NEC3 Engineering & Construction Contract

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

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

for **Kriel Ash Dam Drain Installation Project for a period of 2 years**

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

CONTRACT No.

Part C1: Agreements & Contract Data

Contents:		No of pages
C1.1	Form of Offer and Acceptance	3
C1.2a	Contract Data provided by the *Employer*	16
C1.2b	Contract Data provided by the *Contractor*	2
C1.3	Proforma Guarantees	N/A

C1.1 Form of Offer & Acceptance

1.1 Offer

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

Kriel Ash Dam Drain Installation Project for a period of 2 years

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

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

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

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

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

Signature(s) .....

Name(s) .....

Capacity .....

For the tenderer:

.....
(Insert name and address of organisation)

Name & signature of witness .....

Date .....

Tenderer's CIDB registration number (if applicable) .....

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

1.2 Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

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

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

1.3 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.

	1.3.1.1 For the tenderer:	1.3.1.2 For the Employer
Signature		
Name		Morongwe Raphasha
Capacity		General Manager
On behalf of	*(Insert name and address of organisation)*	Eskom Holdings SOC Ltd Kriel Power Station Bethal / Ogies Road Kriel 2271
Name & signature of witness		
Date		

C1.2 ECC3 Contract Data

Part one - Data provided by the *Employer*

Clause	Statement	Data
1	**General**	
	The *conditions of contract* are the core clauses and the clauses for main Option	
		A: **Priced contract with activity schedule**
	dispute resolution Option	**W1:** **Dispute resolution procedure**
	and secondary Options	
		X1: **Price adjustment for inflation**
		X2 **Changes in the law**
		X5: **Sectional Completion**
		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)	
	Address	**Private Bag X5009, Kriel, 2271**
	Tel	
	Cell	
	e-mail	
10.1	The *Supervisor* is: (Name)	**TBA**

	Address	**Private Bag X5009, Kriel,**
	Tel No.	
	Cell No.	
	e-mail	

11.2(13)	The *works* are	**As per attached *Works Information***
11.2(14)	The following matters will be included in the Risk Register	**Time** **Quality** **COVID-19**
11.2(15)	The *boundaries of the site* are	**Contractor's site office area** **Walking area to working site at the Kriel Ash dams as per scope of work**
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	**Three 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	**29 July 2023**		
11.2(9)	The *key date*s and the *condition*s to be met are:	***Condition* to be met**		***key date***
		1	Site Establishment	Within 10 days after contract award & safety file approval
		2	Delivery of equipment on site	1 week after site establishment
		3	Installation of 1st 12 drains	Within 30 days after site establishment
		4	Continue installation of remaining 805 drains	30 days after 1st 12 drains *(on instruction by project manager)comp*

				letion at contract end date as per signed NEC contract
		5	Delivery of data pack and drawings	1 week after competition of the whole of the works
		6	Training on maintaining drains	1 Week after 1st 12 drains installation
30.1	The *access dates* are:	**Part of the Site**		**Date**
		1	Site Establishment	Within 10 days after contract award & safety file approval
		2	Delivery of equipment on site	1 week after site establishment
		3	Installation of 1st 12 drains	Within 14 days after site establishment
		4	Installation of remaining 805 drains (as per approved program submitted by the contractor)	30 days after 1st 12 drains *(on instruction by project manager) completion at contract end date as per signed NEC contract*
		5	Delivery of data pack and drawings	30 days after competition of the whole of the works
		6	Training on maintaining drains	1 Week after 1st 12 drains installation
31.1	The *Contractor* is to submit a first programme for acceptance within	**1 week of the Contract Date.**		
31.2	The *starting date* is	**30 August 2021**		
32.2	The *Contractor* submits revised programmes at intervals no longer than	**2 weeks.**		
35.1	The *Employer* is not willing to take over the *works* before the Completion Date.	**On completion of each drain**		

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	**1 week**
5	**Payment**	
50.1	The *assessment interval* is	**between the 25th day of each successive month per completed activities**
51.1	The *currency of this contract* is the	**South African Rand.**
51.2	The period within which payments are made is	**14/30 days after receipt of valid Tax invoice**
51.4	The *interest rate* is	**the publicly quoted prime rate of interest (calculated on a 365 day year) charged from time to time by the Standard Bank of South Africa Limited (as certified, in the event of any dispute, by any manager of such bank, whose appointment it shall not be necessary to prove) for amounts due in Rands and** **(ii) the LIBOR rate applicable at the time for amounts due in other currencies. LIBOR is the 6 month London Interbank Offered Rate quoted under the caption "Money Rates" in The Wall Street Journal for the applicable currency or if no rate is quoted for the currency in question then the rate for United States Dollars, and if no such rate appears in The Wall Street Journal then the rate as quoted by the Reuters Monitor Money Rates Service (or such service as may replace the Reuters Monitor Money Rates Service) on the due date for the payment in question, adjusted *mutatis mutandis* every 6 months thereafter and as certified, in the event of any dispute, by any manager employed in the foreign exchange department of The Standard Bank of South Africa Limited, whose appointment it shall not be necessary to prove.**
6	**Compensation events**	
60.1(13)	The place where weather is to be recorded is: The *weather measurements* to be recorded for each calendar month are,	**Bethal Weather Station** **the cumulative rainfall (mm)** **the number of days with rainfall more than 10 mm** **the number of days with minimum air temperature less than 0 degrees Celsius** **the number of days with snow lying at 09:00 hours South African Time** **and these measurements:**

	The *weather measurements* are supplied by	**South African Weather Bureau**
	The *weather data* are the records of past *weather measurements* for each calendar month which were recorded at:	**Bethal Weather 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	**1. Time** **2. Quality** **3 COVID-19**
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.**
1.411	**1.5 Data for Option W1**	
W1.1	The *Adjudicator* is	**the person selected from the ICE-SA Division (or its successor body) of the South African Institution of Civil Engineering Panel of Adjudicators by the Party intending to refer a dispute to him. (see www.ice-sa.org.za). If the Parties do not agree on an Adjudicator the Adjudicator will be appointed by the Arbitration Foundation of Southern Africa (AFSA).**
W1.2(3)	The *Adjudicator nominating body* is:	**the Chairman of ICE-SA a joint Division of the South African Institution of Civil Engineering and the London Institution of Civil Engineers. (See www.ice-sa.org.za) or its successor body.**
W1.4(2)	The *tribunal* is:	**arbitration.**
W1.4(5)	The *arbitration procedure* is	**the latest edition of Rules for the Conduct of Arbitrations published by The Association of Arbitrators (Southern Africa) or its successor body.**
	The place where arbitration is to be held is	**Johannesburg South Africa**

