NEC3 Term Service Contract (TSC3)

Between **ESKOM HOLDINGS SOC Ltd**
(Reg No. 2002/015527/30)

and **[Insert at award stage]**
(Reg No. _____)

for **Provision for maintenance and repairs of high voltage oil filled and XLPE cables from 44KV to 132 KV by jointing, laying, and terminating in Gauteng Cluster for period of 5 years as an when required.**

Contents:		**No of pages**
Part C1	**Agreements & Contract Data**	**[●]**
Part C2	**Pricing Data**	**[●]**
Part C3	**Scope of Work**	**[●]**

CONTRACT No. **[Insert at award stage]**

PART C1: AGREEMENTS & CONTRACT DATA

Contents:		No of pages
C1.1	**Form of Offer and Acceptance**	**[●]**
	[to be inserted from Returnable Documents at award stage]	
C1.2a	**Contract Data provided by the *Employer***	**[●]**
C1.2b	**Contract Data provided by the *Contractor***	**[●]**
	[to be inserted from Returnable Documents at award stage]	
C1.3	**Proforma Guarantees**	**[●]**

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:

Provision for maintenance and repairs of high voltage oil filled and XLPE cables from 44KV to 132 KV by jointing, laying, and terminating in Gauteng Cluster for period of 5 years as an when required.

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.

Options A	The offered total of the Prices exclusive of VAT is	**Rate based contract**
	Value Added Tax @ 15% is	**Rate based contract**
	The offered total of the amount due inclusive of VAT is[1]	**Rate based contract**
	(in words) **Rate based contract**	

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: .....

(Insert name and address of organisation)

Name & signature of witness .....

Date .....

Tenderer's CIDB registration number: .....

[1] This total is required by the *Employer* for budgeting purposes only. Actual amounts due will be assessed in terms of the *conditions of contract*.

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: Service 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 and signed original copy of this document, including the Schedule of Deviations (if any).

Signature(s)		
Name(s)		
Capacity		
for the Employer	1 Dale Road Eskom Academy of Learning Midrand	
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

Note:

1. This part of the Offer & Acceptance would not be required if the contract has been developed by negotiation between the Parties and is not the result of a process of competitive tendering.
2. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
3. A tenderer's covering letter must not be included in the final contract document. Should any matter in such letter, which constitutes a deviation as aforesaid be the subject of agreement reached during the process of Offer and Acceptance, the outcome of such agreement shall be recorded here and the final draft of the contract documents shall be revised to incorporate the effect of it.

No.	Subject	Details
1	**[●]**	**[●]**
2	**[●]**	**[●]**
3	**[●]**	**[●]**
4	**[●]**	**[●]**
5	**[●]**	**[●]**
6	**[●]**	**[●]**
7	**[●]**	**[●]**

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	.....	.....
Capacity	.....	1 Dale Road Eskom Academy of Learning Midrand
On behalf of	*(Insert name and address of organisation)*	
Name & signature of witness	.....	.....
Date	.....	.....

C1.2 TSC3 Contract Data

Part one - Data provided by the *Employer*

Completion of this data in full, according to the Options chosen, is essential to create a complete contract.

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option:	
		A: Priced contract with price list
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X1: Price adjustment for inflation
		X2 Changes in the law
		X17: Low service damages
		X18: Limitation of liability
		X19: Task Order
		Z: *Additional conditions of contract*
	of the NEC3 Term Service Contract April 2013[2] (TSC3)	
10.1	The *Employer* is (name):	**Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state-owned company incorporated in terms of the company laws of the Republic of South Africa**
	Address	**Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg**
	Tel No.	**[●]**
	Fax No.	**[●]**
10.1	The *Service Manager* is (name):	**TBA**
	Address	**[●]**
	Tel	**[●]**
	Fax	**[●]**
	e-mail	**[●]**
11.2(2)	The Affected Property is	**High voltage oil filled and XLPE cables from**

[2] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 539 1902 www.ecs.co.za

		44KV to 132 KV by jointing, laying, and terminating in Gauteng Cluster for period of 5 years as an when required.
11.2(13)	The *service* is	**Maintenance and Repairs of High Voltage (44kV to 132kV)**
11.2(14)	The following matters will be included in the Risk Register	• **Unavailability of material at Eskom stores.** • **Non-compliance to statutory SHEQS and legal requirements.** • **Poor workmanship due to incompetence of personnel on site.**
11.2(15)	The Service 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	**1 (One) week**
2	**The *Contractor*'s main responsibilities**	**Data required by this section of the core clauses is also provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data**
21.1	The *Contractor* submits a first plan for acceptance within	**As per Task Order**
3	**Time**	
30.1	The *starting date* is.	**The starting date is the last date of signature by either party**
30.1	The *service period* is	**This is a contract to service the need for the Gauteng Cluster. The starting date is the last date of signature by either party and there will be multiple Task Orders placed under this contract for a limited time duration not exceeding a period of 36 months. It should be noted that the *Employer* reserves the right to discontinue to effect any further purchases against this contract before the 36 month period has lapsed, and it is furthermore accepted by the *Contractor* that any discontinuation due to the previously stated reason will not entitle the *Contractor* to any form of Compensation whatsoever apart from the fulfilment of Task Orders issued. The *Employer* will inform the *Contractor* of such discontinuation within 30 calendar days of becoming aware of such discontinuation, and after the 30-day period each party will end any further obligation to the other in terms of any further performance on this contract with no cost obligation to either party, apart from any performance in terms of Task Orders issued before the 30-day notification. No Task Orders will be issued after the 30-calendar day notification.**

4	**Testing and defects**	**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**
5	**Payment**	
50.1	The *assessment interval* is	**within 5 days of Task Order Completion.**
51.1	The *currency of this contract* is the	**South African Rand**
51.2	The period within which payments are made is	**30 days**
51.4	The *interest rate* is	**the publicly quoted prime rate of interest (calculated on a 365 day year) charged by from time to time by the Standard Bank of South Africa Limited (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**
6	**Compensation events**	**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**
7	**Use of Equipment Plant and Materials**	**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	**1. NONE**
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**	
A	**Priced contract with price list**	
20.5	The *Contractor* prepares forecasts of the final total of the Prices for the whole of the *service* at intervals no longer than	**As per the Task Order Issued, Final total being total of the Task Order Issued**
11	**Data for Option W1**	
W1.1	The *Adjudicator*	**the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).**

	Address	**[●]**
	Tel No.	**[●]**
	Fax No.	**[●]**
	e-mail	**[●]**
W1.2(3)	The *Adjudicator nominating body* is:	**the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the Institution of Civil Engineers (London) (see www.ice-sa.org.za) or its successor body.**
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	**Sandton 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	**A month prior to tender closing**
	The proportions used to calculate the Price Adjustment Factor are:	**proportion** / **linked to index for** / **Index prepared by** **70** / **Labour –Table C3** / **SEIFSA** **15** / **CPI -Table D2** / **SEIFSA** **15** / **non-adjustable** **100**
		Proportion / **Linked to index for** / **Index preparing by** **85** / **Transport-TableL2** / **SEIFSA** **15** / **Non-adjustable** **100**
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.
X17	**Low service damages**	
X17.1	The *service level table* is	

Item	Criteria	Delivery time	Delay Damages	Retention
1	Quotation Submission delays	5 days	R 1000 per day capped to 10% of Task Order	N/A
2	Service Plan delays(execution of work)	As per agreed service plan	R 1000 per day capped to 10% of Task Order	N/A
3	Retention for defects	N/A	N/A	5% of labour value retained with each task Order
3.1	The defects date			52 weeks after completion of Task Order
3.2	Defect Correction access period			1 week

X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to	**The value of each Purchase Order issued in relation to this contract**
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**
X18.3	The *Contractor*'s liability for Defects due to his design of an item of Equipment 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 insurance (other than the resulting physical damage to the *Employer*'s property which is not excluded) plus the applicable deductibles**
X18.4	The *Contractor*'s total liability to the *Employer*, for all matters arising under or in connection with this contract, other than the 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, plan and specification,** • **Defects due to manufacture and fabrication**

		outside the Affected Property, • **loss of or damage to property (other than the *Employer*'s property, Plant and Materials),** • **death of or injury to a person and** • **infringement of an intellectual property right.**
X18.5	The *end of liability date* is	**24 months after the end of the *service period*.**
X19	**Task Order**	
X19.5	The *Contractor* submits a Task Order programme to the *Service Manager* within	**5 days of receiving the Task Order**
Z	**The *additional conditions of contract* are**	**Z1 to Z14 always apply.**

Z1 Cession delegation and assignment

Z1.1 The *Contractor* does not cede, 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.

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 *Service 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 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 *Service Manager* within thirty days of the notification or as otherwise instructed by the *Service 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 Service.

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 P4 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 Confidentiality

Z4.1 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.

Z4.2 If the *Contractor* is uncertain about whether any such information is confidential, it is to be regarded as such until notified otherwise by the *Service Manager*.

Z4.3 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.

Z4.4 The taking of images (whether photographs, video footage or otherwise) of the Affected Property or any portion thereof, in the course of Providing the Service and after the end of the *service period*, requires the prior written consent of the *Service Manager*. All rights in and to all such images vests exclusively in the *Employer*.

Z4.5 The *Contractor* ensures that all his subcontractors abide by the undertakings in this clause.

Z5 Waiver and estoppel: Add to core clause 12.3:

Z5.1 Any extension, concession, waiver or relaxation of any action stated in this contract by the Parties, the *Service Manager* 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.

Z6 Health, safety and the environment: Add to core clause 27.4

Z6.1 The *Contractor* undertakes to take all reasonable precautions to maintain the health and safety of persons in and about the execution of the *service*. Without limitation the *Contractor*:

- accepts that the *Employer* may appoint him as the “Principal Contractor” (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) (“the Construction Regulations”) for the Affected Property;
- 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 the *service*; and
- undertakes, in and about the execution of the *service*, 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.

Z6.2 The *Contractor*, in and about the execution of the *service*, 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.

Z7 Provision of a Tax Invoice and interest. Add to core clause 51

Z7.1 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 in accordance with the *Employer*'s procedures stated in the Service Information, showing the amount due for payment equal to that stated in the payment certificate.

Z7.2 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.

Z7.3 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.

Z8 Notifying compensation events

Z8.1 Delete the last paragraph of core clause 61.3 and replace with:

If the *Contractor* does not notify a compensation event within eight weeks of becoming aware of the event, he is not entitled to a change in the Prices.

Z9 *Employer's* limitation of liability

Z9.1 The *Employer's* liability to the *Contractor* for the *Contractor's* indirect or consequential loss is limited to R0.00 (zero Rand)

Z9.2 The *Contractor*'s entitlement under the indemnity in 82.1 is provided for in 60.1(12) and the *Employer*'s liability under the indemnity is limited to compensation as provided for in core clause 63 and X19.11 if Option X19 Task Order applies to this contract.

Z10 Termination: Add to core clause 91.1, at the second main bullet point, fourth sub-bullet point, after the words "against it":

Z10.1 or had a business rescue order granted against it.

Z11 Ethics

For the purposes of this Z-clause, the following definitions apply:

Affected Party means, as the context requires, any party, irrespective of whether it is the *Contractor* or a third party, such party's employees, agents, or Subcontractors or Subcontractor's employees, or any one or more of all of these parties' relatives or friends,

Coercive Action means to harm or threaten to harm, directly or indirectly, an Affected Party or the property of an Affected Party, or to otherwise influence or attempt to influence an Affected Party to act unlawfully or illegally,

Collusive Action means where two or more parties co-operate to achieve an unlawful or illegal purpose, including to influence an Affected Party to act unlawfully or illegally,

Committing Party means, as the context requires, the *Contractor*, or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractors or the Subcontractor's employees,

Corrupt Action means the offering, giving, taking, or soliciting, directly or indirectly, of a good or service to unlawfully or illegally influence the actions of an Affected Party,

Fraudulent Action means any unlawfully or illegally intentional act or omission that misleads, or attempts to mislead, an Affected Party, in order to obtain a financial or other benefit or to avoid an obligation or incurring an obligation,

Obstructive Action means a Committing Party unlawfully or illegally destroying, falsifying, altering or concealing information or making false statements to materially impede an investigation into allegations of Prohibited Action, and

Prohibited Action means any one or more of a Coercive Action, Collusive Action Corrupt Action, Fraudulent Action or Obstructive Action.

Z11.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.

Z11.2 The *Employer* may terminate the *Contractor*'s obligation to Provide the Services if a Committing Party has taken such Prohibited Action and the *Contractor* did not take timely and appropriate action to prevent or remedy the situation, without limiting any other rights or remedies the *Employer* has. It is not required that the Committing Party had to have been found guilty, in court or in any other similar process, of such Prohibited Action before the *Employer* can terminate the *Contractor*'s obligation to Provide the Services for this reason.

Z11.3 If the *Employer* terminates the *Contractor*'s obligation to Provide the Services for this reason, the amounts due on termination are those intended in core clauses 92.1 and 92.2.

Z11.4 A Committing Party co-operates fully with any investigation pursuant to alleged Prohibited Action. Where the *Employer* does not have a contractual bond with the Committing Party, the *Contractor* ensures that the Committing Party co-operates fully with an investigation.

Z12 Insurance

Z_12_.1 Replace core clause 83 with the following:

Insurance cover 83

83.1 When requested by a Party, the other Party provides certificates from his insurer or broker stating that the insurances required by this contract are in force.

83.2 The *Contractor* provides the insurances stated in the Insurance Table A from the *starting date* until the earlier of Completion and the date of the termination certificate.

