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| Eskomlogo 2002 Black |

NEC3 Engineering & Construction Contract

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| **Between** | **ESKOM HOLDINGS SOC LIMITED**  **(Reg No. 2002/015527/30)** | |
| **and** | **…………………………..**  **(Reg No. \_\_\_\_\_\_\_\_\_\_ )** | |
| **for** | **The provision for the refurbishment and construction of Substation projects or parts thereof required on an “as and when” required basis over a period of 36 months within Mpumalanga Operating Unit** | |
|  |  | |
| **Contents:** |  | **No of pages** |
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|  |  |  |
| **CONTRACT No.** | **4600062404** | |
| **Documentation prepared by:** | **Contracts Management Services: MOU**  **Lungisa Mase and Sitandiwe Mgolozeli** | |
|  |  | |
|  |  | |

Part C1: Agreements & Contract Data

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| --- | --- | --- |
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C1.1 Form of Offer & Acceptance

## Offer

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

**The provision for the refurbishment and construction of substation projects or parts thereof required on an “as and when” required basis over a period of 36 months within Mpumalanga Operating Unit**

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

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

|  |  |  |
| --- | --- | --- |
| Option B | The offered total of the Prices exclusive of VAT is | **Offered Rates** |

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 including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Signature(s) |  |  |  | |
| Name(s) |  |  |  | |
| Capacity |  |  |  | |
| **For the tenderer:** |  | | | |
| Name & signature of witness | *(Insert name and address of organisation)* |  | Date |  |
| Tenderer’s CIDB registration number: | |  | | |

## Acceptance

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

The terms of the contract, are contained in:

Part C1 Agreements and Contract Data, (which includes this Form of Offer and Acceptance)

Part C2 Pricing Data

Part C3 Scope of Work: Works Information

Part C4 Site Information

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable Schedules as well as any changes to the terms of the Offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

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

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any).

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Signature(s) |  |  |  | |
| Name(s) | **Anton Kotze** |  |  | |
| Capacity | **Senior Manager: Asset Creation** |  |  | |
| for the Employer | **Eskom Holdings SOC Limited**  **P.O. Box 579**  **Nelspruit**  **1200** | | | |
| Name & signature of witness |  |  | Date |  |

Note: If a tenderer wishes to submit alternative tenders, use another copy of this Form of Offer and Acceptance.

## Schedule of Deviations to be completed by the *Employer* prior to contract award

|  |  |  |
| --- | --- | --- |
| No. | Subject | Details |
| 1 | NONE LISTED | N/A |
|  |  |  |

By the duly authorised representatives signing this Schedule of Deviations below, the Employer and the tenderer agree to and accept this Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules, as well as any confirmation, clarification or changes to the terms of the Offer agreed by the tenderer and the Employer during this process of Offer and Acceptance.

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

|  |  |  |  |
| --- | --- | --- | --- |
|  | For the tenderer: |  | For the Employer |
| Signature |  |  |  |
| Name |  |  | **Anton Kotze** |  |  |
| Capacity |  |  | **Senior Manager: Asset Creation** |  |  |
| On behalf of | *(Insert name and address of organisation)* |  | **Eskom Holdings SOC Limited**  **P.O. Box 579**  **Nelspruit**  **1200** |
| Name & signature of witness |  |  |  |
| Date |  |  |  |

C1.2 ECC3 Contract Data

# Part one - Data provided by the *Employer*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Clause | Statement | Data | | | |
| 1 | General |  | | | |
|  | The *conditions of contract* are the core clauses and the clauses for main Option |  | | | |
|  |  | **B: Priced contract with bill of quantities** | | | |
|  | dispute resolution Option | **W1: Dispute resolution procedure** | | | |
|  | and secondary Options | **X1 Price adjustment for inflation** | | | |
|  |  | **X2 Changes in the law** | | | |
|  |  | **X5: Sectional Completion** | | | |
|  |  | **X7: Delay damages** | | | |
|  |  | **X16: Retention** | | | |
|  | **[always used by Eskom]** | X18: Limitation of liability | | | |
|  |  | Z: *Additional conditions of contract* | | | |
|  | of the NEC3 Engineering and Construction Contract, June 2005 (ECC3) (with amendments June 2006) |  | | | |
| 10.1 | The *Employer* is (Name): | **Eskom Holdings Limited (reg no: 2002/015527/06), a juristic person incorporated in terms of the company laws of the Republic of South Africa** | | | |
| Address | **Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg** | | | |
|  | Represented by: | **Mr Joe Ramphore** | | | |
|  | Tel No. | **+27 13 693 2347** | | | |
|  | Fax No. | **+27 86 666 8578** | | | |
| 10.1 | The *Project Manager* is: (Name) | **TBA on each Task Order Issued** | | | |
|  | Address | **TBA** | | | |
|  | Tel | **TBA** | | | |
|  | Fax | **TBA** | | | |
|  | e-mail | **TBA** | | | |
| 10.1 | The *Supervisor* is: (Name) | **TBA** | | | |
|  | Address | **TBA** | | | |
|  | Tel No. | **TBA** | | | |
|  | Fax No. | **TBA** | | | |
|  | e-mail | **TBA** | | | |
| 11.2(13) | The *works* are | **The provision for the refurbishment and construction of substation projects or parts thereof required on an “as and when” required basis over a period of 36 months within Mpumalanga Operating Unit** | | | |
| 11.2(14) | The following matters will be included in the Risk Register | **As per FDP** | | | |
| 11.2(15) | The *boundaries of the site* are | **As per Task Instruction/FDP** | | | |
| 11.2(16) | The Site Information is in | **Part 4: Site Information** | | | |
| 11.2(19) | The Works Information is in | **Part 3: Scope of Work and all documents and drawings to which it makes reference.** | | | |
| 12.2 | The *law of the contract* is the law of | **the Republic of South Africa** | | | |
| 13.1 | The *language of this contract* is | **English** | | | |
| 13.3 | The *period for reply* is | **7 working days** | | | |
| 2 | The *Contractor's* main responsibilities | **Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data** | | | |
| 3 | Time |  | | | |
| 11.2(3) | The *completion date* for the whole of the *works* is | **Only Task Order Completion Dates shall be considered for each individual orders and no Task Orders shall be issued or accepted by the contractor beyond 31 March 2020** | | | |
| 11.2(9) | The *key date*s and the *condition*s to be met are: | ***Condition* to be met** | | | ***key date*** |
|  |  | **1** | **As per Task Order** | |  |
| 30.1 | The *access dates* are: | **Part of the Site** | | **Date** | |
|  |  | **1** | **The whole site as per Task Order** | **As per Task Order** | |
| 31.1 | The *Contractor* is to submit a first programme for acceptance within | **2 weeks of the Contract Date** | | | |
| 31.2 | The *starting date* is | **TBA** | | | |
| 32.2 | The *Contractor* submits revised programmes at intervals no longer than | **4 weeks** | | | |
| 4 | Testing and Defects |  | | | |
|  |  |  | | | |
| 42.2 | The *defects date* is | **52 weeks after Completion on the whole of the works** | | | |
| 43.2 | The *defect correction period* is | **2 weeks** | | | |
| 5 | Payment |  | | | |
| 50.1 | The *assessment interval* is | **On completion of each Task Order or Between the 20-25 day of each successive month if the tasks order spans more than a month.** | | | |
| 51.1 | The *currency of this contract* is the | **South African Rand** | | | |
| 51.2 | The period within which payments are made is | **Either 14 days or 30 days depending on the contractor’s BBBEE status** | | | |
| 51.4 | The *interest rate* is | **(i) zero percent above the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and**  **(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption “Money Rates” in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove** | | | |
| 6 | Compensation events |  | | | |
| 60.1(13) | The place where weather is to be recorded is: | **On the working site** | | | |
|  | The *weather measurements* to be recorded for each calendar month are, | **the cumulative rainfall (mm)**  **the number of days with rainfall more than 10mm**  **the number of days with minimum air temperature less than 0 degrees Celsius**  **the number of days with snow lying at 09:00 hours South African Time and these measurements:** | | | |

|  |  |  |
| --- | --- | --- |
|  | The *weather measurements* are supplied by | **South African weather service** |
|  | The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at: | **South Africa** |
|  | and which are available from: | **the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer.*** |
| 60.1(13) | Assumed values for the ten year return *weather data* for each *weather measurement* for each calendar month are: | **As stated in Annexure A to this Contract Data provided by the *Employer.*** |
| 7 | Title | **There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.** |
| 8 | Risks and insurance |  |
| 80.1 | These are additional *Employer*'s risks | **None** |
| 84.1 | The *Employer* provides these insurances from the Insurance Table | **as stated for Format Dx available on** <http://www.eskom.co.za/live/content.php?Item_ID=9248>  **(See** **Annexure B for basic guidance)** |
| 84.1 | The *Employer* provides these additional insurances | **as stated for Format Dx available on** <http://www.eskom.co.za/live/content.php?Item_ID=9248>  **(See** **Annexure B for basic guidance)** |
| 84.2 | The minimum limit of indemnity for insurance in respect of loss of or damage to property (except the *works*, Plant, Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract for any one event is | **whatever the *Contractor* deems necessary in addition to that provided by the *Employer*.** |
| 84.2 | The minimum limit of indemnity for insurance in respect of death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract for any one event is | **As prescribed by the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993 and the *Contractor’s* common law liability for people falling outside the scope of the Act with a limit of Indemnity of not less than R500 000 (Five hundred thousand Rands).** |
| 9 | Termination | **There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.** |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | | Data for main Option clause | |  | | | | |
| **B** | | **Priced contract with bill of quantities** | |  | | | | |
| 60.6 | | The *method of measurement* is | | **in Clause 11 published by NEC3 Engineering and Construction Contract and amended as stated in Part C2.1, Pricing Assumptions.** | | | | |
| 11 | | Data for Option W1 | |  | | | | |
| W1.1 | | The *Adjudicator* is (Name) | | **the person selected from the Eskom Panel of Adjudicators listed in Annexure C to this Contract Data by the Party intending to refer a dispute to him.** | | | | |
| W1.2(3) | | The *Adjudicator nominating body* is: | | **the Chairman of the Joint Civils Division of the South African Institution of Civil Engineering. (See** [**www.jointcivils.co.za**](http://www.jointcivils.co.za)**)** | | | | |
| W1.4(2) | | The *tribunal* is: | | **Arbitration.** | | | | |
| W1.4(5) | | The *arbitration procedure* is | | **the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.** | | | | |
|  | | The place where arbitration is to be held is | | **South Africa** | | | | |
|  | | The person or organisation who will choose an arbitrator   * if the Parties cannot agree a choice or * if the arbitration procedure does not state who selects an arbitrator, is | | **The Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.** | | | | |
| 12 | | Data for secondary Option clauses | |  | | | | |
| **X1** | | **Price adjustment for inflation** | |  | | | | |
| X1.1 | | The *base date* for indices is | **01 April 2017** | | | | | | |
|  | | The proportions used to calculate the Price Adjustment Factor are: | **proportion** | | **linked to index for** | **Index prepared by** | | | |
|  | |  | **90%** | | **C3(a)** | **SEIFSA Table L** | | | |
|  | |  | **10%** | | **non-adjustable** |  | | | |
|  | |  | **1.00** | |  | | | | |
|  | | ***The prices offered are in Rand and all rates will remain fixed for the first 12 months of the contract period; thereafter the applicable CPA will either be CPI or SEIFSA Table C3, and Table L whichever the lowest escalation CPA component, will be adopted. The base date shall be the contract starting date.*** | | | | | | | |
| **X2** | | **Changes in the law** | | **There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.** | | | | |
|  | |  | |  | | | | |
| **X5** | | **Sectional Completion** | |  | | | | |
| X5.1 | | The *completion date* for each *section* of the *works* is: | | ***Section*** | **Description** | | ***Completion date*** | |
|  | |  | | **1** | **As per task** | |  | |
| **X5 & X7** | | **Sectional Completion and delay damages used together** | |  | | | | |
| X7.1  X5.1 | | Delay damages for late Completion of the *section*s of the *works* are: | | ***section*** | **Description** | | | **Amount per day** |
|  | |  | | **1** | **As per task** | | | **TBA** |
|  | | Remainder of the *works* | |  |  | | |  |
|  | | The total delay damages payable by the *Contractor* does not exceed: | | **R5000 per day up to 10% of total construction cost.** | | | | |
| **X16** | | **Retention** | |  | | | | |
| X16.1 | | The *retention percentage* | | **10% ( 5% released on completion)**  **(5% released 52 weeks after completion)** | | | | |
| **X18** | | **Limitation of liability** | |  | | | | |
| X18.1 | | The *Contractor*’s liability to the *Employer* for indirect or consequential loss is limited to: | | **R0.0 (Zero Rand)** | | | | |
| X18.2 | | For any one event, the *Contractor*’s liability to the *Employer* for loss of or damage to the *Employer*’s property is limited to: | | **the amount of the deductibles relevant to the event described in the insurance policy format selected in the data for clause 84.1 above, which policy is available on** <http://www.eskom.co.za/live/content.php?Item_ID=9248> | | | | |
| X18.3 | | The *Contractor*’s liability for Defects due to his design which are not listed on the Defects Certificate is limited to | | **The greater of**   * **the total of the Prices at the Contract Date**   **and**   * **The amounts excluded and unrecoverable from the *Employer*’s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus R15M first amount payable in terms of the *Employer*’s assets policy.** | | | | |
| X18.4 | | The *Contractor*’s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to: | | **the total of the Prices other than for the additional excluded matters.**  **The *Contractor’s* total liability for the additional excluded matters is not limited.**  **The additional excluded matters are amounts for which the *Contractor* is liable under this contract for**   * **Defects due to his design which arise before the Defects Certificate is issued,** * **Defects due to manufacture and fabrication outside the Site,** * **loss of or damage to property (other than the *works*, Plant and Materials),** * **death of or injury to a person and** * **Infringement of an intellectual property right.** | | | | |
|  |  | | | | | | | |
| **Z1** | **Cession delegation and assignment** | | | | | | | |
| Z1.1 | The *Contractor* does notcede, delegate or assign any of its rights or obligations to any person without the written consent of the *Employer.* | | | | | | | |
| Z1.2 | Notwithstanding the above, the *Employer* may on written notice to the *Contractor* cede and delegate its rights and obligations under this contract to any of its subsidiaries or any of its present divisions or operations which may be converted into separate legal entities as a result of the restructuring of the Electricity Supply Industry and the Electricity Distribution Industry. | | | | | | | |
|  |  | | | | | | | |
| **Z2** | **Joint ventures** | | | | | | | |
| Z2.1 | If the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations then these persons or organisations are deemed to be jointly and severally liable to the *Employer* for the performance of this contract. | | | | | | | |
| Z2.2 | Unless already notified to the *Employer*, the persons or organisations notify the *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf. | | | | | | | |
| Z2.3 | The *Contractor* does not substantially alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing. | | | | | | | |
|  |  | | | | | | | |
| **Z3** | | **Change of Broad Based Black Economic Empowerment (B-BBEE) status** | | | | | | |
| Z3.1 | | Where a change in the *Contractor’s* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor*’s B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change. | | | | | | |
| Z3.2 | | The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project Manager*. | | | | | | |
| Z3.3 | | Where, as a result, the *Contractor’s* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor*’s obligation to Provide the Works. | | | | | | |
| Z3.4 | | Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93. | | | | | | |
|  | |  | | | | | | |
| **Z4** | **Ethics** | | | | | | | |
| Z4.1 | Any offer, payment, consideration, or benefit of any kind made by the *Contractor*, which constitutes or could be construed either directly or indirectly as an illegal or corrupt practice, as an inducement or reward for the award or in execution of this contract constitutes grounds for terminating the *Contractor*’s obligation to Provide the Works or taking any other action as appropriate against the *Contractor* (including civil or criminal action). | | | | | | | |
| Z4.2 | The *Employer* may terminate the *Contractor*’s obligation to Provide the Works if the *Contractor* (or any member of the *Contractor* where the *Contractor* constitutes a joint venture, consortium or other unincorporated grouping of two or more persons or organisations) is found guilty by a competent court, administrative or regulatory body of participating in illegal or corrupt practices.  Such practices include making of offers, payments, considerations, or benefits of any kind or otherwise, whether in connection with any procurement process or contract with the *Employer* or other people or organisations and including in circumstances where the *Contractor* or any such member is removed from the an approved vendor data base of the *Employer* as a consequence of such practice. | | | | | | | |
| Z4.3 | Notwithstanding the provisions of core clause 90.2, the procedures on termination in terms of this clause are P1, P2 and P3 as stated in the core clause 92 and the amount due is A1 and A3 as stated in core clause 93. | | | | | | | |
|  |  | | | | | | | |
| **Z5** | **Confidentiality** | | | | | | | |
| Z5.1 | The *Contractor* does not disclose or make any information arising from or in connection with this contract available to Others. This undertaking does not, however, apply to information which at the time of disclosure or thereafter, without default on the part of the *Contractor*, enters the public domain or to information which was already in the possession of the *Contractor* at the time of disclosure (evidenced by written records in existence at that time). Should the *Contractor* disclose information to Others in terms of clause 25.1, the *Contractor* ensures that the provisions of this clause are complied with by the recipient. | | | | | | | |
| Z5.2 | If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Project Manager*. | | | | | | | |
| Z5.3 | In the event that the *Contractor* is, at any time, required by law to disclose any such information which is required to be kept confidential, the *Contractor*, to the extent permitted by law prior to disclosure, notifies the *Employer* so that an appropriate protection order and/or any other action can be taken if possible, prior to any disclosure. In the event that such protective order is not, or cannot, be obtained, then the *Contractor* may disclose that portion of the information which it is required to be disclosed by law and uses reasonable efforts to obtain assurances that confidential treatment will be afforded to the information so disclosed. | | | | | | | |
| Z5.4 | The taking of images (whether photographs, video footage or otherwise) of the *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*. | | | | | | | |
| Z5.5 | The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause. | | | | | | | |
|  |  | | | | | | | |
| **Z6** | **Waiver and estoppel: Add to core clause 12.3:** | | | | | | | |
| Z6.1 | Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties*,* the *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing. | | | | | | | |
|  |  | | | | | | | |
| **Z7** | | **Health, safety and the environment: Add to core clause 27.4** | | | | | | |
| Z7.1 | | The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *works*. Without limitation the *Contractor*:   * accepts that the *Employer* may appoint him as the “Principal Contractor” (as defined and provided for under the Construction Regulations 2003 (promulgated under the Occupational Health & Safety Act 85 of 1993) (“the Construction Regulations”) for the Site; * warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of *works*; and * undertakes, in and about the execution of the *works*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor’s* direction and control, likewise observe and comply with the foregoing. | | | | | | |
| Z7.2 | | The *Contractor*, in and about the execution of the *works*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor’s* direction and control, likewise observe and comply with the foregoing. | | | | | | |
|  |  | | | | | | | |
| **Z8** | **Provision of a Tax Invoice and interest. Add to core clause 51** | | | | | | | |
| Z8.1 | Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer*'s procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate. | | | | | | | |
| Z8.2 | If the *Contractor* does not provide a tax invoice in the form and by the time required by this contract, the time by when the *Employer* is to make a payment is extended by a period equal in time to the delayed submission of the correct tax invoice. Interest due by the *Employer* in terms of core clause 51.2 is then calculated from the delayed date by when payment is to be made. | | | | | | | |
| Z8.3 | The *Contractor* (if registered in South Africa in terms of the companies Act) is required to comply with the requirements of the Value Added Tax Act, no 89 of 1991 (as amended) and to include the *Employer*’s VAT number 4740101508 on each invoice he submits for payment. | | | | | | | |
|  |  | | | | | | | |
| **Z9** | **Notifying compensation events** | | | | | | | |
| Z9.1 | Delete from the last sentence in core clause 61.3, “unless the *Project Manager* should have notified the event to the *Contractor* but did not”. | | | | | | | |
|  |  | | | | | | | |
| **Z10** | ***Employer’s* limitation of liability** | | | | | | | |
| Z10.1 | The *Employer’s* liability to the *Contractor* for the *Contractor’s* indirect or consequential loss is limited to R0.00 (zero Rand) | | | | | | | |
| Z10.2 | The *Contractor*’s entitlement under the indemnity in 83.1 is provided for in 60.1(14) and the *Employer*’s liability under the indemnity is limited to compensation as provided for under the compensation events stated in this contract. | | | | | | | |
|  |  | | | | | | | |
| **Z11** | **Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":** | | | | | | | |
| Z11.1 | or had a judicial management order granted against it. | | | | | | | |
|  |  | | | | | | | |
| **Z12** | **Addition to secondary Option X7 Delay damages (if applicable in this contract)** | | | | | | | |
| Z12.1 | If the amount due for the *Contractor*’s payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the *Employer* may terminate the *Contractor*’s obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.  **NOTE:** **National Contract is currently being established should the Contract be in place before the expiry date of this Contract it will therefore supersede this Contract.** | | | | | | | |
|  |  | | | | | | | |

# Annexure A: One-in-ten-year-return *weather data* obtained from SA Weather Bureau for [weather station]

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event. Weather Data will be attached to Task Instruction specific to the area of works. Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

# Annexure B: Insurance provided by the Employer

*These notes are provided as guidance to tendering contractors and the Contractor about the insurance provided by the Employer. Details of the insurance itself are available from the internet web link given below.*

1. For the purpose of works contracts, insurance provided by Eskom (the *Employer*) has been arranged on the basis of “project” or “contract” value, where the value is the total of the Prices at Completion of the whole of the works including VAT.

A “project” is a collection of contracts or work packages to be undertaken as part of a single identified capital expansion or refurbishment of a particular asset or facility.

A “contract” is a single contract not linked to or being part of a “project”.

1. For ECC3 there are three main “formats” of cover and deductible structure; Format A, Format B and Format Dx.

**Format A** is for a project or contract value less than or equal to R350M (three hundred and fifty million Rand) inclusive of VAT.

**Format B** is for a project or contract value greater than R350M .(three hundred and fifty million Rand) inclusive of VAT.

In the case of contracts / packages within a project:

* For a contract / package of R50M which is part of a R400M project, Format B will apply
* For a contract / package of R250M which is part of a R6 billion project, Format B will apply;
* For a contract / package of R120M which is part of a R350M project Format A will apply;

For a contract which is not part of a project the same limits apply:

* For a contract of R50M, Format A will apply
* For a contract of R355M, Format B will apply.

**Format Dx** applies only to Distribution Division projects and contracts. If a Distribution Division project or contract exceeds the Format A limit, the Eskom Insurance Management Services [EIMS] need to be contacted for advice on how to formulate the insurance cover. Cover and deductibles for Distribution Division are per the relevant policy available on the internet web link given below.

**Format A generally applies to Transmission Division** projects and contracts. If a Transmission Division project or contract exceeds the Format A limit, the Eskom Insurance Management Services [EIMS] need to be contacted for advice on how to formulate the insurance cover.

1. Tendering contractors should note that cover provided by the *Employer* is only per the policies available on the internet web link listed below and may not be the cover required by the tendering contractor or as intended by each of the listed insurances in the left hand column of the Insurance Table in clause 84.2. In terms of clause 84.1 “the *Contractor* provides the insurances stated in the Insurance Table except any insurance which the *Employer* is to provide”. Hence the *Contractor* provides insurance which the *Employer* does not provide and in cases where the *Employer* does provide insurance the *Contractor* insures for the difference between what the Insurance Table requires and what the *Employer* provides.
2. When the Marine Insurance is required the *Contractor* needs to obtain a copy of the latest edition of Eskom’s Marine Policies Procedures found at internet website given below.
3. **Further information and full details of all Eskom provided policies and procedures may be obtained from:**

[**http://www.eskom.co.za/live/content.php?Item\_ID=9248**](http://www.eskom.co.za/live/content.php?Item_ID=9248)

# Annexure C: The *Employer*’s Panel of Adjudicators

The following persons listed in alphabetical order of their surname have indicated their willingness to be included in the Eskom Panel of Adjudicators. Their CV’s may be obtained by using the contact details provided.

|  |  |  |
| --- | --- | --- |
| Name | Location | Contact details (phone & e mail) |
| Nigel ANDREWS | Gauteng | +27 11 836-6760  nigela@quoin.net |
| Andrew BAIRD | Gauteng | +27 11 803 3008  [andrewbaird@ecsconsult.co.za](mailto:andrewbaird@ecsconsult.co.za) |
| Christopher BINNINGTON | Gauteng | +27 11 888-6141  [cdb@bca.co.za](mailto:cdb@bca.co.za) |
| Peter HIGGINS | UK | +44 1293 873 868  peterhiggins@pdconsult.co.uk |
| Bruce LEECH | Gauteng | +27 11 290 4000  leech@counsel.co.za |
| Nigel NILEN | Gauteng | +27 11 465 3601; nilences@global.co.za |
| Peter THURLOW | Gauteng | +27 11 787 6226  [info@thurlowassoc.com](mailto:info@thurlowassoc.com) |

**Information about the Panel and appointment of the selected *Adjudicator* is available from Eskom Supply Chain Operations management, by contacting Leighton Itholeng (Tel.: +27 (0)11 800 4031)**

**(Fax :+27 (0)86 668 0419) E-mail:** Leighton.Itholeng@eskom.co.za

C1.2 Contract Data

**Part two - Data provided by the *Contractor – This portion of the contract shall be completed by the contractor for each and every task order issued to the contractor before commencement of each task.***

The Contractor must provide a list of people & staff on site with their respective responsibilities, showing their lines of authority / communication to the Project Manager at the start of the contract and an amended list at the start of each Task Order.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Clause** | **Statement** | **Data** | | | |
| 10.1 | The *Contractor* is (Name): |  | | | |
|  | Address |  | | | |
|  | Tel No. |  | | | |
|  | Fax No. |  | | | |
| 11.2(8) | The *direct fee percentage* is |  | | | |
|  | The *subcontracted fee percentage* is | **Shall be agreed upon acceptance of sub-contractor** | | | |
| 11.2(18) | The *working areas* are the Site and |  | | | |
| 24.1 | The *Contractor's* key persons are: | **To be submitted with each and every quotation submitted before commencement of each task.** | | | |
|  | 1 Name: |  | | | |
|  | Job: |  | | | |
|  | Responsibilities: |  | | | |
|  | Qualifications: |  | | | |
|  | Experience: |  | | | |
|  | 2 Name: |  | | | |
|  | Job |  | | | |
|  | Responsibilities: |  | | | |
|  | Qualifications: |  | | | |
|  | Experience: |  | | | |
|  |  | **CV's (and further key persons data including CVs) are appended to Tender Schedule entitled****.** | | | |
| 11.2(3) | The *completion date* for the whole of the *works* is | TBA | | | |
| 11.2(14) | The following matters will be included in the Risk Register |  | | | |
| 11.2(19) | The Works Information for the *Contractor*’s design is in: | Not Applicable | | | |
| 31.1 | The programme identified in the Contract Data is | The Contractor’s programme shall be handed in and agreed to before the commencement of each task. | | | |
|  |  |  | | | |
| **B** | **Priced contract with bill of quantities** |  | | | |
| 11.2(21) | The *bill of quantities* is in | **Bill of Quantities Attached** | | | |
| 11.2(31) | The tendered total of the Prices is | **The total Task Order value agreed upon after quotation verification before commencement of each issued**  **The total Task Order value Excl. VAT agreed upon after quotation verification before commencement of each issued.** | | | |
|  | **Data for Schedules of Cost Components** | *Note “SCC” means Schedule of Cost Components starting on page 56 of ECC3, and “SSCC” means Shorter Schedule of Cost Components starting on page 59 of ECC3.* | | | |
| **B** | **Priced contract with bill of quantities** | **Data for the Shorter Schedule of Cost Components** | | | |
| 41 in SSCC | The percentage for people overheads is: | **NIL, labour standard rates shall apply** | | | |
| 21 in SSCC | The published list of Equipment is the last edition of the list published by | **Shall be advised where necessary.** | | | |
|  | The percentage for adjustment for Equipment in the published list is |  | | | |
| 22 in SSCC | The rates of other Equipment are: | **Equipment** | **Size or capacity** | | **Rate** |
|  |  | **As detailed in quotation verification of each task issued** | | | |
| 61 in SSCC | The hourly rates for Defined Cost of design outside the Working Areas are | **Category of employee** | | **Hourly rate** | |
|  | **Note: Hourly rates are estimated ‘cost to company of the employee’ and not selling rates.** | **As detailed in quotation verification of each task issued** | | | |
| 63 in SSCC | The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are: | **Not applicable** | | | |

**Part 2: Pricing Data**

|  |  |  |
| --- | --- | --- |
| **Document reference** | **Title** | **No of pages** |
| C2.1 | Pricing assumptions: Option B | 3 |
| C2.2 | The *bill of quantities* | 1 excluding (BoQ Attached) |

C2.1 Pricing assumptions: Option B

**The *conditions of contract***

**How work is priced and assessed for payment**

Clause 11 in NEC3 Engineering and Construction Contract, June 2005 (ECC3) Option B states:

|  |  |  |
| --- | --- | --- |
| **Identified and defined terms** | 11  11.2 | (21) The Bill of Quantities is the *bill of quantities* as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration. |
|  |  | (28) The Price for Work Done to Date is the total of   * the quantity of the work which the *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and * a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed.   Completed work is work without Defects which would either delay or be covered by immediately following work. |
|  |  | (31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities. |

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time.

