NEC3 Engineering & Construction Contract

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

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

for **Installation of Pollution Control Dams (PCD) Pumps an all dams at Medupi Power Station**

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CONTRACT No. **[46000]**

Part C1: Agreements & Contract Data

Contents:

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C1.1 Form of Offer & Acceptance

Offer

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

Installation of Pollution Control Dams (PCD) Pumps on all dams at Medupi Power Station

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

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

Options A	The offered total of the Prices exclusive of VAT is	**R**
	Sub total	**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.

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) Ms Thozama Gangi .....

Capacity General Manager Medupi Power Station .....

for the Employer Eskom Holdings SOC Limited
Medupi Power Station
Private Bag X9003
Lephalale
0555

Name & signature of witness Mr J Morudu
Manager: Procurement

Date .....

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

Note:

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

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

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

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

	For the tenderer:	**For the Employer**
Signature		
Name		Ms Thozama Gangi
Capacity		General Manager – Medupi Power Station
On behalf of	*(Insert name and address of organisation)*	Eskom Holdings SOC Limited Medupi Power Station Private Bag X9003 Lephalale 0555
Name & signature of witness		Mr J Morudu Manager: Procurement
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
		X15: Limitation of *Contractor's* liability for design to reasonable skill and care
		X16: Retention
		X17: Low performance damages
		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**
		(011) 800-6833
		(086) 665 5061
10.1	The *Project Manager* is:	**TBA**
	Address	**Medupi Power Station, Steenbokpan Road, Lephalale, 0555**
	Tel	
	Fax	**N/A**
	e-mail	

10.1	The *Supervisor* is: (Name)	**TBA**
	Address	**Medupi Power Station, Steenbokpan Road, Lephalale, 0555**
11.2(13)	The *works* are	**Installation of Pollution Control Dams (PCD) Pumps an all dams at Medupi Power Station**
11.2(14)	The following matters will be included in the Risk Register	▪ **All risks will be identified prior, addressed and registered during the Risk register meeting that will take place as agreed between the parties** ▪ **Inclement Weather (rain, wind, hailstorm, heatwave)** ▪ **Snakes** ▪ **Access constraints and interfacing with others**
11.2(15)	The *boundaries of the site* are	**As defined in section 5.1.11 of Part C3 – Works Information**
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	**Five (5) working days for all communications and ten (10) working days for Design Reviews**

2 The *Contractor's* main responsibilities

Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.

3 Time

11.2(3)	The *completion date* for the whole of the *works* is	**[•].**

11.2(9)	The *key date*s and the *condition*s to be met are:	***Condition* to be met**		***key date***
		1	**Final SHE File submission and approval**	
			Detailed designs submission of pump sets for review and acceptance by Project Manager.	
			Method statements submission for review and acceptance by the Project Manager	

		2	**Final QCP submission and approval**	
		3	**Site Establishment (Completed)**	
		4	**Safety Induction and Permits Complete**	
		5	**Construction completion**	
		6	**Testing & Commissioning**	
		7	**Post-Construction Documentation Submission**	
30.1	The *access dates* are:	**Part of the Site**		**Date**
		1	**Site Establishment**	
		2	**Construction Site**	
31.1	The *Contractor* is to submit a first programme for acceptance within	**Two (2) weeks of the Contract Date.**		
31.2	The *starting date* is	**[●]**		
32.2	The *Contractor* submits revised programmes at intervals no longer than	**Five (5) working days**		
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.	[No data needed if this statement is included]		

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	**Three (3) weeks** **1. Priority 1, Emergency Defects – 24 hours**

5 Payment

50.1	The *assessment interval* is	**The 20th day of each successive month.**
51.1	The *currency of this contract* is the	**South African Rand (ZAR).**
51.2 51.4	The period within which payments are made is	**30 calendar days after reception of a valid tax invoice for contracts valued below R50 000 0000.00 (Fifty Million Rands) excluding VAT. 60 calendar days after reception of a valid tax invoice for contracts valued R50 000 0000.00 (Fifty Million Rands) excluding VAT and above**

	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.**
6	**Compensation events**	**Refer to NEC3 Engineering Construction Contract (ECC3)**
60.1(13)	The place where weather is to be recorded is:	**at the Medupi Site**
	The *weather measurements* to be recorded for each calendar month are,	**the cumulative rainfall (mm)**
		the number of days with rainfall more than 10 mm
		the number of days with minimum air temperature less than 0 degrees Celsius
		the number of days with snow lying at 09:00 hours South African Time
		and these measurements:
	The *weather measurements* are supplied by	**South African Weather Services**
	The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:	**Lephalale**
	and which are available from:	**The South African Weather Services**
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).**
	Address	**1st Floor Maisels Chambers 4 Protea Place Sandton Map**
	Tel No.	**+27 11 320 0600**
	Fax No.	**+27 (11) 320-0533**
	e-mail	**info@arbitration.co.za**
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	**Johannesburg, South Africa**
	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**

12 Data for secondary Option clauses

X1	**Price adjustment for inflation**			
X1.1(a)	The *base date* for indices is	**[●].**		
	The proportions used to calculate the Price Adjustment Factor are:	**proportion**	**linked to index for**	**Index prepared by**
		0.15	**Fixed**	
		0.10	**Transport**	**SEIFSA TABLE L2B**
		0.60	**Labour**	**SEIFSA TABLE C3(a)**
		0.15	**Material**	**SEIFSA TABLE G-1 MECHANICAL ENGINEERING**
			non-adjustable	
	Total	**1.00**		
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	**R 5000.00 per day from the Completion Date for each day until the earlier of Completion**		
X15	**Limitation of the *Contractor*'s liability for his design to reasonable skill & care**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**		
X16	**Retention (not used with Option F)**			
X16.1	The *retention free amount* is	**Nil**		
	The *retention percentage* is	**5% of the Total of the Prices**		

X17	**Low performance damages**		
X17.1	The amounts for low performance damages are:	**Amount**	**Performance level**
	Pump performance	**R1000.00 p/d**	**Design pressure: Failure to achieve design pressure of 2.5 – 3 bar under specified head conditions**
		R 2500.00 p/d	**Vibration levels: Continuous operational vibration exceeding 2.8mm/s (ISO 10816-3 standard)**
	Project documentation	**R 500.00 p/d**	**Data books: Failure to hand over complete, peer-reviewed data books within 14 days of final on-site activity**
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, unless it is covered by the employer's insurance**	
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** • **Defects due to his design which arise before the Defects Certificate is issued,** • **Defects due to manufacture and fabrication outside the Site,** • **loss of or damage to property (other than the *works*, Plant and Materials),** • **death of or injury to a person and**	

		• **infringement of an intellectual property right.**
X18.5	The *end of liability date* is	**(i) 3 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 insurance 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 insurance 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 applicabl 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 47 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z14.3 Subject to clause Z14.4 below, the *Employer* waives all rights of recourse, arising from the aforesaid, save to the extent that any claims arise or liability is incurred due or attributable to the unlawful intent of the *Contractor* or any other person, or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

Z14.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 47 of 1999, or any replacement section dealing with the same subject matter.

Z14.5 The protection afforded by the provisions hereof shall be in effect until the KNPS is decommissioned.

Z15 Asbestos

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

AAIA means approved asbestos inspection authority.

ACM means asbestos containing materials.

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

Ambient Air means bbreathable 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 ccompliance 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 ooccupational exposure limit.

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

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

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

SANAS means the South African National Accreditation System.

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

Z15.1 The *Employer* ensures that the Ambient Air in the area where the *Contractor* will Provide the Services conforms to the acceptable prescribed South African standard for asbestos, as per the regulations published in GNR 155 of 10 February 2002, under the Occupational Health and Safety Act, 1993 (Act 85 of 1993) ("Asbestos Regulations"). The OEL for asbestos is 0.2 regulated asbestos fibres per millilitre of air as a 4-hour TWA, averaged over any continuous period of four hours, and the short-term exposure limit of 0.6 regulated asbestos fibres per millilitre of air as a 10-minute TWA, averaged over any 10 minutes, measured in accordance with HSG248 and monitored according to HSG173 and OESSM.

Z15.2 Upon written request by the *Contractor*, the *Employer* certifies that these conditions prevail. All measurements and reporting are affected by an independent, competent, and certified occupational hygiene inspection body, i.e., a SANAS accredited and Department of Employment and Labour approved AAIA. The *Contractor* may perform Parallel Measurements and related control measures at the *Contractor*'s expense. For the purposes of compliance the results generated from Parallel Measurements are evaluated only against South African statutory limits as detailed in clause Z15.1. Control measures conform to the requirements stipulated in the AAIA-approved asbestos work plan.

Z15.3 The *Employer* manages asbestos and ACM according to the Standard.

Z15.4 In the event that any asbestos is identified while Providing the Services, a risk assessment is conducted and if so required, with reference to possible exposure to an airborne concentration of above the AL for asbestos, immediate control measures are implemented and relevant air monitoring conducted in order to declare the area safe.

Z15.5 The *Contractor*'s personnel are entitled to stop working and leave the contaminated area forthwith until such time that the area of concern is declared safe by either Compliance Monitoring or an AAIA approved control measure intervention, for example, per the emergency asbestos work plan, if applicable.