INSURANCE TABLE A

Insurance against	Minimum amount of cover or minimum limit of indemnity
Loss of or damage caused by the *Contractor* to the *Employer*'s property	The replacement cost where not covered by the *Employer*'s insurance. The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance.
Loss of or damage to Plant and	The replacement cost where not covered by the

Materials	*Employer*'s insurance. The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance.
Loss of or damage to Equipment	The replacement cost where not covered by the *Employer*'s insurance. The *Employer*'s policy deductible as at Contract Date, where covered by the *Employer*'s insurance.
The *Contractor*'s liability for loss of or damage to property (except the *Employer*'s property, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) arising from or in connection with the *Contractor*'s Providing the Service	Loss of or damage to property The replacement cost Bodily injury to or death of a person The amount required by the applicable law.
Liability for 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	The amount required by the applicable law

Z 12.2 Replace core clause 86 with the following:

Insurance by the *Employer*

86

86.1 The *Employer* provides the insurances stated in the Insurance Table B

INSURANCE TABLE B

Insurance against or name of policy	**Minimum amount of cover or minimum lir of indemnity**
Assets All Risk	Per the insurance policy document
Contract Works insurance	Per the insurance policy document
Environmental Liability	Per the insurance policy document
General and Public Liability	Per the insurance policy document
Transportation (Marine)	Per the insurance policy document
Motor Fleet and Mobile Plant	Per the insurance policy document
Terrorism	Per the insurance policy document
Cyber Liability	Per the insurance policy document

Nuclear Material Damage and Business Interruption	Per the insurance policy document
Nuclear Material Damage Terrorism	Per the insurance policy document

Z13 Nuclear Liability

Z13.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.

Z13.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z13.3 Subject to clause Z13.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z13.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.

Z13.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z14 Asbestos

For the purposes of this Z-clause, the following definitions apply:

AAIA means approved asbestos inspection authority.

ACM means asbestos containing materials.

AL means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.

Ambient Air means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.

Compliance Monitoring means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

OEL means occupational exposure limit.

Parallel Measurements means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.

Safe Levels means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.

Standard means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.

SANAS means the South African National Accreditation System.

TWA means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

Z14.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z14.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are effected by an independent, competent, and certified occupational hygiene inspection body, i.e. a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor*'s expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z14.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z14.3 The *Employer* manages asbestos and ACM according to the Standard.

Z14.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.

Z14.5 The *Contractor*'s personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.

Z14.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.

Z14.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer*'s expense, and conducted in line with South African legislation.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

1. Please read both the both the NEC3 Term Service Contract April 2013 and the relevant parts of its Guidance Notes (TSC3-GN)[3] in order to understand the implications of this Data which the tenderer is required to complete.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data.
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise complete by hand and in ink.

Completion of the data in full, according to Options chosen, is essential to create a complete contract.

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	**%** **%**
11.2(14)	The following matters will be included in the Risk Register	
11.2(15)	The Service Information for the *Contractor*'s plan is in:	
21.1	The plan identified in the Contract Data is contained in:	
24.1	The key people are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities: Qualifications:	

[3] Available from Engineering Contract Strategies Tel 011 803 3008 Fax 086 5391902 or www.ecs.co.za

Experience:

CV's (and further key person's data including CVs) are in .

A	**Priced contract with price list**	
11.2(12)	The *price list* is in	
11.2(19)	The tendered total of the Prices is	**R**

PART 2: PRICING DATA

TSC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The *price list*	**[●]**

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Term Service Contract (TSC3) core clauses and Option A states:

Identified and defined terms 11 11.2 (12) The Price List is the *price list* unless later changed in accordance with this contract.

(17) The Price for Services Provided to Date is the total of

- the Price for each lump sum item in the Price List which the *Contractor* has completed and
- where a quantity is stated for an item in the Price List, an amount calculated by multiplying the quantity which the *Contractor* has completed by the rate.

(19) The Prices are the amounts stated in the Price column of the Price List. Where a quantity is stated for an item in the Price List, the Price is calculated by multiplying the quantity by the rate.

This confirms that Option A is a priced contract where the Prices are derived from a list of items of service which can be priced as lump sums or as expected quantities of service multiplied by a rate or a mix of both.

Function of the Price List

Clause 54.1 in Option A states: “Information in the Price List is not Service Information”. This confirms that instructions to do work or how it is to be done are not included in the Price List but in the Service Information. This is further confirmed by Clause 20.1 which states, “The *Contractor* Provides the Service in accordance with the Service Information”. Hence the *Contractor* does **not** Provide the Service in accordance with the Price List. The Price List is only a pricing document.

Link to the *Contractor*’s plan

Clause 21.4 states “The *Contractor* provides information which shows how each item description on the Price List relates to the operations on each plan which he submits for acceptance”. Hence when compiling the *price list*, the tendering contractor needs to develop his first clause 21.2 plan in such a way that operations shown on it can be priced in the *price list* and result in a satisfactory cash flow in terms of clause 11.2(17).

Preparing the *price list*

Before preparing the *price list*, both the *Employer* and tendering contractors should read the TSC3 Guidance Notes pages 14 and 15. In an Option A contract, either Party may have entered items into the *price list* either as a process of offer and acceptance (tendering) or by negotiation depending on the nature of the *service* to be provided. Alternatively the *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in the *price list* to be prepared and priced by him.

It is assumed that in preparing or finalising the *price list* the *Contractor:*

- Has taken account of the guidance given in the TSC3 Guidance Notes relevant to Option A;
- Understands the function of the Price List and how work is priced and paid for;
- Is aware of the need to link operations shown in his plan to items shown in the Price List;
- Has listed and priced items in the *price list* which are inclusive of everything necessary and incidental to Providing the Service in accordance with the Service Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate item within the Prices or rates of other listed items in order to fulfil the obligation to complete the *service* for the tendered total of the Prices.
- Understands there is no adjustment to items priced as lump sums if the amount, or quantity, of work within that item later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the (lump sum) Prices is as a result of a compensation event.

Format of the *price list*

(From the example given in an Appendix within the TSC3 Guidance Notes)

Entries in the first four columns in the *price list* in section C2.2 are made either by the *Employer* or the tendering contractor.

If the *Contractor* is to be paid an amount for the item which is not adjusted if the quantity of work in the item changes, the tendering contractor enters the amount in the Price column only, the Unit, Expected Quantity and Rate columns being left blank.

If the *Contractor* is to be paid an amount for an item of work which is the rate for the work multiplied by the quantity completed, the tendering contractor enters the rate which is then multiplied by the Expected Quantity to produce the Price, which is also entered.

If the *Contractor* is to be paid a Price for an item proportional to the length of time for which a service is provided, a unit of time is stated in the Unit column and the expected length of time (as a quantity of the stated units of time) is stated in the Expected Quantity column.

C2.2 the *price list*

Bill of Activities					
Item	**Reference: Drawing / Standard**	**Description**	**Unit**	**Quantity**	**Price/Rate**
Electrical Contractor: P&Gs and Pre-construction related activities.					
1.1	n/a	PPE, Total Labour Value, based on cost plus fee and replacement cycle	Cost plus fee		
1.2		Contractual Administration and Overheads (% on Total Labour Value)	%	Total labour value	
1.3	n/a	Environmental Compliance to the Environmental Management Plan& Site maintenance - based on agreed quotation based on individual project requirement prior approval needed	cost plus fee		
1.4	PSIRA	Security Officer - Grade C unarmed (with Panic button)	Per Guard, Per Shift		
1.5	PSIRA and Firearm Control Act	Security Officer - Grade C armed (with Panic button)	Per Guard, Per Shift		
1.6	PSIRA	Bulletproof vests	Cost plus fee		
1.7	PSIRA	Guard House (For Security Officer)	Per day		
1.8	n/a	Toilets (Security officers and General contract workers)	Per day		

Item	Reference: Drawing / Standard	Description	Unit	Qty	Rate
17.1	n/a	LDV	km		
17.2	n/a	Personnel Transport for Staff	km		
17.3	n/a	6 m³ Tipper Truck	km		
17.4	n/a	Transport Truck 5-10 ton	km		
17.5	n/a	Transport Truck 5-10 ton with crane	km		
17.6	n/a	Lowbed	km		
17.7	n/a	Mobile Crane - To load and off-load cable drums	Per hour		
Subtotal carried to summary					

Bill of Activities				Final Eskom Offer	
Item	**Reference: Drawing / Standard**	**Description**	**Unit**	**Material Rate**	**Labour Rate**
Civil Contractor : River crossing and embankment support					
2.1	D-DT-0895 Sheet 8 and SANS 677	Determine depth of river and construct a start and end shaft / pit for pipe jacking (Cost to include both excavations). Pipes to be jacked a minimum of 2m below the base of the river bed. (Pipe jack pit / shaft to be done in accordance with National and Eskom standards and applicable legislation.) Costs also to include rock blasting if required, and the removal, transportation and dumping (in accordance with the Maintenance Management plan / EMP) of water from the pit /shaft and installed concrete pipe, if required. Costs also to include backfilling and reinstatement of area to its original state after construction. (To be designed by ECSA registered Civil / Structural engineer.)	m^3		
2.2	D-DT-0895 Sheet 8 and SANS 677	Determine depth of river and construct a start and end shaft / pit for pipe jacking (Cost to include both excavations). Pipes to be jacked a minimum of 2m below the base of the river bed. (Pipe jack pit / shaft to be done in accordance with National and Eskom standards and applicable legislation.) Costs to include trenching in soil and the removal, transportation and dumping (in accordance with the Maintenance Management plan / EMP) of water from the pit /shaft and installed concrete pipe, if required. Costs also to include backfilling and reinstatement of area to its original state after construction. (To be designed by ECSA registered Civil / Structural engineer.)	m^3		
2.3	D-DT-0895 Sheet 8 and SANS 677	Pipe jack concrete pipes underneath a river. Pipes to be a minimum of 2m below the base of the river bed. Costs to include reinforced precast concrete pipes for pipe jacking, and Spigot and Socket joints or in-the-wall joints for the pipes. Concrete pipes shall comply to SANS 677 type SC requirements as well as National and Eskom standards.	m		
2.4	D-DT-0895 Sheet 8 and SANS 677	Space, position and fix all PVC ducts for the entire length of the PVC ducts inside the concrete pipe. This can be achieved using rot-proof or remanufactured spacers. (Supply and install.)	m		

2.5	D-DT-8018, D-DT-0895 sheet 8.	Supply and Install 6m lengths of 250mm diameter PVC ducts and sockets inside the concrete pipe for **3 x HV single core cables**. (PVC pipes to protrude a minimum of 2000mm past pre-cast channel / pipe into the bank of the river/stream. High level water mark to be used as reference.)	m		
2.6	D-DT-8018, D-DT-0895 sheet 8.	Supply and Install 6m lengths of 250mm diameter PVC ducts and sockets inside the concrete pipe **as spares for maintenance**. (PVC pipes to protrude a minimum of 2000mm past pre-cast channel / pipe, into the bank of the river/stream. High level water mark to be used as reference.)	m		
2.7	D-DT-8018, D-DT-0895 sheet 8.	Supply and Install 6m lengths of 160mm diameter PVC ducts and sockets inside the concrete pipe for **fibre optic cables and the ECC**. (PVC pipes to protrude a minimum of 2000mm past pre-cast channel / pipe. One PVC pipe to carry the fibre cable used for differential protection, and a separate PVC pipe to be used for the ECC. The fibre cable used for DTS shall occupy the same PVC sleeve used for the HV cable.)	m		
2.8	D-DT-8018, D-DT-0895 sheet 8.	Supply and Install 6m lengths of 160mm diameter PVC ducts and sockets inside the concrete pipe as spare for **maintenance of the fibre optic cable and ECC**. (PVC pipes to protrude a minimum of 2000mm past pre-cast channel / pipe.)	m		
2.9	D-DT-8018, D-DT-0895 sheet 8.	Supply, deliver and fill concrete pipes, occupied by HV cable with bentonite and water mix as per the bentonite supplier's instruction manuals. The mix must be kept in position by sealing the end of the concrete pipe with densomastic paste (to prevent water ingress), while ensuring the PVC pipes inside still protrude past the concrete pipe and is not filled with any backfill material.	m^3		
2.10	n/a	Supply, deliver and Seal spare 250mm diameter PVC ducts with suitable caps to prevent ingress of water, vermin and backfill material.	Each		
2.11	n/a	Supply, deliver and Seal spare 160mm diameter PVC ducts with suitable caps to prevent ingress of water, vermin and backfill material.	Each		

2.12	n/a	Supply and Install non-metallic draw wires in any size spare PVC sleeves.	m		
2.13	Maintenance Management plan / EMP and Civil Engineer's engineering report.	Supply and Install gabions mitigate impede soil erosion. - Prior approval required.	Cost plus fee		
2.14	Maintenance Management plan / EMP and Civil Engineer's engineering report.	Supply and Install energy breakers on the river bed to decrease the increased velocity of the water caused by the gabions.	Cost plus fee		
2.15	Maintenance Management plan / EMP and Civil Engineer's engineering report.	Supply and Install rip rap (Rock armor) mitigate impede soil erosion. - Prior approval required.	Cost plus fee		
2.16	Maintenance Management plan / EMP and Civil Engineer's engineering report.	Supply and Install earth retention systems, on river embankment to mitigate soil erosion. - Prior approval required.	Cost plus fee		
2.17	Maintenance Management plan / EMP and Civil Engineer's engineering report.	Supply and Install earth Clay plug. - Prior approval required.	Cost plus fee		
Total					
Civil Contractor : Road crossing					
3.1	240-56030640 or Site Specific drawing	Provision of drilling pits	m^3		
3.2	240-56030640 or Site Specific drawing	Directionally drill underneath road and supply and install **250mm diameter PVC** duct for HV cable. Contractor to supply PVC / PE pipe compatible with its machine.	m		
3.3	240-56030640 or Site Specific drawing	Directionally drill underneath road and supply and install **160mm diameter PVC** duct for HV cable. Contractor to supply PVC / PE pipe compatible with its machine.	m		