	The person or organisation who will choose an arbitrator - if the Parties cannot agree a choice or - if the arbitration procedure does not state who selects an arbitrator, is	**the Chairman for the time being or his nominee of the Association of Arbitrators (Southern Africa) or its successor body.**

12 Data for secondary Option clauses

X1	**Price adjustment for inflation**			
X1.1(a)	The *base date* for indices is	**One month before contract award**		
X1.1(c)	The proportions used to calculate the Price Adjustment Factor are:	**proportion**	**linked to index for**	**Index prepared by**
		0.		
		0.		
		0.		
		0.		
		0.		
		0.1	**non-adjustable**	
	Total	**1.00**		
X2	**Changes in the law**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**		
X7.1 X5.1	Delay damages for late Completion of the *section*s of the *works* are:	***section***	**Description**	**Amount per day**
		1	Site Establishment	**R10 000**
		2	Delivery of equipment on site	**R10 000**
		3	Installation of 1st 12 drains	**R10 000**
		4	Installation of remaining 805 drains (as per approved program submitted by the contractor)	**R80 000**
		5	Training on maintaining drains	**R10 000**
	The total delay damages payable by the *Contractor* does not exceed:	**15% of contract value**		

X15	**Limitation of the *Contractor*'s liability for his design to reasonable skill & care**	**There is no reference to Contract Data in this Option and terms in italics are identified elsewhere in this Contract Data.**
X16	**Retention (not used with Option F)**	
X16.1	The *retention free amount* is	**R0**
	The *retention percentage* is	**10%**
X18	**Limitation of liability**	
X18.1	The *Contractor*'s liability to the *Employer* for indirect or consequential loss is limited to:	**R0.0 (zero Rand)**
X18.2	For any one event, the *Contractor*'s liability to the *Employer* for loss of or damage to the *Employer*'s property is limited to:	**the amount of the deductibles relevant to the event**
X18.3	The *Contractor*'s liability for Defects due to his design which are not listed on the Defects Certificate is limited to	**The greater of** • **the total of the Prices at the Contract Date** **and** • **the amounts excluded and unrecoverable from the *Employer*'s assets policy for correcting the Defect (other than the resulting physical damage which is not excluded) plus the applicable deductible as at contract date.**
X18.4	The *Contractor*'s total liability to the *Employer* for all matters arising under or in connection with this contract, other than excluded matters, is limited to:	**the total of the Prices other than for the additional excluded matters.** **The *Contractor's* total liability for the additional excluded matters is not limited.** **The additional excluded matters are amounts for which the *Contractor* is liable under this contract for** • **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) 7 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.

1.5.1 INSURANCE TABLE A

Insurance against	Minimum amount of cover or minim limit of indemnity
Loss of or damage to the *works*, Plant and Materials	The replacement cost where not covered by the *Employer*'s insurance The *Employer*'s policy deductible, as Contract Date, where covered by the *Employer*'s insurance
Loss of or damage to Equipment	The replacement cost
Liability for loss of or damage to property (except the *works*, Plant and Materials and Equipment) and liability for bodily injury to or death of a person (not an employee of the *Contractor*) caused by activity in connection with this contract	Loss of or damage to property *Employer*'s property The replacement cost where not covered by the *Employer*'s insurance The *Employer*'s policy deductible, as Contract Date, where covered by the *Employer*'s insurance Other property The replacement cost Bodily injury to or death of a person The amount required by applicable l
Liability for death of or bodily injury to employees of the *Contractor* arising out of and in the course of their employment in connection with this contract	The amount required by the applicat law

Z 13.2 Replace core clause 87 with the following:
The *Employer* provides the insurances stated in the Insurance Table B.

INSURANCE TABLE B

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

Z14 Nuclear Liability

Z14.1 The *Employer* is the operator of the Koeberg Nuclear Power Station (KNPS), a nuclear installation, as designated by the National Nuclear Regulator of the Republic of South Africa, and is the holder of a nuclear licence in respect of the KNPS.

Z14.2 The *Employer* is solely responsible for and indemnifies the *Contractor* or any other person against any and all liabilities which the *Contractor* or any person may incur arising out of or resulting from nuclear damage, as defined in Act 44 of 1999, save to the extent that any liabilities are incurred due to the unlawful intent of the *Contractor* or any other person or the presence of the *Contractor* or that person or any property of the *Contractor* or such person at or in the KNPS or on the KNPS site, without the permission of the *Employer* or of a person acting on behalf of the *Employer*.

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

Z14.4 The *Employer* does not waive its rights provided for in section 30 (7) of Act 44 of 1999, or any replacement section dealing with the same subject matter.

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

Z15 Asbestos

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

AAIA means approved asbestos inspection authority.

ACM means asbestos containing materials.

AL	means action level, i.e. a level of 50% of the OEL, i.e. 0.1 regulated asbestos fibres per ml of air measured over a 4 hour period. The value at which proactive actions is required in order to control asbestos exposure to prevent exceeding the OEL.
Ambient Air	means breathable air in area of work with specific reference to breathing zone, which is defined to be a virtual area within a radius of approximately 30cm from the nose inlet.
Compliance Monitoring	means compliance sampling used to assess whether or not the personal exposure of workers to regulated asbestos fibres is in compliance with the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
OEL	means occupational exposure limit.
Parallel Measurements	means measurements performed in parallel, yet separately, to existing measurements to verify validity of results.
Safe Levels	means airborne asbestos exposure levels conforming to the Standard's requirements for safe processing, handling, storing, disposal and phase-out of asbestos and asbestos containing material, equipment and articles.
Standard	means the *Employer*'s Asbestos Standard 32-303: Requirements for Safe Processing, Handling, Storing, Disposal and Phase-out of Asbestos and Asbestos Containing Material, Equipment and Articles.
SANAS	means the South African National Accreditation System.
TWA	means the average exposure, within a given workplace, to airborne asbestos fibres, normalised to the baseline of a 4 hour continuous period, also applicable to short term exposures, i.e. 10-minute TWA.