Z15.6 The *Contractor* continues to Provide the Services, without additional control measures presented, on presentation of Safe Levels. The contractually agreed dates to Provide the Services, including the Completion Date, are adjusted accordingly. The contractually agreed dates are extended by the notification periods required by regulations 3 and 21 of the Asbestos Regulations, 2001.

Z15.7 Any removal and disposal of asbestos, asbestos containing materials and waste, is done by a registered asbestos contractor, instructed by the *Employer* at the *Employer*'s expense, and conducted in line with South African legislation.

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

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

	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	[(m if
January	**[●]**	**[●]**	**[●]**	**[●]**	
February	**[●]**	**[●]**	**[●]**	**[●]**	
March	**[●]**	**[●]**	**[●]**	**[●]**	
April	**[●]**	**[●]**	**[●]**	**[●]**	
May	**[●]**	**[●]**	**[●]**	**[●]**	
June	**[●]**	**[●]**	**[●]**	**[●]**	
July	**[●]**	**[●]**	**[●]**	**[●]**	
August	**[●]**	**[●]**	**[●]**	**[●]**	
September	**[●]**	**[●]**	**[●]**	**[●]**	
October	**[●]**	**[●]**	**[●]**	**[●]**	
November	**[●]**	**[●]**	**[●]**	**[●]**	
December	**[●]**	**[●]**	**[●]**	**[●]**	

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

1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

1. Please read both the NEC3 Engineering and Construction Contract (April 2013) and the relevant parts of its Guidance Notes (ECC3-GN)[2] in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
2. The number of the clause which requires the data is shown in the left-hand column for each statement however other clauses may also use the same data
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise, complete by hand and in ink.

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

Clause	Statement	Data
10.1	The *Contractor* is (Name): Address Tel No. Fax No.	
11.2(8)	The *direct fee percentage* is The *subcontracted fee percentage* is	**%** **%**
11.2(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: Qualifications: Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .**

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

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)	The *activity schedule* is in	
11.2(30)	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:	

PART 2: PRICING DATA

ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	2
C2.2	The *activity schedule*	10

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.

An activity schedule could have the following format:

C2.2 The *Activity Schedule*

ITEM	DESCRIPTION	UNIT	TOTALS
	CIVIL WORKS		
1	The Contractor shall be responsible for the design and construction of the Civil and Structural Works required for all the works detailed under Section 3.1. The Civil & Structural scope of works includes but not limited to: • **Reinforced Concrete works**: Plinth works for pipeline supports, pump bases, platforms • **Steel structure works**: Truck filling point standpipes, access platforms (grating, cat ladders etc) structure for cable racking systems Electrical and C&I • **Brickworks:** Small building works to house mechanical & electrical components • **Earthworks:** Excavations, trenching and area rehabilitation • To include any other **supporting civil infrastructure** for the Mechanical, C&I and Electrical scope of works. **Reference: Scope of Work 241-2022602, Section 3.1: Civil Requirements**	Item	
	ELECTRICAL WORK		
2	The scope of work includes the provision for the design, manufacture, factory testing, supply, delivery, off-loading, move to position, erection, installation, site testing, commissioning, and handover of all electrical systems inclusive of all necessary accessories for the installation of pumps in pollution control dams (PCD) in various locations as depicted in the scope of work (240-2022602). All electrical equipment will be type tested in accordance with the relevant standards. The scope of work includes terminating the Main and Back-up AC Supply cables to the LV Switchgear supplied by the Contractor. The following are the general design requirements applicable for electrical work but not limited to: a) Step-down power transformer/mini-sub: • Selection and sizing the of the step-down power transformer/mini-sub required • Provision of design Drawings: general arrangement, Single Lines, Schematics, etc • Testing of the transformer, type tests, FAT and SAT • Supply and installation of the power transformer/mini-sub • Provide datasheets	Item	

b) Low Voltage Power Distribution - Motor Control Centre (MCC):

- Design and selection of the MCC in accordance with the requirements of 240-56227516
- Provision of design Drawings: general arrangement, Single Lines, Schematics, etc
- Testing of MCC Panel: Type tests, FAT and SAT
- Complete provided LV switchgear/MCC technical schedule A&B

c) Cabling and Racking:

- Selection and sizing of MV and LV power cables and racking
- Completed Cable Technical Schedule A&B per Cable type / size cable routing in trenches, open air, racking and conduits
- Cable Sizing, Routing and Racking Schedules
- Termination Schedules
- Supply and installation of all cables
- Testing of cables

d) Lightning and Earthing Protection:

- Design and sizing the earthing and lightning protection system for electrical, mechanical & civil structures
- Earth mat design
- Schedules of earthing Cables and design layout
- Drawings for earthing layout
- Supply of all equipment required for earthing and lightning protection
- Installation and SAT

e) Small Power and Lighting:

- Design and selection of safe and maintainable lighting for the pump house (inside MCC room and outside)
- Design and selection of emergency lighting
- Lighting design layout drawings
- Datasheets and Luminaire reports

	• Design and selection of DBs for auxiliary loads – HVAC, C&I and lighting DBs • Provision of DB As-built Drawings: general arrangement, Single Lines, Schematics, etc • Supply, installation and SAT f) Low Voltage Variable Speed Drives: • Sizing and Design Selection of Variable Speed drives for pump application • Completed LV Variable Speed drives Technical Schedule A&B per VSD type/size • Provision of As-built Drawings: general arrangement, Single Lines, Schematics, etc • Datasheets • VSD configuration and Interfacing with C&I system • Supply and installation of the VSD • Testing (type tests from OEM, SAT) g) Low Voltage Motors: • Sizing and Design Selection of all Motors for required pumps and HVAC • Completed Motor Technical Schedules A&B per motor type/size • Motor start-up studies with consideration of selected VSD and motor types • Provision of As-built motor outline drawings indicating motor weight, mounting dimension, shaft height, shaft diameter, coupling detail, maximum overall dimensions, terminal box position, mounting type, etc • Testing (type tests from OEM, SAT)		

	h) Maintenance & Operation: • Training for Site Personnel on maintenance and operation of electrical installed base (MCC and VSD type) • Provision of installation, maintenance and operation manuals of all installed Electrical equipment • Special tools to aid maintenance of the installed electrical equipment i) Commissioning: • Issue Certificates of Compliance (COCs) for installed electrical equipment • Commissioning of the integrated electrical system • Inspection Test Procedure (ITP)/Quality Control Plans (QCP) j) Handover: • Provision of Databooks (Electronic & Hardcopy) with As-built documentation and records • Spares lists • Equipment product life cycle letters • Handover Spares of VSDs, Motors and other special components(1 spare per equipment type) **Reference Scope of Work 241-2022602, Section 3.1: Electrical Requirements**		
CONTROL & INSTRUMENTATION WORK			
3	The following general design requirements are applicable to all aspects of the C&I design, supply, installation of instrumentation & control infrastructure for the motors, pumps and accessories: • All field equipment installations are required to comply with field instrument installation	Item	

	Standards, 240-563355754 • Flow meters and level transmitters • Transmitter Racks • Power Supply • Programmable Logic Controller (PLC) • Human Machine Interface Graphic Requirements • Alarms Systems **Reference Scope of Work 241-2022602, Section 3.1: Control and Instrumentation Requirements**		
	MECHANICAL WORK		
4	The scope of works includes the detailed design and installation of pump sets and installation of associated infrastructure. Pump sets (motors & pumps) are required to be mounted adjacent to the dams. The design of the motor and pump, shafts, couplings, bearings, lubrication are included in the design works. The design of the mounting frames for the pump and motor shall be included in the works. The maintainability of the pumps and drives shall be taken into consideration in the equipment's design. The scope of works includes but is not limited to the following: • Dewatering pumps to be maintained outside of the water • Pumps are to be installed with a local operating system • Installation of valves including automatic vent and vacuum relief valves • Installation of pipework that will be suitable and compatible with environment conditions (UV exposure) • Connection of supply flowmeters on inlet of each dam • Supply relevant maintenance manuals • Provide a list of spares • Provide all the relevant installation instructions and operating manuals for all equipment • All the mechanical installations shall be done in accordance to 240-108079430 Power Plant Water Systems Design guidelines, 240-123801640 Standard for Low Pressure Pipelines, 240-105020315, Standard for Low Pressure Valves and 240-106628253, Standard for Welding Requirements on Eskom Plant • The Contractor is responsible to oversee the following works: • Excavations	Item	

	• The rehabilitation of roads and areas they worked on • Covering of openings and holes • Drilling • The Contractor is responsible for the supply of all hand and power tools **Reference Scope of Work 241-2022602, Section 3.1: Mechanical Requirements**		
	COMMISSIONING		
5	The *Contractor* shall be responsible for commissioning, acceptance or and performance testing of all the works. The Contractor shall provide Certificates of Compliance and test prior to energising, commissioning, and handing over the various systems. **Reference Scope of Work 241-2022602, Section 3.1: Installation and Commissioning**	Item	
	CONFIGURATION MANAGEMENT		
6	The Contractor shall prepare a configuration management (CM) plan utilizing ISO 10007 as a reference guide for the scope of work. **Reference Scope of Work 241-2022602, Section 3.3: Configuration Management**	Item	
	DOCUMENTATION MANAGEMENT		
7	All documents supplied by the *Contractor* shall be subject to Eskom's approval. Documents such as QCP's, method statements and other documents impacting the work shall be approved by the *Employer* at least 3 working days prior to commencement of the Works. **Reference Scope of Work 241-2022602, Section 3.6: Configuration Management**	Item	