**Function of the Bill of Quantities**

Clause 55.1 in Option B states, “Information in the Bill of Quantities is not Works Information or Site Information”. This confirms that instructions to do work or how it is to be done are not included in the Bill, but in the Works Information. This is further confirmed by Clause 20.1 which states, “The *Contractor* Provides the Works in accordance with the Works Information”. Hence the *Contractor* does **not** provide the Works in accordance with the Bill of Quantities. The Bill of Quantities is only a pricing document.

**Guidance before pricing and measuring**

Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract (June 2005) Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.

The NEC approach to the P & G bill assumes use will be made of method related charges for Equipment applied to Providing the Works based on durations shown in the Accepted Programme, fixed charges for the use of Equipment that is required throughout the construction phase, time related charges for people working in a supervisory capacity for the period required, and lump sum charges for other facilities or services not directly related to performing work items typically included in other parts of the bill.

The P & G section of the bill is not used for the assessment of compensation events.

**Measurement and payment**

**Symbols**

The units of measurement described in the Bill of Quantities are metric units abbreviated as follows:

|  |  |
| --- | --- |
| **Abbreviation** | **Unit** |
| % | percent |
| h | hour |
| ha | hectare |
| kg | kilogram |
| kl | kilolitre |
| km | kilometre |
| km-pass | kilometre-pass |
| kPa | kilopascal |
| kW | kilowatt |
| l | litre |
| m | metre |
| mm | millimetre |
| m2 | square metre |
| m2-pass | square metre pass |
| m3 | cubic metre |
| m3-km | cubic metre-kilometre |
| MN | meganewton |
| MN.m | meganewton-metre |
| MPa | megapascal |
| No. | number |
| Prov sum[[1]](#footnote-1) | provisional sum |
| PC-sum | prime cost sum |
| R/only | Rate only |
| sum | Lump sum |
| t | ton (1000kg) |
| W/day | Work day |

**General assumptions**

Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.

The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.

An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*.

The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due.

The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. Detail regarding the extent of the work entailed under each item is provided in the Works Information.

**Departures from the *method of measurement***

Only use this section if the statement for Option B in the Contract Data, “The method of measurement is \_\_\_\_\_\_\_\_ amended as follows” refers the reader to this section rather than include the amendments within the Contract Data statement. Otherwise delete this heading. In any case delete this note when complied with.

**Amplification of or assumptions about measurement items**

For the avoidance of doubt the following is provided to assist in the interpretation of descriptions given in the *method of measurement*. In the event of any ambiguity or inconsistency between the statements in the *method of measurement* and this section, the interpretation given in this section shall be used.

C2.2 the *bill of quantities*

**“The issuing of work is subject to the following:**

* A request for *services/works* will be given to the *Contractor* by the *Employer*, in its total discretion and on an ‘as and when needed’ basis, in the form of a Task Order/Instruction. Signatories of both parties on the Task Order/Instruction are required prior to any obligation being created for commencement of or payment for *services/works*.
* The *Contractor* should not commence with any *services/works* regarding any Task Order/Instruction without receiving the purchase order number (45# number) from the contract custodian.
* A Task Order/Instruction is an order/instruction by the *Employer* to perform *services/works* as nominated by the *Employer* from the skills and *services/works* category, in terms of the above Price List, for which the *Contractor* has been found by the *Employer*, in its total discretion, to have the relevant and present competency and capacity and no serious misconducts by key persons of the *Contractor*, alleged or otherwise.”
* This contract is the only contract which can be used to request the *services*/*works* deemed to be *services/works*.”

The Summary of the Price List is contained in the Bill of Quantities attached.

The Contractor is required to prepare and submit an expenditure forecast (with respect to material and

Labour expenditure during the construction period).

