



NEC3 Engineering & Construction Contract

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

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

**for Decommissioning of the old Oil Ring Main Units,
Transportation, Installation, Cabling, Testing and
Commissioning of the new Ring Main Units at Kriel
Power Station for a period of 6 months**

Contents:	No of pages
Part C1 Agreements & Contract Data	31
Part C2 Pricing Data	5
Part C3 Scope of Work	31
Part C4 Site Information	3

CONTRACT No. [Insert at award stage]

Part C1: Agreements & Contract Data

Contents:	No of pages
C1.1 Form of Offer and Acceptance	3
[to be inserted from Returnable Documents at award stage]	
C1.2a Contract Data provided by the <i>Employer</i>	16
C1.2b Contract Data provided by the <i>Contractor</i>	2
[to be inserted from Returnable Documents at award stage]	
C1.3 Proforma Guarantees	N/A

C1.1 Form of Offer & Acceptance

1.1 Offer

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

Decommissioning of the old Oil Ring Main Units, Transportation, Installation, Cabling, Testing and Commissioning of the new Ring Main Units at Kriel Power Station for a period of 6 months

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.

Note: total price from the price list to be reflected in the block below. If not reflected, the tender will be found to be non-responsive

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

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.

Note: full signature to appear at the bottom, if not signed, the tender will be found to be non-responsive

Signature(s)

Name(s)

Capacity

**For the
tenderer:**

(Insert name and address of organisation)

Name &
signature of
witness

Date

Tenderer's CIDB registration number (if applicable)

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*.

1.2 Acceptance

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

The terms of the contract, are contained in:

Part C1	Agreements and Contract Data, (which includes this Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work: Works Information
Part C4	Site Information

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

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

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

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

Unless the tenderer (now *Contractor*) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the Parties.

Signature(s)

Name(s)	Morongwe Raphasha	
Capacity	General Manager	
for the Employer	Eskom Holdings SOC Ltd Kriel Power Station Bethal / Ogies Road Kriel 2271	

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

On behalf
of

(Insert name and address of organisation)

Name &
signature
of witness

Date

Morongwe Raphasha

General Manager

Eskom Holdings SOC Ltd
 Kriel Power Station
 Bethal / Ogies Road
 Kriel
 2271

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	General	
	The <i>conditions of contract</i> are the core clauses and the clauses for main Option	
	dispute resolution Option	A: Priced contract with activity schedule
	and secondary Options	W1: Dispute resolution procedure
		X2 Changes in the law
		X5: Sectional Completion
		X7: Delay damages
		X16: Retention
		X18: Limitation of liability
		Z: Additional conditions of contract
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The <i>Employer</i> 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
10.1	The <i>Project Manager</i> is: (Name)	Kgomotso Ngweye
	Address	Kriel Power Station Private Bag x5009 Kriel 2271
	Tel	017 615 2450
	Fax	086 667 1588
	e-mail	<u>Kgomotso.ngweye@eskom.co.za</u>
10.1	The <i>Supervisor</i> is: (Name)	Ted Magwaza
	Address	Kriel Power Station Private Bag x5009 Kriel 2271

Tel No. 017 615 2972

Fax No.

e-mail MagwazCT@eskom.co.za

11.2(13)	The <i>works</i> are	As per attached <i>Works Information</i>
11.2(14)	The following matters will be included in the Risk Register	Availability of plant.
11.2(15)	The <i>boundaries of the site</i> are	Contractor's site office area Walking area to working site at the Kriel power station
11.2(16)	The Site Information is in	Part 4: Site Information
11.2(19)	The Works Information is in	Part 3: Scope of Work and all documents and drawings to which it makes reference.
12.2	The <i>law of the contract</i> is the law of	the Republic of South Africa
13.1	The <i>language of this contract</i> is	English
13.3	The <i>period for reply</i> is	Three Working days
2	The Contractor's main responsibilities	Data required by this section of the core clauses is provided by the <i>Contractor</i> in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.

3 Time

11.2(3)	The <i>completion date</i> for the whole of the <i>works</i> is	31 March 2025	
11.2(9)	The <i>key dates</i> and the <i>conditions</i> to be met are:	Condition to be met	key date
		1 Site Establishment	Within 10 days after contract award & safety file approval
		2 Loading and Transportation of the RMUs from stores	1 week after site establishment
		3 Installation of the RMU on the plinths	Within 30 days after Loading and transportation of the RMUs from stores
		4 Cable Termination to the RMUs	30 days after installation of the RMUs on the plinths
		5 Commissioning and testing	1 week after completion of

			the whole of the works
30.1	The <i>access dates</i> are:	Part of the Site	Date
		1 Site Establishment	Within 10 days after contract award & safety file approval
		2 Loading and Transportation of the RMUs from stores	1 week after site establishment
		3 Installation of the RMU on the plinths (including CTs, VDS)	Within 14 days after site establishment
		4 MV and LV Cable Installation to the RMUs (including joints and terminations)	30 days after installation of the RMUs on the plinths
		5 Commissioning and testing	30 days after completion of the whole work of the works
31.1	The <i>Contractor</i> is to submit a first programme for acceptance within	From within 2 weeks of Contract signature	
31.2	The <i>starting date</i> is	As soon as possible after contract award	
32.2	The <i>Contractor</i> submits revised programmes at intervals no longer than	one week	
35.1	The <i>Employer</i> is not willing to take over the <i>works</i> before the Completion Date.	[No data needed if this statement is included]	
4	Testing and Defects		
42.2	The <i>defects date</i> is	52 weeks after Completion of the whole of the works..	
43.2	The <i>defect correction period</i> is	Two weeks	
	except that the <i>defect correction period</i> for	High risk work is 24 hours	
	and the <i>defect correction period</i> for	Low risk work is one week	
5	Payment		
50.1	The <i>assessment interval</i> is	between the 25th day of each successive month per completed activities.	
51.1	The <i>currency of this contract</i> is the	South African Rand.	
51.2	The period within which payments are made is	30 days after receipt of valid Tax invoice	

51.4 The *interest rate* is

the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa 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

(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.

6 Compensation events

60.1(13) The place where weather is to be recorded is:

Bethal South African Weather Bureau

The *weather measurements* to be recorded for each calendar month are,

the cumulative rainfall (mm)

the number of days with rainfall more than 10 mm

the number of days with minimum air temperature less than 0 degrees Celsius

the number of days with snow lying at 09:00 hours South African Time

and these measurements:

The *weather measurements* are supplied by

South African Weather Bureau

The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:

Bethal

and which are available from:

the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer*

60.1(13) Assumed values for the ten year return *weather data* for each *weather measurement* for each calendar month are:

As stated in Annexure A to this Contract Data provided by the *Employer*.

Note: If this arrangement is used, delete the rows above for 60.1(13) and delete this note.

7

Title

There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.

8

Risks and insurance

80.1

These are additional *Employer's* risks

1. Labour Unrest
2. Covid 19 restrictions
3. Unavailability of Plant

84

Insurance cover

84.1

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.

84.2

The *Contractor* provides the insurances stated in the Insurance Table A.

84.3

The insurances provide cover for events which are at the *Contractor's* risk from the *starting* of 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 to the <i>works</i> , Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the <i>works</i> , Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract	<u>Loss of or damage to property</u> <u>Employer's property</u> The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as at Contract Date, where covered by the <i>Employer's</i> insurance <u>Other property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by applicable law
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

87 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 limit 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

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 activity schedule There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.

11 Data for Option W1

W1.1 The *Adjudicator* is 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 <i>Adjudicator nominating body</i> is:	the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.
W1.4(2)	The <i>tribunal</i> is:	arbitration.
W1.4(5)	The <i>arbitration procedure</i> 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	Johannesburg 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

X2	Changes in the law	There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.		
X5 & X7	Sectional Completion and delay damages used together			
X7.1 X5.1	Delay damages for late Completion of the <i>sections</i> of the <i>works</i> are:	<i>section</i>	Description	Amount per day
		1	Site Establishment	R10 000
		2	Loading and transportation of the RMUs	R10 000
		3	Installation of the RMUs on the plinths	R10 000
		4	Cable Termination to the RMUs	R20 000
		5	Commissioning and testing	R10 000
	Remainder of the <i>works</i>			
	The total delay damages payable by the <i>Contractor</i> does not exceed:	15% of contract value		
X16	Retention (not used with Option F)			

X16.1	The <i>retention free amount</i> is	R0
	The <i>retention percentage</i> is	10%
X18	Limitation of liability	
X18.1	The <i>Contractor's</i> liability to the <i>Employer</i> for indirect or consequential loss is limited to:	R0.0 (zero Rand)
X18.2	For any one event, the <i>Contractor's</i> liability to the <i>Employer</i> for loss of or damage to the <i>Employer's</i> property is limited to:	the amount of the deductibles relevant to the event
X18.3	The <i>Contractor's</i> liability for Defects due to his design which are not listed on the Defects Certificate is limited to	<p>The greater of</p> <ul style="list-style-type: none"> the total of the Prices at the Contract Date and the amounts excluded and unrecoverable from the <i>Employer's</i> assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.
X18.4	The <i>Contractor's</i> total liability to the <i>Employer</i> for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	<p>the total of the Prices other than for the additional excluded matters.</p> <p>The <i>Contractor's</i> total liability for the additional excluded matters is not limited.</p> <p>The additional excluded matters are amounts for which the <i>Contractor</i> is liable under this contract for</p> <ul style="list-style-type: none"> Defects due to his design which arise before the Defects Certificate is issued, Defects due to manufacture and fabrication outside the Site, loss of or damage to property (other than the <i>works</i>, Plant and Materials), <ul style="list-style-type: none"> death of or injury to a person and infringement of an intellectual property right.
X18.5	The <i>end of liability date</i> is	<p>(i) [] years after the <i>defects date</i> for latent Defects and</p> <p>(ii) the date on which the liability in question prescribes in accordance with the Prescription Act No. 68 of 1969 (as amended or in terms of any replacement legislation) for any other matter.</p> <p>A latent Defect is a Defect which would not have been discovered on reasonable inspection by the <i>Employer</i> or the <i>Supervisor</i> before the <i>defects date</i>, without requiring any inspection not ordinarily carried out by the <i>Employer</i> or the <i>Supervisor</i> during that period.</p>

If the *Employer* or the *Supervisor* do undertake any inspection over and above the reasonable inspection, this does not place a greater responsibility on the *Employer* or the *Supervisor* to have discovered the Defect.

Z The Additional conditions of contract are

Z1 to Z15 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 *Project Manager* within two weeks of the Contract Date of the key person who has the authority to bind the *Contractor* on their behalf.
- Z2.3 The *Contractor* does not alter the composition of the joint venture, consortium or other unincorporated grouping of two or more persons without the consent of the *Employer* having been given to the *Contractor* in writing.

Z3 Change of Broad Based Black Economic Empowerment (B-BBEE) status

- Z3.1 Where a change in the *Contractor's* legal status, ownership or any other change to his business composition or business dealings results in a change to the *Contractor's* B-BBEE status, the *Contractor* notifies the *Employer* within seven days of the change.
- Z3.2 The *Contractor* is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the *Project Manager* within thirty days of the notification or as otherwise instructed by the *Project Manager*.
- Z3.3 Where, as a result, the *Contractor's* B-BBEE status has decreased since the Contract Date the *Employer* may either re-negotiate this contract or alternatively, terminate the *Contractor's* obligation to Provide the Works.
- Z3.4 Failure by the *Contractor* to notify the *Employer* of a change in its B-BBEE status may constitute a reason for termination. If the *Employer* terminates in terms of this clause, the procedures on termination are P1, P2 and P3 as stated in clause 92, and the amount due is A1 and A3 as stated in clause 93.

Z4 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 *Project 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 *works* or any portion thereof, in the course of Providing the Works and after Completion, requires the prior written consent of the *Project Manager*. All rights in and to all such images vests exclusively in the *Employer*.
- 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 *Project Manager*, the *Supervisor*, or the *Adjudicator* does not constitute a waiver of rights, and does not give rise to an estoppel unless the Parties agree otherwise and confirm such agreement in writing.

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 *works*. Without limitation the *Contractor*:
- accepts that the *Employer* may appoint him as the "Principal Contractor" (as defined and provided for under the Construction Regulations 2014 (promulgated under the Occupational Health & Safety Act 85 of 1993) ("the Construction Regulations") for the Site;
 - warrants that the total of the Prices as at the Contract Date includes a sufficient amount for proper compliance with the Construction Regulations, all applicable health & safety laws and regulations and the health and safety rules, guidelines and procedures provided for in this contract and generally for the proper maintenance of health & safety in and about the execution of *works*; and
 - undertakes, in and about the execution of the *works*, to comply with the Construction Regulations and with all applicable health & safety laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.
- Z6.2 The *Contractor*, in and about the execution of the *works*, complies with all applicable environmental laws and regulations and rules, guidelines and procedures otherwise provided for under this contract and ensures that his Subcontractors, employees and others under the *Contractor's* direction and control, likewise observe and comply with the foregoing.

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 *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice in accordance with the *Employer's* procedures stated in the Works Information, showing the amount due for payment equal to that stated in the payment certificate.
- 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 from the last sentence in core clause 61.3, "unless the *Project Manager* should have notified the event to the *Contractor* but did not".

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 83.1 is provided for in 60.1(14) and the *Employer's* liability under the indemnity is limited.

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 Addition to secondary Option X7 Delay damages (if applicable in this contract)

- Z11.1 If the amount due for the *Contractor's* payment of delay damages reaches the limits stated in this Contract Data for Option X7 or Options X5 and X7 used together, the *Employer* may terminate the *Contractor's* obligation to Provide the Works using the same procedures and payment on termination as those applied for reasons R1 to R15 or R18 stated in the Termination Table.

Z12 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 <i>Contractor</i> , or any member thereof in the case of a joint venture, or its employees, agents, or Subcontractor 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.

- Z12.1 A Committing Party may not take any Prohibited Action during the course of the procurement of this contract or in execution thereof.
- Z12.2 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.
- Z12.3 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.
- Z12.4 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.

Z13 Insurance

Z 13.1 Replace core clause 84 with the following:

Insurance cover 84

- 84.1** 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.
- 84.2** The *Contractor* provides the insurances stated in the Insurance Table A.
- 84.3** The insurances provide cover for events which are at the *Contractor's* risk 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 to the works, Plant and Materials	The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the works, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the <i>Contractor</i>) caused by activity in connection with this contract	<u>Loss of or damage to property</u> <u>Employer's property</u> The replacement cost where not covered by the <i>Employer's</i> insurance The <i>Employer's</i> policy deductible, as Contract Date, where covered by the <i>Employer's</i> insurance <u>Other property</u> The replacement cost <u>Bodily injury to or death of a person</u> The amount required by applicable law
Liability for death of or bodily injury to employees of the <i>Contractor</i> arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

Z 13.2

Replace core clause 87 with the following:

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 limit 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

Z14 Nuclear Liability

- Z14.1 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.
- Z14.2 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*.
- Z14.3 Subject to clause Z14.4 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*.
- Z14.4 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.
- Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z15 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.