3.4	240-56030640 or Site Specific drawing	Directionally drill underneath road and supply and install **110mm diameter PVC / PE** duct for fibre optic cable and ECC. Contractor to supply PVC pipe compatible with its machine.	m		
3.5	D-DT-8018	Install a **250mm diameter PVC** sleeves underneath road / entrance (each PVC is in 6m length) for HV cable. Cost to include the concrete casted over the PVC sleeves which shall have a minimum surround of 75 mm, to prevent collapsing or deformation after backfilling. The concrete strength shall be at least 15 MPA.	m		
3.6	D-DT-8018	Install **160mm diameter PVC** sleeves underneath road / entrance (each PVC is in 6m length) for HV cable. Cost to include the concrete casted over the PVC sleeves which shall have a minimum surround of 75 mm, to prevent collapsing or deformation after backfilling. The concrete strength shall be at least 15 MPA.	m		
3.7	D-DT-8018	Install **110mm diameter PVC** sleeves underneath road / entrance (each PVC 6m in length) to be used for fibre cable and ECC, separately. Cost to include the concrete casted over the PVC sleeves which shall have a minimum surround of 75 mm, to prevent collapsing or deformation after backfilling. The concrete strength shall be at least 15 MPA.	m		
3.8	n/a	Supply, deliver and Seal spare **250mm diameter PVC / PE** ducts with suitable caps to prevent ingress of water, vermin and backfill material.	Each		
3.9	n/a	Supply, deliver and Seal spare **160mm diameter PVC / PE** ducts with suitable caps to prevent ingress of water, vermin and backfill material.	Each		
3.10	n/a	Supply, deliver and Seal spare **110mm diameter PVC / PE** ducts with suitable caps to prevent ingress of water, vermin and backfill material.	Each		
3.11	n/a	Supply and Install non-metallic draw wires in any size spare diameter PVC / PE sleeves.	m		
Total					
Civil Contractor : HV Cable installation (Normal Installation)					
4.1	n/a	Saw cutting of road surface. **(One side of trench)**	m		

4.2	n/a	Saw cutting of road surface. **(On both sides of trench)**	Total length - m		
4.3	D-DT-0892 Sheet 1 and Sheet 3	Excavate by hand a 1m wide x 1.3m deep trench for the HV cable (Shale) – **General / Parallel to curb.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.4	D-DT-0892 Sheet 1 and Sheet 3	Excavate by hand a 1m wide x 1.3m deep trench for the HV cable (Soil) – **General / Parallel to curb.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.5	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.3m deep trench for the HV cable (Rock) – **General / Parallel to curb.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		

4.6	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.3m deep trench for the HV cable (Shale) – **General / Parallel to curb.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.7	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.3m deep trench for the HV cable (Soil) – **General / Parallel to curb.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.8	D-DT-0892 Sheet 1 and Sheet 3	Excavate by hand a 1m wide x 1.6m deep trench for the HV cable. (Shale) – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		

4.9	D-DT-0892 Sheet 1 and Sheet 3	Excavate by hand a 1m wide x 1.6m deep trench for the HV cable. (Soil) – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.10	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.6m deep trench for the HV cable. (Rock) – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		
4.11	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.6m deep trench for the HV cable. (Shale) – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m^3		

4.12	D-DT-0892 Sheet 1 and Sheet 3	Excavate by machine a 1m wide x 1.6m deep trench for the HV cable. (Soil) – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.)	m³		
4.13	n/a	Transport (from site) and store soil at suitable site. (First handling of soil, where required.). (50km radius)	m³		
4.14	D-DT-0892 Sheet 1 and Sheet 3	Transport (from site) and dump soil. (Bedding soil, blanket soil and trench stabilization soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.)	m³		
4.15	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Sift soil with sieve having a maximum mesh size of no greater than 12mm. (Bedding and blanket)	m³		
4.16	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C4 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
4.17	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C5 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
4.18	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G4 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
4.19	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G5 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		

4.20	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Backfill, sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1m (wide) x 0.9m (deep), for 100% of the route. (Original excavated soil) – **General / Under Road Surface (Parallel to kerbing.)** (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
4.21	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Backfill, sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1m (wide) x 1.2m (deep), for 100% of the route. (Original excavated soil) – **Road / Railway crossing.** (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
4.22	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1m (wide) x 0.9m (deep), for 100% of the route. (Original excavated soil; Second handling of soil) – **General / Under Road Surface (Parallel to kerbing.)** (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius)	m³		
4.23	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1m (wide) x 1.2m (deep), for 100% of the route. (Original excavated soil; Second handling of soil) – **Road / Railway crossing.** (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius)	m³		
4.24	SANS 10198 and D-DT-0892 Sheet 1 and Sheet 3	Offload and install Danger / Warning tape along cable route length. (The tape weights about 22kg for 330m of tape.)	m		
4.25	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Chemical rock breaking. (Supply and apply safely) - Prior approval required.	Cost plus fee		

4.26	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Rock blasting. (Supply and apply safely) - Prior approval required.	Cost plus fee		
4.27	n/a	Transport and dump broken rock. (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.)	m³		
4.28	D-DT-8076 and D-DT-0892 Sheet 1 and Sheet 3	Offload and install pre-cast concrete slabs (760mm long, 200mm wide) as per D-DT-0892, along HV cable route length.	m		
4.29	D-DT-0892 Sheet 1 and Sheet 3	Supply, deliver, install (at start of cable trenching) and decommission (after construction) 1.5m high shoring timber on both sides of the HV cable trench. **(General / Under Road Surface (Parallel to kerbing)) - Shoring to be designed by ECSA registered Civil / Structural engineer.**	Linear Length - m		
4.30	D-DT-0892 Sheet 1 and Sheet 3	Supply, deliver, install (at start of cable trenching) and decommission (after construction) 1.8m high shoring timber on both sides of the HV cable trench. **(Road and Railway crossings) - Shoring to be designed by ECSA registered Civil / Structural engineer.**	Linear Length - m		
4.31	n/a	Perform cross-trenches / trial holes to determine the location of services. Cross-trenches to be reinstated to their original state. (Trench sizes are: 4m wide x 1m long x 1.8m deep = 7.2m³)	m³		
4.32	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and build on-site a manhole used for **DTS fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details.	Each		
4.33	D-DT-8080, D-DT-0894 Sheet 4 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for **DTS fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details.	Each		

4.34	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and build on-site a manhole used for **Differential fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details.	Each		
4.35	D-DT-8080, D-DT-0894 Sheet 4 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for **Differential fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details.	Each		
4.36	n/a	Pump Water to ensure trenches are free of water at all times.	Hour		
4.37	n/a	Supply and install during construction and remove after construction, danger labels, Water filled plastic barricading and steel guard rails along the cable route length and joint bays as needed. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
4.38	n/a	Supply and install during construction and remove after construction, danger labels, concrete barricading and steel guard rails along the cable route length and joint bays. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
4.39	n/a	Supply and Install steel trench covers / plates during construction, and remove after construction, to ensure that there is access to properties and pedestrian crossings (where needed) while work is performed on the HV cable along the route length.	M		
Total					
Civil Contractor : HV Cable installation (Inside Culverts)					
5.1	n/a	Saw cutting of road surface. **(One side of trench)** - Prior approval required.	m		
5.2	n/a	Saw cutting of road surface. **(On both sides of trench)** - Prior approval required.	Total length - m		

5.3	D-ST-2328	Excavate by hand for the HV cable and joint culvert - Shale – **General / Under Road Surface (Parallel to kerbing.)** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		
5.4	D-ST-2328	Excavate by hand for the HV cable and joint culvert - Soil – **General / Under Road Surface (Parallel to kerbing.)** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		
5.5	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Rock – **General / Under Road Surface (Parallel to kerbing.)** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		

5.6	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Shale – **General / Under Road Surface (Parallel to kerbing.)** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		
5.7	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Soil – **General / Under Road Surface (Parallel to kerbing.)** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		
5.8	D-ST-2328	Excavate by hand for the HV cable and joint culvert - Shale – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m^3		

5.9	D-ST-2328	Excavate by hand for the HV cable and joint culvert - Soil – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m³		
5.10	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Rock – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m³		
5.11	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Shale – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m³		

5.12	D-ST-2328	Excavate by machine for the HV cable and joint culvert - Soil – **At Road and Railway crossings.** (Note: Excavation to be done in sections at a time, from one HV joint bay to the next HV joint bay. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, or as directed on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) - Prior approval required.	m³		
5.13	D-ST-2328 Sheet 7	Supply and install 3 x Concrete pipes for crossing. - Prior approval required.	m		
5.14	D-ST-2328 Sheet 7	Supply and install concrete culverts, lid, slab, cement, support, etc. complete as per drawings, for both sides of crossing. (Culvert specified on drawing.)- Prior approval required.	Per road crossing	cost plus fee	cost plus fee
5.15	n/a	Transport (from site) and store soil at suitable site. (First handling of soil, where required.) (50km radius) - Prior approval required.	m³		
5.16	D-ST-2328	Transport (from site) and dump soil. (Bedding soil, blanket soil and trench stabilization soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) - Prior approval required.	m³		
5.17	SANS 10198 and D-ST-2328	Sift soil with sieve having a maximum mesh size of no greater than 12mm. (Bedding and blanket) - Prior approval required.	m³		
5.18	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C4 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		
5.19	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C5 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		
5.20	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G4 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		

5.21	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G5 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		
5.22	SANS 10198 and D-ST-2328	Backfill, sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables and next to culverts. (Original excavated soil;) – **General / Under Road Surface (Parallel to kerbing.)** (Volume quoted is for final compacted volume and includes bulking factors.) **-** Prior approval required.	m³		
5.23	SANS 10198 and D-ST-2328	Backfill, sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables and next to the culverts. (Original excavated soil;) – **Road / Railway crossing.** (Volume quoted is for final compacted volume and includes bulking factors.) **-** Prior approval required.	m³		
5.24	SANS 10198 and D-ST-2328	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1.6m (wide) x 0.45m (deep), and next to culverts, for 100% of the route. (Original excavated soil; Second handling of soil) – **General / Under Road Surface (Parallel to kerbing.)** (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius) - Prior approval required.	m³		
5.25	SANS 10198 and D-ST-2328	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cables.) – 1.6m (wide) x 0.75m (deep), and next to the culverts, for 100% of the route. (Original excavated soil; Second handling of soil) – **Road / Railway crossing.** (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius) **-** Prior approval required.	m³		
5.26	SANS 10198 and D-ST-2328	Offload and install Danger / Warning tape along cable route length. (The tape weights about 22kg for 330m of tape.) - Prior approval required.	m		
5.27	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Chemical rock breaking. (Supply and apply safely) - Prior approval required.	Cost plus fee		

5.28	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Rock blasting. (Supply and apply safely) - Prior approval required.	Cost plus fee		
5.29	n/a	Transport and dump broken rock. (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) - Prior approval required.	m³		
5.30	SANS 10198 and D-ST-2328	Supply and install pre-cast concrete culvert, lid, slab, cement, support, etc. complete as per drawings for HV cable. (Culvert specified on drawing.) - Prior approval required.	m		
5.31	SANS 10198 and D-ST-2328	Supply and install pre-cast concrete culvert, lid, slab, cement, support, etc. complete as per drawings for HV cable transition bay. (Culvert specified on drawing.) - Prior approval required.	m		
5.32	SANS 10198 and D-ST-2328	Supply and install pre-cast concrete culvert, lid, slab, cement, support, etc. complete as per drawings for fibre draw box. (Culvert specified on drawing.) - Prior approval required.	m		
5.33	SANS 10198 and D-ST-2328	Supply, deliver, install (at start of cable trenching) and decommission (after construction) 1.5m high shoring timber on both sides of the HV cable trench. **(General / Under Road Surface (Parallel to kerbing)) - Shoring to be designed by ECSA registered Civil / Structural engineer. -** Prior approval required.	Linear Length - m		
5.34	SANS 10198 and D-ST-2328	Supply, deliver, install (at start of cable trenching) and decommission (after construction) 1.8m high shoring timber on both sides of the HV cable trench. **(Road and Railway crossings) - Shoring to be designed by ECSA registered Civil / Structural engineer. -** Prior approval required.	Linear Length - m		
5.35	n/a	Perform cross-trenches / trial holes to determine the location of services. Cross-trenches to be reinstated to their original state. (Trench sizes are: 4m wide x 1m long x 1.8m deep = 7.2m³) - Prior approval required.	m³		
5.36	D-ST-2328	Supply and cast concrete with reinforcing, on-site, to fill gaps and spaces between culverts and slabs, as needed. - Prior approval required.	m³		

5.37	D-ST-2328	Transport (from site) and dump soil. (Backfill soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) - Prior approval required.	m³		
5.38	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and build on-site a manhole used for **DTS fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details. - Prior approval required.	Each		
5.39	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for **DTS fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details. - Prior approval required.	Each		
5.40	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and build on-site a manhole used for **Differential fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details - Prior approval required..	Each		
5.41	D-DT-8080, D-DT-0894 Sheet 2 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for **Differential fibre works.** (Scope excludes electrical scope.) In high-risk areas, draw pits may be installed at least 100 mm below the normal ground level. For such a case, the ground shall be re-instated on top of the draw pit cover. See drawing for more details. - Prior approval required.	Each		
5.42	n/a	Pump Water to ensure trenches are free of water at all times.	Hour		
5.43	n/a	Supply and install during construction and remove after construction, danger labels, Water filled plastic barricading and steel guard rails along the cable route length and joint bays as needed. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
5.44	n/a	Supply and install during construction and remove after construction, danger labels, concrete barricading and steel guard rails along the cable route length and joint bays. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		