|  |  |  |
| --- | --- | --- |
| ***Contractor*:**  **........................................................**  PRINT NAME | **..............................................................**  SIGNATURE | **...................................................**  DATE |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | |  |  | | | |
| **Generic Substation construction in Mpumalanga area** | | | | | | | | | | |
|  |  |  | | |  |  |  | |  |  |
| **1** | **Primary Plant Specifications** | | | |  |  |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
| Please note that no tender will be considered if the provided bill of quantities is not fully completed. The quantities provided in the schedules are estimated figures and are subject to change, if no quantities are given the contractor must provide estimated figures. Ensure that all rates are given for these estimated figures. | | | | | | | | | | |
|  |  |  | | |  |  |  | |  | |
| **Item** | **Refer** | **Description of the item** | | | **Unit** | **Qty** | **Rate** | | | **Price (R)** |
|  |  |  | | |  |  | **Supply** | | **Erect** |
| **A** |  | **PRELIMINARIES** | | |  |  |  | |  |  |
| **A.1** | **SABS** | **Eskom’s specific requirements** | | |  |  |  | |  |  |
| 1 | **1200A** | Contractual and legal obligations;  **Note:** To cover the Contractor’s initial costs of providing sureties, insurance of the Works and plant, third party or public liability insurance and unemployment insurance to cover his compliance with the requirements of the Workmen’s Compensation Act, 1941 (Act No. 30 of 1941) and any other initial financing obligations of preliminary and general nature, such as contribution to the CEITB. Baseline construction programme etc | | | item | 1 |  | |  |  |
| 2 |  | Establishment of facilities on site such as plant, sheds, lighting, fridge, security lighting, etc;  **Note:** The sums for the items below shall cover the cost of providing, establishing and commission on the Site these facilities adequately equipped to allow the work to commerce and to proceed to completion as required I terms of the contract. | | |  |  |  | |  |  |
|  |  | **Facilities for Contractor** | | |  |  |  | |  |  |
|  |  | 1. Offices and storage sheds (Including site layout indicating the ermegency process i.e first aid boxes, fire extinguishers, assembly point, designated area for waste, designated parking, etc.) | | | Sum | 1 |  | |  |  |
|  |  | 2. Workshops | | | Sum | 1 |  | |  |  |
|  |  | 3. Laboratories | | | Sum | 1 |  | |  |  |
|  |  | 4. Living Accommodation | | | Sum | 1 |  | |  |  |
|  |  | 5.     Ablution and latrine facilities | | | Sum | 1 |  | |  |  |
|  |  | 6.     Tools and equipment | | | Sum | 1 |  | |  |  |
|  |  | 7.     Water Supplies, electric power, and communications | | | Sum | 1 |  | |  |  |
|  |  | 8.     Dealing with water (see 5.5 of SANS1200A) | | | Sum |  |  | |  |  |
|  |  | 9.     Access (see 5.8 of SANS1200A) | | | Sum | 1 |  | |  |  |
|  |  | 10.  Plant (designated plant or plant for designated operations of plant for use during stated periods) | | | Sum | 1 |  | |  |  |
|  |  | 11. Construction board | | | Sum | 1 |  | |  |  |
|  |  | 12. Fencing | | | Sum | 1 |  | |  |  |
|  |  | **Other Fixed-Charged Obligation** | | |  |  |  | |  |  |
|  |  | 1) | | | Sum |  |  | |  |  |
|  |  | 2) | | | Sum |  |  | |  |  |
|  |  | 3) | | | Sum |  |  | |  |  |
|  |  | **Note:** The sum shall cover the cost of all other obligation that are required for the proper execution of the Works in accordance with the requirement of the specification (SANS1200A) and conditions of contract, and that are not specifically covered in 1.1.1, 1.1.2 or 1.1.4. | | |  |  |  | |  |  |
|  |  | Site De-establishment | | | item | 1 |  | |  |  |
|  |  | **Note:** The sum shall cover the cost of the demolition on and the removal from the surface of the Site of all items established in terms of 1.1.2 and 1.1.3 and shall provide for the making good and the restoring of the Site to the satisfaction of the Engineer. | | |  |  |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
|  |  | **Scheduled Time-Related Items** | | |  |  |  | |  |  |
|  |  | Contractual Requirements | | | Month |  |  | |  |  |
|  |  | **Note:** The sum shall cover all the Contractor’s time-related costs of providing surety, insurance of the Works and plant, third party or public liability insurance and unemployment insurance to cover his compliance with the requirements of the Workmen’s Compensation Act, 1941 (Act No. 30 of 1941) and such items as contributions to the CEITB. | | |  |  |  | |  |  |
|  |  | Operation and maintenance of Facilities on Site, for the Duration of Construction, except where otherwise stated. | | |  |  |  | |  |  |
|  |  | Facilities for Contractor | | |  |  |  | |  |  |
|  |  | 1.             Offices and storage sheds | | | Month |  |  | |  |  |
|  |  | 2.             Workshops | | | Month |  |  | |  |  |
|  |  | 3.             Laboratories | | | Month |  |  | |  |  |
|  |  | 4.             Living Accommodation | | | Month |  |  | |  |  |
|  |  | 5.             Ablution and latrine facilities | | | Month |  |  | |  |  |
|  |  | 6.             Tools and equipment | | | Month |  |  | |  |  |
|  |  | 7.             Water Supplies, electric power, and communications | | | Month |  |  | |  |  |
|  |  | 8.             Dealing with water (see 5.5 of SANS1200A) | | | Month |  |  | |  |  |
|  |  | 9.             Access (see 5.8 of SANS1200A) | | | Month |  |  | |  |  |
|  |  | 10.  Plant (designated plant or plant for designated operations of plant for use during stated periods) | | | Month |  |  | |  |  |
|  |  | **Note:** The sums for the items in 1.2.2.1 and 1.2.2.2 shall cover the Contractor’s costs for the periods stated for site rentals, repairs to and depreciation of buildings, furniture, tools and equipment, the storage and distribution of fuels and lubrications, water, electricity, communications, access and sanitation, and the wages of staff. | | |  |  |  | |  |  |
|  |  | Supervision for Duration of Construction | | | Month |  |  | |  |  |
|  |  | **Note**: The sum shall cover the costs of on-site supervision and such local administration, and the Contractor considered necessary for the proper completion of the Works, and shall cover the cost of the salaries, wages and allowances paid to the site agent, general foreman, section foreman (where applicable), site surveyors, timekeepers, assistants and other site supervisory staff, and transport incurred in connection with such staff. | | |  |  |  | |  |  |
|  |  | Company and Head Office Overhead Costs for the Duration of the Contract | | | Month |  |  | |  |  |
|  |  | **Note:** The sum shall cover the Contractor’s company and head office overhead costs. | | |  |  |  | |  |  |
|  |  | **Other Time-related Obligations** | | |  |  |  | |  |  |
|  |  | **Note:** The sum shall cover the time-related costs of all other obligations that are required for the proper execution of the Works in accordance with the requirements of the specification (SANS 1200A) and the conditions of contract, and that are not specifically covered in 1.2.1 to 1.2.4 | | |  |  |  | |  |  |
|  |  | 1.)   Receiving, taking control and administering material. | | | Month |  |  | |  |  |
|  |  | 2.)  Obtaining permits, arranging outages, etc. and to energise sub. | | | Month |  |  | |  |  |
|  |  | 3.) Site Security (Safeguarding of site camp and construction site including personnel and material) | | | Month |  |  | |  |  |
|  |  | 5.)  CLO | | | Month |  |  | |  |  |
|  |  | 6.)   Transport: Personnel (12 seater) | | | km |  |  | |  |  |
|  |  | 7.)   LDV | | | km |  |  | |  |  |
|  |  | 8.)   Low - bed truck | | | km |  |  | |  |  |
|  |  | 9.) Truck up to 8 tons with crane | | | km |  |  | |  |  |
|  |  | 10.) Truck up to 9 to14 tons with crane | | | km |  |  | |  |  |
|  |  | **Other (Specify):** | | |  |  |  | |  |  |
|  |  | 1) SACPCMP registered SHE Officer  **Note:** Any project 3 months and above full time SHE officer on a specific site. | | | Month |  |  | |  |  |
|  |  | 2) SACPCMP Construction Manager **Note:** All project where a contruction work permit is applicable Full time on a specific project site. | | | Month |  |  | |  |  |
|  |  | 3) | | |  |  |  | |  |  |
|  |  | 4) | | |  |  |  | |  |  |
|  |  | 5) | | |  |  |  | |  |  |
|  |  | **Occcupational Health and Safety Requirements (32-136)** | | |  |  |  | |  |  |
|  |  | **Personal Protective Equipment appropriate to the task to be performed shall be provided by the Principal Contractor.  Note:** Limited to a maximum number of 9 employees per team.Issued once in 2years per team. | | |  |  |  | |  |  |
|  |  | 1) Steel toe capped safety boots | | | ea |  |  | |  |  |
|  |  | 2) Appropriate protective clothing, Operator's Overalls | | | ea |  |  | |  |  |
|  |  | 3) Colour coded hardhats [Blue for labourer, Red for First Aider, Green for SHE Reps and White for'Supervisors and/or Managers] | | | ea |  |  | |  |  |
|  |  | 4) Eye protection appropriate to task performed | | | ea |  |  | |  |  |
|  |  | 5) Ear Protection e.g (Ear Plugs etc) | | | ea |  |  | |  |  |
|  |  | 6) Dust mask where possible | | | ea |  |  | |  |  |
|  |  | 7) Safety Googles - specific to task requirements | | | ea |  |  | |  |  |
|  |  | 8) Gloves appropriate to the task performed. | | | ea |  |  | |  |  |
|  |  | **Supply and Provision for Safety and Emergency Response Equipments** | | |  |  |  | |  |  |
|  |  | First aid box equipments | | | ea |  |  | |  |  |
|  |  | Fire fighting equipment (Fire Extinquishers (9kg) | | | ea |  |  | |  |  |
|  |  | Fire and first aid box symbolic signs | | | ea |  |  | |  |  |
|  |  | Alco Tester | | | ea |  |  | |  |  |
|  |  | Provision of symbolic safety construction signs | | | ea |  |  | |  |  |
|  |  | **Human Resources** | | |  |  |  | |  |  |
|  |  | Eskom Environmnetal Law Training | | | Sum | 1 |  | |  |  |
|  |  | **Occupational Health and Hygiene** | | |  |  |  | |  |  |
|  |  | Pre Medical Screening per employee assigned for a particular project ( Principal Contractor subject to one claim annually for 9 assigned employees ), Casual Labourers per project. | | | ea |  |  | |  |  |
|  |  | Periodic Medical Screening (Follow-up on identified medical condition, based on the project duration). 6 months and more | | | ea |  |  | |  |  |
|  |  | **Driven Machinery Regulations : Lifting Machinery** | | |  |  |  | |  |  |
|  |  | Performance Load Testing , inspection and Examinations for Mobile Crane Truck. 12 Monthly/ Yearly | | | Item | 1 |  | |  |  |
|  |  | Performance Load Testing , inspection and Examinations for all safety attachment devises (Chains, Hooks, ropes); etc. 6 (six) Monthly) | | | Item | 1 |  | |  |  |
|  |  | **Supply and Provision of Equipments for Work at Heights** | | |  |  |  | |  |  |
|  |  | Fall Protection Equipment ( FAS)- Safety Harness | | | Item | 1 |  | |  |  |
|  |  | Fall Rescue Kit | | | Item | 1 |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
|  |  | **Construction regulations:** | | |  |  |  | |  |  |
|  |  | Comply with Statutory Health & Safety appointments and required competencies in terms of the OHS Act and Regulations. (Costing for training should be in accordance with the required listed training as per SHE returnables Annexure C1). Limited to a maximum number of  9 persons per team per company claimed once for the duration of the contract) | | | Sum | 1 |  | |  |  |
|  |  | **Environmental Requirements:** | | |  |  |  | |  |  |
|  |  | Cost for compliance to the Environmental Management Plan | | | Sum | 1 |  | |  |  |
|  |  | Waste Disposal on registered landfill site | | | Month |  |  | |  |  |
|  |  | Rehabilitation of construction site and site camp | | | Sum | 1 |  | |  |  |
|  |  | Compliance with Tree Permit (Replacement of Trees i.e Purchasing of trees) | | | Sum | 1 |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
|  | **240-87605434** | **Complete Substation Construction Handing Over Document** | | |  |  |  | |  |  |
|  |  | Quality checklist for Distribution substation primary plant prior to handing over for commercial operation. | | | Sum | 1 |  | |  |  |
|  |  | **Other** | | |  |  |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
|  |  |  | | |  |  |  | |  |  |
| **Subtotal carried to Item A1 of Summary** |  |  | | |  |  |  | |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |
| **SUBSTATION CONSTRUCTION BILL OF QUANTITIES 2024** | | | | | | | |
| **2** |  | **CIVIL - EARTHWORKS** |  | **QTY** | **Rate** | | **Price (R)** |
| **2.1** |  | **SITE CLEARANCE** |  | **Supply** | **Install** |
| **2.1.1** |  | Allow for clearing the area of the site to be built upon of all grass, weeds, shrubs, tree trunks not exceeding 200mm girth, debris, etc., including grubbing up all roots, scoffling up as required and cart away all vegetation and debris to a dumping site. All charges to be borne by the Contractor. | m² |  | cost plus 10% |  |  |
|  |  | **Cut down and remove, grub up roots and fill in holes:** |  |  |  |  |  |
| **2.1.2** |  | Tree exceeding 200mm and not exceeding 500mm girth. | each |  | cost plus 10% |  |  |
| **2.1.3** |  | Tree exceeding 500mm and not exceeding 1000mm girth. | each |  | cost plus 10% |  |  |
| **2.1.4** |  | Remove topsoil as specified in the design | m² |  | cost plus 10% |  |  |
|  |  | Herbacide Allowance | m2 |  | cost plus 10% |  |  |
| **2.2** |  | **MASS EARTHWORKS** |  |  |  |  |  |
|  |  | **Open face excavation and stockpile in preparation of substation platform** |  |  |  |  |  |
| **2.2.1** |  | Soft soil | m³ |  | R - |  |  |
| **2.2.2** |  | Intermediate (Site instruction) | m³ |  | R - |  |  |
| **2.2.3** |  | **Hard rock (Site instruction)** | m³ |  | R - |  |  |
| **2.2.4** |  | Blasting (Site instruction) **- usually externally sourced - cost +10%** | each |  | cost plus 10% |  |  |
| **2.2.5** |  | Cart away all excess burden to an approved dumping site in excess of 1km | m³/km |  | R - |  |  |
|  |  | **Preparation of platformbed** |  |  |  |  |  |
| **2.2.6** |  | Rip and compact to MOD AASHTO Density as specified on the design | m³ |  | R - |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Selected layers using material from designated borrow pits/ Commercial source or excavations including spreading** |  |  |  |  |  |
| **2.2.7** |  | Cut to fill to make platform level | m³ |  | R - |  |  |
| **2.2.8** |  | Transport fill material from designated borrow/ commercial source **in excess of 5km** | m³/km |  | R - |  |  |
| **2.2.9** |  | Supply material from commercial source | m³ |  | cost plus 10% |  |  |
| **2.2.10** |  | Compact to MOD AASHTO Density as specified in the design | m³ |  | R - |  |  |
| **2.2.11** |  | Finishing off cut and fill slopes | m² |  | R - |  |  |
|  |  |  |  |  |  |  |  |
| **2.3** |  | **BORROW MATERIALS** |  |  |  |  |  |
| **2.3.1** |  | Removal of excess overburden (top soil) | m³ |  | R - |  |  |
| **2.3.2** |  | Excavate and load material from borrow | m³ |  | R - |  |  |
|  |  | **Finishing-off (Rehabilitation) borrow areas in:** |  |  |  |  |  |
| **2.3.3** |  | Intermediate material | m² |  | R - |  |  |
| **2.3.4** |  | Soft material | m² |  | R - |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Compensation to landowners:** |  |  |  |  |  |
| **2.3.5** |  | Prime cost sum for compensation to landowners | sum |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.3.6** |  | **Fencing of borrow pits** | m |  | R - |  |  |
|  |  |  |  |  |  |  |  |
| **2.4** |  | **DRAINS** |  |  |  |  |  |
|  |  | **Excavation for open drains:** |  |  |  |  |  |
| **2.4.1** |  | Excavating soft and intermediate material situated within the |  |  |  |  |  |
|  |  | following depth ranges below the surface |  |  |  |  |  |
|  |  | level: |  |  |  |  |  |
|  |  | (i) 0m up to 1,5m | m³ |  | R - |  |  |
|  |  | (ii) Exceeding 1,5m and up to 3,0m | m³ |  | R - |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.2** |  | Extra over for excavation in |  |  |  |  |  |
|  |  | hard material, irrespective of depth | m³ |  | R - |  |  |
| **2.4.3** |  | Cleaning and shaping existing open drains | m³ |  | R - |  |  |
| **2.4.4** |  | Impermeable backfilling to subsoil drainage |  |  |  |  |  |
|  |  | systems | m³ |  | R - |  |  |
| **2.4.5** |  | Natural permeable material in subsoil drainage |  |  |  |  |  |
|  |  | systems (crushed stone): |  |  |  |  |  |
|  |  | (i) Crushed stone obtained from commercial |  |  |  |  |  |
|  |  | sources ( no overhaul): | m³ |  | cost plus 10% |  |  |
|  |  | (ii) Coarse grade stone (19mm nominal size |  |  |  |  |  |
|  |  | aggragate) | m³ |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.6** |  | **Natural permeable material in subsoil drainage** |  |  |  |  |  |
|  |  | **systems (sand):** |  |  |  |  |  |
|  |  | (i) River Sand from (Local Supply) commercial sources | m³ |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.7** |  | **Pipes in subsoil drainage systems:** |  |  |  |  |  |
|  |  | (i) Unplasticized PVC pipes and fittings, normal |  |  |  |  |  |
|  |  | duty, complete with couplings: | m |  | cost plus 10% |  |  |
|  |  | (ii) 150mm diameter, perforated | m |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.8** |  | **Polyethylene sheeting, 0,25mm thick, or similar** |  |  |  |  |  |
|  |  | **approved material, for lining subsoil drainage** |  |  |  |  |  |
|  |  | **systems** | m² |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.9** |  | **Synthetic-fibre filter fabric:** |  |  |  |  |  |
|  |  | (i) Non-wowen needle punched type | m² |  | cost plus 10% |  |  |
|  |  | (ii) Kaymat U24 or approved equivalent | m² |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.10** |  | **Concrete outlet structures, mahole boxes,** |  |  |  |  |  |
|  |  | **junction boxes and cleaning eyes for subsoil** |  |  |  |  |  |
|  |  | **drainage systems:** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | (i) Outlet structures | No. |  | cost plus 10% |  |  |
|  |  | (ii) Concrete caps for subsoil drain pipes | No. |  | cost plus 10% |  |  |
|  |  | (iii)Test flushing of pipe subsoil drains | No. |  | cost plus 10% |  |  |
|  |  | (iv)Galvanized wire mesh, 250 x 250mm, at the |  |  |  |  |  |
|  |  | outlets of subsoil drainage systems. Mesh |  |  |  |  |  |
|  |  | 10mm x 10mm x 2,5mm wire diameter | No. |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.11** |  | **PREFABRICATED CULVERTS** |  |  |  |  |  |
|  |  | **Concrete pipe culverts:** |  |  |  |  |  |
|  |  | ( A) On Class B bedding: |  |  |  |  |  |
|  |  | (i) 600mm dia. (Class 75D) | m |  | cost plus 10% |  |  |
|  |  | (ii) 750mm dia. (Class 50D) | m |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  | (B) In inlet and outlet structures, catchpits,manholes, thrust and anchor |  |  |  |  |  |
|  |  | blocks, excluding formwork but including Class U2 surface finish: |  |  |  |  |  |
|  |  | (i) Class 25/19 concrete | m³ |  | cost plus 10% |  |  |
|  |  | (ii) Concrete (Class 20/19) | m³ |  | cost plus 10% |  |  |
|  |  | (iii) Formwork of concrete | m2 |  | cost plus 10% |  |  |
|  |  | (iv) Class F1 surface finish | m² |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.12** |  | **Steel reinforcement:** |  |  |  |  |  |
|  |  | (i) Mild steel bars | t |  | cost plus 10% |  |  |
|  |  | (ii) High-tensile steel bars | t |  | cost plus 10% |  |  |
|  |  | (iii) High tensile steel mesh: | t |  | cost plus 10% |  |  |
| **2.4.13** |  | **Prefabricated reinforced concrete skew end units for** |  |  |  |  |  |
|  |  | **concrete culverts constructed at skew angle.** |  |  |  |  |  |
|  |  | (i) 600mm dia. (Class 75D) | No. |  | cost plus 10% |  |  |
|  |  | (iii) 750mm dia. (Class 50D) | No. |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **CONCRETE KERBING, CONCRETE CHANNELLING** |  |  |  |  |  |
|  |  | **OPEN CONCRETE CHUTES AND CONCRETE** |  |  |  |  |  |
|  |  | **LININGS FOR OPEN DRAINS** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.14** |  | **Concrete lining for open drains:** |  |  |  |  |  |
|  |  | Cast in situ concrete open-drain (Class 25/19) including excavation and preperation of ground | m³ |  | cost plus 10% |  |  |
| **2.4.15** |  | **Steel reinforcement:** |  |  |  |  |  |
|  |  | Welded steel fabric (High-tensile steel) | kg |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.4.16** |  | Concrete edge beams, 150mm x 150mm (class 30/19 |  |  |  |  |  |
|  |  | concrete) | m |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5** |  | **ROAD WORKS** |  |  |  |  |  |
| **2.5.1** |  | **SITE CLEARANCE** |  |  |  |  |  |
|  |  | Preparation and stripping of top soil and grub to 150mm deep and grub the full road reserve 8m wide, spoil and spread. | m3 |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.2** |  | **EARTHWORKS (roads, subgrade)** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.2.1** |  | **Treatment of Roadbed** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **Roadbed preparation for in-situ 150mm and compaction to:** |  |  |  |  |  |
|  |  | (1) Mod AASHTO maximum density | m3 |  | cost plus 10% |  |  |
|  |  | .(2) In-place treatment of road-bed in intermediate or hard |  |  |  |  |  |
|  |  | rock material by: |  |  |  |  |  |
|  |  | (i) Ripping (provisional) |  |  |  |  |  |
|  |  | (ii) Three-pass roller compaction | m3 |  | cost plus 10% |  |  |
|  |  | (iii) Grid roller (provisional) | m3 |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  | Soft soil | m3 |  | cost plus 10% |  |  |
|  |  | Intermediate (Site instruction) | m3 |  | cost plus 10% |  |  |
|  |  | Hard rock (Site instruction) | m3 |  | cost plus 10% |  |  |
|  |  | Blasting (Site instruction) | m3 |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.2.2** |  | **ROAD FILL & SUBBASE** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  | Compact to MOD AASHTO as specified in the design |  |  |  |  |  |
|  |  | **Stabilizing agent:** |  |  |  |  |  |
|  |  | (1 )Portland cement @ 2.5% | m3 |  | cost plus 10% |  |  |
|  |  | (2) Road lime | m3 |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **ANCILLARY ROADWORKS** |  |  |  |  |  |
| **2.5.3** |  | **DRAINAGE** |  |  |  |  |  |
| **2.5.3.1** |  | Supply & lay conctrete pipe culverts 9m long: |  |  |  |  |  |
|  |  | 01) 600mm dia. on class D bedding | No |  | cost plus 10% |  |  |
|  |  | 02) 450mm dia. on class D bedding | No |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.3.2** |  | Construct inlet catch pit for each culvert | No |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.3.3** |  | Construct headwall and wing walls for 600mm dia. culvert | No |  | cost plus 10% |  |  |
| **2.5.3.4** |  | Construct headwall and wing walls for 450mm dia. culvert | No |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.3.5** |  | Accommodate traffic, erect road signs, adopt safety |  |  |  |  |  |
|  |  | precautions, etc, | Sum |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **2.5.3.6** |  | Final finishing and cleaning up of the Site of the Works | Sum |  | cost plus 10% |  |  |
| **2.5.3.7** |  | Construct earth berm as specified on design | m |  | cost plus 10% |  |  |
| **2.6** |  | **Stone pitching** |  |  |  |  |  |
| **2.6.1** |  | Grouted stone pitching | m2 |  | cost plus 10% |  |  |
| **2.6.2** |  | Retaining walls | m2 |  | cost plus 10% |  |  |
| **Subtotal Item 2** | | |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **Supply** | **Install** |
| **3** |  | **INSTALLATION OF EARTH GRID** |  |  |  |  |  |
| **3.1** |  | **Complete earth grid** Supply, Transport to site and Install as per earth grid drawing including all excavations, backfilling and compaction |  |  |  |  |  |
| 3.1.1 |  | 10 mm round copper main earth grid | m |  | cost plus 10% |  |  |
| 3.1.2 |  | 10 mm round copper for earth tails connected from reinforcement of trfr plinths, slipways and runway to main earth grid | m |  | cost plus 10% |  |  |
| 3.1.3 |  | 50 mm x 3 mm flat copper for earth tails connected to the main earth grid from equipment foundations, transformer kerbing reinforcement and fence (to the fence and fence corner gate post CGP) | m |  | cost plus 10% |  |  |
| 3.1.4 |  | 80 x 6 mm x 1.2 m long galvanised steel strap bolted to trfr tank and connected to trfr holding down bolts for earthing of transformers. **Note:**  This is to be measured on site once the transformers have been installed | each |  | cost plus 10% |  |  |
| 3.1.5 |  | 50 mm x 3 mm flat copper for earth tails for building earthing of panels. This earthing should run on cable rack. | m |  | cost plus 10% |  |  |
| 3.1.6 |  | 50 mm x 3 mm flat copper for battery room | m |  | cost plus 10% |  |  |
| **3.2** | **D-DT-5240 Sheet 11** | **Sacrificial earth anodes** Supply, Transport to site and Install including all excavations, backfilling and compaction |  |  |  |  |  |
| 3.2.1 |  | Sacrificial earth mat anodes | each |  | cost plus 10% |  |  |
| 3.2.2 |  | 10 mm round copper from main earth grid to sacrificial earth anode | m |  | cost plus 10% |  |  |
| **3.3** | **D-DT-5240** | **Joints/Bonding** Bond all foundation copper to main earth grid of the substation as per earthing standard and foundation drawings. |  |  |  |  |  |
| 3.3.1 | **D-DT-5240 Sheet 1&2** | Main earth grid brazing; 10 mm round to 10 mm round | each |  | cost plus 10% |  |  |
| 3.3.2 | **D-DT-5240 Sheet 1&2** | Main earth grid brazing to earth tails (all foundations, control room, fence, etc.) ; 10 mm round to 50 mm x 3 mm flat | each |  | cost plus 10% |  |  |
| 3.3.3 | **D-DT-5240 Sheet 1&2** | Main earth grid brazing to earth tails (reinforcing of trfr plinths, slipways and runway, sacrificial earths); 10 mm round to 10 mm round | each |  | cost plus 10% |  |  |
| 3.3.4 | **D-DT-5240 Sheet 1, 2, 5, 6, 7 & 8** | Earth tail to foundation / plinth copper brazing; 50 mm x 3 mm flat to 50 mm x 3 mm flat.  **Note:** Copper quantified in the main BOM is for the earth grid only, and not for the earthing of the hold-down bolts.  Copper for the holding down bolts to be priced and allowed for with the foundations. | each |  | cost plus 10% |  |  |
| 3.3.5 | **D-DT-5240 Sheet 1, 2 & 9** | 50 mm x 3 mm flat copper bolted to corner gate posts and intermediate posts and fence | each |  | cost plus 10% |  |  |
| 3.3.6 | **D-DT-5240 Sheet 1, 2 & 11** | Silbralloy brazing for connecting 10mm round to rail (sacrificial earth) | each |  | cost plus 10% |  |  |
| 3.3.7 | **D-DT-5240 Sheet 1, 2 & 5** | 80 x 6 mm x 1.2 m long galvanised steel strap bolted to trfr tank and connected to trfr holding down bolts for earthing of transformers. (2 connections per strap) | each |  | cost plus 10% |  |  |
| **3.4** |  | **Testing:** |  |  |  |  |  |
| 3.4.1 |  | It is the responsibility of the Contractor to test the earth-grid resistance on completion of the project. Tests to be done by an approved person. The results shall be compared to the design results, as submitted by Eskom's Eng. | each |  | cost plus 10% |  |  |
| **Subtotal Item 3** | | | |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **Supply** | **Install** |
| **4** |  | **FACILITIES** |  |  |  |  |  |
| **4.1** |  | **Control Room** |  |  |  |  |  |
| 4.1.1 |  | Build control room: |  |  |  |  |  |
| 4.1.1.1 |  | Pitch roof | m2 |  | cost plus 10% |  |  |
| 4.1.1.2 |  | Concrete roof | m2 |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **Item 4 Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **Supply** | **Install** |
| **5A** |  | **CIVIL WORK** |  |  |  |  |  |
| 5.1 |  | **Foundations:** Excavate, dispose of waste, supply and pour complete support foundations with holding down bolts and earth connections detailed in the drawings including D-DT-5240: |  |  |  |  |  |
|  |  | **ISOLATORS** |  |  |  |  |  |
| 5.1.1 | **D-DT-5202s1A** | ISOLATOR - 132kV 3 & 3.6m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1&2) | each |  | incl |  |  |
| 5.1.2 | **D-DT-5202s1B** | ISOLATOR - 132kV 3 & 3.6m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.3 | **D-DT-5203s1A** | ISOLATOR - 66kV 2 & 2.4m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1&2) | each |  | incl |  |  |
| 5.1.4 | **D-DT-5203s1B** | ISOLATOR - 66kV 2 & 2.4m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.5 | **D-DT-5204s1A** | ISOLATOR - 33kV 1.2m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.6 | **D-DT-5204s1B** | ISOLATOR - 33kV 1.2m PHASE CRS TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.7 | **D-DT-5205s1A** | ISOLATOR - 22kV 1m PHASE CRS LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.8 | **D-DT-5205s1B** | ISOLATOR - 22kV 1m PHASE CRS TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **CIRCUIT BREAKERS** |  |  |  |  |  |
| 5.1.9 | **D-DT-5200s1A** | CIRCUIT BREAKER - 132kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE PIPE (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.10 | **D-DT-5200s1B** | CIRCUIT BREAKER - 132kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE CUTOUT (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.11 | **D-DT-5200s1C** | CIRCUIT BREAKER - 132kV TUBULAR SUPPORT FOUNDATION DETAILS - SEPARATE (SOIL TYPE 1 & 2) FOUNDATION | each |  | incl |  |  |
| 5.1.12 | **D-DT-5200s1D** | CIRCUIT BREAKER 132kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE PIPE (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.13 | **D-DT-5201s1A** | CIRCUIT BREAKER - 66kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE PIPE (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.14 | **D-DT-5201s1B** | CIRCUIT BREAKER - 66kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE CUTOUT (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.15 | **D-DT-5201s1C** | CIRCUIT BREAKER - 66kV TUBULAR SUPPORT FOUNDATION DETAILS - SEPARATE FOUNDATION (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.16 | **D-DT-5201s1D** | CIRCUIT BREAKER 66kV TUBULAR SUPPORT FOUNDATION DETAILS - CABLE PIPE (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.17 | **D-DT-5216s1A** | CIRCUIT BREAKER KIOSK - 11kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.18 | **D-DT-5216s1B** | CIRCUIT BREAKER KIOSK - 22kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.19 | **D-DT-5216s1C** | CIRCUIT BREAKER KIOSK - 33kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **CT , VT AND TERMINAL SUPPORT** |  |  |  |  |  |
| 5.1.20 | **D-DT-5206s1A** | MEDIUM EQUIPMENT LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1&2) | each |  | incl |  |  |
| 5.1.21 | **D-DT-5206s1B** | MEDIUM EQUIPMENT LATTICE SUPPORT FOUNDATION DETAILS(SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.22 | **D-DT-5206s1C** | MEDIUM EQUIPMENT TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1&2) | each |  | incl |  |  |
| 5.1.23 | **D-DT-5206s1D** | MEDIUM EQUIPMENT LATTICE SUPPORT FOUNDATION DETAILS - 1.83m CRS (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.24 | **D-DT-5206s1E** | MEDIUM EQUIPMENT LATTICE SUPPORT FOUNDATION DETAILS - 2.5m CRS (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.25 | **D-DT-5206s1F** | MEDIUM EQUIPMENT LATTICE SUPPORT FOUNDATION DETAILS - 3m CRS (SOIL TYPE 3) | each |  | incl |  |  |
| 5.1.26 |  | **TRANSFORMERS** |  |  |  |  |  |
| 5.1.27 | **D-DT-5231s1** | STANDARD TRANSFORMER PLINTH 5 - 20 MVA (NORMAL ENTRANCE) DETAILS | each |  | incl |  |  |
| 5.1.28 | **D-DT-5231s2** | STANDARD TRANSFORMER PLINTH 5 - 20 MVA (SIDE ENTRANCE) DETAILS | each |  | incl |  |  |
| 5.1.29 | **D-DT-5231s1A** | TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & CONTAINMENT AREA DETAILS FOR | each |  | incl |  |  |
| 5.1.30 | **D-DT-5231s1B** | TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & CONTAINMENT AREA DETAILS FOR | each |  | incl |  |  |
| 5.1.31 | **D-DT-5231s1C** | TRANSFORMER PLINTH, SLIPWAY CABLE RACK MANUFACTURING DETAILS AND | each |  | incl |  |  |
| 5.1.32 | **D-DT-5232s1** | STANDARD TRANSFORMER PLINTH 20 - 40MVA (NORMAL ENTRANCE) DETAILS | each |  | incl |  |  |
| 5.1.33 | **D-DT-5232s2** | STANDARD TRANSFORMER PLINTH 20 - 40MVA (SIDE ENTRANCE) DETAILS | each |  | incl |  |  |
| 5.1.34 | **D-DT-5232s1A** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 1 - FRONT ENTRY (MAX. 5MVA) | each |  | incl |  |  |
| 5.1.35 | **D-DT-5232s1B** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 2 - LEFT ENTRY (MAX. 5MVA) | each |  | incl |  |  |
| 5.1.36 | **D-DT-5232s1C** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 3 - RIGHT ENTRY (MAX. 5MVA) | each |  | incl |  |  |
| 5.1.37 | **D-DT-5232s1D** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 4 - REAR ENTRY (MAX. 5MVA) | each |  | incl |  |  |
| 5.1.38 | **D-DT-5232s2A** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 1 - FRONT ENTRY (10-20MVA) | each |  | incl |  |  |
| 5.1.39 | **D-DT-5232s2B** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 2 - LEFT ENTRY (10-20MVA) | each |  | incl |  |  |
| 5.1.40 | **D-DT-5232s2C** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 3 - RIGHT ENTRY (10-20MVA) | each |  | incl |  |  |
| 5.1.41 | **D-DT-5232s2D** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & SELF CONTAINED OIL CONTAINMENT AREA OPTION 4 - REAR ENTRY (10-20MVA) | each |  | incl |  |  |
| 5.1.42 | **D-DT-5232s3A** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 1 - FRONT ENTRY (20-40MVA) | each |  | incl |  |  |