- Z15.1 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.
- Z15.2 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 Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.
- Z15.3 The *Employer* manages asbestos and ACM according to the Standard.
- Z15.4 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.
- Z15.5 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.
- Z15.6 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.
- Z15.7 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.

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

If any one of these *weather measurements* recorded within a calendar month, before the Completion Date for the whole of the *works* and at the place stated in this Contract Data is shown to be more adverse than the amount stated below then the *Contractor* may notify a compensation event.

Month	Weather measurement				
	Cumulative rainfall (mm)	Number of days with rain more than 10mm	Number of days with min air temp < 0 deg.C	Number of days with snow lying at 08:00 CAT	[Other measurements if applicable]
January			0	0	
February	50.9	1	0	0	
March	256.2	2	0	0	
April	2	0	0	0	
May	31.5	0	0	0	
June	0.8	0	20	0	
July	0.6	0	23	0	
August	2.2	0	6	0	
September	8.8	0	6	0	
October	65.3	0	0	0	
November	62.2	0	0	0	
December	58.8	0	0	0	

Only the difference between the more adverse recorded weather and the equivalent measurement given above is taken into account in assessing a compensation event.

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)² in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
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.

Note: to be completed in full. Mandatory tender returnable. If not completed, the tender will be regarded as non-responsive

Clause	Statement	Data
10.1	The <i>Contractor</i> is (Name): Address Tel No. Fax No.	
11.2(8)	The <i>direct fee percentage</i> is The <i>subcontracted fee percentage</i> is	% % Note: to be completed in full.
11.2(18)	The <i>working areas</i> are the Site and	Note: to be completed in full.
24.1	The <i>Contractor's</i> key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job: Responsibilities: Qualifications: Experience:	

² Available from Engineering Contract Strategies Tel 011 803 3008, Fax 011 803 3009 or see www.ecs.co.za

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled. Note: to be completed in full.		
11.2(3)	The <i>completion date</i> for the whole of the works is	Note: to be completed in full.		
11.2(14)	The following matters will be included in the Risk Register	Note: to be completed in full.		
11.2(19)	The Works Information for the <i>Contractor's</i> design is in:	Note: to be completed in full.		
31.1	The programme identified in the Contract Data is	Note: to be completed in full.		
A	Priced contract with activity schedule			
11.2(20)	The <i>activity schedule</i> is in			
11.2(30)	The tendered total of the Prices is	----- (in figures) ----- (in words), ----- -----excluding VAT Note: to be completed in full.		
	Data for Schedules of Cost Components	Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).		
A	Priced contract with activity schedule	Data for the Shorter Schedule of Cost Components		
41 in SSCC	The percentage for people overheads is:	% Note: to be completed in full.		
21 in SSCC	The published list of Equipment is the last edition of the list published by The percentage for adjustment for Equipment in the published list is	Note: to be completed in full. Minus % Note: to be completed in full.		
22 in SSCC Note: to be completed in full.	The rates of other Equipment are:	Equipment	Size or capacity	Rate
61 in SSCC Note: to be completed in full.	The hourly rates for Defined Cost of design outside the Working Areas are Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.	Category of employee	Hourly rate	

	Please insert another schedule if foreign resources may also be used	
62 in SSCC	The percentage for design overheads is	% Note: to be completed in full.
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:	Note: to be completed in full.

PART 2: PRICING DATA

ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	3
C2.2	The <i>activity schedule</i>	1

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

Clause 11 in NEC3 Engineering and Construction Contract, (ECC3) Option A states:

Identified and defined terms	11	
	11.2	(20) The Activity Schedule is the <i>activity schedule</i> unless later changed in accordance with this contract.
		(27) The Price for Work Done to Date is the total of the Prices for <ul style="list-style-type: none"> • each group of completed activities and • each completed activity which is not in a group. <p>A completed activity is one which is without Defects which would either delay or be covered by immediately following work.</p>
		(30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

This confirms that Option A is a lump sum form of contract where the work is broken down into activities, each of which is priced by the tendering contractor as a lump sum. Only completed activities are assessed for payment at each assessment date; no part payment is made if the activity is not completed by the assessment date.

Function of the Activity Schedule

Clause 54.1 in Option A states: "Information in the Activity Schedule is not Works Information or Site Information". This confirms that specifications and descriptions of the work or any constraints on how it is to be done are not included in the Activity Schedule but in the Works Information. This is further confirmed by Clause 20.1 which states, "The *Contractor* Provides the Works in accordance with the Works Information". Hence the *Contractor* does **not** Provide the Works in accordance with the Activity Schedule. The Activity Schedule is only a pricing document.

Link to the programme

Clause 31.4 states that "The *Contractor* provides information which shows how each activity on the Activity Schedule relates to the operations on each programme which he submits for acceptance". Ideally the tendering contractor will develop a high level programme first then resource each activity and thus arrive at the lump sum price for that activity both of which can be entered into the *activity schedule*.

Preparing the *activity schedule*

Generally it is the tendering contractor who prepares the *activity schedule* by breaking down the work described within the Works Information into suitable activities which can be well defined, shown on a programme and priced as a lump sum.

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 his *activity schedule* and be priced accordingly.

It is assumed that in preparing his *activity schedule* the *Contractor*:

- Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20;
- Understands the function of the Activity Schedule and how work is priced and paid for;
- Is aware of the need to link the Activity Schedule to activities shown on his programme;
- Has listed and priced activities in the *activity schedule* which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works 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 activity within the Prices of other listed activities in order to fulfil the obligation to complete the *works* for the tendered total of the Prices.
- Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or quantity, of work within that activity later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

Price List

Tenderer to include all expenditure in the rates - the work scope to be executed and not only the details reflected in the price list.

Item	Description	Unit	Quantity	Supply Rate	Labour Rate/UOM	Rate	Total Amount
1	<u>PRELIMINARIES AND GENERAL</u>						
A	<u>FIXED RELATED OBLIGATIONS</u>						
(i)	<u>SITE ESTABLISHMENT</u>						
1	Site Establishment and contractual obligations	Sum	1			R	R
(ii)	<u>HEALTH AND SAFETY</u>						
2	Health & Safety Requirements	Sum	1			R	R
(iii)	<u>SITE DE-ESTABLISHMENT</u>						
3	De-Establishment of facilities from Site	Sum	1			R	R
B	<u>TIME RELATED</u>						
4	Site Management	Sum	1			R	R
5	Site Offices (including furniture & equipment), storage facilities, shelters, etc	Sum	1			R	R
6	Transportation	Sum	1			R	R
7	Accommodation	Sum	1			R	R
<u>TOTAL FOR PRELIMINARIES AND GENERAL</u>							R
2	<u>UNDERGROUND SERVICES</u>						

2.1	Detection of the underground services for existing pipes and cables to determine the routes for new cable	Item	1				R	R
	<u>TOTAL FOR UNDERGROUND SERVICES</u>							R
3	<u>DECOMMISSIONING</u>							
3.1	Drain oil, strip, rig, decommissioning and transport the old RMU's to a location inside the station	Each					R	R
	<u>TOTAL FOR DECOMMISSIONING</u>							R
4	<u>MV AND LV CABLES</u>							
	<u>SUPPLY AND INSTALL</u>							
4.1	<u>Supply and Install new MV Cables including fixing materials</u>							
	<u>XLPE 6.35/11kV</u>							
	150mm ² x 3 core (EXE03RCV) 6.35kV/11kV	m	300					
	120mm ² x 3 core (EXE03QCV) 6.35kV/11kV	m	150					
	95mm ² x 3 core (EXE03PCV) 6.35kV/11kV	m	150					
	70mm ² x 3 core (EXE03NCV) 6.35kV/11kV	m	150					
4.2	<u>Supply and Install new LV Cables including fixing materials</u>							
	<u>BVX04DCV</u>							
	2.5mm ² x 4 core (BVX04DCV)	m	300					
4.3	<u>MEDIUM VOLTAGE TERMINATIONS</u>							
	<u>Supply and install complete Cable Termination Kit for 11KV SafePlus Type C Cable Termination (Complies with DIN47636T1 & T2/EDF HN 525-61)</u>							

	150mm2 x 3 core (EXE03RCV) 6.35kV/11kV	m	16				
	120mm2x 3 core (EXE03QCV) 6.35kV/11kV	m	10				
	95mm2x 3 core (EPW03PCV)	m	15				
	70mm2x 3 core (EPW03NCV)	m	6				
4.4	<u>MEDIUM VOLTAGE JOINTS</u>						
	<u>Complete Joints for 11kV stranded copper cable</u>						
	<u>Cut and join cables (Refer to cable schedule)</u>						
	150mm2 x 3 core (EXE03RCV) 6.35kV/11kV	no	10				
	120mm2 x 3 core (EXE03RCV) 6.35kV/11kV	no	4				
	95mm2x 3 core (EXE03PCV) 6.35kV/11kV	no	4				
4.5	<u>REMOVAL OF MV CABLES</u>						
	<u>MV Cables(existing cables only)</u>						
	<u>PILC 6.35/11kV</u>						
	150mm2 x 3 core (EPW03RCV)	m	120				
	120mm2x 3 core (EPW03QCV)	m	80				
	95mm2x 3 core (EPW03PCV)	m	100				
	70mm2x 3 core (EPW03NCV)	m	65				
	<u>TOTAL FOR SUPPLY ,INSTALLATION AND REMOVAL OF MV AND LV CABLES</u>						
5	<u>CURRENT TRANSFORMER FOR SF6 RMUs</u>						
	<u>SUPPLY AND INSTALL CURRENT TRANSFORMER FOR SF6 RMUs</u>						
	KOKM 072 CA 10 CT2	no	12				
	KOKM 072 CA 10 CT3	no	6				
	KOKM 072 BA 10 CT1	no	9				
	<u>SUPPLY AND INSTALL VOLTAGE DETECTION</u>						

	SYSTEM FOR SF6 RMUs						
	Capdis S1+KRIES Energietechnik (Part number 2500421)	no	10				
	TOTAL FOR SUPPLY AND INSTALL CURRENT TRANSFORMER FOR SF6 RMUs						
6	EARTHING						
	Earthing installation						
	50 x 3 mm Flat Cu +saddles	m	85				
	Terminations, Joints,cross overs, tee's	no	51				
	TOTAL FOR EARTHING INSTALLATION						
	BUILDERS WORK						
	Earthworks						
	Re-excavation over existing cables, pipes and sleeves, etc. in soft material not exceeding 2000mm deep for cable trench, sleeve pipe, etc including risk of collapse, keeping free of water, river sand bed, backfilling, compacting and disposal of surplus material, all to the Engineer's specification	item	1				
	Extra over excavations in:						
	Soft rock	m3					Rates only
	Hard rock	m3					Rates only
	TOTAL FOR EARTHING INSTALLATION						
	RMU's						
	Transporting and rigging of RMU's from our stores to each RMU location	item	1				
	TOTAL FOR TRANSPORTATION OF RMU'S						
	TESTING AND COMMISSIONING						

	Commissioning and Testing of MV and LV cables	item	1				
	Commissioning and Testing of the RMU primary Circuit	item	1				
	<u>TOTAL FOR TESTING AND COMMISSIONING</u>						
TOTAL RAND VALUE EXCLUDING VAT							

SUMMARY	Tendered price
PRELIMINARY AND GENERAL	
UNDERGROUND SERVICES	
DECOMMISSIONING	
MV AND LV CABLES	
CURRENT TRANSFORMER FOR SF6 RMUs	
EARTHING	
BUILDERS WORK	
RMU's	
TESTING AND COMMISSIONING	
Total estimates excluding vat and escalations	

..... Print Name Signature Date
---------------------	--------------------	---------------

An activity schedule could have the following format:

Item No.	Programme Reference	Activity description	Price

C2.2 the *activity schedule*

Use this page as a cover page to the *Contractor's activity schedule*.

**Document
reference**

Title

**No of
pages**

	This cover page	1
C3.1	<i>Employer's Works Information</i>	36
C3.2	<i>Contractor's Works Information</i>	1
	Total number of pages	38

C3.1: EMPLOYER'S WORKS INFORMATION

Contents

When the document is complete, insert a 'Table of Contents'. To do this go to: Insert, → Reference, → Index and tables → Table of Contents. Three levels and the title (but not the subtitle) may be shown if the formats used in this template are retained.

