NEC3 Engineering & Construction Contract

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

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

for **Design, Engineer, Install and Commission the expansion of the fire detection system for Kriel Power Station for an estimated period of 12 months**

Contents:		**No of pages**
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CONTRACT No.

Part C1: Agreements & Contract Data

Contents:

C1.1 Form of Offer & Acceptance

Offer

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

Design, Engineer, Install and Commission the expansion of the fire detection system for Kriel Power Station for an estimated period of 12 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*.

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:

- 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.
- 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.
- 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		Morongwe Raphasha
Capacity		General Manager
On behalf of	*(Insert name and address of organisation)*	Eskom Holdings SOC Ltd Kriel Power Station Bethal / Ogies Road Kriel 2271
Name & signature of witness		
Date		

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X1 Price adjustment for Inflation
		X2 Changes in the law
		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 *Employer* is (Name):	**Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa**
	Address	**Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg**
10.1	The *Project Manager* is: (Name)	**TBC**
	Address	**Kriel Power Station**
	Tel	**TBC**
	Fax	**TBC**
	e-mail	**TBC**
10.1	The *Supervisor* is: (Name)	**TBC**
	Address	**Kriel Power Station**
	Tel No.	**TBC**
	Fax No.	**TBC**

	e-mail	**TBC**
11.2(13)	The *works* are	**Fire Detection System Expansion**
11.2(14)	The following matters will be included in the Risk Register	**Delays in completion** **Quality of Works**
11.2(15)	The *boundaries of the site* are	**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 *law of the contract* is the law of	**the Republic of South Africa**
13.1	The *language of this contract* is	**English**
13.3	The *period for reply* is	**Two weeks**
2	**The *Contractor's* main responsibilities**	**Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.**
3	**Time**	
11.2(3)	The proposed *completion date* for the whole of the *works* is	**31 August 2023**
30.1	The *access dates* are:	**Part of the Site** / **Date** **1** **TBA** **TBA**
31.1	The *Contractor* is to submit a first programme for acceptance within	**Two weeks of the Contract Date.**
31.2	The proposed *starting date* is	**01 September 2022**
32.2	The *Contractor* submits revised programmes at intervals no longer than	**Two weeks.**
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.	
4	**Testing and Defects**	
42.2	The *defects date* is	**52 weeks after Completion of the whole of the *works*.**
43.2	The *defect correction period* is	**Two weeks**
	except that the *defect correction period* for	**High priority work is 8 hours**
	and the *defect correction period* for	**Low priority work is two weeks**
5	**Payment**	
50.1	The *assessment interval* is	**between the 25th day of each successive month.**
51.1	The *currency of this contract* is the	**South African Rand.**

51.2	The period within which payments are made is	**4 weeks.**
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**	
	and which are available from:	**the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer***
60.1(13)	Assumed values for the ten year return *weather data* for each *weather measurement* for each calendar month are:	**As stated in Annexure A to this Contract Data provided by the *Employer*.**
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks and insurance**	
80.1	These are additional *Employer*'s risks	**None**
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).**
W1.2(3)	The *Adjudicator nominating body* is:	**the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.**
W1.4(2)	The *tribunal* is:	**arbitration.**
W1.4(5)	The *arbitration procedure* is	**the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.**
	The place where arbitration is to be held is	**South Africa**
	The person or organisation who will choose an arbitrator • if the Parties cannot agree a choice or • if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**

12 Data for secondary Option clauses

X1 Price adjustment for inflation

X1.1(a) The *base date* for indices is

X1.1(c) The proportions used to calculate the Price Adjustment Factor are:

proportion	**linked to index for**	**Index prepared by**
0.	**non-adjustable**	

This contract is for an estimated period of 12 months. Should the contract exceed the duration of 12 months, then CPA will be applicable.

The proposed tables below will be negotiated if an alternative proposal is not submitted by the tenderer

PROPOSAL		
Proportion	**Table Used**	**Index Used**
5%	D2 - CPI	SEIFSA
55%	G1 - Material	SEIFSA
20%	C3 - Labour	SEIFSA
5%	L2 - Transport	SEIFSA
15%	Non Adjustable	
100%		

X2	**Changes in the law**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
X7	**Delay damages (but not if Option X5 is also used)**	
X7.1	Delay damages for Completion of the whole of the *works* are	**R50 000 per day up to a limit of 10% of contract Price**
X16	**Retention (not used with Option F)**	
X16.1	The *retention free amount* is	**R0.**
	The *retention percentage* is	**10% of Price**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**R0.0 (zero Rand)**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**the amount of the deductibles relevant to the event**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**The greater of** • **the total of the Prices at the Contract Date and** • **the amounts excluded and unrecoverable from the *Employer*'s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.**
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**the total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.** **The additional excluded matters are amounts for which the *Contractor* is liable under this contract for** **1. Defects due to his design which arise before the Defects Certificate is issued,** **2. Defects due to manufacture and fabrication outside the Site,** **3. loss of or damage to property (other than the *works*, Plant and Materials),** **4. death of or injury to a person and** 5. **infringement of an intellectual property right.**
X18.5	The *end of liability date* is	**(i) 5 years after the *defects date* for latent Defects and**

		(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. **A latent Defect is a Defect which would not have been discovered on reasonable inspection by the *Employer* or the *Supervisor* before the *defects date*, without requiring any inspection not ordinarily carried out by the *Employer* or the *Supervisor* during that period. 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 *Contractor*, 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 minim limit of indemnity
Loss of or damage to the *works*, Plant and Materials	The replacement cost where not covered by the *Employer*'s insuranc The *Employer*'s policy deductible, as Contract Date, where covered by the *Employer*'s 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 *Contractor*) caused by activity in connection with this contract	Loss of or damage to property *Employer*'s property The replacement cost where not covered by the *Employer*'s insuranc The *Employer*'s policy deductible, as Contract Date, where covered by the *Employer*'s insurance Other property The replacement cost Bodily injury to or death of a person The amount required by applicable l
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract	The amount required by the applicat 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 l 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 44 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 44 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 means measurements performed in parallel, yet separately, to existing

Measurements 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 Eskom RT&D [weather station]

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

	Weather measurement				
Month	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	97.7	3	0	0	None
February	50.9	2	0	0	None
March	256.2	7	0	0	None
April	2	0	0	0	None
May	31.5	1	4	0	None
June	1	0	16	0	None
July	0	0	15	0	None
August	0	0	6	0	None
September	14.1	0	0	0	None
October	110.5	6	0	0	None
November	192.9	7	0	0	None
December	159.5	7	0	0	None

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:

- 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.
- 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
- 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: Mandatory tender returnable.

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
11.2(8)	The *direct fee percentage* is The *subcontracted fee percentage* is	**%** **%**
Note: if the Direct Fee and Sub-Contractor Fee is not completed, Eskom will apply the fee percentages of 8% for the Direct Fee and 10% for the Sub-Contractor Fee.		
11.2(18)	The *working areas* are the Site and	
24.1	The *Contractor's* key persons are: 1 Name: Job: Responsibilities: Qualifications: Experience: 2 Name: Job Responsibilities:	

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

	Qualifications: Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .**		
11.2(3)	The *completion date* for the whole of the *works* is			
11.2(14)	The following matters will be included in the Risk Register			
11.2(19)	The Works Information for the *Contractor*'s design is in:			
31.1	The programme identified in the Contract Data is			
A	**Priced contract with activity schedule**			
11.2(20) 11.2(30)	The *activity schedule* is in The tendered total of the Prices is	**(in figures)** **(in words), excluding VAT**		
	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:	**%**		
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	**Minus %**		
22 in SSCC	The rates of other Equipment are:	**Equipment**	**Size or capacity**	**Rate**

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

If the short schedule of cost components are not completed, payment will be at actual cost
If the fee percentages in the Short Schedule of Cost Components is not completed, Eskom will apply fee percentages of 8%.

PART 2: PRICING DATA
ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	
C2.2	The *activity schedule*	

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 *activity schedule* unless later changed in accordance with this contract.

(27) The Price for Work Done to Date is the total of the Prices for

- each group of completed activities and
- each completed activity which is not in a group.