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

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

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

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

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

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

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

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

Not Applicable

C1.2 Contract Data

Part two - Data provided by the *Contractor*

[Instructions to the contract compiler: (delete this notes before issue to tenderers with an enquiry)
Whenever a cell is shaded in the left hand column it denotes this data is optional. If not required select and delete the whole row, otherwise insert the required Data.]

Notes to a tendering contractor:

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

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

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

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

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

	Experience:	**CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .** Note: to be completed in full.		
11.2(3)	The *completion date* for the whole of the *works* is	Note: to be completed in full.		
11.2(14)	The following matters will be included in the Risk Register	Note: to be completed in full.		
11.2(19)	The Works Information for the *Contractor*'s design is in:	Note: to be completed in full.		
31.1	The programme identified in the Contract Data is	Note: to be completed in full.		
A	**Priced contract with activity schedule**			
11.2(20) 11.2(30)	The *activity schedule* is in The tendered total of the Prices is	**(in figures)** **(in words), excluding VAT** Note: to be completed in full.		
A	**Priced contract with activity schedule**	**Data for the Shorter Schedule of Cost Components**		
	1.6 Data for Schedules of Cost Components	**Note "SCC" means Schedule of Cost Components starting on page 60, and "SSCC" means Shorter Schedule of Cost Components starting on page 63 of ECC3 (April 2013).**		
A	**Priced contract with activity schedule**	**Data for the Shorter Schedule of Cost Components**		
41 in SSCC	**The percentage for people overheads is:**	**%**		
21 in SSCC	**The published list of Equipment is the last edition of the list published by**			
	The percentage for adjustment for Equipment in the published list is	**Minus %**		
22 in SSCC	The rates of other Equipment are:	**Equipment**	**Size or capacity**	**Rate**

61 in SSCC	The hourly rates for Defined Cost of design outside the Working Areas are **Note: Hourly rates are estimated 'cost to company of the employee' and not selling rates.** **Please insert another schedule if foreign resources may also be used**	**Category of employee**	**Hourly rate**
62 in SSCC	The percentage for design overheads is	**%**	
63 in SSCC	The categories of design employees whose travelling expenses to and from the Working Areas are included in Defined Cost are:		

PART 2: PRICING DATA
ECC3 Option A

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option A	**3**
C2.2	The *activity schedule*	**1**

C2.1 Pricing assumptions: Option A

How work is priced and assessed for payment

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

Identified and defined terms	11 11.2	(20) The Activity Schedule is the *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.

Price List

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

Payment		Description	Unit	Quantity	Rate	Amount
Refers to	**Item No.**					
SANS 1200 A		**Part A: Preliminary and General**				
8.3	**A1**	**Fixed Charges**				
	A1.1	Site Establishment	Sum			
	A1.2	Site De-establishment	Sum			
	A1.3	Accommodation	Sum			
	A1.4	Transport	Sum			
	A1.5	SHEQ Requirements(SHE File, PPE, Covid PPE, Induction, Medicals)	Sum			
	A1.6	Transport	Sum			
	A1.7	Management(Site, Project, Safety, Quality)	Sum			
8.3.2	A1.8	Mobilization and demobilization of plant	Sum			
PS		**Part B Drilling**				
	B1	Establishment at each hole	No.	817		
	B2	Horizontal directional drilling	m	33040		
	B3	Casing	m	33040		
	B4	Water carting and pumping	No.	817		
PS		**Part C: Pipelines**				
	C1	Supply, and install, complete with couplings:				
		0.01 x 110mm dia perforated HDPE drainage pipe.	m	32223		
		drainage pipe.				
		0.02 x 110mm dia non-perforated HDPE	m	817		
		drainage pipe.				
		0.03 x 160mm dia non-perforated HDPE	m	14186		
		drainage pipe.				
	C2	Accessories:				
		0.01 x 110mm dia Y-junction	No.	505		
		0.02 x 110mm/160mm reducer	No.	505		
		0.03 x 160mm dia T-junction	No.	505		
		0.04 x 160mm dia bend	No.	108		
		0.05 x 110mm dia end cap	No.	817		
PS		**Part D: Geosynthetics**				
	D1	Supply and install Bidim A4 or similar approved around 110mm dia. perforated	m^2	12806		

		HDPE drainage pipe Rate to include for cutting, stitching, strapping, overlapping, wastage.				
	Total excluding VAT					

…… Print Name	…… Signature	…… Date

An activity schedule could have the following format:

Item No.	Programme Reference	Activity description	Price

C2.2 the *activity schedule*

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

PART 3: SCOPE OF WORK

Document reference	Title: **Kriel Power Station Installation of additional drains at the Ash Dam Complex works information**	**No of pages**
	Employer's Works Information	
	Total number of pages	30

2 Description of the *works*

2.1 Executive overview

2.1.1 Background

Kriel Power Station is located approximately 8m west of Kriel in Mpumalanga Province, South Africa. The location is shown in Figure 1 below.

Figure 1: Kriel Power Station location

The Ash Dam complex consists of three compartments namely Dam1, Dam 2 and Dam3 which has an approximate footprint of 300Ha.The Dams are shown on the figure below

Figure 2: Layout of Ash Dams

Eskom is required to take drain flow readings in order to monitor the amount of water draining from the Ash Dam. From investigations a number of existing drains are damaged or have failed and are not working efficiently or at all. This has been caused by the increase in height of the dams creating increased weight on the drains which has caused the drains to fail. The installations of additional drains on Kriel Ash Dam Complex has been recommended by the Approved Professional Person (APP). It is believed that installing new drains at the Ash Dam would alleviate pressure in the dam by draining water out the body of the dam which will reduce its phreatic line (water table). Reducing the phreatic line through the dam will in turn increase the stability of the slopes of the dam complex.