Table of Contents

1. Description of the works	11
1.1. Executive overview	11
1.2. <i>Employer's</i> objectives and purpose of the works	11
1.3. Interpretation and terminology	11
2. Management and start up	12
2.1. Management meetings	12
2.2. Documentation control	13
2.2.1. General	13
2.2.2. Document Submission	14
2.2.3. Drawings Format and Layout	14
2.3. Health and safety risk management	14
2.3.1. General Health and Safety	14
2.3.2. Eskom Policies, Standards, Procedures, Specifications, and Other Statutory and Regulatory Requirements	15
2.3.3. Safety of the Workers	15
2.3.4. Fire Protection	15
2.3.5. Asbestos	16
2.3.6. First Aid	16
2.3.7. Hazardous Substance	16
2.3.8. Radiation Protection	16
2.3.9. Plant Safety Regulations	16
2.4. Environmental constraints and management	17
2.5. Quality assurance requirements	17
2.5.2. Contract Quality Management Plan Requirement	17
2.5.3. Access to the <i>Contractor's</i> and Sub- <i>Contractor(s)</i> Premises and Facilities	18
2.5.4. Verification and Testing	18
2.5.5. Quality Records	18
2.6. Programming constraints	19
2.7. <i>Contractor's</i> management, supervision and key people	19
2.8. Invoicing and payment	19
2.8.7. Insurance provided by the <i>Employer</i>	21
2.8.8. Contract change management	21
2.8.9. Provision of bonds and guarantees	21
2.8.10. Records of Defined Cost, payments & assessments of compensation events to be kept by the <i>Contractor</i>	22
2.8.11. Training workshops and technology transfer	22
2.8.11.1. General Requirements	22
2.8.11.2. Training Documentation	22
3. Engineering and the <i>Contractor's</i> design	24
3.1. <i>Employer's</i> design	24
3.1.1. SYSTEM DESCRIPTION	24
3.1.2. RMU Layout	29
3.2. Parts of the works which the <i>Contractor</i> is to design	29
3.2.1. Loading, Transportation, off-loading and Erection of Ring Main Units	29
3.2.2. Installation of Ring Main Units	30

3.2.3.	Routine test on the primary circuit	30
3.2.4.	Decommissioning the existing oil filled RMUs	30
3.2.5.	Cable Route design	30
3.2.6.	Supply, installation (including excavation and backfilling), jointing, disconnection, testing, termination, and connection of cables.....	30
3.2.7.	Installation of fire sealing where applicable	31
3.2.8.	Earthing.....	31
3.3.	Procedure for submission and acceptance of <i>Contractor's</i> design.....	31
3.4.	Other requirements of the <i>Contractor's</i> design	31
3.4.1.	Installation, and commissioning of CTs for SF6 Safe-Plus RMUs.....	31
3.4.2.	Installation and testing of SF6 Safe-Plus Voltage Detection System	31
3.4.3.	Installation and testing of Low Voltage cables	32
3.5.	Use of <i>Contractor's</i> design	32
3.6.	Design of Equipment	32
3.7.	Equipment required to be included in the <i>works</i>	32
3.6.	As-built drawings, operating manuals and maintenance schedules.....	32
4.1.	People.....	33
4.1.1.	Minimum requirements of people employed on the Site	33
4.1.2.	BBBEE and preferencing scheme.....	33
4.1.3.	Accelerated Shared Growth Initiative – South Africa (ASGI-SA)	33
4.2.	Subcontracting	33
4.2.1.	Preferred subcontractors	33
4.2.2.	Subcontract documentation, and assessment of subcontract tenders	34
4.2.3.	Limitations on subcontracting	34
4.2.4.	Attendance on subcontractors	34
4.3.	Plant and Materials	34
4.3.1.	Quality	34
4.3.2.	Plant & Materials provided “free issue” by the <i>Employer</i>	34
4.3.3.	<i>Contractor's</i> procurement of Plant and Materials	35
4.3.4.	Spares and consumables.....	35
4.4.	Tests and inspections before delivery	35
4.5.	Marking Plant and Materials outside the Working Areas	35
4.6.	<i>Contractor's</i> Equipment (including temporary works).....	35
4.7.	Cataloguing requirements by the <i>Contractor</i>	35
5.1.	General.....	35
5.1.1.	Fabrication and Construction	36
5.1.1.1.	Construction and Erection.....	36
5.2.	Temporary works, Site services & construction constraints	37
5.2.1.	<i>Employer's</i> Site entry and security control, permits, and Site regulations	37
5.2.2.	Restrictions to access on Site, roads, walkways and barricades	38
5.2.3.	People restrictions on Site; hours of work, conduct and records.....	38
5.2.4.	Health and safety facilities on Site	38
5.2.5.	Environmental controls, fauna & flora, dealing with objects of historical interest	38
5.2.6.	Title to materials from demolition and excavation	38
5.2.7.	Cooperating with and obtaining acceptance of Others	38
5.2.8.	Publicity and progress photographs	38
5.2.9.	<i>Contractor's</i> Equipment	39
5.2.10.	Equipment provided by the <i>Employer</i>	39
5.2.11.	Site services and facilities.....	39
5.2.12.	Facilities provided by the <i>Contractor</i>	40
5.2.13.	Existing premises, inspection of adjoining properties and checking work of Others..	41
5.2.14.	Survey control and setting out of the <i>works</i>	41
5.2.15.	Excavations and associated water control.....	41
5.2.16.	Underground services, other existing services, cable and pipe trenches and covers	41
5.2.17.	Control of noise, dust, water and waste	41
5.2.18.	Sequences of construction or installation	41
5.2.19.	Giving notice of work to be covered up	41
5.2.20.	Hook ups to existing works.....	42
5.3.	Completion, testing, commissioning and correction of Defects	42
5.3.1.	Work to be done by the Completion Date	42

5.3.2.	Use of the <i>works</i> before Completion has been certified	42
5.3.3.	Materials facilities and samples for tests and inspections	42
5.3.4.	Commissioning	42
5.3.5.	Start-up procedures required to put the <i>works</i> into operation	43
5.3.6.	Take over procedures	43
5.3.7.	Access given by the <i>Employer</i> for correction of Defects	43
5.3.8.	Performance tests after Completion	43
5.3.9.	Training and technology transfer	44
5.3.10.	Operational maintenance after Completion	44
6.	Plant and Materials standards and workmanship	45
6.1.	Investigation, survey and Site clearance	45
6.2.	Building works	45
6.3.	Civil engineering and structural works	45
6.4.	Electrical & mechanical engineering works	45
6.5.	Process control and IT works	46
6.6.	Other [as required]	46
	List of drawings	47
	Drawings issued by the <i>Employer</i>	47
C3.2	CONTRACTOR'S WORKS INFORMATION	48
	PART 4: SITE INFORMATION	49
	Part 4: Site Information	50
1.	General description	50
1.1.	General	50
1.2.	Climate	50
1.3.	Weather Data	50
1.4.	Relative Humidity	51
1.5.	Prevailing Winds	51
1.6.	Other Climatic Factors	51
1.7.	Topography	51
1.8.	Air Quality	51
2.	Existing buildings, structures, and plant & machinery on the Site	52
3.	Subsoil information	52
4.	Hidden services	52
5.	Other reports and publicly available information	52

1. Description of the works

1.1. Executive overview

The existing RMUs installed at Kriel Power Station are oil insulated, metal-enclosed, rated for use on a three-phase cable system for rated A.C voltages of 3.3 kV and 11 kV and are designed for outdoor operation at a rated frequency of 50 Hz. They are located throughout the outside and the common plant forming part of the electrical reticulation system at Kriel P/S.

These RMUs are old and obsolete, with unavailability of spares, and are not designed for internal arc compliance. Failures have been reported (EEP0988-2) of which are often due to oil degradation resulting from old age and unavailability of the plant to perform scheduled maintenance. The impurities of air, dust and/or moisture contaminates the oil, weakening its dielectric properties, leading to an insulation break down that often leads to the explosion of the RMU.

The project therefore involves replacing the existing oil filled Ring Main Units with the gas insulated Intelligent Remote Terminal Units (IRTU) fitted RMUs that are internal arc classified, with remote operation capabilities.

The new Safe-Plus SF6 gas insulated IRTU fitted RMUs that are manufactured and supplied by the OEM are available at the storage area on site at Kriel Power Station.

This document details the *works* that shall be performed by the awarded *Contractor* for the loading and transportation, installation, commissioning, and cabling for the new Ring Main Units. The dismantling and decommissioning of the old oil-filled ring main units is included in the scope.

The hot commission of these RMUs once installed on the plinths (and cold commissioning completed by the *Contractor*) is carried out by the *Employer*.

1.2. Employer's objectives and purpose of the works

The *Employer's* objective is to contract with a successful tenderer to complete the *works* for the project. The purpose of the *works* is to install the install and commission the new SF6 Ring Main Units thereby mitigating catastrophic failure of the existing obsolete RMUs to ensure safety of operating personnel and increase the reliability, and availability of the system.

1.3. Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Description
CB	Circuit Breaker
CCCC	Central Control Change Committee
C&I	Control and Instrumentation
CoE	Centre of Excellence
CT	Current Transformer
DC	Direct Current
EDWL	Engineering Design Work Lead
EMAP	Engineering Management Plan
EOD	Electrical Operating Desk

Abbreviation	Description
Gx	Generation
IED	Intelligent Electronic Device
kV	Kilo Voltage
LDE	Lead Design Engineer
LV	Low Voltage
MV	Medium Voltage
MW	Megawatts
OEM	Original Equipment Manufacturer
OHS	Occupation Health and Safety
PCM	Process Control Manual
RTU	Remote Terminal Unit
SCADA	Supervisory Control and Data Acquisition
SRD	Stakeholders Requirements Definition

2. Management and start up.

2.1. Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Project Kick-Off Meeting	Once, Before Contract commence	Kriel Power Station Site Soweto VC Boardroom	Contractor's Project Manager OR Project Supervisor and other attendees at the discretion of the contractor Employer's Project Team
Progress Meeting, Risk register and compensation events	Weekly, at a mutually agreed time and venue	MS Teams	Contractor's Project Manager or Project Supervisor Employer's Project Team
Risk Management Review	Weekly, at a mutually agreed time and venue	Kriel Power Station Site Soweto VC Boardroom	Contractor's Project Manager or Project Supervisor Employer's Project Team
Safety Plant Walk	Monthly, to join engineering team	To be determined	Contractor's Safety Representative
Contractors Main SHEQ meeting	Monthly	Ms Teams	Contractor's Safety Representative

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

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

2.2. Documentation control

All documents supplied by the Contractor are subject to the Employer's approval. The language of all documentation is required to be in English. The Contractor includes the Employer's drawing number in the drawing title block. This requirement only applies to design drawings developed by the Contractor and his Subcontractors. Drawing numbers are assigned by the Employer as drawings are developed.

The Contractor is required to submit the Vendor Document Submission Schedule (VDSS) as per agreed dates to the delegated Employer's Representative. The Employer pre-allocates document numbers on the VDSS and sends back to the Contractor through the delegated Employer's Representative. The VDSS is revisable and changes must be discussed and agreed upon by all parties. The Contractor's VDSS indicates the format of documents to be submitted

2.2.1. General

The documentation requirements cover the duration of the contract from placement stage through to the completion of ash dam drain installation at Kriel Power Station.

The *Contractor* is responsible to plan for the supply of the documentation during the design, installation, commissioning and handover of the Ash dam drain installation project.

A document is thus any written or pictorial/drawing information describing, defining, specifying or certifying activities, requirements, procedures and or results.

All documentation (**existing** drawings etc.) issued by the *Employer* for this contract is copyright protected and are not to be copied by the *Contractor*, except where the updating of all these documents is required as per the project new updated hand-over documents.

The *Contractor* submits all documentation on a formal transmittal form in triplicate to the *Project Manager*. All documents, reports and engineering documentation shall be compiled and presented in English language be in the required Microsoft Office Word, PowerPoint, Excel, Acrobat Reader and or Project file extensions format where necessary.

All reports and documents shall be compiled using an approved *Employer's* document template provided by the station's Documentation Management Department and or must comply to Eskom Documentation Management Procedure Rev 0 IARC - 210-76.

Reports documented for the purpose of this project shall remain a property of Eskom Kriel Power station.

All contractual correspondence formats shall be in the form of properly compiled letters or forms attached to e-mails and not as a message in the e-mail itself. The correspondence shall include the following details:

- a) Kriel Power Station
- b) Date
- c) *Employer's* Contract number
- d) Contract description
- e) Correspondence subject matter
- f) *Contractor's* reference number
- g) *Employer's* reference number
- h) Telephone number
- i) FAX number
- j) Reference to the relevant NEC Clause(s) (if applicable)
- k) Function group number or name (if applicable)

Where appropriate the correspondence includes the *Project Manager's* reference and is delivered as a single package.

All communications from the *Contractor* are numbered sequentially with a prefix as advised by the *Project Manager*. The *Project Manager* responds in like manner to a maximum of two address formats provided in writing by the *Contractor*.

The prefix is to be decided upon at the kick off meeting.

2.2.2. Document Submission

All project documents must be submitted to the delegated *Employer's* Representative with transmittal note according to Project / Plant Specific Technical Documents and Records Management Work Instruction (240-76992014). In order to portray a consistent image it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the Work Instruction.

The *Contractor* submits all documentation to the *Employer's* Representative in the following media:

- I. Electronic copies are submitted to Eskom Documentation Centre through generic email address (drmsharedservices@eskom.co.za). The email subject as a minimum has the following: **(Station Project Name Discipline Subject)**. Electronic copies that are too large for email are delivered on CD/DVD, large file transfer protocol and/or hard drives to the Project Documentation Centre. In a case where CD has been submitted, a notification email, with the transmittal note attached, is sent to the project generic email address. The Representative is copied on the email as well.
- II. Hard copies are submitted to the *Employer's* Representative accompanied by the Transmittal Note.

2.2.3. Drawings Format and Layout

- I. The creation, issuing and control of all Engineering Drawings will be in accordance to the latest revision of 240-86973501 - Engineering drawing Standard.
- II. Drawings issued will be a minimum of one hardcopy and an electronic copy.
- III. Drawings issued may not be "Right Protected" or encrypted

2.3. Health and safety risk management

- I. The *Contractor* and his employees shall comply with the health, safety and environmental requirements contained in SHE Specification.
- II. The *Contractor* shall keep and maintain Health & Safety (H&S) records to demonstrate compliance to legal requirements and the *Employer's* H&S specification. All documents shall be available for inspection by *Employers' Generation/Site Specific H&S, Agent and the DoL*

2.3.1. General Health and Safety

- a) The *Contractor* shall comply with Occupational Health and Safety Act no 85 of 1993 and its regulations, Eskom SHE Policy, Standards, Procedures, Guidelines, Specifications and Regulations.
- b) The *Contractor* ensures safety awareness at all times through continuous training.

- c) The *Contractor* shall at all times be responsible for the supervision of his employees, agents, sub-contractors and shall take full responsibility and accountability for ensuring they are competent, compliant and aware of the legal requirements and other requirements and execute the works accordingly.
- d) The *Contractor* shall ensure that all statutory appointments and appointments required by any Eskom Regulations are made in writing and that all appointees fully understand their responsibilities and are trained and competent to execute their duties.
- e) The *Employer*, or any person appointed by the *Employer*, may, at any stage during the term of contract:
- f) Conduct health and safety audits by a competent person regarding all aspects of compliance with the SHEQ Requirements, at any off-site place of work, or the site establishment of the *Contractor*;
- g) Refuse any employee, Sub-*Contractor* or agent of the *Contractor* access to the premises if such person has been found to commit an unsafe act or any unsafe working practice or is found not to be competent or authorised.
- h) Issue the *Contractor* with a stop order should the *Employer* become aware of any unsafe working procedure or condition or any non-compliance.
- i) The *Contractor* shall immediately report any incidents, disabling injury, near miss, first aid incident as well as any threat to health or safety of which it becomes aware at the works or on the Site to the *Project Manager*.
- j) The *Contractor* agrees that the *Employer* may relieved them of any and all of its responsibilities and liabilities in terms of Occupational Health and Safety Act no 85 of 1993 in respect of any acts or omissions of the *Contractor*, and the *Contractor's* employees, agents or Sub-*Contractors*, to the extent permitted by the Occupational Health and Safety Act no 85 of 1993.

2.3.2. Eskom Policies, Standards, Procedures, Specifications, and Other Statutory and Regulatory Requirements

Specific attention must be given to the Job Bulletin "Safe Measures Regarding Asbestos or Asbestos Contaminated Material" (06 – 2004).

