NEC3 Engineering & Construction Contract

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

and
(Reg No. _____)

for **MATIMBA POWER STATION ASH PLANT CONVEYOR DRIVE UPGRADE**

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CONTRACT No.

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:

Matimba Power Station Ash Plant Conveyor Drive Upgrade

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)			
Capacity			
for the Employer			
	(Insert name and address of organisation)		
Name & signature of witness		Date	

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

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

Note:

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

No.	Subject	Details
1		
2		
3		
4		
5		
6		
7		

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

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

	For the tenderer:	**For the Employer**
Signature		
Name		
Capacity		
On behalf of	*(Insert name and address of organisation)*	*(Insert name and address of organisation)*
Name & signature of witness		
Date		

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option	
		A: Priced contract with activity schedule
	dispute resolution Option	**W1: Dispute resolution procedure**
	and secondary Options	
		X2 Changes in the law
		X7: Delay damages
		X15: Limitation of *Contractor's* liability for design to reasonable skill and care
		X16: Retention
		X18: Limitation of liability
		Z: *Additional conditions of contract*
	of the NEC3 Engineering and Construction Contract, April 2013 (ECC3)	
10.1	The *Employer* is (Name):	**Eskom Holdings SOC Ltd (reg no: 2002/015527/30), a state owned company incorporated in terms of the company laws of the Republic of South Africa**
	Address	**Registered office at Megawatt Park, Maxwell Drive, Sandton, Johannesburg**
10.1	The *Project Manager* is: (Name)	**To be confirmed**
	Address	
	Tel	
	Fax	
	e-mail	
10.1	The *Supervisor* is: (Name)	
	Address	
	Tel No.	

Fax No.

e-mail

11.2(13)	The *works* are	**Matimba Power Station Ash Plant Conveyor Drive Upgrade**
11.2(14)	The following matters will be included in the Risk Register	• **Inadequate Contractor Resources** • **Inclement Weather (rain, wind, ash dust, hailstorm, heatwave)** • **Labour strike** • **Community Unrest** • **Normal construction hazards working with machinery** • **Working at heights** • **Electrocution** • **Hazardous gas** • **Power supply interruptions or failure** • **Fire and smoke** • **Flooding from surface source** • **Snakes** • **Steep, rocky, unstable and slippery ground** • **Unforeseen geological conditions.** • **Unacceptable water inflows.** • **Poorer rock quality than anticipated. Unstable rock wedges** • **Normal construction hazards for reinforced concrete works**
11.2(15)	The *boundaries of the site* are	**Matimba Power Station Ash Dump**
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	**05 working days**
2	**The *Contractor's* main responsibilities**	**Data required by this section of the core clauses is provided by the *Contractor* in Part 2 and terms in italics used in this section are identified elsewhere in this Contract Data.**
3	**Time**	
11.2(3)	The *completion date* for the whole of the *works* is	**2026-07-31.**
30.1	The *access dates* are:	**Part of the Site** / **Date** **1** **All working areas** / **Contract start date**
31.1	The *Contractor* is to submit a first programme for acceptance within	**04 weeks of the Contract Date.**

31.2	The *starting date* is	**2025-08-01**
32.2	The *Contractor* submits revised programmes at intervals no longer than	**02 weeks.**
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	**5 calendar days**
5	**Payment**	
50.1	The *assessment interval* is	**between the 25th day of each successive month.**
51.1	The *currency of this contract* is the	**South African Rand.**
51.4	The *interest rate* is	**the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and** **(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.**
6	**Compensation events**	
60.1(13)	The place where weather is to be recorded is:	**Matimba Power Station**
	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	**The South African Weather Service**
	The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:	**Matimba Power Station**
	and which are available from:	**the South African Weather Bureau and included in Annexure A to this Contract Data provided by the *Employer***
7	**Title**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
8	**Risks and insurance**	
80.1	These are additional *Employer*'s risks	**None**
9	**Termination**	**There is no reference to Contract Data in this section of the core clauses and terms in italics used in this section are identified elsewhere in this Contract Data.**
10	**Data for main Option clause**	
A	**Priced contract with activity schedule**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
11	**Data for Option W1**	
W1.1	The *Adjudicator* is	**the person nominated 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 and appointed on agreement by both Parties. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the ICE-SA Division.**
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	**Gauteng, South Africa**
	The person or organisation who will choose an arbitrator	

	- if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**
12	**Data for secondary Option clauses**	
X2	**Changes in the law**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
X7	**Delay damages**	
X7.1	Delay damages for Completion of the whole of the *works* are	**R100 000.00 per day up to a limit of R3 000 000.00**
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**	
X16.1	The *retention free amount* is The *retention percentage* is	**R0.** **5%**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**The total of the Prices**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**the amount of the deductibles relevant to the event**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**The greater of** **the total of the Prices at the Contract Date and** • **the amounts excluded and unrecoverable from the *Employer*'s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.**
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**the total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.** **The additional excluded matters are amounts for which the *Contractor* is liable under this contract for** **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) 07 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 minimum limit of indemnity**
Loss of or damage to the *works*, Plant and Materials	The replacement cost where not covered by the *Employer*'s insurar The *Employer*'s policy deductible, at Contract Date, where covered b 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 insurar The *Employer*'s policy deductible, at Contract Date, where covered b the *Employer*'s insurance Other property The replacement cost **Bodily injury to or death of a person** The amount required by applicable law
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract	The amount required by the applicable law

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

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

OEL means occupational exposure limit.

Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
Standard	means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

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

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

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

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

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

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

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

C1.2 Contract Data

Part two - Data provided by the *Contractor*

Notes to a tendering contractor:

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

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

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	

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

	Responsibilities: Qualifications: Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .**
11.2(3)	The *completion date* for the whole of the *works* is	
11.2(14)	The following matters will be included in the Risk Register	
11.2(19)	The Works Information for the *Contractor*'s design is in:	
31.1	The programme identified in the Contract Data is	
A	**Priced contract with activity schedule**	
11.2(20) 11.2(30)	The *activity schedule* is in The tendered total of the Prices is	**(in figures)** **(in words), excluding VAT**
	Data for Schedules of Cost Components	*Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).*
A	**Priced contract with activity schedule**	**Data for the Shorter Schedule of Cost Components**

C1.3 Forms of Securities

Pro formas for Bonds & Guarantees

For use with the NEC3 Engineering & Construction Contract

[Note to contract compiler:
Once it has been decided which securities are required for this contract delete from this file the ones not required, revise the notes below accordingly and delete this note.]

The *conditions of contract* stated in the Contract Data Part 1 include the following Secondary Options:

Option X4: Parent company guarantee
Option X13: Performance Bond
Option X14: Advanced payment to the *Contractor*

Each of these secondary Options requires a bond or guarantee "in the form set out in the Works Information". Pro forma documents for these bonds and guarantees are provided here for convenience but are to be treated as part of the Works Information.

Option X16: Retention (not used with Option F)

The *Contractor* may provide a Retention Money Guarantee in the form stated here. When the *Employer* receives and accepts a Retention Money Guarantee exactly in the form stated he will instruct the *Project Manager* not to assess any amount be retained in terms of secondary Option X16.

The *Contractor* shall guarantee his ASGI-SA Obligations by providing the *Employer* with an ASGI-SA Guarantee in the form provided here.

[Note to contract compiler: If there are no ASGI-SA Obligations in this contract, delete the above statement]

The organisation providing the bond / guarantee does so by copying the pro forma document onto his letterhead without any change to the text or format and completing the required details. The completed document is then given to the *Employer* within the time stated in the contract.

Pro forma Parent Company Guarantee (for use with Option X4)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg

Date:

Dear Sirs,

Parent Company Guarantee for Contract No

With reference to the above numbered contract made or to be made between

Eskom Holdings SOC Ltd (the *Employer*) and

{Insert registered name and address of the *Contractor*} (the *Contractor*), for

{Insert details of the *works* from the Contract Data} (the *works*).

I/We the undersigned .....

on behalf of the *Contractor*'s parent company .....

of physical address .....

and duly authorised thereto do hereby unconditionally guarantee to the *Employer* that the *Contractor* shall Provide the Works in accordance with the above numbered Contract.

1. If for any reason the *Contractor* fails to Provide the Works, we hereby agree to cause to Provide the Works at no additional cost to the *Employer*.

2. If we fail to comply with the terms of this Deed of Guarantee, the *Employer* may itself procure such performance (whether or not the Agreement be formally determined). The *Employer* is to notify us and we shall indemnify the *Employer* for any additional cost or expense it incurs.

3. Our liability shall be as primary obligor and not merely as surety and shall not be impaired or discharged by reason of any arrangement or change in relationship made between the *Contractor* and the *Employer* and/or between us and *Contractor*; nor any alteration in the obligations undertaken by the *Contractor* or in the terms of the Agreement; nor any indulgence, failure, delay by you as to any matter; nor any dissolution or liquidation or such other analogous event of the *Contractor*.

4. The *Employer* shall not be obliged before taking steps to enforce the terms of this Deed of Guarantee to obtain judgement against the *Contractor* in any court or other tribunal, to make or file any claim in liquidation (or analogous proceedings) or to seek any remedy or proceed first against the *Contractor*.

5. This Deed of Guarantee shall be governed by and construed in accordance with the laws of the Republic of South Africa and we hereby submit to the non-exclusive jurisdiction of the High Court of South Africa.

Signed at _____ on this ..... day of ..... 200_

Signature(s)		
Name(s) (printed)		
Position in parent company		
Signature of Witness(s)		
Name(s) (printed)		

Pro forma Performance Bond – Demand Guarantee (for use with Option X13)

(to be reproduced exactly as shown below on the letterhead of the Contractor's Parent Company)

Eskom Holdings SOC Ltd
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

Reference No. **[●]** *[Drafting Note: Bank reference number to be inserted]*

Performance Bond – Demand Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

Project [ ] Contract Reference: …… *[Drafting Note: Contractor contract reference number to be inserted]*

In this Guarantee the following words and expressions shall have the following meanings:-

"Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]

"Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]

"Contract" – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. [.]as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted]

"Contractor" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]

"Eskom" - means Eskom Holdings SOC Ltd, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30].

"Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.

"Guaranteed Sum" - means the sum of R [●] ([●] Rand);

"Project" - means [insert if applicable.].

At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

be signed on behalf of Eskom by a Group Executive, Divisional Executive, Senior General Manager, General Manager or its delegate;

state the amount claimed ("the Demand Amount');

state that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

The Bank's obligations in terms of this Guarantee:

shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between Eskom and the Contractor.

Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.

Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

This Guarantee:

shall expire on the Expiry Date until which time it is irrevocable;

is, save as provided for in 0 above, personal to Eskom and is neither negotiable nor transferable;

shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

shall be regarded as a liquid document for the purpose of obtaining a court order; and

shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.

Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____ Date _____

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____
Bank's seal or stamp

Pro forma Advanced Payment Bond (for use with Option X14)

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Bond)

Eskom Holdings Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs,

Advanced Payment Bond for Contract No.

With reference to the above numbered contract made or to be made between

Eskom Holdings SOC Limited (the *Employer*) and

{Insert registered name and address of the *Contractor*} (the *Contractor*), for

{Insert details of the *works* from the Contract Data} (the *works*).

I/We the undersigned .....

on behalf of the Surety .....

of physical address .....

.....

and duly authorised thereto do hereby bind ourselves as Surety and co-principal debtors in solidum for the due and proper repayment by the *Contractor* to the *Employer* of the advanced payment made by the *Employer* to the *Contractor* under the Contract, and for all losses and expenses that may be suffered or incurred by the *Employer* as a result of non-payment by the *Contractor*, subject to the following conditions

1. The terms *Employer*, *Contractor*, and the *works* have the meaning as assigned to them by the *conditions of contract* listed in the Contract Data for the aforesaid Contract.

2. We renounce all benefits from the legal exceptions "Benefit of Excussion and Division", "No value received" “Revision of Accounts”, “Cession of Action” and any other exceptions which might or could be pleaded against the validity of this bond, with the meaning and effect of which exceptions we declare ourselves to be fully acquainted.

3. The *Employer* has the absolute right to arrange his affairs with the *Contractor* in any manner which the *Employer* deems fit and without being advised thereof the Surety shall not have the right to claim his release on account of any conduct alleged to be prejudicial to the Surety. Without derogating from the foregoing compromise, extension of the construction period, indulgence, release or variation of the *Contractor's* obligation shall not affect the validity of this Advance Payment bond.

4. This bond expires on the date when the Surety receives a notice from the *Project Manager* stating that the advanced payment has been repaid to the *Employer* in terms of the Contract, or liquidated by deductions from other payments due to the *Contractor.*

5. The amount of the bond shall be payable to the *Employer* upon the *Employer's* demand and no later than 7 days following the submission to the Surety of a certificate signed by the *Project Manager* stating the amount of the *Employer's* losses, damages and expenses incurred as a result of the non-performance

aforesaid. The signed certificate shall be deemed to be conclusive proof of the extent of the *Employer's* loss, damage and expense.

6. Our total liability hereunder shall not exceed the sum of ..... (R .....) which is equal to the advance payment.

7. This Advanced Payment Bond is neither negotiable nor transferable and is governed by the laws of the Republic of South Africa.

Signed at _____ on this ..... day of ..... 200_

Signature(s)		
Name(s) (printed)		
Position in Surety company		
Signature of Witness(s)		
Name(s) (printed)		

Pro forma Retention Money Guarantee (may be used when Option X16 applies)

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)

Eskom Holdings SOC Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

Reference No. **[●]** *[Drafting Note: Bank reference number to be inserted]*

Retention Money Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

Project [ ] : Contract Reference: *[Drafting Note: Contractor contract reference number to be inserted]*

In this Guarantee the following words and expressions shall have the following meanings:-

"Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]

"Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]

"Contract" – means the written agreement relating to the Project, entered into between Eskom and the Contractor, on or about the [●] day of [●] 200[●] (Contract Reference No. …….. as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted]

"Contractor" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]

"Eskom" - means Eskom Holdings SOC Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/30

"Expiry Date" - means the date on which the Defects Certificate is issued in terms of the Contract.