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

The scope comprises of, but not limited to:

- The contractor is requested to install a pilot drains in pre-determined areas by the APP of the Ash Dams. The Pilot test will consist of the installation of 12 drains.
- After monitoring of the pilot test drains for a period of a Month, the APP will advise on continuing with the rest of the 817 Drains
- If the pilot test is successful, the contractor is requested to supply and install the remaining 805 drains (817 drains minus the 12 test pilot drains) in pre-determined areas by the APP of the Ash Dam
- Locations of drains will be advised by the APP
- In the event that not all 817 drains are to be installed (advised by the APP or the Employer) , the contractor will be paid for the drains that have been completed

2.3 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	**Description**
O.S.H.	**Occupational Health & Safety**
S.A.N.S.	**South African National Standards**
APP	**Approved professional person**
AWR	**Ash water Return**
ADF	**Ash Dam Facility**
AFC	**Approved for construction**
AHP	**Ash Handling Plant**
DWS	**Department of Water and Sanitation**
ECSA	**Engineering Council of South Africa**
EDWL	**Engineering design work lead**
ISO	**International organization for standards**
QA	**Quality Assurance**
QC	**Quality Control**
QCP	**Quality Control Plan**
QM	**Quality Management**
SHEQ	**Safety health environmental quality**
ROC	**Required operational capability**
SRD	**Stakeholders requirement definition**
VDSS	**Vendor Document Submission Schedule**
Definitions	**Explanation**

2.4 Interfaces with others

The Contractor is responsible for all system interfaces which forms part of the works. The Employer provides the relevant information defining the system interfaces. The Contractor will have to liaise with Ash dam operations team to have an understanding of when the areas will be available

3 Management and start up

3.1 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Project Kick-Off Meeting	Once, Before Contract commence	Kriel Power Station Site - Boardroom to be determined **OR** through MS Teams	***Contractor's*** Project Manager **OR** Project Supervisor and other attendees at the discretion of the contractor. ***Employer's*** Project Team
Progress Meeting, Risk register and compensation events	Weekly, at a mutually agreed time and venue	MS Teams	***Contractor's*** Project Manager or Project Supervisor ***Employer's*** Project Team
Risk Management Review	Weekly, at a mutually agreed time and venue	To be determined	***Contractor's*** Project Manager or Project Supervisor ***Employer's*** Project Team
Project Meeting	When a need arise	To be determined	***Contractor's*** Project Manager or Project Supervisor ***Employer's*** Project Team
Safety Plant Walk	Monthly, to join engineering team	To be determined	***Contractor's*** Safety Representative
Safety Meeting	Monthly, to join project team	To be determined	***Contractor's*** Safety Representative
Stand-up Meeting	Daily, 08h00	To be determined	***Contractor's*** Project Engineer and Technical team ***Employer's*** Project Engineer and Assistant
Overall contract progress and feedback	Monthly, at a mutually agreed time and venue	To be determined	***Employer***, ***Contractor'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 both parties, the nature and the progress of the *works*. Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

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

3.2 Documentation Control

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

3.2.1 General

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

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

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

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

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

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

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

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

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

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

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

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

Also see 6.11 on page 33 of this document

3.3 Health and safety risk management

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

3.3.1 General Health and Safety

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

3.3.2 ESKOM POLICIES, STANDARDS, PROCEDURES, SPECIFICATIONS AND OTHER STATUTORY AND REGULATORY REQUIREMENTS

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

3.3.3 Safety of Workers

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

3.3.4 Fire Protection

i. The *Contractor* shall ensure that adequate fire fighting apparatus is provided at all their work sites or office areas, and that their all their staff or representatives are trained in the use of this apparatus.

ii. The *Contractor* takes precautions to prevent any occurrence of fires or explosions while carrying out any work near flammable gas and liquid systems. Any tampering with the *Employer's* fire equipment is strictly forbidden.
iii. All exit doors, fire escape routes, walkways, stairways, stair landings and access to electrical distribution boards must be kept free of obstruction, and not be used for work or storage at any time. Fire fighting equipment remains accessible at all times.
iv. In case of a fire, report the location and extent of the fire to the Electrical Operating Desk at extension 2555.
v. Take the necessary action to safeguard the area to prevent injury and spreading of the fire.

3.3.5 Asbestos

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

3.3.6 First Aid

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

3.3.7 Hazardous Substances

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

3.3.8 Radiation Protection

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

3.3.9 Plant Safety Regulations

i. The *Employer,* on request from the *Contractor*, isolates required plant from all sources of danger as described in the Plant Safety Regulations.
ii. The *Project Manager*, on request, makes available a copy of the latest revision of the Plant Safety Regulations available to the *Contractor*.
iii. The *Contractor* complies with all rules and regulations applicable to plant safety and completes the Workman's Register prior to working on the plant and or Limited Access Register (LAR).
iv. The *Contractor* declares any grinding and welding to be carried out on the workers register
v. At every permit change the *Contractor* withdraws himself/herself/his staff for that period of permit suspension/revocation and thereafter only proceeds with the works after signing onto the new permit.

vi. The *Contractor* ensures that he/she/all sub-*contractors*/personnel/staff/his visitors are medically, physically and psychologically fit to enter the Kriel Power Station, and specifically any confined space.
vii. The *Contractor* is prohibited from entering Radiation Areas.
viii. The responsibility is on the *Contractor* to ensure that the correct confined space requirements and tests have been done/met by the *Employer* prior to entry into any confined space or hazardous plant areas.
ix. The *Contractor* shall provide proof of competency for technical and safety aspects and must be available as and when required on site.

3.4 Environmental constraints and management

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

3.5 Quality assurance requirements

Quality Management System

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

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

3.5.1 Quality Documents Submitted with the Tender

i. The *Contractor* submits a copy of his quality policy and quality system procedures relevant to the *Works*.
ii. The *Contractor* also to submit a typical quality control plan
iii. The *Project Manager* 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* performs pre-award assessments where necessary, giving further information to aid the selection process.

3.5.2 Contract Quality Management Plan Requirement

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

i. Indicates the interface with the *Contractors* quality system and applicable documents such as procedures and work instructions
ii. Establishes communication channels between the *Contractor* and the *Project Manager* in respect of quality and the integration of such with prescribed contract communication channels
iii. Indicates how specific subcontractors will be monitored
iv. Identifies items or activities for which quality control plans will be prepared
v. Identifies the specifications, drawings and acceptance criteria for material for which quality control plans are not required
vi. Identifies the areas or processes requiring special controls

vii. Identifies the *Contractor's* Management Representative and personnel responsible for the control of quality activities and their relationship to the *Contractor's* management structure

viii. Identifies the documents which are to be submitted to the *Project Manager*

ix. 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.

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

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

3.5.4 Verification and Testing

The *Contractor* gives at least 24 hours advance notification to the *Supervisor* or the Authority for verification/testing, which require their attendance. The *Contracto*r confirms readiness for verification at least 12 hours prior to the test.

The *Contractor* ensures that all work has been fully verified, accepted and documented prior to requesting any verification by the *Supervisor*.