A completed activity is one which is without Defects which would either delay or be covered by immediately following work.

(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.

C2.2 the *activity schedule*

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

Fire Detection System Expansion of the Kriel Power Station for a Period of 12 Months

Item No	Description	UOM	Qty	Rate	Amount
	SECTION A				
	BILL 1				
	PRELIMINARIES AND GENERAL				
	FIXED RELATED ITEMS				
1	Site Establishment	Sum	1		
2	Health and Safety Requirements	Sum	1		
3	Site De-Establishment	Sum	1		
	TIME RELATED ITEMS				
4	Site Offices, storage, ablution facilities, office equipment, etc	Sum	1		
5	Site Management	Sum	1		
6	Site Transportation	Sum	1		
7	Accommodation	Sum	1		
8	Plant, Equipment and Lifting Equipment	Sum	1		
	GENERAL				
9	Training of Eskom Personnel	Sum	1		
	TOTAL: P&G				

	BILL 2				
	C & I AND ELECTRICAL WORKS				
	DECOMMISSIONING:				
1	De-commissioning of the existing system	Item	1		
	DESIGN				
2	Provide software engineering design for fire detection system as described in the scope of works, for approval by the Engineer ((Entire scope as whole)	Item	1		
	SOFTWARE LICENSING				
3	Software configuration for the new FDS. (Entire scope as whole)	Item	1		
4	Interfacing of the new installation onto the existing FDS and establishment of communication to the management PC (Entire scope as whole)	Item	1		
	SIEMENS SIGMASYS-SINTESO FDS HARDWARE				
	SUPPLY, DELIVER AND INSTALL				
5	Procurement of material (Field components, Control panels, modules, cabling, etc.) Including all wiring terminations.	Item	1		
	TESTING				
6	Commissioning of the entire work (Entire scope as whole)	Item	1		
	DOCUMENTATION				
7	Documentation (As built Drawings, cable and instrument schedules, training manuals, maintenance manuals, and operating manuals, etc) for all equipment installed. (Entire scope as whole)	Item	1		
	Sundries:				
8	Plant Codification	Item	1		
9	Equipment Labelling	Item	1		
	TOTAL: ELECTRICAL WORKS				

	SUMMARY				
	PRELIMINARIES AND GENERAL				
	C & I AND ELECTRICAL WORKS				
	Total				

…… Print Name	…….. Signature	…….. Date

Part 3: Scope of Work

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

C3.1: EMPLOYER'S WORKS INFORMATION

Contents

1. Description of the *works*

1.1 Executive Overview

The *Contractor* Designs, Engineers, Installs and Commissions the expansion of the fire detection system for Kriel Power Station. The following high level areas are to be covered: Battery rooms, CW pump houses, Auxiliary plant switchgear rooms, Outside plant control room, outside plant workshops including Rotek building, Park homes by Soweto Building, conveyor boards substations, ash handling system, Water treatment plant auxiliaries and Kwanala boards switchgear rooms. The high-level scope of the *works* includes:

- Engineering,
- Design,
- Procurement,
- Factory acceptance testing,
- Delivery and off-loading at site,
- Site acceptance testing, storage,
- Installation,
- Testing,
- Commissioning,
- Decommissioning where necessary,
- Optimisation and
- As-built documentation for Kriel Power Station's Fire Detection System areas as mentioned above most of who are on the auxiliary plants.

The Fire Detection System is used for the monitoring and detection of any fire occurring within the specified Eskom Kriel Power Station premises.

The *Contractor* provides software licensing required for the *works.* This includes licensing requirements for all software forming part of installed system.

The *Contractor* provides for software installations and ensures all systems are updated to the latest version at completion including hardware.

All equipment and documentation forming part of the *works* are codified and plant equipment is labelled according to the requirements specified.

The *Employer* can use the *Contractors* design of the *works* at any given point in time, its information, design, for the purpose of construction and modification throughout the life of the plant.

The *Contractor* provides and performs all the *works* necessary for making the site ready for the new installation. The *works* includes all the activities but are not limited to the following, decommissioning, removal, and packaging, storing and transporting and sealing all the cable entries ways, which is affected by this *works*.

The Employer will provide scaffolding.

The *Contractor* provides all the necessary tools and equipment, which are required to perform the *works.*

The *Contractor* provides training to all the Staff as indicated by the *Employer's* as part of this *works.*

1.2 Employer's objectives and purpose of the works

1.2.1 Background

Kriel Power Station is a coal-fired power station built in 1979 and is situated in Mpumalanga. It has 6 units, each capable of providing 500 MW sent out to the Eskom grid. It is a base-load power plant with a total station capacity of 3000 MW's. The Common Plant is responsible for all auxiliaries required by the units such as water supply, and coal, dust and ash handling. On the Common Plant, the FDS was never installed; as such, this was an audit finding because there is high likelihood of fire. The coverage in these areas will form part of the expansion of the existing FDS with the monitoring remaining at EOD.

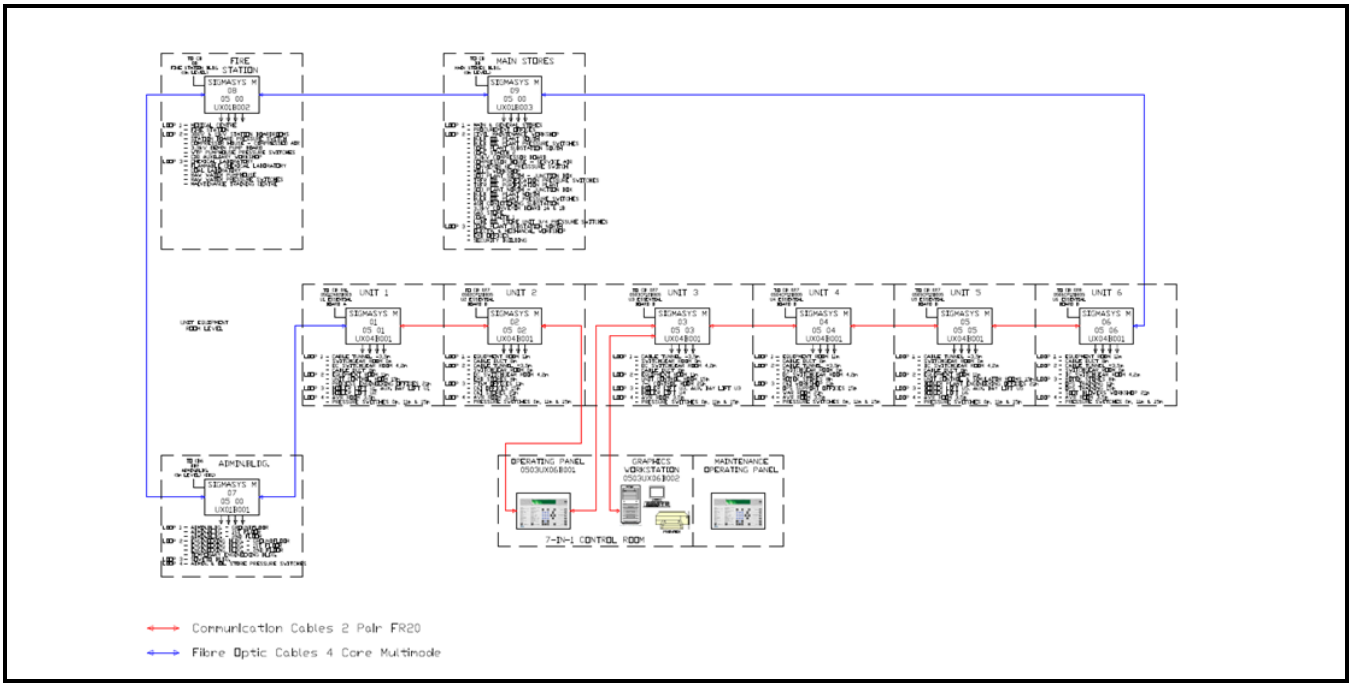

Figure 1: Current Network Configuration

The network is configured in a ring topology to ensure communication in both directions. The currently installed panels have at most four loops installed, however this can be expanded to 24 loops allowing the addition of more elements.