2.3.3. Safety of the Workers

- I. The *Contractor* ensures the safety of all persons working in the Site. Any hot work including welding will be applied for in accordance with a permit to work system. No welding will be allowed on site unless permission is granted in writing by the *Project Manager*.
- II. All welding, flame cutting and grinding work is properly screened to protect persons from arc flashes or eye injuries. Fire blankets are fitted over the scaffolding planks and platforms. Precautions are taken to prevent any objects welding or grinding splatter from falling.

2.3.4. Fire Protection

- i. The *Contractor* shall ensure that adequate fire fighting apparatus is provided at all their work sites or office areas, and that their all their staff or representatives are trained in the use of this apparatus.
- ii. The *Contractor* takes precautions to prevent any occurrence of fires or explosions while carrying out any work near flammable gas and liquid systems. Any tampering with the *Employer's* fire equipment is strictly forbidden.
- iii. All exit doors, fire escape routes, walkways, stairways, stair landings and access to electrical distribution boards must be kept free of obstruction, and not be used for work or storage at any time. Fire fighting equipment remains accessible at all times.

- iv. In case of a fire, report the location and extent of the fire to the Electrical Operating Desk at extension 2555.
- v. Take the necessary action to safeguard the area to prevent injury and spreading of the fire.

2.3.5. Asbestos

- i. The *Contractor* does not disturb any thermal insulating material on the plant until it has been positively identified as not containing asbestos. Approval is obtained from the Supervisor before any thermal insulation is disturbed.
- ii. All stripping of asbestos material is undertaken strictly in accordance with the *Employer's* Standard, SAP 0022, available from Safety Risk Management.
- iii. The *Project Manager* advises the *Contractor* whether areas that are to be stripped of lagging have been identified as containing asbestos.
- iv. The *Contractor* is obliged to ascertain from the *Project Manager* in advance whether areas required to be stripped, are non-asbestos. Any *Contractor*, other than the *Contractor* appointed to remove asbestos strips no lagging material containing asbestos fibres.
- v. The *Contractor* appointed to remove asbestos, does not begin removal without first obtaining the necessary permission from the Deputy Director of Labour and the *Project Manager*.
- vi. Specific attention must be given to the Job Bulletin "Safe Measures Regarding Asbestos or Asbestos Contaminated Material" (06 – 2004).
- vii. Asbestos is present on the site and asbestos areas are clearly marked.

2.3.6. First Aid

- i. The *Contractor* provides a First Aid service to his employees and Sub-Contractors. In the case where these prove to be inadequate, like in the event of a serious injury, the *Employer's* Medical Centre and facilities will be available
- ii. Outside the *Employer's* office hours, the *Employer's* First Aid Services are only available for serious injuries and life-threatening situations.
- iii. The *Employer* recovers the costs incurred, in the use of the above *Employer's* facilities, from the *Contractor*.

2.3.7. Hazardous Substance

The *Contractor* shall manage hazardous substances in accordance with the requirements of Occupational Health and Safety Act no 85 of 1993 and NEMWA Act. The *Contractor* shall declare all hazardous chemical substances brought to site to the *Employer*.

2.3.8. Radiation Protection

The *Contractor* conforms to all the legislative and safety requirements when performing any industrial radiography.

2.3.9. Plant Safety Regulations

- I. The *Employer*, on request from the *Contractor*, isolates required plant from all sources of danger as described in the Plant Safety Regulations.
- II. The *Project Manager*, on request, makes available a copy of the latest revision of the Plant Safety Regulations available to the *Contractor*.
- III. The *Contractor* complies with all rules and regulations applicable to plant safety and completes the Workman's Register prior to working on the plant and or Limited Access Register (LAR).
- IV. The *Contractor* declares any grinding and welding to be carried out on the workers register
- V. At every permit change the *Contractor* withdraws himself/herself/his staff for that period of permit suspension/revocation and thereafter only proceeds with the works after signing onto the new permit.
- VI. The *Contractor* ensures that he/she/all sub-*contractors*/personnel/staff/his visitors are medically, physically and psychologically fit to enter the Kriel Power Station, and specifically any confined space.
- VII. The *Contractor* is prohibited from entering Radiation Areas.
- VIII. The responsibility is on the *Contractor* to ensure that the correct confined space requirements and tests have been done/met by the *Employer* prior to entry into any confined space or hazardous plant areas.
- IX. The *Contractor* shall provide proof of competency for technical and safety aspects and must be available as and when required on site.

2.4. Environmental constraints and management

- i. The Contractor to ensure that all goods, services or works supplied in terms of the Contract comply with all applicable environmental legislation.
- ii. The Contractor is responsible to keep the work area clean of any rubble. All waste introduced and/or produced on the Employer's premises by the Contractor for this contract, is handled in accordance with the minimum requirements for the Handling and Disposal of Hazardous Waste in terms of Government Legislation as proclaimed by the Department of Water Affair and Forestry Act 1994 and Eskom environmental requirements.

2.5. Quality assurance requirements

2.5.1. Quality Management System

The Contractor shall implement and maintain a quality management system; that as a minimum meets the requirements of the ISO 9001:2008 Standard Quality Management. If the Contractor is certified, the appropriate ISO 9001:2008 certificate of compliance must be supplied with the tender. If the Contractor is not ISO 9001:2008 certified, evidence of compliance to ISO 9001:2008 must be submitted as outlined on the QM-58 Supplier Contractor Requirements Specification.

- I. The *Contractor* further must ensure that the sub-*contractor's* programmes comply with the requirements of the *Works* Information.
- II. The *Contractor* notifies the *Project Manager* of any changes to the Quality Management System and obtains agreement prior to implementation on existing orders and contracts, or sub orders and sub-contracts

2.5.2. Contract Quality Management Plan Requirement

- I. The *Contractor* prepares a contract quality management plan that, where appropriate, indicates the following:
- II. Indicates the interface with the *Contractors* quality system and applicable documents such as procedures and work instructions
- III. Establishes communication channels between the *Contractor* and the *Project Manager* in respect of quality and the integration of such with prescribed contract communication channels
- IV. Indicates how specific subcontractors will be monitored
- V. Identifies items or activities for which quality control plans will be prepared
- VI. Identifies the specifications, drawings and acceptance criteria for material for which quality control plans are not required
- VII. Identifies the areas or processes requiring special controls
- VIII. Identifies the *Contractor's* Management Representative and personnel responsible for the control of quality
- IX. activities and their relationship to the *Contractor's* management structure
- X. Identifies the documents which are to be submitted to the *Project Manager*
- XI. Identifies the *Contractor's* quality monitoring programme
- XII. The *Contractor* periodically updates the contract quality management plan to reflect changes in any of the above details. The frequency of such updates is determined by the *Project Manager* but will not be greater than one year.

2.5.3. Access to the *Contractor's* and Sub-*Contractor(s)* Premises and Facilities

The *Contractor* and/or its sub-*contractor* gives access to the *Supervisor* and/or the Authority/Agency and the Regulator where appropriate to their premises and facilities at reasonable times to conduct quality assessments, audits, surveillances and inspections to establish compliance with the contractual requirements.

2.5.4. Verification and Testing

- I. The *Contractor* gives at least 24 hours advance notification to the *Supervisor* or the Authority for verification/testing, which require their attendance. The *Contractor* confirms readiness for verification at least 12 hours prior to the test.
- II. The *Contractor* ensures that all work has been fully verified, accepted and documented prior to requesting any verification by the *Supervisor*.

2.5.5. Quality Records

- I. The *Contractor* prepares and submits to the *Employer* an Index of QA/QC and inspection and test records prior to the commencement of work.
- II. The *Employer* determines which documents are to be submitted during the performance of work and reviews the index and request changes if required. The *Contractor* conforms to the Index approved by the *Employer*
- III. The *Contractor* ensures all records identify the items, equipment and/or activities to which they pertain and collates indexes and securely stores the records in such a manner that they are readily retrievable.

- IV. The *Contractor* implements appropriate administrative controls to limit access to prevent inadvertent loss of or damage to records.
- V. The *Contractor* stores all quality records. The *Contractor* only destroys or discards quality records with the approval of the *Employer*.
- VI. The *Contractor* presents on completion of the works all quality records in the form of a data package. The package is indexed and shows the entire contents

2.6. Programming constraints

Microsoft Project (latest version) has been adopted by the *Employer* and shall be used for all planning, progress monitoring and reporting of the works for the Ash dam drain installation project. The *Contractor* shall obtain this software and apply it for the planning and control of the works in line with the accepted Work Breakdown Structure (WBS).

The *Contractor* is to submit a single programme that incorporates programmes of all of his sub-*Contractors*. The interface points with subcontractors, including interfacing between different sub-*contractors* are to be clearly identified by the *Contractor*. The interface points with subcontractors, including interfacing between different sub-*contractors* are to be clearly identified by the *Contractor*. The Project Key Milestones to be supplied by the *Project Manager*, must be incorporated into the programme by the *Contractor*

The calendar used for planning shall be based on normal working hours per day and working days per week. Any changes to this are to be approved by the *Project Manager*. At the time period stated in the Contract data, the *Contractor* shall submit the programme for the *Project Manager's* acceptance.

The method of reporting on activities in progress shall be by remaining duration, i.e. the time in working days needed to complete the activity from the report date. Once an activity has started, the remaining duration is assessed for each update.

When completion of any activity is confirmed by quoting document numbers, these numbers shall be given in a remarks appendix, e.g. suborders, drawings, inspection certificates, delivery notes, etc. The actual start and completion dates of all activities shall be reported. Once the completion has been recorded, completed activities are removed from progress reports, although full reports may be requested

2.7. Contractor's management, supervision and key people

The *Contractor* must submit an organogram of the *Contractor's* project team indicating clearly reporting lines from the lowest to the highest level of the structure. Lines of authority / communication should be clearly indicated as well as key people and decision makers.

The implementation of Ash dam drain installation has no organisational impact with respect to changes to Employer's organisational structures, jobs, positions, and staffing requirements.

The *Contractor* shall make available skilled planning personnel to work and liaise with the *Project Manager* for the duration of the contract.

2.8. Invoicing and payment

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 *Project Manager* payment certificate.

The *Contractor* shall address the tax invoice to:

Eskom Holdings SOC Ltd
Reg. No. 2002/015527/30
Accounts Payable
Email to: Invoiceseskomlocal@eskom.co.za

The *Contractor* keeps records of all invoices submitted and paid up to the end of the project, as well as details of Actual Costs.

All invoices are hand delivered to the Kriel Finance Department (Account payables) and include on each invoice the following information:

Name and address of the *Contractor* and the *Project 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

Contractor is required to follow the correct process to ensure the payment is effected in accordance with contractual payment terms.

2.8.1. Service related invoices

- a) Once the *service* have been delivered/completed both parties have to agree that the *service* has been delivered/completed successfully prior to invoicing
- b) An assessment payment certificate must be completed between the *Contractor* and *Service Manager* according to the *service* performed. Both parties have to sign the assessment/certificate
- c) A copy of assessment/payment certificate must be obtained by the *Contractor* to enable the creation of an invoice and to prevent any discrepancies. A copy of the assessment/payment certificate must be attached to the original invoice
- d) *Service Manager* performs a service entry and Goods Receipt on the SAP system. (Assessment/Payment Certificate issued as a source document for Service Entry Goods Receipt)
- e) *Service Manager* will forward the Service entry and Goods Receipt Note number to the *Contractor* within 3 working days after the service has been rendered and the Assessment/Payment certificate signed
- f) *Contractor* must forward the original invoices together with a copy of the Assessment/Payment certificate to the Eskom Documentation Centre.

2.8.2. Goods Delivered Invoices

- a) Once the Goods are delivered, the *Service Manager* performs a Goods Receipt on the SAP system. (The delivery note is used as source document for Goods Receipt. The invoice should not be used as a delivery note)
- b) *Service Manager* will then forward the Goods Receipt note to the Vendor immediately or within 3 working days after the Goods are delivered.
- c) Vendors must then forward the Invoices together with a copy of the Assessment/Payment certificate to the Eskom Documentation Centre

2.8.3. Invoices linked to commodity prices

- a) The requirements are the same as for Goods Delivered Invoices.
- b) Invoices which are linked to commodity prices will result in CPA (Contract Price Adjustment).
- c) Attach a copy of the material invoice that has been previously paid to the CPA invoice, as well as the calculation sheet and all indices attached other than SEIFSA.
- d) The relevant Eskom Department will then complete the CPA calculation sheet and forwards it to the Eskom Documentation Centre.

2.8.4. Retention Invoices

- a) The requirements are the same as for Goods Delivered and service related Invoices.
- b) Where Retention is applicable on the contract, the Eskom SAP system will automatically create the Retention, and the amount deducted from the invoiced amount.
- c) Invoices related to retentions release require a defect or completion certificate and a retention release certificate from the *Project Manager* and must be attached to the original invoice. The original invoice for the retention to be released must be accompanied by the approved and signed completion/defect certificate and retention release certificate and forwarded by the *Project Manager* to the Documentation Centre to effect payment.

2.8.5. Foreign exchange Invoices

- a) The requirements are the same as for Goods Delivered and service related Invoices.
- b) The following has to be attached to the Invoice before it will be processed: Commercial invoice. Bill of entry (SAD500), SARS release notification, Customs worksheet, Bill of Lading or Airway Bill and approved Exchange Control Approval (EXCON).

2.8.6. General Information related to Eskom Invoices

- a) *Contractor* must ensure that the Service Entry and Goods Receipt Note number appears on the invoice. (It can be printed or hand written on the invoice).
- b) Eskom Purchase Order number must appear on invoice.
- c) Invoices must be VAT compliant in line with the VAT Act requirements.
- d) Invoices submitted must reflect the bank account details. A once off copy of the banking details may be forwarded to the Documentation Centre and it will be attached to each scanned invoice.
- e) Invoices must be original or certified as an original in line with the VAT Act. No electronic invoices will be accepted.
- f) Eskom's correct name "**Eskom Holdings SOC Limited**" must appear on the invoice.
- g) The Eskom VAT registration number: **4740 101 508** must appear on the invoice.
- h) No pro-forma invoices will be accepted.
- i) *Contractor* cannot be utilized by Eskom for more than 3 times without a contract being established.

Note:

1. Invoices must be delivered to the Eskom Documentation Centre, as this will speed up the payment process and ensure that invoices are not lost and payments delayed. There is no need for *Project Manager* to sign invoices as they perform Goods Receipt in the system. The assessment certificate and Goods Receipt serves as the approval of payment.
2. Eskom Documentation Centre will review invoices according to a checklist and on completion scan the documentation into Accounts Payable processing system (Documentation can only be scanned where the Purchase order no. and Goods Receipt Note no. is reflected on the invoice, and the invoice complies with the VAT Act).
3. Invoices are processed and released for payment by Accounts Payable Section only where the source documentation is 100% correct)

2.8.7. Insurance provided by the Employer

Refer to section 8 clause 84.in the NEC "*Contract Data*"

2.8.8. Contract change management

Contract change management is managed in accordance with clause 6 of the core clauses in ECC3. In summary, in the event that the *Employer/Contractor* notices a change, an event register is issued. If the event/change has cost implications then a quotation is submitted with the event register. The *Project Manager* assesses the quotation and gives an instruction in writing to the *Contractor*.