5.45	n/a	Supply and Install steel trench covers / plates during construction, and remove after construction, to ensure that there is access to properties and pedestrian crossings (where needed) while work is performed on the HV cable along the route length.	M		
Total					
Civil Contractor : HV Joint bays (Normal Installation)					
6.1	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Excavate by hand a 10m long x 2.1m wide x 1.65m deep joint bay. (Shale) – 34.65m³ per joint bay.	Each		
6.2	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Excavate by hand a 10m long x 2.1m wide x 1.65m deep joint bay. (Soil) – 34.65m³ per joint bay.	Each		
6.3	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Excavate by machine a 10m long x 2.1m wide x 1.65m deep joint bay. (Rock) – 34.65m³ per joint bay.	Each		
6.4	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Excavate by machine a 10m long x 2.1m wide x 1.65m deep joint bay. (Shale) – 34.65m³ per joint bay.	Each		
6.5	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Excavate by machine a 10m long x 2.1m wide x 1.65m deep joint bay. (Soil) – 34.65m³ per joint bay.	Each		
6.6	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Supply, deliver, install (at the start of trenching) and decommission (after construction) 1.950m high shoring timber on both sides of the HV joint bay. (HV Joint bays are 10m long) **- Shoring to be designed by ECSA registered Civil / Structural engineer.**	Linear Length - m		
6.7	D-DT-2237, D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Cast in-situ 7m long x 2m wide x 100mm thick concrete base for each HV joint bay (with a 1:200 slope to sump.). Concrete base to include 75mm wide x 50mm deep drainage channel. - 1.4m³ per joint bay. 10 MPa strength. (Concrete foundation to be set and marked.) Sand, Stone (13mm) and cement to be supplied by contractor. Concrete to be mixed on-site and concrete form work to be done by contractor. Concrete base to be coated, after construction, with a bonding agent such that it would prevent Cement dust in the jointing area.	Each		
6.8	n/a	Transport (from site) and store soil at suitable site. (First handling of soil). (50km radius)	m³		
6.9	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Transport (from site) and dump soil. (Bedding soil, blanket soil and trench stabilization soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.)	m³		

6.10	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Sift soil with sieve having a maximum mesh size of no greater than 12mm. (Bedding and blanket)	m³		
6.11	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C4 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
6.12	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C5 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
6.13	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G4 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
6.14	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G5 soil for trench stabilization or backfill. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
6.15	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Backfill and sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cable joint (Top layer of soil in accordance with D-DT-0891.) (Original excavated soil;.) (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
6.16	D-DT-0891 Sheet 1, Sheet 3 and Sheet 4.	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cable joints. - 10m (long) x 2.1m (wide) x 0.75m (deep) – 15.75m³ per joint bay. (Top layer of soil in accordance with D-DT-0891.) (Original excavated soil; Second handling of soil.) (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius)	m³		
6.17	D-DT-0891 Sheet 1, Sheet 3, Sheet 4 and D-DT-8013	Off-load and install 4 x 12m of Danger/Warning tape per HV joint bay. (The tape weighs about 22kg for 330m of tape.)	Number of joint bays		
6.18	D-DT-0891 Sheet 1, Sheet 3, Sheet 4 and D-DT-8076	Off-load and Install pre-cast concrete slabs (D-DT-8076, 760mm long, 200mm wide), in HV joint bays. (120 Slabs per joint bay.)	Number of joint bays		

6.19	D-DT-8080, D-DT-0894 Sheet 1 or Design Specific drawing(s).	Supply and build on-site a manhole used for the installation of a Link Disconnecting box. (Scope excludes electrical scope.) See drawing for more details.	Each		
6.20	D-DT-8080, D-DT-0894 Sheet 1 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for the installation of a Link Disconnecting box. (Scope excludes electrical scope.) See drawing for more details.	Each		
6.21	n/a	Pump Water to ensure joint bays are free of water at all times.	Hour		
6.22	n/a	Supply and install during construction and remove after construction, danger labels, Water filled plastic barricading and steel guard rails along the cable route length and joint bays as needed. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
6.23	n/a	Supply and install during construction and remove after construction, danger labels, concrete barricading and steel guard rails along the cable route length and joint bays. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
6.24	n/a	Supply and Install steel trench covers / plates during construction, and remove after construction, to ensure that there is access to properties and pedestrian crossings (where needed) while work is performed on the HV cable along the route length.	M		
Total					
Civil Contractor: HV Joint bays (Inside Culverts)					
7.1	D-ST-2328	Excavate by hand for HV culvert joint bay - Shale - Prior approval required.	m^3		
7.2	D-ST-2328	Excavate by hand for HV culvert joint bay - Soil - Prior approval required.	m^3		
7.3	D-ST-2328	Excavate by machine for HV culvert joint bay - Rock - Prior approval required.	m^3		
7.4	D-ST-2328	Excavate by machine for HV culvert joint bay - Shale - Prior approval required.	m^3		
7.5	D-ST-2328	Excavate by machine for HV culvert joint bay - Soil - Prior approval required.	m^3		

7.6	D-ST-2328	Supply, deliver, install (at the start of trenching) and decommission (after construction) 1.960m high shoring timber on both sides of the HV joint bay. (HV Joint bays are 10m long) **- Shoring to be designed by ECSA registered Civil / Structural engineer. -** Prior approval required.	Linear Length - m		
7.7	D-ST-2328	Supply and install pre-cast concrete culvert, lid, slab, cement, support, etc. complete as per drawings for HV joint bay. (Culvert specified on drawing.) - Prior approval required.	Number of joint bays		
7.8	n/a	Transport (from site) and store soil at suitable site. (First handling of soil). (50km radius) - Prior approval required.	m³		
7.9	D-ST-2328	Transport (from site) and dump soil. (Bedding soil, blanket soil and trench stabilization soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) - Prior approval required.	m³		
7.10	D-ST-2328	Sift soil with sieve having a maximum mesh size of no greater than 12mm. (Bedding and blanket) - Prior approval required.	m³		
7.11	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C4 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		
7.12	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported C5 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.)- Prior approval required.	m³		
7.13	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G4 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.)- Prior approval required.	m³		
7.14	Local authority requirements or Civil Engineer's engineering report.	Supply (Import), install and hand / machine compact (90% MOD AASHTO) imported G5 soil for trench stabilization. (Volume quoted is for final compacted volume and includes bulking factors.)- Prior approval required.	m³		

7.15	D-ST-2328	Backfill and sift and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cable joint culverts and around culverts (Top layer of soil in accordance with D-DT-0891.) (Original excavated soil.) (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³		
7.16	D-ST-2328	Return (Transport), sift, backfill and compact (in maximum layers of 300mm – 90% MOD AASHTO) original soil as backfill for HV cable joints. - 11m (long) x 2.7m (wide) x 0.45m (deep) + 11m (long) x 0.15m x 2 (wide) x 1.210m (deep) = 17.358m³ per joint bay. (Top layer of soil in accordance with D-DT-0891.) (Original excavated soil; Second handling of soil.) (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius) - Prior approval required.	m³		
7.17	D-ST-2328	Off-load and install 2 x 11m of Danger/Warning tape per HV joint bay. (The tape weighs about 22kg for 330m of tape.) - Prior approval required.	Number of joint bays		
7.18	D-ST-2328	Supply and cast concrete with reinforcing, on-site, to fill gaps and spaces between culverts and slabs. - Prior approval required.	m³		
7.19	D-ST-2328	Transport (from site) and dump soil. (Backfill Soil.) (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) - Prior approval required.	m³		
7.20	D-DT-8080, D-DT-0894 Sheet 1 or Design Specific drawing(s).	Supply and build on-site a manhole used for the installation of a Link Disconnecting box. (Scope excludes electrical scope.) See drawing for more details. - Prior approval required.	Each		
7.21	D-DT-8080, D-DT-0894 Sheet 3 or Design Specific drawing(s).	Supply and install a pre-cast manhole used for the installation of a Link Disconnecting box. (Scope excludes electrical scope.) See drawing for more details. - Prior approval required.	Each		
7.22	n/a	Pump Water to ensure joint bays are free of water at all times.	Hour		
7.23	n/a	Supply and install during construction and remove after construction, danger labels, Water filled plastic barricading and steel guard rails along the cable route length and joint bays as needed. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		

7.24	n/a	Supply and install during construction and remove after construction, danger labels, concrete barricading and steel guard rails along the cable route length and joint bays. – Signs must be clearly visible even in poor visibility conditions. – (Use warning illuminants where possible.)	M		
7.25	n/a	Supply and Install steel trench covers / plates during construction, and remove after construction, to ensure that there is access to properties and pedestrian crossings (where needed) while work is performed on the HV cable along the route length.	M		
Total					
Civil Contractor : Cable Route Markers					
8.1	D-DT-8012 and 240-56030640	Install cable route markers with name plates (Descriptor) along cable route length at intervals of 150m on straight sections, at each bend, at each road crossings, railway crossing, river crossing and each HV joint bay. (Base to be 250mm below ground level. If the route marker is installed on a paved or concrete surface, the top shall be flush with this surface.)	Each		
8.2	D-DT-8012 and 240-56030640	Engrave route markers. The following shall be punched or scribed onto the aluminium plate of the cable route marker: a) an arrow indicating the cable route; b) the cable descriptor (in accordance with 4.10.2.6 referenced to the source substation name and if applicable, “IJ” to indicate the position of a sheath interrupting joint at joint bays.) The marker with aluminium plate must also be installed such that one can read the markings while standing on the pavement. i.e. the markings must face the pavement.	Each		
Total					
Civil Contractor : Removal of existing HV cable (where new cable isn't installed)					

9.1	n/a	Excavate (by hand/machine) a sloped trench for the HV cable. (Note: Excavation to be done in sections at a time, to recover an entire drum's cable, before proceeding with the next section. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, unless directed otherwise on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) (The existing cable must be used as reference, as to where trenching must be done.) - **General, under road surface parallel to kerb.**	m³		
9.2	n/a	Excavate (by hand/machine) a sloped trench for the HV cable. (Note: Excavation to be done in sections at a time, to recover an entire drum's cable, before proceeding with the next section. After this, the trench must be backfilled, compacted and surfaces reinstated, etc. before continuing with the installation of the next section, unless directed otherwise on-site. The actual labour for backfilling, compacting, reinstatement, etc. will be covered in other activities.) (The existing cable must be used as reference, as to where trenching must be done.) - **Rail or road crossings**	m³		
9.3	n/a	Backfill (with normal excavated soil) and compact (in maximum layers of 300mm – 90% MOD AASHTO) all the soil previously removed to recover the HV cable. (Volume quoted is for final compacted volume and includes bulking factors.)	m³		
9.4	n/a	Remove (transport – First handling of soil), store, return (Second handling of soil), backfill (with normal excavated soil) and compact (in maximum layers of 300mm – 90% MOD AASHTO) all the soil previously removed to recover the HV cable. (Volume quoted is for final compacted volume and includes bulking factors.) (50km radius)	m³		
9.5	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Chemical rock breaking. (Supply and apply safely) - Prior approval required.	Cost plus fee		

9.6	Maintenance Management plan / EMP (if applicable) or Civil Engineer's engineering report (if applicable).	Rock blasting. (Supply and apply safely) - Prior approval required.	Cost plus fee		
9.7	n/a	Transport and dump broken rock. (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.)	m³		
Total					
Civil Contractor : Reinstatement (For new cable and old cable to be decommissioned.)					
10.1	Local authority requirements or Civil Engineer's engineering report.	Remove tar surfaces, and sub layers, transport and dump material before civil construction. (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP.) After Civil construction, reinstate tar surface to Local authority / Civil Engineer's specification. (All material and sub layers to be supplied and installed by the contractor.) - To be designed by ECSA registered Civil / Structural engineer.	m²		
10.2	n/a	Remove, transport, store, transport back and reinstate **kerb** to its original state. (On one side of trench) (50km radius)	m		
10.3	n/a	Remove, transport, store, transport back and reinstate **paved** surface to its original state. (50km radius)	m²		
10.4	n/a	Reinstate concrete surfaces to its original state.	m²		
10.5	n/a	Remove, transport, store, transport back, safeguard and reinstate **fences** to its original state. (50km radius) - Diamond Mesh	m		
10.6	n/a	Remove, transport, store, transport back, safeguard and reinstate **fences** to its original state. (50km radius) - Palisade	m		
10.7	n/a	Remove, transport, store, transport back, safeguard and reinstate **fences** to its original state. (50km radius) - Concrete panel	m		
10.8	n/a	Remove, transport, store, transport back, safeguard and reinstate **fences** to its original state. (50km radius) - Special / other	m		
10.9	n/a	Brick wall - Single brick	m²		
10.10	n/a	Brick wall - Double brick	m²		
10.11	n/a	Brick wall - Single face brick	m²		
10.12	n/a	Brick wall - Double face brick	m²		

10.13	n/a	Plaster cement	m²	
10.14	n/a	Water proofing - uPVC	m²	
10.15	n/a	Water proofing - Bituminous application	m²	
10.16	n/a	Painting	m²	
10.17	n/a	Reinstate gardens to its original state (Including racking).	m²	
10.18	n/a	Reinstate Lawn / veld to its original state (Including raking).	m²	
Total				
Civil Contractor: Substation scope				
11.1	D-DT-0890 D-DT-5271 and D-DT-5272	Erect and assemble any support steel work and steel caps for HV Cable termination	Cost plus fee	
Total				

Bill of Activities				**Final Eskom offer**	
Item	**Description**	**Unit**	**Material Quantity**	**Material Rate**	**Labour Rate**
Electrical Contractor : River crossing					