| 5.1.43 | **D-DT-5232s3B** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 2 - LEFT ENTRY (20-40MVA) | each |  | incl |  |  |
| 5.1.44 | **D-DT-5232s3C** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 3 - RIGHT ENTRY (20-40MVA | each |  | incl |  |  |
| 5.1.45 | **D-DT-5232s3D** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 4 - REAR ENTRY (20-40MVA) | each |  | incl |  |  |
| 5.1.46 | **D-DT-5232s4A** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 1 - FRONT ENTRY (40-80MVA) | each |  | incl |  |  |
| 5.1.47 | **D-DT-5232s4B** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 2 - LEFT ENTRY (40-80MVA) | each |  | incl |  |  |
| 5.1.48 | **D-DT-5232s4C** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 3 - RIGHT ENTRY (40-80MVA) | each |  | incl |  |  |
| 5.1.49 | **D-DT-5232s4D** | TWO WINDING TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM OPTION 4 - REAR ENTRY (40-80MVA) | each |  | incl |  |  |
| 5.1.50 | **D-DT-5232s5A** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. OPTION 1 - FRONT ENTRY (MAX 40-80MVA) | each |  | incl |  |  |
| 5.1.51 | **D-DT-5232s5B** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. OPTION 2 - LEFT ENTRY (MAX 40-80MVA) | each |  | incl |  |  |
| 5.1.52 | **D-DT-5232s5C** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. OPTION 3 - RIGHT ENTRY (MAX 40-80MVA) | each |  | incl |  |  |
| 5.1.53 | **D-DT-5232s5D** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. OPTION 4 - REAR ENTRY (MAX 40-80MVA) | each |  | incl |  |  |
| 5.1.54 | **D-DT-5232s6A** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. (WEG) OPTION 1 - FRONT ENTRY (MAX 80-160MVA) | each |  | incl |  |  |
| 5.1.55 | **D-DT-5232s6B** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. (WEG) OPTION 2 - LEFT ENTRY (MAX 80-160MVA) | each |  | incl |  |  |
| 5.1.56 | **D-DT-5232s6C** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. (WEG) OPTION 3 - RIGHT ENTRY (MAX 80-160MVA) | each |  | incl |  |  |
| 5.1.57 | **D-DT-5232s6D** | AUTO TRANSFORMER PLINTH, SLIPWAY, DRAINAGE & OIL CATCHMENT AREA CONNECTED TO OIL DAM. (WEG) OPTION 4 - REAR ENTRY (MAX 80-160MVA) | each |  | incl |  |  |
| 5.1.58 | **D-DT-5236** | STANDARD TRANSFORMER PLINTH 80MVA (N/ENT) | each |  | incl |  |  |
|  |  | **NEC-6.6/22/33kV FND** |  |  |  |  |  |
| 5.1.59 | **D-DT-5207s1A** | NECRT - AUX. TRFR LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.60 | **D-DT-5207s1B** | NECRT - AUX TRFR LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 3) | each |  | incl |  |  |
|  |  | **ROAD CROSSING** |  |  |  |  |  |
| 5.1.61 | **D-DT-5221s1** | 6.6-44kV POST INSULATOR 1200 PHASE CENTRES, HIGH LEVEL LIPPED CHANNEL SUPPORT FOUNDATION | each |  | incl |  |  |
| 5.1.62 | **D-DT-5209S1A** | TUBULAR BUSBAR ROAD CROSSING SINGLE TUBULAR SUPPORT FOUNDATION DETAILS - 1.2M PHASE CRS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.63 | **D-DT-5209S1B** | TUBULAR BUSBAR ROAD CROSSING SINGLE TUBULAR SUPPORT FOUNDATION DETAILS - 1.85M PHASE CRS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **TUBULAR BUSBAR** |  |  |  |  |  |
| 5.1.64 | **D-DT-5208S1A** | TUBULAR BUSBAR - 66kV 2.5M PHASE CRS SINGLE TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.65 | **D-Dt-5225** | TUBULAR BUSBAR - 132/66kV TUBULAR BUSBAR TWIN SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **BUSBAR BOX TYPE** |  |  |  |  |  |
| 5.1.66 | **D-DT-5223S1A** | BOX STRUCTURE I-BEAM SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **BEAMS AND COLUMN** |  |  |  |  |  |
| 5.1.67 | **D-DT-5252S1A** | COLUMN 132kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.68 | **D-DT-5252S1B** | COLUMN ROCK PINNED 132kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.69 | **D-DT-5265S1A** | COLUMN - 88kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.70 | **D-DT-5260S1A** | COLUMN - 66kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.71 | **D-DT-5257S1A** | COLUMN 6.6kV - 33kV LATTICE SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
|  |  | **CABLE TERMINATION** |  |  |  |  |  |
| 5.1.72 | **D-DT-5271S1** | HV CABLE TERMINATION END SUPPORT FOUNDATION | each |  | incl |  |  |
|  |  | **FIRE BARRIER 5-40MVA AND 40-80MVA** |  |  |  |  |  |
| 5.1.73 | **D-DT-5218S1A** | STEEL FIRE BARRIER  LATTICE SUPPORT FOUNDATION DETAILS | each |  | incl |  |  |
|  |  | **LIGHTING/LIGHTING MAST 21m** |  |  |  |  |  |
| 5.1.74 | **D-DT-5217S1C** | LIGHTING-LIGHTNING MAST - 21m TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.75 | **D-DT-5217S1B** | LIGHTING-LIGHTNING MAST - 14m TUBULAR SUPPORT FOUNDATION DETAILS (SOIL TYPE 1 & 2) | each |  | incl |  |  |
| 5.1.76 | **D-DT-5217S1A** | LIGHTING-LIGHTNING MAST - 8m TUBULAR SUPPORT FOUNDATION DETAILS | each |  | incl |  |  |
| 5.1.77 | **D-DT-5273S1** | ELECTRICAL EQUIPMENT LABELS POST SUPPORT AND FOUNDATION | each |  | incl |  |  |
| 5.1.78 |  | **Kerbing** Supply, transport to site and install |  |  |  |  |  |
| 5.1.79 |  | Concrete kerbing | m |  | cost plus 10% |  |  |
| 5.1.80 |  | **Yard Stone** |  |  |  |  |  |
| 5.1.81 | **SCSASABK2 Rev. 0** | Supply, transport to site and spread a 150mm thick layer of 25mm-38mm stones. | m² |  | cost plus 10% |  |  |
| **5A Subtotal** | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** |  |  |  |
| **Supply** |  |
| **5B** | **2-NT/769Sheet 3** | **CIVIL WORK cont.** |  |  |  |  |  |
| **5.2** | **2-D-WT/749** | **Cable Trenches** Excavate in all material, supply, transport to site, construct and dispose of burden: |  |  |  |  |  |
| 5.2.1 |  | Complete 0.6m wide cable trenches | m |  | cost plus 10% |  |  |
| 5.2.2 |  | Complete 0.9m wide cable trenches | m |  | cost plus 10% |  |  |
| 5.2.3 |  | Complete 1.2m wide cable trenches | m |  | cost plus 10% |  |  |
| 5.2.4 | **2-WT/1362** | Cable trench crossing under the road | m |  | cost plus 10% |  |  |
| **5.2.5** |  | **Trench covers** | **cost + 10%** |  |  |  |  |
| **5.3** | **0.54/390 sheet 38** | **Concrete Runway** Excavate in all material, supply, transport to site, construct and dispose of burden: |  |  |  |  |  |
| 5.3.1 |  | 4500mm x 300mm thick reinforced concrete runway as detailed on drawing (excludes Transformer Slip Ways) Reinforce concrete at cable trench crossings. Connect reinforcement to earth grid as per D-DT-5240s10 | m |  | cost plus 10% |  |  |
| **5.4** | **0.54/390 sheet 38** | **Concrete Slipway** Excavate in all material, supply, transport to site, construct and dispose of burden: |  |  |  |  |  |
| 5.4.1 |  | 4500mm x 3000mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10. | each |  | cost plus 10% |  |  |
| 5.4.2 |  | 7500mm x 3000mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10. | each |  | cost plus 10% |  |  |
| 5.4.3 |  | 6700mm x 3438 x 300mm thich reinforced concrete slipaway | each |  | cost plus 10% |  |  |
| 5.4.4 |  | 6800mm x 4500mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10. | each |  | cost plus 10% |  |  |
| 5.4.5 | **0.54/390 Sheet 37** | Cable trench concrete ramp to cross 1.2m wide cable trench. | each |  | cost plus 10% |  |  |
| 5.4.6 | **0.54/390 Sheet 67** | Concrete Ramp outside gate | each |  | cost plus 10% |  |  |
| **5B Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** |  |  |  |
| **Supply** |  |
| **5C** |  | **CIVIL WORK cont.** |  |  |  |  |  |
| **5.5** |  | **300mm Concrete Pipes** Excavate in all material, supply, transport to site, construct, backfill and compact. Depth varying from 0.6m to 1.5m: |  |  |  |  |  |
| 5.5.1 | **D-DT-5233** | Diameter 300mm pipes from manhole outside each transformer plinth, leading to the oil holding dam | m |  | cost plus 10% |  |  |
| **5.6** |  | **Oil Holding Dam** Excavate in all material, dispose of waste, supply, transport to site and construct, backfill and compact if necessary: |  |  |  |  |  |
| 5.6.1 | **D-DT-5233** | An oil holding dam complete with lid | item |  | cost plus 10% |  |  |
| 5.6.2 | **D-DT-5241** | An oil trap/filter in series with the oil dam | item |  | cost plus 10% |  |  |
| 5.6.3 | **D-DT-5234** | Concrete build 32 000 litre oil dam with electric pump and outlet sump | item |  | cost plus 10% |  |  |
| 5.6.4 | **D-DT-5234** | Concrete build 42 000 litre oil dam with electric pump and outlet sump | item |  | cost plus 10% |  |  |
| 5.6.5 | **D-DT-5234** | Concrete build 52 000 litre oil dam with electric pump and outlet sump | item |  | cost plus 10% |  |  |
| 5.6.6 | **D-DT-5234** | brick build 42 000 litre oil dam with electric pump and outlet sump | item |  | cost plus 10% |  |  |
| 5.6.7 | **D-DT-5234** | Brickbuild 52 000 litre oil dam with electric pump and outlet sump | item |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **5.7** |  | **Manholes** Excavate in all material, dispose of waste, supply, transport to site and construct: |  |  |  |  |  |
| 5.7.1 | **0.54/390 Sheet 1** | Manholes | each |  | incl |  |  |
|  |  |  |  |  |  |  |  |
| **5C Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** |  |  | **Price (R)** |
| **Supply** | **Install/Erect** |
| **6** | **SANS 1200A** | **ERECTION OF STEELWORK** |  |  |  |  |  |
| **6.1** |  | **Equipment Support:** Supply, transport to site and Install the following equipment. |  |  |  |  |  |
|  |  | **ISOLATORS** |  |  |  |  |  |
| 6.1.1 | **D-DT-5202S2A** | ISOLATOR STD - 132kV MANUAL LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 3m PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.2 | **D-DT-5203S2A** | ISOLATOR STD - 66kV MANUAL LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 2m PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.3 | **D-DT-5204S2A** | ISOLATOR STD - 33kV MANUAL LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 1.2m PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.4 | **D-DT-5205S2A** | ISOLATOR STD - 22kV MANUAL LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 1m PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.5 | **D-DT-5219s1** | SURGE ARRESTOR BRACKET 11/22kV MOUNTED ON ISOLATOR SUPPORT | each |  | cost plus 10% |  |  |
| 6.1.6 | **D-DT-5219s2** | SURGE ARRESTOR BRACKET 33kV MOUNTED ON ISOLATOR SUPPORT | each |  | cost plus 10% |  |  |
| 6.1.7 | **D-DT-5219s3** | 66kV SURGE ARRESTOR BRACKET MOUNTED ON ISOLATOR SUPPORT | each |  | cost plus 10% |  |  |
| 6.1.8 | **D-DT-5219s4** | 132kV SURGE ARRESTOR BRACKET MOUNTED ON ISOLATOR | each |  | cost plus 10% |  |  |
|  |  | **CIRCUIT BREAKER** |  |  |  |  |  |
| 6.1.9 | **D-DT-5200S2A** | CIRCUIT BREAKER - 132kV TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS | each |  | cost plus 10% |  |  |
| 6.1.10 | **D-DT-5201S2A** | CIRCUIT BREAKER - 66kV TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS | each |  | cost plus 10% |  |  |
| 6.1.11 | **D-DT-6254** | SUPPORT BKR KIOSK 11/22/33kV | each |  | cost plus 10% |  |  |
|  |  | **CT ,VT AND TERMINAL SUPPORT** |  |  |  |  |  |
| 6.1.12 | **D-DT-5206S2A** | MEDIUM EQUIPMENT - 1.5m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.13 | **D-DT-5206S2B** | MEDIUM EQUIPMENT - 2m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.14 | **D-DT-5206S2C** | MEDIUM EQUIPMENT - 2.5m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.15 | **D-DT-5206S2D** | MEDIUM EQUIPMENT - 3m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.16 | **D-DT-5206S2E** | MEDIUM EQUIPMENT - 3.5m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.17 | **D-DT-5206S2F** | MEDIUM EQUIPMENT - 4m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.18 | **D-DT-5206S2G** | MEDIUM EQUIPMENT - 6m LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.19 | **D-DT-5206S2H** | MEDIUM EQUIPMENT - CAP M1 LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.20 | **D-DT-5206S2I** | MEDIUM EQUIPMENT - CAP M2 LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.21 | **D-DT-5206S2J** | MEDIUM EQUIPMENT - CAP M3 LATTICE SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.22 | **D-DT-5215S1** | 33/22/11kV V.T., C.T. & P.I. SUPPORT CAP | each |  | cost plus 10% |  |  |
| 6.1.23 | **D-DT-5215S2** | 33/22/11kV V.T. & C.T. SUPPORT CAP | each |  | cost plus 10% |  |  |
|  |  | **ROAD CROSSING** |  |  |  |  |  |
| 6.1.24 | **D-DT-5221S2** | 6.6-44kV POST INSULATOR 1200 PHASE CENTRES, HIGH LEVEL LIPPED CHANNEL | each |  | cost plus 10% |  |  |
| 6.1.25 | **D-DT-5209S2A** | TUBULAR BUSBAR ROAD CROSSING SINGLE TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 1.2M PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.26 | **D-DT-5209S2B** | TUBULAR BUSBAR ROAD CROSSING SINGLE TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 1.85M PHASE CRS | each |  | cost plus 10% |  |  |
|  |  | **BUSBAR (TUBULAR)** |  |  |  |  |  |
| 6.1.27 | **D-DT-5208S1A** | TUBULAR BUSBAR - 66kV SINGLE TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 2.5M PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.28 | **D-DT-5225S2A** | TUBULAR BUSBAR - 132kV TWIN TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 3M CRS | each |  | cost plus 10% |  |  |
| 6.1.29 | **D-DT-5220S2** | 132/66kV BUSBAR TUBULAR SUPPORT DETAILS (ONLY TO BE USED FOR THE EXTENSION OF SINGLE TUBULAR BUBAR SUPPORTS) | each |  | cost plus 10% |  |  |
| 6.1.30 | **D-DT-5226S2C** | TUBULAR BUSBAR - 33kV SINGLE TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY - 1.2M PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.31 | **D-DT-5226S2B** | TUBULAR BUSBAR - 22kV SINGLE TUBULAR SUPPORT STEELWORK  MANUFACTURING DETAILS AND ASSEMBLY - 1.5M PHASE CRS | each |  | cost plus 10% |  |  |
| 6.1.32 | **D-DT-5226S2A** | TUBULAR BUSBAR - 11kV SINGLE TUBULAR SUPPORT STEELWORK  MANUFACTURING DETAILS AND ASSEMBLY - 1.5M PHASE CRS | each |  | cost plus 10% |  |  |
|  |  | **BUSBAR (BOX TYPE)** |  |  |  |  |  |
| 6.1.33 | **D-DT-5223S2** | MV BOX STRUCTURE C1 COLUMN DETAIL (LIGHT) STANDARD STEELWORK | each |  | cost plus 10% |  |  |
| 6.1.34 | **D-DT-5223S3** | MV BOX STRUCTURE C2 COLUMN DETAIL (HEAVY) STANDARD STEELWORK | each |  | cost plus 10% |  |  |
| 6.1.35 | **D-DT-5223S4** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK XB1 | each |  | cost plus 10% |  |  |
| 6.1.36 | **D-DT-5223S4** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK XB2 | each |  | cost plus 10% |  |  |
| 6.1.37 | **D-DT-5223S4** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK XB3 | each |  | cost plus 10% |  |  |
| 6.1.38 | **D-DT-5223S4** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV CLEAT MK CLC | each |  | cost plus 10% |  |  |
| 6.1.39 | **D-DT-5223S5** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK LC1 | each |  | cost plus 10% |  |  |
| 6.1.40 | **D-DT-5223S5** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK LC2 | each |  | cost plus 10% |  |  |
| 6.1.41 | **D-DT-5223S5** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV BEAM MK CB1&CLA | each |  | cost plus 10% |  |  |
| 6.1.42 | **D-DT-5223S5** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK 22/33kV CLEAT BT/B MK | each |  | cost plus 10% |  |  |
| 6.1.43 | **D-DT-5223S6** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK - BASIC 1 X BULL | each |  | cost plus 10% |  |  |
| 6.1.44 | **D-DT-5223S6** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK - BASIC 2 X BULL | each |  | cost plus 10% |  |  |
| 6.1.45 | **D-DT-5223S6** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK - EXTENSION 1 X BULL | each |  | cost plus 10% |  |  |
| 6.1.46 | **D-DT-5223S6** | MV BOX STRUCTURE BEAM DETAILS STANDARD STEELWORK - EXTENSION 2 X BULL | each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **BEAMS AND COLUMN** |  |  |  |  |  |
| 6.1.47 | **D-DT-5252S1C** | COLUMN - 132/C LATTICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.48 | **D-DT-5252S2A** | COLUMN - 132/C LATTICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.49 | **D-DT-5252S2B** | BEAM - 132/50/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS & ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.50 | **D-DT-5252S2C** | BEAM - 132/50/2 LATTICE STEEL STEELWORK MANUFACTURING DETAILS & ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.51 | **D-DT-5252S2D** | BEAM - 132/40/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS & ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.52 | **D-DT-5252S2E** | EARTHWIRE SUPPORT - 132/EW LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.53 | **D-DT-5252S2F** | COLUMN - 132kV ANTI-CLIMBING DEVICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.54 | **D-DT-5265S2B** | BEAM - 88kV - B822 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.55 | **D-DT-5265S2C** | BEAM - 88kV - B831 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.56 | **D-DT-5265S2D** | BEAM - 88kV - B840 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.57 | **D-DT-5265S2E** | BEAM - 88kV - B841 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.58 | **D-DT-5265S2F** | BEAM - 88kV - B842 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.59 | **D-DT-5265S2G** | EARTWIRE SUPPORT - 88/EW LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.60 | **D-DT-5265S2H** | COLUMN - 88kV ANTI - CLIMBING DEVICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLEY | each |  | cost plus 10% |  |  |
| 6.1.61 | **D-DT-5260S2A** | COLUMN - 66/27/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS & ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.62 | **D-DT-5260S2B1** | BEAM - 66/50/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.63 | **D-DT-5260S2B2** | BEAM - 66/50/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS | each |  | cost plus 10% |  |  |
| 6.1.64 | **D-DT-5260S2C** | BEAM - 66/32/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.65 | **D-DT-5260S2D** | BEAM - 66/25/1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.66 | **D-DT-5260S2E** | EARTHWIRE SUPPORT - 66/EW6 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.67 | **D-DT-5260S2F** | 66kV COLUMN ANTI - CLIMBING DEVICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.68 | **D-DT-5257S2A** | COLUMN - 6.6 - 33kV C1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.69 | **D-DT-5257S2B** | COLUMN - 6.6 - 33kV C2 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.70 | **D-DT-5257S2C** | COLUMN - 6.6 - 33kV C3 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.71 | **D-DT-5257S2D** | COLUMN - 6.6 - 33kV C4 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.72 | **D-DT-5257S2E** | BEAM - 6.6 - 33kV B1 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.73 | **D-DT-5257S2F** | BEAM - 6.6 - 33kV B2 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.74 | **D-DT-5257S2G** | BEAM - 6.6 - 33kV B3 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.75 | **D-DT-5257S2H** | BEAM - 6.6 - 33kV B4 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.76 | **D-DT-5257S2I** | BEAM - 6.6 - 33kV B5 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.77 | **D-DT-5257S2J** | BEAM - 6.6 - 33kV B6 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.78 | **D-DT-5257S2K** | BEAM - 6.6 - 33kV B7 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.79 | **D-DT-5257S2L** | BEAM - 6.6 - 33kV B8 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.80 | **D-DT-5257S2M** | BEAM - 6.6 - 33kV B9 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.81 | **D-DT-5257S2N** | BEAM - 6.6 - 33kV B10 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.82 | **D-DT-5257S2O** | BEAM - 6.6 - 33kV B11 LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.83 | **D-DT-5257S2P** | EARTHWIRE SUPPORT E1 - 6.6 - 33kV LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.84 | **D-DT-5257S2Q** | EARTHWIRE SUPPORT E2 - 6.6 - 33kVLATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.85 | **D-DT-5257S2R** | EARTHWIRE SUPPORT E3 - 6.6/44/ LATTICE STEEL STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.86 | **D-DT-5257S2S** | COLUMN - 6.6 - 33kV ANTI - CLIMBING DEVICE STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
|  |  | **LIGHTING/LIGHTING MAST** |  |  |  |  |  |
| 6.1.87 | **D-DT-5217S2A** | LIGHTING-LIGHTNING MAST - 8m TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.88 | **D-DT-5217S2B** | LIGHTING-LIGHTNING MAST - 14m TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
| 6.1.89 | **D-DT-5217S2C** | LIGHTING-LIGHTNING MAST - 21m TUBULAR SUPPORT STEELWORK MANUFACTURING DETAILS AND ASSEMBLY | each |  | cost plus 10% |  |  |
|  |  | **STEEL FIRE BARRIER** |  |  |  |  |  |
| 6.1.90 | **D-DT-5218S2A** | STEEL FIRE BARRIER - 6m LATTICE SUPPORT & IRB SHEETING STEELWORK MANUFACTURING DETAILS AND ASSEMBLY 5MVA - 40MVA | each |  | cost plus 10% |  |  |
| 6.1.91 | **D-DT-5218S2B** | STEEL FIRE BARRIER - 6.5m LATTICE SUPPORT & IRB SHEETING STEELWORK MANUFACTURING DETAILS AND ASSEMBLY 40MVA - 80MVA | each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| 6.1.91 | **2-WT/918 S 2&3** | Knife links support | each |  | cost plus 10% |  |  |
| 6.1.92 | **D-DT-5271S2** | HV CABLE TERMINATION END SUPPORT STRUCTURE DETAILS | each |  | cost plus 10% |  |  |
| 6.1.93 | **D-DT-5272S2** | HV XLPE CABLE END SUPPORT (NON SELF-SUPPORTING) STEELWORK ASSEMBLY DETAILS | each |  | cost plus 10% |  |  |
| 6.1.94 | **2ET-14957 s10** | MV Box Busbar - Lightning Spike | each |  | cost plus 10% |  |  |
| 6.1.95 | **D-DT-5272S3** | HV XLPE CABLE END SUPPORT (NON SELF-SUPPORTING) SURGE ARRESTER MOUNTING PLATE | each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal Item 6** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **Supply** | **Install** |
| **7A** |  | **INSTALLATION OF EQUIPMENT** |  |  |  |  |  |
| **7.1** |  | **New Equipment:** Transport to site from Eskom stores Polokwane and Install the following equipment supplied by ESKOM: |  |  |  |  |  |
| 7.1.1 |  | **ISOLATORS** |  |  |  |  |  |
| 7.1.2 | **D-DT-6150** | ISOL 132kV 2500A 25kA H/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.3 | **D-DT-6150** | ISOL 132kV 2500A 25kA H/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.4 | **D-DT-6150** | ISOL 132kV 2500A 25kA INLINE H/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.5 | **D-DT-6150** | ISOL 132kV 2500A 25kA INLINE H/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.6 | **D-DT-6150** | ISOL 132kV 2500A 25kA M/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.7 | **D-DT-6150** | ISOL 132kV 2500A 25kA M/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.8 | **D-DT-6302** | ISOL,ELECT:132 KVAC;3;2500 A;HAND;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.9 | **D-DT-6302** | ISOL,ELECT:132 KVAC;3;2500 A;MOTO;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.10 | **D-DT-6302** | ISOL,ELECT:INLINE;132 KVAC;3;2500 A | each |  | **Eskom Supply** |  |  |
| 7.1.11 | **D-DT-6152** | ISOL,ELECT:66 KVAC;3;1600 A;MOTO;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.12 | **D-DT-6152** | ISOL,ELECT:66 KVAC;3;1600 A;HAND;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.13 | **D-DT-6152** | ISOL,ELECT:INLINE;66 KVAC;3;1600 A | each |  | **Eskom Supply** |  |  |
| 7.1.14 | **D-DT-6152** | ISOL,ELECT:66 KVAC;3;2500 A;MOTO;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.15 | **D-DT-6152** | ISOL,ELECT:66 KVAC;3;2500 A;HAND;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.16 | **D-DT-6155** | ISOL STR 33kV 400A 12kA P/S 31 | each |  | **Eskom Supply** |  |  |
| 7.1.17 | **D-DT-6156** | ISOL 33kV 400A 12kA P/S 31 | each |  | **Eskom Supply** |  |  |
| 7.1.18 | **D-DT-6157** | ISOL,ELECT:33 KVAC;3;1600 A;HAND;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.19 | **D-DT-6157** | ISOL,ELECT:33 KVAC;3;1600 A;MOTO;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.20 | **D-DT-6308** | ISOL 33kV 1600A 31.5kA H/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.21 | **D-DT-6308** | ISOL 33kV 1600A 31.5kA H/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.22 | **D-DT-6308** | ISOL 33kV 1600A 31.5kA M/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.23 | **D-DT-6308** | ISOL 33kV 1600A 31.5kA M/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.24 | **D-DT-6154** | ISOL,ELECT:22 KVAC;3;2500 A;HAND;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.25 | **D-DT-6154** | ISOL,ELECT:22 KVAC;3;2500 A;MOTO;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.26 | **D-DT-6155** | ISOL STR 22kV 400A 12kA P/S 31 | each |  | **Eskom Supply** |  |  |
| 7.1.27 | **D-DT-6156** | ISOL 22kV 400A 12kA P/S 31 | each |  | **Eskom Supply** |  |  |
| 7.1.28 | **D-DT-6305** | ISOL 22kV 2500A 31.5kA H/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.29 | **D-DT-6305** | ISOL 22kV 2500A 31.5kA H/O 31 | each |  | **Eskom Supply** |  |  |
| 7.1.30 | **D-DT-6305** | ISOL 22kV 2500A 31.5kA M/O 20 | each |  | **Eskom Supply** |  |  |
| 7.1.31 | **D-DT-6305** | ISOL 22kV 2500A 31.5kA M/O 31 | each |  | **Eskom Supply** |  |  |
|  |  | **BREAKERS** |  |  |  |  |  |
| 7.1.32 | **D-DT-6250** | BKR,CIRC:GAS 20MM;3150 A;132 KV;3;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.33 | **D-DT-6250** | BKR,CIRC:GAS 31MM;3150 A;132 KV;3;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.34 | **D-DT-6250** | BKR,CIRC:GAS 20MM;3150 A;132 KV;1;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.35 | **D-DT-6250** | BKR,CIRC:GAS 31MM;3150 A;132 KV;1;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.36 | **D-DT-6250** | BKR,CIRC:GAS 20MM;3150 A;132 KV;3;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.37 | **D-DT-6250** | BKR,CIRC:GAS 31MM;3150 A;132 KV;3;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.38 | **D-DT-6250** | BKR,CIRC:GAS 20MM;3150 A;132 KV;1;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.39 | **D-DT-6250** | BKR,CIRC:GAS 31MM;3150 A;132 KV;1;40 KA | each |  | **Eskom Supply** |  |  |
| 7.1.40 | **D-DT-6251** | BKR,CIRC:GAS;1600 A;66 KV;3;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.41 | **D-DT-6251** | BKR,CIRC:GAS;2500 A;66 KV;3;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.42 | **D-DT-6251** | BKR,CIRC:GAS;2500 A;66 KV;3;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.43 | **D-DT-6251** | BKR,CIRC:GAS;1600 A;66 KV;3;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.44 | **D-DT-6266** | BKR,CIRC:KIOSK;1600 A;33 KV;3;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.45 | **D-DT-6266** | BKR,CIRC:KIOSK;800 A;33 KV;3;20 KA | each |  | **Eskom Supply** |  |  |
| 7.1.46 | **D-DT-6269** | BKR 33kV 1600A 20kA 3P 20 | each |  | **Eskom Supply** |  |  |
| 7.1.47 | **D-DT-6269** | BKR 33kV 1600A 20kA 3P 31 | each |  | **Eskom Supply** |  |  |
| 7.1.48 | **D-DT-6294** | BKR PANEL 33kV 1250A 20kA B/S | each |  | **Eskom Supply** |  |  |
| 7.1.49 | **D-DT-6294** | BRK PANEL 33kV 1250A 20kA INCMR | each |  | **Eskom Supply** |  |  |
| 7.1.50 | **D-DT-6294** | BRK PANEL 33kV 800A 20kA FDR | each |  | **Eskom Supply** |  |  |
| 7.1.51 | **D-DT-6294** | BRK PANEL 33kV 800A 25kA FDR | each |  | **Eskom Supply** |  |  |
| 7.1.52 | **D-DT-6310** | BKR PANEL 33kV 1250A 31.5kA B/S | each |  | **Eskom Supply** |  |  |
| 7.1.53 | **D-DT-6310** | BRK PANEL 33kV 1250A 31.5kA TRFR | each |  | **Eskom Supply** |  |  |
| 7.1.54 | **D-DT-6310** | BRK PANEL 33kV 800A 31.5kA FDR | each |  | **Eskom Supply** |  |  |
| 7.1.55 | **D-DT-6252** | BKR KIOSK 22kV 1250A 20kA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.56 | **D-DT-6252** | BKR KIOSK 22kV 1250A 20kA 31 LOW | each |  | **Eskom Supply** |  |  |
| 7.1.57 | **D-DT-6255** | BKR PANEL 22kV 1250A 20kA B/S | each |  | **Eskom Supply** |  |  |
| 7.1.58 | **D-DT-6255** | BRK PANEL 22kV 1250A 20kA INCMR | each |  | **Eskom Supply** |  |  |
| 7.1.59 | **D-DT-6255** | BRK PANEL 22kV 800A 20kA FDR | each |  | **Eskom Supply** |  |  |
| 7.1.60 | **D-DT-6293** | BKR 22kV 1250A 20kA 20 3P | each |  | **Eskom Supply** |  |  |
| 7.1.61 | **D-DT-6293** | BKR 22kV 1250A 20kA 31 3P | each |  | **Eskom Supply** |  |  |
| 7.1.62 | **D-DT-6307** | BKR 22kV 1250A 31.5kA 20 3P | each |  | **Eskom Supply** |  |  |
| 7.1.63 | **D-DT-6307** | BKR 22kV 1250A 31.5kA 31 3P | each |  | **Eskom Supply** |  |  |
| 7.1.64 | **D-DT-6358** | BKR PANEL 11kV 800A 25kA FDR (A) | each |  | **Eskom Supply** |  |  |
| 7.1.65 | **D-DT-6358** | BRK PANEL 11kV 800A 25kA FDR (B) | each |  | **Eskom Supply** |  |  |
| 7.1.66 | **D-DT-6358** | BKR PANEL 11kV 1250A 25kA B/S | each |  | **Eskom Supply** |  |  |
| 7.1.67 | **D-DT-6358** | BKR PANEL 11kV 1250A 25kA INCMR | each |  | **Eskom Supply** |  |  |
| 7.1.68 | **D-DT-6358** | BKR PANEL 11kV 1250A 25kA FDR (A) | each |  | **Eskom Supply** |  |  |
| 7.1.69 | **D-DT-6358** | BKR PANEL 11kV 2500A 25kA B/S | each |  | **Eskom Supply** |  |  |
| 7.1.70 | **D-DT-6358** | BKR PANEL 11kV 2500A 25kA INCMR | each |  | **Eskom Supply** |  |  |
| 7.1.71 | **D-DT-6358** | BRK PANEL 11kV 1250A 25kA FDR (B | each |  | **Eskom Supply** |  |  |
| 7.1.72 | **D-DT-6358** | BKR PANEL 11kV 800A 25kA FDR A LOW | each |  | **Eskom Supply** |  |  |
| 7.1.73 | **D-DT-6358** | BRK PANEL 11kV 800A 25kA FDR B LOW | each |  | **Eskom Supply** |  |  |
| 7.1.74 | **D-DT-6265** | BKR,CIRC:KIOSK;2500 A;11 KV;3;25 KA | each |  | **Eskom Supply** |  |  |
| 7.1.75 | **D-DT-6268** | BKR 11kV 2500A 25kA 3P 20 | each |  | **Eskom Supply** |  |  |
| 7.1.76 | **D-DT-6268** | BKR 11kV 2500A 25kA 3P 31 | each |  | **Eskom Supply** |  |  |
|  |  | **CURRENT TRANSFORMER** |  |  |  |  |  |
| 7.1.77 | **D-DT-6190** | CT 132kV 2500A 40kA 2P2M2B500 31 | each |  | **Eskom Supply** |  |  |
| 7.1.78 | **D-DT-6190** | CT 132kV 2500A 40kA 2P2M2B1600 31 | each |  | **Eskom Supply** |  |  |
| 7.1.79 | **D-DT-6190** | CT 132kV 2500A 40kA 2P2M2B2400 31 | each |  | **Eskom Supply** |  |  |
| 7.1.80 | **D-DT-6190** | CT 132kV 200A 10kA/1s 2MR 31 | each |  | **Eskom Supply** |  |  |
| 7.1.81 | **D-DT-6198** | CT 66kV 1600A 31.5kA 2P2M2B500 31 | each |  | **Eskom Supply** |  |  |
| 7.1.82 | **D-DT-6198** | CT 66kV 1600A 31.5kA 2P2M2B1600 31 | each |  | **Eskom Supply** |  |  |
| 7.1.83 | **D-DT-6198** | CT 66kV 200A 10kA/1s 2MR 31 | each |  | **Eskom Supply** |  |  |
| 7.1.84 | **D-DT-6191** | CT 33kV 1600A 31.5kA 2P2M 31 | each |  | **Eskom Supply** |  |  |
| 7.1.85 | **D-DT-6192** | CT 22kV 1600A 25kA 2P2M 31 | each |  | **Eskom Supply** |  |  |
| 7.1.86 | **D-DT-6192** | CT 22kV 2500A 25kA 2P2M 31 | each |  | **Eskom Supply** |  |  |
|  |  | **VOLTAGE TRANSFORMER** |  |  |  |  |  |
| 7.1.87 | **D-DT-6170** | VT 1PH 132kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.88 | **D-DT-6171** | VT 1PH 88kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.89 | **D-DT-6176** | VT 1PH 66kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.90 | **D-DT-6177** | VT 1PH 44kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.91 | **D-DT-6172** | VT 1PH 33kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.92 | **D-DT-6175** | VT PANEL 33kV/110V 50VA CL 0.2 | each |  | **Eskom Supply** |  |  |
| 7.1.93 | **D-DT-6173** | VT 1PH 22kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.94 | **D-DT-6175** | VT PANEL 22kV/110V 50VA CL 0.2 | each |  | **Eskom Supply** |  |  |
| 7.1.95 | **D-DT-6174** | VT 1PH 11kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
| 7.1.96 | **D-DT-6175** | VT PANEL 11kV/110V 50VA CL 0.2 (A) | each |  | **Eskom Supply** |  |  |
| 7.1.97 | **D-DT-6175** | VT PANEL 11kV/110V 50VA CL 0.2 (B) | each |  | **Eskom Supply** |  |  |
| 7.1.98 | **D-DT-6175** | VT PANEL 6.6kV/110V 50VA CL 0.2 (A) | each |  | **Eskom Supply** |  |  |
| 7.1.99 | **D-DT-6175** | VT PANEL 6.6kV/110V 50VA CL 0.2 (B) | each |  | **Eskom Supply** |  |  |
| 7.1.100 | **D-DT-6178** | VT 1PH 6.6kV/110V 100/50VA 31 | each |  | **Eskom Supply** |  |  |
|  |  | **NEC/NER/AUX** |  |  |  |  |  |
| 7.1.101 | **D-DT-6145** | NEC/NER/AUX TFR 44kV 360A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.102 | **D-DT-6145** | NEC/NER/AUX TFR 44kV 360A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.103 | **D-DT-6142** | NEC/NER/AUX TFR 33kV 360A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.104 | **D-DT-6142** | NEC/NER/AUX TFR 33kV 360A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.105 | **D-DT-6142** | NEC/NER/AUX TFR 33kV 960A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.106 | **D-DT-6142** | NEC/NER/AUX TFR 33kV 960A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.107 | **D-DT-6141** | NEC/NER/AUX TFR 22kV 360A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.108 | **D-DT-6141** | NEC/NER/AUX TFR 22kV 960A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.109 | **D-DT-6141** | NEC/NER/AUX TFR 22kV 360A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.110 | **D-DT-6141** | NEC/NER/AUX TFR 22kV 960A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.111 | **D-DT-6140** | NEC/NER/AUX TFR 11kV 360A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.112 | **D-DT-6140** | NEC/NER/AUX TFR 11kV 960A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.113 | **D-DT-6140** | NEC/NER/AUX TFR 11kV 360A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.114 | **D-DT-6140** | NEC/NER/AUX TFR 11kV 960A 31 | each |  | **Eskom Supply** |  |  |
| 7.1.115 | **D-DT-6143** | NEC/NER/AUX TFR 6.6kV 360A 20 | each |  | **Eskom Supply** |  |  |
| 7.1.116 | **D-DT-6143** | NEC/NER/AUX TFR 6.6kV 360A 31 | each |  | **Eskom Supply** |  |  |
|  |  | **TRANSFORMER** |  |  |  |  |  |