DESIGN WORK			
8	**MECHANICAL DESIGN REPORT** The *Contractor* designs and issue design report, signed by the designer, an ECSA registered P**rofessional Mechanical Engineer / Technologist**, for review and acceptance by the *Project Manager*. The design report shall include the design philosophy, assumptions, and calculations and shall refer to design codes, standards and guidelines .	Item	
9	**MECHANICAL DESIGN** The design pump set preference will be for non-submissible, dewatering pumps that can be maintained outside of the water. Thus, sufficient suction head must be considered in the design work. Where the current installation pump is submersed, the new design should honour the non-submissible preference. The maintainability of the pumps shall be taken into consideration in the equipment's design. The design selection for the pumps shall conform to the following parameters: • Pump type: Centrifugal pump sets • Axis position: Horizontal • Rotation (viewed from coupling end): Bi-directional • Fluid: Dirty effluent water • Fluid Temperature: 25 - 60 ºC • Maximum allowable working pressure: 2.5 - 3 bar gage pressure at location • Maximum sound level: 80 dB(A) **Reference: Scope of Work 241-2022602, Section 3.2 Mechanical Design**	Item	
10	**CIVILS DESIGN REPORT** The *Contractor shall* design and issue a design report, issue for construction drawings and as built drawings signed by the designer, an **ECSA registered Professional Civil Engineer / Technologist.** The design report shall include the design philosophy, assumptions, and calculations and shall refer to design codes, standards and guidelines.	Item	

11	**CIVILS DESIGN** The *Contractor* shall take full professional accountability and liability for all the civil and structural Works in the scope and shall provide the following for review and acceptance. • Geotechnical investigation, • Survey and scanning of existing servitudes • design criteria/parameters and assumptions. • Design loading calculations & models • Detailed drawing for construction and as built drawings • Construction monitoring The SOW, 241-2022602 indicates all the relevant and applicable SANS regulatory and legislative requirements including but not limited to SANS 2001; SANS 10100 and SANS 10400. **Reference: Scope of Work 241-2022602, Section 3.2: Civil Design**	Item	
12	**CONTROL & INSTRUMENTATION DESIGN REPORT** The *Contractor* designs and issue design report, signed by the designer, an ECSA registered P**rofessional Engineer / Technologist**, under the category of **Electronic / Control and Instrumentation,** for review and acceptance by the *Project Manager*. The design report shall include the design philosophy, assumptions, and calculations and shall refer to design codes, standards and guidelines	Item	
13	**CONTROL & INSTRUMENTATION DESIGN** The Control and instrumentation system design includes the following key components: • Field instrumentation and interface • Local indication • New Telemetry system	Item	

	• New Programmable Logic Controller and Interface • PLC Logic • Radar level Transmitter (with mounting stand and weather hood) • Totalizing Clamp-On Flow meter. (with mounting stand and weather hood) • Slave Telemetry with 4-AI's / 8-DI's/ 4-DO's. (housed in IP66 S/Steel Panel) • Telemetry interfacing Measurements & doing Pumps Start/Stops • 24VDC Battery & Charger powered by Pump Electrical Power Source • 1 x Master Telemetry Station interfacing into BOP DCS for all remote PCD's. • S/Steel Telemetry Antena Mast's (provision/plinths/erection/earthing) **Reference: Scope of Work 241-2022602, Section 3.2: Control & Instrumentation Design**		
14	**ELECTRICAL DESIGN REPORT** The *Contractor* designs and issue design report, signed by the designer, an ECSA registered P**rofessional Electrical Engineer / Technologist**, for review and acceptance by the *Project Manager*. The design report shall include the design philosophy, assumptions, and calculations and shall refer to design codes, standards and guidelines	Item	
15	**ELECTRICAL DESIGN** The Contractor shall comply to the following electrical standards for execution of the electrical works, or any international standard stipulated: • The electrical designs, manufacturing, construction and installations as per SANS 10142-1 • Earthing and Lightning Protection Standard (240-56356396) • Storage, transportation and procurement of motors 240-56360387, 240-56361435 and 240-	Item	

	57617975 • The cable selection and routing are done in accordance with the cabling and racking standard, 200-11768 • The LV bucket will be procured and installed according to the LV Control Gear Assembly Associated Equipment for Voltage 1000V AC and 1500V Standard, 240-56227516 • The lighting and small power to be installed as per 240-55714363 Eskom Generation Power Station Lighting and Small Power Installation Standard • The medium voltage reticulation general information and requirements for overhead lines up to 33kv standard **Reference: Scope of Work 241-2022602, Section 3.2: Electrical Design**		
PRELIMINARIES AND GENERAL			
16	Site Establishment	Item	
17	Safety Health Environmental and Quality (SHERQ) Requirements	Item	
18	Accommodation and Transport	Item	
19	Project Management, Contract Management and Supervision Fees	Item	
20	Site De-Establishment	Item	

PART 3: SCOPE OF WORK

Document reference	Title	No of pages
	This cover page	1
C3.1	*Employer*'s Works Information	26
C3.2	*Contractor*'s Works Information	1
	Total number of pages	28

C3.1: EMPLOYER'S WORKS INFORMATION

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1 Description of the *works*

1.1 Executive overview

Medupi Power Station is currently in urgent need to reduce water levels in the pollution control dams. The station dams are currently operating at high levels (above 80%, the maximum allowable limit is 30%) which leads to the contravention of the site's water use license due to spillages.

1.2 *Employer*'s objectives and purpose of the *works*

The purpose of this document is to define the scope of work for the acquisition of engineering works, material and labour for the installation of new pipelines, truck filling points as well as modifying existing ones such that water will be distributed between the Medupi Power Station dams. This project will preferably be a turnkey / EPC project and will assist with water management challenges to Medupi.

1.3 Interpretation and terminology

List of Definitions

Table 2: List of definitions

Definition	Description
Clean & Dirty Drains recovery system	Refers to the Clean and Dirty drains recovery system on the power station that is designed and constructed to perform the necessary recovery of Dirty water from the CDD dams to the dirty water tanks which in turn provide suction to various dirty water systems.
Contractor	Service provider contracted for supplying specific service to Eskom, Medupi Power Station.
Employer	Eskom, or Eskom Medupi Power Station.
Field Devices	Control and instrumentation equipment installed on the plant, for example transmitters, pressure switches, limit and proximity switches.
Medupi	Medupi Power Station.
System	Assembly of components in which water is delivered and used.
Water Use License	Medupi Power Station has a water use license which is necessary to use a certain amount of water. This amount may not be exceeded, and if exceeded, large penalties will be possibly liable to the Power Station.
Zero Liquid Effluent Discharge Policy	The aim to not allow any water which may have been contaminated by operations at Medupi Power Station to leave the land belonging to the power station.

List of Abbreviations

Table 3: List of abbreviations

Abbreviation	Meaning given to the abbreviation
CDD	Clean & Dirty Drains
CSY	Coal Stockyard
ECSA	Engineering Council of South Africa
EMS	Environmental Management System
FMECA	Failure Mode, Effects, and Criticality Analysis
GA	General Arrangement
HAZLOC	Hazardous Location
HAZOP	Hazard and Operability Study
HDPE	High Density Polyethylene
HMI	Human-Machine Interface
ITP	Inspection and Testing Plan

KPA	Key Performance Areas
MDL	Master Document List
OEM	Original Equipment Manufacturer
P&ID	Piping & Instrumentation Diagram
PCD	Pollution Control Dam
PSR	Plant Safety Regulations
QCP	Quality Control Plan
RAM	Reliability, Availability, and Maintainability
SOW	Scope of Work
VDSS	Vendor Document Submission Schedule

2 Management and start up.

2.1 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Monthly on the Thursday of the month at 10h00	Medupi Power Station	All *contractor's* representatives and *Employer's* representatives
Overall contract progress and feedback	Weekly on Wednesday at 10h00	Medupi Power Station	All *contractor's* representatives and *Employer's* representatives

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

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

2.2 Documentation control

2.2.1 Documentation to be Provided by the *Employer*

The *Contractor* will be provided with one signed copy of the Contract, which includes contract agreement with the documents which would make up the Contract as identified in the form of agreement. For consistency it is important that all documents used within the project follow the same layout, style and formatting standard therefore the Contractor shall ensure that the Document and Record Management Procedure is used for any documentation requirements.

2.2.2 Documentation to be Provided by the *Contractor*

All documents issued shall be numbered, dated and registered on the project document management system, maintained by the *Contractor* and conforming to the *Contractor's* Quality Management Plan. The documents shall be available at the recorded locations as noted in the document management system.

The Contractor shall include the Employer's drawing number in the drawing title block. This requirement only applies to design drawings developed by the Contractor and his Subcontractors. It shall not apply to drawings developed by manufacturers for equipment and material such as valves, instruments, etc. Drawing numbers shall be assigned by the Employer as drawings are developed.
The project name shall be listed on all drawings, including manufacturers' drawings. A separate sheet may be attached to the submittal if needed to adequately list all tag numbers associated with the drawings such as valves or instruments which may have numerous tag numbers associated with it. The language of all documentation shall be in the English language. The units of measure shall be metric. The Contractor retains project designs and information and provides these to the Employer at any time notwithstanding the expiry or termination of the contract.