2.1	Supply, deliver and fill PVC / PE pipes, occupied by HV cable with bentonite and water mix as per the bentonite supplier's instruction manuals. The mix shall be kept in position by sealing the end of the pipe duct with densomastic paste (Supplied and installed by contractor) where the power cable enters and exits to prevent water ingress.	m³			
Total					
Electrical Contractor : Road crossing					
3.1	Supply, deliver and fill PVC / PE / Concrete pipes, occupied by HV cable with bentonite and water mix as per the bentonite supplier's instruction manuals. The mix shall be kept in position by sealing the end of the pipe duct with densomastic paste (Supplied and installed by contractor) where the power cable enters and exits to prevent water ingress.	m³			
3.2	Supply, offload (transport) and install rot-proof bags containing a weak sand-cement mix (30:1) for a distance of approximately 0.5 m into the HV cable trench wherever cable enters or exists a pipe duct, to support the HV cable. (20 Bags to be used for each exit / entry point.) - 25kg Bags.	Bag			
3.3	Supply, offload (transport) and install rot-proof bags containing a weak sand-cement mix (30:1) when constructing a road crossing. Bags to be placed such that it forms a double wall on both sides of the trench (for support). (166 Bags to be used for each crossing.) Bags to be re-used at crossings. - 25kg Bags.	Bag			
Total					
Electrical Contractor : HV Cable installation (Normal Installation)					
4.1	Supply (Import), install and hand compact (90% MOD AASHTO) imported 1.2 Km/W sifted soil as bedding and blanket for the HV cable. – 1m (wide) x 0.4m (deep), 100% of the route. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
4.2	Supply (Import), install and hand compact (90% MOD AASHTO) imported 1 Km/W sifted soil as bedding and blanket for the HV cable. – 1m (wide) x 0.4m (deep), 100% of the route. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			

4.3	Supply (Import), install and hand compact (90% MOD AASHTO) imported 0.8 Km/W sifted soil as bedding and blanket for the HV cable. – 1m (wide) x 0.4m (deep), 100% of the route. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
4.4	Backfill sift and hand compact (90% MOD AASHTO) original soil as bedding and blanket for the HV cable. (Original excavated soil;) (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
4.5	Return (Transport), sift, backfill, and hand compact (90% MOD AASHTO) original soil as bedding and blanket for the HV cable. – 1m (wide) x 0.4m (deep), 100% of the route. (Original excavated soil; Second handling of soil) (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
Total					
Electrical Contractor : HV Cable installation (Inside Culverts)					
5.1	Supply (Import), install and hand compact (90% MOD AASHTO) imported 1.2 Km/W sifted soil as bedding and blanket for the HV cable. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
5.2	Supply (Import), install and hand compact (90% MOD AASHTO) imported 1 Km/W sifted soil as bedding and blanket for the HV cable. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
5.3	Supply (Import), install and hand compact (90% MOD AASHTO) imported 0.8 Km/W sifted soil as bedding and blanket for the HV cable. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
5.4	Backfill, sift and hand compact (90% MOD AASHTO) original soil as bedding and blanket for the HV cable. (Original excavated soil) (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			

5.5	Return (Transport), sift, backfill, and hand compact (90% MOD AASHTO) original soil as bedding and blanket for the HV cable. (Original excavated soil; Second handling of soil) (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
Total					
Electrical Contractor : HV Joint bays (Normal Installation)					
6.1	Supply (Import), install and hand compact (SANS 10198) imported sifted 1.2 Km/W soil around HV cable joints. - 10m (long) x 2.1m (wide) x 0.80m (deep) – 16.8m³ per joint bay. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
6.2	Supply (Import), install and hand compact (SANS 10198) imported sifted 1 Km/W soil around HV cable joints. - 10m (long) x 2.1m (wide) x 0.80m (deep) – 16.8m³ per joint bay. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
6.3	Supply (Import), install and hand compact (SANS 10198) imported sifted 0.8 Km/W soil around HV cable joints. - 10m (long) x 2.1m (wide) x 0.80m (deep) – 16.8m³ per joint bay. (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
6.4	Backfill, sift and hand compact (90% MOD AASHTO) original excavated soil as bedding and blanket for the HV cable joint. (Original excavated soil;) (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
6.5	Return (Transport), sift, backfill, and hand compact (90% MOD AASHTO) original excavated soil as bedding and blanket for the HV cable joint.) – 10m (long) x 2.1m (long) x 0.80m (deep) - 16.80m³ per joint bay. (Original excavated soil; Second handling of soil.) (Volume quoted is for final compacted volume and includes bulking factors.)	m³			
Total					
Electrical Contractor : HV Joint bays (Inside Culverts)					

7.1	Supply (Import), install and hand compact (SANS 10198) imported sifted 1.2 Km/W soil around HV cable joints, inside culvert. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
7.2	Supply (Import), install and hand compact (SANS 10198) imported sifted 1 Km/W soil around HV cable joints, inside culvert. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
7.3	Supply (Import), install and hand compact (SANS 10198) imported sifted 0.8 Km/W soil around HV cable joints, inside culvert. (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
7.4	Backfill, sift and hand compact (90% MOD AASHTO) original excavated soil as bedding and blanket for the HV cable joint. (Original excavated soil;) (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
7.5	Return (Transport), sift, backfill, and hand compact (90% MOD AASHTO) original excavated soil as bedding and blanket for the HV cable joint. (Original excavated soil; Second handling of soil.) (Volume quoted is for final compacted volume and includes bulking factors.) - Prior approval required.	m³			
Total					
Electrical Contractor : Removal of existing HV cable					
8.1	Recover in good order: Remove 1C or 3C XLPE / PILC / oil filled cable from open trench (site) and drum cable. If oil cable, then drain partially. (A maximum of 500m of cable to be placed on a drum). Ends of cable to be sealed off with suitable caps. - Prior approval required.	m		-	
8.2	Supply drum and transport to Roscherville stores - Steel drum, to recover XLPE / PILC cable. - Prior approval required.	Each			
8.3	Supply drum and transport to Roscherville stores - Steel drum, with conservator tank, to recover Oil filled cable (under pressure). - Prior approval required.	Each			

8.4	Scrapping: Breakout and remove concrete floor underneath HV joint and dump material. (Material to be dumped at suitable site in accordance with the Maintenance Management plan / EMP .)	m³			
8.5	Cut and cap cable.	Each			
8.6	Provide and use oil spill absorption kits(240L with wheelie bin)	EA			
Total					
Electrical Contractor : HV Cable					
9.1	In unstable areas shorter than 10m along the HV cable route length, supply, offload (transport) and install rot-proof bags containing a weak sand-cement mix (30:1) such that it lines the bottom of the HV cable trench. The number of bags used will depend upon the ground softness but as a rule, sufficient bags shall be used to support a weight of 100 kg. - 25kg Bags.	Bag			
9.2	Lay / pull and install **cable above 132kV 1C 500mm² Al/Cu up to and including 132kV 1C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.3	Lay / pull and install **cable below and including up to 132kV 1C 500mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.4	Lay / pull and install **cable above 132kV 3C 500mm² Al/Cu up to and including 132kV 3C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.5	Lay / pull and install **cable below and including up to 132kV 3C 500mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.6	Lay / pull and install **cable above 88kV 1C 500mm² Al/Cu up to and including 88kV 1C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.7	Lay / pull and install **cable below and including up to 88kV 1C 500mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			

9.8	Lay / pull and install **cable above 88kV 3C 500mm² Al/Cu up to and including 88kV 3C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.9	Lay / pull and install **cable below and including up to 88kV 3C 500mm² Al/Cu** into open trench in *flat / tre-foil* formation and inside pipes.	m			
9.10	Lay / pull and install **cable above 44kV 1C 500mm² Al/Cu up to and including 44kV 1C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.11	Lay / pull and install **cable below and including up to 44kV 1C 500mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.12	Lay / pull and install **cable above 44kV 3C 500mm² Al/Cu up to and including 44kV 3C 1000mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.13	Lay / pull and install **cable below and including up to 44kV 3C 500mm² Al/Cu** into open trench in flat / tre-foil formation and inside pipes.	m			
9.14	Lay / pull and install bare or insulated **2 x 185mm² ECC** (Earth continuity conductor) along cable route length and inside PVC / PE pipes. ECCs to be transposed such that it occupies equal length between phase 1 and phase 2, and phase 2 and phase 3 along the cable route length.	m			
9.15	Lay / pull and install bare or insulated **1 x 185mm² ECC** (Earth continuity conductor) along cable route length and inside PVC / PE pipes. ECCs to be transposed such that it occupies equal length between phase 1 and phase 2, and phase 2 and phase 3 along the cable route length.	m			
9.16	CAD weld / Braze bare or insulated ECC to earthmat at source and load side	Each			

9.17	Install 185mm² crimp ferrule to joint bare or insulated ECC's together. (500m of ECC on a drum.)	Each			
9.18	Provide Cable flash blankets, to be used along the cable route, when in close proximity to other live cables.	m			
9.19	Set up cable drums station	EA			
9.20	Set up winch station	EA			
9.21	Trace cable (Contractor to supply equipment to locate and trace cable)	Per meter			
9.22	Provide and use oil spill absorption kits(240L with wheelie bin)	EA			
9.23	Supply and install concrete screed, 50mm high, with a cement to sand ratio of 1:5, inside cable trench.	m²			
9.24	Encase HV cable and selected accessories (including bedding and blanket soil layers) to prevent theft. Solution may not affect thermal resistivity of surrounding soil or heat dissipation from cable. Solution must have a means to remove encasement for instances where Eskom needs to perform maintenance.	Cost plus fee			
Total					
Electrical Contractor : HV Joints					
10.1	Supply, offload (transport) and install rot-proof bags containing a weak sand-cement mix (30:1) such that it lines the bottom of all the HV joint bays, underneath the HV cables and HV joints. Rot-proof bags also to be used to support trench walls at the start and end of the joint bays. (108 Bags per HV joint bay [Estimated]. - Includes bags used for water diversion.) - 25kg Bags.	Bag			
10.2	Supply, offload (transport) and install rot-proof bags containing a weak sand-cement mix (30:1) for a distance of 1.5 m into the trench where HV cable enters and exits the joint bay. (Estimated 20 Bags to be used for each exit / entry point.) - 25kg Bags.	Bag			
10.3	Join XLPE cables above **132kV 1C 500mm² Al/Cu XLPE** up to and including **132kV 1C 1000mm² Al/Cu XLPE** together using a sheath interrupting joint kit.	Each			
10.4	Join XLPE cables below and including up to **132kV 1C 500mm² Al/Cu XLPE** together using a sheath interrupting joint kit.	Each			

10.5	Join XLPE cables above **132kV 1C 500mm² Al/Cu XLPE** up to and including **132kV 1C 1000mm² Al/Cu XLPE** together using a straight joint kit.	Each			
10.6	Join XLPE cables below and including up to **132kV 1C 500mm² Al/Cu XLPE** together using a straight joint kit.	Each			
10.7	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.8	Join any oil filled, oil impregnated paper, or any other oil filled cable below **132kV 500mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.9	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.10	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.11	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			
10.12	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			
10.13	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			
10.14	Join any oil filled, oil impregnated paper, or any other oil filled cable below **132kV 500mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			

10.15	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			
10.16	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			
10.17	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.18	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.19	Joint any oil filled, oil impregnated paper, or any cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.20	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.21	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.22	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.23	Joint any oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** together using a 3 Core to 1 Core transition joint kit.	Each			
10.24	Join any oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** together using a 3 Core to 1 Core transition joint kit.	Each			
10.25	Join XLPE cables above **88kV 1C 500mm² Al/Cu XLPE** up to and including **88kV 1C 1000mm² Al/Cu XLPE** together using a sheath interrupting joint kit.	Each			
10.26	Join XLPE cables below and including up to **88kV 1C 500mm² Al/Cu XLPE** together using a sheath interrupting joint kit.	Each			

10.27	Join XLPE cables above **88kV 1C 500mm² Al/Cu XLPE** up to and including **88kV 1C 1000mm² Al/Cu XLPE** together using a straight joint kit.	Each			
10.28	Join XLPE cables below and including up to **88kV 1C 500mm² Al/Cu XLPE** together using a straight joint kit.	Each			
10.29	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.30	Join any oil filled, oil impregnated paper, or any other oil filled cable below **88kV 500mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.31	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.32	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.33	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			
10.34	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			
10.35	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			
10.36	Join any oil filled, oil impregnated paper, or any other oil filled cable below **88kV 500mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			
10.37	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			

10.38	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			
10.39	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.40	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.41	Joint any oil filled, oil impregnated paper, or any cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.42	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.43	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.44	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.45	Joint any oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** together using a 3 Core to 1 Core transition joint kit.	Each			
10.46	Join any oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** together using a 3 Core to 1 Core transition joint kit.	Each			
10.47	Join XLPE cables above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** together using a sheath interrupting joint kit. - Pre-mould joint.	Each			
10.48	Join XLPE cables below and including up to **44kV 1C 500mm² Al/Cu XLPE** together using a sheath interrupting joint kit. - Pre-mould joint.	Each			
10.49	Join XLPE cables above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** together using a straight joint kit. - Pre-mould joint.	Each			

10.50	Join XLPE cables below and including up to **44kV 1C 500mm² Al/Cu XLPE** together using a straight joint kit. - Pre-mould joint.	Each			
10.51	Join XLPE cables above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** together using a sheath interrupting joint kit. - Heat shrink joint.	Each			
10.52	Join XLPE cables below and including up to **44kV 1C 500mm² Al/Cu XLPE** together using a sheath interrupting joint kit. - Heat shrink joint.	Each			
10.53	Join XLPE cables above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** together using a straight joint kit. - Heat shrink joint.	Each			
10.54	Join XLPE cables below and including up to **44kV 1C 500mm² Al/Cu XLPE** together using a straight joint kit. - Heat shrink joint.	Each			
10.55	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.56	Join any oil filled, oil impregnated paper, or any other oil filled cable below **44kV 500mm²** together using a sheath interrupting joint kit. (Single core cable to Single core cable.)	Each			
10.57	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.58	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a straight joint kit. (Single core cable to Single core cable.)	Each			
10.59	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			
10.60	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a stop joint kit. (Single core cable to Single core cable.)	Each			