| 7.1.117 | **D-DT-6120** | TRFR 10MVA 132/11kV OLTC YNd1 31 D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.118 | **D-DT-6120** | TRFR 20MVA 132/11kV OLTC YNd1 31 D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.119 | **D-DT-6120** | TRFR 40MVA 132/11kV OLTC (HI) YNd1 31 D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.120 | **D-DT-6120** | TRFR 5MVA 132/11kV OLTC YNd1 31 D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.121 | **D-DT-6120** | TRFR 40MVA 132/11kV OLTC (SI) YNd1 31 D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.122 | **D-DT-6120** | TRFR 20MVA 132/11kV OLTC YNd1 31 H/D D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.123 | **D-DT-6120** | TRFR 40MVA 132/11kV OLTC YNd1 31 H/D D6120 | each |  | **Eskom Supply** |  |  |
| 7.1.124 | **D-DT-6122** | TRFR 10MVA 132/22kV OLTC YNd1 31 D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.125 | **D-DT-6122** | TRFR 20MVA 132/22kV OLTC YNd1 31 D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.126 | **D-DT-6122** | TRFR 40MVA 132/22kV OLTC YNd1 31 D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.127 | **D-DT-6122** | TRFR 5MVA 132/22kV OLTC YNd1 31 D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.128 | **D-DT-6122** | TRFR 20MVA 132/22kV OLTC YNd1 31 H/D D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.129 | **D-DT-6122** | TRFR 40MVA 132/22kV OLTC YNd1 31 H/D D6122 | each |  | **Eskom Supply** |  |  |
| 7.1.130 | **D-DT-6125** | TRFR 10MVA 132/33kV OLTC YNd1 31 D6125 | each |  | **Eskom Supply** |  |  |
| 7.1.131 | **D-DT-6125** | TRFR 20MVA 132/33kV OLTC YNd1 31 D6125 | each |  | **Eskom Supply** |  |  |
| 7.1.132 | **D-DT-6125** | TRFR 40MVA 132/33kV OLTC YNd1 31 D6125 | each |  | **Eskom Supply** |  |  |
| 7.1.133 | **D-DT-6125** | TRFR 80MVA 132/33kV OLTC YNd1 31 D6125 | each |  | **Eskom Supply** |  |  |
| 7.1.134 | **D-DT-6132** | TRFR 10MVA 132/6.6kV OLTC YNd1 31 D6132 | each |  | **Eskom Supply** |  |  |
| 7.1.135 | **D-DT-6132** | TRFR 20MVA 132/6.6kV OLTC (SI) YNd1 31 D6132 | each |  | **Eskom Supply** |  |  |
| 7.1.136 | **D-DT-6132** | TRFR 20MVA 132/6.6kV OLTC (HI) YNd1 31 D6132 | each |  | **Eskom Supply** |  |  |
| 7.1.137 | **D-DT-6134** | TRFR 20MVA 132/11kV OLTC YNyn6 D6134 | each |  | **Eskom Supply** |  |  |
| 7.1.138 | **D-DT-6134** | TRFR 40 MVA 132/11kV OLTC YNyn6 D6134 | each |  | **Eskom Supply** |  |  |
| 7.1.139 | **D-DT-6276** | TRFR 20MVA 132/44/22kV OLTC YNa0d1 31 D6276 | each |  | **Eskom Supply** |  |  |
| 7.1.140 | **D-DT-6276** | TRFR 40MVA 132/44/22kV OLTC YNa0d1 31 D6276 | each |  | **Eskom Supply** |  |  |
| 7.1.141 | **D-DT-6276** | TRFR 80MVA 132/44/22kV OLTC YNa0d1 31 D6276 | each |  | **Eskom Supply** |  |  |
| 7.1.142 | **D-DT-6277** | TRFR 20MVA 132/66/22kV OLTC YNa0d1 31 D6277 | each |  | **Eskom Supply** |  |  |
| 7.1.143 | **D-DT-6277** | TRFR 40MVA 132/66/22kV OLTC YNa0d1 31 D6277 | each |  | **Eskom Supply** |  |  |
| 7.1.144 | **D-DT-6277** | TRFR 80MVA 132/66/22kV OLTC YNa0d1 31 D6277 | each |  | **Eskom Supply** |  |  |
| 7.1.145 | **D-DT-6277** | TRFR 160MVA 132/66/22kV OLTC YNa0d1 31 D6277 | each |  | **Eskom Supply** |  |  |
| 7.1.146 | **D-DT-6278** | TRFR 20MVA 132/88/22kV OLTC YNa0d1 31 D6278 | each |  | **Eskom Supply** |  |  |
| 7.1.147 | **D-DT-6278** | TRFR 40MVA 132/88/22kV OLTC YNa0d1 31 D6278 | each |  | **Eskom Supply** |  |  |
| 7.1.148 | **D-DT-6278** | TRFR 80MVA 132/88/22kV OLTC YNa0d1 31 D6278 | each |  | **Eskom Supply** |  |  |
| 7.1.149 | **D-DT-6278** | TRFR 160MVA 132/88/22kV OLTC YNa0d1 31 D6278 | each |  | **Eskom Supply** |  |  |
| 7.1.150 | **D-DT-6126** | TRFR 5MVA 88/11kV OLTC YNd1 31 D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.151 | **D-DT-6126** | TRFR 10MVA 88/11kV OLTC YNd1 31 D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.152 | **D-DT-6126** | TRFR 20MVA 88/11kV OLTC YNd1 31 D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.153 | **D-DT-6126** | TRFR 40MVA 88/11kV OLTC (HI) YNd1 31 D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.154 | **D-DT-6126** | TRFR 40MVA 88/11kV OLTC (SI) YNd1 31 D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.155 | **D-DT-6126** | TRFR 20MVA 88/11kV OLTC YNd1 31 H/D D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.156 | **D-DT-6126** | TRFR 40MVA 88/11kV OLTC YNd1 31 H/D D6126 | each |  | **Eskom Supply** |  |  |
| 7.1.157 | **D-DT-6128** | TRFR 5MVA 88/22kV OLTC YNd1 31 D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.158 | **D-DT-6128** | TRFR 10MVA 88/22kV OLTC YNd1 31 D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.159 | **D-DT-6128** | TRFR 20MVA 88/22kV OLTC YNd1 31 D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.160 | **D-DT-6128** | TRFR 40MVA 88/22kV OLTC YNd1 31 D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.161 | **D-DT-6128** | TRFR 20MVA 88/22kV OLTC YNd1 31 H/D D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.162 | **D-DT-6128** | TRFR 40MVA 88/22kV OLTC YNd1 31 H/D D6128 | each |  | **Eskom Supply** |  |  |
| 7.1.163 | **D-DT-6131** | TRFR 10MVA 88/33kV OLTC YNd1 31 D6131 | each |  | **Eskom Supply** |  |  |
| 7.1.164 | **D-DT-6131** | TRFR 20MVA 88/33kV OLTC YNd1 31 D6131 | each |  | **Eskom Supply** |  |  |
| 7.1.165 | **D-DT-6131** | TRFR 40MVA 88/33kV OLTC YNd1 31 D6131 | each |  | **Eskom Supply** |  |  |
| 7.1.166 | **D-DT-6131** | TRFR 80MVA 88/33kV OLTC YNd1 31 D6131 | each |  | **Eskom Supply** |  |  |
| 7.1.167 | **D-DT-6270** | TRFR 5MVA 88/6.6kV OLTC YNd1 31 D6270 | each |  | **Eskom Supply** |  |  |
| 7.1.168 | **D-DT-6270** | TRFR 10MVA 88/6.6kV OLTC YNd1 31 D6270 | each |  | **Eskom Supply** |  |  |
| 7.1.169 | **D-DT-6270** | TRFR 20MVA 88/6.6kV OLTC (SI) YNd1 31 D6270 | each |  | **Eskom Supply** |  |  |
| 7.1.170 | **D-DT-6270** | TRFR 20MVA 88/6.6kV OLTC (HI) YNd1 31 D6270 | each |  | **Eskom Supply** |  |  |
| 7.1.171 | **D-DT-6291** | TRFR 20MVA 88/44/22kV OLTC YNa0d1 31 D6291 | each |  | **Eskom Supply** |  |  |
| 7.1.172 | **D-DT-6291** | TRFR 40MVA 88/44/22kV OLTC YNa0d1 31 D6291 | each |  | **Eskom Supply** |  |  |
| 7.1.173 | **D-DT-6291** | TRFR 80MVA 88/44/22kV OLTC YNa0d1 31 D6291 | each |  | **Eskom Supply** |  |  |
| 7.1.174 | **D-DT-6301** | TRFR 30MVA 88/44kV OLTC YNd1 31 D6301 | each |  | **Eskom Supply** |  |  |
| 7.1.175 | **D-DT-6301** | TRFR 20MVA 88/44kV OLTC YNd1 31 D6301 | each |  | **Eskom Supply** |  |  |
| 7.1.176 | **D-DT-6301** | TRFR 40MVA 88/44 kV OLTC YNd1 31 D6301 | each |  | **Eskom Supply** |  |  |
| 7.1.177 | **D-DT-6280** | TRFR 5MVA 66/6.6kV OLTC YNd1 31 D6280 | each |  | **Eskom Supply** |  |  |
| 7.1.178 | **D-DT-6280** | TRFR 10MVA 66/6.6kV OLTC YNd1 31 D6280 | each |  | **Eskom Supply** |  |  |
| 7.1.179 | **D-DT-6280** | TRFR 20MVA 66/6.6kV OLTC (SI) YNd1 31 D6280 | each |  | **Eskom Supply** |  |  |
| 7.1.180 | **D-DT-6280** | TRFR 20MVA 66/6.6kV OLTC (HI) YNd1 31 D6280 | each |  | **Eskom Supply** |  |  |
| 7.1.181 | **D-DT-6281** | TRFR 2,5MVA 66/11kV OLTC YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.182 | **D-DT-6281** | TRFR 5MVA 66/11kV OLTC YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.183 | **D-DT-6281** | TRFR 10MVA 66/11kV OLTC YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.184 | **D-DT-6281** | TRFR 20MVA 66/11kV OLTC YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.185 | **D-DT-6281** | TRFR 40MVA 66/11kV OLTC YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.186 | **D-DT-6281** | TRFR 40MVA 66/11kV OLTC (HI) YNd1 31 D6281 | each |  | **Eskom Supply** |  |  |
| 7.1.187 | **D-DT-6282** | TRFR 20,0MVA 66/11kV OLTC YNyn6 D6282 | each |  | **Eskom Supply** |  |  |
| 7.1.188 | **D-DT-6282** | TRFR 40,0MVA 66/11kV OLTC YNyn6 D6282 | each |  | **Eskom Supply** |  |  |
| 7.1.189 | **D-DT-6283** | TRFR 2,5MVA 66/22kV OLTC YNd1 31 D6283 | each |  | **Eskom Supply** |  |  |
| 7.1.190 | **D-DT-6283** | TRFR 5MVA 66/22kV OLTC YNd1 31 D6283 | each |  | **Eskom Supply** |  |  |
| 7.1.191 | **D-DT-6283** | TRFR 10MVA 66/22kV OLTC YNd1 31 D6283 | each |  | **Eskom Supply** |  |  |
| 7.1.192 | **D-DT-6283** | TRFR 20MVA 66/22kV OLTC YNd1 31 D6283 | each |  | **Eskom Supply** |  |  |
| 7.1.193 | **D-DT-6283** | TRFR 40MVA 66/22kV OLTC YNd1 31 D6283 | each |  | **Eskom Supply** |  |  |
| 7.1.194 | **D-DT-6284** | TRFR 5MVA 44/6.6kV OLTC YNd1 31 D6284 | each |  | **Eskom Supply** |  |  |
| 7.1.195 | **D-DT-6284** | TRFR 10MVA 44/6.6kV OLTC YNd1 31 D6284 | each |  | **Eskom Supply** |  |  |
| 7.1.196 | **D-DT-6284** | TRFR 20MVA 44/6.6kV OLTC (SI) YNd1 31 D6284 | each |  | **Eskom Supply** |  |  |
| 7.1.197 | **D-DT-6285** | TRFR 2,5MVA 44/11kV OLTC YNd1 31 D6285 | each |  | **Eskom Supply** |  |  |
| 7.1.198 | **D-DT-6285** | TRFR 5MVA 44/11kV OLTC YNd1 31 D6285 | each |  | **Eskom Supply** |  |  |
| 7.1.199 | **D-DT-6285** | TRFR 10MVA 44/11kV OLTC YNd1 31 D6285 | each |  | **Eskom Supply** |  |  |
| 7.1.200 | **D-DT-6285** | TRFR 20MVA 44/11kV OLTC YNd1 31 D6285 | each |  | **Eskom Supply** |  |  |
| 7.1.201 | **D-DT-6286** | TRFR 5MVA 44/22kV OLTC YNd1 31 D6286 | each |  | **Eskom Supply** |  |  |
| 7.1.202 | **D-DT-6286** | TRFR 10MVA 44/22kV OLTC YNd1 31 D6286 | each |  | **Eskom Supply** |  |  |
| 7.1.203 | **D-DT-6286** | TRFR 20MVA 44/22kV OLTC YNd1 31 D6286 | each |  | **Eskom Supply** |  |  |
| 7.1.204 | **D-DT-6287** | TRFR 2.5MVA 33/11kV OCTS YNyn0 31 D6287 | each |  | **Eskom Supply** |  |  |
| 7.1.205 | **D-DT-6287** | TRFR 5MVA 33/11kV OLTC YNyn0 31 D6287 | each |  | **Eskom Supply** |  |  |
| 7.1.206 | **D-DT-6287** | TRFR 10MVA 33/11kV OLTC YNyn0 31 D6287 | each |  | **Eskom Supply** |  |  |
| 7.1.207 | **D-DT-6287** | TRFR 20MVA 33/11kV OLTC YNyn0 31 D6287 | each |  | **Eskom Supply** |  |  |
| 7.1.208 | **D-DT-6289** | TRFR 2,5MVA 33/22kV OLTC YNyn0 31 D6289 | each |  | **Eskom Supply** |  |  |
| 7.1.209 | **D-DT-6289** | TRFR 5MVA 33/22kV OLTC YNyn0 31 D6289 | each |  | **Eskom Supply** |  |  |
| 7.1.210 | **D-DT-6289** | TRFR 10MVA 33/22kV OLTC YNyn0 31 D6289 | each |  | **Eskom Supply** |  |  |
| 7.1.211 | **D-DT-6290** | TRFR 2,5MVA 22/11kV OCTS YNyn0 31 D6290 | each |  | **Eskom Supply** |  |  |
| 7.1.212 | **D-DT-6290** | TRFR 5MVA 22/11kV OLTC YNyn0 31 D6290 | each |  | **Eskom Supply** |  |  |
| 7.1.213 | **D-DT-6290** | TRFR 10MVA 22/11kV OLTC YNyn0 31 D6290 | each |  | **Eskom Supply** |  |  |
| 7.1.214 | **D-DT-6290** | TRFR 20MVA 22/11kV OLTC YNyn0 31 D6290 | each |  | **Eskom Supply** |  |  |
| 7.1.215 | **D-DT-6290** | TRFR 1,25MVA 22/11kV OCTS YNyn0 31 D6290 | each |  | **Eskom Supply** |  |  |
| 7.1.216 | **D-DT-6300** | TFR 100kVA 22kV/415V AUX 31 D6300 | each |  | **Eskom Supply** |  |  |
| 7.1.217 | **D-DT-6300** | TFR 100kVA 11kV/415V AUX 31 D6300 | each |  | **Eskom Supply** |  |  |
|  |  | **SURGE ARRESTERS** |  |  |  |  |  |
| 7.1.218 | **D-DT 6210** | S/ARR S/CL 132kV MCOV 84kV 31 D6210 | each |  | **Eskom Supply** |  |  |
| 7.1.219 | **D-DT 6210** | S/ARR S/CL 132kV MCOV 84kV 20 D6210 | each |  | **Eskom Supply** |  |  |
| 7.1.220 | **D-DT 6211** | S/ARR S/CL 88kV MCOV 56kV 20 D6211 | each |  | **Eskom Supply** |  |  |
| 7.1.221 | **D-DT 6211** | S/ARR S/CL 88kV MCOV 56kV 31 D6211 | each |  | **Eskom Supply** |  |  |
| 7.1.222 | **D-DT 6212** | S/ARR S/CL 66kV MCOV 48kV 31 D6212 | each |  | **Eskom Supply** |  |  |
| 7.1.223 | **D-DT 6212** | S/ARR S/CL 66kV MCOV 48kV 20 D6212 | each |  | **Eskom Supply** |  |  |
| 7.1.224 | **D-DT 6213** | S/ARR S/CL 33kV&44kV MCOV 36kV 31 D6214 | each |  | **Eskom Supply** |  |  |
| 7.1.225 | **D-DT 6213** | S/ARR S/CL 33kV&44kV MCOV 36kV 20 D6214 | each |  | **Eskom Supply** |  |  |
| 7.1.226 | **D-DT 6215** | S/ARR S/CL 22kV MCOV 24kV 31 D6215 | each |  | **Eskom Supply** |  |  |
| 7.1.227 | **D-DT 6215** | S/ARR S/CL 22kV MCOV 24kV 20 D6215 | each |  | **Eskom Supply** |  |  |
| 7.1.228 | **D-DT 6216** | S/ARR S/CL 11kV MCOV 12kV 31 D6216 | each |  | **Eskom Supply** |  |  |
| 7.1.229 | **D-DT 6216** | S/ARR S/CL 11kV MCOV 12kV 20 D6216 | each |  | **Eskom Supply** |  |  |
| 7.1.230 | **D-DT 6217** | S/ARR S/CL 6.6kV MCOV 7.2kV 31 D6217 | each |  | **Eskom Supply** |  |  |
| 7.1.231 | **D-DT 6217** | S/ARR S/CL 6.6kV MCOV 7.2kV 20 D6217 | each |  | **Eskom Supply** |  |  |
|  |  |  |  |  |  |  |  |
|  |  | **POST INSULATORS** |  |  |  |  |  |
| 7.1.232 | **D-DT-6230** | INSUL:STN POST;C4-550;132 KV | each |  | **Eskom Supply** |  |  |
| 7.1.233 | **D-DT-6231** | INSUL:STN POST;C4-325;66 KV | each |  | **Eskom Supply** |  |  |
| 7.1.234 | **D-DT-6232** | INSUL:STN POST;C4-200;33 KV | each |  | **Eskom Supply** |  |  |
| 7.1.235 | **D-DT-6233** | INSUL:STN POST;C4-150;22 KV | each |  | **Eskom Supply** |  |  |
| 7.1.236 | **D-DT-3042** | INSUL,L/ROD 22kV 40kN 450C/L | each |  | **Eskom Supply** |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal Item 7A** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **Supply** | **Install** |
| **7B** |  | **INSTALLATION OF EQUIPMENT cont.** |  |  |  |  |  |
| **7.2** |  | **Miscellaneous:** Supply, Transport to site and Install the following equipment: |  |  |  |  |  |
| 7.2.1 | **D-DT 6081** | Joint-Ball Portable Earth | each |  | cost plus 10% |  |  |
| 7.2.2 | **D-DT-6050** | Padlock, St Oper. Master North Reg | each |  | cost plus 10% |  |  |
| 7.2.3 | **D-DT-6050** | Padlock, St Proh. Master North Reg | each |  | cost plus 10% |  |  |
| 7.2.4 | **D-DT 6292** | Putty, Scotchfill 38mm W Roll | roll |  | cost plus 10% |  |  |
| 7.2.5 | **D-DT 6292** | Tape, Electric 18W x 0.76 Thick | roll |  | cost plus 10% |  |  |
| 7.2.6 | **D-DT 6065** | Control Cable Bracket | each |  | cost plus 10% |  |  |
| 7.2.7 | **D-DT 6055** | Acrylic Cover 480X160mm ACC4 | each |  | cost plus 10% |  |  |
| 7.2.8 | **D-DT-6097** | Bolt, Hx Galv M16x45mm W/Hx Nut | each |  | cost plus 10% |  |  |
| 7.2.9 | **D-DT-3014** | Washer, Rd Flat M16 29.6D 18.25Dia HL | each |  | cost plus 10% |  |  |
| 7.2.10 | **D-DT-3014** | Washer, Taper Galv M16 38SQ 18.25Dia HL | each |  | cost plus 10% |  |  |
| 7.2.11 | **D-DT-6087** | Spacer cond 38.3mm 150CRS S11 | each |  | cost plus 10% |  |  |
| 7.2.12 | **D-DT-3031 S2** | Strap, tie ST GALV 910x50x6 | each |  | cost plus 10% |  |  |
| 7.2.13 | **D-DT-8006** | Term kit 3C 11kV 50-95SQ OD XLPE | each |  | cost plus 10% |  |  |
| 7.2.14 | **D-DT-7015** | Plate yoke triang 150mm CRS 120KN | each |  | cost plus 10% |  |  |
| 7.2.15 | D-DT-7003 | CLAMP S/WIRE | each |  | cost plus 10% |  |  |
| 7.2.16 | D-DT-6059 | CLEVIS BALL 16mm IEC 120kN | each |  | cost plus 10% |  |  |
| 7.2.17 | D-DT-6061 | SOCK TONG 16mm IEC 120kN | each |  | cost plus 10% |  |  |
| 7.2.18 | D-DT-7021 | Sock-Clevis 16 mm 120 kN | each |  | cost plus 10% |  |  |
| 7.2.19 | D-DT-7036 | Wire strand, ST 14/2,65 11 000 MPA | each |  | cost plus 10% |  |  |
| 7.2.20 | D-DT-3026 | Thimble, St to fit 14 mm Dia wire | each |  | cost plus 10% |  |  |
| 7.2.21 | D-DT-7036 | Guygrip, D/end ST 13.21 19/2,65 | each |  | cost plus 10% |  |  |
| 7.2.22 | D-DT-8001 | Cable 3C 11 kV 95 mm SQ Cu EUX3PCQ | each |  | cost plus 10% |  |  |
| 7.2.23 | D-DT-6065 | BRACKET-CONTROL CABLE | each |  | cost plus 10% |  |  |
| 7.2.24 | D-DT-6000s1 | TUBE AL 120mm OD x 4mm W THK 12m L | each |  | cost plus 10% |  |  |
| 7.2.25 | D-DT-6040s2 | END CAP, TBEC 120 COND WITH F/CLAMP | each |  | cost plus 10% |  |  |
| 7.2.26 | D-DT-6040s1 | END CAP, TBEC 120 PLAIN NO F/CLAMP | each |  | cost plus 10% |  |  |
| 7.2.27 | D-DT-6055 | COVER ACRYLIC 480x160mm ACC4 | each |  | cost plus 10% |  |  |
| 7.2.28 | D-DT-3136s8 | COND,AAC BULL 38.25D INSU UNGRS | each |  | cost plus 10% |  |  |
| 7.2.29 | D-DT 6155 | Isol, STR 22kV 400A 12kA P/S | each |  | cost plus 10% |  |  |
| 7.2.30 | D-DT 3082s2 | Set Screw,HX Galv M16x65 Nut+ wash | each |  | cost plus 10% |  |  |
| 7.2.31 | D-DT 6156s2 | Isol, 22kV 400A 12kA P/S | each |  | cost plus 10% |  |  |
| 7.2.32 | D-DT-3136s8 | COND,AAC HORNET 16.25D INSU UNGRS | each |  | cost plus 10% |  |  |
| 7.2.33 | D-DT-3074s1 | LUG, AL HORNET 1B M12 0DG I/C | each |  | cost plus 10% |  |  |
| 7.2.34 | D-DT-6000s1 | TUBE AL 80mm OD x 8mm W THK 10m L | each |  | cost plus 10% |  |  |
| 7.2.35 | D-DT-6040s2 | END CAP TBEC 80 COND WITH F/CLAMP | each |  | cost plus 10% |  |  |
| 7.2.36 | D-DT-6040s1 | END CAP TBEC 80 PLAIN NO F/CLAMP | each |  | cost plus 10% |  |  |
| 7.2.37 | D-DT-6055 | COVER ACRYLIC 350x1100mm ACC3 | each |  | cost plus 10% |  |  |
| 7.2.38 | D-DT-3031s2 | STRAP, TIE ST GALV 910x50x6 | each |  | cost plus 10% |  |  |
| 7.2.39 | D-DT-3065s2 | DEAD END, HELICALLY FORMED HORNET | each |  | cost plus 10% |  |  |
| 7.2.40 | D-DT 3136 | Cond,AAC C/pede 26.45D UNGRS | each |  | cost plus 10% |  |  |
| 7.2.41 | D-DT 3136 | Cond,AAC Bull 38.25D Insu UNGRS | each |  | cost plus 10% |  |  |
| 7.2.42 | D-DT 3136 | Cond,AAC Bull 38.25D UNGRS | each |  | cost plus 10% |  |  |
| 7.2.43 | D-DT 3136s7 | Cond, AAC Hornet 16.25D UNGRS | each |  | cost plus 10% |  |  |
| 7.2.44 | D-DT 3136s8 | Cond, AAC Hornet 16.25D INSU | each |  | cost plus 10% |  |  |
| 7.2.45 | D-DT-3136s2 | Cond, ARC Hare 14.16D UNGRS | each |  | cost plus 10% |  |  |
| 7.2.46 | **D-DT-3014** | Washer, Taper Galv M16 38SQ 18.25Dia HL | each |  | cost plus 10% |  |  |
|  |  | **Power Cable** |  |  |  |  |  |
| 7.2.46 |  | Install 630mm² 1 Core Cu XLPE 11kV cable | m |  | cost plus 10% |  |  |
| 7.2.47 |  | Termination kits ID 630mm² set | Each |  | cost plus 10% |  |  |
| 7.2.48 |  | Termination kits OD 630mm² set | Each |  | cost plus 10% |  |  |
| 7.2.49 |  | Termination kits 95mm² OD | Each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **Item 7B Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** |  |  |  |  |  |
| **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **7C** |  | **INSTALLATION OF EQUIPMENT cont.** | **Supply** | **Install** |
|  |  |  |  |  |  |  |  |
| **7.3** |  | **Clamp Assemblies:** Supply, Transport to site and Install the following clamp assemblies. |  |  |  |  |  |
| **7.3.1** | **D-DT-3074** | **Termination Crimp Lug** |  |  |  |  |  |
| 7.3.1.1 |  | LUG AL HORNET 1B M12 0DG 1/C | each |  | cost plus 10% |  |  |
| 7.3.1.2 | **Non Stock McWade: L406302** | COMP. JUMPER TERMINAL LUG FOR COMP. DEAD ENDS BULL | each |  | cost plus 10% |  |  |
| **7.3.2** | **D-DT-6002** | **EX-TYPE** |  |  |  |  |  |
| 7.3.2.1 |  | EX 2 | each |  | cost plus 10% |  |  |
| 7.3.2.2 |  | EX 4 | each |  | cost plus 10% |  |  |
| **7.3.3** | **D-DT-6006** | **EXC-TYPE** |  |  |  |  |  |
| 7.3.3.1 |  | EXC 1 | each |  | cost plus 10% |  |  |
| 7.3.3.2 |  | EXC 2 | each |  | cost plus 10% |  |  |
| 7.3.3.3 |  | EXC 3 | each |  | cost plus 10% |  |  |
| **7.3.4** | **D-DT-6010** | **ETC-TYPE** |  |  |  |  |  |
| 7.3.4.1 |  | ETC 9 | each |  | cost plus 10% |  |  |
| 7.3.4.2 |  | ETC 15 | each |  | cost plus 10% |  |  |
| **7.3.5** | **D-DT-6013** | **EYC-Type** |  |  |  |  |  |
| 7.3.5.1 |  | EYC A,B,C,D,E,F,G,H,J,K,L,M | each |  | cost plus 10% |  |  |
| 7.3.5.2 |  | EYC AA,AB,AC | each |  | cost plus 10% |  |  |
| **7.3.6** | **D-DT-6018** | **Bolted Compression Type** |  |  |  |  |  |
| 7.3.6.1 |  | SPC 1 | each |  | cost plus 10% |  |  |
| 7.3.6.2 |  | SPC 4 | each |  | cost plus 10% |  |  |
| **7.3.7** | **D-DT-6022** | **Y Type** |  |  |  |  |  |
| 7.3.7.1 |  | Y 7 | each |  | cost plus 10% |  |  |
| **7.3.8** | **D-DT-6025** | **Fix Support Type** |  |  |  |  |  |
| 7.3.8.1 |  | P 38/76/150 | each |  | cost plus 10% |  |  |
| 7.3.8.2 |  | P 38/127/150 | each |  | cost plus 10% |  |  |
| **7.3.9** | **D-DT-6027** | **Stud Palm Bolt Type** |  |  |  |  |  |
| 7.3.9.1 |  | STP 38 | each |  | cost plus 10% |  |  |
|  | | | |  |  |  |  |
| **Item 7C Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** |  |  |  |  |  |
| **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **7D** |  | **INSTALLATION OF EQUIPMENT cont.** | **Supply** | **Install** |
| **7.3.10** | **D-DT-6029** | **Fix Support Type** |  |  |  |  |  |
| 7.3.10.1 |  | KCP 26/127 | each |  | cost plus 10% |  |  |
| 7.3.10.2 |  | KCP 38/127 | each |  | cost plus 10% |  |  |
| **7.3.11** | **D-DT-6109** | **Y-Compression Palm Type** |  |  |  |  |  |
| 7.3.11.1 |  | YC 16 0DG | each |  | cost plus 10% |  |  |
|  | D-DT-6013 | YC2 ODG | each |  | cost plus 10% |  |  |
|  | D-DT-6013 | YC4 45DG | each |  | cost plus 10% |  |  |
|  | D-DT-6013 | YC6 90DG | each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **7.3.12** | **D-DT-6115** | **PEG Al Type** |  |  |  |  |  |
| 7.3.12.1 |  | EPC 26 | each |  | cost plus 10% |  |  |
| 7.3.12.2 |  | EPC 38 | each |  | cost plus 10% |  |  |
| **7.3.13** | **D-DT-6087** | **Spacers** |  |  |  |  |  |
| 7.3.13.1 |  | Spacer CRS S2 | each |  | cost plus 10% |  |  |
|  |  | **Tubular clamps** Supply, Transport to site and Install the following clamp assemblies. | each |  |  |  |  |
| **7.3.14** | **D-DT-6035** | **Bus Stud Type** |  |  |  |  |  |
| 7.3.14.1 |  | TBST 120/38/C | each |  | cost plus 10% |  |  |
| **7.3.15** | **D-DT-6039** | **Fixed Busbar Support Type** |  |  |  |  |  |
| 7.3.15.1 |  | TBFS 80-127 | each |  | cost plus 10% |  |  |
| 7.3.15.2 |  | TBFS 120-127 | each |  | cost plus 10% |  |  |
| **7.3.16** | **D-DT-6040** | **End Caps** |  |  |  |  |  |
| 7.3.16.1 |  | TBEC 80 – Plain | each |  | cost plus 10% |  |  |
| 7.3.16.2 |  | TBEC 120 – Plain | each |  | cost plus 10% |  |  |
| 7.3.16.3 |  | TBEC 120 – with F/Clamp | each |  | cost plus 10% |  |  |
| **7.3.17** | **D-DT-6086** | **Bus Coupler Type** |  |  |  |  |  |
| 7.3.17.1 |  | TBSC 80-127 | each |  | cost plus 10% |  |  |
| 7.3.17.2 |  | TBSC120-127 | each |  | cost plus 10% |  |  |
| 7.3.17.3 |  | TBFC 120-127 | each |  | cost plus 10% |  |  |
| **7.3.18** | **D-DT-6090** | **Compression Type** |  |  |  |  |  |
| 7.3.18.1 |  | TBCT 120/26 C1 0DG | each |  | cost plus 10% |  |  |
| 7.3.18.2 |  | TBCT 120/38 C1 0DG | each |  | cost plus 10% |  |  |
| 7.3.18.3 |  | TBCT 120/38 C2 0DG | each |  | cost plus 10% |  |  |
| **7.3.19** | **D-DT-6091** | **Compression Type** |  |  |  |  |  |
| 7.3.19.1 |  | TBCT 80/38 C2 | each |  | cost plus 10% |  |  |
| **7.3.20** | **D-DT-6093** | **Expansion Type** |  |  |  |  |  |
| 7.3.20.1 |  | TBFX 120-127FS 127PCD | each |  | cost plus 10% |  |  |
|  | | | |  |  |  |  |
| **Item 7D Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** |  |  |  |  |  |
| **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **7E** |  | **INSTALLATION OF EQUIPMENT cont.** | **Supply** | **Install** |
| **7.3.21** | **D-DT-6116** | **Tube Bus Coupler Type** |  |  |  |  |  |
| 7.3.21.1 |  | TBC 120/120 | each |  | cost plus 10% |  |  |
| **7.3.22** | **D-DT-6117** | **Bus Palm Tap-Off Type** |  |  |  |  |  |
| 7.3.22.1 |  | TBPT 80 | each |  | cost plus 10% |  |  |
| 7.3.22.2 |  | TBPT 120 | each |  | cost plus 10% |  |  |
| **7.3.23** | **D-DT-6118** | **Tube Sliding Support Type** |  |  |  |  |  |
| 7.3.23.1 |  | TBSS120/127 | each |  | cost plus 10% |  |  |
| **7.3.24** | **D-DT-6119** | **Tap –Off Compression Type** |  |  |  |  |  |
| 7.3.24.1 |  | TBTC 120/26 C1 | each |  | cost plus 10% |  |  |
| 7.3.24.2 |  | TBTC 120/38 C1 | each |  | cost plus 10% |  |  |
| **7.3.25** | **Non-Stock** | **Stud Mounted Expansion Type** |  |  |  |  |  |
| 7.3.25.1 | **McWade: C26103** | TBHXS 120/38 | each |  | cost plus 10% |  |  |
| **7.3.26** | **D-DT-8019** | **Transformer Clamp** |  |  |  |  |  |
| 7.3.26.1 |  | Black Polypropyline cable clamp | each |  | cost plus 10% |  |  |
| 7.3.26.6 | D-DT-6029s2 | CLAMP, F/SUPP 26.5mm KCP 26/127 | each |  | cost plus 10% |  |  |
| 7.3.26.7 | D-DT-6018s5 | CLAMP, B/COMP 26.5mm PALM 0DG SPC13 | each |  | cost plus 10% |  |  |
| 7.3.26.8 | D-DT-6006s2 | CLAMP, B/COMP 26.5mm-38mm 0DG KC2 | each |  | cost plus 10% |  |  |
| 7.3.26.9 | D-DT-6002s2 | CLAMP, CROSS  26.5mm - 26mm  K2 | each |  | cost plus 10% |  |  |
| 7.3.26.10 | D-DT 6115 | CLAMP,PEG AL CENT 26.5mm EPC-26 | each |  | cost plus 10% |  |  |
| 7.3.26.11 | D-DT-6018 | CLAMP B/COMP 26.5mm PALM 0DG EPC-A | each |  | cost plus 10% |  |  |
| 7.3.26.12 | D-DT-6018 | CLAMP B/COMP 26.5mm PALM 45DG EPC-B | each |  | cost plus 10% |  |  |
| 7.3.26.13 | D-DT-6119s1 | CLAMP, TUBE TAP-OFF TBTC120/C1-26 | each |  | cost plus 10% |  |  |
| 7.3.26.14 | D-DT-6006s6 | CLAMP, B/COMP 26.5mm-38mm 45DG KC6 | each |  | cost plus 10% |  |  |
| 7.3.26.15 | D-DT-6090s3 | CLAMP, T S/COMP TBCT-120/26C1 0DEG | each |  | cost plus 10% |  |  |
| 7.3.26.16 | D-DT-6116 | CLAMP, TUBE TBC 120/120 | each |  | cost plus 10% |  |  |
| 7.3.26.17 | D-DT-6118s1 | CLAMP, TUBE TBSS 120/127 | each |  | cost plus 10% |  |  |
| 7.3.26.18 | D-DT-6086s2 | CLAMP, BUS COUPLER TBFC120-127 | each |  | cost plus 10% |  |  |
| 7.3.26.19 | D-DT-6002s2 | CLAMP, CROSS 26.5mm-38mm K4 | each |  | cost plus 10% |  |  |
| 7.3.26.20 | D-DT-6006s1 | CLAMP, B/COMP 26.5mm – 26mm 0DG KC1 | each |  | cost plus 10% |  |  |
| 7.3.26.21 | D-DT-6002s3 | CLAMP CROSS 16.3mm – 38mm K3 | each |  | cost plus 10% |  |  |
| 7.3.26.22 | D-DT-6006s3 | CLAMP, B/COMP 38.3mm – 38mm 0DG KC3 | each |  | cost plus 10% |  |  |
| 7.3.26.23 | D-DT-6090s2 | CLAMP, S/COMP TBCT80/38/C1 0DG | each |  | cost plus 10% |  |  |
| 7.3.26.24 | D-DT-6086s3 | CLAMP, BUS COUPLER TBFC80-76 | each |  | cost plus 10% |  |  |
| 7.3.26.25 | D-DT-6086s1 | CLAMP, BUS COUPLER TBFC80-76 | each |  | cost plus 10% |  |  |
| 7.3.26.26 | D-DT 6119s3 | CLAMP, TUBE TAP-OFF TBTC80/C1-38 | each |  | cost plus 10% |  |  |
| 7.3.26.27 | D-DT-6006s4 | CLAMP B/COMP 38.3mm – 38mm 45DG KC4 | each |  | cost plus 10% |  |  |
| 7.3.26.28 | D-DT-6010s2 | CLAMP, T/COMP 38.3mm – 38.3mm 0DG TC10 | each |  | cost plus 10% |  |  |
| 7.3.26.29 | D-DT-6115 | CLAMP, PEG AL BULL 38.3mm EPC-38 | each |  | cost plus 10% |  |  |
| 7.3.26.30 | D-DT-6010s4 | CLAMP, T/COMP 16.3mm-38.3mm TC15 | each |  | cost plus 10% |  |  |
| 7.3.26.31 | D-DT-6099s1 | CLAMP T R12-19mm – T12-19mm UT2 | each |  | cost plus 10% |  |  |
| 7.3.26.32 | D-DT-3007 | CLAMP, THIMBLE CLEV A/ALLOY 40kN | each |  | cost plus 10% |  |  |
| 7.3.26.33 | D-DT 7009 | CLAMP, SUSP PIVOTED 25.0-40.0 M14 M6A | each |  | cost plus 10% |  |  |
| 7.3.26.34 | D-DT-6042s2 | CLAMP PISTOL 4B 30mm-40mm | each |  | cost plus 10% |  |  |
| 7.3.26.35 | D-DT-3007 | CLAMP, THIMBLE CLEV A/ALLOY 40kN | each |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **7.4** |  | **Stringing and Conductor** Supply, Transport to site and Install the following tube and conductor: |  |  |  |  |  |
| 7.4.1 | **D-DT-4323** | Aluminium Tube  12m x 120mm x 4mm for use on 132kV Busbar and Transverse Isolators | each |  | cost plus 10% |  |  |
| 7.4.2 | **D-DT-4802** | Aluminium Tube 12mx120mmx4mm (4.5 tubes=54m) Tube to be cut into lengths of 6m for use on 22kV Road crossing | each |  | cost plus 10% |  |  |
| 7.4.3 | **D-DT-4648** | Aluminium Tube12mx120mmx4mm. (1.5 tubes=18m) Tube to be cut into 2m lengths for use on 22kV busbar cable end support | each |  | cost plus 10% |  |  |
| 7.4.4 | **D-DT-3136** | Stringers and droppers – Bull | each |  | cost plus 10% |  |  |
| 7.4.5 | **D-DT-3136** | Stringers and droppers – Bull Insulated | m |  | cost plus 10% |  |  |
| 7.4.6 | **D-DT-3136** | Stringers and droppers – Centipede inclusive of vibration damping in tubes | m |  | cost plus 10% |  |  |
| 7.4.7 | **D-DT-3136** | Stringers and droppers – Hornet Insulated | m |  | cost plus 10% |  |  |
|  |  |  |  |  |  |  |  |
| **Item 7E Subtotal** | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** |  |  |  |  |  |
| **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **7F** | **2-NT/769 Sheet 4** | **INSTALLATION OF EQUIPMENT cont.** | **Supply** | **Install** |
| **7.5** |  | **Lighting/lightning masts:** Supply, Transport to site and Install the following equipment: |  |  |  |  |  |
| 7.5.1 | **D-DT-6105** | Lamp, Flood Light - 400W/230V HPS | each |  | cost plus 10% |  |  |
| 7.5.2 | **D-DT-6104** | Holder Floodlight Lamp - 400/250W  **Note:** All masts to be supplied complete with wiring and circuit breaker etc. | each |  | cost plus 10% |  |  |
| 7.5.3 | **D-DT-3128** | 1kV 4C 4SQ Cu BVX4ECV Cable | m |  | cost plus 10% |  |  |
| 7.5.4 | **D-DT-3070** | Cable Glands (Cable Gland Adjust No. 1) | each |  | cost plus 10% |  |  |
| 7.5.5 |  | Photo cell - Day night switch to be installed for all yard lights | each |  | cost plus 10% |  |  |
| **7.6** |  | **Pipe for Lighting:** Supply, Transport to site and Install the following equipment. |  |  |  |  |  |
| 7.6.1 | **D-DT-5217 Sheet 6** | PVC pipes, 50mm diameter (used in foundation, 3m per foundation) | m |  | cost plus 10% |  |  |
|  | | | |  |  |  |  |
| **Subtotal Item 7F** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** |  |  |  |  |  |
| **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
| **8** |  | **SUBSTATION FENCING** | **Supply** | **Install** |
| **8.1** | **D-DT-5237 sheet 1 & 2** | Supply, Transport to site and Install a new 2.4m Steel Palisade Fence | m |  | cost plus 10% |  |  |
|  |  | Supply, Transport to site and Install a new 2.4m Steel Clearview Fence | m |  | cost plus 10% |  |  |
| **8.2** | **D-DT-5237 Sheet 1** | Supply, Transport to site and Install double leaf gates (5m) | each |  | cost plus 10% |  |  |
|  |  | Supply, Transport to site and Install double leaf gates (5m) for Clearview | each |  | cost plus 10% |  |  |
| **8.3** | **D-DT-5237 Sheet 1** | Supply, Transport to site and Install a personnel gate | each |  | cost plus 10% |  |  |
| **8.4** | **0.54/398 rev. 9** | Supply, Transport to site and Install a new barbed wire boundary fence around the area provided for future expansion of the substation. | m |  | cost plus 10% |  |  |
| **8.5** | **0.54/398 rev. 9** | Supply, Transport to site and Install an insulating panel/fence. This is 4m of barbed wire boundary fence, using wooden poles for posts, between the substation fence and the normal barbed wire boundary fence, on both sides.  **Please Note:** This insulating fence should not be connected to, thus insulated from, the substation earth grid, the ground or the substation fence and should have gaps of 200mm between the substation fence and the wire mesh fence. | m |  | cost plus 10% |  |  |
| **Item 8 Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
|  | **Supply** | **Install** |
| **9** |  | **SUBSTATION LABELS AND SIGNS** |  |  |  |  |  |
| **9.1** | **D-DT-5047** | **Equipment Labelling** |  |  |  |  |  |
| 9.1.1 |  | Supply, Transport to site and Install outdoor equipment labels as specified in Volume 4, 2.5 page 23 – 25. | each |  | cost plus 10% |  |  |
| **9.2** | **D-DT-6114** | **Phase Labels** |  |  |  |  |  |
| **9.2.1** |  | Phase marker plate Blue/Red/White | each |  | cost plus 10% |  |  |
| **9.2.2** |  | Phase marker plate bracket | each |  | cost plus 10% |  |  |
| **9.3** |  | **Signs** Supply, Transport to site and Attach to Security Fence and Gates according to Eskom specification. Contractor to ensure that signs are attached at the correct positions / places. Refer to SCSASABK3 REV. 0 p.26 to 28 |  |  |  |  |  |
| 9.3.1 | **D-DT 6072** | Sign, ABC - Unauthorised Entry & Interfering | each |  | cost plus 10% |  |  |
| 9.3.2 | **D-DT-6073** | Sign, DE - Sign Fire First Aid | each |  | cost plus 10% |  |  |
| 9.3.3 | **D-DT 6074** | Sign, F - Prohibitive Fence and Gate | each |  | cost plus 10% |  |  |
| 9.3.4 | **D-DT-6075** | Sign, G - Hard Hat Area | each |  | cost plus 10% |  |  |
| 9.3.5 | **D-DT-5047** | Gate number 1 to 5 | each |  | cost plus 10% |  |  |
| 9.3.6 | **D-DT 6112** | Sign, DCSS 1 – Battery Room | each |  | cost plus 10% |  |  |
| 9.3.7 | **D-DT 6112** | Sign, DCSS 2 – Battery Cabinet | each |  | cost plus 10% |  |  |
| 9.3.8 | **D-DT 6112** | Sign, DCSS 3 – Combined Battery Room | each |  | cost plus 10% |  |  |
| 9.3.9 | **D-DT-6113** | Sign, GA 19 – Informative - Eye Wash | each |  | cost plus 10% |  |  |
| 9.3.10 | **D-DT-6113** | Sign, GA 20 – Informative – Emergency Shower | each |  | cost plus 10% |  |  |
| 9.3.11 | **D-DT-6113** | Sign, PV 5 – Drinking Water Prohibitive | each |  | cost plus 10% |  |  |
| **Item 9 Subtotal** | | | |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Price (R)** | **Rate** | | **Price (R)** |
|  | **Supply** | **Install** |
| **10** |  | **DISMANTLING** |  |  |  |  |  |
| 10.1 |  | Remove trench covers | m |  |  |  |  |
| 10.2 |  | Remove yard stone and set aside for re-use | m² |  |  |  |  |
| 10.3 |  | Remove cables | m |  |  |  |  |
| 10.4 |  | Demolish foundations and cart away | ea |  |  |  |  |
| 10.5 |  | Disassemble and remove steelwork | ea |  |  |  |  |
| 10.6 |  | Remove 11 -44kv S/arr, insulator, etc | ea |  |  |  |  |
| 10.7 |  | Remove 11 - 44kV CT, VT, small equipment | ea |  |  |  |  |
| 10.8 |  | Remove 11 - 44kV Breaker, NEC, large equipment (indoor breakers) | ea |  |  |  |  |
| 10.9 |  | Remove 66 - 132kV S/arr, insulator, etc | ea |  |  |  |  |
| 10.10 |  | Remove 66 - 132kV CT, VT, small equipment | ea |  |  |  |  |
| 10.11 |  | Remove 66 -132kV Breaker, Isolator large equipment | ea |  |  |  |  |
| 10.12 |  | Remove fence (gate included) | m |  |  |  |  |
| 10.13 |  | Dismantle transformer | ea |  |  |  |  |
| 10.14 |  | Remove Transformer bund wall | ea |  |  |  |  |
| 10.15 |  | Remove Transformer fire wall | ea |  |  |  |  |
| 10.16 |  | Lightning spike | ea |  |  |  |  |
| **Item 10 Subtotal** | | | |  |  |  |  |
| **11** |  | **OTHER ITEMS** |  |  |  |  |  |
| 11.1 |  |  | ea |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Note** |  |  |  |  |  |  |  |
| **Cost + 10% will be allowed for all supply items. Contractors will submit 3 quotations. Invoice+10% will be used when the contractor is paid.** |  |  |  |  |  |  |  |