2.2.3 Document Submission

Within three (3) weeks of the starting date, the *Contractor* complies with the Vendor Document Submittal Schedule regarding documentation submission.

All project documents must (electronic and hard copies) be submitted to the *Project Manager* using a Transmittal Note and shall comply with the Project / Plant Specific Technical Documents and Records Management Work Instruction (240-76992014).

2.2.4 Email Subject

When using the e-mail to submit, the *Contractor* shall include on the email subject as a minimum, the (Station Project Name_Discipline_Subject). Large electronic files shall be delivered as an ORIGINAL plus a USB Memory Stick or Flash Drive to the *Project Manager* or where possible a Large File Transfer Facility can be used for documents submission.

2.2.5 Electronic Data Control

The *Contractor* shall carry out a daily backup of all electronic information contained on his computer system. Electronic backup information shall be kept in an appropriate format, suitably labelled, segregated and stored in an environment that will not adversely affect its condition.

2.2.6 Incoming and Outgoing Correspondence

The *Contractor* shall number and date all incoming and outgoing correspondence as per agreed communication matrix.

2.2.7 Daily Records

The *Contractor* must keep daily records of daily diaries for work performed and submit them to the *Supervisor* daily.

2.2.8 Drawings Format and Layout

The creation, issuing and control of all Engineering Drawings shall comply with the Engineering drawing Standard, 240-86973501. As a minimum, the *Contractor* shall submit to the *Project Manager* one hardcopy and an electronic copy and drawings may not be “Right Protected” or encrypted.

2.3 Health and safety risk management

The *Contractor* shall comply with the Eskom’s Minimum Requirements for Health and Safety. SHE Specification 240-146140396 and applicable procedures, policies, guidelines and standards provided in this Works Information. The *Contractor* shall comply with the Occupational Health and Safety Act (OHS Act No 85 of 1995) and Regulations and the *Contractor* shall comply with any additional current statutory requirements of any relevant Government Departments regarding health.

Only the latest version/ revision of the applicable legislation, acts and regulations shall be deemed to be accepted at Medupi Power Station. Not limited to the following below legislation, acts and regulations are complied with:

- Compensation for Occupational Injuries and Diseases Act 130 of 1993
- National Water Act 36 of 1998
- Occupational Health and Safety Act and Regulations (85 of 1993)
- National Environmental Management Act 107 of 1998
- Applicable South African National Standards (SANS)
- National Road Traffic Act 93 of 1996
- Basic Conditions of Employment Act 75 of 1997
- National Veld and Forest Fire Act and Regulations 101 of 1998
- Environmental Conservation Act and Regulations 73 of 1989
- SACPCMP Act no. 48 of 2000
- Radiation Protection Act
- COVID-19 Occupational Health and Safety Measures In Workplaces COVID-19 (C19 OHS), 2020
- 32-37 Eskom Substance Abuse Procedure.
- 240-62196227 Life- Saving Rules.
- 32-727 SHEQ Policy
- 240-62946386 Vehicle and Driver Safety Management Procedure
- 32-520 Risk Assessment procedure

The *Contractor* shall establish and enforce rules to ensure the health and safety of his own employees and those of its Subcontractors so that high standards of personnel health and safety are achieved and maintained. The *Contractor* shall exercise and enforce all necessary care and measures to preclude exposure of personnel, labour and nearby residents (if any) to potential health hazards and environmental pollutants.

The *Contractor* shall ensure that all persons which are employed and or deployed to work on site undergo police clearance and are certified to have no criminal records. This shall be done prior to them being allowed or given access to start work on site.

The *Contractor* is required to compile a SHE file as per the scope of work to comply with the *Employer*’s specification, which includes but not limited to the following;

- Safety, Health and Environmental Plan (SHE Plan)
- SHE organization within the Company-Responsibility & Accountability
- OHS Incident management Procedure (32-95)
- Planning of conduct of work activities including planning for changes and emergency work (Operational Plan)

- Management of PPE- Personal Protective Equipment (Procedure with the matrix)
- Emergency planning and fire risk management
- Vehicle and driver behaviour safety (Competency, Traffic Management, etc.)
- Sub-*Contractor* or supplier selection and management
- Design and specifications (Drawings)
- Key personnel competency, training, appointments
- Communication and awareness Plan
- Management commitment and visible felt leadership (32-407)
- *Employer's* Baseline SHE Risk Assessment (BRA)
- *Contractor's* Baseline Risk Assessment in line with the *Employer's BRA (*Identification, assessment and management of Safety, Health and Environmental risks related to the scope of work. The methodology used for the risk assessment must be provided together with the BRA.)
- Valid Letter of Good Standing (COIDA or equivalent)
- SHE policy signed by CEO/ MD**-** Comply to OHS Act Section 7 or OHSAS 18001
- Occupational hygiene and health risk assessment
- Medical surveillance

2.3.1 OHS requirements

The Contractor/Supplier shall at all times comply with the Eskom's Occupational Health and Safety (OHS), legal and other requirements as amended for the duration of the contract. In addition, the Contractor shall comply with the requirements contained in the OHS Specification/requirements. Eskom reserves the right to terminate the contract, if the Contractor/Supplier has built up a history of poor performance or non-conformance in relation to matters of occupational health and safety and legal compliance. No work may begin until the Health and Safety file has been approved by the individual Business Unit's OHS personnel. For the length of the contract, the contractor shall adhere to the respective Business Unit's OHS, legal, and other requirements, as amended

2.3.2 OHS requirements

Contractors are required to conduct the following as part of the continuous improvement initiatives:

- Visible Felt Leadership by top management
- Identify critical tasks and monitor those tasks through Planned Job Observations
- Behavioral based safety, if the contractor does not have its own procedure, Eskom procedure can be used as a guide
- Contractor 16.1 shall present the lost time injury (LTI) incidents at Business Unit / Power station General Managers meeting within 7 days of the incident.

2.3.3 Contractor/supplier Management Key Performance Indicators (KPI's)

- Maintain Health and Safety file and compliance to the health and safety plan
- Contractor to conduct monthly housekeeping as per Medupi OHS Specification (240-146140396)
- Implement and monitor near miss programme
- Comply to BSO, Visible Felt Leadership and Planned Job Observation programmes
- Zero Fatalities
- At any given point, the OHS performance must be within the lost time injury (LTI) tolerance level as amended
- All incident investigations shall be completed within 30 days of the occurrence of an incident
- Close audit findings as per the recommended time frames

- Contractors to ensure all employees are sober when reporting for work, in case there is a positive case, an NCR will be issued by Service Manager
- Close non-conformance as per the recommended time frames

2.3.4 Contract completion and sign off

On completion of the project, Eskom team (led by the Contract custodian / Project Manager) involved in the project together with the Contractor shall conduct the final audit/inspections to identify the gaps prior to the contractor leaving site or completing the project. Before the final invoice is paid/processed, the Contract custodian/Project Manager shall ensure that the below requirements are met:

- Close all incidents and audit findings
- Clean the respective yard and ensure good housekeeping where the contractor was working
- Contractor shall submit safety statistics and a safety file to Eskom BU Safety department for closeout and filling
- Completion of a closeout report (Annexure D form as per 32-726) to close the contractual work
- Once the above issues have been addressed, the Contract custodian/Project Manager shall verify and sign off prior to releasing the final payment

2.3.5 OHS 37(2) Agreement

The function of the 37(2) Agreement is primarily to indemnify Eskom from any acts or omissions by its contractors/suppliers and its employees in contravention of the OHS Act. This means that contractors/suppliers are deemed to be employers, their employees are not deemed to be employees of Eskom and acknowledge that is solely responsible for its employees, its appointed contractors, agents and the like, while performing work for or on behalf of Eskom. Every site where the contractor is performing work, a 37(2) agreement shall be signed by the site contract custodian and the contractor/supplier representative 16(1)/2 appointee.

2.3.6 OHS 37(2) Penalties

No	Item	Employers Requirements/ Descriptions	Damages payable by contractor	Limit
	OHS NCR Issued	Failure to rectify non-compliance within 7 calendar days or agreed-upon	1% of the Task Order value per day after 7 days of rectification Limited to 10% of the Task Order value from 14 days of non-Responsive	1% 10%

	Monthly Housekeeping Audits	Audit findings on poor Housekeeping	2% of the Task Order value per day Limited to 10% of the Task Order value.	2% 10%
	Gx Housekeeping Challenge	For every repeat housekeeping violations	2% of the Task Order value per violation	2%

2.3.7 Compensation of injuries and diseases (COID)

Eskom is required by law to ensure that their contractors/suppliers have registered with the compensation fund and are in good standing. The Main contractor and all his/her appointed contractors shall be registered with an appropriate compensation fund and have available a valid letter of good standing (LoG) from such commissioner. The obligation lies with the contractors to ensure that the LoG remain valid throughout the contract period. A copy of the LoG must be filed in the contractor OHS files.