"Guaranteed Sum" - means the sum of R [●] ([●] Rand); [Drafting Note: Insert amount of Retention Money Guarantee.].

"Project" - means the……..

At the instance of the Contractor, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of Eskom, as security for the proper performance by the Contractor of all of its obligations in terms of and arising from the Contract and hereby undertake to pay to Eskom, on written demand from Eskom received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

be signed on behalf of Eskom by a director of Eskom or his authorised delegate.

state the amount claimed ("the Demand Amount');

state that the Contractor has failed to carry out his obligation(s) to rectify certain defect(s) for which he is

responsible under the Contract (and the nature of such defect(s)) alternatively that the Demand Amount is payable to Eskom in the circumstances contemplated in the Contract.

Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

The Bank's obligations in terms of this Guarantee:

shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed by the fact that a dispute may exist between Eskom and the Contractor.

Eskom shall be entitled to arrange its affairs with the Contractor in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the Contractor or any variation under or to the Contract.

Should Eskom cede its rights against the Contractor to a third party where such cession is permitted under the Contract, then Eskom shall be entitled to cede to such third party the rights of Eskom under this Guarantee on written notification to the Bank of such cession.

This Guarantee:

shall expire on the Expiry Date until which time it is irrevocable;

is, save as provided for in **0** above, personal to Eskom and is neither negotiable nor transferable;

shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

shall be regarded as a liquid document for the purpose of obtaining a court order; and

shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the Courts of the Republic of South Africa.

Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____ Date _____ Bank's seal or stamp

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____

Pro forma ASGI-SA Guarantee

(to be reproduced exactly as shown below on the letterhead of the Bank providing the Guarantee)

Eskom Holdings Limited
Megawatt Park
Maxwell Drive
Sandton
Johannesburg Date:

Dear Sirs

Reference No. **[●]** *[Drafting Note: Bank reference number to be inserted]*

Pro-Forma ASGI-SA Guarantee: *[Drafting Note: Name of Contractor to be inserted]*

Project [ ] Contract Reference: **[●]** *[Drafting Note: Contractor contract reference number to be inserted]*

1. In this Guarantee the following words and expressions shall have the following meanings:-

1.1 "Bank" - means [●], [●] Branch, (Registration No. [●]); [Drafting Note: Name of Bank to be inserted]

1.2 "Bank's Address" - means [●]; [Drafting Note: Bank's physical address to be inserted]

1.3 "Contract" – means the written agreement relating to the Project, entered into between the *Employer* and the *Contractor*, on or about the [●] day of [●] 200[●] (Contract Reference No. **[●]** as amended, varied, restated, novated or substituted from time to time; [Drafting Note: Signature Date and Contract reference number to be inserted]

1.4 "*Contractor*" – means [●] a company registered in accordance with the laws of [●] under Registration Number [●]. [Drafting Note: Name and details of Contractor to be inserted]

1.5 "*Contractor's* ASGI-SA Obligations" – means the *Contractor's* ASGI-SA Obligations under and as defined in the Contract.

1.6 "*Employer*" - means Eskom Holdings Limited, a company registered in accordance with the laws of the Republic of South Africa under Registration Number 2002/015527/06.

1.7 "Expiry Date" - means the [●] day of [●] 200[●]; [Drafting Note: anticipated date of issue of ASGI-SA Performance Certificate to be inserted.]

1.8 "Guaranteed Sum" - means the sum of R [●] ([●] Rand);

1.9 "Project" – means the ……

2. At the instance of the *Contractor*, we the undersigned _____ and _____, in our respective capacities as _____ and _____ of the Bank, and duly authorized thereto, confirm that we hold the Guaranteed Sum at the disposal of the *Employer*, as security for the proper performance by the *Contractor* of the *Contractor's* ASGI-SA Obligations and hereby undertake to pay to the *Employer*, on written demand from the *Employer* received prior to the Expiry Date, any sum or sums not exceeding in total the Guaranteed Sum.

3. A demand for payment under this guarantee shall be made in writing at the Bank's address and shall:

3.1 state the amount claimed ("the Demand Amount');

3.2 state that the Demand Amount is payable to the *Employer* in the circumstances contemplated in the Contract.

4. Notwithstanding the reference herein to the Contract the liability of the Bank in terms hereof is as principal and not as surety and the Bank's obligation/s to make payment:

4.1 is and shall be absolute provided demand is made in terms of this bond in all circumstances; and

4.2 is not, and shall not be construed to be, accessory or collateral on any basis whatsoever.

5. The Bank's obligations in terms of this Guarantee:

5.1 shall be restricted to the payment of money only and shall be limited to the maximum of the Guaranteed Sum; and

5.2 shall not be discharged and compliance with any demand for payment received by the Bank in terms hereof shall not be delayed, by the fact that a dispute may exist between the *Employer* and the *Contractor*.

6. The *Employer* shall be entitled to arrange its affairs with the *Contractor* in any manner which it sees fit, without advising us and without affecting our liability under this Guarantee. This includes, without limitation, any extensions, indulgences, release or compromise granted to the *Contractor* or any variation under or to the Contract.

7. Should the *Employer* cede its rights against the *Contractor* to a third party where such cession is permitted under the Contract, then the *Employer* shall be entitled to cede to such third party the rights of the *Employer* under this Guarantee on written notification to the Bank of such cession.

8. This Guarantee:

8.1 shall expire on the Expiry Date until which time it is irrevocable;

8.2 is, save as provided for in **0** above, personal to the *Employer* and is neither negotiable nor transferable;

8.3 shall be returned to the Bank upon the earlier of payment of the full Guaranteed Sum or expiry hereof;

8.4 shall be regarded as a liquid document for the purpose of obtaining a court order; and

8.5 shall be governed by and construed in accordance with the law of the Republic of South Africa and shall be subject to the jurisdiction of the courts of the Republic of South Africa.

8.6 Any claim which arises or demand for payment received after expiry date will be invalid and unenforceable.

9. The Bank chooses domicilium citandi et executandi for all purposes in connection with this Guarantee at the Bank's Address.

Signed at _____ Date _____

For and behalf of the Bank

Bank Signatory: _____ Bank Signatory: _____

Witness: _____ Witness: _____
Bank's seal or stamp

PART 2: PRICING DATA
ECC3 Option A

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

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

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

Identified and defined terms	11 11.2	(20) The Activity Schedule is the *activity schedule* unless later changed in accordance with this contract. (27) The Price for Work Done to Date is the total of the Prices for • each group of completed activities and • each completed activity which is not in a group. A completed activity is one which is without Defects which would either delay or be covered by immediately following work. (30) The Prices are the lump sum prices for each of the activities on the Activity Schedule unless later changed in accordance with this contract.

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

Function of the Activity Schedule

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

Link to the programme

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

Preparing the *activity schedule*

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

The *Employer*, in his Instructions to Tenderers or in a Tender Schedule, may have listed some items that he requires the *Contractor* to include in his *activity schedule* and be priced accordingly.

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

- Has taken account of the guidance given in the ECC3 Guidance Notes pages 19 and 20;
- Understands the function of the Activity Schedule and how work is priced and paid for;
- Is aware of the need to link the Activity Schedule to activities shown on his programme;
- Has listed and priced activities in the *activity schedule* which are inclusive of everything necessary and incidental to Providing the Works in accordance with the Works Information, as it was at the time of tender, as well as correct any Defects not caused by an *Employer's* risk;
- Has priced work he decides not to show as a separate activity within the Prices of other listed activities in order to fulfil the obligation to complete the *works* for the tendered total of the Prices.
- Understands there is no adjustment to the lump sum Activity Schedule price if the amount, or quantity, of work within that activity later turns out to be different to that which the *Contractor* estimated at time of tender. The only basis for a change to the Prices is as a result of a compensation event.

Activities	QTY	Unit	Price per unit	Total price
Design of a new drives for extendable and Shiftable conveyors				
1. New conveyor head design for dual drive on extendable 14 and 24	1	each		
2. Conveyor design calculations	1	each		
3. Drive train component selection designs (gearbox motor coupling and pulley) for current minimum requirements and future requirements	8	each		
4. Load flow study on proposed changes on substation	2	each		
5. Power supply cable design calculations for proposed changes and future changes.	8	each		
6. Drawing package In Eskom format	1	each		
Phase 1 installation of new extendable 24 conveyor head				
1. Construction of a new conveyor head	1	each		
2. Installation of junction boxes (C&I and electrical) 400 x 400 SS	10	each		
3. Installation of non-drive pulleys complete with plumber blocks and bearings	4	each		
4. Installation of drive pulleys complete with plumber blocks and bearings	2	each		
5. Installation of drive train	2	each		
6. Installation of 1 primary scraper (hosch)	1	each		
7. Connection and testing of motor electrical	2	each		
8. Installation of 2 secondary scrapers (hosch)	2	each		
9. Installation of a new power cables for the new drive 90mm^2 (trench to be dug 1200m)	2400	meters		
10. Installation of coupling protections on main conveyor line	2	each		
11. Installation of pull keys and belt protections	2	each		
12. Installation of idlers on head	75	each		
13. Plant commissioning	1	each		
MATERIAL				
1. Supply of junction boxes for all C&I and electrical equipment 400 x 400 SS	10	each		
2. Supply of all non-drive rubber diamond lagged pulleys	4	each		
3. Supply of all non-drive pulley bearings and plumber blocks	8	each		
4. Supply of all drive ceramic lagged pulleys and SKF bearings	2	each		

Activities	QTY	Unit	Price per unit	Total price
MATERIAL				
5. Supply of all drive pulley bearings and plumber blocks	4	each		
6. Supply of hosch scrapers primary	1	each		
7. Supply of hosch scrapers secondary	2	each		
8. Supply of 250 kw motors	2	each		
9. Supply of drive coupling	2	each		
10. Supply of Hansen QHRG3 gearbox	2	each		
11. Supply of low-speed coupling RFK coupling type	2	each		
12. Supply of drive train bed	2	each		
13. Supply of coupling switches	2	each		
14. Supply of coupling fusible plug pins	4	each		
15. Supply of motor electrical 3.3 kv cables approx. 90mm^2 3 core	2400	meters		
16. Supply of idler strings for head	50	each		
Phase 2: Installation of a new 250kw drives at extendable 14				
1. Construction of a new conveyor head	1	each		
2. Installation of junction boxes (C&I and electrical) 400 x 400 SS	10	each		
3. Installation of non-drive pulleys complete with plumber blocks and bearings	4	each		
4. Installation of drive pulleys complete with plumber blocks and bearings	2	each		
5. Installation of drive train	2	each		
6. Installation of 1 primary scraper (hosch)	1	each		
7. Connection and testing of motor electrical	2	each		
8. Installation of 2 secondary scrapers (hosch)	2	each		
9. Installation of a new power cables for the new drive 90mm^2 (trench to be dug 1200m)	2400	meters		
10. Installation of coupling protections on main conveyor line	2	each		
11. Installation of pull keys and belt protections	2	each		
12. Installation of idlers on head	75	each		
13. Plant commissioning	1	each		

Activities	QTY	Unit	Price per unit	Total price
MATERIAL				
1. Supply of junction boxes for all C&I and electrical equipment 400 x 400 SS	10	each		
2. Supply of all non-drive rubber diamond lagged pulleys	4	each		
3. Supply of all non-drive pulley bearings and plumber blocks	8	each		
4. Supply of all drive ceramic lagged pulleys and SKF bearings	2	each		
5. Supply of all drive pulley bearings and plumber blocks	4	each		
6. Supply of hosch scrapers primary	1	each		
7. Supply of hosch scrapers secondary	2	each		
8. Supply of 250 kw motors	2	each		
9. Supply of drive coupling	2	each		
10. Supply of Hansen QHRG3 gearbox	2	each		
11. Supply of low-speed coupling RFK coupling type	2	each		
12. Supply of drive train bed	2	each		
13. Supply of coupling switches	2	each		
14. Supply of coupling fusible plug pins	4	each		
15. Supply of motor electrical 3.3 kv cables approx. 90mm^2 3 core	2400	meters		
16. Supply of idler strings for head	50	each		
Preliminaries and General				
1. Accommodation		Sum		
2. Site visits (degsing phase)		Sum		
3. Travelling		Sum		
4. Transportation (Truck)		Sum		
5. Transportation (Abnormal from JHB ot site)		Sum		
6. Safety officer		Sum		
7. Safety file		Sum		
8. PPE		Sum		
9. Medicals		Sum		
10. Site establishment		Sum		
11. De-establishment		Sum		

Table 2: Detailed breakdown for costs associated with health and safety adherence as per NEC

Activities	QTY	Unit	Price per unit	Total price

Part 3: Scope of Work

Document reference	Title	No of pages
	This cover page	1
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	Total number of pages	

C3.1: Employer's works Information

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1. Description of the works

1.1. Executive overview

The conveyor extension project entailed the repositioning of the ash stacker and spreader along with the conveyors to the top of an existing ash heap by doing parallel shifting of 100 meters to ensure Matimba power station has sufficient space and is able to ensure sufficient ashing space

Part of the repositioning will require extension of the extendable conveyer by 100 meters and parallel shifting the shiftable conveyors to the top of an existing ash heap by 100 meters to ensure continuous ashing. This change in length and height require us to upgrade the drives.

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

The objectives of the *works* are: Please refer to

- Upgrading the Extendable 24 drive trains with 250 kw drives
- Upgrading the Extendable 14 drive trains with 250 kw drives

The installation of the mentioned systems should promote the following:

- Ensure continuous ashing throughout the project.
- Low maintenance design. (what is our maintenance requirements)
- Standardisation between all components as far as possible

Commented [A1]:

Commented [A2R1]: We should still be able to follow the current existing maintenance strategy even after the upgrade – hence the equipment will not deviate from the current

1.3. Interpretation and terminology

The following abbreviations are used in this Works Information:

	Meaning given to the abbreviation
KKS	Kraftwerk-Kennzeichnung system developed by the VGB (Germany) Plant Codification System
LHS	Left Hand side
N/A	Not Applicable
OEM	Original Equipment Manufacturer
PTW	Permit to work
PM	Planned Maintenance
QCP	Quality Control Plan
RH	Right Hand side
SOW	Scope of Work

2. Management and start up.

2.1. Management meetings

Meetings are held monthly between the Project Manager and the Contractor (and any other co-opted members). The Contractor is represented, at each meeting, by the appropriate members of the staff.