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| --- |
| ***Preliminaries and General will be a percentage of the total task order given. This percentage will include:   - Site Establishment including 1x site office facility, 1 x storage facility, dining facility, His and Hers toilets, perimeter fence, drinkable water, electrical power supply, lighting and etc as per the requirement of OSH ACT85  - Site camps including reasonable shelter with sleeping and ablution facilities. NB camping tents are prohibited  - Company & head office overhead costs  - Contractual requirements  - Operation & maintenance of facilities  - Supervision  - Machinery hire purchase costs, transport cost to and from site.  - Assistance and arrangement with Eskom stores for transport and delivery of material  - Receiving, taking control and administering material.  - Cost for Compliance to Construction Regulations requirements as well as Cost for Compliance to the Health and Safety Specification, compiling a Health and Safety Plan, etc; Refer to Sections 2 and 3.  - Compliance to all Environmental requirements  - Removal of site establishment   NB - Eskom security will only be provided where Eskom material is stored.*** |
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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Provison of control Plant** | | | | |  | |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** | | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 1 | SANS | **PRELIMINARIES** |  |  |  |  |  |
|  | 1200A |  |  |  |  |  |  |
| **1.1** | **8.3** | **Eskom’s specific requirements** |  |  |  |  |  |
| 1.1.1 | 8.3.1 | Contractual requirements | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.1.2 | 8.3.2 | Establishment of facilities on site such as plant, sheds, water, electricity, Lighting, ect. | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.1.3 | 8.3.4 | Removal of site establishment | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| **1.2** |  | **Time Related** |  |  |  |  |  |
| 1.2.2 | 8.4.2 | Operation & maintenance of facilities | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.2.3 | 8.4.3 | Supervision | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.2.4 | 8.4.4 | Company & head office costs | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.2.5 | 8.4.5 | Security Services | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.2.7 |  | Accommodation | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.2.8 |  | Personnel transport | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| **1.3** |  | **Construction regulations:** |  |  |  |  |  |
| 1.3.1 |  | Construction regulations requirements | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.3.2 |  | SHEQ Compliance | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| 1.3.4 |  | HV Induction as per Eskom requirement | Percentage of Total Labour Cost | 1 | Not Applicable |  |  |
| **Subtotal carried to Summary** | | |  |  | % |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | **Proposed Rate** | |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| **2** |  | **YARD AC AND ACDC BOARDS** |  |  |  |  |  |
| **2.1** |  | Swing Frame top entry(2400 x 600 x 800mm) with Blanking plates | Ea | 1 | Not Applicable |  |  |
| **2.2** |  | YARD AC BOARD | ea | 1 | Not Applicable |  |  |
| **2.3** |  | ACDC MODULES | ea | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried to Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 3 |  | **DC Systems** |  |  |  |  |  |
| 3.1 |  | Sub Rack Battery Charger | ea | 1 | Not Applicable |  |  |
| 3.2 |  | 1.1kW SMR Module | ea | 1 | Not Applicable |  |  |
| 3.3 |  | Connector, cell inter-row type 1 | ea | 1 | Not Applicable |  |  |
| 3.4 |  | Terminating device | ea | 1 | Not Applicable |  |  |
| 3.5 |  | Cell, Batt | ea | 1 | Not Applicable |  |  |
| 3.6 |  | Stand, Batt | ea | 1 | Not Applicable |  |  |
| 3.7 |  | Battery Cabinet | ea | 1 | Not Applicable |  |  |
| 3.8 |  | Maintenance & Safety Kit | ea | 1 | Not Applicable |  |  |
| **Subtotal carried to Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** | | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| **4** |  | **TELECONTROL** |  |  |  |  |  |
| **4.1** |  | Power Supply Unit | ea | 1 | Not Applicable |  |  |
| 4.2 |  | RTU: Config | ea | 1 | Not Applicable |  |  |
| 4.3 |  | Swing Frame top/bottom entry | ea | 1 | Not Applicable |  |  |
| 4.4 |  | Additional Card/s | ea | 1 | Not Applicable |  |  |
| 4.5 |  | Install IDF Rack | ea | 1 | Not Applicable |  |  |
| 4.6 |  | Install RS485 convertor rack | ea | 1 | Not Applicable |  |  |
| 4.7 |  | Install RS485 convertor | ea | 1 | Not Applicable |  |  |
| 4.8 |  | Install RTU - IDF cables | ea | 1 | Not Applicable |  |  |
| 4.9.1 |  | Telecomms option: Digital area Radio QR450 | ea | 1 | Not Applicable |  |  |
| 4.9.2 |  | UHF Antenna CR400, Bracket | ea | 1 | Not Applicable |  |  |
| 4.9.3 |  | Coax Cable LMR400 20m | ea | 1 | Not Applicable |  |  |
| 4.9.4 |  | Connectors, Fly Lead | ea | 1 | Not Applicable |  |  |
| 4.9.5 |  | Comms survey, Install, Config, Commission | ea | 1 | Not Applicable |  |  |
|  |  | **Note:** |  |  |  |  |  |
|  |  | This will be done by Telecontrol personnel in the Zone. Any other option (Micro wave, Fibre, PLC etc) will be done by Eskom Telecomms. |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | **Proposed Rate** | |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** | | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| **5** |  | **MEASUREMENTS AND METERING TARIFF AND STATISTICAL** |  |  |  |  |  |
| 5.1 |  | Swing Frame top entry(2400 x 600 x 800mm) with Blanking plates | Ea | 1 | Not Applicable |  |  |
| 5.2 |  | Meter Module complete | ea | 1 | Not Applicable |  |  |
| 5.3 |  | QOS unikt VectoGraph | ea | 1 | Not Applicable |  |  |
| 5.4 |  | Voltage selection module | ea | 1 | Not Applicable |  |  |
| 5.5 |  | Power Meter Class 0.5 | ea | 1 | Not Applicable |  |  |
| 5.6 |  | Power Meter Class 0.2 | ea | 1 | Not Applicable |  |  |
| 5.7 |  | Trucom Smartoo GSM/GPRS Metering Modems | ea | 1 | Not Applicable |  |  |
| 5.8 |  | Modem module with trunking | ea | 1 | Not Applicable |  |  |
| 5.9 |  | Quality of Supply Module Complete | ea | 1 | Not Applicable |  |  |
| 5.10 |  | Interposing module | ea | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | **Proposed Rate** | |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 6 |  | **CABLES & ACCESSORIES** |  |  |  |  |  |
| 6.1 |  | **CABLES & ACCESSORIES** |  |  |  |  |  |
| 6.1.1 |  | Cable Glands - No.0 | Ea | 1 |  |  |  |
| 6.1.2 |  | Cable Glands - No.1 | Ea | 1 |  |  |  |
| 6.1.3 |  | Cable Glands - No.2 | Ea | 1 |  |  |  |
| 6.1.4 |  | Cable Glands - No.3 | Ea | 1 |  |  |  |
| 6.1.5 |  | Shroud for gland - No.0 | No | 1 |  |  |  |
| 6.1.6 |  | Shroud for gland - No.1 | No | 1 |  |  |  |
| 6.1.7 |  | Shroud for gland - No.2 | No | 1 |  |  |  |
| 6.1.8 |  | Shroud for gland - No.3 | No | 1 |  |  |  |
| 6.1.9 |  | **Consumables** |  |  |  |  |  |
| 6.1.10 |  | Cable Ties | per 100g | 1 |  |  |  |
| 6.1.11 |  | Lugs | per 100g | 1 |  |  |  |
| 6.1.12 |  | Bolts & Nuts | kg | 1 |  |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried Summary** | | |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 6 |  | **MV BUSBAR ARC PROTECTION UNIQUE CABLES** |  |  |  |  |  |
| 6.2 |  | **MV BUSBAR ARC PROTECTION UNIQUE CABLES** |  |  |  |  |  |
| 6.2.1 |  | 2 CORE SCREEN CABLES | M | 1 | - |  |  |
| 6.2.2 |  | 4PR FLEX CABLES | M | 1 | - |  |  |
| 6.2.3 |  | Install arc sensor/s to slave relays cables | M | 1 | - |  |  |
| 6.2.4 |  | Install arc sensors | Ea | 1 | - |  |  |
| 6.2.5 |  | Install slave relays | Ea | 1 | - |  |  |
|  |  | **Consumables** |  |  |  |  |  |
| 6.2.6 |  | Cable Ties | per 100g | 1 |  |  |  |
| 6.2.7 |  | Lugs | per 100g | 1 |  |  |  |
| 6.2.8 |  | Bolts & Nuts | kg | 1 |  |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  | **Proposed Rate** | |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 7 |  | **INSTALLATION OF EQUIPMENT AND CABLES**: |  |  |  |  |  |
| 7.1 |  | Installation Supervision / Authorised ORHVS person | Hrs | 1 | Not Applicable |  |  |
| 7.2 |  | Installation of Panels (Protection Panel) | Ea | 1 | Not Applicable |  |  |
| 7.3 |  | Assemble & install battery stand | Hrs | 1 | Not Applicable |  |  |
| 7.4 |  | Install and connect up battery charger | Hrs | 1 | Not Applicable |  |  |
| 7.5 |  | Install terminating devices | Hrs | 1 | Not Applicable |  |  |
| 7.6 |  | Install & Connect up Battery bank | Hrs | 1 | Not Applicable |  |  |
| 7.7 |  | Install safety signs | Hrs | 1 | Not Applicable |  |  |
| 7.8 |  | Install safety equipment rack | Hrs | 1 | Not Applicable |  |  |
| 7.9 |  | Installation of VT JB | Ea | 1 | Not Applicable |  |  |
| 7.10' |  | Installation of AC Distribution Board | Ea | 1 | Not Applicable |  |  |
| 7.11 |  | Installation of RTU | Ea | 1 | Not Applicable |  |  |
| 7.12 |  | Installation of Meter Module | Ea | 1 | Not Applicable |  |  |
| 7.13 |  | Install telecontrol cable (RS485) | Ea | 1 | Not Applicable |  |  |
| 7.14 |  | Install TPH10AX | Ea | 1 | Not Applicable |  |  |
| 7.15 |  | Install TPH25AX | Ea | 1 | Not Applicable |  |  |
| 7.16 |  | Install TPH50AX | Ea | 1 | Not Applicable |  |  |
| 7.17 |  | Install BVX04ECV | Ea | 1 | Not Applicable |  |  |
| 7.18 |  | Install BVX04HCV | Ea | 1 | Not Applicable |  |  |
| 7.19 |  | Install BVX04KCV | M | 1 | Not Applicable |  |  |
| 7.2 |  | Install BVX12DCV | M | 1 | Not Applicable |  |  |
| 7.21 |  | Install BVX19DCV | M | 1 | Not Applicable |  |  |
| 7.22 |  | Terminate & Ferule BVX04ECV | Ea | 1 | Not Applicable |  |  |
| 7.23 |  | Terminate & Ferule BVX04HCV | Ea | 1 | Not Applicable |  |  |
| 7.24 |  | Terminate & Ferule BVX04KCV | Ea | 1 | Not Applicable |  |  |
| 7.24 |  | Terminate & Ferule BVX12DCV | Ea | 1 | Not Applicable |  |  |
| 7.25 |  | Terminate & Ferule BVX19DCV | Ea | 1 | Not Applicable |  |  |
| 7.26 |  | Terminate & Ferule telecontrol cable (RS485) | Ea | 1 | Not Applicable |  |  |
| 7.27 |  | Terminate & Ferule TPH10AX | Ea | 1 | Not Applicable |  |  |
| 7.28 |  | Terminate & Ferule TPH25AX | Ea | 1 | Not Applicable |  |  |
| 7.29 |  | Terminate & Ferule TPH50AX | Ea | 1 | Not Applicable |  |  |
| 7.3 |  | Disconnection and Removal of Redundant Cables | M | 1 | Not Applicable |  |  |
| 7.31 |  | Excavation ,Open & Close Trenches | M | 1 | Not Applicable |  |  |
| 7.32 |  | Cable racks | M | 1 | Not Applicable |  |  |
| 7.33 |  | Brackets | Ea | 1 | Not Applicable |  |  |
| 7.34 |  | Trays | Ea | 1 | Not Applicable |  |  |
| 7.35 |  | Cable Labels | Ea | 1 | Not Applicable |  |  |
| 7.36 |  | Panel/JB Labels | Ea | 1 | Not Applicable |  |  |
| 7.37 |  | Installation of CT& OTHER JBs | Ea | 1 | Not Applicable |  |  |
| 7.38 |  | Removal of JBs | Ea | 1 | Not Applicable |  |  |
| 7.39 |  | Removal of cables | M | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| **Subtotal carried to Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 8 |  | **COMMISSIONING** |  |  |  |  |  |
| 8.1 |  | **XTMXXXX TRANSFORMER PROTECTION SCHEME** |  |  |  |  |  |
|  |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.1.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.1.2 |  | Check if HV Yard and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.1.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.1.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.1.5 |  | Test & check CT's and VT's | Hrs | 1 | Not Applicable |  |  |
| 8.1.6 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.1.7 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.1.8 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.1.9 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.1.10 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.1.11 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.1.12 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.1.13 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
| 8.1.14 |  | **Specialised Transformer Tests** |  |  |  |  |  |
| 8.1.15 |  | Tan Delta - CT's | Ea | 1 | Not Applicable |  |  |
| 8.1.16 |  | Tan Delta - VT's | Ea | 1 | Not Applicable |  |  |
| 8.1.17 |  | Tan Delta - HV/LV Windings | Ea | 1 | Not Applicable |  |  |
| 8.1.17 |  | Tan Delta - HV/LV Bushings | Ea | 1 | Not Applicable |  |  |
| 8.1.18 |  | Diverter Continuity | Ea | 1 | Not Applicable |  |  |
| 8.1.19 |  | Transformer Turns Ratio (TTR) | Ea | 1 | Not Applicable |  |  |
| 8.1.20 |  | Megger/Insulation Tests on Transfromer | Ea | 1 | Not Applicable |  |  |
| 8.1.21 |  | Open Circuit/Magnetising | Ea | 1 | Not Applicable |  |  |
| 8.1.22 |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.1.23 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.1.24 |  | Transformer Test Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.1.25 |  | CT Test Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.1.26 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.1.27 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.2 |  | **XFZDXXXX HV FEEDER PROTECTION SCHEME** |  |  |  |  |  |
| 8.2 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.2.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.2.2 |  | Check if HV Yard and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.2.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.2.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.2.5 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.2.6 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.2.7 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.2.8 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.2.9 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.2.10 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.2.11 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.2.12 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
| 8.2.13 |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.2.14 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.2.15 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.2.16 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
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|  |  |  |  |  |  |  |  |
| 8.3 |  | **XBZXXXX BUSBAR/BUSZONE PROTECTION SCHEME** |  |  |  |  |  |
| 8.3 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.3.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.3.2 |  | Check if HV Yard and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.3.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.3.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.3.5 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.3.6 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.3.7 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.3.8 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.3.9 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.3.10 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.3.11 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.3.12 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.3.13 |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.3.14 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.3.15 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.3.16 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.4 |  | **XRFXXXX MV FEEDER PROTECTION SCHEME** |  |  |  |  |  |
| 8.4 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.4.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.4.2 |  | Check if HV Yard and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.4.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.4.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.4.5 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.4.6 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.4.7 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.4.8 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.4.9 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.4.10 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.4.11 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.4.12 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
| 8.4.13 |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.4.14 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.4.15 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.4.16 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
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|  |  |  |  |  |  |  |  |
| 8.5 |  | **Other Schemes e.g Bus Coupler/Capacitor etc (where Applicable)** |  |  |  |  |  |
| 8.5 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.5.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.5.2 |  | Check if HV Yard and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.5.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.5.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.5.5 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.5.6 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.5.7 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.5.8 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.5.9 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.5.10 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.5.11 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.5.12 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
|  |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.5.13 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.5.14 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.5.15 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.6 |  | **MV Busbar Arc protection schemes** |  |  |  |  |  |
| 8.6 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.6.1 |  | Work Preparation | Hrs | 1 | Not Applicable |  |  |
| 8.6.2 |  | Check if MV Switchgear and Panel equipment are as specified | Hrs | 1 | Not Applicable |  |  |
| 8.6.3 |  | Ring Out and Check All Equipment | Hrs | 1 | Not Applicable |  |  |
| 8.6.4 |  | Check control cabling | Hrs | 1 | Not Applicable |  |  |
| 8.6.5 |  | DC tests for all indications and alarms | Hrs | 1 | Not Applicable |  |  |
| 8.6.6 |  | Relay, scheme & equipment testing | Hrs | 1 | Not Applicable |  |  |
| 8.6.7 |  | Overall functional testing | Hrs | 1 | Not Applicable |  |  |
| 8.6.8 |  | Polarities | Hrs | 1 | Not Applicable |  |  |
| 8.6.9 |  | Primary Injections | Hrs | 1 | Not Applicable |  |  |
| 8.6.10 |  | Mark-up Drawings as built | Hrs | 1 | Not Applicable |  |  |
| 8.6.11 |  | Commissioning report | Hrs | 1 | Not Applicable |  |  |
| 8.6.12 |  | Commissioning with primary voltage & current | Hrs | 1 | Not Applicable |  |  |
| 8.6.13 |  | **USE OF TEST EQUIPMENT** |  |  |  |  |  |
| 8.6.14 |  | 5kV Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.6.15 |  | Secondary Injection Set - 6 Phase | Hrs | 1 | Not Applicable |  |  |
| 8.6.16 |  | Primary Injection set | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| **8.7** |  | **DC Commissioning Costs** |  |  |  |  |  |
| **8.7** |  | **BATTERY (Nicad), BATTERY CHARGERS AND AC/DC BOARD INSTALLATION & COMMISSIONING** |  |  |  |  |  |
| **8.7** |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.7.1 |  | Work Preparation Time | Hrs | 1 | Not Applicable |  |  |
| 8.7.2 |  | AC / DC Board | Hrs | 1 | Not Applicable |  |  |
| 8.7.3 |  | Installation | Hrs | 1 | Not Applicable |  |  |
| 8.7.6 |  | Back Up Charger | Hrs | 1 | Not Applicable |  |  |
| 8.7.7 |  | Battery commissioning | Hrs | 1 | Not Applicable |  |  |
| 8.7.8 |  | Charger commissioning | Hrs | 1 | Not Applicable |  |  |
| 8.7.9 |  | Drawings | Hrs | 1 | Not Applicable |  |  |
| 8.7.10 |  | Report. | Hrs | 1 | Not Applicable |  |  |
| 8.7.11 |  | Decommissioning | Hrs | 1 | Not Applicable |  |  |
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|  |  |  |  |  |  |  |  |
| 8.8 |  | **SCASS COMMISSIONING COSTS** |  |  |  |  |  |
| 8.8 |  | **INSTALLATION & COMMISSIONING D20 RTU / I-BOX** |  |  |  |  |  |
| 8.8 |  | **LABOUR COSTS** | Hrs |  |  |  |  |
| 8.8.1 |  | Work Preparation Time | Hrs | 1 | Not Applicable |  |  |
| 8.8.2 |  | Installation of antenna and coaxial cable | Hrs | 1 | Not Applicable |  |  |
| 8.8.3 |  | Glanding and lugging | Hrs | 1 | Not Applicable |  |  |
| 8.8.4 |  | Installation of radio / modem | Hrs | 1 | Not Applicable |  |  |
| 8.8.5 |  | Termination of cables | Hrs | 1 | Not Applicable |  |  |
| 8.8.6 |  | Installation and cabling of door alarm | Hrs | 1 | Not Applicable |  |  |
| 8.8.7 |  | Jumpering of alarms on the IDF | Hrs | 1 | Not Applicable |  |  |
| 8.8.8 |  | Testing of flyleads | Hrs | 1 | Not Applicable |  |  |
| 8.8.9 |  | Creating of database | Hrs | 1 | Not Applicable |  |  |
| 8.8.10 |  | Pre-commissioning of D20 RTU | Hrs | 1 | Not Applicable |  |  |
| 8.8.11 |  | Testing of comms with SMART | Hrs | 1 | Not Applicable |  |  |
| 8.8.12 |  | Commissioning of D20 RTU | Hrs | 1 | Not Applicable |  |  |
| 8.8.13 |  | Commissioning of controls/alarms (1 feeder/NB) | Hrs | 1 | Not Applicable |  |  |
| 8.8.14 |  | Commissioning of controls/alarms ( 1 transformer) | Hrs | 1 | Not Applicable |  |  |
| 8.8.15 |  | Decommissioning of RTU (MRTU/Intrac) | Hrs | 1 | Not Applicable |  |  |
| 8.8.16 |  | Aligning radio and supplying test sheets | Hrs | 1 | Not Applicable |  |  |
| 8.8.17 |  | Records updating (CD and hard copy) | Hrs | 1 | Not Applicable |  |  |
| 8.8.18 |  | Filling (signed hand-over certificate, records, test sheets, commissioning sheets, list of defects, e.g. faulty batteries, etc.) | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.9 |  | **METERING & MEASUREMENTS COMMISSIONING COSTS** |  |  |  |  |  |
| 8.9 |  | **LABOUR COSTS** |  |  |  |  |  |
| 8.9.1 |  | Work Preparation Time | Hrs | 1 | Not Applicable |  |  |
| 8.9.2 |  | Check if yard and panel equipment are as specified. | Hrs | 1 | Not Applicable |  |  |
| 8.9.3 |  | Ring out and check all equipment. | Hrs | 1 | Not Applicable |  |  |
| 8.9.4 |  | Check cabling. | Hrs | 1 | Not Applicable |  |  |
| 8.9.5 |  | Test and check CT's and VT's. | Hrs | 1 | Not Applicable |  |  |
| 8.9.6 |  | Modem and antenna. | Hrs | 1 | Not Applicable |  |  |
| 8.9.7 |  | MV 90 commissioning | Hrs | 1 | Not Applicable |  |  |
| 8.9.8 |  | Meters | Hrs | 1 | Not Applicable |  |  |
| 8.9.9 |  | Drawings | Hrs | 1 | Not Applicable |  |  |
| 8.9.10 |  | Report | Hrs | 1 | Not Applicable |  |  |
| 8.9.11 |  | Commissioning with primary voltage and current. | Hrs | 1 | Not Applicable |  |  |
| 8.9.12 |  | Decommissioning | Hrs | 1 | Not Applicable |  |  |
| 8.9.13 |  | Additional wiring | Hrs | 1 | Not Applicable |  |  |
| 8.9.14 |  | Insulation test all cables | Hrs | 1 | Not Applicable |  |  |
| 8.9.15 |  | Primary injections - test and check VT's and CT's | Hrs | 1 | Not Applicable |  |  |
| 8.9.16 |  | Configure and calibration of meters and transducers | Hrs | 1 | Not Applicable |  |  |
| 8.9.17 |  | Installation of meters and transducers | Hrs | 1 | Not Applicable |  |  |
| 8.9.18 |  | Secondary injections | Hrs | 1 | Not Applicable |  |  |
| 8.9.19 |  | Drawings. | Hrs | 1 | Not Applicable |  |  |
| 8.9.20 |  | Report. | Hrs | 1 | Not Applicable |  |  |
| 8.9.21 |  | Commissioning with primary voltage and current. | Hrs | 1 | Not Applicable |  |  |
| 8.9.22 |  | Decommissioning | Hrs | 1 | Not Applicable |  |  |
| 8.9.23 |  | Test equipment - Insulation Tester | Hrs | 1 | Not Applicable |  |  |
| 8.9.24 |  | Test Equipment - Secondary Injection Set | Hrs | 1 | Not Applicable |  |  |
| 8.9.25 |  | Test Equipment - Primary Injection Set | Hrs | 1 | Not Applicable |  |  |
|  |  |  |  |  |  |  |  |
| 8.10 |  | **GENERAL AND CONTINGENCY** |  |  |  |  |  |
|  |  | **MATERIAL & LABOUR COSTS** |  |  |  |  |  |
| 8.11 |  | Foam to fill control room holes | m2 | 1 |  |  |  |
| **Subtotal carried to Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 9 |  | **TRANSPORT** |  |  |  |  |  |
| 9.1 |  | Transport of New Equipment | km | 1 | Not Applicable |  |  |
| 9.2 |  | Removal of all redudant secondary material | km | 1 | Not Applicable |  |  |
| 9.3 |  | Contingency travel - as agreed with designer or PC (LDV) | km | 1 | Not Applicable |  |  |
| **Subtotal carried to Summary** | | |  |  | R |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** |  | **Price ®** |
|  |  |  |  |  | **Suppl** | **Inst** |
| 10 |  | **Miscellaneous materials** |  |  |  |  |  |
| 10.1 |  | Summary from Proposed Misc Service |  | 1 | Not Applicable |  |  |
| **Subtotal carried to Summary** | | |  |  | R | R - |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item No.** | **Refer** | **Description of the item** | **Unit** | **Qty** | **Rate** | **Price ®** |
|  |  |  |  |  | **Supply** |
| 10.1 |  | Cable labels ( Aluminium numbers) | ea |  |  |  |
| 11.1 |  | Panel labels | ea |  |  |  |
| 12.1 |  | Tbrackets | ea |  |  |  |
| 13.1 |  | WM50 50mm x 3m W/MESH 50/50 HEX GALV | ea |  |  |  |
| 14.1 |  | WM50 100mm x 3m W/MESH 50/50 HEX GALV | ea |  |  |  |
| 15.1 |  | M8 Hold down clamp solid 2mm PG | ea |  |  |  |
| 16.1 |  | Wire mesh splice clamp set | ea |  |  |  |
| 17.1 |  | CS 1 M12 SPRING NUT LONG GALV | ea |  |  |  |
| 18.1 |  | M12 X30 HEX Set Screws Galv | ea |  |  |  |
| 19.1 |  | CS1000 5M Channel Pre Galv | ea |  |  |  |
| 20.1 |  | CS254 STAGG 650MM C/LEVER ARM HDG | ea |  |  |  |
| 21.1 |  | WM75 600MM H/DUTY W/MESH HOR BEND | ea |  |  |  |
| 22.1 |  | M10X75MM RAWL BOLTS | ea |  |  |  |
| 23.1 |  | M8X40 HEX SET SCREWS GALV | ea |  |  |  |
| 24.1 |  | CS76 800MM X 3M LADDERRACK HDG | ea |  |  |  |
| 25.1 |  | CL76 L/RACK SPLICE SET HDG | ea |  |  |  |
| 26.1 |  | WM75 600MM X 3M W/MESH 100/50 HEX GALV | ea |  |  |  |
| 27.1 |  | GS75 600MM H/DUTY HOR BEND 100/50 HXG | ea |  |  |  |
| 28.1 |  | CS 1 M10 SPRING NUT LONG GALV | ea |  |  |  |
| 29.1 |  | CS254 STAGG 650MM C/LEVER ARM HDG | ea |  |  |  |
| 30.1 |  | Marker Helagrip 2.0 - 5.0mm Yellow Marker Kit A - Z ( 500 units of each letter) | ea |  |  |  |
| 31.1 |  | Marker Helagrip 2.0 - 5.0mm Yellow Marker Kit 0 - 9 ( 500 units of each number) | ea |  |  |  |
| 32.1 |  | Terminal Preinsulated Yellow Lip Blade 4.6w | pkt |  |  |  |
| 33.1 |  | Terminal Preinsulated Blue Lip Blade 4.6 | pkt |  |  |  |
| 34.1 |  | Terminal Preinsulated Yellow Ring 6.0mm | pkt |  |  |  |
| 35.1 |  | Terminal Preinsulated Blue Ring 6.0mm | pkt |  |  |  |
| 36.1 |  | Control Plant labels (smaller) |  |  |  |  |
| 37.1 |  | 185x93mm | ea |  |  |  |
| 38.1 |  | 197x93mm | ea |  |  |  |
| 39.1 |  | 80x93mm | ea |  |  |  |
| 40.1 |  | 67x12mm | ea |  |  |  |
| 41.1 |  | 119x93mm | ea |  |  |  |
| 42.1 |  | 350x36mm | ea |  |  |  |
| 43.1 |  | 50x12mm | ea |  |  |  |
| 44.1 |  | 155x93mm | ea |  |  |  |
| 44.2 |  | GP Wire 16mm | m |  |  |  |
| 44.3 |  | Other (as per invoice amount) | Item |  |  |  |
| **Subtotal carried to Summary** | | |  |  |  |  |