***Note**: Contractors without the valid letter of good standing shall not be permitted to work on Eskom Generation site or project. Contractors must obtain the letter of good standing prior to expiry of the existing one.*

2.4 Environmental constraints and management

The mitigation requirements are recorded in the Environmental Management Plan (EMP). The *Contractor* shall acquaint himself fully with the contents of the EMP to ensure that the *Contractor* is fully aware of the requirements of the EMP and its implications on the works. The *Contractor's* rates tendered shall cover all costs that will be incurred to comply with all requirements of the EMP. Special attention is drawn inter alia to the following aspects:

- Site demarcation: The *Contractor* shall demarcate his camp site, be restricted to that specific area and take full responsibility to restore the area to its original condition before the contract commenced
- Waste management: The *Contractor* shall dispose of all waste off-site at a licensed waste disposal facility and submit proof to Eskom
- Sanitation: The *Contractor* shall provide an appropriate enclosed temporary sanitation facility not a bucket system
- Dust control: The *Contractor* shall be responsible to apply effective dust control measures
- Re-vegetation: The *Contractor* shall be responsible to re-vegetate the locations of trial pits, boreholes, roads and tracts through the veld, the camp site and any area of activity related to the works, as may be required
- Fire prevention: It shall be the responsibility of the *Contractor* to prevent veld fires at all times during the contract

The *Contractor* shall take full responsibility for protecting the natural environment and eliminating or minimising the negative impacts of construction on the environment during construction. Nothing specified herein shall relieve the *Contractor* of any obligations or responsibilities in this regard.

The *Contractor* shall implement an Environmental Policy, in line with various statutory regulations. The *Contractor's* Environmental Management Plan shall be submitted to the *Project Manager* within 14 days for review and acceptance after the awarding of the contract. Upon the *Project Manager*'s acceptance, the *Contractor* shall immediately implement the policy and any amendments and keep it in operation for the duration of the contract.

The *Contractor* shall keep the Environmental Management Plan updated in accordance with his Quality Management Procedures and make amendments as required by the *Project Manager* and the circumstances prevailing at the time. The *Contractor* shall immediately supply the *Project Manager* with a copy of an updated Environmental Management Plan which shall clearly indicate the revisions undertaken. The following documents shall be submitted and accepted by the environmental department before commencement of work:

- Environmental Policy
- Objectives and Targets
- Aspects and Impacts Register (related to scope of work)
- Operational Work Instructions (related to scope of work)
- Competency, training and awareness (including Training matrix)
- Waste Management Plan

2.4.1 General

The *Contractor* shall conduct his activities so as to cause the least possible disturbance to the existing amenities, whether natural or man-made, in accordance with all the currently applicable statuary requirements. Special care shall be taken by the *Contractor* to prevent irreversible damage to the environment. Disturbance or disruption of the daily lives of local communities shall be avoided.

The *Contractor* shall take adequate steps to educate his employees including Subcontractors the relevant environmental laws and regulations. The *Contractor* shall supplement these steps by prominently displayed notices and signs in strategic locations to remind personnel of environmental concerns.

2.4.2 Method Statements

The *Contractor* shall submit within 14 days after Contract Start date a Method Statement containing details for environmental protection measures proposed to the *Project Manager* for review and acceptance.

These shall include but not limited to:

- Site establishment layout
- Site drainage management
- Workshops' storage areas layout
- Pollution prevention measures
- Oil separator design (where applicable)
- Fuel storage and dispensing area and bund design (where applicable)
- Refuse dump design (where applicable)
- Temporary access roads (where applicable)
- Waste Management plan (where applicable)
- Chemical and Hydrocarbon Management (where applicable)
- Refuelling procedure or plan (where applicable)
- Environmental Incident Management plan (where applicable)

In addition, the *Contractor* shall provide detailed Method Statements on how he intends to carry out the *works*; this shall apply to all and any part of the *works* as provided in the *conditions of contract*

2.4.3 Temporary Services and Facilities

Temporary pipelines, power lines, telephone lines and other temporary services and facilities shall be located in a manner which will cause the least disturbance and disfigurement to the environment. Power lines shall be suspended below insulators and be of such design as to prevent the electrocution of birds to the greatest extent possible.

All fuel storage tanks shall be bunded to 110 % of the total storage capacity. Fuel dispensing areas and workshop areas shall be provided with concrete hard standing draining to oil separators. This will also apply to other areas with pollution potential.

Vehicle cleaning shall be undertaken in designated wash bays, which have an impermeable floor and are bunded to contain runoff and direct in onto a sump. Hydrocarbon/s be skimmed off the sump water and recycled or disposed of in the correct manner. Vehicle / plants with Emergency breakdown fixed outside the workshop or designated area; oil spillage control measures shall be in place such as drip tray and spill kit, to catch oil and diesel which may leak from the vehicles.

2.4.4 Refuse and Waste Control

The management of solid waste on Site shall be strictly controlled and monitored. Only licenced waste disposal landfill sites shall be used. The quantities of waste generated on Site shall be minimised.

Labelled recycling bins shall be used, and waste separated where possible. In addition, a recycled-material collection schedule shall be established and the bins shall be collected regularly.

Eating areas for the construction staff shall be designated and supplied with waste bins. No on-site burying or dumping or unauthorised burning of any waste materials, vegetation, litter or refuse shall occur. Bins provided will be sufficient to store the solid waste produced on a daily basis. The bins should be emptied at least once a day. Waste from bins may be temporarily stored on Site in a central waste area that is weatherproof and scavenger-proof and which the *Project Manager* has accepted.

All solid waste shall be disposed of off site, at a licenced landfill site. The *Contractor* shall supply the *Project Manager* with a certificate of disposal. Waste shall be separated into domestic waste, building/construction rubble, scrap metal, oil and grease and hazardous waste and dealt with in the following manner.

2.4.5 Domestic Waste

Metal refuse bins to BS 792 or equivalent plastic refuse bins, all with lids, shall be provided by the *Contractor* for all construction sites. Refuse shall be collected and removed from all facilities on the Site at least twice per week. Domestic Waste shall be transported to the accepted refuse disposal site off site in covered containers or covered trucks.

2.4.6 Organic Waste

Refuse from food preparation and eating areas shall be collected and removed daily. Organic Waste shall be disposed of as per Domestic Waste and waste manifest supplied to the *Project Manager*.

2.4.7 Building/Construction Waste

Inert building/construction rubble shall be disposed at a nearest licenced landfill sites and waste manifest supplied to the *Project Manager*.

2.4.8 Scrap Metal

Scrap metal shall be disposed off-site at a nearest licenced scrap metal recycling facilities. Paper trail to be supplied to the *Project Manager.*

2.4.9 Used Oil and Grease

Used oil and/or grease shall be removed from site to a nearest licenced oil recycling company.

2.4.10 Hazardous Waste

All hazardous waste shall be disposed of in a licenced hazardous waste landfill site and waste manifest supplied to the *Project Manager*.

2.4.11 Protection of Flora

The removal, damage and disturbance of indigenous flora are prohibited. At the commencement of the contract, the *Project Manager* will identify to the *Contractor* indigenous flora or any rare or endangered flora that shall be preserved. The *Contractor* shall thereafter demarcate such and undertake all necessary measures to ensure the protection of such flora, including replanting and any special care required in accordance with the EMP. The use of herbicides is prohibited unless approved by the *Project Manager.*

2.4.12 Protection of the Fauna

The *Contractor* shall protect fauna living within the Site and shall ensure that hunting, snaring poisoning, shooting, nest raiding, or egg-collecting and disturbance does not occur. The *Contractor* is to ensure that his employees are instructed not to feed wild animals. The use of pesticides is prohibited unless accepted by the *Project Manager*. No domestic pets or livestock are permitted on Site.

2.4.13 Preservation of Topsoil

The *Contractor* shall remove and stockpile topsoil in accordance with the CEMP Section 3 - Clearing of site, or as directed by the *Supervisor*, in quantities sufficient for reinstatement, in accordance with the CEMP. Topsoil shall be removed from, inter alia, working areas (including quarry pits) and relevant areas of the Permanent Works, construction, haul and other access roads and such like, all as directed by the *Supervisor*.

2.4.14 Erosion Control and Storm-water Management

The *Contractor* shall include in the design of the works measures to prevent erosion resulting from his actions on the Site. The *Contractor* shall take appropriate and active measures to prevent erosion resulting from his works, operations and activities which shall be agreed with the *Supervisor* even when such potential erosion may take place or occur beyond the limits of the Site because of the actions of the *Contractor*. Such measures shall include properly constructed watercourses, energy dissipaters, establishment of temporary vegetation as specified in the CEMP, to counter erosion and avoid discharges into water courses, wetlands, agricultural lands, etc.

2.4.15 Dust and Vehicle Emission Control

A dust control programme shall be implemented by the *Contractor* to maintain a safe and healthy working environment, minimise nuisance for surrounding residential areas, prevent damage to the natural vegetation of the area and protect topsoil. The *Contractor* shall take appropriate measures to minimise the generation of dust as a result of his works, operations and activities.