The venue for these meetings is as determined by the Project Manager. The Project Manager writes the minutes of meetings.

Any action of the Project Manager or Contractor implied in the minutes of meetings with contractual implications is confirmed by means of a separate communication given in accordance with this Works Information and NEC.

The Contractor reports the overall progress and as a minimum requirement, the following is addressed:

- Contractor's current activity progress and planned finish dates;
- Contractor's programme agenda compared for delays and milestone targets
- Health, safety, environmental and quality Management;
- The progress of any other relevant activities;
- To discuss any technical or commercial issues;
- Problem areas or concerns.

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

Title and purpose	**Approximate time & interval**	**Location**	**Attendance by:**
Project Kick-Off Meeting	Once, before contract start	Matimba Power Station	**Contractor's** Project Manager, Project Supervisor and other attendees at the discretion of the contractor. **Employer's** Project Team
Quality Kick Off Meeting (How project deliverables will be achieved in terms of quality plan)	Once, before contract start	Matimba PS	**Contractor's** Project Manager, Project QC and other attendees at the discretion of the contractor. **Employer's** Project Team

Title and purpose	Approximate time & interval	Location	Attendance by:
	TBC	Matimba Power Station	**Contractor's** Project Manager, Project Supervisor and other attendees at the discretion of the contractor. **Employer's** Project Team
Progress Report and Assessment Meeting	Monthly	Matimba Power Station	**Contractor's** Project Manager, Project Supervisor and other attendees at the discretion of the contractor. **Employer's** Project Team
Risk Management Review	TBC	Matimba Power Station	**Contractor's** Project Manager, Project Supervisor and other attendees at the discretion of the contractor. **Employer's** Project Team

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*. Such meetings should not prejudice the Employer in terms of cost, quality and schedule. 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 / Documentation Control / Configuration Management

2.2.1. Document Management

Document identification

The documentation requirements cover the various engineering stages, from the design stage through fabrication, installation, testing and commissioning and most importantly for the operating, maintenance and training stage of the project.

The Contractor is responsible for the compilation and the supply of the documentation during the various project stages and to provide the documentation programme to link with the milestone

dates. Documentation and drawings are programmed for delivery to meet the milestone dates and in accordance with the agreed VDSS supplied Employer.

Documents Submission

All documents and records are submitted according to Technical Document and Record Management Work Instruction (240-76992014) and Gx Projects Documentation Deliverable Requirements Specification (240-65459834) and the Employer ensures that the Contractor is provided with latest revisions of all these documents. In order to portray a consistent image it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the documents above. The Contractor is required to submit documents as electronic in .pdf format in a CD and hard copies and are delivered to the Project Manager with a transmittal note.

The Contractor submits the Master Document List to the Employer on a monthly basis for tracking purposes irrespective of whether there are updates or not. The MDL includes list of drawings and documents and contains the following minimum information for each document:

- Date of submission
- Transmittal number
- Transmittal title
- Document description
- Document number
- Document Type
- Revision number
- Document Approval Status
- Document Authorisation Status (i.e. Accepted With Comments, Not Accepted with
- Comments, Accepted)

Documentation Review and Turn-around

The Employer has a minimum four working days to review and consolidate review comments for documentation submitted by the Contractor. The Contractor also has a minimum four working days to respond and / rectify as per the comments by the Employer.

2.2.2. Drawings Format and Layout

The creation, issuing and control of all Engineering Drawings are in accordance with the latest revision of 240-86973501 (Engineering Drawing Office and Engineering Documentation Standard). Drawings issued to the Employer are a minimum of one hardcopy and an electronic copy. All Contractors are required to submit electronic drawings in Micro Station (DGN) format, and scanned drawings in pdf format. No drawings in TIFF, AUTOCAD or any other electronic format are accepted. Drawings issued to the Employer may not be “Right Protected” or encrypted. The Employer reserves the right to use these drawings to meets it other contractual obligations.

2.2.3. Plant Identification

Plant Coding

Coding of the design is based on the KKS coding system and the Employer undertakes the coding in line with its standards. The KKS coding is applied during the design review stage(s) and cross referenced to all arrangement drawings, schematics, wiring diagrams, instructions and manuals and where practical to spare parts list/manuals. The Contractor is required to include allocated coding to the electronic design drawings.

The Contractor to use the KKS system for classifying and designating both plant and their associated documents. All technical documentation as per “Technical documentation classification and designation standard – 240-54179170” contain a KKS code as part of the documentation identification relevant to the plant equipment. All plant (Process, Mechanical,

Electrical, C&I and Civil) to be coded to KKS breakdown level 3. The KKS code contains break down level 1, break down level 2 and breakdown level 3. Omission of any break down level is not permitted. The system is applied from the concept stage until project closeout.

Detailed nameplate or label list with the service legends and including the KKS Code to be prepared by the Contractor and submitted to the Project Manager for review and comment before commencing manufacture of the labels. All maintainable plant equipment and components to be labelled including pipework and cabling. The rules for applying the KKS and the KKS codes are contained in the Employer's Standard 240-93576498: KKS Coding Standard and in the publication KKS power plant classification (B105e) 5th Edition 2003 published by Verlag VGB PowerTech Service GmbH (Essen), and the KKS Applications: Guideline and explanations A, B1-4 (B106e).

The Contractor to code all plant within scope of supply according to the KKS Classification System to Breakdown Level 3 where possible. The relevant KKS codes thus allocated appear on all plant related documentation, drawings, lists and correspondence.

The Contractor is responsible for ensuring the accuracy, completeness and consistency of the designations in all documents. This applies both to designations within documents (plant designations) and of Documents (documents designations). The Contractor to submit these for the Project Manager's acceptance.

A list of the KKS designations allocated is drawn up by the Contractor for each scope of delivery. Methods of KKS designation, list formulation and submission format to be proposed by the Contractor and agreed by the Project Manager.

Plant Labelling

- The Contractor supplies the labelling for all plant, material and equipment provided as part of the works.
- It is the responsibility of the Contractor to manufacture and install labels according to 240-71432150: Plant Labelling Standard.
- Coding and labelling of components inside electrical and C&I panels are completed by the Contractor.
- The Coding practitioner to facilitate base-lining of all equipment lists from the Contractor, and only baseline equipment lists to be used as a basis for the production of labels.
- Abbreviations to descriptions on the labels are generally not acceptable. Where abbreviations are unavoidable, due to the limited number of characters that can be engraved/etched on labels, the abbreviations are submitted to the Project Manager for acceptance. The Contractor makes use of the Employer's "Eskom Plant Labelling Abbreviation Standard; 240-109607332.
- The Contractor makes use of the KKS codes and descriptions provided by the Employer.
- The Contractor supplies to the Project Manager, for verification and acceptance purposes, with a label list showing the text only. The Project Manager's acceptance should be sought for the positioning and designation of labels.
- The KKS codes are used accordingly on documentation (e.g., drawings, manuals, equipment lists, cable schedules etc.) as a unique identification means. References to plant are accompanied by the relevant KKS code for that item of plant.

2.3. Health and safety risk management

2.3.1. General

In carrying out its obligations to the Employer in terms of this contract, which obligations include, amongst others, to Provide the Works; using Plant, Materials and Equipment; and whilst at the site for any reason, the Contractor is the "Employer" in terms of the Occupational Health and Safety Act, No. 85 of 1993, in respect of its activities and in relation to its employees, agents, Subcontractor/s and mandatories.

The Contractor does not consider itself under the supervision or management of the Employer with regard to compliance with the Safety Health and Environmental requirements.

Furthermore, the Contractor does not consider himself to be a subordinate or under the supervision of the Project Manager in respect of these matters. The Contractor is responsible for the supervision of its employees, agents, Subcontractors and mandatories and takes full responsibility and accountability for ensuring that they are competent, aware of the Safety Health and Environmental requirements, whilst executing the works in accordance with the Safety Health and Environmental requirements.

The Contractor ensures compliance with, amongst others:

- The provisions of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations (as amended), binding in terms thereof;
- The latest versions of standards, procedures, specifications, rules, systems of work and requirements of the Employer, copies of which are provided to the Contractor on request.
- The Health and Safety Plan prepared by the Contractor in accordance with the Employer's Safety Health and Environmental Specification – 240-149136837 and requirements.
- The provisions of the National Environmental Management Act (as amended) and all regulations in force from time to time in terms of that Act,

The Contractor ensures that its employees, agents, Subcontractors and mandatories comply with the provisions of the Occupational Health and Safety Act, No. 85 of 1993, and all applicable regulations binding in terms thereof as well as the Employer's Safety Health and Environmental Specification - 240-149136837 whilst making use of plant, materials and equipment and whilst at the Site for any reason whatsoever.

The Contractor implements a comprehensive health and safety management system, based on the OHSAS 18001 requirements for utilisation at the project.

The Contractor appoints a person, qualified and competent in accordance with the safety health and environmental requirements, as the liaison with the Employer's Project Safety, Health and Environment Manager/Officer or delegated person for all such matters as pertaining related to safety, health and the environment. The Contractor ensures that such a person is contactable 24 hours a day, and is registered with a registered professional council approved by the Principal Director of the Department of Labour, as per the requirements of the latest Construction Regulations, inclusive of all exemptions and amendments pertaining thereto.

The Contractor hereby indemnifies the Employer and holds the Employer harmless in respect of any and all loss, costs, claims, demands, liabilities, damage, penalties or expenses that may be made against the Employer and/or suffered or incurred by the Employer (as the case may be) as a result of, any failure of the Contractor, its employees, agents, Subcontractors and mandatories to comply with their obligations, and/or the failure of the Employer to procure the compliance by the Contractor, its employees, agents, Subcontractors and/or mandatories with their responsibilities and/or obligations in terms of or arising from the Occupational Health and Safety Act, No. 85 of 1993.

The *Contractor* acknowledges that he is fully aware of the requirements of all requirements and undertakes to employ only people who have been duly authorised in terms thereof and who have received sufficient safety training to ensure that they can comply therewith.

The *Contractor* undertakes not to do, or not to allow anything to be done which will contravene any of the provisions of the Act, Regulations or Safety and Operating Procedures.

The *Contractor* shall appoint a person who will liaise with the *Emp*loyer Safety Officer responsible for the premises relevant to this contract. The person so appointed shall on request:

- Supply the Employer Safety Officer with copies of minutes of all Health and Safety Committee meetings, whenever he is required to do so.

- Supply the Employer Safety Officer with copies of all appointments in respect of Employees employed on this contract, in terms of the Act and Regulations and shall advise the Employer Safety Officer of any changes thereto.

*Emp*loyer may, at any stage during the currency of this agreement be entitled to:

- Do safety audits at the Contractor's premises, its work places and on its Employees.
- Refuse any Employees, sub-Contractor or agent of the Contractor access to its premises if such person are found to commit any unlawful act or any unsafe working practice or is found to be not authorised or qualified in terms of the Act.
- Issue the Contractor with a work stop order or a compliance order should Employer become aware of any unsafe working procedures or conditions or any non-compliance with the Act, Regulations and Procedures by the Contractor or any of its Employees, sub-Contractors or agents. Stoppages of this nature will not constitute a compensation event.

2.3.2. Mandatory Agreements

The Contractor confirms that:

- In terms of sections 37(1) and 37(2) of the OHSA, the Employer is relieved of any and all of its responsibilities and liabilities pertaining to the activities performed by the Contractor (and its employees, agents, Subcontractors and mandatories) relating to the works; the use of plant, materials and equipment; and whilst at the Site for whatsoever reason.
- b) The Contractor confirms that, in terms of the Construction Regulations, Regulation 6, it is hereby mandated as the designer and must perform all duties required of a designer. (This will be applicable only where the Contractor is required to do design work as part of their Scope).

The Contractor confirms that he has been provided with sufficient information regarding the health and safety arrangements applicable to the works; the use of Plant, Materials and Equipment, as well as at the Site.

In addition, the Contractor ensures that:

- Prior to the Contractor commencing with any operations/ activities relating to the works and/or prior to gaining access to the Site, the Contractor concludes a written mandatory agreement with the Employer in terms of Section 37(2) of the OHSA and 5(1)(k) under the construction regulations. The aforementioned agreement constitutes a record of the written arrangements and procedures between the Contractor and Employer regarding health and safety.
- As far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances is maintained;
- As far as is reasonably practicable, all hazards pertaining to the health and safety of persons and harm to the environment that are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in its business, is clearly identified and, as far as is reasonably practicable, further establishes what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons and or harm to the environment, and provides the necessary means to apply such precautionary measures;
- Such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of its employees, agents, Subcontractors and mandatories is provided;
- As far as is reasonably practicable, no employee, agent, Subcontractor and transports any article or substance or operates any plant or machinery, unless the precautionary measures contemplated in paragraph 2.3.3, or any other precautionary measures which may be prescribed have been taken;
- Such measures as may be necessary in the interest of health and safety and the environment are enforced;

- Work is performed and that plant, materials or equipment is used under the direct supervision of a person trained to understand the hazards associated with it and who has the authority to ensure that precautionary measures required by the Employer are implemented; and
- All employees are informed of the scope of their authority as contemplated in OHSA.