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| --- | --- | --- |
|  |  |  |
| **Item** | **Description of the item** | **Total** |
| 1 | PRELIMINARIES | **0%** |
| 2 | YARD AC AND ACDC BOARDS | **R -** |
| 3 | DC SYSTEMS | **R -** |
| 4 | TELECONTROL | **R -** |
| 5 | MEASUREMENTS AND METERING TARIFF AND STATISTICAL | **R -** |
| 6.1 | CABLES & ACCESSORIES | **R -** |
| 6.2 | MV BUSBAR ARC PROTECTION UNIQUE CABLES | **R -** |
| 7 | INSTALLATION OF EQUIPMENT AND CABLES: | **R -** |
| 8 | COMMISSIONING | **R -** |
| 9 | TRANSPORT | **R -** |
| 10 | MISCELLANEOUS MATERIAL | **R -** |
|  | **Total Excluding VAT** | **R -** |

**Part 3: Scope of Work**

|  |  |  |
| --- | --- | --- |
| **Document reference** | **Title** | **No of pages** |
|  | This cover page | 1 |
| C3.1 | *Employer*’s Works Information | 20 |
| C3.2 | *Contractor*’s Works Information  (insert at award stage or delete if not applicable) | 1 |
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|  | Total number of pages |  |

**C3.1: Employer’s works Information**

**PRODUCT/SCOPE OF WORK/WORKS INFORMATION KNOWLEDGE**

**3.1 Civil works**

All work covered in this Activity Stage to be in strict accordance with specifications and technical requirements in the detail design and attached CIVIL SCOPE document.

**3.2 Substation Platform**

All work shall be done according to the civil design and detail drawings with the following minimum requirements. Depth dimensions (\*) listed below are for this tender purpose only.

• The contractor shall remove and grub all trees and tree stumps to SANS 1200C 8.3.1.1 in the platform area.

• The contractor shall excavate soil to a depth of 1500mm (\*) and stockpile the material for re-use.

• The excavations must be battered to a slope of 60 degrees.

• The contractor shall rip and re-compact the in-situ layer under the excavated area to 90% MOD AASTHO.

• The contractor shall backfill to final platform level using excavated material, in 150mm layers and compacted to 93% MOD AASHTO density at optimum moisture content.

• All the compaction must be carried out to the satisfaction of the engineer.

• The contractor shall remove all the excavated material.

• The contractor shall supply, transport, deliver and install any additional material required.

• All work and quantities will re-measured after installation.

**3.3 Substation Road**

All work shall be done according to the civil design and detail drawings with the following minimum requirements. All material to be supplied transported and installed by the contractor.

• The contractor shall remove and grub all trees and tree stumps to SANS 1200C 8.3.1.1 in the road area.

• Substation road shall be 3.5 m wide and 200mm higher than finished ground level unless otherwise stated.

• The contractor shall excavate soil to a depth of 300mm (or as per civil design) and stockpile the material for re-use.

• The excavations must be battered to a slope of 60 degrees.

• The contractor shall rip and re-compact the in-situ layer under the excavated area to 90% MOD AASTHO.

• The contractor shall backfill to 200 mm below final road level using excavated material, in 150mm layers and compacted to 93% MOD AASHTO density at optimum moisture content.

• The contractor shall backfill the final 200 mm with minimum G 6 material with a 50 mm camber allowing for water run-off.

• All the compaction must be carried out to the satisfaction of the engineer.

• Contractor shall construct install a gate ramp as per 2 NT-792.

• The contractor shall supply, transport, deliver and install any additional material required.

• The contractor shall remove all the access excavated material.

• All work and quantities will re-measured after installation.

**3.4 Storm Water Drainage**

All work shall be done according to the civil design and detail drawings 2 ET-15020 SHTS 1-10 with the following minimum requirements.

• Minimum 300 mm concrete pipes to be used.

• Pipes to be installed with a minimum gradient of 1:100.

• All pipe entries to have sand trap as per 2 ET-15020 S 10.

• All drainpipes exist to have a spillway that will prevent local erosion.

• All storm water culverts must have a concrete verge on either side minimum 200 mm higher than the road.

• All work must be carried out to the satisfaction of the engineer.

• All work and quantities shall be re-measured after installation.

• Construct V-drain (earth drain) to disperse surface water (2m wide x 500mm deep)

• Construct Manhole according to civil design drawing

• Install dump rock into sump

**3.5 Stone Verge Curbing**

The setting out, excavations, removal of excavated material, casting and curing of concrete and the complete construction of stone verge curbing around the substation as indicated on layout drawing

2ET-15020S9.

The following specifications shall be adhered to:

• Kerbing shall be placed 1.2 m outside the security fence.

• Pre-cast concrete road curbing blocks (353 x 380 mm) stone verge kerbing to be supplied and installed.

• Kerbing can be cast in-situ and shall not exceed 6 m in length.

• Kerbing shall be 150 mm above final prepared platform level.

**3.6 Yard Stone**

The contractor shall supply, transport and spread 26 – 38 mm yard stone evenly 100mm thick. A sample of the stone must be supplied to the design engineer for approval. (yard stone shall have a minimum resistivity of 3000Ωm).

**3.7 Weed killer**

• Contractor shall appoint an accredited Herbicide Specialist/Pest Control Operator to apply an approved weed killer after the installation of the yard stone.

• Contractor must provide the certificate to the COW for record keeping.

**3.8 Cable Trenches and Concrete Runway**

The contractor shall set out, excavate and construct the cable trenches and cable trench road crossings according to detail drawing 2 ET-14911.

• Contractor shall install 5500mm x 250mm thick reinforced concrete runway as detailed on drawing (excludes Transformer Slip Ways) Reinforce concrete at cable trench crossings. Connect reinforcement to earth grid as per D-DT-5240s10

• Contractor shall install 4500mm x 3000mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10.

• Contractor shall install 7500mm x 3000mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10.

• Contractor shall install 6800mm x 4500mm x 300mm thick reinforced concrete slipways. Reinforcing to be mesh according to table A, D-DT-5232. Connect reinforcement to earth grid as per D-DT-5240s10.

• Cable trench concrete ramp to cross 1.2m wide cable trench.

• Concrete ducts and concrete culverts shall be done by the contractor.

**3.9 Control Room**

• All work in this activity stage to be done in accordance with the relevant layout drawings

• All setting-out and levels to be done by contractor.

• The setting out, excavations, formwork, complete casting and curing of 30 MPa concrete for “Type 1” strip foundations for the control building to detail drawing

• The floor shall be 100 mm in thickness and of 30 MPa strength after 28 days. Floor hardener shall be applied across entire floor as per specifications found on 2ET-14904.

• A loading bay/ramp shall be built at the control building entrance. The door ramp shall have a uniform slope. The grano steps shall be built to the detail drawing.

• An Enviro Loo toilet shall be constructed with the entrance door in the foyer. The contractor must arrange for the Enviro Loo supplier to inspect the installation and provide a compliance certificate for the Enviro Loo installation.

• The setting out and complete brick work for control building as per detail drawing 2 ET-14904 No inferior brick work will be accepted. Mortar, pips and joints shall be neatly cleaned and brick work shall be spaced 10 mm. The walls on the inside of the foyer shall have a face brick finish. Mortar mix shall be 1:4 as per standard. The mix shall be free of debris, including grass, stones and glass.

• A flat ceiling shall be installed with a trap door as per detail drawing 2 ET-14904. The ceilings shall be painted. Paint to be supplied by the contractor.

• All roof trusses shall be timber, SA Pine grade M6 at 1000 mm centres. 76 mm x 50 mm purloins at 1200 mm centres shall be used to support 0.6 mm Chromadeck IBR roof sheeting as per 2 ET-14904.

• All Barge boards, Facias and Gutters with downpipes shall be manufacture from 0.6 mm Chromadeck sheeting.

• A concrete apron 1000mm wide with expansion joints at max 3 m intervals shall be casted against all outside walls with a slope away from the building.

• The cable entry shall be at the top of the control building. The specified cable tray shall be installed on the outside leading to the inside of the building. The contractor shall properly slope the cable rack that leads out of the cable trench so as not to damage the control cables.

• After all cables have been installed, 10 mm Nu-tech fibre cement boards shall be used to cover the cable rack on the outside of the control building. The board shall be fixed to the brick work with brass screws and cupped washers. The barge board shall be bolted in 600 mm sections and shall extend from the top of the cable trench, adjacent to the control building, to the top of the building, just underneath the roof overhang.

• The contractor shall build a cable duct for the cable rack where the cables enter the building.

• The Contractor’s selection of the face bricks for the control building must be the same as the transformer bud walls and must be discussed with the Project Engineer prior to the purchasing thereof.

• The electrical installations in the building shall comply with SANS 0142.

• The installation shall be done by a certified electrical contractor/ certified electrician.

• Control rooms will comply with the application of emergency lights in distribution substation buildings (240-76628619).

• The contractor shall supply, transport and deliver a steel table & lockable steel earthing lead cabinet manufacture according to 2ET-14904 sheet 5, and 1 x pin board, D-DT-6100, to the building. The pin board shall be mounted inside the building.

• The Whirlybird type extractors shall be installed as per detail drawing 2 ET-14904.

• Supply and install split unit Air Con/s of sufficient capacity for cooling of the control room and battery room.

• The contractor will supply and install the “O-line” cable rack as per detail drawing 2 ET-14904.

• The contractor shall supply and install all water supply requirements including taps, pipes and water tank as per 2ET-14904, the water tank may be omitted if a municipal water connection is available.

• The contractor shall supply and install 2 x steel security doors as per detail drawing 2 ET-14904 Sheet 3.

• The contractor shall supply and install all windows and doors complete with frames as per 2 ET-14904.

• The contractor shall supply, transport, deliver and install any additional material required.

**3.10 Oil Holding Dam**

The contractor shall set out, excavate, supply, transport and construct the complete oil holding dam to

2 ET-14934 with the respective 300 mm concrete pipes, manholes, oil trap/filter, pump and barrier around the dam.

• The contractor shall set out and excavate the oil holding dam to 2 ET-14934.

• Supply and install 300mm diameter concrete pipes complete with interlocking joints.

• Supply and install manhole for 300mm diameter concrete pipes with smooth bends to 2 NT-802.

• Construct oil holding dam complete with drainage pump and cover to 2 ET-14934.

• Supply and install an oil trap/filter in series with the dam to DDT-5241.

• Supply and install barrier around oil holding dam.

**3.11 Security Fencing**

• The contractor shall supply, transport, install and erect the electrified steel palisade security fence according to 2 ET-14899.

• The contractor shall excavate and cast the anti-dig beam underneath the steel palisade fence.

• The contractor shall install earth connections to the steel palisade fence as per 2 ET-14899.

• The complete assembly and erection of the Electrified substation security Palisade fence and gates.

• The contractor shall supply, transport, set out, install and erect the steel palisade fence complete with concrete anti-dick beam underneath.

• The contractor shall supply, transport, install and erect 1 m steel palisade personnel gate and 5 m sliding gates as per detail drawing 2 ET-14899.

• The contractor shall provide a quotation and specification for the electrified fence to the engineer to approve before ordering commences then install the complete electrified fence on the inside of the steel palisade fence.

• Contractor shall supply and install diamond mesh fence

• Contractor shall supply and install barbed wire

• Install razor wire

**3.12 Signs & Labels**

The contractor shall supply, transport and install all the signs and notices to the substation fence, gates and building:

• Unauthorised Entry – D-DT-5015 (To be mounted on the fence, not more than 20 m apart and on all gates).

• First Aid & Procedure in case of fire – D-DT-5016 (To be on building door).

• Prohibitive (various) - D-DT-5017 (To be on building door and all gates).

• Hard Hat signs.

• All signs to be installed on the fence at intervals not exceeding 20m.

• Specification for control panel labels and cable markers - DSP 34-1513.

• The contractor shall supply, transport and install all the equipment labels, frames and mounting brackets to labels the substation equipment

In the event of the Contractor not pricing the items of the Substation Cable Trenches Activity in sufficient detail, the Employer reserves the right to exercise its own discretion in the apportionment to individual items of the total activity prices within the contract documents.

**3.13 Equipment Support foundations**

All work covered in this Activity Stage to be in strict accordance with specifications in detail drawings

2 ET-14891 and the relevant detail drawings, as listed below.

• The Contractor shall be responsible for setting out, excavation, removal of excavated material, shuttering, reinforcing, holding down bolts, earthing straps, concrete, casting, curing and finishing of all foundations.

• All concrete shall have a minimum strength of 25 MPA after curing for 28 days.

• The contractor shall arrange with the COW for inspection before concrete casting can commence.

• The contractor shall retain a copy of the inspection certificate signed by the COW.

**3.14 Retaining Walls and Embankments**

The contractor shall supply, transport, material, reinforcing, shattering, prefabricated systems and concrete needed then install the retaining walls embankment as per detail design.

**3.15 Heavy Duty Paving**

All Heavy duty Paving will be done with 80 mm thick interlocking type paving bricks with a curbing protection on edges not boxed in by casted concrete plinths to carry 11ton axle load. See drawing 2-ET/149.

• The contractor shall excavate soil to a depth of 300mm (or as per civil design) and stockpile the material for re-use.

• The excavations must be battered to a slope of 60 degrees.

• The contractor shall rip and re-compact the in-situ layer under the excavated area to 90% MOD AASTHO.

• The contractor shall backfill in 200 mm layers final road level using imported material to 93% MOD AASHTO density at optimum moisture content.

• The contractor shall supply, transport, deliver and install any additional material required.

**3.16 Sub-surface drainage**

All sub-surface drainage systems will be installed as per civil design drawing unless otherwise specified.

**3.17 Substation Earth Grid, Equipment, Plant and Cables Earthing**

• Main earth grid shall be done with 10 mm round copper rod.

• Equipment earthing is done through the M24 support foundation holding down bolts with 50 x 3 mm flat copper.

• Main transformer earthing is done through 4 x M27 holding down bolts in the 4 corners of each transformer plinth.

• Transformer tank is earthed through 4 x 80 x 6mm galvanised straps.

• The Contractor shall ensure that all the earth grid conductors are located as indicated on the drawing.

• The contractor shall set out and excavate 1m deep earth grid trenches for the installation of the substation earth grid conductors.

• The main earth mat conductors shall be brazed, as per detail drawing D-DT-5240 SHT 2.

• Brazed connections shall be used to connect the equipment 50 x 3mm flat copper strap to the 10 mm round copper main earth grid.

• The contractor shall connect each control panel that will be provided with a 40 mm x 3 mm copper earth bar with one earth connection terminal suitable for a 120 mm stranded or a 12mm diameter solid copper earth strap.

• All metal components of panel, doors, control devices and all relay frames shall be effectively connected to this earth bar by means of green 2.5 mm PVC insulated earth conductor.

• All spare cores not used on cables should be earthed at one side of the cable with a green 2.5 mm PVC insulated earth conductor.

• The control plant equipment shall be earthed according to the standard (240-64100247).

• The contractor and COW must inspect, photograph and sign off all earth connections made through the support foundation holding down bolt.

• The contractor shall keep a physical record of all bolted and braced connections made.

**3.18 Lightning and Lighting Masts**

The contractor shall supply, transport, install and erect the masts according to specified design.

Lightning mast used for mounting yard lighting and lightning protection must be earthed with 50 x 3 mm flat copper strap through the holding down bolts, similar to the equipment support steel.

In the event of the Contractor not pricing the items of the Substation Earth Mat and Earthing Activity in sufficient detail, the Employer reserves the right to exercise its own discretion in the apportionment to individual items of the total activity prices within the contract documents.

**3.19 Erection of Steel**

• Contractor will supply and transport all substation steelwork bolts, nuts and washers to the site.

• All Steel will be hot dipped galvanised for protection against rust.

• The contractor shall erect all steel as per detail drawings for the respective structures.

• The contractor will ensure that once erected all are secure, plumb and level.

• The contractor will assemble all steel with the correct size bolts, flat washers and if required spring or taper washers and nuts.

Steelwork could be for the following:

• Lattice equipment support steel.

• Tubular equipment support steel.

• Box Structure Column and Beam Steel.

• Lattice Column and Beam Steel.

**3.20 Erection of Substation Equipment**

• Eskom or the Contractor will supply and transport all equipment to the site.