The *Contractor* shall prepare and submit a Dust Control Method Statement to the *Supervisor* within 14 days after the Starting Date. As a minimum, the statement should address the following:

- Schedule of spraying water on unpaved roads paying due attention to control of runoff
- Speed limits for vehicles on unpaved roads and minimisation of haul distances
- Measures to ensure that material loads are properly covered during transportation
- Schedule for wheel cleaning and measures to clean up public roads that may be soiled by construction vehicles
- Minimisation of the area disturbed at any one time and protection of exposed soil against wind erosion
- Reporting mechanism and action plan in case of excessive wind and dust conditions
- The control measures shall also include regular and effective treatment of gravel access roads and working areas, use of dust extractors on drilling equipment or wet drilling, use of personnel protective equipment, etc.

Vehicles emitting noticeable diesel fumes will not be permitted to continue working on Site. Vehicle emissions shall be monitored on a regular and on-going basis in order to ensure that vehicles working on Site comply with legislated requirements.

2.4.16 Noise Pollution

Having due regard for local communities and dwellings, the *Contractor* shall restrict any of his operations which result in undue noise disturbance to those communities and dwellings to the hours of 06:00 to 18:00 on weekdays or otherwise as agreed with the *Project Manager*. The *Contractor* shall not use sound amplification equipment on Site unless in emergency situations. The *Contractor* shall ensure that environmental awareness and training for all employees includes the need to minimise noise. The *Contractor* shall provide suitable ear protectors to all of his staff and others entering areas with high noise levels. Zones of risk shall be clearly identified with warning signs.

The *Contractor* shall provide and maintain equipment to measure noise levels in accordance with SANS 10083. The *Project Manager* may from time-to-time instruct the *Contractor* to carry out more frequent testing of noise levels. Furthermore, he may require the *Contractor* to carry out testing in other areas of the Site. The *Contractor* shall keep records of all noise level measurements for the duration of the contract. These records shall be submitted each month to the *Project Manager*, or on the request of the *Project Manager.*

2.4.17 Natural Features and Heritage Resources

The *Contractor* shall not deface, paint, damage or mark any national features (e.g. rock formations) situated in or around the Site for survey or other purposes unless accepted by the *Project Manager*. Any contravention of this Sub-Clause will require the item to be restored/ rehabilitated at the *Contractor's* cost. The *Contractor* shall ensure that should any archaeological finds be made during the construction excavations; the *Contractor* shall inform the *Project Manager* immediately in order to reach agreement regarding proper procedures to minimise damage and or effect salvage operations of the findings.

All heritage resources to be affected by the Project shall be treated and managed in accordance with the National Heritage Resources Act 25 of 1999 and the National Monuments Act 28 0f 1969.

- Remedial action in the event of non-compliance
- Implementation and management of environmental protection measures
- Reporting of environmental incidents and routine reporting of environmental activities

No measurement or payment will be made against any items for the rehabilitation of the *Contractor's* working and accommodation areas (including the areas designated for the *Supervisor's* use) or for rehabilitation of areas used for temporary roads. No overhaul will be paid for work within the Site.

2.5 Quality assurance requirements

All Quality Management System requirements shall comply with QM-58 Category 2. The *Contractor* shall be responsible for the quality of and testing of materials, workmanship and production processes used in completing the works. Within fourteen (14) calendar days after Contract Date, the *Contractor* shall submit to the *Project Manager* the Quality Management Plan for quality control and quality assurance of the *work*s.

Where the *Contractor* maintains an accredited Quality Control System, details of the level of the *Contractor's* self-certification procedures shall be adopted in respect of supplied materials shall be agreed with the Quality Representative or *Supervisor* prior to commencement of work. Where no accredited Quality Control System exists, the *Contractor* shall plan all quality management procedures, carry out all quality control testing as required and shall make available records of such testing for the Quality Representative or *Supervisor's* acceptance.

The *Contractor* shall submit full details of the proposed quality management system and procedures for acceptance by the Quality Representative or *Supervisor*, who shall have full access to all records, Site trials and tests. The *Contractor* shall ensure that monitoring and measuring equipment are calibrated and verified to confirm serviceability prior to usage, records of such shall be kept on Site.

The *Contractor* shall submit prior start of site activities, a method statement together and the quality control plan or inspection plan and test plan for review and acceptance by the *Supervisor.*

The *Contractor* shall comply with QM58 requirements for the duration of the Contract. On completion of the project, the *Contractor* shall submit data books (Packs) before the Completion Certificate can be issued. The Data Packs shall be in accordance with the Data Packs Specification provided in this Works Information.

2.6 Programming constraints

2.6.1 General

The *Contractor* submits a single integrated Level 4 programme that incorporates all the work to be performed including that of his Subcontractors. The interfaces between Subcontractors as well as the interfaces between Subcontractors and the *Contractor* are clearly identified. Project key dates are incorporated into the programme. The Contractor shall manage the interfaces between his Subcontractors and Others working on the same Site.

2.6.2 Computerised Planning and Reporting

The programme shall be submitted in Primavera P6 Schedule (XER) or MS Project (MPP) format for ease of transfer and presentation. The *Contractor* obtains this software and makes use of it for planning and control of the works.

2.6.3 Project Calendar

The project calendar will be seven (7) days per week, the working hours shall be twenty- four (24) hours per day and includes Public Holidays. If and when the *Contractor* deems any period in a calendar year as a non-working day, e.g., pay weekends, etc. all such shall be declared up front and agreed with the *Project Manager* in the first construction program for acceptance by the *Project Manager*. Failure to declare these days shall render any later declaration as null and void and the *Contractor* shall provide the works as per the accepted first programme.

2.6.4 Additional Programme Requirements

The *Contractor* shall use the Critical Path Method (CPM) technique for programme and planning and shall submit the programme basis document to the *Project Manager*. The programme basis document describes the programme and planning methodology, format, project execution philosophy, resource assumptions, qualifications and any other items that may have a substantive impact on the schedule. The programme layout takes into account the Key Dates provided above and the Work Breakdown Structure (WBS). The following levels of programme are to be used for this project for dynamic integrated project control:

- Management level programme (Level 1)
- Project level programme (Level 2)
- Control level programme (Level 3)
- Discipline specialty programme (Level 4)

The *Contractor* submits a Resource Loaded Level 4 Detailed Programme with the tender documentation. The Level 4 Detailed Programme is to be submitted within one month of contract award for review and acceptance by the *Project Manager*.

2.6.4.1 Management Level Programme (Level 1)

The management level programme is used to establish work goals and overall time frames for the works. It is a statement of project objectives recorded in graphic form. The management level programme defines and establishes goals or major milestones key dates. The duration of major operations and their relationship to one another. Identified Long Lead material items and responsibility assignments for accomplishing project objectives.

2.6.4.2 Project Level Programme (Level 2)

The project level programme is prepared representing the significant work activities and deliverables associated with the works. The end product is a time scaled bar chart schedule developed through use of a logic network. This programme is separated by work areas, by Phase and by WBS. A "rolled up" programme from the control level programme is produced. It is separated by each work activity and by Phase (for example: Engineering, Procurement, Construction and Commissioning).

2.6.4.3 Control Level Programme (Level 3)

The work within each work area is broken down by Engineering Discipline, Procurement of Tagged equipment and Bulks, Construction, and Commissioning & Start-up. The control level programme is resource-loaded. It forms the basis for progress measurement, progress curves and histograms for each discipline within a work area.

2.6.3.4 Discipline Programme (Level 4)

This level typically represents day-to-day tasks, which are work activity based and become summarised in the Level 3 activities. Resource information for manpower, Plant, Material and Equipment and reflected in the resource histograms is to be provided by the *Contractor*. Staffing Histograms are to be submitted based on “equivalent personnel”. Available work hours take into account 4 and 5 week months and statutory holidays that may occur. Staffing histograms is updated with actual data for each reporting period and re-forecasted as required should significant deviations occur.

2.6.5 Submission of Revised Programmes and Progress Reporting

The Contractor submits one electronic copy in Primavera P6 (XER) of each revised programme and progress report to the Project Manager for acceptance. The Contractor submits revised programme on monthly basis or as instructed by the Project Manager. The monthly reports shall comply with the progress reporting requirements as stated below

2.6.6 Weekly Status Reports

A weekly status report is submitted by the Contractor to the Project Manager. This report is less formal than the monthly report and is used as a tool for the day-to-day management of the project. Contents of a weekly report will include the following items:

- The updated Primavera programme
- Programme summary narrative
- Progress and performance summaries
- Sectional Completion and Key Milestone status

2.6.7 Monthly Progress Report

The contents of the report may vary from month to month depending upon the phase of the project and/or the items of management focus. However, the basic framework of the report consists of the following:

- Executive summary (narrative identifying major movement within the reporting period).
- Revised Programme indicating, actual progress of work against last Accepted Programme.
- A one-month look ahead work window.
- Activities completed, activities in progress during current reporting period and Critical Path activities report
- Key issues and risks of concern and mitigation actions.
- Cost and Cash flow and Cost curve ‘S-curve’.
- Early warning and Compensation Event Register
- Report selecting all of the activities of the Employer and Others and Resource Schedule Histogram.
- Forecast Rate of payment schedule updated with actual progress.
- Statement and report on works ahead and behind progress.
- Procurement plan for all Resources (labour, equipment, plant and material) in Excel Format. The plan shows mobilisation per month, equipment, people, plant and materials for the duration of the contract.