2.3.3. Health and Safety Obligations

In addition to the mandatory agreements, the Contractor:

- Ensures that all statutory appointments (as required in terms of the Occupational Health and Safety Act, No. 85 of 1993 and all applicable regulations binding in terms thereof, as amended) and other appointments required in terms of the Employer's Safety Health and Environmental Specification – 240-149136837 and SHE Requirements Procedure (32-726) are in place and that all appointees are cognisant of their duties and responsibilities in terms of such appointments;
- Ensures that such appointees execute their duties and responsibilities as required by such an appointment.
- Ensures that all personnel brought by itself onto site (including employees of Contractors and Subcontractors) are suitably qualified and trained for the performance of the task, duties and functions, which are allocated to them;
- Immediately reports any occupational or other injuries, near miss events, property damage, environmental related incidents as well as any potential threat to the health and safety of individuals at the works or on the site, as soon as he becomes aware thereof, to the Project Manager; Complies with the Employer's Occupational Health and Safety Incident Management Procedure – 32-95 and Environmental Incident Management Procedure – 240-133087117 relating to the reporting and investigation of incidents. The classification of incidents contained in such document are considered final and are applied by the Contractor relating to any incidents/ injuries relating to its employees, agents, Contractors, Subcontractors and mandatories whilst on Site;
- Conducts a risk assessment regarding the utilisation of PPE and thereafter ensure that PPE of good quality is issued (at its own cost) to its employees, agents, Contractors, Subcontractors and mandatories prior to such individuals accessing the site, alternatively performing activities related to the works at the site, as specified in the Eskom PPE Specification - 240-44175132.

2.3.4. Eskom Life Saving Rules (240-62196227)

RULE 1: RULE 1: OPEN, ISOLATE, TEST, EARTH AND CREATE AN EQUIPOTENTIAL ZONE BEFORE TOUCH
To ensure a safe electrical work environment, no person may work/operate on, around or near any electrical network, line or apparatus, electrically connected to the power system and/or electrically charged and/or not electrically charged unless:

a) He/she is trained and authorised as competent for the task to be done.
b) There is a valid permit to work where required and they are being supervised by a competent person.
c) A pre-task risk assessment to identify all risks and hazards has been conducted before any work commences.
d) He/she follows the requirements on OPEN, ISOLATE, TEST, EARTH, AND CREATE AN EQUIPOTENTIAL ZONE BEFORE TOUCH, based on applicable/related standards, procedures and outcome of risk assessment fit for the type of work or task to be performed.
e) The work area shall be within the equipotential zone, with the working earth visible at all times.
f) The authorised person has physically shown all team members that the apparatus is safe to work on.
g) He/she makes the specific electrical environment safe before performing the work; and
h) All the appropriate PPE (including face shield and insulated gloves for 1low voltage work) are worn.
Note: The equipotential zone is only applicable for work being done on medium and high voltage apparatus.

RULE 2: HOOK UP AT HEIGHTS

Working at height is a significant part of work in Eskom Holdings and is regarded as a high-risk activity, as a result, all precautions must be taken to prevent incidents while working at height.

Wherever reasonably practicable, preference must be given to the performance of work at ground level as opposed to work in an elevated position. Where work in an elevated position is necessary, the requirements in this document and all other Eskom requirements pertaining to working from height shall apply.
No person may work at height where there is a risk of falling unless:

A Fall Protection Plan has been developed by a trained fall protection plan developer and communicated to all employees working at height based on the scope of work/task.
b) He/she is medically fit to work at height.
c) He/she is trained in accordance with Eskom's requirements for working at height
d) A pre-task-specific work at height risk assessment to identify all risks and hazards has been conducted and communicated to all participants before commencing any work of this nature.
e) He/she appropriately conducts work as determined by the risk assessment.
f) He/she is appropriately secured during ascending and descending where applicable; and
g) He/she is using an Eskom-approved fall arrest system where applicable.

RULE 3: BUCKLE UP

Where required, the proper wearing of seat belts for any driver, operator and passenger is mandatory in all vehicles/equipment when driving and/or travelling for Eskom business purposes. The driver is obligated to ensure that he/she as well as all passengers are properly seated and wearing their seatbelts at all times while being transported in the vehicle, as per Eskom specifications.

Note: This rule is applicable on any road or parking lot, irrespective of the speed, and when the vehicle moves in a forward or backward direction.

RULE 4: BE SOBER

No person who is under the influence or who appears to be under the influence of intoxicating liquor or drugs will be permitted to enter or remain on an Eskom site conduct Eskom business or drive/operate a vehicle/equipment for Eskom business purposes.

This includes any level of alcohol or the presence of any drugs, controlled substances, and/or illegal substances in the body that impairs or could impair mental and physical functioning, irrespective of when the substance was used.

RULE 5: ENSURE THAT YOU HAVE A PERMIT TO WORK

No person shall work without the required Permit to Work (PTW), which is governed by but not limited to:
a) Plant Safety Regulations; or
b) Operating Regulations for High Voltage Systems (ORHVS) (handover or permit); or
c) Low Voltage Operating Regulations; or
d) Any other activity where a permit is required, for example, driver and statutory permits.

No apparatus is to be returned to service without the cancellation of all permits on that plant in accordance with procedure, unless permission is granted for a particular plant to be returned to service with permits still open, like in the case of redundant systems.

NOTE: In the case of live work, a "Live Work Declaration Form" is to be completed by the authorised person, who is the person responsible for the safe execution of work according to relevant standards and procedures.

RULE 6: ENSURE SAFE LIVE WORKING
To ensure safe live work, each live worker shall:

a) Ensure all live work basic principles are adhered to, as outlined (for the method being used) in the High Voltage Live Working Standard for the respective division.
b) Observe and maintain the minimum approach distance (MAD).
c) Only perform live work (never mix live and dead work on the same site at the same time – Refer to ORHVS Section 7 and 5 handouts respectively).
d) Perform tasks they are authorised for and only undertake tasks that are documented in the respective Task Manual (TM). Only work on one potential (voltage) at a time.

Consequences of Violating a Life-Saving Rule

In terms of general health and safety in Eskom, if any of the Life-Saving Rules are violated, it will be treated as serious misconduct, and result in a disciplinary process in accordance with the Eskom Disciplinary Code and Procedure.

It must be highlighted that Eskom takes a ZERO TOLERANCE stance to violation of these rules. Depending on the circumstances, Eskom reserves the right, where a contractor manager/supervisor allows the violation of a Life-Saving Rule, to suspend the contractor's activities while determining an appropriate sanction.

Where a contractor employee allegedly violates a Life-Saving Rule, the contractor shall immediately remove the employee from the site and initiate the disciplinary process. The contractor shall investigate any violation of a Life-Saving Rule and initiate the disciplinary process within five (5) working days of the violation. The contractor shall furnish Eskom with a copy of the sanction after the disciplinary process.

2.3.5. Matimba Permit to Work System

The *Contractor* will ensure that he/she is informed of all the requirements of Eskom's Plant Safety Regulations and ORHVS and that he/she at all times comply to the requirements of these Regulations.

The *Contractor* will ensure that all his supervisors who are directly involved with Eskom's Permit to Work System, are trained and on successful completion of Matimba's authorization / evaluation process will be authorized as "Responsible Persons".

The Responsible Person shall ensure that:

- The conditions of permits and cautionary notices are strictly adhered to
- The lockout procedures, mechanical as well as electrical, are strictly adhered to and any deviations shall be corrected immediately
- The safe work procedures as laid down by Matimba Power Station and as determined by the Risk Assessment, shall be followed
- The workers register and cautionary notices are discussed daily with workers

2.3.6. Health and Safety Plan (Construction Regulations)

The following will be required after contract reward:

The Contractor shall compile a Health and Safety Plan, filed in a Health and Safety File, comprising of the following:

- Proof of the contracting company's own Health and Safety Policy

- Proof of appointments, assignments and designations as required in terms of the Occupational Health and Safety Act, No 85 of 1993
- Proof of Risk Assessments regarding Hazards identified and proof of training of own employees regarding controls derived from the risk assessment
- Proof of Safe Work Procedures that derived out of the Risk Assessments
- Proof of the contracting company's own Emergency Plan that will deal with their own emergencies on site
- Proof of a Fall Protection Plan, if required to perform work at elevated levels developed by a competent person appointed by the contracting company
- Proof of "Notification to perform Construction Work" – a copy of the notification addressed to the Department of Labour as required Regulation 3 of the Construction Regulations
- Proof of an Induction Program (it is advised that the Matimba SHE Rules as a Guide) and an attendance register signed by its employees prior the commencement of any construction work on site
- Proof of the contracting company's employees Medical Fitness Certificate. (Must still be valid – one year. May only have been issued by an occupational health practitioner)
- Proof of contractors weekly Health and Safety Rep Inspections regarding its own site and where detached work is performed
- Proof of Personal Protective Equipment (PPE) issued to Contractor's employees
- Proof of contracting company's Accident/Incident Reporting and Investigation System
- Proof of checklists and where applicable test certificates, regarding contractor's tools, equipment, machinery, mobile equipment, vessels under pressure and any other applicable checks required by the Act
- A "Section 37(2) Agreement with Mandatory" needs to be drawn up by the Employer and co-signed by the Contractor before work can commence
- The Contractor shall ensure that his Subcontractors do also have a Health and Safety File and that it must be accepted by the Contractor.
- The Safety Officer employed by Matimba Power Station will audit these Health and Safety Plans to ensure compliance with the provisions of the Act.
- In terms of Clause 4 (b) of the Construction Regulations, the Employer points out the hazards or risks that is associated with the works, as indicated in Appendix B, to the Contractor. The hazards or risks it are however not limited to this list.

2.4. Environmental constraints and management

The Contractor shall adhere to all requirements as set out in 240-146112716: Environmental management
requirements for contractors.

The Contractor provides an Environmental Management Plan applicable during the execution of the Works. The plan provides a guideline on the environmental management of the handling of the works. All waste is handled in an environmentally friendly manner. The Contractor conforms to the "polluter pays principle", duty of care and other NEMA principles.

The Contractor conforms to all requirements dictated in the document as well as the National Environmental Management Act (NEMA, Act No. 107 of 1998) and the National Environmental Management Waste Act (NEMWA, Act No. 59 of 2008). This is achieved by undertaking inspections, audits, monitoring and reviews, conducted internally by the Contractor and externally by the Project Manager.

The Contractor ensures that all environmental authorization obligations, applicable legislative requirements and Employer's specific requirements are fulfilled. This includes all national, provincial and local environmental legislation and requirements.

The Contractor issues on a monthly basis, Environmental Management Performance and Expenditure Reports to the Project Manager.

The Contractor conducts their environmental management based on the ISO 14001 requirements and implement their environmental management practices accordingly.

The Contractor develops and implements as a minimum the following procedures:

- Environmental Management Plan,
- Waste Management Work Instruction,
- Spill Management Procedure,
- Hazardous Chemical Substances Management and Storage Procedure,
- Stockpile and Erosion Management Procedure,
- Clear-and-Grub Procedure,
- Environmental Rehabilitation Procedure.

All environmental procedures, as listed above, are site-specific and submitted to the Employer for acceptance by the Project Manager before the commencement of construction activities. The Employer provides a copy of the environmental authorisation and Environmental Management Plan to the contractor for the drafting of the above procedures.

2.4.1. Waste Management

All waste management activities, which includes procurement of control measures, handling and disposal or processing of all waste forms generated on the Contractor's site, are conducted according to Matimba Power Station Waste Management Procedure – PS/244/001, and all requirements of the Employer as per the Environmental Management Programme All costs associated with waste management are the responsibility of the Contractor.

Provide sufficient storage containers, labelled depicting general or hazardous waste and store in a designated storage area

2.4.2. Rehabilitation

The Contractor rehabilitates both its lay-down and construction site including all disturbed areas under their jurisdiction and or as directed by Supervisor at the end of the project. The Contractor submits to the Project Manager a rehabilitation plan and schedule at least 2 weeks before finalisation of the works for acceptance by the Project Manager. All rehabilitation costs are the responsibility of the Contractor.

2.4.3. Hazardous Waste

All waste introduced to and/or produced on *Emp*loyer's Premises by the *Contractor* for this order, must be handled in accordance with the minimum requirements for the Handling and Disposal of hazardous waste in terms of Government Legislation as proclaimed by the Department of Water Affairs and Forestry 1994 Ref.: BN0621-16296-5. (A copy of this document is available at the Power Station for reference purposes).

No hazardous waste may be stored for a period of more than 90 days on the Matimba premises. Ensure that all hazardous waste is disposed of at a licensed Class H disposal site. A copy of the hazardous waste disposal certificate is submitted to the Project Manager.

2.4.4. Environmental Management

Matimba has an Environmental Policy, PP/240/001, to which the *Contractor* and his employees must adhere. It is the responsibility of the *Contractor* to ensure that he obtains copies of the Matimba Environmental Policy, the legal register applicable to his area of responsibility, the aspect register and the Matimba procedures (applicable to the *Contractor's* area of responsibility) and to familiarize themselves on such procedures, within 30 days from the date of commencement of work at Matimba, to assist the *Contractor* and his/her employees to prevent pollution and to comply with legislative requirements. Copies of the above-mentioned documents shall be obtained from the *Project Manager* or Environmental Officer on the first day prior to commencement of work at Matimba. The *Contractor* shall submit proof to the Environmental Officer of Matimba that he and his employees has done all the necessary training on procedures

and Policies supplied to them and that they do understand the contents of the procedures, registers and policies and will adhere to them at all times.

The non-adherence to the Matimba Environmental policy and rules could result in the termination of this contract.

2.5. Quality assurance requirements

2.5.1. Quality Management System

The *Contractor* shall implement and maintain a quality management system that as a minimum meets the requirements of 240-105658000 - Supplier Quality Management: Specification. If the *Contractor* is registered, the appropriate ISO 9001:2000 Registration certificate of compliance must be supplied with the tender.

The *Contractor* further ensures that the subcontractor's programmes comply with the requirements of the Works Information.

The *Contractor* notifies the *Project Manager* of any changes to the Quality System and obtains agreement prior to implementation on existing orders and contracts, or sub orders and subcontracts.

2.5.2. Quality Documents Submitted with the Tender

The Contractor submits a copy of his quality policy and quality system procedures relevant to the Works.

The Contractor also submits a typical quality control plan.

The Project Manager and Quality Engineer evaluates the Contractor's capabilities with regards to quality assurance and quality control based on these submissions and the performance history of the Contractor. The Project Manager and Quality Engineer performs pre-award assessments where necessary, giving further information to aid the selection process.

2.5.3. Quality Documents Submitted after the Contract Date

Contractor submits a fully detailed Quality Assurance Programme (QAP) for acceptance by the Project Manager within four weeks of the Contract Date.