10.61	Joint any oil filled, oil impregnated paper, or any other oil filled cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			
10.62	Join any oil filled, oil impregnated paper, or any other oil filled cable below **44kV 500mm²** together using a sheath interrupting joint kit. (Three core cable to Three core cable.)	Each			
10.63	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			
10.64	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a straight joint kit. (Three core cable to Three core cable.)	Each			
10.65	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.66	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a stop joint kit. (Three core cable to Three core cable.)	Each			
10.67	Joint any oil filled, oil impregnated paper, or any cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.68	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a trifurcating joint kit. (Three core cable to Single core cable.)	Each			
10.69	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.70	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a 1 Core to 1 Core transition joint kit.	Each			
10.71	Joint any oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** together using a 3 Core to 1 Core transition joint kit.	Each			

10.72	Join any oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** together using a 3 Core to 1 Core transition joint kit.	Each			
10.73	Joint bay earthing: Install an earth-electrode comprising of earth rods driven in at each corner of a HV **sheath interrupting joint** bay. (Four rods per joint bay.) Install 16mm² stranded copper conductor in the HV joint bay up to the link disconnecting kiosks / manholes. (+-40m per HV joint bay.) Fit clamps to earth rods and the 16mm² stranded conductor. (Four clamps for four rods, per HV joint bay.) As an alternative, the earth rods may be CAD-welded to the 16mm² stranded copper. Terminate 16mm² copper conductor onto 2 lugs and bolt onto earth bar of kiosks / manholes. (Two lugs per HV joint bay are used.) The joint bay electrode shall be insulated from the kiosk / manhole housing and the kiosk / manhole housing earthing (through the use of a PVC / PE pipe, or other means).	Sum			

10.74	Bonding lead connections, **300mm² Cu leads:**Install and connect 6 x Single Core or 3 x Concentric bonding leads (+-10m), torque shear lugs (2 lugs per connection, 6 in total) and Set screws / bolts (2 set screws / bolts per connection, 6 in total) to connect the HV cable's sheaths (6 sheaths) to the SVLs and earth links, inside the kiosks / manholes, from the **sheath interrupting joint**. (Above to be done for each set of three HV sheath interrupting joints.) In addition, install and connect a Single core-bonding lead (10m), such that it connects to the link disconnecting kiosk's / manhole's earth bar with a lug (1 lug), and the other end of the lead is CAD welded / brazed to a insulated / bare ECC. Alternatively, the cable's earthing configuration may also require that the bare / insulated ECC be looped in and looped out of the link disconnecting kiosk's / manhole's earth bar with two (2) Lugs. Make all electrical connections (of the bonding leads onto the SVLs and earth links) inside the kiosks / manhole, at each HV cable **sheath interrupting joint** bays.	Sum			

10.75	Bonding lead connections, **185mm² Cu leads:** Install and connect 6 x Single Core or 3 x Concentric bonding leads (+-10m), torque shear lugs (2 lugs per connection, 6 in total) and Set screws / bolts (2 set screws / bolts per connection, 6 in total) to connect the HV cable's sheaths (6 sheaths) to the SVLs and earth links, inside the kiosks / manholes, from the **sheath interrupting joint**. (Above to be done for each set of three HV sheath interrupting joints.) In addition, install and connect a Single core-bonding lead (10m), such that it connects to the link disconnecting kiosk's / manhole's earth bar with a lug (1 lug), and the other end of the lead is CAD welded / brazed to a insulated / bare ECC. Alternatively, the cable's earthing configuration may also require that the bare / insulated ECC be looped in and looped out of the link disconnecting kiosk's / manhole's earth bar with two (2) Lugs. Make all electrical connections (of the bonding leads onto the SVLs and earth links) inside the kiosks / manhole, at each HV cable **sheath interrupting joint** bays.	Sum			

10.76	Bonding lead connections, **500mm² Al leads:** Install and connect 6 x Single Core or 3 x Concentric bonding leads (+-10m), torque shear lugs (2 lugs per connection, 6 in total) and Set screws / bolts (2 set screws / bolts per connection, 6 in total) to connect the HV cable's sheaths (6 sheaths) to the SVLs and earth links, inside the kiosks / manholes, from the **sheath interrupting joint**. (Above to be done for each set of three HV sheath interrupting joints.) In addition, install and connect a Single core-bonding lead (10m), such that it connects to the link disconnecting kiosk's / manhole's earth bar with a lug (1 lug), and the other end of the lead is CAD welded / brazed to a insulated / bare ECC. Alternatively, the cable's earthing configuration may also require that the bare / insulated ECC be looped in and looped out of the link disconnecting kiosk's / manhole's earth bar with two (2) Lugs. Make all electrical connections (of the bonding leads onto the SVLs and earth links) inside the kiosks / manhole, at each HV cable **sheath interrupting joint** bays.	Sum			

10.77	Bonding lead connections, **300mm² Al leads:** Install and connect 6 x Single Core or 3 x Concentric bonding leads (+-10m), torque shear lugs (2 lugs per connection, 6 in total) and Set screws / bolts (2 set screws / bolts per connection, 6 in total) to connect the HV cable's sheaths (6 sheaths) to the SVLs and earth links, inside the kiosks / manholes, from the **sheath interrupting joint**. (Above to be done for each set of three HV sheath interrupting joints.) In addition, install and connect a Single core-bonding lead (10m), such that it connects to the link disconnecting kiosk's / manhole's earth bar with a lug (1 lug), and the other end of the lead is CAD welded / brazed to a insulated / bare ECC. Alternatively, the cable's earthing configuration may also require that the bare / insulated ECC be looped in and looped out of the link disconnecting kiosk's / manhole's earth bar with two (2) Lugs. Make all electrical connections (of the bonding leads onto the SVLs and earth links) inside the kiosks / manhole, at each HV cable **sheath interrupting joint** bays.	Sum			
10.78	Install a **6L 3E 3SVL earth kiosk** at a sheath interrupting joint bay. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			
10.79	Install a **6L earth kiosk** at a sheath interrupting joint bay. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			
10.80	Install a **6L SVL earth kiosk** at a sheath interrupting joint bay. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			

10.81	Install a **6L X-Bond earth kiosk** at a sheath interrupting joint bay. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			
10.82	Install a **3L earth kiosk** at a substation. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			
10.83	Install a **3L SVL earth kiosk** at a substation. Steel foot to be buried. Contractor to supply and install **only** the following as part of the installation: Portland cement, Denso tape, Concrete base, etc. Soil to be hand compacted around kiosk after installation.	Each			
10.84	Install a **6L 3E 3SVL earth manhole** at a sheath interrupting joint bay, **and only supply and install** materials as specified on drawings. (Scope excludes Civil work.)	Each			
10.85	Install a **6L earth manhole** at a sheath interrupting joint bay, **and only supply and install** materials as specified on drawings. (Scope excludes Civil work.)	Each			
10.86	Install a **6L SVL earth manhole** at a sheath interrupting joint bay, **and only supply and install** materials as specified on drawings. (Scope excludes Civil work.)	Each			
10.87	Install a **6L X-Bond earth manhole** at a sheath interrupting joint bay, **and only supply and install** materials as specified on drawings. (Scope excludes Civil work.)	Each			
10.88	Kiosk / Manhole earthing:Install an equipotential earth electrode around the Kiosk / manhole by laying 16mm² copper 0.5m from the kiosk at a depth of 0.5m, encircling the entire kiosk with the ends towards the kiosk. (+-10m of 16mm² copper used per kiosk / manhole.) Crimp 2 lugs (Cu, 16SQxM12) onto the ends of the 16mm² copper electrode and connect it to the kiosk / manhole outer housing.	Sum			

10.89	Kiosk / Manhole labelling, Bonding lead labelling, engraving and warning signs: Stencil Electrical address on kiosk / manhole. Engrave and Install blank marking plates around bonding leads inside kiosk / manhole and at the joint. (Bonding leads to be source-substation and load-substation identified. Supply and mark electrical phase (red, white, blue - phase) of bonding leads with a heat-shrinkable sleeves (colour: red, white, blue), which is to be fitted over the bonding lead, both inside the kiosk / manhole and at the joint. Supply and install Danger signage on kiosk / manhole. (Label to be durable and weather resistant and comply to D-DT-3202.) i.e. All link disconnecting box kiosk doors must be externally labelled with an electrical symbolic warning sign in accordance with SANS 1186 that is permanently attached. If pop-rivets are used to attach the signs to the doors, only aircraft or blind rivets shall be used.	Sum			
10.90	Supply and Install Danger labels indicating that Cable sheaths still have a standing voltage, even if the HV feeder is isolated. Label to read. “Danger: Live even if HV feeder is isolated!”. Label to be fixed inside kiosk / manhole . (Label to be durable and weather resistant.)	Each			
10.91	Strip and repair oil leak(s) on 132kV straight joint	Each			
10.92	Strip and repair oil leak(s) on 88kV straight joint	Each			
10.93	Strip and repair oil leak(s) on 44kV straight joint	Each			
10.94	Strip and repair oil leak(s) on 132kV stop joint	Each			
10.95	Strip and repair oil leak(s) on 88kV stop joint	Each			
10.96	Strip and repair oil leak(s) on 44kV stop joint	Each			
10.97	Strip and repair oil leak(s) on 132kV transition joint	Each			
10.98	Strip and repair oil leak(s) on 88kV transition joint	Each			

10.99	Strip and repair oil leak(s) on 44kV transition joint	Each			
10.100	Strip and repair oil leak(s) on 132kV trifurcating joint	Each			
10.101	Strip and repair oil leak(s) on 88kV trifurcating joint	Each			
10.102	Strip and repair oil leak(s) on 44kV trifurcating joint	Each			
10.103	Supply and install pressure gauge, complete with all piping, accessories (including remote communication, if applicable), insulator and auxiliary equipment; including all applicable connections.	Sum			
10.104	Remove and replace oil piping; including all applicable connections.	m			
10.105	Install Pressure kiosk (without gauge and piping)	Each			
10.106	Provide Cable flash blankets, to be used along the cable route, when in close proximity to other live cables.	m			
10.107	Provide and use oil spill absorption kits(240 l with wheelie bin)	EA			
10.108	Supply and use HV joint bay protective weather cover (waterproof tent) at joints bays.	per joint bay			
10.109	Supply and run Generator and lights at joint bays. Fuel to be supplied by contractor.	Hour			
Total					
Electrical Contractor : HV Terminations					
11.1	Terminate a **132kV 1C 1000mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			
11.2	Terminate a **132kV 1C 500mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			
11.3	Terminate a **88kV 1C 1000mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			
11.4	Terminate a **88kV 1C 500mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			

11.5	Terminate a **44kV 1C 1000mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			
11.6	Terminate a **44kV 1C 500mm² Al XLPE cable** onto gas-insulated (SF6) metal enclosed switchgear . Terminations should be in accordance with IEC 62271-209.	Each			
11.7	Terminate any XLPE cable above **132kV 1C 500mm² Al/Cu XLPE** up to and including **132kV 1C 1000mm² Al/Cu XLPE** onto an outdoor support structure.	Each			
11.8	Terminate any XLPE cable below and including up to **132kV 1C 500mm² Al/Cu XLPE** onto an outdoor support structure.	Each			
11.9	Terminate oil filled, oil impregnated paper, or any other cable above **132kV 500mm²** up to and including **132kV 1000mm²** onto an outdoor support structure.	Each			
11.10	Terminate oil filled, oil impregnated paper, or any other cable below **132kV 500mm²** onto an outdoor support structure.	Each			
11.11	Terminate any XLPE cable above **88kV 1C 500mm² Al/Cu XLPE** up to and including **88kV 1C 1000mm² Al/Cu XLPE** onto an outdoor support structure.	Each			
11.12	Terminate any XLPE cable below and including up to **88kV 1C 500mm² Al/Cu XLPE** onto an outdoor support structure.	Each			
11.13	Terminate oil filled, oil impregnated paper, or any other cable above **88kV 500mm²** up to and including **88kV 1000mm²** onto an outdoor support structure.	Each			
11.14	Terminate oil filled, oil impregnated paper, or any other cable below **88kV 500mm²** onto an outdoor support structure.	Each			
11.15	Terminate any XLPE cable above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** onto an outdoor support structure. - **Self Supporting Termination**	Each			

11.16	Terminate any XLPE cable below and including **up to 44kV 1C 500mm² Al/Cu XLPE** onto an outdoor support structure.- **Self Supporting Termination**	Each			
11.17	Terminate any XLPE cable above **44kV 1C 500mm² Al/Cu XLPE** up to and including **44kV 1C 1000mm² Al/Cu XLPE** onto an outdoor support structure. - **Non Self Supporting Termination**	Each			
11.18	Terminate any XLPE cable below and including **up to 44kV 1C 500mm² Al/Cu XLPE** onto an outdoor support structure.- **Non Self Supporting Termination**	Each			
11.19	Terminate oil filled, oil impregnated paper, or any other cable above **44kV 500mm²** up to and including **44kV 1000mm²** onto an outdoor support structure. - **Self Supporting Termination.**	Each			
11.20	Terminate oil filled, oil impregnated paper, or any other cable below **44kV 500mm²** onto an outdoor support structure. - **Self Supporting Termination.**	Each			
11.21	Install cable clamps.	Each			
11.22	Install 3 x 5m Single Core Bonding lead and connect it to the three terminations and to the inside of the 3L / 3 SVL kiosk / manhole (with lugs).	Number of sets of three HV terminations			
11.23	Install 1 x 3m Single Core Bonding lead and connect it to the earth bar inside the 3L / 3 SVL kiosk / manhole (with a lug). CAD weld / Braze the other end of the bonding lead to the earthmat. In addition, make an earthing connection (with lugs) between the earth bar of the kiosk and the outer housing, and a earthing connection between the outer housing and the steel support.	Number of sets of three HV terminations			
11.24	Install a **3L earth structure mount manhole** at a substation onto steel support. Contractor to supply and install the following as part of the installation: Nuts, bolts, etc.	Each			
11.25	Install a **3L SVL earth structure mount manhole** at a substation onto steel support. Contractor to supply and install the following as part of the installation: Nuts, bolts, etc.	Each			