2.6.8 Planning Programmes

The *Contractor* develops a contract programme which will include a bar chart conforming to the project master programme dates included and sufficient detail to indicate the *Contractor’s* intention for executing the *works*. This programme covers major items relating to design, procurement, manufacture, delivery, erection, start-up and commissioning. The critical path is clearly shown.

Key milestones, access dates, interface dates and commissioning key dates are clearly identified in the contract programme, including access dates and release of terminal points that involve the *Employer* or Others. The programme makes provision for site related preparation such as site establishment, safety induction and medical clearance of the entire *Contractor’s* staff that will be working on site.

2.6.9 Design Programme

The design programme contains a full list of documents and drawings, their submission dates and duration for review as specified by the *Contractor*. The programme also illustrates the sequence of work for the project and the submission of drawings, studies and reports.

The design programme meets the requirements of the *Contractor* and Others engaged on the project. The *Contractor* is required to submit the programme for review by the *Project Manager.*

The programme should include all the design reviews to be conducted as per the *Employer*'s Design Review Procedure. The *Contractor* is responsible for conducting the following design reviews:
a) Detail Design Freeze Review
b) Integrated Design Review
c) Construction Completion Review
d) Acceptance Testing Review

2.6.10 Procurement and Manufacturing Programme

The *Contractor* is required to submit a procurement and manufacturing programme for review by the *Project Manager,* which identifies as a minimum:

a) Details of orders and target dates for placing subcontracts
b) Any detailed design required within the manufacturing period
c) Long-lead delivery items
d) Hold-points and witness-points for inspection and tests for acceptance and release.
e) CSI roll out plan to be incorporated.

This programme is in sufficient detail to enable the work to be adequately tracked and progressed.

2.6.11 Construction Programme

The *Contractor* is required to submit a construction programme that is resource loaded for review by the *Project Manager*. This programme includes the following criteria:

a) Full details of all civil/mechanical/electrical/C&I/Low Pressure Services terminal point release requirements
b) Identify any erection or commissioning activities that may affect other construction activities
c) Identify when services are required for commissioning purposes

This programme meets the requirements of the *Contractor* and Others engaged on the project.
The programme shall be based on the following working hours: Where applicable:

a) Twenty-four (24) hours per day
b) Seven (7) days per week
c) Holidays included as working days
d) Pay weekends to be negotiated (if working 7-day work week)

2.6.12 Commissioning Programme

During the progress of the *works*, the *Contractor* develops a detailed commissioning programme with sufficient detail to enable the work to be adequately progressed and tracked to meet the commissioning key dates.
Training programme to be incorporated into the commissioning programme.

The commissioning programme is detailed to sub-system level and is fully integrated with the Construction Programme.

2.6.13 Reporting and Data Requirements for *Contractor*s Document number 240-83561037

This specification is included as an Annexure to the Works Information. This specification lists all the data and reporting that must be submitted by the *Contractor* on a weekly / monthly basis to the *Project Manager*. The purpose of this information is to implement proper project controls on this project.

2.7 *Contractor*'s management, supervision, and key people

The *Contractor* will provide the *Employer* and the *Project Manager* with an organogram showing the key people and the roles and responsibilities.
The organogram provided must show clear reporting lines between individuals, including individuals from subcontractors or joint ventures.

The *Contractor* provides the following key personnel as a minimum:

a) Dedicated *Project Manager*
b) Dedicated Project Planner
c) Dedicated *Site Manager*-(Full-time on site)
d) Dedicated *Quality Officer*-(Full-time on site)
e) Dedicated SHE Officer (Full-time on site)
f) Dedicated Supervisor (Full-time on site)

2.8 Invoicing and payment

Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* submits a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate. The invoices must be sent to Finance Shared Service email address invoiceseskomlocal@eskom.co.za

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 *Project Manager*
- The contract number and title
- *Contractor's* VAT registration number
- The *Employer*'s VAT registration number 4740101508
- Description of service provided for each item invoiced based on the Price Schedule
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT

2.8.1 Schedule of Actual Costs and Accounts

The *Contractor* shall submit a detailed monthly schedule of his actual costs with all the necessary backup information at the monthly measurement meeting, for review by the *Supervisor*. The various schedule items as detailed in the Schedule of Cost Components, shall be submitted in a spreadsheet format, itemized in terms of People, Equipment, Plant and Materials, charges, and manufacture and fabrication. Schedule items shall be grouped into work area activities as outlined in the *activity schedule*, with such work area activity groupings referenced against the *activities schedule* item numbering.

Before each successive monthly measurement meeting (i.e. on a weekly basis), the *Contractor* shall submit to the *Supervisor* all current (or cumulative to that assessment date) backup documentation for acceptance. Backup documentation shall include, but not limited to: all calculation sheets, citing each completed task and item in the Bill of Quantities, drawings, etc.; acceptance of completed work payment purposes, including confirmation of attainment of each criteria set out either in the specification or any other document which this contract prescribes.

Following the monthly measurement meeting, the *Contractor* shall present a detailed final schedule (with revisions agreed to at the monthly measurement meeting incorporated), including the necessary backup documentation, to the *Supervisor* for final checking.
Once accepted by the *Supervisor*, he will submit it to the *Project Manager*. This will then be used by the *Project Manager* to assess the amount due in terms of Clause 50 of the ECC.

The final format and layout of this monthly schedule as well as the level of detail of backup information required are to be agreed between the *Project Manager* and the *Contractor*. Clause 52 of the ECC shall apply in terms of accounts to be kept by the *Contractor* to verify the above monthly schedule of actual costs.

2.8.2 Records and Returns

This Section relates to the preparation and submission of records and returns by the *Contractor*, to be submitted to the *Supervisor* in a form that is acceptable to him.

- At Start Up of the works
- Prior to First Commencement of a Particular Work Activity
- On Completion of a Work Activity or Part Thereof
- Daily
- Weekly
- Monthly
- On Completion of the works.

2.9 Training Workshops and Technology Transfer

Training of the *Employer*'s operating, maintenance, and engineering personnel on the operation of the systems shall be provided by the *Contractor*. Training shall consist of both basic and advanced training and shall focus on skills development. The *Contractor* shall submit the training manuals, guides and schedules for the review and acceptance by the *Project Manager*.

The *Contractor* shall prepare five (5) training sessions for Operating, Maintenance and Engineering as a group. The operating personnel is working shifts and therefore the *Contractor*s shall on the training schedule make an allowance for five training sessions in order to cover all the operators. At the completion of the training, plant operating personnel shall be able to apply knowledge of plant process dynamics and control system behaviour to be able to control the plant through normal operating regimes, as well as to withstand abnormal and unanticipated operating conditions.

In order to concentrate fully on operating tasks and decision making, the operators shall be fluent in the use of the Human Machine Interface (HMI). This includes display hierarchy, its contents, navigation links and paths, and dynamic behaviour of the HMI.

The Contractor shall provide the following training requirements:

- The provision of detailed training manuals incorporating all aspects of the training that will be provided
- Formal theoretical and practical hands-on training to personnel in the operation, maintenance and general running of the system and equipment is required. The disciplines to be trained are operating (All shifts), maintenance, mechanical and electrical engineering teams.
- The training shall be provided before the hot commission of the installed systems
- System and component description, layout and design
- Normal operating procedures
- Troubleshooting and fault finding
- Dangers and precautions
- Special tools and equipment

3 Engineering and the *Contractor*'s design

3.1 *Scope of Works*

The scope of work to be carried out by the Contractor is defined and outlined in the Technical / Functional Specification document 241-2022602, referred to as Medupi Power Station EC 26027224 Install pumps in all PCD's Scope of Work.

The scope of work includes the supply, design, delivery, installation, testing and commissioning of the Pollution Control Dams (PCD). The high-level turnkey SOW includes the following:

- Assess the currently installed temporary pumping installations at the eight dams for compliance
- Draft and label the currently installed temporary pumping installations at the eight dams for compliance
- Design and install Fourteen (14) pumps, with bi-directional flow capabilities
- Install power supply and battery storage safety devices to reduce the risk of battery theft

The Contractor shall recommend the required spares, which should include the following:

- Item description
- Part number / type
- Supplier
- Drawing designation
- Quantity installed on plant
- Recommended stock
- The Contractor shall bring any specialised tools required for the execution of all associated maintenance activities on this system.

3.2 As-built drawings, operating manuals and maintenance schedules

At least 1 month before notification of Completion of the works, the *Contractor* shall revise drawings where necessary to show the Plant as installed and send two copies for acceptance. Drawings shall also be submitted in an electronic format compatible with Micro Station Ver.8 supplied by Bentley Systems Inc, DWG, 3 hard copies and 2 soft copies of As Built documentation shall be provided by the Contractor as part of the Works. After acceptance, prints shall be provided as required of the type and in such quantities as shall be determined by the *Project Manager*.

Drawings shall include those drawings necessary for the efficient maintenance of the Plant. The specific KKS code of each plant, equipment and component shall appear on all drawings. The prints and electronic files shall be deemed to form part of the works for the purpose of the Defects Liability Certificate. As-built drawings shall have the next revision number applicable to that drawing with status “As-built” on the title block.