The documents submitted by the Contractor shall include the following:

- Data Book index
- Copy of the Quality Manual
- Copy of the Quality System Procedure
- Copy of the Contract Quality Plan
- Copy of Quality Control Plans
- Copy of the proposed index of the QA/QC, inspection and test records

The Contractor will further submit the following documents during the course of the contract:

- Non-conformance reports (NCR's) raised by the Contractor
- Notification of any planned changes to the Contractor's quality manual, quality system procedures, contract quality management plan or quality plan for acceptance by the Project Manager prior to implementation
- Concession/production permit applications and supporting documentation
- Data books and/or data packages

2.5.4. Contract Quality Management Plan Requirement

The Contractor prepares a contract quality plan using template for a Contract Quality Plan (240-43921804):

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

The Contractor periodically updates the contract quality management plan to reflect changes in any of the above details. The frequency of such updates is determined by the Project Manager but will not be greater than one year.

2.5.5. Quality Control Plan

The Contractor quality control plans cover inspection and test proposals for items or activities to be supplied as part of the works.

The quality control plan indicates the following as appropriate:

- The identification of the item
- The material
- A list of the sequence of operations including inspections and tests
- The identification of the specification, drawings or procedures for each operation
- The acceptance criteria with reference to the appropriate technical specification, in-house, national or international standard and relevant clause number
- The inspections and tests the Contractor has nominated for hold and witness points
- Provision for inspections and tests nominated by the Project Manager
- Provision for inspection status indication
- Inspection and test records that are generated by the Contractor

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

2.5.6. Inspection and Testing

All Plant and Materials are comprehensively tested in accordance with the agreed QCPs prior to commencement of work. The Employer reserves the right to appoint others to inspect all parts during manufacturing, erection and commissioning to be present at any of the tests specified. The witnessing of tests by the Supervisor or Others, and if the Supervisor chooses to waive the witnessing of any tests, it does not relieve the Contractor of his responsibilities to Provide the Works.

All tests which the Employer requires are carried out by the Contractor during manufacturing, erection and commissioning to prove compliance with the specification independently of any tests which may have been carried out at the Contractor's premises.

The Supervisor inspects parts of the Plant at his discretion during manufacturing stages and before shipment as per the agreed QCP:

- The Contractor is responsible for the inspection of all the works performed and the Supervisor only verifies that such work is conducted as per the Works Information.
- The Contractor conducts all inspections in accordance with the accepted QCP.
- The Contractor provides suitably qualified personnel to conduct on-and-off site inspections.
- The Contractor ensures that all parts of the works are inspected and accepted before the
- Supervisor is invited for verification.
- The Contractor allows for a minimum of five (5) working days' notice for local off-site inspections, 24 hours for local on-site inspection, and 21 working days' notice for foreign inspections. The notice strictly contains copies of the Contractor's inspection reports and particulars of work which the inspection notice/request entail.

2.5.7. Quality Records

The Contractor prepares and submits to the Project Manager an Index of QA/QC and inspection and test records prior to the commencement of work.

The Project Manager determines which documents are to be submitted during the performance of work and reviews the index and request changes if required. The Contractor conforms to the Index approved by the Project Manager

The Contractor ensures all records identify the items, equipment and/or activities to which they pertain and collates indexes and securely stores the records in such a manner that they are readily retrievable.

The Contractor implements appropriate administrative controls to limit access to prevent inadvertent loss of or damage to records.

The Contractor stores all quality records. The Contractor only destroys or discards quality records with the approval of the Project Manager.

The Contractor presents on completion of the works all quality records in the form of a data package. The package is indexed and shows the entire contents.

2.5.8. Quality Reporting

The Contractor submits monthly quality reports, on the last working day of the month. The report includes, but is not limited to the following:

- Data Book status
- A register of NCRs and defects
- Updated QCP / ITP register
- QA monthly report summary
- Planned and completed local and foreign inspection dates
- Completed and outstanding Inspections
- Audit findings report
- Risks with Mitigation plan

2.5.9. Preservation, shipping and transportation

The Contractor develops and implements a comprehensive preservation, shipping and transportation programme consisting of plans, processes, procedures, and actions undertaken for the purpose of planning for, and maintenance of, material deliverables quality. The Contractor and Subcontractor complies with the Employer's Quality Requirements: Specifications 240-105658000.

2.6. Programming constraints

2.6.1. General

The Contractor submits a single integrated Level 3 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.

2.6.2. Computerised Planning

MSProjects is the only planning tool which the Employer accepts for this project; therefore the plan submitted to the Employer must be converted or submitted in this format. The Project Manager does not intend duplicating the Contractor's planning and scheduling, however, the Accepted Programme is used in the Employer's internal integrated and Master project programmes for project control purposes, updating and monitoring. The Project Manager requires one project programme to be used and updated during the execution of the Works This insures that any changes, deviations to the Programme can be carried out on the agreed programme and monitored. The initial programme supplied to the Employer after Contract award is fully resource loaded.

Any changes that are required to be made to the Project/Programme i.e. scope changes, delays and the like, are recorded through the Employer's change process and documentation, where all parties agree to the changes and sign.

The Contractor and Project Manager agree on the format of how the updates are done, and the frequency of the updates i.e., such as on a weekly basis, or at any other time as required by the Contractor, or as instructed by the Project Manager.

2.6.3. Planning and Scheduling Levels

All planning and scheduling are done based on the Critical Path Method (CPM). The Contractor uses activity codes to define interfaces to be agreed upon between Project Manager and Contractor. The Contractor's programme shows the actual critical path clearly.

The schedule layout takes into account the accepted WBS, reflecting the manner the works are to be performed as per the Contractor's Method Statement and how activities are to be summarised, reported and monitored.

The programme includes:

- Major milestones, interface dates, access dates and key dates (for the new plant, existing plant and between Subcontractors)
- The duration of major activities and their relationship to one another.
- Identified long-lead material items.
- Responsibility assignments for accomplishing project objectives end product is a time scaled bar-chart programme developed using logic network.

This programme is separated by unit, by plant area, by phase, by WBS. The work within each plant area is broken down by engineering discipline, procurement, delivery, construction by the Contractor, start-up and commissioning. The programme is resource-loaded and it forms the basis for progress measurement, progress curves and histograms for each discipline within a plant area. This is used for Evaluations and for the accepted programme after contract award. This is saved and used as the original.

The Contractor's Forecasted Rate of Invoicing (FRI) also aligns with the resource loading on the programme.

2.6.4. Planning Programmes

The Contractor develops a contract programme which includes 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.

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

All designs must be signed off by an ECSA registered Professional Engineer; registered in the applicable discipline. Other key people on the project shall include by not limited to the following:

- ECSA registered Professional Engineer,
- Construction Manager,
- Construction Supervisor,
- Safety Officer registered with SACPCMP,

All personnel must be qualified in the position they will be occupying. All welders will be tested by a qualified welder from Matimba before commencing with the works

An organogram needs to be submitted before commencing with the works indicating the key personnel as well as up to date certification for the position being filled.

2.8. Invoicing and payment

There are no additional requirements to the invoicing and payment clauses in Section 5 of the core clauses.

At each assessment interval, the Contractor submits to the Project Manager a forecast rate of invoicing that includes all the expected payments by the Employer to the Contractor on a month-by-month basis.

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

- The registered name of the Contractor
- The VAT registration number of the Contractor
- The address of the Contractor
- The Employer's contract number
- The VAT registration number of the Employer
- The value of the invoice split into payments as per the activity schedule as indicated in the Price Lists.
- Any retention monies to be deducted from the invoice
- Any interest payable
- Escalation formula used where applicable

All invoices in PDF format are emailed straight from your system to an Eskom email address.

- Email addresses for invoice submission: Invoiceseskomlocal@eskom.co.za. The Project Manager is copied when submitting invoices.

- All queries and follow up on invoice payments are made by contacting the FSS Contact Centre:
  Tel: 011 800 5060 or e-mail: fss@eskom.co.za
- For Foreign invoices, the Contractor is required to physically deliver hard copies of original documents to the Project Manager even though the Contractor has e-mailed those invoices.
- The Contractor ensures compliance with the tax Requirement for submitting invoices electronically.
- If there is Cost Price Adjustment (CPA) on your invoice, the Employer recommends that the Contractor issue a separate invoice for CPA so that if there are any issues on the CPA the rest of the invoice can be paid while resolving CPA issues.
- The base invoice number needs to be mentioned on the CPA invoice.
- Electronic invoicing does not guarantee payment but ensures visibility of all invoices and ensures that no invoices get lost. If the Goods Receipt (GR) is not done the invoice is parked and the system automatically sends an e-mail to the Project Manager to do the goods receipt. This is also tracked by the Employer through the parked invoice report.
- The Contractor can request a parked invoice report from the Finance Shared Services (FSS) Contact Centre which can then be followed up and corrected. The Contractor is allowed to forward the details of invoices corrected to the FSS Contact Centre.

2.9. Insurance provided by the *Employer*

As stated in the *Employer`s* All Risk Insurance Policy is available on request from Eskom Group Insurance, to be dealt with in accordance with ECC3 Core Clause 87.1, 87.2 and 87.3 and additional requirements are also stipulated in the Z Clauses.

The insurance policies and procedures will form part of the Contract Data and any reference to this will be contained in the Contract Data.

2.10. Contract change management

The *Contractor* or the *Project Manager* notifies each other of any event which may lead to a change in agreed terms of this contract. Changes are be dealt with in accordance with the conditions set out in the Contract Data and NEC3 ECC.

All project changes, impacting Scope, Cost and Time, follow the internal Governance committee processes (Technical, Investment & Commercial) for approval and is the responsibility of the *Project Manager.*

2.11. Provision of bonds and guarantees

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

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

Performance bonds are to be dealt with in accordance with the NEC3 ECC Secondary Clause X13 and the additional requirements as stipulated in the Z clauses.

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

The *Contractor* submits the following for compensation event assessment:

- Quotation indicating Current market rate if not included in the short schedule of cost components
- Labour time sheets
- Early warning to the Project Manager
- Project Manager 's Instruction
- Percentage fee applied
- Cost Price Adjustment (CPA) Calculation where short schedule of cost components rates was utilized
- Signed Record of Decisions (ROD) or design change request form for Project Management design changes
- Revised program where key date and completion date is affected
- Revised program where instructed to accelerate by the Project Manager
- Invoice from supplier and service providers

3. Engineering and the Contractor's design

The ash dump disposes ash via the ash stacker and spreader. The spreader is classified as the standby system and the stacker the main system. These machines are running on a rail on the shiftable conveyor.

The shiftable conveyor can shift on a radius to ensure the machines are always close to the edge to minimise dosing. The extendable conveyor transports ash up the dump to a total height of 55.8 meters.

As Phase 0 of the lining project the ash dump height is being increased and with this change the ash dump drive units needs to be upgraded, this will include the pulleys, motors, gearboxes, tension systems, and all equipment to have a running conveyor

This project will be done in two phases as both conveyors cannot be taken at the same time

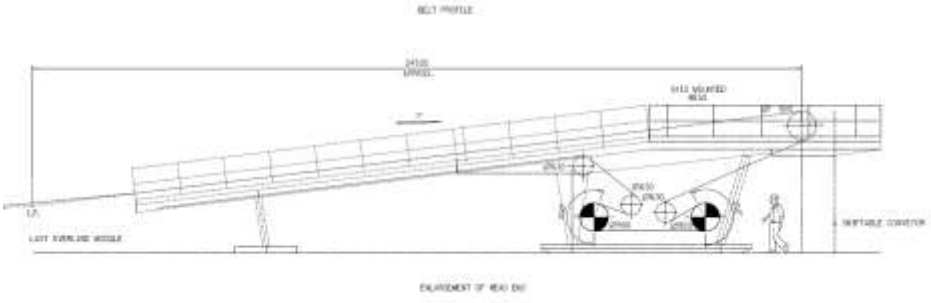
- The main system drive units will be upgraded as indicated in the SOW while the standby system is ashing
- The standby system drive units will be upgraded while the main system is ashing

The drives to be upgraded on all conveyors should be interchangeable – hence they have to be the same and standardised

3.1. Employer's design

3.1.1. Main extendable conveyor

On the main extendable conveyor, the motor and gearbox must be upgraded to a 250-kW drive train. The configuration should be dual drives attached to a single drive pulley on a new conveyor head to accommodate for increased mass and drive configuration. See concept of conveyor head on drawing below (ideally a one drive pulley with two drives attached on either side setup is preferred).



The specifications for each electric motor should match or exceed 250 kW power:

Power	: 1 x 250 kW
Speed	: 1 480 rpm
Poles	: 4
Frame Size	: D355L
Supply	: 3.3 kV
Full Load Current	: 75 Amps
Efficiency at Full Load	: 96 %

The specifications for each gearbox should match or exceed those of P4 QHRG3 gearbox with internal backstop and solid output shaft:

Nominal ratio	: 22.4
Exact Ratio	: 22.572
Stages	: 3
Efficiency	: 97%
Nominal power rating	: 515 kW
Inertia	: 0.215 kgm2
Output Speed	: 63.35 rpm
Safety Factor	: 2.5
Output Torque	: 32.4 kNm – nominal
	: 37.7 kNm – rated

The high-speed coupling specification should match or exceed the 562 TVV coupling:

Absorbed power capacity	: 175 – 350 kW
Rated slip	: 3 %

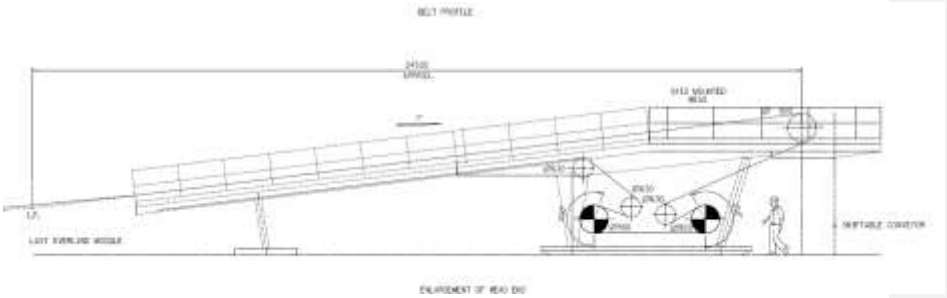
The specifications of currently installed idlers (for the head conveyor) idlers are as follow:

Troughing	
Diameter	: 127 mm
Rolls	: 3
Angle	: 45o
Pitch	: 1.25 m
Series	: 25
Rotating mass, qro	: 17.28 kg/m

Return
Diameter : 127 mm
Rolls : 2
Angle : 10°
Pitch : 3.1 m
Series : 25
Rotating mass, qru : 7.87 kg/m

3.1.2. Standby extendable conveyor

On the standby extendable conveyor, the motor and gearbox must be upgraded to a 250-kW drive train. The configuration should be dual drives attached to a single drive pulley on a new conveyor head to accommodate for increased mass and drive configuration. See concept of conveyor head on drawing. See concept of conveyor head on drawing below (ideally a one drive pulley with two drives attached on either side setup is preferred).