11.26	Manhole labelling, Bonding lead labelling, engraving and warning signs: Stencil Electrical address on manhole. Engrave and Install blank marking plates around bonding leads inside manhole and at the termination. (Bonding leads to be source-substation and load-substation identified. Supply and mark electrical phase (red, white, blue - phase) of bonding leads with a heat-shrinkable sleeves (colour: red, white, blue), which is to be fitted over the bonding lead, both inside the manhole and at the termination. Supply and install Danger signage on manhole. (Label to be durable and weather resistant and comply to D-DT-3202.) i.e. All link disconnecting box kiosk doors must be externally labelled with an electrical symbolic warning sign in accordance with SANS 1186 that is permanently attached. If pop-rivets are used to attach the signs to the doors, only aircraft or blind rivets shall be used.	Sum			
11.27	Supply and Install Danger labels indicating that Cable sheaths still have a standing voltage, even if the HV feeder is isolated. Label to read. “Danger: Live even if HV feeder is isolated!”. Label to be fixed inside kiosk / manhole . (Label to be durable and weather resistant.)	Each			
11.28	Snake HV cable in trench approaching the terminations with a wavelength not less than 30 x D where D is the overall diameter of the cable and an amplitude of approximately 5% of the wavelength.	Each			
11.29	Strip and repair oil leak on 132kV sealing end. Consumables to be supplied by Contractor.	Each			
11.30	Strip and repair oil leak on 88kV sealing end. Consumables to be supplied by Contractor.	Each			
11.31	Strip and repair oil leak on 44kV sealing end. Consumables to be supplied by Contractor.	Each			

11.32	Supply and Install cable support bracket for cable and surge arresters - 3-Phase. Outdoor overhead 44 kV line termination.	Each			
11.33	Supply and Install a galvanized Steel Pipe. -140mm Diameter, 4mm thick. For outdoor overhead line termination.	m			
11.34	Install Anti-climb device	Each			
11.35	Install Danger label	Each			
11.36	Stencilling	p/letter			
11.37	Substation label	Each			
11.38	Supply and install cable support bracket(s) as required to secure and support 3 x HV cable during normal and abnormal network conditions. Cable to be secured and supported from the underground trench up until the entry into the GIS.	Each			
11.39	Scaffolding - Single termination	Per termination			
11.40	Scaffolding - Set of 3 terminations close together	Per termination set			
11.41	Reseal cable after installation in wall.	m³			
Total					
Electrical Contractor : Pilot cable					
12.1	Locate pilot cable fault	Per fault			
12.2	Repair pilot cable fault	Per fault			
Total					
Electrical Contractor : Sheath repair					
13.1	Locate sheath fault	Per fault			
13.2	Repair cable other sheath	Per fault			
Total					
Electrical Contractor : Oil works					
14.1	Circulate and de-gasify cable oil (Contractor to supply equipment and consumables to circulate oil inside oil filled cable.)	litre			
14.2	Relocate oil pressure tank (above ground level)	Per tank			

14.3	Relocate oil pressure tank (below ground level)	Per tank			
14.4	Draw vacuum in preparation of pumping oil into oil filled HV cable (Contractor to supply equipment and consumables to draw vacuum, including, but not limited to, vacuum pump, drain bottle, vacuum bottle, etc.)	Hour			
14.5	Supply and pump oil into oil filled HV cable (Contractor to supply equipment and consumables to pump oil into oil filled cable, including, but not limited to, oil pump, etc.)	litre			
14.6	Gaseous Vaporisation Fluid tagging. (Contractor to supply equipment and consumables to perform Gaseous Vaporisation Fluid tagging.) Item includes testing to confirm adequate tagging for fault finding.	litre			
14.7	Detect oil filled cable fault that has been tagged with Gaseous Vaporisation Fluid.	Per fault			
14.8	Residual gas pressure test ('Drop test')	Per test			
14.9	Supply and flush decommissioned oil filled cable with oil neutralisation agent, to ensure no environmental impact from the oil and oil contaminated parts within the cable. Solution subject to Eskom approval. - Prior approval required.	litre			
Total					
Electrical Contractor : Optic Fibre Work : Installation of Distributed Temperature Sensing (DTS) fibre & system and protection fibre circuit					
15.1	Install a fibre optic duct for distributed Maintenance Management plan / EMP temperature sensing (DTS) against the centre phase of the HV cable. The fibre optic duct must be strapped to the cable using “sisal” string at 2 m intervals to prevent any movement during backfilling. (“sisal” straps to be supplied by contractor.) (No duct couplings or joints shall be used between draw pits.)	m			
15.2	Install fibre optic cable inside duct	m			
15.3	Install a ø32/26 mm OD/ID HDPE duct for a fibre optic cable used for **differential protection**. (The HDPE fibre optic cable duct must be installed on the side closest to the property boundary.)(No duct couplings or joints shall be used between draw pits.)	m			

Total					
Electrical Contractor : As-built drawings (All documents and drawings to be documented and submitted to Eskom in paper format and Electronic media.)					
16.1	Create an as-built cadastral drawings that show the positions of the cable, transposition positions (if applicable, cable and bare or insulated ECC), joints, terminations, link disconnecting boxes and fibre optic cable draw pits (for differential protection and DTS fibre), relative to recognized boundaries and with Global Positioning Satellite (GPS) co-ordinates. (GPS coordinates to be accurate to 0.5m) The diagram shall also show the route of the Distributed Maintenance Management plan / EMP Temperature Sensing fibre cable and the fibre cable used for differential protection, if different from the HV cable route (if applicable). In addition, these drawings shall also include positions and routes of other (third party) services in close proximity to the newly installed HV power cable as they where encountered on-site, during installation. Drawing should also be stored in *.dxf / *.dgn format capable of being uploaded into Micro-station. - Prior approval required.	Entire HV cable circuit.			

16.2	Create an as-built electrical circuit diagram that shows the following information shall be provided:1. HV single core cable circuit (type and size) - together with Eskom buyers guide drawing reference and SAP number;2. Feeder major and minor sections with route lengths;3. If applicable, cable transposition positions - together with GPS co-ordinates;4. Fibre optic cable draw pits (for differential protection and DTS fibre) – together with GPS co-ordinates;5. Earthing and bonding arrangement;6. All calculated standing voltages and circulating currents (if applicable) assuming rated current flowing in the cable feeder;7. Straight and sheath interrupting joints - together with Eskom buyers guide drawing references, SAP numbers and GPS co-ordinates (centre phase only);8. Terminations - together with Eskom buyers guide drawing references, SAP numbers and GPS co-ordinates (centre phase only);9. All link disconnecting kiosks / manholes - together with Eskom buyers guide drawing references, SAP numbers and GPS co-ordinates;10. Bonding leads - together with Eskom buyers guide drawing references and SAP numbers;11. If required, the bare or insulated ECC and transposition positions (if applicable) together with Eskom buyers guide drawing references, SAP numbers.12. If applicable, the SVL make, type and ratings (Uc, UTOV, kA);13. The cable installation conditions (formation, depth, spacing, soil thermal resistivity – if different to that specified in D-DT-0892);14. The normal and emergency feeder ratings;(GPS coordinates to be accurate to 0.5m) Drawing should also be stored in *.dxf / *.dgn format capable of being uploaded into Micro-station.)- Prior approval required.	Entire HV cable circuit.			

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
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C3.2	*Contractor*'s Service Information	
	Total number of pages	

C3.1: EMPLOYER'S SERVICE INFORMATION

Contents

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1. Description of the *service*

1.1. Executive overview

1.1.1. Background

The Gauteng Cluster currently has 116 high voltage cables 11 HSL, 48 XLPE and 57 oil filled cables within its networks with a combined length of 224 km. These cables operate at 44 kV, 88 kV and 132 kV. Majority of the cables are found in the Johannesburg, Vaal, Ekurhuleni, and Tshwane Zones. HV Cable repairs are outsourced to external contractors because of unavailability of skilled resources internally due to unavailability of training. PPM Cables does not have certified HV Cable jointers.

Oil cables have become problematic for the business in recent years. Severely leaking cables that are not repaired and pumped to pressure will fail. The poor performing cables add risk to the network reliability. Many networks do not have the designed contingencies as some of the cables in the rings are out for extended periods of time.

HV cable contract will be able to significantly reduce the greatest risk associated with HV cable failures and the prolonged outages associated with cable breakdown. The contractors will be fulfilling the function of civil work and cable repairs that cannot be handled by PPM Cables department due to unavailability of training and skilled resources.

This contract will assist in reduction of HV Cable abnormalities, which is a threat to continuity of supply.

Our Technical performance KPI's (SAIDI & SAIFI) will improve as there will be less feeder outages due to cable fault. The need for this contract is for M&O\SpMs to be able to promptly respond to cable breakdown for maintenance and repairs.

1.1.2. Scope of Work

Civil Scope of Work:

- Pre-construction related activities. (Specialised barricading, trench covers and traffic control.)
- River crossing, road crossings and embankment support. (Pipe jacking with sleeves, Directional drilling with sleeves, earth retention and soil erosion mitigation.)
- HV Cable and HV joint installation and/or decommissioning. (Road cutting; excavation, importing and backfilling of soil; rock blasting; shoring; concrete culverts; cable route markers.)
- Reinstatement (Road, paved, concrete, lawn surfaces; fences.)
- Substation scope. (Limited to steel support structures for termination of HV cable.)

Electrical Scope of Work:

- Pre-construction related activities. (Cable installation stations, weather covers)
- River crossing and Road crossing. (Cable installation with bentonite and support bags.)
- HV Cable and HV joint installation or decommissioning. (Importing or backfilling of bedding and blanket soil; recovering of cable; cut and capping of cable; new cable installation, jointing and terminating ranging from 44 kV to 132 kV, Oil filled, Oil impregnated and XLPE cable; earthing; link and pressure kiosks / manholes; general repair; anti-theft measures; labelling; vacuum, circulating and pumping of oil; fibre optic ducting and pilot cable repairs.)
- As-built drawings (if applicable)

Supply Scope:

- High Voltage cable insulation oil.

1.2. *Employer*'s requirements for the *service*

The Provision for Maintenance and Repairs of High Voltage (44kV to 132kV), Oil filled, Oil impregnated paper and XLPE cables, within Eskom Distribution Gauteng Cluster, for a period of 5 years on an "as and when" required basis.

Work Services:

1. The *Contractor* will receive a call from Resource Management Centre (RMC) or Technical Support Contract Office with a short scope of work including Work Order and after agreement with a *Contractor* confirmation email will follow immediately.
2. The *Contractor* must send quotation to Contract Office within 48hours.
3. Contract office will create a task order immediately after receiving the quotation and send to the *Contractor* copy PPM. Only equipment's reflected on the Task Order will be attended to by the *Contractor* and any extra work not reflected on the list but requiring attention must first be approved by the *Service Manager* in writing prior to replacement or repairs.
4. The *Contractor* will ensure that he/she is fully authorized for the specific method and procedure in accordance with the POWER DELIVERY OPERATING ASSESSMENT, AUTHORISATION AND TRAINING STANDARD- 240-70413865
5. All faults will be managed in line with Eskom current workflow processes and payment will be in line with the current Eskom procurement / Financial practices.
6. *Contractor* employee must be able to perform standby duties and respond to a call out/ emergencies within a 2-hour period from the dispatched Works Order being received during normal working hours or after hour period including weekends and public holidays.

1.3. Interpretation and terminology

1.3.1. The following abbreviations are used in this Service Information:

Abbreviation	Meaning given to the abbreviation
AC	Alternating Current
DC	Direct Current
DX	Distribution
HV	High Voltage
KPI	Key Performance Indicators
kV	KiloVolts
PPM	Planned Preventative Maintenance
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAP	Systems Applications and Products (software package)
SCADA	System Control And Dispatch Application
SED	Substation Engineering Department
SpM&S	Specialized Maintenance and Support

1.3.2. Acceptance of Eskom SHEQ Policies and Procedures

The attached documents form part of this legal binding contract, the Contractor confirms that he has familiarized himself with all the embedded documents from **1 to 25** as indicated.

No	Unique Identifier	Revision	Document Title
1	240-DX-GP-003T	1	**ENVIRONMENTAL SPECIFICATIONS**  Copy%20of%20Envir onmental%20spec44t
2	32-136	4	**Contractor Health and Safety Requirements**  32-136 Contractor SHE Requirements.pd
3	240-77471499	2	**Annexure B: Acknowledgement Form for Eskom SHE Rules and other Requirements**  240-77471499 (2) Annexure B (2).pdf
4	SHE SPEC	X	**SHE Specification High Risk / Construction Project**  SHE specification Maintenace & repair (
5	240-77471651	3	**Annexure C 1: OHS Tender Evaluation Template (High risk)**  SHE Tender Evaluation Template (
6	QM 58	3	**Supplier Quality Management: Specification**  240-105658000 Supplier Quality Mana
7	240-109253302	2	**Quality Control Plan / Inspection and Test Plan (QCP/ITP)**  240-109253302%20_ %20Quality%20Contro
8	240-109253698	3	**Template for a Typical Contract Quality Plan**

			240-109253698%20C QP%20Template%202
9	**240-12248652**	**7**	**Supplier Quality Management: List of Tender Returnable Documents** 240-12248652 (Rev 7)_List of Tender Retu
10	**240-6860265**	**2**	**SDL&I Strategy Setting for Bidders**

2. Management strategy and start up.

2.1. The *Contractor*'s plan for the *service*

The *Contractor* shall take the following into account in his plan; supply installation instructions, fully completed as required by the instructions, for all joints and terminations performed on-site. The contractor shall also supply fully completed Eskom quality control checklists. Only after the fully completed installations instructions and checklists are submitted, and after the work is completed and the assets formally handed back to Eskom, shall payment be made if no defects are raised by Eskom. Documents to be supplied in paper and electronic format.