Before a Certificate of Completion will be issued all “as-built” data must be provided to the *Project Manager* on Completion of the Permanent Works. The data must be provided in electronic form or where appropriate marked up on a set of drawings.
Any information in the possession of the *Contractor* which is necessary for the *Supervisor* to check the “as built” drawings shall be supplied to the *Supervisor* on a regular basis and all information must be delivered before a Certificate of Completion will be issued. Any information in the possession of the *Contractor* which is required under this contract shall be supplied timeously to the *Supervisor* on a regular basis.

4 Procurement

4.1 Plant and Materials

4.1.1 *Contractor*'s procurement of Plant and Materials

This stage shall consist of the procurement, installation, on-site inspection and testing of all equipment forming part of the Works as well as other items that the Employer has specified such as free issued items.

4.1.2 Spares and consumables

The *Contractor* is required to provide the following spares list as per the final accepted design and should be supplied prior to Completion.

- Mechanical and electrical spares

5 Construction

5.1 Temporary works, Site services & construction constraints

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

5.1.1.1 Access to Site

Access to the site is controlled and it is governed by the terms and conditions lay down by Medupi Power Station security officials. The proposed site will be shown to the *Contractor* during the site meeting or clarification meeting by the *Employer.*

The *Contractor* liaises with the Gx SHE Practitioner/Officers for Safety Induction prior work to commence. During Safety Induction, site access permits with a copy of the medical and a certified ID copy/passport (not older than three months) should be handed to the Gx SHE Practitioner/Officer for approval.

The Contractor employees will take the signed site access documents to security reception official in order to finalize their site access.

The *Contractor* ensures that all its employees carry their site access forms with them all the time.

The *Contractor* is subjected to alcohol testing on a daily basis.

The Contractor submits his application for vehicle permit to the *Project Manager*. The personnel and vehicles entering and leaving the site are subjected to routine searches.

The *Contractor* obtains a "Gate Removal Permit" from the *Project Manager* before materials and equipment can be removed from site. The "Gate Removal permit" gives itemised list of materials and equipment to be removed from site.

The *Contractor* ensures that a tool list is available on the day of arrival and that all tools are captured on the tool list. The tool list will be handed over to the Reception Security official that will stamp the tool list. The tool list will be kept safe and will be used when tools needs to be remove from site. This message should be handed over to any Subcontractor that will be working on Medupi Power Station.

5.1.1.2 Site Regulations

The *Contractor* complies with the Site Regulations as per Employer's Safety Health and Environmental Specification 240-127760320. Any subject within the authority of the *Project Manager* may be addressed by a Site Regulation.
Before work starts on Site, a kick-off meeting is held with the *Contractor* and the *Project Manager*, to explain in detail all requirements of the Site Regulations.

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

The *Contractor* is required to keeps records of his people on Site, including those of his Sub*Contractor*s which the *Project Manager* or *Supervisor* has access to, at any time.

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

Temporary works shall be any work or infrastructure and or establishment which the Contractor requires in order to provide the works; which includes, inter alia his facilities, connection to existing water, sewer, electricity, etc. All such temporary works shall be adequately decommissioned, restoration to natural environment and the area made good on completion of the works to the acceptance of the Project Manager.

5.1.4 Health and safety facilities on Site

The *Contractor* provides a First Aid service and SHE representative 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*.

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

Medupi Waste Management Procedure – 240-101861550, National Environmental Management Act (NEMA, Act No. 107 of 1998) and the National Environmental Management Waste Act (NEMWA, Act No. 59 of 2008).

5.1.6 Cooperating with and obtaining acceptance of Others

Other Contractors are working in the same area as the work of this contract. In this regard, the *Contractor* co-ordinates his work with the *Project Manager* to maintain harmonious working conditions on Site.

During the progress of the *works* the *Contractor* provides access to Others who also execute work in the same area, on an as and when required basis.

The *Contractor* makes his own assessment of the problems and difficulties which may be encountered for providing access to and interfacing with Others (this includes access difficulties experienced during construction or commissioning phase).

5.1.7 Publicity and progress photographs

In terms of the Contract, the *Contractor* is not required to provide the *Project Manager* or the *Supervisor* with photographs of work progress. The *Contractor* is not allowed to take photographs of the *works* or parts thereof without prior written authorisation by the *Project Manager.*

5.1.8 *Contractor*'s Equipment

a) The *Contractor* provides all Equipment that is required to complete the *works*.
b) All Equipment used by the *Contractor* in providing the *Works* shall comply with the General Machinery Regulation 4 of the Occupational Health and Safety Act (Act 85 of 1993).

5.1.9 Site services and facilities

Water and electricity shall be provided by Eskom at fixed points on the plant. There is also a tuck-shop on site, but both only operate on weekdays and are for the *Contractor's* own cost. The *Contractor* shall provide everything else necessary for Providing the Works.

5.1.10 Facilities provided by the *Contractor*

The *Contractor* is to supply all the personal protective equipment, transport, accommodation, tools, equipment, and consumables to perform all the required tasks on site.

5.1.11 The *boundaries of the site* are

The *Contractor* is to perform work only on the area which is stated in this works information. No *contractor* personnel is to be in prohibited areas such as HV yard.

5.2 Completion, testing and commissioning

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 *Project Manager* cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

	Item of work	**To be completed by**
	As built drawings of the entire network, including civil, mechanical, control and electrical drawings.	Within 14 days after Completion
	Performance testing of the *works* in use as specified in paragraph 3.1 of this Works Information.	See performance testing requirements.

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

The Contractor shall provide procedures for putting the works into operation as well as maintaining the works in operation.

5.2.3 Performance tests after Completion

The Contractor must prepare performance test procedures which shall be approved/accepted by the Employer.

5.2.4 Training and technology transfer

The Employer requires the Contractor to provide training in the use and maintenance of the works or any associated transfer of technology from him to the Employer.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey, and Site clearance

In order to provide a system that works, the Contractor must carry out further investigation of existing facilities or of the site before commencing final designs. There could be constraints on Site clearance especially in pipeline or transmission grid servitudes.

7 Annexures

7.1 Engineering

Table 1: Mechanical Design Deliverables Guidelines and Standards

Owner	Number	Description
SANS	10140-3	Identification colour markings of pipelines
EN	1092-1	Flange standard
Eskom	240-86973501	Engineering Drawing Standard – Common Requirements
Eskom	240-56364545	Structural Design And Engineering Standard
SANS	10143	Building Drawing Practice
Eskom	240-105020315	Standard for Low Pressure Valves
Eskom	240-123801640	Standard for Low Pressure Pipeline
Eskom	240-89147446	Instrument Piping for Fossil, Hydro, Renewable and Aero-Derivative Power Plants Standard
Eskom	240-101712128	Standard for the Internal Corrosion Protection of Water Systems, Chemical Tanks and Vessels and Associated Piping with Linings
Eskom	240-106365693	Standard for the External Corrosion Protection of Plant, Equipment and Associated Piping with Coatings
Eskom	240-106628253	Standard for Welding Requirements on Eskom Plant
Eskom	240-83539994	Eskom NDT Personnel Approval (NPA) for Quality Related Special Processes on Eskom Plant Standard.
Eskom	240-49230111	Hazard and Operability (HAZOP) Studies
Eskom	240-49230046	Failure Mode Effects and Criticality Analysis (FMECA)
Eskom	240-52844017	System Reliability, Availability and Maintainability Analysis Guideline

Table 2: Electrical Codes and Standards

Number	Description
240-56227443	Requirements for control and power cables for power stations
240-56357424	MV and LV Switchgear Protection Standard
240-56227426	Earthling and Lightning Protection
0.84/3482	Medupi Power Station Earthing Standards
240-56227516	Specification for switchboards and associated equipment for AC 1000V and DC 1200V
240-56227573	Metal enclosed switchgear and control gear for voltages above 1 kV up to and including 52 Kv
240-57617975	Procurement of Power Station Low Voltage Electric Motors Specification Standard
240-56227589	List of Approved Electronic Devices to be Used on Eskom Power Stations Standard

7.2 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.

Table 2: List of drawings

Drawing number	Revision	Title

7.3 SHEQ

Table 3: SHEQ Procedures, Policies, Specification and Standards

Document Number	Revision	Title
32-1123	Rev 0	HIV/AIDS in the workplace
32-95	Rev 6	Environmental Occupational Health Incident Management Procedure
240-62196227	Rev 5	Life Saving Rules
32-727	Rev 1	SHEQ Policy
32-1126	Rev 1	Smoking Policy
32-1123	Rev 0	HIV-AIDS in the Workplace Policy
32-93	Rev 5	Vehicles and Driver Safety Management
32-136	Rev 3	*Contractor* Health and Safety Requirements
202-7402	Rev 1	Traffic Monitoring Procedure
202-7457	Rev 0	Traffic Management Plan
202-7281	Rev 4	Alcohol Testing
240-44175132	Rev 0	Eskom Personal Protective Equipment (PPE) Specification
32-418	Rev 3	Working at Height Standard
32-407	Rev 1	Behaviour Safety Observations Procedure
	N/A	Baseline Risk Assessment Medupi Security & Infrastructure Project

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

PART 4: SITE INFORMATION

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

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.

General description

Medupi Power Station is situated in the west of Lephalale in the Limpopo province, South Africa. With the following address: Unnamed Road, Lephalale, 0555. And coordinates *23.7049º S, 27.5632º*.