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Speed : 1 480 rpm
Poles : 4
Frame Size : D355L
Supply : 3.3 kV
Full Load Current : 75 Amps
Efficiency at Full Load : 96 %

The specifications for each gearbox should match or exceed those of P4 QHRG3 gearbox with internal backstop and solid output shaft:

Nominal ratio : 22.4
Exact Ratio : 22.572
Stages : 3
Efficiency : 97%
Nominal power rating : 515 kW
Inertia : 0.215 kgm2
Output Speed : 63.35 rpm
Safety Factor : 2.5
Output Torque : 32.4 kNm – nominal
: 37.7 kNm – rated

The high-speed coupling specification should match or exceed the 562 TVV coupling:

Absorbed power capacity : 175 – 350 kW

Rated slip : 3 %

The specifications of currently installed idlers (for the head conveyor) idlers are as follow:

Troughing
Diameter : 127 mm
Rolls : 3
Angle : 45o
Pitch : 1.25 m
Series : 25
Rotating mass, qro : 17.28 kg/m

Return
Diameter : 127 mm
Rolls : 2
Angle : 10o
Pitch : 3.1 m
Series : 25
Rotating mass, qru : 7.87 kg/m

3.1.3. Motor

The procurement and installation of the extendable MV motor shall be done in accordance with the New MV motor procurement standard, 240-50237155. It is intended that the standard be used in conjunction with the new motor technical schedule A & B, 240-54783039, in which the ratings, torque requirements, efficiency requirements, accessories, existing installation limitations, etc., are specified. Where the requirements of the Technical Schedule differ from those of this document, the Technical Schedule requirements shall have precedence and govern.

During commissioning, the Electric motor commissioning work instruction, 240-100457684, shall be used to prevent premature failure and ensure long term reliable operation.
The following standards shall also be used be used for transport and storage of electric motors:

- 240-56361435 – Transport of power station electric motors
- 240-56360387 – Storage of power station electric motors

3.1.4. Cabling

The Requirements for Control and Power Cables for Power Stations Standard, 240-56227443, shall be used by the contractor to design and execute all cabling and associated work.

3.1.5. Earthing

All earthing installation shall be done in accordance with the Earthing and lightning standard, 240-56356396.

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

3.2.1. Main extendable conveyor

- Selection of drive train components
- Detail design of conveyor head drive station (structure, chute, pulleys, scrapers, motors, cables, protections) The conveyor head should use an anchor plate and chain anchor setup
- The drive pulleys should use a hot bonded/cured ceramic lagging.
- Electrical 3.3kV cable design for selected drive train components

- Drive train protections design
- As far as practicably possible all components of the same application must be standardised to reduce spare requirements and should follow the Belt Conveyer Mechanical Components Standard, 240-55864503

3.2.2. Standby extendable conveyor

- Selection of drive train components
- Detail design of conveyor head drive station (structure, chute, pulleys, scrapers, motors, cables, protections). The conveyor head should use an anchor plate and chain anchor setup
- The drive pulleys should use a hot bonded/cured ceramic lagging.
- Electrical 3.3kV cable design for selected drive train components
- Drive train protections design
- As far as practicably possible all components of the same application must be standardised to reduce spare requirements and should follow the Belt Conveyer Mechanical Components Standard, 240-55864503

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

Where the Contractor has design work in their scope, the Contractor is the Design Authority as defined in the Design Review Procedure (240-53113685). The Contractor is responsible for following this design procedure and conducting all the design reviews as specified in this procedure. The Contractor is responsible for conducting the following design reviews:

- Detail Design Freeze Review
- Integrated Design Review
- Construction Completion Review
- Acceptance Testing Review

The Contractor must submit his designs for approval by the Employer within 60 calendar days of Contract start. The Employer will have a period of 60 calendar days to review and approve the designs. During the design review period the Contractor will have 5 working days to respond to any clarifications required by the employer.

Once approved the design will be presented for acceptance to the Eskom Site Chane Control Committee. a Duration of 2 weeks will be required for the presentation and the contractor will have another week to do all the necessary changes in case changes are required. The project can only be continued once the Site Chane Control Committee has accepted the design.

The Project Manager returns one copy of the drawing marked “Accepted”; “Accepted as Noted” or “Not Accepted”, as may be appropriate. The notations “Accepted” and “Accepted as Noted” authorize the Contractor to proceed with the manufacture of the Plant covered by such drawings subject to the corrections, if any, indicated thereon. Where prints or drawings have been “Not Accepted” or “Accepted as Noted” the Contractor makes the necessary revisions on the drawings and submit further copies for acceptance in the same procedure as for the original submission of drawings. Every revision shows by number, date and subject in the revision block on the drawing.

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

The Contractor must perform RAM (Reliability, Availability & Maintainability) studies on all major areas of Plant in accordance with the RAM Analysis Guideline: 240-52844017. The objectives of these studies are to achieve the following:

- Predicting the availability of various areas of Plant.
- Performing LCC (Life-cycle costing) studies on plant by establishing their capital, maintenance, operating and unavailability cost, thereby
- Performing trade off studies to arrive at the best combination of the above for cost elements per plant type.

- Performing redundancy studies.
- Using the study to optimize the Plant spares holding.

The Contractor carries out formal Failure Mode and Effect Analysis (FMEA) Studies on all systems in their supply. These studies are done in accordance with the requirements as laid down in the Eskom FMEA Guideline: 240-49230046.

The contractor will be responsible for the conveyor load calculations that needs to be submitted to Eskom. The contractor will be responsible for the design of electrical cables to ensure the cables can handle the load required when the main extendable has reached its maximum distance.

Included in the design calculation should be the all the items listed in 3.1.1 in table format at a minimum. Design calculations on the cable should include cable resistance, losses over distance, minimum cable diameter.

Drawings with the following information as a minimum should be included

- General assembly drawings
- General assembly drawings of the head unit with drives, walkways, chutes and pulleys with the weight clearly identified
- Detail drawings of the head unit should be included, and all material specifications and assembly specifications should be clearly indicated in the BOM
- Detail drawings of the idler frames for the head should be included
- Detail drawings of the chute, tiling and scrapers should be included
- Detail drawings of the drive train and bed should be included.
- Detail drawings of junction boxes and cable routing should be included
- P&ID should be done for all cabling and protections

3.5. Materials facilities and samples for tests and inspections

All equipment and manufacturing facilities will be inspected before commencing of the work by Eskom personnel.

All welding personnel will be tested by Eskom to ensure quality of work. Material certificates shall be submitted before commencement of the work.

NDT tests needs to be done on 10% of the welds, if any defects are found the number of NDT's will be increased to 30% and if more defects are found 100% of the welds will need to be tested all defective welds needs to be repaired and retested.

NDT tests needs to be done by an Eskom approved contractor.

3.6. Sequences of construction or installation

The mixed ash plant makes use of a 100% redundant system that is changed every two weeks for maintenance purposes, or sooner in case of failure. In case any of the belts are taken out for work or projects this redundancy falls away at great risk to the station as all maintenance will be stopped on the running belt. The entire plant can stand for a maximum of 6 hours before filling the bunker capacity inside that station.

It is therefore essential that the contractor have all material on site before shutting down a stream. The contractor will also only be able to work on the stacker (extendable 24) or the spreader line (Extendable 14). The contractor will also have to limit the duration to a maximum of 4 weeks a stream is taken out for work. Plans also have to be put in place to bring back the plant sooner in case of failure on the running plant.

3.7. Hook ups to existing works

The adjacent plant and equipment may not be modified without written permission from the Project Manager. Existing equipment to be removed by contractor and will be the responsibility of Eskom and the contractor. Eskom and the contractor need to test all equipment before removal and needs to be replaced in a similar situation.

A list of working needs to be submitted and signed by both parties indicating the condition of the equipment before removal by the contractor. No equipment may be moved/borrowed without written permission from the Project Manager

3.7.1. Commissioning

Commissioning is required before completion for all Mechanical, Control & Instrumentation and Electrical equipment/ installations work.

3.7.2. Mechanical BMH

General Requirements

Carry out Commissioning tests in stages as follows:

- Pre-commissioning tests including carrying out inspections and dimensional checks to ensure the conveyor system installation is complete and in accordance with the works
- No load tests
- Load tests

Unless otherwise stated in these *Employer's* Requirements, the *works* are tested in accordance with the requirements and procedures as accepted by the *Project Manager*. Fully document all requirements and procedures for tests and submit to the *Project Manager*, at least four (4) weeks prior to testing, the proposed test program, test procedures and forms for recording of test data
Complete static and no-load tests during the specified time periods.
Complete no load tests and be ready to commence preliminary load tests by the date nominated in the Schedule.

The *Employer* endeavors to make product available for commencement of load commissioning at this time.

A conveyor belt performance test is required for each conveyor to get the electrical power absorbed during start-up and while running, the belt speed during start-up and when running and the take up tension and travel during start-up and when running. The sampling rate should be 20Hz.

Power sharing and ramp time needs to be optimised to ensure power is shared equally between gearboxes and ramp up time should be measured and compared against the calculations done during the design, the ramp up time should be equal or 10% more than the calculated values. The torque limiting factor should be below 1.4.

A running and start-up load of 1450 t/h need to be achieved for the above tests to be successful. No slippage of pulleys will be allowed.

All equipment should be calibrated by a national calibration service approved service provider and should be valid during the test.

Witness Testing

Cooperate fully with the *Employer* where witness tests are required. Witness testing is carried out at the *Contractor*'s expense. Any costs for the *Project Manager* to attend witness tests are borne by the *Employer*.

Pre-commissioning Tests

During the pre-commissioning test period, ensure that the conveyor system installation is complete, and all equipment made ready to run. At least carry out the following checks:

- All drive components correctly aligned using laser alignment equipment
- All gearboxes, fluid couplings and hydraulic systems filled to correct levels
- All motors wired for correct direction of rotation
- All brakes correctly set (of applicable)
- All conveyor idlers and pulleys correctly aligned using PROK "conveyliner" device or other survey technique
- All conveyor belt take-up systems correctly set
- All belt scrapers and ploughs correctly positioned and tensioned
- All belts hold down rollers suitably positioned
- All bearings correctly lubricated
- All limit switches, pressure switches, pull key switches, blocked chute sensors, under-speed sensors, and other field devices correctly set and operational
- All control and safety interlocks functioning correctly
- All equipment suitably guarded, or where guards have been removed for testing, suitable barriers and warning signs erected
- All equipment and walkways clear of debris

No-Load Tests

When all pre-commissioning checks have been completed to the acceptance of the *Project Manager*, commence with no load testing. This involves the running of all equipment and operating the Machine over the entire working range without product.
Determine the exact test procedures to ensure full verification of correct machine function. However, the tests at least include the following:

- Eight (8) hours continuous operation of the conveyor system. During this running period, the following is carried out
- Drive motor currents recorded for starting and steady running conditions
- Drive units checked for overloading, excessive vibration or noise, oil leaks, overheating, etc.
- Conveyor belts to be trained to track centrally with less than ±50mm deviation
- All idlers and pulley bearings to be checked for excessive noise or overheating
- All scrapers checked for correct contact with the belt
- All belt washing systems checked for correct spray application and water shedding (if applicable)
- Operation of pull key switches and interlocking conveyors to be checked

Load Tests

When the no load tests have been completed and recorded to the acceptance of the *Project Manager*, the *Contractor* commence load testing of the conveyor system.
This stage of testing must be completed before Completion can be certified. The function of this stage is to prove that the conveyor system can perform as per design specifications under the actual operating conditions.

Determine the exact test procedures to ensure full verification of correct Mechanical function; however, the tests at least include the following:
During this running period, carry out the following:

- Drive motor currents recorded for starting and steady running conditions
- Drive units checked for overloading, excessive vibration or noise, oil leaks, overheating, etc.
- Gearbox and fluid coupling temperatures monitored for overloading
- Conveyor belts to be trained to track centrally with less than ± 50mm deviation
- All idlers and pulley bearings to be checked for excessive noise or overheating
- All scrapers checked for correct contact with the belt

- All belt washing systems checked for correct spray application and water shedding (if applicable)
- Calibrated all dust suppression systems to suitable achieve the required level of suppression as per the works (if applicable)
- Emergency stops and controlled stops are carried out to ensure safety, and functionality in terms of the works without spillage
- Conveyor start up can be achieved with a fully loaded belt
- Chutes operate smoothly without blockage or spillage

Run the conveyors system at its full design capacity with key operating data being recorded in verification of its suitability for continued unrestricted service with the principal.
Carry out controlled stops and emergency stops on each conveyor individually as well as the entire conveyor system simultaneously. Monitor the overall safety of the system, and record stopping times.

Carry out in addition to this, fully loaded aborted starts out on all conveyors, to ensure the correct dynamic operations of the conveyor in terms of the *works*. Test average conveyor rates at the performance testing stage; undertake tests after the Load Tests have been completed.