1.2.2 Objectives

- The objectives of the FDS expansion projects is to cover various areas at Kriel Power Station that have been identified as areas where fire damage is possible however these areas are not equipped with the fire detection system. Hence, the currently installed Fire Detection System needs to be expanded to include the areas that require it and have nothing installed.

1.3 Interpretation and terminology

1.3.1 Definitions

Computer Backup	A full backup of all boot configurations, operating systems and other installed software packages such that the computer concerned can be restored to a fully functioning state as of the date of the backup capture
Control System	The control system consists of the Operating system, Engineering system, Process Automation system, Protection Automation system, Operating & Engineering network, Automation Network, network management system, User management system and Interfaces to 3rd Party systems that are specific to a particular plant
C&I Rooms	The rooms used to house the control system
Engineering System	The system via which the control system is fully engineered, maintained and configured
Engineering Tools	All diagnostic, maintenance, configuration and engineering software for every aspect of the control system. Engineering tools also include the firmware management software and any software used during design of the system
Engineering Workstation	The single human interface via which the relevant basic engineering tools are accessed with the specified number of operating display units and pointing devices
Field Cabling	All the cabling between the field equipment and first junction and/or splitter box
Field Equipment	Instrumentation, Junction Boxes.
Functional Logic	The control logic – inclusive of all sequence control, analog control logic, interlocks, etc… - that is contained in the automation system(s)
Functional Logic Diagrams	Diagrams depicting systems in circuit diagrams using functional logic symbols.
HMI/GUI	The human interface used for the operation and monitoring of the a particular plant's C&I system
Machinery protection system	Consists of the transducer system, signal cables, the monitor system, all necessary housings and mounting fixtures, and documentation
Managed Network Switches	Switches that can be managed by one or more methods to modify the operation of the switches
Network Cabling	All the cabling that forms part of the automation network, operating & engineering network and common network
OEM	The OEM refers to the original equipment manufacturer. Within the context of the project it refers to the FDS manufacturer (Siemens/MZ Security cc), and is clarified in context of the *work.*
OEM best practices	Includes all of the OEM standards, best practices, guidelines and QA practices
Operator Workstation	The primary interface of the operating plant personnel via which the HMI is accessed with the specified number of operating display units and pointing devices
Plant Information	This includes all information from Kriel Power Station
Power Supply Cabling	All the cabling required to power field equipment
Specification	The document/s forming part of the contract in which are described the

	methods of executing the various items of work to be done, and the nature and quality of the materials to be supplied and includes technical schedules and drawings attached thereto as well as all samples and patterns
Trunking	A rigid structure supporting a number of automation network cables
Trunk Cabling	All the cabling between the junction boxes or groupings of field cables and the automation system(s)

1.3.2 Abbreviations

Abbreviation	Meaning given to the abbreviation
AKZ	Power Plant Coding System
C&I	Control and Instrumentation
FDS	Fire Detection System
CQP	Contract Quality Plan
DMS	Document Management System
DMZ	De-Militarised Zone
ESP	Electronic Security Perimeter
FAT	Factory Acceptance Test
GUI	Graphical User Interface
GA	General Arrangement
HMI	Human Machine Interface
HVAC	Heating, Ventilation and Air Conditioning
ITP	Inspection and Test Plan
LAN	Local Area Network
NEC	New Engineering Contract
MW	Megawatts
OAT	Operational Acceptance Test
OEM	Original Equipment Manufacturer
OHSA	Occupational Health and Safety Act
OS	Operating Workstation
PIS	Plant Information System
PPE	Personal Protective Equipment

QA	Quality Assurance
QAP	Quality Assurance Programme
QC	Quality Control
QCP	Quality Control Protocol
QMP	Quality Management Programme
SHEQ	Safety, Health, Environment and Quality
SAT	Site Acceptance Test
SIT	Site Integration Test
UPS	220V Uninterruptible Power Supply
UTM	Unified Threat Manager
VDSS	Vendor Document Submission Schedule
WBS	Work Breakdown Structure
WTP	Water Treatment Plant

2. Management and Start Up.

2.1 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Kick off meeting	Prior commencement of work on site.	Kriel Power Station, Projects department	*Employer, Contractor, Supervisor*
Risk register and compensation events	As soon as the needs arises	Kriel Power Station, projects department	*Employer, Contractor, Supervisor*
Overall contract progress and feedback	Weekly	Kriel Power Station, Projects department	*Employer, Contractor, Supervisor,*

- 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*.
- 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 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 contractual correspondence must be in the form of a letter or form attached to an email and not as a message in an email itself.
- Where appropriate the correspondence includes the *Employer's* reference and is delivered as a single package
- All communications from the *Contractor* are numbered sequentially with a prefix as advised by the *Employer*. The *Employer* responds in like manner to a maximum of two address formats provided in writing by the *Contractor*.
- The prefix is decided upon at the kick off meeting.

General

All documentation shall be controlled as per the requirements of the Supplier Contract Quality Requirements Specification QM58. All existing documentation that is affected by the **Expansion of The Fire Detection System Project** shall be updated as part of the documentation of the project.

The documentation requirements cover the various phases of the works, from the engineering phase, through installation and the commissioning, operating, maintenance and training phase of the project. Comprehensive document control of all documents is provided for the duration of the works.

The documentation register contains the following information and shall be submitted monthly to the Employer:

- Documentation number (Employer and maker's number),
- Revision,
- Approval status,
- Location of documentation at that stage,
- Documentation description.

All documentation submittals are accompanied by a documentation transmittal advice.

Microsoft Office 2007 or later version soft copies, together with hard copies of each document, to be provided.

All new documentation shall be registered on the Kriel Power Station Documentation system.

Kriel Power Station shall issue all new document numbers.

The document control system contains, as a minimum, the revision status of all documents in relation to the 'As Built' plant status.

2.2.1 Drawings

It is a requirement of this project that all drawings, be produced by the Tenderer on a CAD system, the preferred system being Microstation (*.DGN) or AutoCAD (*.dwg or *.dxf).

2.2.2 As-Built Plant & Control Room Drawings

All the documents which will be affected by this project will be updated by the *Contractor*:

- Rack Layout Drawing;
- Cable schedules for routing and racking Information;
- Termination Diagrams; and
- Implemented software and hardware design.

2.2.3 Manuals

The following manuals are submitted by the *Contractor* to the *Employer* (both in electronic and hardcopy form) as a minimum:

- Operating Manuals;
- Maintenance Manuals;
- Technical Manuals;
- Training Manuals; and
- Detail design drawings.

2.2.4 Plant Codification

Kriel Power Station Plant coding shall conform to AKZ-KKS Plant Codification Standard – ECM0005 and 240-71432150. Plant Labelling shall conform to Plant Labelling Standard – ECM0004. The Contractor shall provide codification for all the equipment supplied (with guidance from Design and Specification) as part of works and submits to the Employer for approval.

All labels are made from anodised aluminium and are pop riveted in place.

All cable labels are made as per the Kriel Labelling Specification – ECM0004 and AKZ-KKS Plant Codification Standard – ECM0005.

2.3 Health and safety risk management

All service providers appointed to render any services within Eskom Kriel Power Station are required to comply with the station's safety requirements.

2.3.1 Employer's Health and Safety Requirements

The *Contractor* acts in accordance with the health and safety requirements stated in the Works Information.

In carrying out its obligations to the *Employer* in terms of this contract; in providing the Works; in using Plant, Materials and Equipment; and while at the Site for any reason, the *Contractor* complies and procures and ensures the compliance by its employees, agents, Sub-Contractors and mandatories with:

a) the provisions of the Occupational Health and Safety Act 85 of 1993 (as amended) and all regulations in force from time to time in terms of that Act ("the OHSA"); and

b) the Eskom “Safety, Health and Environmental Requirements for Contractors” document attached to the Works Information (as amended from time to time) and such other Eskom Safety Regulations as are applicable to the Works and are provided in writing to the *Contractor* (collectively “the Eskom Regulations”). The Eskom Regulations may be amended from time to time by the *Employer* and all amendments will be provided in writing to the *Contractor*. The *Contractor* complies with the provisions of the latest written version of the Eskom Regulations with which it has been provided; and

c) The health and safety plan prepared by the *Contractor* in accordance with the SHEQ Requirements. (The OHSA and the Eskom Regulations are collectively referred to as the “SHEQ Requirements”.)