3.5.5 Quality Records

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

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

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

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

v. The *Contractor* stores all quality records. The *Contractor* only destroys or discards quality records with the approval of the *Employer*.

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

3.6 Programming constraints

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

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

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

The method of reporting on activities in progress shall be by remaining duration, i.e. the time in working days needed to complete the activity from the report date. Once an activity has started, the remaining duration is assessed for each update.
When completion of any activity is confirmed by quoting document numbers, these numbers shall be given in a remarks appendix, e.g. suborders, drawings, inspection certificates, delivery notes, etc. The actual start and completion dates of all activities shall be reported. Once the completion has been recorded, completed activities are removed from progress reports, although full reports may be requested.

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

The *Contractor* must submit an organogram of the *Contractor's* project team indicating clearly reporting lines from the lowest to the highest level of the structure. Lines of authority / communication should be clearly indicated as well as key people and decision makers.
The implementation of Ash dam drain installation has no organisational impact with respect to changes to Employer's organisational structures, jobs, positions, and staffing requirements.
The *Contractor* shall make available skilled planning personnel to work and liaise with the *Project Manager* for the duration of the contract.
The ash dam drain installation is intended for use by ash dam Maintenance (Coal & Ash) & Engineering personnel at Kriel Power Station.

3.8 Invoicing and payment

Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate.
The *Contractor* shall address the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

- Name and address of the *Contractor* and the *Project Manager;*
- The contract number and title;
- *Contractor*'s VAT registration number;
- The *Employer*'s VAT registration number 4740101508;
- Description of service provided for each item invoiced based on the Price List;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

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

3.9 Insurance provided by the *Employer*

Refer to section 8 clause 84.in the NEC *"Contract Data"*
Contract change management
The *Contractor* and *Employer* shall use the standard NEC forms for any form of communication.

3.10 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.

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

In order to substantiate the Defined Cost of Compensation Events, the *Employer* may require the *Contractor* to keep records of amounts paid by him for people employed by the *Contractor*, Plant and Materials, work subcontracted by the *Contractor* and Equipment.

3.12 Training workshops and technology transfer

3.12.1 General Requirements

The *Contractor* must provide formal training on the installed drains as per the scope.
Training should focused on the Operating, Maintenance, ERI (Roshcon) and Engineering.
Engineering functionalities of the new drains, and Maintenance or Admin of the new drains the *Contractor* must provide for the *works*
The training on the system is intended to be given to the following *Employer's* technical staff;

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

The *Contractor* shall further provide on-job training and support during the-commissioning stages of the project.
All training provided by the *Contractor* is directly applicable to the actual equipment and software supplied for the works.
Training manuals shall be offered by the *Contractor* as a printed manual per trainee, with tools shared by trainees during the training.

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

3.12.2 Training Documentation

i. The *Contractor* shall provide all course material including manuals in English and including all third party documentation.
ii. Printed and electronic copies of the training documentation shall be supplied for each trainee plus an additional 2 hardcopy master sets and soft copies of each set of training manuals.
iii. All training documentation provided by the *Contractor* shall be customised for Kriel Power Station.
iv. The training documentation shall contain the specific ash dam drain installation project for Kriel Power Station ash dam be provided by the *Contractor* as part of the works. Training manuals shall be continuously updated by the *Contractor* up to the date of issue of the defects certificate for the whole of the works

4 Parts of the works which the Contractor is to construct

4.1 Scope of Works

Kriel Power Station Installation of additional drains at the Ash Dam Complex

The scope of work includes the supply and installation of new drainage system on Kriel Ash Dams as described below,
The scope comprises of, but not limited to:

- The *contractor* is requested to install pilot drains within Kriel Ash Dam facility. . The Pilot test will consist of the installation of 12 drains.
- After monitoring of the pilot test drains for a period of a Month, the APP will advise on continuing with the rest of the 805 drains (817 drains minus the 12 pilot drains).

- If the pilot test is successful, the contractor is requested to supply and install 802 drains in pre-determined areas by the APP of the Ash Dam
- Locations of drains will be advised by the APP
- Dispose of any waste materials from drain installations in a predetermined area (location to be advised by the Employer).

4.1.1 Drainage system design

The Drainage system design is explained below and drawings can be seen in the appendix at the end of this document

4.1.1.1 Drainage system pipe details

The drainage system will comprise perforated 110mm diameter HDPE pipes with a factory installed geotextile filter surround. The pipes are to be inserted into the ash dam to varying depths and at various elevations along the perimeter of the Ash Dam Complex
Each 110mm diameter perforated HDPE pipe will be inserted into the ash dam at a minimum slope of 3 degrees to enable gravity flow.
Drainage pipes inserted at the toe of the facility discharge directly into the existing solution trench via a 110mm diameter unperforated HDPE outlet pipe. Drainage pipes inserted along the benches will discharge into a drainage collection system.
Rodding eyes are provided to allow for cleaning of the drainage system when required. The rodding eyes comprise 110mm diameter Y-junctions located at the end of each drainage outlet pipe. A rodding eye is also provided at the end of each drainage collector pipe

4.1.1.2 Drainage collection system

Drainage collection system is required to convey drain water from the ash dam benches to the existing solution trench located at the toe of the facility without recharging the phreatic surface.
The drainage collector system comprises a 160mm diameter unperforated HDPE collector pipe which collects drain water discharging from each drain located on the ash dam bench. Downpipes covey the drain water from the collector pipes to the existing solution trench.

4.1.1.3 Drainage pipe geotextile

Each perforated pipe is to have a geotextile filter surround. Geotextiles are commonly used as a filter material due to the ease of installation and the effectiveness in providing filtration.
The geotextile filter allows for water to flow into the drainage pipes whilst preventing the ash material from being eroded. Selection of an appropriate geotextile requires careful analysis to ensure that the geotextile is compatible with the surrounding material.
A suitable geotextile filter was selected based on the criteria specified in the Drainable Pavement Systems – Demonstration 87 (FHWA, 1992). Geotextile filter design requires consideration of the geotextile's:

- Soil-retention characteristics
- Permeability
- Susceptibility to clogging
- Durability

The particle size distribution of the ash material was obtained from the Step-in and Go Higher Geotechnical Investigation and Stability Assessment (Report No: JW129/15/F015 – Rev 1) submitted by Jones & Wagner in December 2015. The particle size distribution of the two ash samples KBH01/01 and KBH02/01are indicated in Figure 3 (9).