Performance Tests

Commence performance testing when all load and no load tests have been completed to the acceptance of the *Supervisor*.
Test the conveyor system to prove compliance with capacity, control and reliability requirements.
Test all operating modes and scenarios including:

- Normal start-up
- Stopping (emergency and controlled)
- Aborted starts (Fully loaded belts)
- Belt loaded at Peak

Performance tests to allow for the following provisions during testing:

- Provide for a week's (five (5) working days) worth of testing - and coupling optimization time.
- Provide for another week's worth of time for the compilation of a comprehensive test report to be provided by Contractor to Project Manager for acceptance.
- Fluid coupling supplier must supply nozzles and blanks of various sizes, to be utilized during performance testing. Representative from fluid coupling supplier to be on standby during performance testing to conduct simulation runs of the coupling setup.
- Parameters to be monitored are:
  - Individual drive power (kW) demands during stopping and starting of the conveyor system,
  - Belt speeds during normal running, acceleration and deceleration at drive stations and out bay of take-up station.

Reliability and Availability

Design and select all major equipment to ensure that the *Contractor* is able to provide a guarantee that System reliability over the 24 months following Completion is not less than 97% (Performance Period).

***Contractor's* Attendance during the Performance Period**

- Provide a person familiar with the maintenance requirements of each machine and system during the Performance Period. This person attends to defect rectification on behalf of the Contractor during the Performance Period and also verifies that the maintenance carried out on all equipment by the Employer is in accordance with the maintenance plan provided by the Contractor.

- Have a senior representative familiar with the mechanical equipment to conduct at least three Site inspections during the Performance Period at nominally 6 monthly intervals. Co-ordinate these visits.

Methodology Used to Calculate Plant Reliability

- The data for calculating the plant reliability is taken from the delay logging system. Any discrepancies in this information are interpreted and clarified by the Employer.
- Only delays caused by the breakdown of each conveyor are used in calculating the plant reliability of each conveyor. All delays caused by the associated conveyor operational delays are excluded from the calculation. Machine breakdown delays include all mechanical, electrical, and control faults on each conveyor that stop the conveyors system during a scheduled operating period or render the conveyor unusable outside normal planned maintenance periods.

3.7.3. Electrical and C&I Commissioning

General Requirements

- Commissioning is defined as bringing into service all items of the works, and meeting the functional requirements and performance criteria of the Works Information.
- Commissioning includes all testing and verification of the stated performance criteria with:
    - The Works Information.
    - The detailed engineering design freeze documentation.
- Commissioning for any sub-section of plant does not start until all the pre-requisite activities for that sub-section of plant have been completed and accepted as completed by the Project Manager.
- The Contractor provides sufficient personnel for the satisfactory and timely commissioning of equipment; including the re-commissioning of all existing equipment that will form part of the Ash Facility.
- The Contractor co-operates fully with the Project Manager or Representative(s) in the commissioning of plant sections for which the Employer supplies equipment specified.
- The Contractor certifies that equipment is in a suitable and safe condition for use before it is placed in service.

Cold Commissioning

- As a minimum, the cold commissioning activities conducted by the Contractor consists of:
    - Electrical and instrumentation loop check activities defined in IEC 62382
    - All field equipment checks.
    - Loop checks.
    - Drive interface checks.
    - Testing of System functionality.
- Cold commissioning excludes provision of actuation power and process medium in the plant.

Functional tests

The functional tests form part of the cold commissioning of the Control System and include the checking of all:

- Measurement loops.
- Interlocks/Protections.
- Sequence controls.
- Analogue controls.
-

Electrical Drive Tests

- All electrical drives are local and/or remotely operated and checked for correct operation by the Contractor.
- Electrical drive tests are conducted in conjunction with the Project Manager and other relevant parties.
- The Contractor gives special care to safety aspects, motor rotation direction and protection.

Instrument Checks

- Calibrations of all instrumentation forms part of the works and calibration sheets must be provided and signed by both parties and included as part of the documentation package for the works.
- The format, content and other requirements for generating these calibration certificates will be clarified during the detailed engineering phase.

3.7.4. Hot Commissioning General Requirements

- The Contractor submits the Cold Commissioning test results to the Project Manager.
- The Contractor requests the commencement of hot commissioning upon acceptance of cold commissioning results.
- Hot commissioning is where the plant processes are placed into operation.
- The commissioning activities are carried out in conjunction with the Project Manager.
- In cases where various components (existing or new) are connected to form an integrated system, the Contractor, at the time of commissioning, carries the responsibility for the correct functioning of the whole of the system.
- If a defect is identified in the equipment interfacing to, or external to the Contractor's scope the Contractor informs the Project Manager or Representative(s) immediately.

3.7.5. Trial operation

- Before taking over of the works, a trial operation shall be carried out for a period of 30 (thirty) consecutive days.
- This trial operation is repeated should any problem occur within the 30-day period.

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

All conveyor belts protections are linked, and upstream conveyor needs to be started before downstream conveyor can be started. The start-up sequence for the ash dump conveyors is as follow. Stacker-shiftable-extendable.

The contractor will be responsible to ensure the correct start up procedure is followed and documented on the design of the drives to ensure optimal start up and maximum life on the belt and drives. The contractor will not have any influence on the start-up procedure for the plant and is only limited to the drives of which the design was done.

3.9. Tests and inspections before completion

It is the responsibility of the Contractor to perform the required tests during construction and to coordinate documentation with the Supervisor and site engineer. Test documentation generated during the commissioning phase is documented when the work is completed.
Once all the Contractor's construction activities are complete, the Contractor hands over the works to the Supervisor and engineer for testing and checkout. Completeness of the construction are verified through a joint walk down between the Eskom Functional Supervisor and the Contractor and review of the testing information. Any minor outstanding work items found during the construction walk down will be recorded as Defects, and dates will be established in accordance with the conditions of contract for the correction of such Defects.

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

- Language: All documentation, including reports, manuals, etc. shall be in the English language.
- Manuals: The technical, training, operating and maintenance manuals are provided for each type of a functional unit. Technical manuals include all technical data as well as the technical data and leaflets of each individual component provided. Where generic manuals are provided, an addendum is provided indicating the applicable project specific components.

Documentation are of a good quality and cover the following as a minimum:

- Technical descriptions of the equipment and component parts
- General arrangement drawings
- Installation instructions with drawings or pictures
- Operating and maintenance instructions for all components
- Detailed parts lists (accompanied by exploded view type drawings clearly detailing the part and uniquely identifying it)
- Spare part ordering instructions

Any special instructions pertaining to storage of spare parts or their shelf life is included in the maintenance manual. All drawings requested for component location, dismantling and reassembly for maintenance are included in the maintenance manual. All special tools required for operating and maintenance of the equipment are presented in a form of a schedule in the operating and maintenance manual, respectively. The content of the training manual is based on the content of the technical, operating and maintenance manuals.

The documents are reviewed by the Project Manager for correctness and conformance to the accepted design.

“As Built” documentation is deemed as a part of the works, hence Completion is not certified until such documentation is accepted by the Project Manager.

3.11. Training workshops and technology transfer

The Contractor provides training on the equipment and systems included as part of the works to the various categories of the Employer’s technical staff (operators, maintenance and engineering personnel) for the duration of the works.

Training provided by the Contractor is directly applicable to the actual equipment supplied for the works. Generalised training based on similar equipment is not acceptable. The local facilities for training provided by the Employer is a suitably sized air-conditioned room, as well as trainee and trainer desks, an overhead projector and flipchart or white board. The number of personnel to be trained is as per the table below:

Department	**Number of personnel to be trained**
Operators	5
Maintenance	5
Engineering	2

The Contractor submits to the Project Manager for acceptance a detailed training programme as well as a prospectus for each course. Course material is provided for the number of trainees as per the table above.
The training schedule is incorporated in the Accepted Programme.

3.11.1. Training of Maintenance Personnel

Maintenance personnel will be trained in all components and functions of the Plant i.e. Method of maintenance, fault finding, correction, routine maintenance. Training will include familiarisation with documentation (maintenance plan, procedures etc.).

3.11.2. Training of Maintenance Operators

Operators will be trained and declared competent on the new systems. This will include familiarisation with documentation including drawing configuration logic, as well as operator interface familiarisation e.g. operational functions, alarms etc. The Contractor makes provision for training of all operators, for every shift.

3.11.3. Engineering Training

Formal engineering training will be provided on basic Plant design, capabilities and procedures upfront, prior to design freeze. Thereafter, training will be on-job training throughout the design process. The overview design and control/interface functions will be covered by this training. The engineering team should be trained sufficiently to enable them to work as part of the implementation team on and off site.

3.11.4. Training Documentation

The course material is in English and includes all third-party documentation. A copy of the training documentation is supplied for each trainee with an additional three (3) master sets for the Employer's library and training department.

The training dates are included and shown in the Accepted Programme. The supply of drafts, pre-print proofs and printed copies of training documentation is planned by the Contractor in such a way that the required training is complete before commissioning of the Plant.

Training manuals are continuously updated by the Contractor up to the date of issue of the Defects Certificate for the whole of the works.

3.12. Drawing Requirements

Drawing Numbering System

The Employer supplies the proposed Project Manager drawing numbering system. The Contractor may assign his own drawing number as required to meet his document control system requirements.

As-Built Drawings

The Contractor's Staff maintains a master set of red-lined as-built drawings. The Contractor provides drawing mark-ups as work is completed. The Project Manager and the Contractor ensure that all appropriate information is transferred to the field record copy of drawings. The Project Manager and the Contractor check the "as-builds" for completeness and accuracy.

The following types of drawings are updated to as-built status:

- GAs
- Underground utilities drawings
- Electrical single-line diagrams
- Electrical schematic drawings
- Wiring diagrams (including panel layouts and loop diagrams)
- Plant arrangements

- Piping layouts
- Valve and Equipment lists

3.12.1. Maintenance Schedule

The Contractor provides a maintenance strategy for the life expectancy of the new Plant with a summary schedule. The Contractor provides the life expectancy of the equipment. The Contractor lists maintenance spares (with detailed specifications) for the life expectancy of the equipment. Maintenance strategy updates to be in accordance with the Reliability Based Optimisation (RBO) standard for all disciplines (electrical, civil, mechanical, fire, C&I).

3.12.2. Data Books

The Contractor compiles Data Books progressively for all manufacturing and construction/erection inspections, operating manuals and test records and documents for every piece of plant required in producing the works. The Contractor submits data books to the Supervisor and Project Manager for their review for all Plant and Materials and work undertaken with the applicable requirements and specifications.

3.13. Cataloguing requirements by the Contractor

A complete spares list should be given with lead times on components as well as component dimensions, composition, part numbers, possible suppliers, drawings on the Eskom title block and component details to ensure items can be made stock.

Critical component dimensions or certification requirements should also be provided for each component

4. Procurement

4.1. People

4.1.1. Minimum requirements of people employed on the Site

- All people employed to Provide the Works shall have South African Citizenship or a valid workers permit if not South African nationals.
- Superiors should have experience in the magnitude of the work.

4.2. Subcontracting

4.2.1. Preferred subcontractors

None

4.2.2. Subcontract documentation, and assessment of subcontract tenders

- The Contractor submits the proposed Contract Data for each subcontracting for acceptance to the Project Manager. The Contractor provides a short description of the work it is proposed to sub-contract to each, together with an approximate value of the work to be executed by each. The Contractor will provide details of previous works and references of work done by the intended
- The Contractor prepares subcontracting document as according to the NEC3 Contract.

- The Contractor informs the Project Manager when intending to subcontract some of the works from the contract scope.
- The Contractor takes note that their Subcontractors Safety Files will be accepted by the Contractor Safety Manager before it will be handed to the Matimba SHE practitioner/Officers for verification of compliance before any work commence. Proof of acceptance by the Contractor Safety Manager needs to be in the Safety file when handed over to Matimba SHE Practitioners for verification.
- The Contractor only employs qualified Subcontractors.

4.2.3. Limitations on subcontracting

No more that 30% of the total contract value may be subcontracted.

4.3. Plant and Materials

4.3.1. Quality

All Plant and Materials used must be new. All New Plant and Materials are free from defects. No Reconditioned Plant and/or Materials are regarded as new under any circumstances.

It is the responsibility of the Contractor to ascertain the condition of any used equipment or materials, transport to site, corrosion protection, as well as any spares compatibility issues that may present itself in the future.

The Contractor does not use Plant or Materials which are generally recognised as being unsuitable or otherwise to be avoided for the purpose for which they are intended.

Only components of high reliability are utilised, with a proven operating history, to enable the Plant to achieve required reliability and availability. Plant and Material design, engineering and manufacture accord with the best modern practice applicable to high-grade products of the type to be furnished, so as to ensure the efficiency and reliability of the works and the strength and suitability of the various parts for the works.

Plant and Materials withstand ambient conditions and the variations of temperature arising under working conditions without distortion, deterioration or undue strains in any part.

All parts are made accurately, and where practicable, to standard gauges so as to facilitate replacement and repairs. Like parts are interchangeable.

No repair of defective Plant and/or Materials is permitted without the Project Manager's acceptance and any such repair, if accepted, is carried out in accordance with the Employer's requirements.

The Contractor ensures that co-ordinated and formally documented management system is in place for the assurance of quality as specified in ISO 9001, Quality management Systems – Requirements.

The Project Manager is free to specify hold and witness points during the installation and on site testing stages of the project. The Contractor issues preliminary notification of such hold and witness points by four days advance notice to the Project Manager, and confirms such hold and witness points at least four days prior to the activity.

Documentation regarding quality procedures is submitted within thirty days of Contract Award. The Project Manager and Quality Engineer reviews and comments on the acceptability of these documents within the period for reply. If controlled copies of these documents have been submitted to the Employer, then the controlled copy numbers may be quoted in the submission.

4.3.2. Plant & Materials provided “free issue” by the Employer

None

4.3.3. Contractor’s procurement of Plant and Materials

- The Contractor supplies and uses suitable and sufficient construction plant, tools and equipment and materials as may be required to carry out the works efficiently.
- The Contractor at all times provides protection for all plant and materials from damage or loss due to weather, fire, theft, unexplained disappearance or similar.
- The Contractor at all times protects from damage, due to the Contractor’s service to Provide the Works, all plant and materials and equipment and all items on the site that are the property of the Employer or Others.
- The Contractor provides or manages, as part of works everything necessary for the receiving, inspection, safe keeping and storage, issuing, handling, management and administration of all plant and materials purchased by the Contractor.
- The Contractor provides through the Project Manager and relevant Construction Management personnel the documentation for the warranties from suppliers of all any relevant plant and material used in the execution of the works.
- The Contractor ensures to provide all guarantees and warranties of the plant & materials used in the works to the Project Manager and Employer when construction is completed.
- The Contractor arranges all shipments of Plant and Materials and consigns all such shipments to himself as consignee at the project shipping address, freight fully prepaid. The Contractor makes demurrage agreements and settlements with carriers for his shipments.