The *Contractor*, at all times, considers itself to be the “*Employer*” for the purposes of the OHSA and is required to not consider itself under the supervision or management of the Employer with regard to compliance with the SHEQ Requirements, the *Contractor* is required to furthermore not consider itself to be a subordinate or under the supervision of the *Employer* in respect of these matters. The *Contractor* is at all times responsible for the supervision of its employees, agents, Sub-Contractors and mandatories and takes full responsibility and accountability for ensuring they are competent, aware of the SHEQ Requirements and execute the Works in accordance with the SHEQ Requirements.

The *Contractor* ensures that all statutory appointments and appointments required by any Eskom Regulations are made and that all appointees fully understand their responsibilities and is trained and competent to execute their duties. The *Contractor* supervises the execution of their duties by all such appointees.

The *Employer*, or any person appointed by the *Employer*, may, at any stage during the currency of this contract:

I. Conduct health and safety audits regarding all aspects of compliance with the SHEQ Requirements, at any off-site place of work, or the site establishment of the *Contractor*;

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 qualified or authorised in terms of the SHEQ Requirements;

III. Issue the *Contractor* with a stop order should the *Employer* become aware of any unsafe working procedure or condition or any non-compliance with any provision of the SHEQ Requirements.

The *Contractor* immediately reports any disabling injury as well as any threat to health or safety of which it becomes aware at the Works or on the Site to the Employer and to the Safety Risk Management office.

The *Contractor* appoints a person, qualified in accordance with the SHEQ Requirements, as the liaison with the Eskom Safety Officer for all matters related to health and safety, this person is required to be contactable 24 hours a day.

The *Contractor* confirms that it has been provided with sufficient written information regarding the health and safety arrangements and procedures applicable to the Works to ensure compliance by it and all employees, agents, Sub-Contractors or mandatories with the SHEQ Requirements while providing the Works in terms of this contract. As such, the *Contractor* confirms that this contract and the relevant Eskom Regulations referred to in this contract constitute written arrangements and procedures between the *Contractor* and the *Employer* regarding health and safety for the purposes of section 37(2) of the OHSA.

The *Contractor* agrees that the *Employer* is relieved of any and all of its responsibilities and liabilities in terms of Section 37(1) of OHSA 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 OHSA.

The *Contractor* hereby indemnifies the *Employer* and holds the *Employer* harmless in respect of any and all loss, costs, claims, demands, liabilities, damage, penalties or expense that may be made against the Employer and/or suffered or incurred by the *Employer* (as the case may be) as a result of, any failure of the *Contractor*, its employees, agents, Sub-Contractors and/or mandatories to comply with their

obligations in terms of this clause 18, and/or the failure of the Employer to procure the compliance by the *Contractor* , its employees, agents, Sub-Contractors and/or mandatories with their responsibilities and/or obligations in terms of or arising from the OHSA.

2.3.2 Safety of Workers

- 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 *Employer*.

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.

2.3.3 Fire Protection

- The *Contractor* shall ensure that adequate firefighting apparatus is provided at all his work sites, and that his staff is trained in the use of this apparatus.

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.

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. Firefighting equipment remains accessible at all times.

In case of a fire, report the location and extent of the fire to the Electrical Operating Desk at extension 2555 or 017 615 2555.

Take the necessary action to safeguard the area to prevent injury and spreading of the fire.

2.3.4 Asbestos

- The *Contracto*r 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.

All stripping of asbestos material is undertaken strictly in accordance with the *Employer*'s Standard, SAP 0022, available from Safety Risk Management.
The Employer advises the *Contractor* whether areas that are to be stripped of lagging have been identified as containing asbestos.
The *Contractor* is obliged to ascertain from the Employer 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.
The *Contractor* appointed to remove asbestos, does not begin removal without first obtaining the necessary permission from the Deputy Director of Labour and the Employer.
Specific attention must be given to the Job Bulletin "Safe Measures Regarding Asbestos or Asbestos Contaminated Material" (06 – 2004).
Asbestos is present on the site and asbestos areas are clearly marked.

2.3.5 First aid

- 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.

Outside the *Employer*'s office hours, the *Employer*'s First Aid Services are only available for serious injuries and life threatening situations.
The *Employer* recovers the costs incurred, in the use of the above *Employer*'s facilities, from the *Contractor*.

2.3.6 Hazardous Substances

- 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.*

2.3.7 Plant Safety Regulations

- The *Employer*, on request from the *Contractor*, isolates required plant from all sources of danger as described in the Plant Safety Regulations.

The Employer, on request, makes available a copy of the latest revision of the Plant Safety Regulations available to the *Contractor.*
The contractor shall attend PSR and be found competent to be Authorised supervisor/Responsible person
The *Contractor* complies with all rules and regulations applicable to plant safety and completes the Workman's Register prior to working on the plant.
The *Contractor* declares any grinding and welding to be carried out on the workers register.
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.
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.

The *Contractor* is prohibited from entering Radiation Areas.
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.
The *Contractor* ensures that all personnel are competent to carry out the works.
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

- All service providers appointed to render any services within Eskom Kriel Power Station are required to comply with the station's Environmental Management System requirements.

- NB: Before commencing with any work, the service providers are required to visit the station's environmental section for evaluation. The station's environmental practitioner will evaluate the services to be rendered by the service provider and therefore allocate relevant legal and other requirements documents which the *Contractor* shall comply with during the works.
- Provide Environmental policy and EMP (Environmental Management Plan)

It should always be noted that Kriel Power Station is ISO14001 certified and therefore promotes Integrated Environmental Management (IEM) philosophy which aims to achieve a desirable balance between conservation and development. All activities taking place within Kriel Power Station must consider section 28 of the National Environmental Management Act (107 of 1998) which makes provision for the duty of care approach. The contractor's team must commit to review and to continually improve environmental management, with the objective of improving overall environmental performance. The *Contractor* must consult with Kriel Environmental section on a regular basis for on-going assistance and advices.

Environmental requirements
The *Contractor* ensures that all goods, services or works supplied in terms of the Contract conform to all applicable environmental legislation. Kriel Environmental Management System must be adhered to as a minimum.

Refuse disposal
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 Norms and Standards for the Disposal of Waste to Landfill, minimum requirements for the Handling and Disposal of Hazardous Waste in terms of Government Legislation as proclaimed by the NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008

The removal of any hazardous waste is the responsibility of the *Contractor*.
The *Contractor* shall comply with the environmental criteria and constraints as per the Eskom Rules and Regulations.

The service provider shall comply to, but not limited to, all relevant legal and other requirements including the Kriel Power Station EMS, National Environmental Management Act (Act 107 of 1998) as amended and ISO 14001.

2.5 Quality Assurance Requirements

Quality Management System

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/ Employer*. 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 Employer* 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).

Contract Quality Management Plan Requirement

The *Contractor* prepares a contract quality management plan that, where appropriate, indicates the following:

- Indicates the interface with the *Contractors* quality system and applicable documents such as procedures and work instructions
- Establishes communication channels between the *Contractor* and the *Quality Engineer / Employer* in respect of quality and the integration of such with the prescribed contract communication channels
- Indicates how specific subcontractors will be monitored
- Identifies items or activities for which quality control plans will be prepared
- Identifies the specifications, drawings and acceptance criteria for material for which quality control plans are not required
- Identifies the areas or processes requiring special controls
- Identifies the *Contractor's* Management Representative and personnel responsible for the control of quality activities and their relationship to the *Contractor's* management structure
- Identifies the documents which are to be submitted to the Employer
- Indicates the *Contractor's* quality monitoring programme

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 *Quality Engineer* but will not be greater than one year.

Quality Control Plan
The *Contractor's* or Subcontractor's quality control plans cover inspection and test proposals for items or activities to be supplied as part of the *works*.