2.8.9. Provision of bonds and guarantees

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

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

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

In order 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.

The *Contractor's* Site Manager will complete the site daily log and this will be submitted to the *Project Manager* for his signature before 12 am of the following morning barring weekends. The Friday and weekend logs will be submitted before 12 am Mondays. The log will include but not be limited to the following:

- Date and day.
- Weather.
- Site Conditions.
- Work Done.
- People who are employed by the *Contractor*
- Work sub-contracted by the *Contractor*
- Any incidents during that period.

Any communication and documentation during this service agreement to be filed in the contract file. This file is in the possession of the *Project Manager* at all times.

2.8.11. Training workshops and technology transfer

2.8.11.1. General Requirements

The *Contractor* must provide formal training on the installed RMUs as per the scope.

Training should focused on the Operating, Maintenance, ERI (Roshcon) and Engineering. Engineering functionalities of the new RMUs, and Maintenance or Admin of the new RMUs the *Contractor* must provide for the works

The training on the system is intended to be given to the following *Employer's* technical staff;

- Engineering team
- Maintenance (ERI)
- Operating (Coal & Ash)

The *Contractor* shall further provide on-job training and support during the-commissioning stages of the project.

All training provided by the *Contractor* is directly applicable to the actual equipment and software supplied for the works.

Training manuals shall be offered by the *Contractor* as a printed manual per trainee, with tools shared by trainees during the training.

The *Contractor* shall submit to the *Employer* the Training Manuals that would be used including details of what is covered on the training for technical personnel before conducting a formal training. The training shall be offered in English

2.8.11.2. Training Documentation

The *Contractor* shall provide all course material including manuals in English and including all third-party documentation.

Printed and electronic copies of the training documentation shall be supplied for each trainee plus an additional 2 hardcopy master sets and soft copies of each set of training manuals.

All training documentation provided by the *Contractor* shall be customised for Kriel Power Station.

The training documentation shall contain the specific to installation of SF6 Ring Main Units project for Kriel Power Station.

Training manuals shall be continuously updated by the *Contractor* up to the date of issue of the defects certificate for the whole of the works

3. Engineering and the *Contractor's* design

3.1. *Employer's* design

The *Contractor* is required to confirm the *Employer's* Design, taking full professional accountability and liability for the *works* required.

3.1.1. SYSTEM DESCRIPTION

The construction of a ring main unit supply consists of a loop with each switchboard having at least two connections, the one coming from the incoming supply and the other feeding to the next switchboard. Connected to ring main can be one or more loads (mini-sub or transformer, etc.) operated with a break at one point with two incoming power supplies. All the switch-disconnectors therefore remain closed and the point of the break is chosen such as to equalise the load on each side of the break.

With a failure of one power supply, power can be supplied via the other healthy feeder. A cable or switchgear fault somewhere in one side of the loop/ring means that the rest of the open section of the loop will be without power, the power can then be quickly restored, once the fault has been identified, by switching the faulty section out and feeding power from the other side of the loop.

The new RMUs will also be designed to be operated manually but will include IRTUs for remote control capability. The RMUs will operate in accordance with the SANS 1874.

Padlocking is provided to prevent the selection of the ON position while permitting operation from OFF to earth or from the earth to OFF positions. Mechanical interlocking ensures that there is a definite stop in the OFF position when switching from the on position to the earth position and vice versa

3.1.1.1. 11kV Effluent Ring Main Unit

The 11kV Effluent Plant Ring Main currently feeds from the 11 kV Station Board 4 and supplies mini subs as shown in Figure 1 (reference drawing: Station MV and LV Electrical Drawing 0.45/198 Rev 5). The existing 11kV Effluent Plant Ring Main is configured as a five-way R-4F RMU. The reticulation for the 11kV Effluent Plant Ring Main was not inherently designed with redundancy, but merely as an extension of the 11kV Station Board 4 for power distribution (see figure 1).

The 11kV Effluent Plant Ring Main will be replaced using two four-way 2R-2B configured SF6 Safe-Plus RMUs.

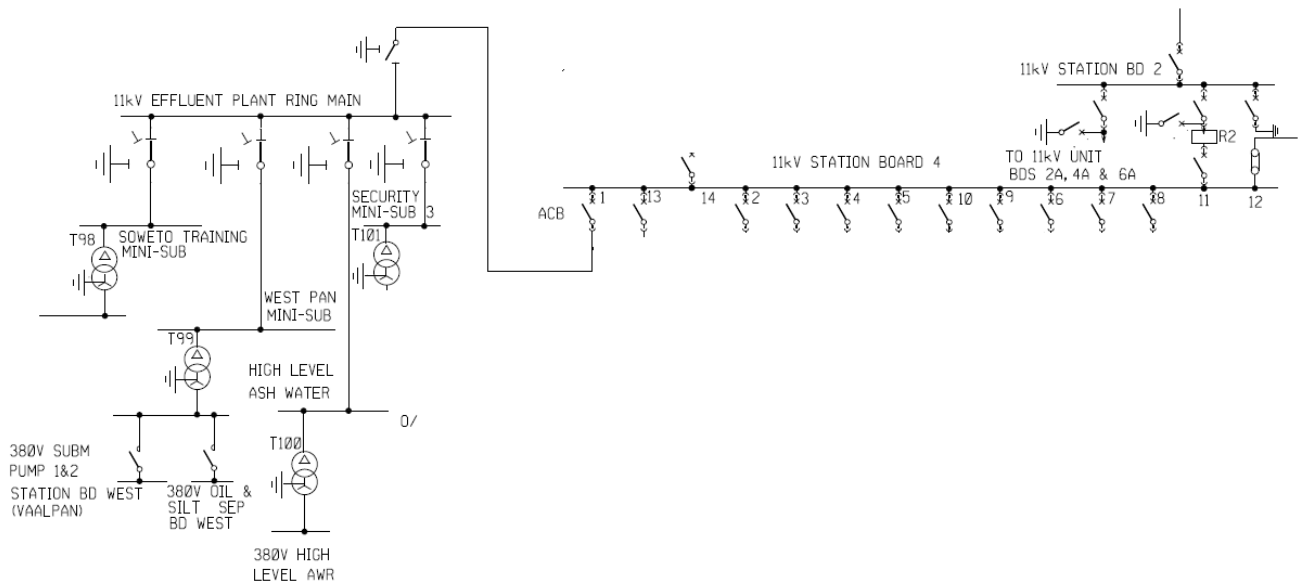


Figure 1: 11 kV Effluent Plant RMU Reticulation (0.45/198)

3.1.1.2. 3.3kV Matla PWP, RWP and CW Clar. North Ring Main Units

The 3.3kV Matla PWP Ring Main 1 & 2, 3.3 kV Raw Water Plant Ring Main 1 & 2 and the 3.3 kV CW Clarification Plant North Ring Main all feed from the 3.3kV HP Demin Pumps Boards 1 and 2 as shown in Figure 2. These RMUs form a ring to supply the 380V Boards. The existing reticulation offers redundancy and will not be altered.

The existing configuration for the 3.3kV Matla PWP Ring Main 1 & 2, 3.3 kV Raw Water Plant Ring Main 1 & 2 is a two-way R-F. The two-way R-F configuration however, does not allow one RMU to be completely isolated without having to open the switch-disconnector from another RMU.

These RMUs will be replaced using the three-way 2R-B configured SF6 Safe-Plus RMUs to enable each RMU to be isolated without interfering with another RMU.

The 3.3 kV CW Clarification Plant North Ring Main connected with four RMUs and configured as a four-way 2R-2B as shown in Figure 2. The configuration for this RMU will not be altered.

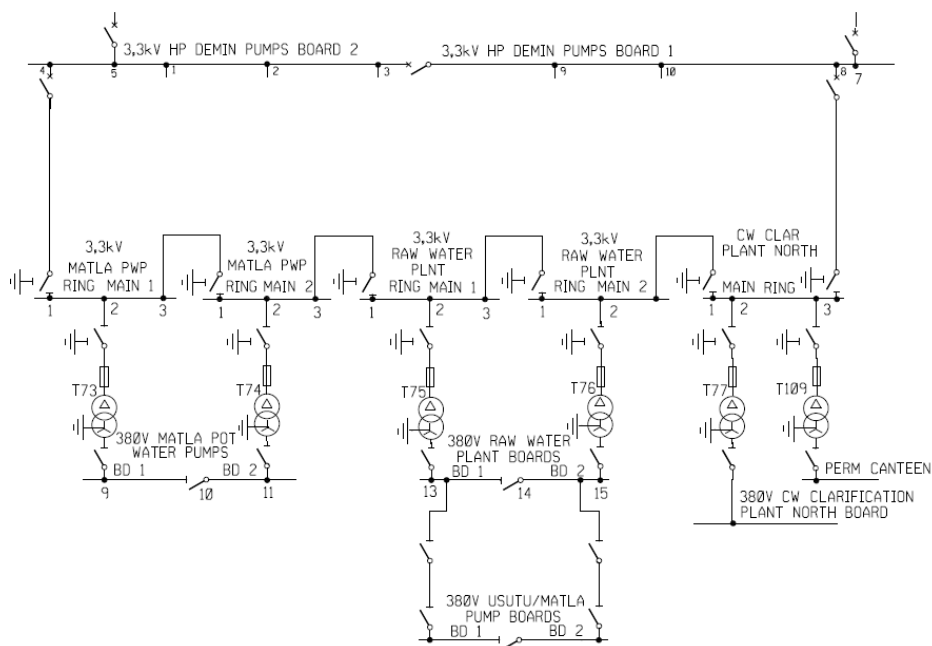


Figure 2: 3.3 kV Matla PWP, 3.3 kV RWP and 3.3 kV CW Clarification North Plant RMUs Reticulation (0.45/198)

3.1.1.3. 3.3kV Conveyor RMUs 1 to 6

The existing 3.3 kV Conveyor Ring Mains 1 to 6 currently feed from the 3.3kV Conveyor Board 4A and 4B and supply the 380V Conveyor Boards 6A-6B, 7A-7B and 8A-8B via the transformers as shown in Figure 3. The current electrical reticulation offers redundancy. Therefore, the electrical reticulation and the configuration for these RMUs will not be altered. Hence the existing RMUs will be replaced with three-way 2R-B configured SF6 Safe-Plus RMUs.

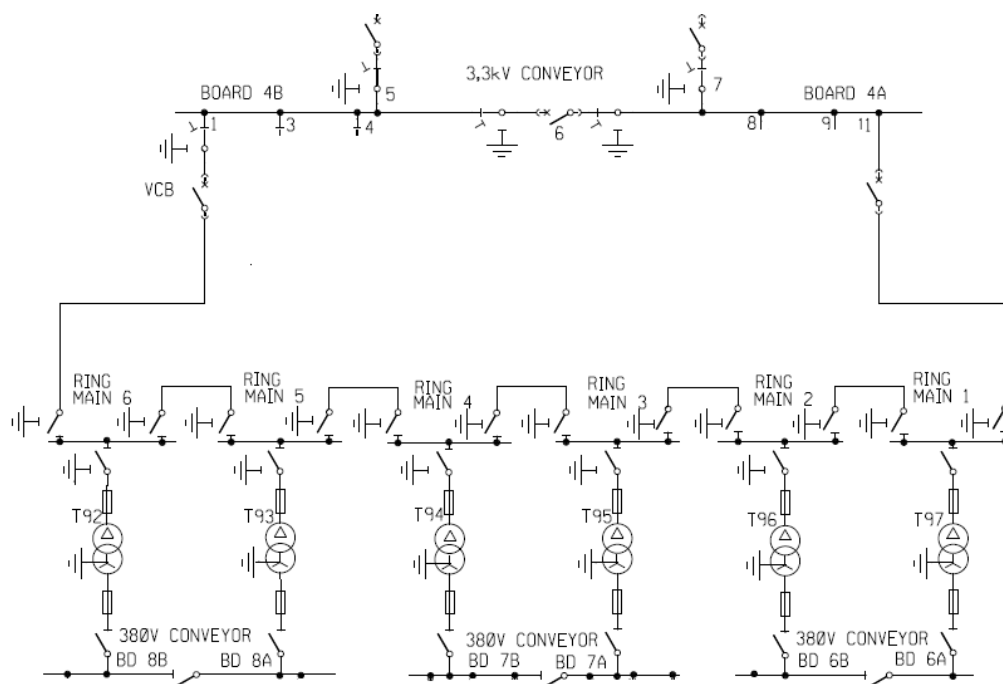


Figure 3: 3.3 kV Conveyor RMUs Reticulation (0.45/198)

3.1.1.4. 11kV CW South Plant RMU 1 & 2

The existing 11 kV CW South Plant Ring Main 1 and 2 currently feed from 11kV Substation Board 4 and supply the 380V CW Pump-house south including the 380V Desalination Plant Board via the transformers as shown in figure 4. The existing electrical reticulation, however, does not offer redundancy and was designed as merely an extension of 11kV Substation Board 4 for power distribution. The configuration for 11 kV CW South Plant Ring Main 1 and 2 will not change. The RMUs will be replaced using three-way 2R-B configured SF6 Safe-Plus RMUs.

