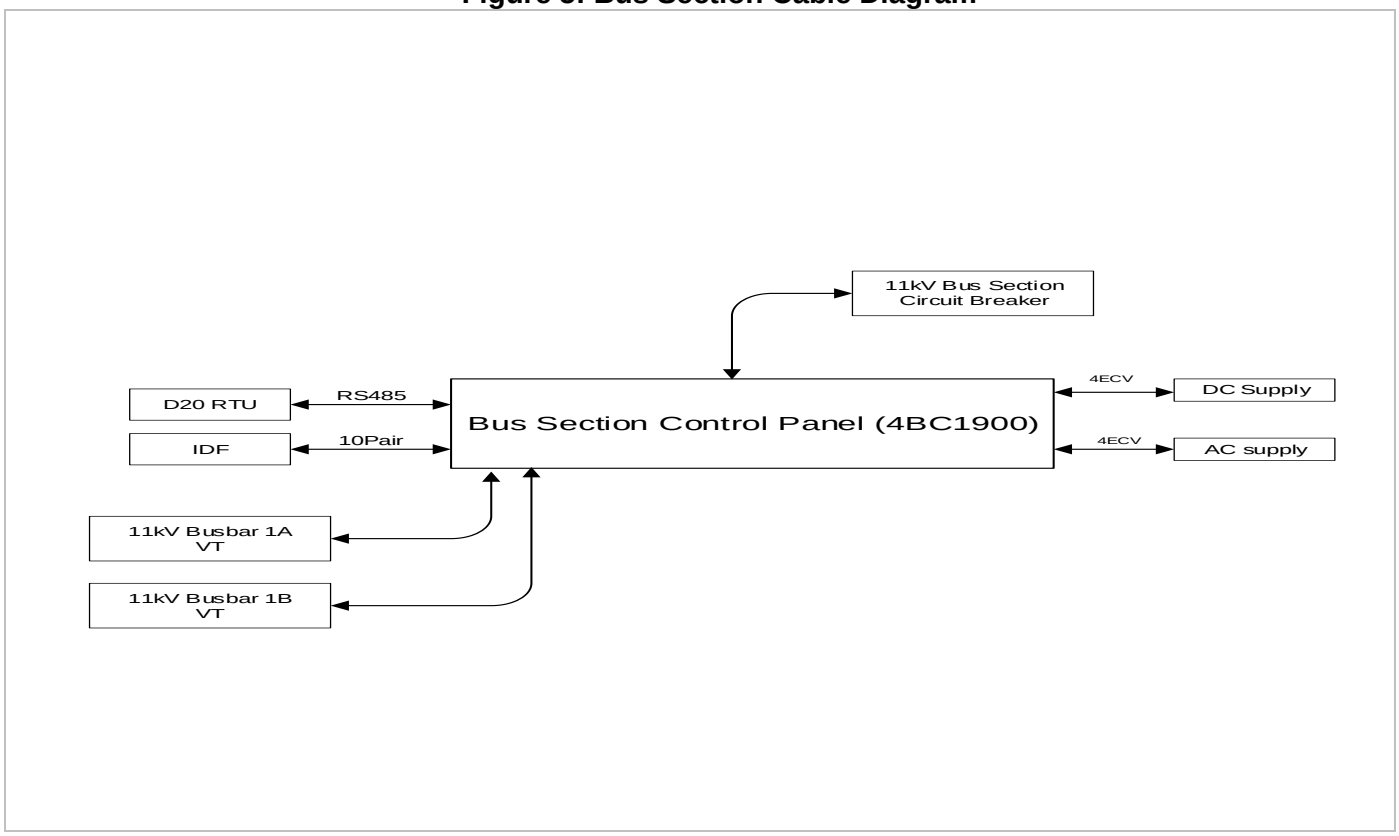


Figure 6: Transformer Cabling Diagram