The quality control plan indicates the following as appropriate:

- The identification of the item.
- A list of the sequence of operations including inspections and tests.
- The identification of the specification, drawings or procedures for each operation.
- The acceptance criteria with reference to the appropriate technical specification, in-house, national or international standard and relevant clause number.
- The inspections and tests the *Contractor* has nominated for hold and witness points.
- Provision for inspections and tests nominated by the *Quality Engineer.*
- Provision for inspection status indication.
- Inspection and test records which are generated by the *Contractor*.
- Competence of the people-Level II welding inspector, Coded welders, minimum N3 Fitters/Boiler makers
- Personnel qualifications from approved training and accredited institute
- ITPs and welding procedures
- Material certificates
- Organogram indicating the quality person and his/her duties
- Adhere to the QM58
- Follow the Eskom welding rule book

The quality control plans are reviewed by the *Quality Engineer and Employer* to allow for insertion of his specific requirements, including hold and witness points, prior to commencement of work. The *Contractor* does not commence work until the *Employer* accepts.

2.6 Programming Constraints

General
The Contractor shall submit the first programme to the Project Manager for acceptance within the period stated in the Contract Data. The program must be updated as per the intervals prescribed in the Contract Data. The programme shall be submitted in MS Project Format.

The Accepted Programme at the Contract Date serves as a baseline for the execution of the works until the latter of the defects date or the end of the defects correction period. This baseline shown on all subsequent graphical presentations of revised programmes.

2.7 Contractor's management, supervision and key people

The Contractor must have people that are competent to work in a switchgear rooms, substations and battery rooms with the correct PPE.

2.8 Invoicing and payment

Within one week of receiving a payment certificate from the *Employer* 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 *Employer's* payment certificate.

The *Contractor* shall address the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

Name and address of the *Contractor* and the *Employer;*
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;
(add other as required)

Add procedures for invoice submission and payment (e.g. electronic payment instructions)
The *Contractor* shall address his invoice to the following email address:
Eskom Development Foundation: invoiceseskomlocal@eskom.co.za

2.9 Insurance provided by the Employer

Refer to section 8 clause 84.

2.10 Contract change management

The *Contractor* and *Employer* shall use the standard NEC forms for any form of communication.

2.11 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 *Employer* 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.

2.12 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.

2.13 Training workshops and technology transfer

2.13.1 Training

2.13.1.1 GENERAL REQUIREMENTS

- The *Contractor* provides training on the equipment and systems included as part of the *works* to the various categories of the *Employer's* technical staff for the duration of the *works*.

All training provided by the *Contractor* is customised for Kriel Power Station and is directly applicable to the actual equipment and software supplied for the *works*.
Training is focused on the specific FDS architecture, configuration, layout, equipment, software and design that the *Contractor* provides for the *works*.
Generalised training based on the *Contractor's* generic FDS architecture and design philosophies is not acceptable.
Training facilities are provided by the *Employer and/ training will be provided on Kriel site*
Training material and tools are not shared by trainees during the training.

- The training provided by the Contractor must include all required engineering tools and workstations.

The training is provided as per the detailed training programme and prospectus accepted by the *Employer*
The Kriel specific engineering training, basic & advanced maintenance and operator training is completed after the FAT completion and before commissioning of the system. On delivery of equipment to site a SAT will be conducted to ensure all equipment are as per factory acceptance.
The training schedule is incorporated in the Accepted Programme.

2.13.1.2 TRAINING CATEGORIES

- Practical hands-on training for each individual trainee forms an integral part of each of the courses in these categories:
  - I. Training of Maintenance and Engineering Staff
  - II. Training of Operators

2.13.1.3 TRAINING FOR ENGINEERING AND MAINTENANCE STAFF

Training includes, as a minimum:

- i. Configuration of the system.
- ii. Implemented philosophy.
- iii. Diagnostic tool interpretation and Usage.
- iv. Network and IT configuration.
- v. Capabilities of the new system

2.13.1.4 TRAINING FOR OPERATOR

- Training includes, as a minimum:
  - i. Functionality of the system.
  - ii. Diagnostic tools features.

2.13.1.5 TRAINEE PARTICIPANTS

- The total number of days for training is as follows:
  - I. Basic / Advanced maintenance : 2

II.	Operators	:	3
III.	Engineering	:	2

2.13.1.6 TRAINING DOCUMENTATION

- The *Contractor* provides all course material including manuals.
- The course material is in English and includes all third party documentation.
- Printed and electronic copies of the training documentation are supplied for each trainee plus an additional 3 hardcopy master sets and three electronic copies.
- All training documentation provided by the *Contractor* is customised for Kriel Power Station.
- The training documentation contains the specific FDS system architecture, configuration, layout, software, equipment and Kriel specific design capabilities provided by the *Contractor* as part of the works.
- Training manuals are 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

The scope of work includes the following:

(1) Software engineering Design for fire detection system, planning, drawings, spec. etc. for acceptance by Client.
(2) FAT
(3) Installation of Siemens Sigmasys-Sinteso FDS hardware (Field components, Control panels, modules, etc.)Including all wiring terminations.
(4) Upload of software.
(5) Site acceptance testing
(6) Interfacing of the new installation onto the existing FDS and establishment of communication to the management PC
(7) Commissioning of the FDS
(8) Supply of labels for all new equipment and cables installed
(9) Training of operating, maintenance and engineering personnel
(10) Supply of documentation (drawings, cable and instrument schedules, training manuals, maintenance manuals, and operating manuals) for all equipment installed.

3.1 Employer's design

3.1.1 The Employer will provide the following as part of the works:

- All areas for the new installations.
- The HVAC system for the equipment rooms
- The station earth point
- Non-redundant 220V power supply from the 220V main distribution board in the existing Unit Equipment room (prior to breaker open)
- 240-56355754 - Field Instrument Installation Standard

3.1.2 The *Contractor* shall provide the following:

- Cubicles in which the old FDS modules are installed and the new modules will be installed
- New field and interface cables must be pulled, utilised and connected between the existing and newly installed FDS.
- The management PC is installed at EOD (existing monitoring system)

3.1.3 Plant Outages

- The *Contractor* ensures that all preparatory work shall be carried out prior to the implementation of the project. The Contractor to note that Eskom is an essential service and they shall be expected to work during weekends and holidays where applicable.
- All outages regarding power down/up shall be co-ordinated with the *Employer.*
- Any work carried out on a running plant (Control rooms, switchgears, etc.) should not jeopardise the availability of the plant during that time.
- A thorough risk assessment on all activities, in as far as potential impact on plant availability should be performed and documented for acceptance by the *Employer* prior to the start of the work.

3.2 Parts of the works which the Contractor is to design

3.2.1 General

The *Contractor's* scope of the *works* is specified below and is presented in detail in this section.

- The *Contractor* Designs, Engineers, Installs and Commissions the extension of the existing FDS at Kriel Power Station. The scope of the *works* include:
  - i. Engineering, design, procurement, manufacturing, factory acceptance testing, delivery and off-loading at site, site acceptance testing, storage, installation, testing, commissioning, optimisation and as-built documentation for Kriel Power Station.
  - ii. Interface of the newly installed FDS to the existing FDS and the interfacing to the management PC.

    IV. The *Contractor* performs the works for the following plant areas Battery rooms, CW pump houses, Auxiliary plant switchgear rooms, Outside plant control room, outside plant workshops including Rotek building, conveyor boards substations, ash handling system and Water treatment plant auxiliaries.

3.2.2 Software Engineering

- The *Contractor* performs the software engineering for the new FDS.
- The *Contractor* must ensure that the new code can communicate with the existing management PC.

3.2.3 FDS Hardware

- The *Contractor* is to supply install and commission all Siemens Sigmasys-Sinteso FDS hardware, this includes power supply, CPU, I/O Modules and interface modules as well as all necessary connectors and accessories for FDS.

3.2.4 Cabling

- New cables will be used where necessary for both powering and signalling.
- New network cables are to be installed.
- The *Contractor* is responsible for the termination of the cables to the new hardware

3.2.5 Engineering Station

- The existing management PC at EOD to be used

3.2.6 Plant Outages

3.3 Procedure for submission and acceptance of Contractor's design

The Contractor's design is to be submitted to the Employer for acceptance.
The Contractor is only allowed to start procurement after written approval has been received from the Employer.
The acceptance of the design by Employer does not make him/her accountable for the design by the Contractor.