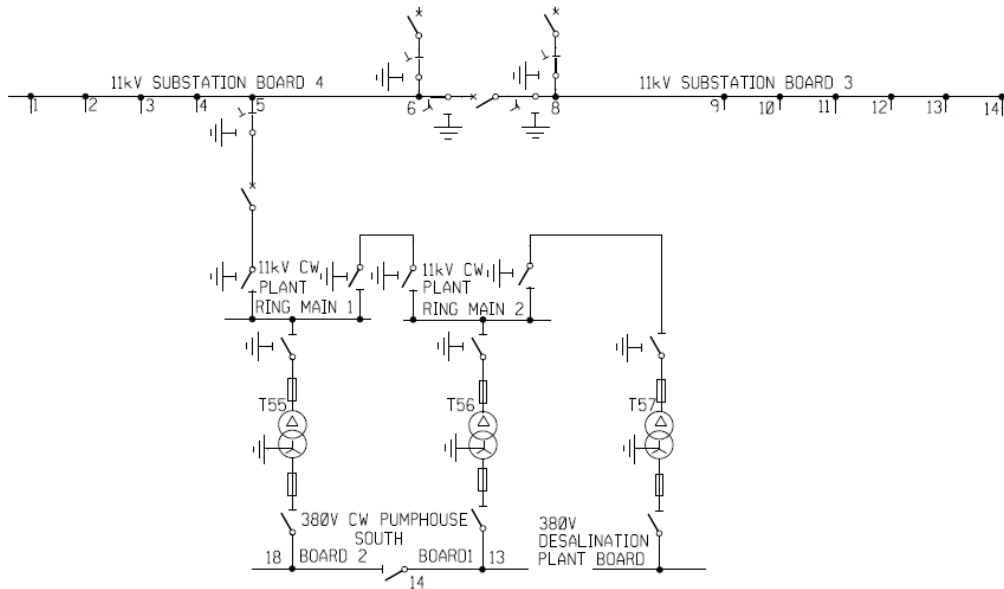


Figure 4: 11kV CW South Plant RM 1 & 2 Reticulation

3.1.1.5. 11kV Mini-Sub Ring Main 1

The 11kV Mini-Sub Ring Main 1 feeds from the 11kV Substation Board 2 and supplies the 11 kV Kwanala Hostel Board 2 and the Mini-Sub 1 as shown in figure 5 below. The current configuration for the 11 kV Mini-Sub 1 RMU is a three-way R-2F. However, the three-way 2R-B SF6 Safe-Plus RMUs will be sufficient in replacing the existing RMU as the incomer at the 11 kV Kwanala Hostel Board and the outgoing feeder at 11 kV Substation Board 2 already has vacuum breakers for electrical protection. It's only the transformer of the mini-sub 1 that will require protection.

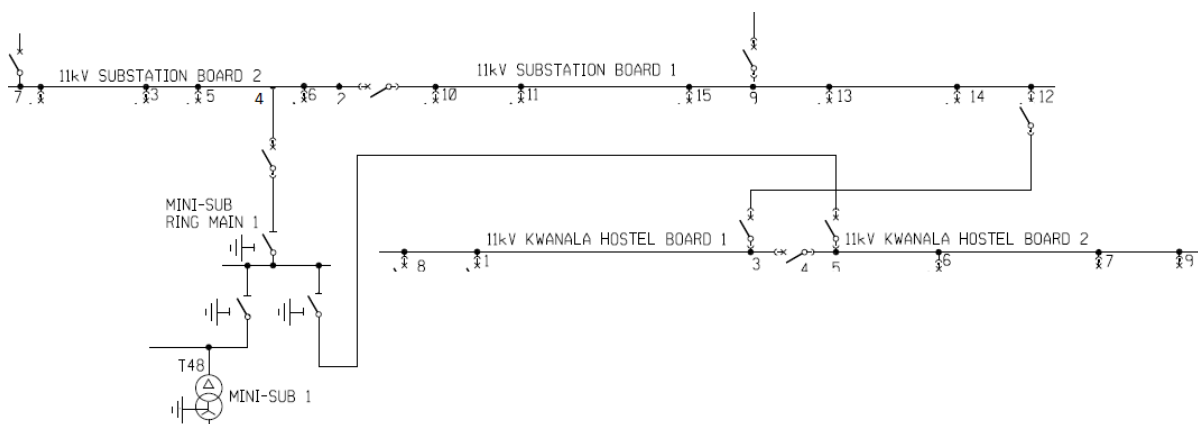


Figure 5: 11 kV Mini-Sub 1 Ring Main Reticulation

3.1.1.6. 11kV Sewage Plan RMU

The 11 kV Sewage Plant RMU feeds from Sports Mini-Sub as shown in Figure 6 and supplies the 380V Sewage Plant Board via the step-down transformer. The actual configuration is a two-way R-F, not the three-way as shown in figure 6. The reticulation has also changed where the Col. Quarters Mini-Sub was decommissioned (drawings still need to be updated). This RMU (11 kV Sewage Plant RMU) will be replaced with the three-way 2R-B configured SF6 Safe-Plus RMUs.

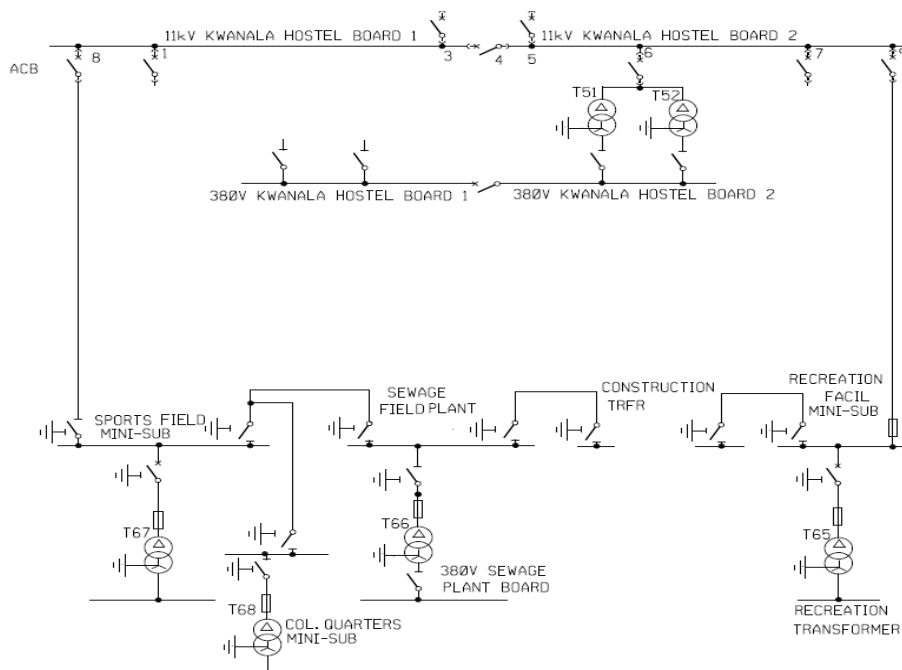


Figure 6: 11 kV Sewage Plant Ring Main Reticulation

The require replacement for all 17 RMUs is summarised in Table 1 below;

Table 1 Replacement of RMUs summary

Operating Voltage Rating (kV)	RMU Plant Description	Functional Location	Existing RMU Configuration	New IRTU RMU Configuration
3.3	Raw Water Plant RM 1	05-00FM09	R-F, 2-Way	2R-B, 3-Way
3.3	Raw Water Plant RM 2	05-00FM10	R-F, 2-Way	2R-B, 3-Way
3.3	Matla Portable Water Pump RM 1	05-00FM07	R-F, 2-Way	2R-B, 3-Way
3.3	Matla Portable Water RM 2	05-00FM08	R-F, 2-Way	2R-B, 3-Way
11	Sewage Plant RM	05-00ES09	R-F, 2-Way	2R-B, 3-Way
3.3	Conveyor RM 1	05-00FM01	2R-F, 3-Way	2R-B, 3-Way
3.3	Conveyor RM 2	05-00FM02	2R-F, 3-Way	2R-B, 3-Way
3.3	Conveyor RM 3	05-00FM03	2R-F, 3-Way	2R-B, 3-Way
3.3	Conveyor RM 4	05-00FM04	2R-F, 3-Way	2R-B, 3-Way
3.3	Conveyor RM 5	05-00FM05	2R-F, 3-Way	2R-B, 3-Way
3.3	Conveyor RM 6	05-00FM06	2R-F, 3-Way	2R-B, 3-Way
11	CW Plant South RM 1	05-00FM05	2R-F, 3-Way	2R-B, 3-Way
11	CW Plant South RM 2	05-00FM06	2R-F, 3-Way	2R-B, 3-Way
11	Mini-Sub RM	05-00ES01	R-2F, 3-Way	2R-B, 3-Way
3.3	CW Clarification Plant North RM 1	05-00FM11	2R-2F, 4-Way	2R-2B, 4-Way
11	Effluent Plant RM	05-00ES03	4R-F, 5-Way	2R-2B, 2R-2B 4-Ways

3.1.2. RMU Layout

The figure below indicates the positions of all 16 RMU's to be replaced with a total of 17 new RMUs.



3.2. Parts of the works which the Contractor is to design

The Contractor transports to equipment, loads and offloads, erects into position, installs, tests, commissions, certifies, and hands over the entire works, to ensure a fully functional RMUs. The works is to be located at Kriel Power Station, located in the Mpumalanga Province.

3.2.1. Loading, Transportation, off-loading and Erection of Ring Main Units

- I. The new SF6 RMUs are currently located at the stores area on site at Kriel Power Station
- II. The Contractor, upon access granted by the Employer, shall load each RMU from the stores area and deliver them to the location specified by the Employer and erected on to existing plinths.
- III. The loading, transportation, off-loading and erection on the base plinths, shall be in accordance with the Original Equipment Manufacture's Installation and Operations Instruction's Manual (see Appendix A).

- IV. The RMUs (Safe-Plus type) are fitted with lifting lugs but can also be moved on a pallet with a forklift truck.

3.2.2. Installation of Ring Main Units

- I. The Contractor shall install the RMUs as per the OEM's Installation and Operations Instruction's Manual (see Appendix A).
- II. In addition, the Eskom standard, 240-77904802: Replacement /Installation of Mini-Substations, Ring Main Units and Ground Mounted Transformers, shall be adhered to for the Employer's requirements
- III. Upon off-loading and erection of each Rmu on the plinth, the Contractor shall ensure proper alignment of the RMUs to the bolts on the plinths in as specified by the drawing D-DT 0863: Sheet 3-6 respectively. See appendix C
- IV. If the bolts are not aligned, the Contractor shall correct accordingly upon consultation and agreement with the Employer
- V. In addition, the Contractor shall ensure that the medium-voltage cable entry is bricked-up after the cable installation.

3.2.3. Routine test on the primary circuit

- I. The contractor shall perform all the routine tests according to IEC 62271-200

3.2.4. Decommissioning the existing oil filled RMUs

- I. The Contract shall dismantle, decommission, remove the existing oil filled RMUs to the allocated waste facility on site provided by the *Employer*
- II. The Contractor is to comply with the Eskom, 32-245 Waste Management Standard

3.2.5. Cable Route design

The contractor shall conduct underground detection of underground services and provide a report and/or drawings with the following outputs;

- I. Identification of the existing underground cable route
- II. Proposed unobstructed cable route, for the new joint (or new cable) from existing cables to the new RMUs

3.2.6. Supply, installation (including excavation and backfilling), jointing, disconnection, testing, termination, and connection of cables

- I. The *Contractor* shall install the cables in accordance with the cable schedule (see appendix B) provided by the *Employer*.
- II. The Contractor shall comply to the Eskom standard, 240-56030635: General information and Requirements for Medium Voltage Cable Systems

3.2.7. Installation of fire sealing where applicable

- I. The contract shall ensure fire seal or vernin proof is installed at the RMUs cable entries.

3.2.8. Earthing

- I. The contractor shall install earthing spikes for each RMUs and tests as per the. Eskom standard, 240-56356396 Earthing and Lightning Protection Standard.

3.3. Procedure for submission and acceptance of *Contractor's* design

Refer to section 2.2. of this document.

3.4. Other requirements of the *Contractor's* design

3.4.1. Installation, and commissioning of CTs for SF6 Safe-Plus RMUs

- I. The *contractor* shall supply, install and per commissioning tests the CTs on the new SF6 Safe-Plus RMUs that will supply the Transformers highlighted on Table 2 below.
- II. The *works* include the removal of the CTs already installed on the new SF6 Safe-Plus RMU

Table 2: CTs for SF6 Safe-Plus RMUs

AKZ Code	Transformer Description	Power Rating (kVA)	CT Specification
05-00EL22	Soweto Training Mini-Sub TRFR T98	315	KOKM 072 CA 10 CT2
05-00EL21	West Pan Mini-Sub TRFR T99	315	KOKM 072 CA 10 CT2
05-00EL19	Security Mini-Sub 3 TRFR T101	200	KOKM 072 CA 10 CT2
05-00EL20	High Level Ash Water TRFR T100	500	KOKM 072 CA 10 CT3
05-00EL37	CW Plant South Transformer 1 (T55)	100	KOKM 072 BA 10 CT1
05-00EL36	CW Plant South Transformer 2 (T56)	100	KOKM 072 BA 10 CT1
05-00EL35	Desalination Plant Transformer (T57)	500	KOKM 072 CA 10 CT3
05-00EL52	Mini-Sub 1 TRFR (T48)	200	KOKM 072 CA 10 CT2
05-00EL55	380V Sewage Plant TRFR T66	100	KOKM 072 BA 10 CT1

3.4.2. Installation and testing of SF6 Safe-Plus Voltage Detection System

- I. The *Contractor* shall and test SF6 Safe-Plus VDS as detailed on table 3 below.

Table 3 Voltage Detection System for Safe-Plus RMUs

Operating Voltage Rating (kV)	RMU Plant Description	New IRTU RMU Configuration	VDS Type	OEM	Part number	Qty
3.3	Raw Water Plant RM 1	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Raw Water Plant RM 2	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Matla Portable Water Pump RM 1	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Matla Portable Water RM 2	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 1	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 2	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 3	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 4	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 5	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3
3.3	Conveyor RM 6	2R-B, 3-Way	Capdis S1+	KRIE Energietechnik	2500421	3

3.4.3. Installation and testing of Low Voltage cables

The contractor shall supply and install 4 core, 2.5 – 4 mm square cable (BVX04DCV – BVX04ECV as per Eskom Standard Code for Power and Control Cables), upon confirming the actual length of the low voltage cables from the nearest point of supply (220V AC) to each new RMU (17 RMUs), and make provision for the cable schedule upon completion.

3.5. Use of Contractor's design

The *Employer* may use the *Contractor's* design for any purpose in relation to the Ring Main units at Kriel Power Station.

3.6. Design of Equipment

None

3.7. Equipment required to be included in the works

- I. The *Contractor* shall supply the CTs for the new SF6 Safe-Plus RMUs that will supply the Transformers highlighted on Table 2.
- II. The *Contractor* shall supply the VDSs for the new SF6 Safe-Plus RMUs as specified on Table 3.
- III. The contractor shall supply

3.6. As-built drawings, operating manuals and maintenance schedules

- The contractor is to adhere strictly to the Original Equipment Manufacture's Installation and Operations Instruction's Manual (available inside each Safe-Plus RMU from the *Employer*)

4. Procurement

All the Contractor's costs which are not included in the Defined Cost are treated as included in the Fee. Defined Cost includes only amounts calculated using rates and percentages stated in the Contract Data and other amounts at open market or competitively tendered prices with deductions for all discounts, rebates and taxes which can be recovered.

4.1. People

4.1.1. Minimum requirements of people employed on the Site

The people who are executing the work onsite need to be reflected in the safety file. New people to be approved by the safety officer and safety file to be revised

4.1.2. BBBEE and preferencing scheme

Compliance to the Preferential Procurement Policy Framework Act (PPPFA)

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.