The ash material particle size distribution was used to select a suitable geotextile filter which adheres to the requirements indicated in the Drainable Pavement Systems – Demonstration 87 (FHWA, 1992).

A4 Bidim or similar approved geotextile filter adheres to the soil retention, permeability, clogging and durability criteria indicted in the Drainable Pavement Systems – Demonstration 87 (FHWA, 1992).

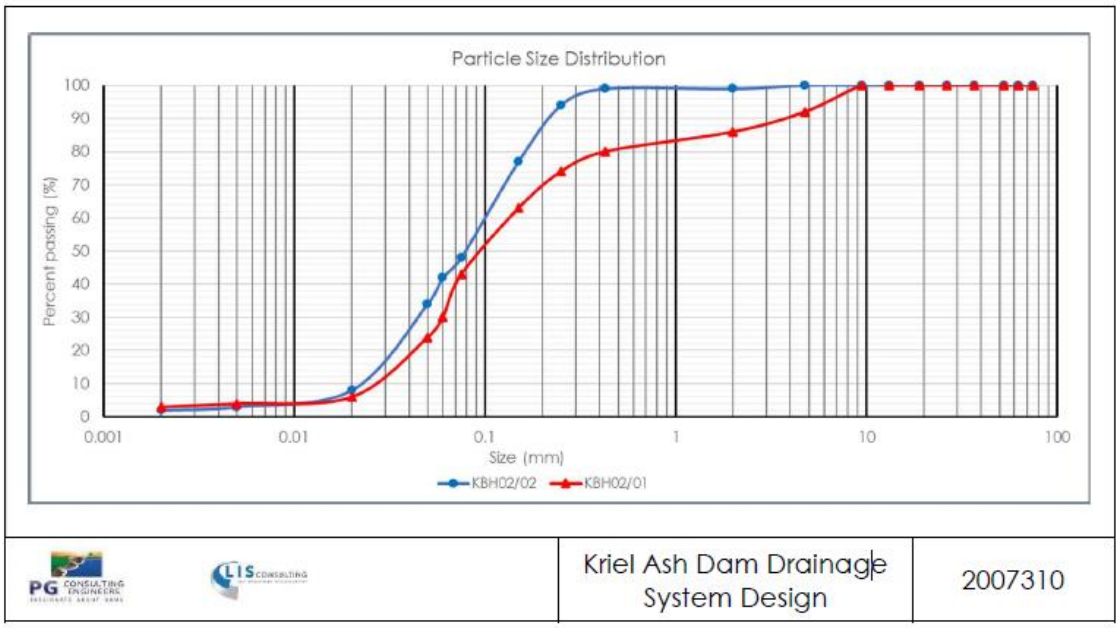


Figure 3: Kriel Ash Dam Drainage System Design (9)

4.1.2 Proposed Methodology

Proposed methodology for installations:

- Directional drill the hole into the ash dam to the required length.
- Insert a temporary casing into the hole as drilling progresses to prevent the hole from collapsing.
- Withdraw the drill head.
- Insert the drainage pipe with a factory installed geotextile filter surround.
- Withdraw the casing.
- Plug the drainage pipe outlet end.
- Install the drainage collection system to collect the water discharging from the drainage pipe.

4.1.3 Test Pilot

Pilot testing is recommended to determine the practicality and efficacy of the drainage system, and to determine the best way to install the drains.
The pilot testing will confirm the overall cost to install the drainage system as well as the technical ability to install the proposed drainage system.
It is recommended that four (4) 50m long pilot drains be installed at the toe, first bench (1595 mamsl) and third bench (1610 mamsl) on the eastern flank of Dam 3. Two pilot drains are to be installed on either side of the existing piezometer line M1 at the required elevations. This will allow the operators to measure the phreatic surface near the newly installed drainage system and assess the effectiveness of the drainage system.
Exact locations will be advised by the APP

4.1.4 Phased drainage system installation

If the test pilot set of drains is declared successful by the APP, the remaining of the total 817 drains must phased o be installed
The installation of the proposed new drainage system should be completed in phases with the most critical areas given preference. This will allow better project economics and time-distributed expenditure.
If the drainage system proceeds, then the installation should first commence along the eastern and northern flank of Dam 3 as well as the southern flank of Dam 2. The installation of the drainage system can then continue in the remaining areas of the Ash Dam Complex to ensure that the best project economics are achieved.

4.2 Requirements during work

Included in the Contractor's requirements are but not limited to:

- Review all relevant existing site information inclusive of existing geological and geotechnical data;
- Construction and erection, installation, commissioning, testing, training, optimisation and handover of Works and Materials for a fully operational and functional Infrastructure, non withstanding and not limited to the scope in the Works.
- Integration and phasing with other projects executed by *Others*.
- Engagements with the Employer, APP and governmental departments regarding information and findings were necessary
- provides adequate resources including provision of equipment for required Works;
- manages cost and a scheduled time frame of work;
- ensures the scope is carried out in full;
- provides regular feedback on the status of this phase;
- ensures that all site work is conducted by a competent person;
- ensures that prior to any fieldwork, all parties working on site familiarized themselves with the Employer's safety requirements
- Notifies the Employer, if any impedance or obstructions are encountered during intrusive field works. Notifications are done as soon as the Consultant becomes aware of them;
- informs the Employer in writing of any amendments to the testing regime or if more testing is required, and ensures approval if received prior to commencement of tasks;
- Integrates the infrastructure with the existing power station systems and liaises with the original suppliers of the related plant to ensure the compatibility of operation of the existing systems with Plant.
- Provides technical oversight during construction.
- Provides all Equipment (including scaffolding and crainage) requirements for construction of the Plant.
- Provides a method statement for the construction and sequencing of the work subject to the approval of the Project Manager.
- All inspection/quality reports, construction records, commissioning test reports, and other documentation as required by the Works.
- Dismantling, decommissioning and removal of all associated redundant equipment

4.3 Contract Phases

- Employee holds a clarification meeting with the successful tender to detail any uncertainties.
- Execution of the works
  - Phase 1 – Pilot testing of 12 drains
  - Phase 2 – Construction of remaining drains if instructed to do so.