2.2. Management meetings

The *conditions of contract* (e.g. Clause 16.2) and other sections of the Service Information (e.g. safety risk management) may require that a meeting shall be held. However the intention of all NEC contracts is that the Parties and their agents use the techniques of partnering to manage the contract by holding meetings designed to pro actively and jointly manage the administration of the contract with the objective of minimising the adverse effects of risks and surprises for both Parties.
Depending on the size and complexity of the *service*, it is probably beneficial for the *Service Manager* to hold a weekly risk register meeting (Clause 16.2). This could be used to discuss safety, compensation events, subcontracting, overall co-ordination and other matters of a general nature. Separate meetings for specialist activities such as planning and activities of a technical nature may also be warranted.
Describe here the general meetings and their purpose. Provide particulars of approximate times, days, location, and attendance requirements, stipulating that attendees shall have the necessary delegated authority to make decisions in respect of matters discussed at such meetings.
The following text could be used as a model for this section:

Regular meetings of a general nature may be convened and chaired by the *Supply Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Weekly	TBA	All required stakeholders
Overall contract progress and feedback	Monthly	TBA	*Employer*, *Contractor* and all required stakeholders

Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the

service. Records of these meetings shall be submitted to the *Service Manager* by the person convening the meeting within five days of the meeting.

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

2.3. *Contractor*'s management, supervision and key people

The *Contractor* is to submit an organogram showing all key people involved in the contract Seven (7) days after contract award. All Key Personnel must be appointed in writing, must be current for the specific site and area of work and must be kept on file. This would be essential if the *Contractor* is a Joint Venture.

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

2.5. Documentation control

- Document management control will be handled as per the *Employer's* document and records management procedure 32-6,32-21 which is obtainable from the *Employer's* representative.
- All correspondence is to be addressed to the *Project Manager* with a chronological numbering system.
- All NEC standard forms shall be used, e.g., Task orders, Early warnings, defect certificates and assessments.

2.6. Invoicing and payment

The Z clauses make reference to invoicing procedures stated here in this Service Information. Also include a list of information which is to be shown on an invoice.

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* shall address the tax invoice to and include on each invoice the following information:

- Name and address of the *Contractor* and the *Service Manager;*
- The contract number and title;
- *Contractor*'s VAT registration number;
- The *Employer*'s VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- Goods Receipts

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

General Information	**X**
- No Pro-forma Invoice	
- Check Vendor number against the Address and name on Tax invoice	
- Insert the Vendor number on Tax invoice (Top right-hand corner)	
- Bank details must be on the invoice or on an attached sheet, but it does not require a bank stamp just a letter)	
- Check banking details on invoice against SAP system. If more than one banking account check bank account against banking details on invoice. If banking details not on invoice, write the bank code next to the vendor account (bank code 0002)	
- Check Vendor VAT number against the vendor master. (FK03) If VAT number not on master records, prepare a list and forward to Vendor Management to check and update the vendor master records	
- No fax copies of Tax invoices allowed	
- No copies of Tax invoices allowed unless originally printed by the Vendor if a photocopy tax invoice, it must be an original “certified copy” (i.e. not a copy of a “certified copy” invoice) from the vendor and check in system if not previously be paid. Put stamp “not previously paid” on invoice and sign.	
- Ensure that date received stamp is clear on invoice	
- Stamp all Invoices with the Vat stamp, complete and sign (only when VAT is applicable)	
- The stamp should not be stamped over any written information	
- When scanning invoice, check the quality before linking in SAP (inboxes)	
With Reference Invoices	**X**
- Goods receipt must be done (payment with reference)	
- Ensure that the SAP purchase order number is clear and correct on the invoice	
- GR number to be written on the Invoices	
- If multiple lines on invoice write the line number of the order against the line to ensure that the processors match the correct lines (to ensure that 191100 is matched correctly)	

2.7. Contract change management

- The *Employer* may instruct changes to the scope at any time, each instruction shall set out the change and the date on which it becomes effective; and must be issued to the *Contractor* in writing to be valid.

- Any compensation event will be done with the use of ISO approved Task Order Modification form.

2.8. Records of Defined Cost to be kept by the *Contractor*

To substantiate the Defined Cost of compensation events, the *Employer* may require the *Contractor* to keep records of amounts paid by him for people employed by the *Contractor*, plant and materials, work subcontracted by the *Contractor* and equipment. State in what form these records are to be kept and how accessed by the Employer

2.9. Insurance provided by the *Employer*

The *Contractor* is responsible for all deductibles as listed in annexure B.

2.10. Things provided at the end of the *service period* for the *Employer*’s use

2.10.1. Equipment

N/A

2.10.2. Information and other things

The *Contractor* shall take photos and video of the new / existing HV cable route before and after construction. Photos and Video to be stored on digital media and submitted to Eskom. Photos to be date and time stamped and clearly visible and should accurately represent the conditions on-site before and after construction.

The photos and video is to protect Eskom and the contractor from claims that may arise from statutory bodies, non-statutory bodies, service providers, or any other third parties. Where the contractor fails to adhere to this condition, it will be concluded that the contractor is at fault and that the contractor would need to reinstate as may be required by Eskom, statutory bodies, non-statutory bodies, service providers, or any other third parties at the contractor's own cost.

2.11. Management of work done by Task Order

A Task Order will be issued for tasks at hand as per descriptions from the *Employer's Representative* who will be managing this contract on the behalf of the *Employer*.

3. Health and safety, the environment and quality assurance

3.1. Health and safety risk management

In addition to the requirements of the laws governing health and safety, Eskom may have some additional requirements particular to the *service* and the Affected Property for this contract. The text below provides for these being attached as an Annexure to this Service Information. 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.

The Divisional/Regional Safety Risk Manager or his representative having jurisdiction over the *service* must provide the relevant safety, health and environmental (SHE) criteria for incorporation into this Service Information. The SHE specification / scope must be signed off by the Divisional/Regional Safety Risk Manager or his representative confirming that the applicable safety criteria have been taken into account.

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: Roley McIntyre
- Transmission: Tony Patterson
- Distribution: Alex Stramrood
- Enterprises: Jace Naidoo
- Corporate: Kerseri Pather

The *Contractor* shall comply with the health and safety requirements contained in Section 1.3.2. to this Service Information.

3.2. Environmental constraints and management

The *Contractor* shall comply with the environmental criteria and constraints stated Section 1.3.2. to this Service Information.

3.3. Quality assurance requirements

The *Contractor* shall comply with the environmental criteria and constraints stated Section 1.3.2. to this Service Information

4. Procurement

4.1. People

4.1.1. Minimum requirements of people employed

All people employed by the *Contractor* to perform HV Maintenance repairs should have Police Clearance before work can commence.

The *Contractor's* employees shall be sober when carrying out their duties and may be subjected to random breathalyser tests.

4.1.2. BBBEE and preferencing scheme

The criteria set out as per the Invitation to Tender shall apply.

4.1.3. SDL & I Requirements

Refer to section 1.3.2. for SDL&I strategy and Declaration certificate for local production and content.

4.2. Subcontracting

4.2.1. Preferred subcontractors

Subcontracting does not form part of mandatory requirements for pre-qualification.

4.2.2. Subcontract documentation, and assessment of subcontract tenders

There are no subcontracting requirements under this contract

4.2.3. Limitations on subcontracting

It is not feasible to sub-contract since this project is for emergencies.

4.3. Plant and Materials

4.3.1. Specifications

The *Contractor* shall supply only Eskom approved material or products, approved at the time when Eskom request the material to be supplied. The onus lies with the *Contractor* to ensure the latest Eskom approved material and products are supplied and take note that material or products may vary over time. Eskom authorised engineering department(s) can be approached for more information on Eskom approved material. Where Eskom authorised engineering department(s) cannot supply details regarding approved material, the *Contractor* will be notified, and the *Contractor* shall then make material proposal(s) to meet the requirements of the Eskom authorised engineering department(s).

The *Contactor* shall also supply drawings, specifications, test certificates or any other documents that may be required by the Eskom authorised engineering department(s) related to such material proposals. The Eskom authorised engineering department(s) will then advise which products may be used. Only after the

Eskom authorised engineering department(s) have specified the approved material products or selected the most suitable material product; may the *Contractor* source the material.

The *Contractor* shall test the thermal resistivity of imported bedding and blanket soil at an accredited SANAS laboratory, after installation, at intervals of 500m along the HV cable route length in accordance with SANS 10198-5 and prove the that the imported soil meets the required thermal resistivity values as per the requirements of the bill of quantities. Test certificates to be documented and stored on an electronic media and submitted to Eskom. Where the imported soil test results (as described above) does not meet the requirements of the BOQ, the *Contractor* will remove and replace the imported soil at its own cost, until the required thermal resistivity values are met. Eskom will not take over and pay for imported soil that has not been tested as described above.

4.3.2. Correction of defects

The *Contractor* shall guarantee workmanship on all work performed for up to 2 years after formal completion and formal handover of work performed on Eskom assets, back to Eskom. Should any material or asset failure or deterioration occur, then the *Contractor* shall replace or reinstate the material or asset at its own cost. The *Contractor* shall also perform labour to replace or reinstate the material or asset at its own cost. This condition becomes null and void if it can be proven that the failure or deterioration was not due to *Contractor* negligence. Without any proof, the condition remains in full force.

4.3.3. *Contractor*'s procurement of Plant and Materials

Material will be issued as per fault identification and derived scope of work.

5. Working on the Affected Property

5.1. *Employer*'s site entry and security control, permits, and site regulations

a) The *Contractor* shall ensure a Responsible person (in terms of the ORHVS) is available and on-site, during site meetings, inspections, work being performed or any other instances where the contractor's employees are on-site. Contractor to acquire all Eskom Permits, as well as other permits from other statutory bodies of which includes but is not limited to the following:

- National roads agency.
- Provincial and/or metropolitan roads agencies;
- Dept. of Water and Forestry;
- Dept. of Environmental Affairs and Tourism;
- Local metropolitan / municipal town councils; and
- Any other statutory body that may be considered a stakeholder

b) Applications to the water, rail and local authorities shall be made in accordance with 34-820, 34-1812 and 34-822.

5.2. People restrictions, hours of work, conduct and records

a) The *Contracto*r shall ensure that Eskom approved and specified PPE is worn by all employees during site meetings, inspections, work being performed or any other instance where the *Contractor's* employees are on-site.

b) The *Contractor* shall ensure that all contractor specific Risk Assessment Procedures, Quality Management Systems, Health and Safety Specifications, Environmental Plans, Safety Inspections, OHSA appointments, and Non-Conformance Process are in place and available on-site and can be presented to Eskom when requested to do so.

c) *Contractor* to keep record of working hours and number of staff in the project file. To also file records of subcontractors.

5.3. Cooperating with and obtaining acceptance of Others

The *Contractor* shall ensure the wayleaves and approvals from all statutory bodies, non-statutory bodies, service providers, or any other third parties for the new / existing cable route obtained from Eskom have not expired, prior to and during to construction. The *Contractor* shall ensure wayleaves and approvals are renewed as necessary, throughout the duration of the construction or site works until the work is completed and Eskom assets are formally handed back to Eskom. The *Contractor* shall furthermore ensure that all requirements from the statutory bodies, non-statutory bodies, service providers, or any other third parties are adhered to, and will complete and submit project close out and project completion documentation as may be required by these statutory bodies, non- statutory bodies, service providers, or any other third parties to them. Copies of these documents to be submitted to Eskom as well.

Eskom Permits and permits from other statutory bodies from which permission may have to be obtained are:

- National roads agency;
- Provincial and/or metropolitan roads agencies;
- Dept. of Water and Forestry;
- Dept. of Environmental Affairs and Tourism;
- Local metropolitan / municipal town councils; and
- Any other statutory body that may be considered a stakeholder.

b) Applications to the water, rail and local authorities shall be made in accordance with 34-820, 34-1812 and 34-822.

5.4. Records of *Contractor*'s Equipment

Records of *Contractor's* equipment are to be kept on file on site whereby the *Project Manager* has access to this file at all times.

5.5. Equipment provided by the *Employer*

The *Employer* provides no equipment to the *Contractor*.

5.6. Site services and facilities

5.6.1 Provided by the *Employer*

No site services and facilities will be supplied by the *Employer* for the execution and completion of this project.

5.6.2. Provided by the *Contractor*

The *Contractor* shall provide all facilities and services needed for execution of the works as the provision of Preliminaries and General and Bill of Quantities.

5.7. Control of noise, dust, water and waste

The *Contractor* must comply with SHE and Environmental Requirements

5.8. Hook ups to existing works

The *Contractor* must comply with SHE and Environmental Requirements

5.9. Tests and inspections

5.9.1. Description of tests and inspections

The *Contractor* shall perform soil compaction testing along the HV cable route length in intervals of 300m. Test results shall be signed off and submitted to Eskom on a test certificate in paper and electronic format.

The *Contractor* shall also perform soil compaction testing in all areas where reinstatement occurred and/or where required by statutory bodies, non-statutory bodies, service providers, or any other third parties.

5.9.2. Materials facilities and samples for tests and inspections

For Eskom soil compaction testing, a DCP (dynamic cone penetrometer) must be used. Five blows on a given test with this device may not exceed 150mm in soil depth. (Equivalent to 90% Mod AASHTO.) If the depth is exceeded, then the Eskom engineer must be notified immediately. For statutory bodies, non-statutory bodies, service providers, or any other third parties, the *Contractor* shall adhere and comply to the requirements of these bodies, service providers, or any other third parties.

6. List of drawings

6.1. Drawings issued by the *Employer*

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

Drawing number	Revision	Title