3.4 Other Requirements of the Contractor's Design

3.4.1 Licensing

- All licenses required by the *Employer* covering the equipment, standard software and application software are included as part of the *works*.
- All licenses remain valid in the event of the failure and replacement of faulty equipment
- All licenses required by the *Employer* are valid for the entire life of the FDS.
- All licenses are site licenses for use at Kriel Power Station Site.
- Installation disks are provided for all licensed software provided.

3.4.2 Upgrades

- Upgrades of software and the associated licenses are provided throughout the duration of the *works*.
- All necessary software patches, bug fixes, and software upgrades required for the systems are provided throughout the duration of the *works*.

3.4.3 Plant Codification

(1) Plant codification is done according to the AKZ system as used at Kriel Power Station.
(2) The *Contractor* is to supply a detailed list of instrumentation and equipment to be installed, as well as the cable schedule, no less than 3 (three) weeks before installation on site commences. The Employer will generate suitable codification and descriptions for new equipment, cables and signals. The codes and descriptions will be supplied to the *Contractor*.

(3) References to plant are accompanied by the relevant AKZ code for that item of plant.
(4) The Contractor ensures that all plant, materials, components and documentation as part of the works is codified correctly.

3.4.4 Plant Labelling

(1) Labelling of all equipment and documentation supplied is part of the *works* and is the responsibility of the *Contractor*. The relevant AKZ code is included on the label according to the required format, together with plant description.
(2) All the labelling and inscriptions will be to the Kriel Technical Specification for AKZ Labels.
(3) A prototype will be submitted for acceptance to the *Employer* prior to fixing the labels on the plant. Equipment labelling should not interfere with maintenance and commissioning activities, if not possible the label should be fitted such that it could be removed and replaced without damage to the label.
(4) All cable labelling to be approved by the *Employer*.
(5) Labels shall be produced and attached to relevant equipment and cables no longer than 3 (three) weeks after work on site have been completed.

3.5 Use of Contractor's design

- The *Employer* can use the *Contractors* design of the *works* at any given point in time, its information, design, for the purpose of construction and modification throughout the life of the plant.

3.6 Design of Equipment

3.6.1 Removal of Existing Equipment

i. N/A.

3.6.2 Packaging

- All the identified equipment that will be re-used must be packaged such that it can be easily transported without being damaged.

The equipment that needs to be packaged is clearly marked by the *Contractor* before decommissioning starts.
Equipment not marked for re-use is removed and transported to the dedicated disposal areas.

3.6.3 Storing of Equipment

- A dedicated equipment storage area shall be provided by the *Employer* and be regarded as the site establishment for the Contractor to use while executing the works.

All storage areas are located within the boundaries of Kriel Power Station.
The *Contractor* maintains a detailed inventory of all equipment that has been removed from the plant, and stored in the temporary and permanent storage areas.
For the duration of the *works*, the *Contractor* updates the inventory as and when equipment is removed or added to the storage areas.

3.6.4 Transporting

- The *Contractor* is required to transport all the equipment to the temporary storage or to the disposal area.

The *Contractor* is also required upon completion of packaging to transport the equipment to the permanent storage area.

3.7 Equipment required to be included in the works

- The *Contractor* provides all the tools and equipment necessary to perform the works stipulated in this works information.

3.8 As built drawings, operating manuals and maintenance schedules

- As built drawings to be supplied in as a hard copy as well as soft copy (Cad file type (*.DGN) or AutoCad (*.dwg or *.dxf)
- Operating and maintenance manuals in hard copies (2 copies) and soft copies in PDF format.

4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed on the Site

No constraints anticipated. The people who are executing the work onsite need to be reflected in the safety file. New people need to be approved by the safety officer and safety file to be revised.

4.1.2 BBBEE and preferencing scheme

Contractor shall comply with after contract award in regard to any Broad Based Black Economic Empowerment (B-BBEE) or preferencing scheme measures

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

N/A

4.1.4 Designated Sector

Material	Threshold %
Cables	90%
Repeaters	60%

A tender that fails to meet the minimum stipulated threshold for local production and content will be disqualified.

4.2 Subcontracting

4.2.1 Preferred subcontractors

Transport – 1.28%
Accommodation – 1.85%

4.2.2 Subcontract documentation, and assessment of subcontract tenders

Subcontracting is contractual requirements.

4.2.3 Limitations on subcontracting

Not applicable.

4.2.4 Attendance on subcontractors

Not applicable.

4.3 Plant and Materials

4.3.1 Quality

See section 2.5 of works information

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

The employer provides the original field design for the areas as indicated to be covered by the new FDS installation.

4.3.3 *Contractor*'s procurement of Plant and Materials

The Contractor shall make use of SABS approved plant and material. Test certificates for such material/equipment shall be given to the project manager.

4.3.4 Spares and consumables

4.3.4.1 Spares List and Maintenance Requirements

(1) The *Contractor* is to supply a list of all spares that will be required to maintain the plant in the future as well as the number of spares to be kept on site.
(2) The *Contractor* will also specify the maintenance requirements for each installed component, stipulating the frequency of maintenance, action to be carried out, tools required and risks involved.
(3) The spares list must be submitted to the Employer as soon the *Contractor* has placed orders for all the equipment.

4.4 Tests and inspections before delivery

FAT to be conducted at the premises of the Contractor to ensure that the Employer and End Users are satisfied with the System to be installed. This must be done prior delivery to site.

4.5 Site Acceptance Testing

(1) Site Acceptance Testing is performed once the Project Manager has certified Commissioning as complete.
(2) Site Acceptance Testing commences when the system in is operation.
(3) The *Project Manager* makes final arrangements with the *Contractor* 72 hours in advance for Site Acceptance Testing.
(4) Site Acceptance Testing includes verification of functionality and performance of the system according to the requirements for the provision of the works.
(5) Operational testing commences once the *Project Manager* has certified Site Acceptance Testing as complete.
(6) As a minimum, the SAT's are used to certify the following:
   i. Installation to comply with accepted drawings unless changes accepted in writing by the Employer
   ii. Quality of installation as certified by non-destructive testing to be performed by the Contractor
(7) The Site Acceptance Test will include a test run of 72 hours where no system faults occur.

Site Acceptance testing commences Installation and Commissioning as complete as per QCP.

4.6 Marking Plant and Materials outside the Working Areas

N/A.

4.7 Contractor's Equipment (including temporary works)

4.7.1 Contractor's yard, offices, workshops and stores

(1) It is required, for the proper co-ordination and execution of the *works* that the *Contractor* has an office on Site for the duration of the contract.
(2) The *Contractor* includes in his establishment rates for all further treatment of the yard areas that he considers necessary for his entire operation throughout his period of occupation and under all weather conditions. The *Contractor* also includes for all security fencing, security and access arrangements. Maintenance of the yard is the *Contractors* responsibility and to the *Employers* acceptance.
(3) Outfall drainage of all surface run-off drains is constructed by the *Contractor* to the acceptance of the *Employer* to minimise erosion and to effect control of contaminated water. The *Contractor's* plan for the layout of his yard area are accepted by the *Employer* prior to occupying the yard and the *Contractor* does not occupy any site area other than that allocated to him. The *Contractor's* plan states fully what measures are taken regarding removal and storage of topsoil, stabilisation of eroded areas and further loss of topsoil.

(4) The *Contractor* complies with the environmental policy given in the Site Regulations. The *Contractor* provides, erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold water services as may be required. Provision is also made for adequate parking and a turning area adjacent to all the aforesaid structures. The *Supervisor* prior to commencement of any work on Site accepts all designs and layouts for these provisions.

(5) The *Contractor* dismantles and clears the yard of all such temporary structures and associated foundations and infrastructure at the direction of the *Supervisor* on Completion of the whole of the *works*. No such dismantling and clearance work is carried out without prior acceptance from the *Supervisor*.

4.7.2 Telecommunications

(1) Neither a network point nor a telephone is available on site. Should the *Contractor* require one, he is to make his own arrangements with relevant authorities. Arrangements may also be made to use the telephones of the station if they are available. Calls from these will be charged for at prevailing GPO rates.