5. Construction

5.1. Temporary works, Site services & construction constraints

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

- The Contractor complies with the following:
- Matimba Power Station Health and Safety Standards as per Matimba Power Station Health & Safety Specifications for Contractors (PA/270/003).
- Compliance with Eskom & Matimba No Smoking Policy
- Adhere to the OHS Act 85 of 1993
- All staff will undergo Safety Induction, presented by Matimba Risk Management Department
- Adhere to Eskom Life saving Rules at all times
- The Contractor must conform to the access control requirements as set out in the document called "Health and Safety Practices for Contractors at Matimba Power Station".
- The Contractor must conform to the requirements set out in the document called "Eskom Environmental Practices and Standards".
- Names and Identity numbers are required seven working days before the contract starts. Photo copies of Identity documents are also required. This must be arranged with the Employer's Representative.
- Lost permits will be paid for by the Contractor to Protective Services at a cost of R30-00 per lost permit.
- Only work vehicles with an approved permit will be allowed on site. No private vehicles will be allowed on site.
- Arrangements must be made with the Employer's Representative well in advance to allow sub-contractors on site.
- The transport of any equipment onto site must be declared and documented at Protective Services in order to facilitate the future removal thereof.
- At least one supervisor shall be authorized as a Responsible Person in terms of the Eskom Plant Safety Regulations to take out Permits to Work on plant.

5.1.2. Access to Site

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

All contractor employees who will require access to site for any period longer that 5 working days will be required to undergo induction.

All contractor employees who will require an access permit to site must be in possession of a Police Clearance Report (SAP91)

The Contractor liaises with the Matimba SHE Practitioner/Officers for Safety Induction prior work to commence.

After Induction the Contractor will be issued with a copy of the attendance register for the induction attended. This proof of induction will be used by the Employer to verify attendance prior to signing the Personal Site Access document.

The Contractor's employees 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.

All individuals entering site 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 ensures that a tool list is available on the day of arrival and that all tools and equipment that will later be removed from site are captured on the tool list. The tool list is handed over to the Reception Security official that will stamp the tool list. The tool list is kept safe and used when tools needs to be remove from site.

This message is handed over to any Subcontractor working on Matimba Power Station.

5.1.3. Housekeeping

Working areas are cleaned daily. All electrical cables and hoses are routed so as not to cross over floors and walkways. All equipment is packed neatly without interference to access. All excess scaffolding material is removed from working areas after the scaffolding has been erected. Scrap bins are available on the zero meter level and emptied daily by the *Employer*.

5.1.4. Barricading

Access to danger zones is done using handrail type guards of at least 1,2 meters high, able to block access to the danger zone. Symbolic safety signs depicting “Danger” and “No entry” are attached to the guards.

5.1.5. Radiographic examinations

When radiographic tests are performed in the plant, the danger area is barricaded. Workers are made aware of this fact and the Radiographic technicians ensure that no person is within or enter the danger area prior to commencing of or during the tests by public announcement according to the procedure. See relevant procedure PA/272/001.

5.1.6. Scaffolding

All scaffolding erected complies with procedure PS/031/001. At least one person in the *Contractor’s* service shall be competent to inspect scaffolding in the case where the *Contractor* himself needs scaffolding. Certificates must be handed in at the *Project Manager* after contract award. The Employer is responsible for the supply, erection and dismantling of scaffolding

5.1.7. Fire Protection

The Contractor ensures that adequate firefighting apparatus is provided at all his work sites, and that his staff and sub-contractors are trained in the use of this apparatus.

Precautions are taken to prevent any occurrence of fires or explosions while carrying out any work near flammable gas and liquid systems.

Any tampering with the Employer’s Fire Equipment is strictly forbidden. All exit doors, fire escape routes, walkways, stairways and stair landings are kept free of obstruction, and not be used for work or storage at any time. Fire fighting equipment remains accessible at all times.

5.1.8. Title to materials from demolition and excavation

As per Clause 73.2 the Contractor has no title to materials from excavation and demolition (e. g. copper).

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

Restrictions and hours of work may apply at Matimba Power Station. The Contractor keeps records of his people on Site, including those of his Subcontractors which the Project Manager or Supervisor have access to at any time. These records may be required in the event of a compensation event for assessment purpose or other cause.

5.1.10. Health and safety facilities on Site

- The Medical Station is available on site during normal working hours. The afterhours emergency telephone number is 014-763-8311 or from a Matimba phone the extension is 5000 that can be phoned for assistance.
- Fire protection and rescue services are available on site 24 hours per day.
- 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 may 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.

5.1.11. Publicity and progress photographs

The taking of photographs at Matimba Power Station including the Project works is restricted and subject to the acceptance of the Project Manager. In the event that photographs are required for reporting or progress, an application for a camera permit must be submitted to the Project Manager for approval by the Power Station General manager.

5.1.12. Contractor's Equipment

- The Contractor provides all Equipment that is required to complete the works.
- The Contractor ensures that all his construction labour and equipment remain within the fenced off allocated construction area.
- The Contractor ensures that any staff, labour, or equipment moving outside his allocated construction site does not obstruct the normal operation of the power station.
- Any additional access routes required are coordinated with the Project Manager.
- The Contractor keeps daily records of his equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the Project Manager at all reasonable times.
- All Equipment used by the Contractor in Providing the Works comply with the General Machinery Regulation 4 of the Occupational Health and Safety Act (Act 85 of 1993).
- Any electrical Equipment, or appliances, used by the Contractor conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The Project Manager has the right to stop the Contractor's use of any electrical Equipment, or appliance, which, in the opinion of Project Manager, does not conform to the foregoing. Inspection of equipment/appliance will be done as required by OSH Act.
- The contractor shall register all their equipment and declare all their belongings at the security gate upon arrival. Unregistered belongings upon arrival will not be allowed to be removed offsite.

- The Contractor must provide working procedures for each activity to the Employer's Representative at least 2 weeks before work may proceed. This procedure will include "Safe working procedures".
- The Contractor must provide all the material needed for the works. The safeguarding, care and security of all equipment and materials while the Contractor is performing the works is the responsibility of the Contractor.
- At least one person in the service of the Contractor shall be certified competent to inspect scaffolding needed by the Contractor for the works. Certificates as proof of this will be handed to the Employer's Representative after contract award before the starting date.
- All redundant Contractor's material must be moved to allocated sites. No scrap shall be stored in the Contractor's yard. Scrap must be cleared of site daily.
- All transport i.e. Tractors, Trucks, L.D.V.'s
- Accommodation is for the Contractor's own account.
- All tools must be provided by the Contractor for the works.
- All workshop machinery must be provided by the Contractor for the works.
- All office equipment must be provided by the Contractor for the works.
- Any special tools and equipment to be used on site for the execution of the works is the responsibility of the Contractor.
- The employer will not assist the Contractor with the off-loading of equipment, plant and material

5.1.13. Equipment provided by the Employer

No Equipment will be supplied by the Employer.

5.1.14. Site services and facilities

Site Yard & Security

- It is required, for the proper co-ordination and execution of the works that the Contractor has an office on Site for the duration of the contract.
- A site is made available to the Contractor for his yard within the Power Station security area. The proposed site is shown to the Contractor during site meeting or clarification meeting. The yard is a raw site and will be used by the Contractor for the establishment of his offices, workshop and stores.
- The Contractor includes in his establishment rates for all further treatment and maintenance of the facilities that he considers necessary for his entire operation throughout his period of occupation and under all weather conditions. The Contractor also includes for all security fencing, security and access arrangements.
- The yard is kept clean and tidy at all times; this includes all workshops and storage areas under the control of the Contractor. Maintenance of the yard is the Contractors responsibility and is for the Project Managers acceptance.
- The Contractor's plan for the layout of his yard area is accepted by the Project Manager prior to occupying the yard and the Contractor does not occupy any site area other than that allocated to him.
- The Contractor complies with the environmental policy given in the Site Regulations.
- The Contractor provides, erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold-water services as may be required. Provision is also made for adequate parking area adjacent to all the aforesaid structures.
- The Contractor dismantles and clears the yard of all such temporary structures and associated foundations and infrastructure at the direction of the Project Manager on Completion of the whole of the works.
- The Contractor's yard is subject to periodic inspection by the Project Manager/delegated person.

- The location of the nearest sewer manhole, power distribution point, portable water connection storm water channel and road access point is indicated by the Employer. The Contractor is responsible for connection to the closest point of supply.
- The contractor will be responsible for providing its own security to protect the equipment and spares that will be utilised for the doing the work, any material that are lost will be the responsibility of the contractor to replace.

Supply of Electricity

Electricity will not be supplied by the Employer due to the isolations on the plant to execute this Works. It will be the responsibility of the Contractor to provide temporary electrical supply.

Lighting

The Contractor at his own expense provides temporary local lighting in accordance with the requirements of the OHS Act as amended. The Project Manager provides no local lighting. All construction lighting is the responsibility of the Contractor.

Water

Water is made available on request free of charge from water points on site. The Contractor supplies at his own cost all the necessary connections, fittings, piping work, temporary plumbing and pumps necessary to lead water from the Employer's points of supply to the various points where it is required. The Contractor is responsible for maintaining this equipment and for removing it at Completion of the whole of the works.

The Project Manager does not guarantee continuity of supply and the Contractor makes his own provision for standby supplies to maintain continuity of work. Claims of any nature relating to discontinuity of water supply shall not be considered and entertained.

Roads

Main access roads are surfaced, complete and may be used by the Contractor with the necessary care. The Employer maintains the Site roads, described above, to a fair condition. Any costs incurred by the Project Manager from damage caused to underground services, structures, etc. as a result of the Contractor not using the identified routes is recovered from the Contractor.

The Contractor provides temporary access points from the prescribed routes and roads to the points where the Contractor is required to perform work, having first obtained permission in writing from the Project Manager.

Sanitary Facilities and Refuse

The Contractor is to supply own sanitary facilities at his Contractor's yard and construction area.

A refuge control system will be established by the Contractor. All waste and refuge are collected and disposed of as directed by the Project Manager, at the Power Station refuse disposal site.

Telecommunications

Neither a network point nor a telephone is available on site. Should the Contractor require one, he is to make his own arrangements with relevant authorities.

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

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

The work area needs to be inspected before commencing of the work by the contractor, and a defects list drawn up. All items not identified as defective or missing will be the responsibility of the contractor for the duration of the project.

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

For all excavations the area needs to be scanned using underground scanning by the contractor to prevent damaging existing services.

5.1.17. Control of noise, dust, water and waste

- The Contractor maintains a high standard of cleanliness during the conduct of his activities at Matimba Power Station. This includes areas allocated for storage of materials, site offices etc. in accordance with the requirements.
- The Contractor keeps these areas clean and free from accumulation of waste materials and refuse regardless of the source.
- The Contractor is responsible for the prompt removal of all waste to a licensed disposal facility. For the purpose hereof, “waste” any matter, whether liquid or solid or any combination thereof, which is a by-product, emission, residue or remainder of any process or activity carried out in connection with the works and which is not reused on the Site in the ordinary course of carrying out the works within seven days of production.
- The Contractor provides an adequate number of marked bins and containers at offices, in yards, at workshops and on the Site for the temporary storage of waste. The waste bins must be fitted with a tamper proof closing device to prevent monkeys and other wild animals from opening them. These bins and containers are subject to the acceptance of the Project Manager.
- The Contractor is required to segregate certain items of waste by type.
- Bins and containers are emptied and waste removed to the designated area at least once a week. All the temporary storage areas for bins and containers are kept tidy and must not constitute a nuisance to others.
- The Contractor takes all required steps to avoid spillage of waste alongside the bins and containers during removal and disposal thereof.
- All waste that cannot be contained in either a bin or container is placed on a temporary waste site which the Project Manager identifies. The waste is removed as soon as possible but in any event at least once a week. No burning of waste is allowed at the Matimba Power Station.
- Hazardous waste is dealt with in accordance with the safety, health and/or environmental requirements of the works and the Contractor is solely responsible for the proper disposal thereof. Hazardous waste will be disposed of at an authorised landfill site. Waste manifest will be kept for record keeping and hand over at the end of the Project.

6. List of drawings

6.1. Drawings issued by the *Employer*

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

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

Drawing number	Revision	Title
20.58/12816	1	Secondary drive base
0.58/12816	0	Schwinge motor
20.58/12814	1	Primary drive base
0.58/12814	0	Schwinge motor
20.58/6842	5	Belt drive arrangement
0.58/12814	1	Extendable drive arrangement
0.58/61340	0	Main Extendable Conveyor
0.58/61342	0	Main Upper Lower Conveyor

PART 4: SITE INFORMATION

Document reference	Title	No of pages
	This cover page	1
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PART 4: SITE INFORMATION

1. General description

The Matimba Power Station is located approximately 13km west of the town of Lephalale along Nelson Mandela Drive within the Limpopo Province of South Africa.

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

There are no other buildings or services surrounding the working area. It will be the contractor's responsibility to provide all equipment required to execute the work. This includes ablution and potable water facilities.

There will be Others working in the same area as the Contractor.

3. Subsoil information

It is not anticipated that earthworks will be required for the Works. In the vent of earthworks being required, it will be the responsibility of the Contractor to identify and manage underground services.

4. Hidden services

Matimba Power Station has many hidden services to support the Power Station, which includes, but is not limited to underground water piping, trenches, cabling, gas lines, etc.

5. Other reports and publicly available information

None

6. Weather Data

Typical seasonal conditions at Matimba Power Station:
- Summer average temperatures: 38 degC dry bulb, 20 degC wet bulb
- Winter: 4 degC dry bul bulb, 2 degC wet bulb
- Atmospheric pressure: 1000 mBar
- Altitude: 877m