4.4 Additional Requirements and Prerequisites

4.4.1 Drawings format and layout

The creation, issue and control of all Engineering Drawings will be in accordance to the latest revision of 240-86973501 Engineering drawing Standard
Drawing numbers will be issued to the contractor
Drawings issued will be a minimum of one hardcopy and an electronic copy in native CAD and/or DWG/DGN format.
No drawings in TIFF or any other electronic format will be accepted.
Issued drawings will not be “Right Protected” or encrypted.
Production of As-Built information.
The Contractor is required to produce as-built drawings detailing the areas where the new drains are installed

4.5 Site Requirement and SHE Requirement

Contractor shall provide their own workstation including telephone, printing facility, toner cartridges and local area network connection points for internet

4.6 Acknowledgement of Eskom Requirement

Health and Safety requirement that the contractor shall comply with include the following:

- Employers’ SHE policy(32-94)
- Employers’ cardinal rules(32-421)
- Employer incident management procedure (23-95)
- Vehicle and driver safety management procedure (32-93)
- Medical surveillance procedure(32-282)
- Site specific SHE policies and procedure
- Baseline SHE Risk Assessment

The above mentioned procedure /documents shall be made available to *Contractor* in preparation of her/his health and safety management compliance to *Employer* requirements

4.7 The Compensation and Occupational Injuries and Diseases Act

Contractor shall submit the letter of good standing with the compensation commissioner or insurer at tender stage. The letter of good standing shall be valid throughout the service contract period. *Employer* shall at regular interval of time carry out inspection to ensure that the letter of good standing remain valid throughout the service of the contract.

4.8 Proof of SHE Requirement

Contractor shall conduct training from employer and the training conducted shall be:

i. Induction – *Contractor* shall ensure that their employees undergo Health And Safety induction based on the legislation requirement

ii. Competency - the *Contractor* shall base on his HIRA and training analysis, nominate relevant person to be sent on appropriate courses. *Contractors* shall make available at the employer site specific health and safety request copies of certificates of training

iii. Awareness – *Contractor* employees shall be continuously be involve on site toolbox talks with engineering & ERI

4.9 Reporting, Recoding and Investigation of Accident and Incidents

All accident and incident must be reported, recorded and investigated in accordance with the OHSA and applicable E*mployer's* procedure. *Contractor* employee shall report all incident and accident to *Employers* 'site specific health and safety within 24 hours. *Contractor's* employees shall keep the record of all incident and accident reported.

4.10 Emergency Preparedness

The *Contractor's* shall , in consultation with the employer site specific health and safety, develop and submit to *Employers'* site health and safety an emergency respond plan from a review of potential emergency scenarios commencement on site which will include ,but not limited to:

- Escape procedure and routes
- Rescue and medical duties
- Procedure for reporting emergency
- Person to be contacted for information
- Emergency alert system
- Contact list of the emergency service provider

4.11 Public Health and Safety Information

The *contractor's* employees shall ensure that each person visiting a site shall be made aware of the danger to arise from onsite activities and precaution to be taken to avoid or minimise those danger.

4.12 Documentation

See 6.11 on page 33 of this document

5 Plant and Materials standards and workmanship

5.1 Investigation, survey and Site clearance

- The contractor is to confirm the geotechnical investigation and state whether any additional testing is required.
- The contractor is responsible to check, verify and correct any survey data provided for the completion of the works.
- The contractor is responsible for setting out of the works.
- Then contractor is responsible for Site Establishment and Site Clearing and connection to any existing services that may be required. The Project Manager will inform what services are available prior to establishment.

5.2 Labour, Plant and Equipment

- Labour will be supplied by the contractor with all the required PPE and safety equipment.
- Working hours – normal dayshift working hours is required (Overtime work up to contractor discretion)
- Supervision – Supervisor to supervise all work activities and required. (with safety training (HIRA) to conduct risk assessments) must be full time on site
- Operators and/or General workers will be supplied by the contractor to execute the work activities.
- Plant and Equipment will be supplied and maintained by the contractor.
- It is expected that the drilling and all other equipment is in a good and safe condition.
- All plant or equipment operators must be found competent and certified to operate equipment.

5.3 Civil Engineering and Structural Works Specifications

Number	Title
240-56364545	Structural Design and Engineering Standard
240-53113685	Design Review Procedure
240-86973501	Engineering drawing Standard – Common Requirements
240-53114026	Project Engineering Change Management
240-66920003	Documentation Management Review and Handover Procedure for Gx Coal Projects
240-76992014	Project / Plant Specific Technical Documents and Records Management Work Instruction
32-136	Contractor Health and Safety Requirements
32-245	Eskom Waste Management
240-100069100	SHE Specification
SANS 1200 AD	Standardized specification for civil engineering construction Section AD: General (Small dams)
SANS 1200 A	Standardized specification for civil engineering construction Section A: General
SANS 1200 C	Standardized specification for civil engineering construction Section C: Site clearance
SANS 1200 D	Standardized specification for civil engineering construction Section D: Earthworks
SANS 1200 DA	Standardized specification for civil engineering construction Section DA: Earthworks (small works)
SANS 1200 DB	Standardized specification for civil engineering construction Section DB: Earthworks (pipe trenches)
SANS 1200 DK	Standardized specification for civil engineering construction Section DK: Gabions and pitching
SANS 1200 DM	Standardized specification for civil engineering construction Section DM: Earthworks (roads, subgrade)
SANS 1200 GA	Standardized specification for civil engineering construction Section GA: Concrete (small works)
SANS 1200 GE	Standardized specification for civil engineering construction Section GE: Precast concrete (structural)