The Contractor is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the Employer within thirty days of the notification or as otherwise instructed by the Employer.

Where, as a result, the Contractor's B-BBEE status has decreased since the starting date the Employer may either re-negotiate this contract or alternatively, terminate the Contractor's obligation to provide the service.

Failure by the Contractor to notify the Employer of a change in its B-BBEE status may constitute a reason for termination will be dealt with according to the NEC3 ECC penalty/termination clauses

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

The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule stated below

[Insert the agreed ASGI-SA Compliance Schedule here]

The *Contractor* shall keep accurate records and provide the *Project Manager* with reports on the *Contractor's* actual delivery against the above stated ASGI-SA criteria. [Elaborate on access to and format of records and frequency of submission etc.]

The *Contractor's* failure to comply with his ASGI-SA obligations constitutes substantial failure on the part of the *Contractor* to comply with his obligations under this contract.

4.2. Subcontracting

4.2.1. Preferred subcontractors

The *Employer* may list which subcontractors or suppliers the *Contractor* is required to enter into subcontracts with.

If the *Contractor* subcontracts work, he is responsible for providing the Service as if he had not subcontracted. This contract applies as if a Subcontractor's employees and equipment were the *Contractor's*.

4.2.2. Subcontract documentation, and assessment of subcontract tenders

When the *Contractor* uses a Subcontractor he needs to engage with him on a NEC basis. The Subcontractor needs adhere to all processes, policies and procedures of Eskom as service should be provided as if not subcontracted to Eskom.

All reporting will happen based on the NEC standard forms or as agreed upon in the Kick off meeting.

4.2.3. Limitations on subcontracting

The *Contractor* submits the name of each proposed Subcontractor to the *Service Manager* for acceptance. A reason for not accepting the Subcontractor is that the appointment will not allow the *Contractor* to Provide the Service.

The *Contractor* does not appoint a Subcontractor until the *Service Manager* accepted them.

4.2.4. Attendance on subcontractors

The Subcontractor should attend all morning feedback Outage meetings to provide accurate feedback on the progress of *service*. Assessment meetings between *Project Manager* and the *Contractor* should be avoided by the Subcontractor.

4.3. Plant and Materials

4.3.1. Quality

The *Contractor* shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organisation is so structured that all the requirements of the specification will be properly monitored and controlled.

The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with QM-58 and the Supplier Contract Quality Requirement Specification (QM58). The Quality documents are to be submitted for approval to the Quality Engineer within thirty (30) days after a contract has been awarded to the Contractor.

No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to the Quality Engineer/ *Project Manager*.

The *Contractor*, in conjunction with the Quality Engineer must sign off all Quality Control documents after completing all work as per the agreed scope. The *Contractor* to submit a copy of the final signed off documents/data packages to the *Project Manager* within one (1) week after completion of work.

The *Contractor* shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (QM58) and a copy is to be kept in possession or on premises.

The Supplier Contract Quality Requirement Specification (QM58) shall remain applicable in the event of the contract being extended or modified for reasons permitted. By signature and acceptance of this contract the

Contractor acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (QM58).

4.3.2. Plant & Materials provided "free issue" by the Employer

No "free issue" of system equipment or material will be provided by the *Employer*

4.3.3. Contractor's procurement of Plant and Materials

All system equipment and materials for this project will be included in the price list

4.3.4. Spares and consumables

N/A

4.4. Tests and inspections before delivery

N/A

4.5. Marking Plant and Materials outside the Working Areas

N/A

4.6. Contractor's Equipment (including temporary works).

The *Contractor* will ensure that all required equipment is provided for this project

4.7. Cataloguing requirements by the Contractor

N/A

5. Construction

For contracts involving civil works the approach may be to incorporate SANS1200A or SANS 2000 into the contract. Whilst many of the headings below address the same issues, the list of headings below is more comprehensive. If the headings below are used, it may be prudent to delete paragraphs 3, 4 and 5 from 1200A after checking that their requirements have been included below as necessary. A similar approach can be used in contracts involving building works where the Model Trade Preambles are incorporated. Care should be taken to avoid inconsistency or ambiguity between this part of the Works Information and standard specifications incorporated by reference.

5.1. General

Provide the following to the Employer for review and acceptance:

A Level 3 schedule (schedule with defined activities) for the construction scope clearly highlighting all activities involved, major milestones and provision at the concept phase.

Identify and note discrepancy or ambiguity between the Employer's Specifications or requirements. These variations are brought to the attention of the Employer for clarification within an effective allowable timeframe.

Adhere to the South African Environment Protection Act, the Waste Management Code of Practice and the South African Occupational Health and Safety Act No. 85 of 1993, the regulations promulgated thereunder and Eskom Safety, Health, Environment and Quality (SHEQ) Policy 32-727 for all works.

Adhere to the South African National Water Act 1998 (ACT NO. 36 OF 1998)

Take all necessary precautions during activities to ensure that there is no damage to existing infrastructure and/or plant.

Submit all deliverables, to be reviewed by the Employer, prior to moving on to the next phase of the project

Manage access to the working areas and the Site.

Allow adequate interface management to ensure that the activities contained within the Works does not obstruct or impose on interface projects and/or cause hindrances to general operations on site

Maintains and promotes labour harmony on the Site and in the working environment.

Immediately report any potential labour disharmony to the Supervisor.

Installation includes

- Operating and Control Philosophy
- Construction management
- Engineering
- Supply
- Testing
- Signage and all the consumables required for commissioning
- Cold Commissioning
- Hot Commissioning

5.1.1. Fabrication and Construction

The works to be provided by the Contractor include:

5.1.1.1. Construction and Erection

- The Contractor takes full professional accountability and liability for all temporary items required for the execution of the Works.
- The Contractor is responsible for the installation ring main units removal and disposal of the old ring main units, and all associated structures in accordance with the detailed drawings and specifications.
- The Contractor disposes of all demolition waste at a licenced waste disposal site to be accepted by the Employer. Certificates of disposal submitted to the Employer.
- The Contractor is responsible for the safety of all personnel involved in the Works as well as the safety of all personnel at Kriel Power Station affected by the construction of the Works.
- The Contractor Submits a comprehensive method statement of the Works to the Employer for acceptance prior to the commencement of the works
- The Contractor removes all temporary structures required for the execution of the works. Waste Management
- Materials such as excess silt and water will be adequately disposed of with minimum impact to the environment.
- All demolition wastes are required to be disposed in a licenced disposal facility.
- The waste management procedure for Kriel power station is required to be complied with.

- Liaise with the Supervisor regarding the location of waste disposal sites and rubbish dumps.
- The Contractor disposes of all rubble at a waste disposal site to be approved by the Employer. The waste disposal site is selected to suit the classification of the materials to be disposed of. Certificates of disposal are required to be submitted to the Employer.
- Continuously monitor the condition in demolition areas and surrounding areas for any hazardous substances and in such case, the Contractor is required to take necessary precautionary measures.

5.2. Temporary works, Site services & construction constraints

5.2.1. Employer's Site entry and security control, permits, and Site regulations

5.2.1.1. Contractors Site Permit

- a) The Contractor's employees to complete criminal clearance verifications with the South African Police Service (SAPS) Criminal Record Centre (CRC) or accredited supplier linked to SAPS AFIS system and provide proof to security delegated team before access can be granted. This also applies to *Sub Contractors*
- b) The Contractor applies for access permits for all works exceeding four (4) weeks via the Project Manager, who will co-ordinate this
- c) The Contractor applies for Contractor's Permits for all employees and/or subcontractors at the Security gate at least 24 hours prior to entry of the Kriel Power Station Security Area.
- d) The Contractor completes the specific form in the Kriel Power Station Contractor's Safety Manual listing all of the personnel that he/she intends using on site.
- e) The completed list, identified with the Contractor's name, contains the following information
 - Employee name
 - Employee ID Number
 - Eskom Safety Co-ordinator signature
 - Eskom Project Manager signature
 - Validity date
- f) No permits are issued to personnel who have not attended safety induction
- g) The Contractor photocopies the first page of the ID book of every one of his employees, reduced to the size 65%
- h) This completed list, together with the photocopies of the ID books is delivered to Protective Services for the preparation of the Contractor's permits
- i) The Contractor allows at least 24 hours for the preparation of the security permits, before he/she collects the permits from the Protective Services offices
- j) The Contractor's personnel are required to be in possession of a Contractor's permits at all times inside Kriel Power Station
- k) All Contractor's permits are submitted back to Protective Services when the workers leave the site after completion of the works. Failure to return the permits will result in a penalty for each non returned permit.

5.2.1.2. Access to Site

- a) All persons entering and leaving the Site will be subject to security checks including breathalyser testing for alcohol levels. Persons failing the latter test will be denied entry to Site.
- b) No person may enter the Site without the necessary permits.
- c) All persons entering the Site for the first time shall attend a safety induction course.
- d) Copies of Site regulations shall be obtained by the Contractor and these regulations shall be made available to, and imposed on, all persons employed by the Contractor and on visitors accompanying the Contractor on site.

5.2.2. Restrictions to access on Site, roads, walkways and barricades

- 1) The *Contractor* satisfies himself and comply with the Site conditions presented during induction.
- 2) The *Contractor* is required to comply with all Site restrictions pertaining to the Site's roads, walkways and barricades.

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

1. Normal working hours:
 - a) Monday to Thursday: 07h00 – 16h15
 - b) Fridays: 07h00 – 12h00
2. Outage working hours are as follows:
 - a) Monday to Sundays: 07h00 – 18h30

5.2.4. Health and safety facilities on Site

Safety offices are located at the Fire Station building within Kriel Power Station. Office hours for the safety department are:

- Monday's to Thursday's 08:00 to 15:00.
- Fridays: Only on appointment between 08:00 - 09:00 in the mornings.
- Safety File Approval as per Construction Regulations (OHS Act no 85 of 1993)

The health and safety facilities on Site will be discussed in detail during the Site induction

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

N/A

5.2.6. Title to materials from demolition and excavation

The *Contractor* has no title to plant and/or materials resulting from him carrying out the Works

5.2.7. Cooperating with and obtaining acceptance of Others

Access for and interface with other Contractors;

- a) The Contractor is required to make his own assessment of the problems and difficulties which may be encountered and no extra payment or claim of any kind will be allowed on account of providing reasonable access to and interfacing with others. Restrictions and hours of work may apply on some sites.
- b) It is very important that the Contractor keeps records of his employees on site, including those of his subcontractors which the Project Manager or Supervisor have access to at any time. These records may be needed when assessing compensation events

5.2.8. Publicity and progress photographs

No notice boards, advertising rights, media relations, and photography and progress photographs will be allowed without appropriate authorisation.

5.2.9. **Contractor's Equipment**

- a) The Contractor provides the Employer with a complete list of materials, tools, Equipment and or machinery before bringing it onto Site.
- b) The Contractor provides and maintains all test and measuring Equipment required for all tests to the required accuracy. The accuracy of test Equipment is required to be better than ± 0.1 %.
- c) The type and class of Equipment used is subject to the Acceptance by the Employer.
- d) The Contractor's measuring Equipment is accompanied by valid calibration certificates from an approved authority.
- e) The Project Manager may at any stage during the Contract require such Equipment to be checked by an approved laboratory or the South African Bureau of Standards.

5.2.10. **Equipment provided by the Employer**

No equipment shall be provided by the *Employer* for this project except for the new SF6 SA-Plus RMUs to be installed as detailed in the *works*.

5.2.11. **Site services and facilities**

5.2.11.1. **Refuse Disposal**

The Employer provides special colour coded bins as per the table below for refuse disposal. These bins are emptied by the Employer free of charge. The Contractor ensures that all workers under his control strictly adhere to the correct use of refuse bins as stated in the Plant.

Blue Bins	Scraps Metal Only
White Bins	Domestic Refuse
Yellow Bins	Asbestos Material
Brown Bins	Building Rubble
Red Bins	Oil or Chemical containing refuse.

5.2.11.2. **Supply of Electricity**

- Employer will make available to the Contractor 220/230-volt electrical supply free of charge from the closest existing point of supply.
- The Contractor is to make provision for the necessary extensions and plug points.
- All Electrical boards must be inspected and tested before connecting to a power supply and then a CoC must be issued by the Contractor
- The Contractor will adhere to the Electrical Installation Regulations of 1992

5.2.11.3. **Medical Facilities**

- The Contractor provides a First Aid service to his employees and subcontractor. In the case where these prove to be inadequate, like in the event of a serious injury, the Employer's Medical Centre and facilities are available.
- Ambulance and first aid facilities are available on site, during normal working hours. From Mondays to Thursdays, the working hours are from 07H00 to 16H15 and on Fridays the working hours are from 07H00 to 12H00. All cost incurred will be recovered from the Contractor to Eskom.
- Outside the Employer's office hours, the Employer's First Aid Services are only available for serious injuries and life threatening situations.
- The Employer is entitled, however, to recover the costs incurred, in the use of the above Employer's facilities, from the Contractor.

5.2.11.4. **Toilet Facilities**

The Employer provides the Contractor access to toilet facilities.
 Temporary chemical toilets are provided by the Contractor where deemed necessary.

5.2.11.5. Water

The *Employer* makes available free of charge, potable water required for the purpose of this *Contract*. The *Employer* does not guarantee continuity of supply and in such cases the *Contractor* is required to make his own provision for standby supplies to maintain continuity.

The variation of pressure in the water supply or breakdown in the supply is not considered to be valid for an extension of time or compensation.

The *Contractor* provides, at his own cost, all connection fittings, pipe work, temporary plumbing, and pumps necessary to lead the water from the *Employer's* points of supply to the various points where it is required.

5.2.12. Facilities provided by the *Contractor*

5.2.12.1. Electrical equipment/appliances, lighting and power

Any electrical equipment or appliances used by the *Contractor* must comply with all relevant safety regulations and requirements as detailed in Procedure 15 MEPR-E/SAF-025 and be maintained in safe and proper working condition.

The *Project Supervisor* has the right to stop the *Contractor's* use of any electrical equipment or appliance which, in the *Project Supervisor's* opinion, does not conform to the foregoing.

The *Contractor* provides at his own expense any temporary local lighting, and ensures that it is in accordance with the requirements of the Factories Inspector.

The *Contractor* provides, at his own expense, all temporary wiring and cabling to lead power from the point of supply to the various points where it is required, maintain same and remove on completion.

5.2.12.2. Security

The *Contractor* is responsible for all security on site, viz., fencing of, night watch and access control in order to secure all plant, materials and the works itself. All these measures must be in accordance with any relevant regulations and standards and are subject to the *Project Supervisor's* acceptance.

It is also the *Contractor's* responsibility to ensure the security of all completed portions of the works prior to completion.