(2) Should the *Contractor* wish to use radio communication equipment on site, he will make his own arrangements with the relevant authorities. In this case, he is requested to liaise with the head of security at the station to ensure that there is no interference with existing channels or equipment.

4.7.3 Equipment/appliances

(1) Any electrical Equipment, or appliances, used by the *Contractor* conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The *Employer* has the right to stop the *Contractor*'s use of any electrical Equipment, or appliance, which, in the opinion of *Employer*, does not conform to the foregoing.

(2) Any special tools and equipment to be used on site for the execution of the works is the responsibility of the *Contractor*.

4.8 Cataloguing requirements by the Contractor

All newly installed equipment must be catalogued. The Contractor shall supply all technical information required for cataloguing an item.

5. Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 Employer's Site entry and security control, permits, and Site regulations

Kriel Power Station is a national key point with very strict entrance requirements that must always be complied with.

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

The *Contractor* shall comply to the restrictions as per site rules relating to roads, walkways and barricades. There are areas marked as red zones at which the *Contractor* should comply.

5.1 3 People restrictions on Site; hours of work, conduct and records

The *Contractor* shall comply to the working hours at Kriel power station which are from: 7:00 till 16:15 from Monday to Thursday and 7:00 to 12:00 on a Friday. The contractor to cater for weekends due to access restrictions in certain areas or due to outages that may fall over the weekend.
It is very important that the *Contractor* keeps records of his people on Site, including those of his Subcontractors which the *Employer* or *Supervisor* have access to at any time. These records may be needed when assessing compensation events.

5.1.4 Health and safety facilities on Site

On requiring medical attention, the Contractor must notify the Employer and be taken to the medical centre to be evaluated further and administered First Aid if necessary. Any emergency experienced by the Contractor must be reported to the Employer promptly.

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

Refer to paragraph 2.4 above.

5.1.6 Title to materials from demolition and excavation

The *Contractor* has no title to materials from excavation and demolition. All reusable equipment will remain the property of the *Employer*. All identified scrap material to be scrapped daily and disposed at the *Employer's* scrap yard.

5.1.7 Cooperating with and obtaining acceptance of Others

The *Contractor* shall interface with others during execution, proper planning and communication should be effected to ensure smooth running of the project. In cases where there is an outage, the activities shall be interfaced with others by arranging planning meetings.

5.1.8 Publicity and progress photographs

Kriel Power Station is a national key point and taking of photos is not allowed onsite. Should there be a need to take pictures/photos on site permission should be requested in writing from the head of security.

5.1.9 *Contractor*'s Equipment

Contractor's Equipment shall comply as prescribed on the SHE Specification. The *Contractor* shall provide all necessary equipment to execute the works i.e. lifting equipment, rigs and cranes.

5.1.10 Equipment provided by the *Employer*

The *Employer* will not provide any equipment, The *Contractor* shall ensure all equipment as per the scope of work is catered for. This will include scaffolding.

5.1.11 Site services and facilities

Employer will provide power, water, waste disposal, ablutions, fire protection, lighting etc. The *Contractor* shall provide everything else necessary for providing the Works. Upon approval of safety file a site will be allocated to the *Contractor* for establishment.

5.1.12 Facilities provided by the *Contractor*

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 Eskom Procedures and be maintained in safe and proper working condition.

The *Supervisor* has the right to stop the *Contractor's* use of any electrical equipment or appliance which, in the *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.

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 *Supervisor's* acceptance.

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

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 his Price.

Sanitary facilities

The *Contractor* provides services, maintains and removes on Completion any facilities required and allow for same in his Price.

Housekeeping

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

Plant and materials

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

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

Employer to arrange meeting with contractor and all stakeholders especially operating to ensure efficient planning of the work including permit arrangements for switchgear and battery rooms

5.1.14 Survey control and setting out works

Risk assessments must be conducted in each area before performing the installation.

5.1.15 Excavations and associated water control

Not applicable.

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

The Contractor shall ensure that they detect underground cabling if necessary prior installing new cabling.

5.1.17 Control of noise, dust, water and waste

The *Contractor* shall comply with OHS Act for health and safety of the plant and personnel

5.1.18 Sequences of Construction or Installation

Not necessary for the works.

5.1.19 Giving notice of work to be covered up

The *Contractor* shall report any day to day issues to the *Supervisor* when matters arise. The *Supervisor* shall be given an opportunity to resolve the issue before it is escalated to the *Employer*.

5.1.20 Hook ups to existing works

Not applicable.

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 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 *Employer* 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 of all areas as indicated in the scope of work	Within 14 days after Completion

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

Clause 35.2 in ECC3 provides that the *Employer* may use any part of the *works* before Completion has been certified but if he does so he takes over the part of the *works* except if the use is for a reason stated in the Works Information.

5.2.3 Materials facilities and samples for tests and inspections

All equipment to be installed with data sheets to be inspected to justify their relevance to the application it is required for.

5.2.4 Commissioning

Commissioning shall be conducted on completion of each section. Commissioning will be performed according to the Low Voltage Switchgear and Control Gear Assemblies and Associated Equipment for Voltage up to and including 1000V AC and 1500V DC Standard 240-56227516.

(1) The *Project Manager* will make final arrangements with the *Contractor* during progress meetings as per the schedule indicated on the program, with preliminary arrangements made in advance.
(2) Before equipment is placed in service the *Contractor* certifies that it is in a suitable and safe condition.
(3) Commissioning checks include verification of connections, configuration, integration, interfacing, and functionality.
(4) Prior to the time when commissioning checks are to commence, the Basic Engineer will co-ordinate the commissioning of all equipment forming an integral part of the plant being commissioned.
(5) In those cases where various components are connected to form an integrated system, the *Contractor*, at the time of commissioning, carries the responsibility for the correct functioning of the whole system. In the event of incorrect functioning, the *Contractor* determines the cause and corrects the fault. If the trouble is within equipment supplied to the *Contractor*, the *Project Manager* is to rectify defects within the *Employer's* equipment.

5.2.4.1 COLD COMMISSIONING

- As a minimum, the cold commissioning activities conducted by the *Contractor* consists of:
  i. Instrumentation loop checks.
  ii. Interface checks.
  iii. Testing of system functionality.
  iv. Integrity Checks.
- The Integrity checks are function checked by simulation at the field equipment device. The Contractor provides a printed log to confirm signals and integrity**.** All checks are verified on the local mimic, local engineering station and the main control display.

5.2.4.2 HOT COMMISSIONING

- The *Contractor* submits the Cold Commissioning test results to the *Project Manager*.
- The *Contractor* requests the commencement of hot commissioning upon acceptance of cold commissioning results.
- Hot commissioning is where the plant processes are placed into operation in conjunction with the FDS.
- The *Contractor* is responsible for the commissioning of the complete FDS for each of the plant areas.
- The commissioning activities are carried out in conjunction with the *Project Manager*.
- The *Employer* is responsible for the preparation of the plant for hot commissioning.
- Commissioning is at the discretion of the *Project Manager* for equipment which cannot be commissioned separately.
- In cases where various components (existing or new) are connected to form an integrated system, the *Contractor*, at the time of commissioning, carries the responsibility for the correct functioning of the whole of the system.

- If a defect is identified in the equipment interfacing to, or external to the *Contractor's* scope the *Contractor* informs the *Project Manager* or Representatives immediately.

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

Not applicable for the works.

5.2.6 Take over procedures

Not applicable as this is an expansion of an existing system.

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

The Employer shall provide access to the Contractor for corrections of defects

5.2.8 Performance tests after Completion

N/A

5.2.9 Training and technology transfer

See section 2.13.1

5.2.10 Operational maintenance after Completion

The contractor must be available after completion of the works to assist the Employer with any operational issues that are experienced.

6. Plant and Materials standards and workmanship

6.1 Investigation, survey and Site clearance

Not applicable.

6.2 Building works

Not applicable.

6.3 Civil engineering and structural works

Not applicable.

6.4 Electrical & mechanical engineering works

A Power supply of 220V is required in each battery room for the Sirens and strobe lights that is required in these areas.