• All equipment erection will be done by proper trained staff.

• The contractor will provide proof of training for his staff that does the equipment erection.

• The contractor shall erect HV & MV equipment which include but not limited to Isolators, Breakers, transformers, etc. according to the design, but final adjustment must be done by Eskom PPM department.

• The contractor must arrange with the PPM specialist department for final adjustment of this equipment.

Substation equipment includes:

• HV & MV Isolators.

• MV Knife Links.

• HV & MV Post type CT’s.

• HV & MV Post type VT’s.

• HV & MV Breakers.

• MV Kiosk Type Breakers.

• HV & MV Station Glass Surge Arresters.

• Re-closers.

• NECRT’s.

• HV & MV Post insulators

• HV & MV Cable ends

**3.21 Insulators**

• Station Post Insulators used in the substation will be the station type that bolts down or pin type used on the MV for jumper supports or on the Steel Box by-pass bus bar.

• Long Rod Strain Insulators are used for bus bar suspension or stringing in the strain mode.

• The contractor shall ensure that these insulators are managed with care and installed correctly.

**3.22 Bus Bars and Conductors**

• All bus bars and conductors will be All Aluminium Alloy.

• The contractor will at all times make sure that tubes and conductors are used in an economical way.

• All access material must be retained and returned to store.

• Conductors are mainly used as jumper between equipment or between bus bar & equipment.

• Tubular Aluminium bus bars (80 x 8 mm & 120 x 4 mm).

• Conductor Stringing (Hare, Hornet, Centipede and Bull).

**3.23 Clamps**

• The contractor or Eskom will supply and transport all clamps to the site.

• The contractor shall first prepare the clamp connection interface and apply non-oxide paste before installing the clamp.

• The contractor shall torque all bolts to the correct torque for the respective bolt size as listed in the design documentation.

• The contractor shall use the correct dies with the compression or crimping tool to either compress or crimp the respective clamps and lugs.

* Bolted/bolted- Current Carrying Clamps.
* Bolted/compression - Current Carrying Clamps.
* Strain Clamp.
* Suspension Clamps.
* Tubular Clamps.
* Lugs.

**3.24 Control Cables**

• The contractor or Eskom will supply and transport all cables to the site.

• The contractor shall supply, transport, off load and install and secure all cables complete with cable glands, shrouds, cable numbers, cable core numbers and lugs.

• All cable terminations and wiring shall be done as per the latest Eskom specifications and drawings.

• Determine the correct position for the conductor drum stations.

• Place the correct cable for the task on the jacks/trestles with the vehicle mounted crane. Refer to the cable block diagrams.

• Run out cable to correct allocations making use of the cable block and station electric diagrams.

• Run out of cable will be done manually.

• Cut cable and apply the cable number on both ends.

• Measure cable at the entry points of electrical equipment as well as the control panel and mark.

• Select the correct cable gland and shroud for the cable.

• Making use of a hacksaw cut the wire armouring on the cable.

• Making use of a cable knife cut and removes the pvc covering on the cable.

• Remove the wire armouring

• Apply the correct shroud

• Apply and secure the cable gland on cable

• Select the correct cable knockout at the control panel or at the equipment mechanism box and secure the cable locking nuts

• Remove the inner pvc layer from the cable strands exposing the individual strands of conductor.

• Making use of the cabling drawings cable strands must be numbered and terminated to the correct termination blocks in the panels as well as at the equipment.

• When working on live panels, permission needs to be obtained from the client, in writing, before any work can commence.

• Where needed, a ‘risk of trip’ notification needs to be sent to control, notifying them of the scope, specific panel and time of the work.

• Where needed, an Authorized or Responsible person in terms of the ORHVS will need to be present in order for work to commence.

• When working in live panels, no connections may be done by contractor, as this very dangerous. This means that, in live panels, the cable can be glanded, installed, wires prepared for termination and lugged, but cannot be connected.

• All work in live panels will be done under direct supervision of the contractor supervisor and representative of the client.

• Process.

* Ring out all cable conductors to zero potential making sure that the cable is electrically isolated.
* Ring out and number all strands
* Graffoplast identification tags and sleeves to be used for cable strand identification.
* Apply the correct JST double crimping lug and crimp with the correct JST cable lug crimper.
* 4mm lug use the yellow 4 mm JST crimping tool.
* 2.5mm lug use the blue 2.5mm JST crimper
* 1.5mm lug make use of the 2.5mm red JST crimper.
* Place the lug in the terminal provided and secure.

• Follow specifications for power and control cable with rated voltage 600/1000V (ESP 32-1272).

**3.25 MV Power Cables**

• The contractor or Eskom shall supply the 11, 22 or 33 kV cable and all materials related to the laying, strapping, securing, earthing, jointing, termination and connecting of such cable.

• The contractor shall excavate in all materials 1 m deep, supply material, river sand, barricading, shuttering, tape, backfill and compact to install such MV cable.

• The contractor shall test the installation and provide a test certificate to that.

**3.26 Control Relays and Panels**

• Eskom will supply all control panels and relays.

• The secondary plant (Protection, Telecommunications, Scada and Control) shall be supplied and commissioned by Eskom. All respective suppliers will tests their panels before commissioning.

• The contractor shall transport, off load, install, secure, earth and wire all to the latest Eskom standard and the drawings provide for the project.

• The contractors will close all open spaces on panels with blanking plates.

• The contractors will close off all the holes on the grand plates not used.

• Use specifications for VRW20 junction boxes (DSP 34-396).

Panels could be:

* Control panels.
* Metering panels.
* Battery Charger.
* Tripping unit.
* AC/DC panels.
* Yard AC boxes.
* RTU and IDF.
* Junction Boxes.

**Interpretation and terminology**

The following abbreviations are used in this Works Information:

|  |  |
| --- | --- |
| **Abbreviation** | **Meaning given to the abbreviation** |
| HV | High Voltage |
| LV | Low Voltage |
| PM | Project Manager |
| CPE | Contract Project Engineer |
| CPM | Contract Project Manager |
| EMPr | Environmental Management Program |
| PE | Project Engineer |
| PES | Project Engineer Specialist |
| FDP | Final Design Package |
| T&Q | Technology and Quality Department - Eskom |

**Management and start up.**

**Management meetings**

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as per the following example: (**As per Task Instruction/FDP)**

|  |  |  |  |
| --- | --- | --- | --- |
| Title and purpose | Approximate time & interval | Location | Attendance by: |
| Risk register and compensation events | Weekly on \_\_\_\_\_\_\_\_ at \_\_\_ |  |  |
| Overall contract progress and feedback | Monthly on \_\_\_\_\_ at \_\_\_ |  | *Employer*, *Contractor*, *Supervisor*, and \_\_\_ |
|  |  |  |  |
|  |  |  |  |

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the *works*. Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

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

**Documentation control**

All contractual communications will be in the form of properly compiled letters or forms attached to e mails and not as a message in the e-mail itself.

**Health and safety risk management**

PLEASE ALSO READ CORE CLAUSE 27.4 TOGETHER WITH Z7 IN THE ADDITIONAL CONDITIONS OF CONTRACT TO MAKE SURE THAT WHATHEVER IS INCLUDED IN THE ANNEXURE FOLLOWS ON FROM THOSE CLAUSES.

No work to commence without a signed project specific safety file

The Commodity Manager / Buyer must refer the tender to the Divisional/Regional Safety Risk Manager or his representative in order to evaluate against enquiry-specific safety criteria.

The Divisional Safety Risk Managers who will be responsible for the allocation of resources to assist P&SCM with the above processes are as follows:

· Generation:

· Transmission: Tony Patterson

· Distribution: Roley McIntyre c/o Solomon Ndubane

· Enterprises: Jace Naidoo

· Corporate: Kerseri Pather

The *Contractor* shall comply with the health and safety requirements contained in Annexure Site Specific Health and Safety Specification of the Eskom Mpumalanga Operating Unit attached to this Works Information.

**Environmental constraints and management**

The *Contractor* shall comply with the environmental criteria and constraints that will be stated in Annexure Environmental Management Programme.

**Quality assurance requirements**

**Quality Control**

* An approved Quality Control Programme is to be implemented in conjunction with, and to the approval of, the Project Manager.
* A Quality Check sheet per structure and line section installation is to be developed and approved by the *Project Manager* and the CPE.

**Quality Engineering**

* All construction methods are to comply with the Distribution standards & Technical Drawing requirements as per the FDP.
* Eskom Holdings SOC Limited’s representative must be notified at least 30 days prior to the commissioning the network.
* Eskom Holdings SOC Limited’s representative must be allowed access to the site at any time during the construction to carry out an inspection of the works.

**Programming constraints**

The contractor shall submit his construction program in terms of the conditions of contract. This program shall be submitted according to Part one – Data provided by the *Employer* (Time). Read clause 31.2 first then state the work of the *Employer* and Others to be shown on the programme per 4th bullet of clause 31.2 and what additional information (if any) is to go in the programme per the last bullet of clause 31.2.

This program shall be in the form of an approved *Gantt Chart* containing the following information:

All construction activities, including milestones, initial tasks, and free-issue material, required Outages, and target dates.

Every activity on the programme will be clearly linked to **labour** resources and **equipment** required to perform the specific activity.

**Weather delays** based on the 10 year average must be included in the programme. Only weather delays over and above the 10 year average will qualify for evaluation as delays.

**Projected weekly progress** on *site* for the entire duration of the contract.

**Completion and hand-over dates** for formal inspection by the site supervisor must be indicated.

A column showing the daily tempo of all the construction activities must be indicated next to the activity on the programme.

**Project expenditure** on a monthly basis for the entire duration of the contract.

The following project phases and activities are minimum requirements for the programme:

* The Contract Program will be on display in the *Contractor*s *Site* Offices and will be updated weekly.
* In addition to the maintaining of this programme, the Contractor will report progress to the Project Manager on a weekly basis.
* The *Contractor* shall also provide an organisation chart showing the personnel to be employed for the *works*, along with a detailed CV of all key personnel.
* Should any deviations to the program be found the *Contractor* shall submit a revised program to the *Project Manager* within one week of such deviations being brought to the *Contractor*'s attention.
* Acceptance of any program by the *Project Manager* shall have no contractual status other than an indication that the *Project Manager* is satisfied as to the order in which the work is to be carried out, and that the *Contractor* undertakes to perform all work in accordance with the accepted program.
* The *Project Manager* retains the right to alter the accepted program should circumstances on *site* necessitate such a change.

The following Statutory non-working days are included within the contract period:

* All Public Holidays for the duration of the contract.
* The programme must clearly indicate the working days for the entire construction period or alternatively all the non-working days within the construction period.

***Contractor*’s management, supervision and key people**

The Contractor must provide a list of people & staff on site with their respective responsibilities, showing their lines of authority / communication to the Project Manager at the start of the contract and an amended list at the start of each Task Order.

**Invoicing and payment**

**Payments:**

On completion of each Task Order the Tax Invoice with a copy of the Task Order, Completion Certificate and the Completion certificate attachment/s must be submitted to the relevant Clerk of Works and Quantity Surveyor. Any approved deviation from the planned work must be adjusted on the Tax Invoice. The COW will inspect the work and sign the assessment certificate if satisfied with the standard of work. The COW will make adjustment according to work not yet completed. The COW will have one week to perform this work. The invoice assessment and the Completion Certificate must be submitted to the Project Coordinator for approval. The PC will then perform a spot check and sign the invoice assessment if satisfied.

A detailed breakdown of the work not performed must be completed on the Completion certificate attachment. An electronic copy of this report must be submitted to the COW and the Employers Agent via e-mail. No payments will be processed by the Employer’s agent if he is not in possession of the electronic report.

On approval of the invoice assessment the signed assessment and Completion certificate must be submitted to the Employer’s Agent for processing. All enquiries regarding payment must be followed up with the Employer’s Agent. Invoice assessments will only be done on completion of each Task Order and provisional payment may be assessed between the 20th to 25th days of each month if the tasks order spans to more than a month. Assessment done on more than one task instruction may not be included in one invoice assessment. Each invoice assessment should correspond to Task Orders issued for work due at assessment.

The Contractor will submit his claim on the assessment day as per the NEC Payment Certificate format attached to this contract with supporting Bills of Quantities. Both the Contract and Purchase Order Numbers must be clearly visible on the Tax Invoice. The Employer will assess Payment certificates on actual work completed. Any possible issues regarding the claim will be addressed by the Employer to the Contractor. On acceptance of the Payment Certificate by the Employer the Contractor submits his invoice as agreed upon with the Employer. Payment will take place as per the Eskom Procurement’s Invoice Payment Processes.

The Contractor must ensure that his invoice is according to the exact work completed on site. No work may be claimed if it has not been completed. Claiming of incomplete tasks may be seen as a fraudulent claim, this may lead to issuing of credit note to the contractor and / or termination of the contract.

**NOTE:** The *Employer* reserves right to stop issuing additional Task Orders to a contractor where the assessments of the completed task/s are not submitted within two weeks of completing the works.Other compliance standards shall be communicated to the *contractor* as and when they are reviewed by the *Employer*.

**Other Items**

All of the extra items are listed under this heading. Please note this is the only additional items that will be paid. Under no circumstances a contractor is allowed to perform any other work not included in this contract. No other items can be claimed under this contract other than those listed in this contract and those detailed in the Task Order. The manual insertion of poles will only be paid where the contractor is instructed in writing by the Project Coordinator to perform this work. This will be applicable to situation where there is no access and the poles must be carried to the hole and planted by hand. The installation rate for the stub includes for the complete installation as well as strapping and transport.

**Tax Invoices**

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

The contractor ensures that the requirement in terms of Section 20(4) (C) of the Value Added Tax Act, no 89 of 1991 (as amended by the Revenue Laws Amendment Act 45 of 2003), that the VAT registration number of the recipient of the tax invoice, appears on the said tax invoice in order for the invoice to fully comply with the requirements of a valid invoice for VAT purposes as contained in the said Section 10(4) (C), is adhered to. The Employer requires adherence by the Contractor to this requirement as from 1 June 2004. No payment will be made on tax invoices not fully meeting the requirement.

Tax invoices must meet the following requirements where the consideration (VAT inclusive amount) exceeds R3 000:

1. The words “**TAX INVOICE**” in a prominent place (preferably at the top of the page).
2. **Name**, **address** and **VAT registration number** of the **supplier.**
3. **Name**, **address** and **VAT registration number** of the **recipient. \***

Please note: Eskom’s name has to be reflected as Eskom Holdings SOC Limited on all tax invoices and Eskom’s VAT number is 4740101508.

1. An **individual serial number** (tax invoice number) and **date issued.**
2. A **full and proper description** of goods and/or services supplied.

Please note: Merely referring to a contract is not sufficient.

1. The **quantity** or **volume** of goods or services supplied.**\***
2. Where the supply is subject to VAT at the standard rate, the following in Rand:
   * The value, VAT amount and consideration OR
   * The total consideration with a statement that VAT is included @14% OR
   * The total consideration and the amount of VAT charged.

The procedure for electronic invoice submission and payment is detailed in the letter dated 17 October 2014 titled “e-invoicing letter to vendors (CI Edited)” Attached in this contract

**Rates**

Only Eskom approved rates are applicable in this contract. Where reimbursable item/s are not found on the standard Bill of Quantities, Contractor may submit three quotations of that particular item/s for rate evaluation exercise before work can be done.

**Insurance provided by the *Employer***

The insurance provided by the Employer, is addressed under the contract data by the Employer under Annexure B “Insurance provided by the Employer”. In this case Format Dx is applicable for this contract.

**Contract change management**

For any compensation event refer to clauses under section 6 of the core clauses of the NEC3.

**Provision of bonds and guarantees**

The form in which a bond or guarantee required by the *conditions of contract* (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

The *Employer* may withhold payment of amounts due to the *Contractor* until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the *Contractor* by the *Project Manager* to receive and accept such bond or guarantee. Such withholding of payment due to the *Contractor* does not affect the *Employer*’s right to termination stated in this contract.

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

Not applicable to this contract.

**Training workshops and technology transfer**

Not applicable to this contract.

**Engineering and the *Contractor*’s design**

This type of contract is a construction only and no design done by the contractor. The contractor’s job is only to execute works.

***Employer*’s design**

The design is for the construction and refurbishment of substations within the Mpumalanga Operating Unit (MOU).

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

If any design of temporary works maybe required by the contractor during construction, the design needs to be approved by the *Project Manager*.

**Procedure for submission and acceptance of *Contractor*’s design**

Not applicable to this contract.

**Other requirements of the *Contractor*’s design**

Not applicable to this contract.

**Design of Equipment**

Not applicable to this contract.

**Equipment required being included in the *works***

The contractor needs to provide his equipment as mentioned on C1.2 Contract Data.

**As-built drawings, operating manuals and maintenance schedules**

Consideration should be given to obtaining operating manuals and maintenance schedules before Completion of the whole of the *works* when there is still considerable financial incentive for the *Contractor* to do so.

**Procurement**

**People**

**Minimum requirements of people employed on the Site**

The employees that are to work on site are employed by the contractor as mentioned on C1.2 Contract Data.

**BBBEE and preferencing scheme**

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2011

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

*Employe*r will notify of any requirement, if any

**Subcontracting**

**Preferred subcontractors**

No list of preferred subcontractors provided by the *Employer* – *Contractor* to note that any appointment of a subcontractor is to be approved by the *Project Manager* beforehand.

The *Sub Contractor* must be CIDB registered.

**Subcontract documentation, and assessment of subcontract tenders**

The use of the NEC3 - ECSC is required. There has to be a contractual agreement between the contractor and the subcontractor that will be involved in the works.

**Limitations on subcontracting**

The *Contractor* has entered an agreement with the *Employer* based on his capability and skills to properly execute the works but there may be certain portions of the project that the *Contractor* will be unable to perform. In such case the *Contractor* could then subcontract, with the approval of the Project Manager.

**Attendance on subcontractors**

None unless stated by the main *Contractor*

**Plant and Materials**

**Quality**

All materials shall be new, they should be of the best quality and should conform to the requirements of the Eskom Buyers Guide (Eskom Distribution Standard Part 9). With regards to the material supply chain, the approved materials manufacturer and marking requirements shall be set out on a schedule and approved before construction.

**Plant & Materials provided “free issue” by the *Employer***

The “free issue” material will be identified on the BOQ. If any material needs to be delivered or collected will be agreed on by the *Contracto*r and *Employer*.

Any material shortages regarding free issue materials must be identified by the Contractor at least 3 weeks in advance. The Contractor will notify the Project Manager of such shortages within two days of the identification of a shortage.

***Contractor*’s procurement of Plant and Materials**

All material is to comply with the Eskom Approved Manufacturer’s List as enclosed in the FDP document. Any non-standard material items are to be approved by Eskom Holdings Limited before use on the project. Acceptance sampling is to be carried out on receipt of material on site in order to inspect the outward condition of the material item.

In exceptional cases which require materials and/or techniques which are not contemplated in the various Distribution standards shall be approved by the nominated Engineers, Mr Nkateko Khoza and Vusi Phiri, Phone No: 012 484 5358 and 012 421 3310. The written approval shall be submitted together with the tender.

The Contractor will be required to arrange a material sample inspection on site according to the requirements supplied by the PE. At this inspection materials will be recorded and approved per item by the PE, the Eskom PES and the T&Q Department.

**Spares and consumables**

Not applicable in this contract.

**Tests and inspections before delivery**

The Contractor will be required to arrange and supply the following:

Material Sample Inspection: - A sample of each material item is to be presented for an inspection by the Eskom T&Q Department. A two week notification period required.

A material sample list is to be compiled beforehand, and to be presented as part of the inspection request. Sample testing to be performed on a material provided by the *Contractor*.

Camera Beam/Pole & Foundations:-The Contractor shall do the necessary DCP tests at each foundation in order to nominate the soil type and relevant foundation for a particular beam or pole and foundation, record shall be submitted as part of As built. The process and method of DCP testing and soil nomination is to be approved upfront but the Project Engineer before the start of the activity.

**Marking Plant and Materials outside the Working Areas**

The *Contractor* needs to provide the plant as per C1.2 Contract Data.

***Contractor*’s Equipment (including temporary works).**

The Contractor is to provide the necessary equipment to complete the Works safely and by the completion date

**Construction**

**Temporary works, Site services & construction constraints**

***Employer*’s Site entry and security control, permits, and Site regulations**

The contractor provides a secure and accessible area for the Site Camp, which includes secure storage facilities and areas, etc. The location of the site camp shall be determined in consultation with the Project Manager, local communities, and the relevant authorities.

The Contractor is to provide a 24 hour, 7 days a week, access and perimeter control unarmed security service from a reputable security firm. The security firm shall be registered with PSIRA and shall have a Grade D classification. At least one guard during the day and 2 x guards during night time is required for the duration of this contract. The guards on site shall have communication to the control room at all times.

On completion of the contract, the contractor removes the site camp and offices, and the area will be left in its original state to the satisfaction of the employer’s representative and the Environmental Officer.

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

Site visitors should be guided by the *Contractors* representative through a safe path on site.

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

It is very important that the *Contractor* keeps records of his people on Site, including those of his Subcontractors which the *Project Manager* or *Supervisor* have access to at any time.

**Health and safety facilities on Site**

As mentioned in 2.3.

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

As mentioned in 2.4.

**Title to materials from demolition and excavation**

The Contractor has no such title. All equipment and materials dismantled to be stored inside the Contractor’s site camp. Disposal of this equipment and materials to be liaised with the Officer Investment Recovery

**Cooperating with and obtaining acceptance of Others**

The Contractor is responsible to ensure that the landowners and/or local authority have been informed before any work is carried out on site.

**Publicity and progress photographs**

Not applicable in this contract.

***Contractor*’s Equipment**

The Contractor is to provide equipment necessary to complete the Works safely and by the completion date. An equipment asset register is to be kept on site record is to be kept on site. The equipment that will be used during construction should not interrupt the operation of live apparatus.

**Equipment provided by the *Employer***

There is no equipment that will be provided by the *Employer*.

**Site services and facilities**

The *Employer* will not provide anything, the contractor must provide the services as mentioned on the Bill of Quantities under the Preliminaries and Generals (P and G’s).

**Facilities provided by the *Contractor***

The *Contractor* shall provide on Site a minimum of one well illuminated, insulated and ventilated site office for utilisation by the *Employer / Project Manager* or their representatives. This site office shall have as a minimum the following:

• A Suitable water supply and sanitary facilities (chemical toilet).

• First aid facilities

• Telecommunication facilities (down loading of electronic communications and printing of it)

• Access to Eskom website to download latest information.

• 1 x Table, 8 x chairs required and office required to hold a site meeting.

• Site diary.

The *Contractor* shall provide a secure fenced-in yard for the whole of the contract period. Storage facilities must be of such a nature that all the Contractors materials, including free issue materials (Employers materials) are safe from theft, fire hazards and vandalism. Fire breaks around the storage area, and fire-fighting equipment must be in accordance with the OHS Act, and of sufficient capacity to ensure the security of stored materials.

The following standard documents are incorporated in this contract:

• NWS 1058, Rev 4, Safety at Construction Sites-Requirements to be met by Contractors

• NWS 1494, Rev 3, Fire Prevention and Protection of Contractor’s Premises.

The *Contractor* shall provide a qualified store-man to receive and issue materials. This store-man shall maintain a proper administrative record reflecting all materials received and issued as described elsewhere in this document. The Cardex system or equivalent as specified by the Employer will be used as a material management system. An example of this system is available to the contractor on request. This sub will be updated continuously for ad-hoc inspections by the Employer or his representatives.

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

The *Contracto*r should take reasonable care not to damage any of adjacent equipment within the premises.

**Survey control and setting out of the *works***

The actual surveying or setting out that is required for this project.

**Excavations and associated water control**

All excavations are to be done in strict accordance within the design. Barricading of excavations is not allowed. *Contractors* are to dig and plant or backfill with soil and don’t leave open holes at any given time

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

The *Contractor s*hall be liable for any damages caused during construction to existing services such as, underground water pipes, electrical cables, telecommunication cables, overhead lines, storm water pipes and existing roads.

It is the responsibility of the *Contractor* to contact the landowner and/or local authority to determine the position of such services to prevent any damages.

**Control of noise, dust, water and waste**

The *Contracto*r shall within reason try and keep noise levels, dust and wastage to a minimum.

**Sequences of construction or installation**

The *Contractor* is required follow the procedure as mentioned in C1.2 ECC3 Contract Data under core clause X5.

**Giving notice of work to be covered up**

As per contract, the *Contractor* has to notify th*e Project Manager* of an event which has happened or which he expects to happen during the works in a form of writing.

**Hook ups to existing works**

The works will be combination of newly built infrastructure and hooked onto the existing structures.

**Completion, testing, commissioning and correction of Defects**

**Work to be done by the Completion Date**

The whole of the Works as described by the Works Information of this contract shall be completed on or before the Completion Date. Completion includes the completion and submission of hand-over documentation, as-built drawings, and completed defect lists. The Contractor pays delay damages for late completion in terms of the Conditions of Contract.

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

The employer is not willing to take over any part of work unless it has been certified for completion.

**Materials facilities and samples for tests and inspections**

As stated in 4.4 of the works information.

**Commissioning**

Commissioning is done the completion of the works.

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

The *Contractor* is required to carry out the start procedure in the presence of the *Employer/Project Manager*.

**Take over procedures**

After the start-up procedure and the *Employer* is satisfied with the works, the *Employer* can take ownership the works.

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

The *Project Manager* arranges for the *Employer* to allow the *Contractor* access to and use of a part of the *works* which has been taken over if needed to correct a Defect, after the *works* have been put into operation, the *Employer* may require the *Contractor* to undertake certain procedures before such access can be granted.

**Performance tests after Completion**

Low standard are not accepted in this project therefore making this section of the Works Information not applicable in this contract.

**Training and technology transfer**

The *Employer* does not require any training and technology transfer unless stated at a later stage.

**Operational maintenance after Completion**

The *Employer* may require the *Contractor* before the *defects date* to perform certain duties after Completion and take over which relate to maintenance of the *works*.

**Plant and Materials standards and workmanship**

**Investigation, survey and Site clearance**

Not applicable in this contract.

**Building works**

Not applicable in this contract.

**Civil engineering and structural works**

Not applicable in this contract.

**Electrical & mechanical engineering works**

Not applicable in this contract.

**Process control and IT works**

Not applicable in this contract.

**List of drawings**

**Drawings issued by the *Employer***

All contractors must make sure that they can access Eskom Web page at any given time to get the latest drawings and specifications before commencement of any task. Web Access applications can be done through the assistance of Brenda Morrison @ 011 629 5266 or MorrisEF@eskom.co.za

Note: Some drawings may contain both Works Information and Site Information.

|  |  |  |
| --- | --- | --- |
| **Drawing number** | **Revision** | **Title** |
| **As per FDP package issued by the PE.** | **Rev0** | **Attached to Task instruction** |

**Conflict between specifications and drawings**

Should there be conflict between the specification and drawings, then documentation shall be considered in the order of priority set out below:

1. Tender Correspondence/Minutes/Site Instructions
2. *Works* Information
3. Drawings
4. Distribution Standard

Should the *Contractor* note any inconsistency between the specification and drawings he/she shall notify the *Project Manager* and obtain clarification or instructions prior to collecting and installing materials and plant for the work.

**C3.2 *Contractor*’s Works Information**

Not applicable in this contract.

Part 4: Site Information

|  |  |  |
| --- | --- | --- |
| **Document reference** | **Title** | **No of pages** |
|  | This cover page | 1 |
| C4 | Site Information | 1 |
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|  | Total number of pages | 2 |

**C4: Site Information**

**Description of the Site and its surroundings**

**General description**

Shall be found on the FDP that will be handed over to the contractor together with the Task Order as per the NEC3 ECSC part of this contract.

**Existing buildings, structures, and plant & machinery on the Site**

Shall be found on the FDP that will be handed over to the contractor together with the Task Order as per the NEC3 ECSC part of this contract.

**Subsoil information**

Shall be found on the FDP that will be handed over to the contractor together with the Task Order as per the NEC3 ECSC part of this contract.

**Hidden services**

Shall be found on the FDP that will be handed over to the contractor together with the Task Order as per the NEC3 ECSC part of this contract.

1. Provisional Sums should not be used unless absolutely unavoidable. Rather include specifications and associated bill items for the most likely scope of work, and then change later using the compensation event procedure if necessary. [↑](#footnote-ref-1)