5.2.12.3. Accommodation of *Employees*

The *Contractor* is responsible for the provision of accommodation or meals of his own personnel, and the cost thereof to be included in their price list.

5.2.12.4. Sanitary facilities

The *Contractor* provides services, maintains and removes on Completion any facilities required and allow for same in their price list.

5.2.12.5. Housekeeping

The working areas shall be kept clean at all times. All cables are to be routed so as not to cross over floors and walkways. All equipment is packed neatly without interference to access. Where applicable, all excess

scaffolding material is removed from working areas after the scaffolding has been erected. The bins can be requested from the *Employer* should the need arise.

The *Contractor's* equipment must not impair the operation of the surrounding plant or access to the surrounding plant.

5.2.12.6. Plant and materials

The *Contractor* is to recommend the keeping of any additional stocks of spare parts based on experience gained by them during the execution of the works.

The *Employer* reserves the right to inspect and carry out any checks of its own as they consider necessary.

5.2.13. Existing premises, inspection of adjoining properties and checking work of Others

N/A

5.2.14. Survey control and setting out of the works

It is the responsibility of the contractor to verify and rectify the survey information where provided. It is the responsibility of the contractor for the setting out of the works. Exact locations of ring main units points to be identified by the contractor for installation.

5.2.15. Excavations and associated water control

The contractor shall conduct underground detection of underground services and provide a report.

5.2.16. Underground services, other existing services, cable and pipe trenches and covers

- I. It is the Contractor's responsibility for the detection and protection of underground and above ground services.
- II. The Contractor minimises interference of any nature with regards to existing services, cable and pipe trench covers.
- III. If the Contractor damages one of the above, the penalty would be for the Contractor.
- IV. The Contractor shall comply to the Eskom Guideline: MMM0553, Guideline on Barricading and Trenching

5.2.17. Control of noise, dust, water and waste

The *Contractor* ensures that all activities comply with the safety requirements.

5.2.18. Sequences of construction or installation

The Employer requests that the installation in critical areas be prioritised. Interface with others is required to ensure that the works progress in a sequenced manner. The schedule milestones for phasing will be determined by the Employer and the Contractor post contract award.

5.2.19. Giving notice of work to be covered up

All notices and warnings will follow the ECC3 requirements

5.2.20. Hook ups to existing works

N/A

5.3. Completion, testing, commissioning and correction of Defects

5.3.1. Work to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

	Item of work	To be completed by
	As built drawings	Within 5 days after Completion of each Ring main unit
	Signed QCP's	2 days after installation of each Ring main unit
	Compaction test	2 days after backfilling of each trench
	Data Books	20 days after completion of the whole works

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

N/A

5.3.3. Materials facilities and samples for tests and inspections

The Contractor provides all materials, facilities and samples required to perform inspections, tests and commissioning as per the relevant specifications and as per the items listed under the relevant clauses of the various Sections.

5.3.4. Commissioning

- Commissioning of the works is done by the *Contractor's* personnel with the Employer's delegated operations/commissioning staff (including Electrical Engineering, PTM, EMD, and Technical Support.
- The *Contractor* submits a commissioning procedure and program for acceptance by the *Project Manager*.
- Before plant and equipment is placed in service the *Contractor* certifies that it is in a suitable and safe condition. In addition, the *Contractor* provides a complete list of numbered schematic, wiring and cable diagrams which are a true record of the plant and equipment as installed and certifies that the works has been wired in accordance with these drawings.
- Prior to the time when commissioning is to commence, the *Project Manager* will appoint a representative who will co-ordinate the commissioning of all plant and equipment forming an integral part of the system being commissioned. The *Contractor* is responsible for the

commissioning of all the plant and equipment in their supply of the Works, to the requirements of this specification, in conjunction with the *Project Manager* and the Employer's representatives. Where various components are already in place, or are supplied by the Employer to form an integrated system, the *Contractor* at the time of commissioning, carries the responsibility for the correct functioning of the whole system. The *Contractor* is responsible for providing a functional logic commissioning procedure for testing the applied logic and plant functionality in accordance to the new bus transfer system operating and control philosophy requirements. The functional logic commissioning procedure is developed with reference to the new bus transfer operating and control philosophy and is subject to the approval of *Project Manager* before functional testing commences.

- e) In the event of incorrect functioning, the *Contractor* determines the cause and corrects the Defect if the Defect is within Plant and Equipment of their supply. The *Contractor*, at the time of commissioning, has the agreement, or alternatively, the attendance of the *Project Manager* involved in a particular phase, before proceeding with commissioning. Consequently, the *Contractor* must assure himself/herself as to the safety of his/her own Plant and Equipment, in respect of any particular commissioning test and in the event of damage, accept responsibility for such Plant and Equipment.
- f) The *Contractor* commissions the works and ensures conformance to the Employer's performance requirements for the works.

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

- a) The system is put in operation after safety clearance of all plant and systems and successful completion of functional testing of the Works.
- b) Sign off will be scheduled as per the project schedule on completion of each activity

5.3.6. Take over procedures

- a) Take-over/hand over will be scheduled as per completion of the *Works* and acceptance by the *Project Manager*.
- b) The *Works* is not deemed to be in operation until the commercial operation date. The *Works* is taken over on that date and the defects period runs from that date. Takeover by the *Project Manager* is dependent on successful completion of the *Works*, commissioning and testing, Works of plant labelling and all required documentation handed over and all known defects corrected. Take-over is after or at the same time as Completion as per agreed schedule on sections completed but before the end date as per contract for all drains.
- c) The QCP will be used as a takeover procedure, once all the tasks contained on QC documents have been completed and approved by the Quality Control personnel. The *Works* will be signed off once the QC personnel have approved the QCP.

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

The *Project Manager* arranges for the *Employer* to allow the *Contractor* access to and use of a part of the *works* which has been taken over if needed to correct a Defect.

5.3.8. Performance tests after Completion

- a) Acceptance tests shall be carried out to prove all the equipment guarantee figures provided by the *Contractor* in the technical schedules.

- b) Where the results of the performance tests performed don't correlate with expected results and/or the control functions as per the operating philosophy do not meet the specifications guaranteed, the *Contractor*, at his own expense, carries out all necessary adjustments and modifications to the works required to obtain the required designed performance and operation requirements. Fully detailed proposals are submitted in writing to the *Project Manager* for approval before any adjustments and modifications are made and work in this respect is carried out when convenient to the *Project Manager*. All adjustments and modifications are subject to inspection and approval by the *Project Manager*.
- c) When adjustments and modifications are completed, the *Contractor* advises the *Project Manager* in writing to this effect and applies for a further acceptance test. From the results obtained, and provided that the Employer is satisfied that it will be lasting, the works will be finally accepted by the Employer.

5.3.9. Training and technology transfer

No required.

5.3.10. Operational maintenance after Completion

- I. Procedures and manuals for the operation of all modified systems shall be provided and updated by the *Contractor*
- II. Manuals for the maintenance of all modified systems shall be provided and updated by the *Contractor*.
- III. The above is to be provided as both hard and soft copies (3 hard copies per document procedure/manual).

6. Plant and Materials standards and workmanship

6.1. Investigation, survey and Site clearance

The Contractor surveys the site to identify all necessary work requirements for completion of the Works at basic design phase and provides these requirements to The Employer

6.2. Building works

N/A

6.3. Civil engineering and structural works

The Contractor is required to adhere to the latest editions of and the normative references within the following SANS standards and other codes of practice, regulations & standards

Number	Title
MMM0553	Guideline on Barricading and Trenching

6.4. Electrical & mechanical engineering works

6.4.1. APPLICABLE NATIONAL STANDARDS

The Contractor is required to adhere to the latest editions of and the normative references within the following SANS standards and other codes of practice, regulations & standards:

Number	Title
240-56227573	Air-Insulated Withdrawable AC Metal-Enclosed Switchgear and Control Gear for Rated Voltages above 1kV up to and including 52kV Standard
240-76366372	Specification or a Platform Mounted Ring Main Unit Switchboard For Systems with Nominal Voltage of 11kV up to 22kV
240-56030406	Free Standing Metal Enclosed Ring Main Units for Systems with Nominal Voltages from 11kV to 33kV Standard
240-56227443	Requirements for Control and Power Cables for Power stations Standard
240-56357424	MV and LV Switchgear Protection Standard
240-56355815	Field Instrument Installation Standard-Junction Boxes and Cable Terminations
240-56356396	Earthing and Lightning Protection
SANS 1874	Switchgear – Metal-enclosed ring main units for rated A.C. voltages above 1kV and to and including 36 kV
34-2123	Tele control requirements for ring main units
SANS62271-103	High-Voltage Switchgear and control gear Part 103: Switches for rated voltages above 1 kV up to and including 52 kV
SANS876	Cable terminations and live conductors within air-filled enclosures (insulation co-ordination) for rated A.C. voltages from 7,2 kV up to and including 36 kV
SANS1019	Standard voltages, currents and insulation levels for electricity supply
SANS62271-100	High-Voltage Switchgear and control gear Part 100: Alternating current circuit breakers

Number	Title
240-53902499	Standard for The Transport, Handling, Storage and Preservation of HV and MV Switchgear
RER 0221	Waste management Procedure
240-54937450	Fire Protection & Life Safety Design Standard
MMM0553	Guideline on Barricading and Trenching

6.5. Process control and IT works

As per clause 3.2 (Parts of the works which the Contractor is to design)

6.6. Other [as required]

The *Contractor* is required to submit a comprehensive method statement of the *works* to the *Project Manager* for acceptance prior to the start of the *works*

List of drawings

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.

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

Drawing number	Revision	Title
0.45/198	5	Station MV and LV Electrical
DT 0863	3	11kV and 22kV 3 Way SF6 Ring Main Unit Plinth Details
DT 0863	5	11kV and 22kV 4 Way SF6 Ring Main Unit Plinth Details
TBA	0	Cable schedule for the common plant RMUs at Kriel
N/A	0	Eskom Standard Code for Power and Control Cables

C3.2 *CONTRACTOR'S* WORKS INFORMATION

This section of the Works Information will always be contract specific depending on the nature of the *works*. It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the *Employer* prior to award of contract now become obligations of the *Contractor* per core clause 20.1.

Typical sub headings could be

- a) *Contractor's* design
- b) Plant and Materials specifications and schedules
- c) Other

This section could also be compiled as a separate file.

PART 4: SITE INFORMATION

Document reference	Title	No of pages
C4	This cover page	1
	Site Information	3
Total number of pages		4

PART 4: SITE INFORMATION

Core clause 11.2(16) states

“Site Information is information which

- describes the Site and its surroundings and
- is in the documents which the Contract Data states it is in.”

In Contract Data, reference has been made to this Part 4 of the contract for the location of Site Information.

1. General description

1.1. General

The Kriel Power Station is situated approximately half way between Bethal and Ogies on the R545, being just over 30 km from each town and 10 km north-west of Kriel town.

1.2. Climate

Kriel Power Station is situated in a summer rainfall area with an average annual precipitation of about 750-mm falling almost entirely during the months of October to April. The average rainfall per month generally exceeds 40 mm during this period, although drought periods do occur which can last for 20 days or longer. Drought periods occur most frequently during the months of October/November and March/April. January is statistically the highest rainfall month with an average monthly rainfall of about 130-mm. June has the lowest rainfall with an average monthly rainfall of about 7 mm.

Approximately 85% of the annual rainfall occurs in the summer months and heavy falls of 125 to 150 mm occasionally occur in a single day. The annual average number of thunderstorms is about 75. These storms are often violent with severe lightning and strong (but short-lived) gusty winds and are sometimes accompanied by hail. This region has among the highest hail frequencies in South Africa; about 4 to 7 occurrences (depending mainly on altitude) may be expected annually.

January is normally the hottest month with an average daily maximum temperature of 27°C with a mean daily temperature in winter being about 16°C. Winter average daily temperatures vary from 18, 5°C maximum to -1°C minimum. The extreme temperatures recorded range from 34, 7°C to minus 12, 4°C for the period 1920 - 1984. (Source: Weather Bureau, Pretoria)

Winds are generally light to moderate except during thunderstorms. Generally the prevailing wind directions are from the North West during the day and from the east at night. During daytime, the prevailing winds are from the north-western direction. During night-time, the prevailing winds are from the north-eastern direction. The highest recorded average wind speed is 17, 6 km/hour. The average wind velocity over the year is 14, 5 km/hour.

(Source: MSN weather & Weather 24, average records 2008 - 2009.)

1.3. Weather Data

The assumed 1 in 10 year rainfall figures are:

Month	Cumulative rain (mm)	No of days with rainfall > 10mm
January	200	6
February	150	6

March	120	5
April	110	4
May	40	3
June	20	2
July	30	2
August	30	2
September	60	3
October	140	6
November	160	7
December	170	6

1.4. Relative Humidity

Records for Bethal (2008 - 2009)

The average relative humidity on an annual base are as follows:

08:00 = 80%

14:00 = 52%

20:00 = 73%

1.5. Prevailing Winds

Records for Bethal (2008 - 2009)

Winds are mostly north-westerly except for February and March when they are easterly to south-easterly.

The highest wind speeds are recorded from the south-east: on average 14km/h.

1.6. Other Climatic Factors

Records for Bethal (2008 - 2009)

Thunder occurs mostly from November to January with average of 35.7 days annually.

- a) Hail occurs mostly in December with average of 2.8 days annually.
- b) Fog occurs mostly in the winter months with an average of 19 days annually.
- c) Snow rarely occurs
- d) Cloud coverage is highest in the summer months with annual average as follows:
 - 08:00 = 2.8/8
 - 14:00 = 3.8/8
 - 20:00 = 3.1/8

Evaporation for the area is in range of 75mm to 190mm per month. The highest evaporation occurs in December, and the lowest in June.

1.7. Topography

The surface topography of the Kriel area is typical of the Mpumalanga Highveld consisting in the main of a gently undulating plateau. The flood plains of the local streams are at an average elevation of ± 1540 meters above mean sea level and drainage generally is a northerly direction.

1.8. Air Quality

The existing and potential sources of air pollution in Kriel area are the following:

- Kriel Power Station stack emissions
- Kriel Power Station dry dust (fly ash) handling plant
- Dust blow from the Eskom coal stock yard
- Dust blow from the roads in the area

- Seasonal dust blow caused by ploughing of farmlands, and dust blow off denuded fields
- Dust blow from dried out exposed surfaces of the wet ash dam.

However, Eskom utilises the majority of the top surface of the ash dam as an evaporation pan for polluted water, which means that the exposed surface is constantly wet. The sides of the ash dam have largely been rehabilitated, with the result that dust blow from the ash dam.

2. Existing buildings, structures, and plant & machinery on the Site

N/A

3. Subsoil information

N/A

4. Hidden services

N/A

5. Other reports and publicly available information