- The 220V AC power supply will be provided for from the 380V Essential Board A, 220V spare circuits at every unit.
- The Contractor shall provide, install, terminate, test and connect the cabling from the essential boards to the small DB for the supply to the FDS.
- The small DB will also be designed (aligned with power requirements specified in the contractors detailed design), manufactured and tested, provided and installed by the contractor.
- The cabling from the small DB to supply all FDS equipment will be provided, installed, terminated, tested and connected by the contractors.
- As built drawings for new installation interfacing with the existing installation will be required.

The standard to be complied is

- SANS 10142
- Drawings standard 240-86973501
- LV Power and Control Cables 240-56063805
- Earthing and Lightning Protection Standard 240-56356396
- MV and LV Protection Standard 240-56357424

6.5 Process control and IT works

Not applicable.

6.6 Other [as required]

7 List of drawings

7.1 Drawings issued by the Employer

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

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

Drawing number	Revision	Title
0.45/52296		Unit 1 Battery Room
0.45/54913		Unit 2 Battery Room
0.45/54914		Unit 3 Battery Room
0.45/54911		Unit 4 Battery Room

0.45/54912		Unit 5 Battery Room
0.45/54915		Unit 6 Battery Room
0.45/60910		Admin LTG Switchgear room
28.45/60923		ASH Handling Compressor House Substation
0.45/24450		Ash Conveyor Substation
0.45/6616		Ash Water Return PMP House
0.45/60913		Ash Water Supply PMP House
0.45/3446		Substation 1&2/ Coal Plant NORTH Substation
0.45/24454	**2**	Substation 3&4/ Coal Plant SOUTH Substation
0.45/30681	**1**	Conveyor Board 1 Substation
0.45/24451	**0**	Conveyor Board 2 Substation
0.45/24450	**1**	Conveyor Board 3 Substation
0.45/60911		Conveyor Board 4 Substation
0.45/24448	**1**	Conveyor Board 5 Substation
0.45/24443	**0**	Conveyor Board 6 Substation
0.45/24453	**0**	Conveyor Board 7 Substation
0.45/24452	**0**	Conveyor Board 8 Substation
0.45/7491		Distribution Board Switchgear room
0.45/30682	**0**	CW PMP HOUSE NORTH
0.45/24445	**0**	CW PMP HOUSE SOUTH
0.45/60912		DEMIN & CP PLT BRD 1&2 Switchgear room
0.45/60914		MAIN SILO BRDs Switchgear room
0.45/30683	**1**	MAIN WORKSHOP Switchgear room
0.45/60915		MATLA POTABLE WTR PMPS Switchgear room
0.45/60916		PLATTER & WELDER SHOP
0.45/54864		Raw water & USUTU MATLA PMP HSE Switchgear room
0.45/15869		ROTEK WORKSHOP
0.45/60917		SEWAGE PLT Switchgear room
0.45/11871		HP DEMIN & Water PLNT BRDs Switchgear room

0.45/60918		TRFR OIL FILTRATION PLT
0.45/872	**0**	KWANALA BOARDS Switchgear room
0.45/60919		Turbine Oil PMP HSE
0.45/60194		Station Main Silo Control Room
0.45/51944	**0**	Station Cleaning Building (Outside Plant Control Room)
0.45/		Soweto Building and Park homes

8 Specifications

Title	Tick if publicly available
[2] ISO/IEC 24764 / EN50173-5: Generic cabling systems for data centres	**x**
[3] EN50173-1: Information technology. Generic cabling systems. General requirements	**x**
[4] EN50173-5: Information technology - Generic cabling systems - Part 5: Data centres	**x**
[5] EN50174-1: Information technology. Cabling installation.	**x**
[6] EN60793-2: Optical fibres sectional specification	**x**
[7] IEC 62381 Factory acceptance test (FAT), site acceptance test (SAT), and site integration test (SIT)	**x**
[8] IEC 62382 Loop checks	**x**
[9] IEC 61355 Engineering documentation classification and numbering	**x**
[10] IEC 61238-1 Cabling	**x**
[11] SANS 10142-1 Cabling Certificate of Compliance	**x**
[12] SANS 1574	**x**
[13] SANS 1411 (parts 1-7)	**x**
[14] SANS 60794-1-1	**x**
[15] ISO 898-1	**x**
[16] ISO 898-5	**x**

[17] IEC 62079	**x**
[18] Basic Configuration Management Requirements	**x**
[19] Human Machine Interface Design Standard	**x**
[20]Field Instrumentation Installation Standard: Junction Boxes and Cable Termination – 240-56355815	
[21] Field Instrument Installation Standard - 240-56355754	
[23] Earthing and Lightning Protection Standard - 240-56356396	
[25] Requirements for Control and Power Cables for Power Stations Standard - 240-56227443	
[27] SANS10139 - Fire Detection and Alarm Systems for Buildings System Design Installation and Servicing	**x**
Low Voltage Switchgear and Control Gear Assemblies and Associated Equipment for Voltage up to and including 1000V AC and 1500V DC Standard - 240-56227516	

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

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.

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1. General description

Kriel Power Station is a coal fired power station located in the Mpumalanga province between the towns Kriel and Ogies, with gps co-ordinates 26°15′15″S 29°10′46″E

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

As forms part of the contract are areas, such as the switchgear rooms, that require the use of relevant PPE (Arch Flash Overalls). A permit is required when working in these areas and only once approved may the work in that area commence.

Various areas on the contract require access to be granted before work is performed in that area.

3. Subsoil information

N/A

4. Hidden services

The Contractor shall evaluate prior tendering if the areas might have possible hidden services and ensure they are catered for.

5. Other reports and publicly available information

N/A

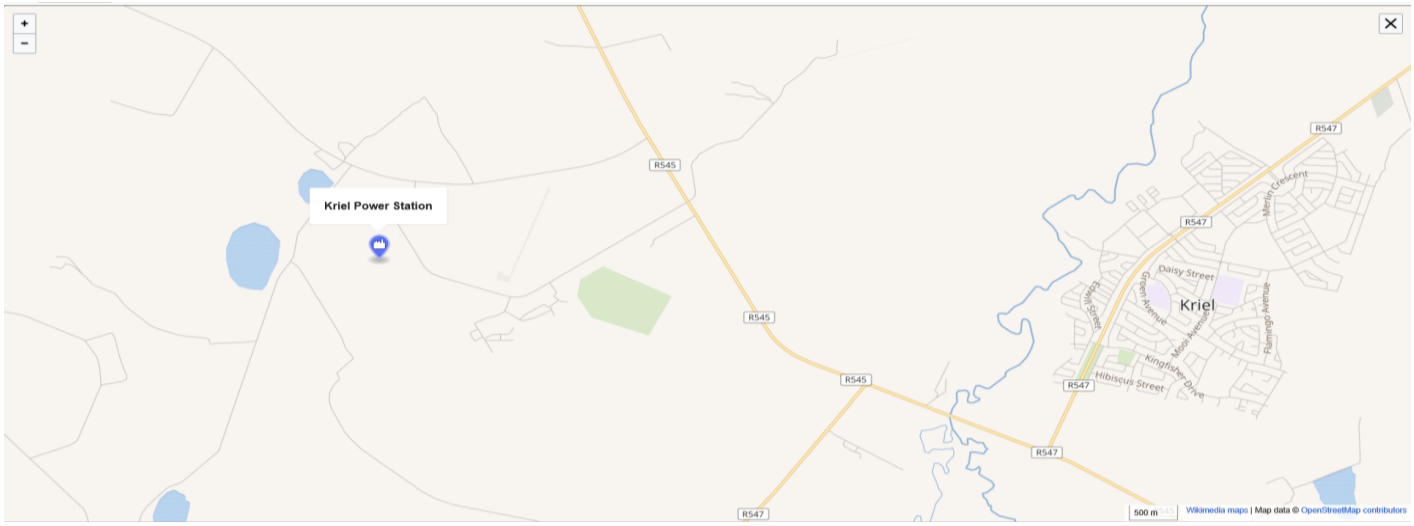

Figure 2: Site Surroundings