Number	Title
SANS 1200 HA	Standardized specification for civil engineering construction Section HA: Structural steelwork (sundry items)
SANS 1200 L	Standardized specification for civil engineering construction Section L: Medium-pressure pipe lines
SANS 1200 LB	Standardized specification for civil engineering construction Section LB: Bedding (pipes)
SANS 1200 LE	Standardized specification for civil engineering construction Section LE: Stormwater drainage
SANS 1200 M	Standardized specification for civil engineering construction Section M: Roads (general)
SANS 1200 M	Standardized specification for civil engineering construction Section ME: Subbase
SANS 1200 M	Standardized specification for civil engineering construction Section MF: Base
SANS 1200 M	Standardized specification for civil engineering construction Section MFL: Base (light pavement structures)
SANS 0160	The general procedures and loadings to be adopted in the design of buildings
SANS 10100-1	The Structural use of Concrete, Part 1
SANS 10100-2	The Structural use of Concrete, Part 2
SANS 10144	Detailing of steel reinforcement to concrete
SANS 10160:2011	Basis of structural design and actions for buildings and industrial structures Parts 1-8.
SANS 920	Steel bars for concrete reinforcement
BS 8007: 1987	Design of Concrete Structures for retaining aqueous liquids
SANS 2001-CC1	Construction works Part CC1: Concrete works (structural)
SANS 2001-BE	Construction works Part BE1: Earthworks (general)
SANS 2001-BS1	Construction works Part BS1: Site clearance
SANS 2001-CC2	Construction works Part CC2: Concrete works (minor works)
SANS 10313	Protection against lightning - Physical damage to structures and life hazard
SANS 471	Portland cement (ordinary, rapid-hardening, and sulphate-resisting)
SANS 878	Ready-mixed Concrete
SANS 1077	Sealing compounds for the building and construction industry, two-component, polyurethane-base
SANS Methods 5856	Bulking of fine aggregates
SANS Method 860	1994 Concrete tests – dimensions, tolerances and uses of cast specimens.
SANS Method 861-2	1994 Concrete tests – sampling of freshly mixed concrete.
SANS Method 861-2	1994 Concrete tests – making and curing of test specimens.
SANS Method 862-1	1994 Concrete tests – consistency of freshly mixed concrete – slump test.
SANS Method 863	1994 Concrete tests – compressive strength of hardened concrete.
SANS 1526	Thermoplastics Sheeting For Use As A Geomembrane
GRI Test Method GM13	Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes
SANS 1305	Sealing compounds for the building industry, one-component, rubber-base
SANS 1083	Aggregates from natural sources - Aggregates for concrete
240-56227929	Power Station Standby Diesel Generators Specification Standard

6 Procurement

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

6.1 People.

6.1.1 Minimum requirements of people employed on the Site

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

6.1.2 BBBEE and preference scheme

Compliance to the Preferential Procurement Policy Framework Act (PPPFA)

Where a change in the Contractor's legal status, ownership or any other change to his business composition or business dealings results in a change to the Contractor's B-BBEE status, the Contractor notifies the Employer within seven days of the change.
The Contractor is required to submit an updated verification certificate and necessary supporting documentation confirming the change in his B-BBEE status to the Employer within thirty days of the notification or as otherwise instructed by the Employer.
Where, as a result, the Contractor's B-BBEE status has decreased since the starting date the Employer may either re-negotiate this contract or alternatively, terminate the Contractor's obligation to provide the service.
Failure by the Contractor to notify the Employer of a change in its B-BBEE status may constitute a reason for termination will be dealt with according to the NEC3 ECC penalty/termination clauses

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

N/A

6.1.4 Supplier Development and Localisation

- Sub-contracting 20% for casing for EME's and QSE's level 1 to 2. Signed Sub-contracting intent agreement between the main and sub-contractor to be submitted.
- CSI% to be negotiated to 1.5%
- Skills development:
  TLB Operator x 2; Drilling Operator x 2
- Job creation – tenderer to propose
- Designated Sector = HDPE pipes100%

6.2 Subcontracting

6.2.1 Preferred subcontractors

Not applicable.

6.2.2 Subcontract documentation, and assessment of subcontract tenders

Not applicable.

6.2.3 Limitations on subcontracting

Not applicable.

6.2.4 Attendance on subcontractors

Not applicable.

6.3 Plant and Materials

6.3.1 Quality Management System

The *Contractor* shall be required to demonstrate by means of a Contract Quality Plan (CQP) that this organisation is so structured that all the requirements of the specification will be properly monitored and controlled.
The Contract Quality Plan (CQP), which must include the Quality Control Plan (QCP), is to be drafted in accordance with QM-58 and the Supplier Contract Quality Requirement Specification (QM58). The Quality documents are to be submitted for approval to the Quality Engineer within thirty (30) days after a contract has been awarded to the Contractor.
No work may commence unless the Contract Quality Plan and Quality Control Plan documents have been approved in writing and a copy submitted to the Quality Engineer/ *Project Manager*.
The *Contracto*r, in conjunction with the Quality Engineer must sign off all Quality Control documents after completing all work as per the agreed scope. The *Contractor* to submit a copy of the final signed off documents/data packages to the *Project Manager* within one (1) week after completion of work.
The *Contractor* shall be required to read and fully understand the contents of the Supplier Contract Quality Requirement Specification (QM58) and a copy is to be kept in possession or on premises.
The Supplier Contract Quality Requirement Specification (QM58) shall remain applicable in the event of the contract being extended or modified for reasons permitted. By signature and acceptance of this contract the *Contractor* acknowledges and agrees to comply with and adhere to Eskom's policies and procedures (current and/or latest revisions) including the Supplier Contract Quality Requirement Specification (QM58).

6.3.1.1 Contract Quality Management Plan Requirement

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

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

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

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

6.3.3 *Contractor*'s procurement of Plant and Materials

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

6.3.4 Spares and consumables

The *Contractor* is required to provide a complete list of recommended spares.

6.4 Tests and inspections before delivery

Not applicable

6.5 Marking Plant and Materials outside the Working Areas

Not applicable

6.6 *Contractor*'s Equipment (including temporary works).

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

6.7 Cataloguing requirements by the *Contractor*

Not applicable.

7 Construction

7.1 Construction constraints

The Contractor must ensure that works are in compliance to SANS, DWS requirements. Power Station to ensure that adequate interface management is adopted.

7.2 General

Provide the following to the Employer for review and acceptance:

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

  Identify and note discrepancy or ambiguity between the Employer's Specifications or requirements. These variations are brought to the attention of the Employer for clarification within an effective allowable timeframe.
  Adhere to the South African Environment Protection Act, the Waste Management Code of Practice and the South African Occupational Health and Safety Act No. 85 of 1993, the regulations promulgated thereunder and Eskom Safety, Health, Environment and Quality (SHEQ) Policy 32-727 for all works.
  Adhere to the South African National Water Act 1998 (ACT NO. 36 OF 1998)
  Take all necessary precautions during activities to ensure that there is no damage to existing infrastructure and/or plant.
  Submit all deliverables, to be reviewed by the Employer, prior to moving on to the next phase of the project
  Manage access to the working areas and the Site.
  Allow adequate interface management to ensure that the activities contained within the Works does not obstruct or impose on interface projects and/or cause hindrances to general operations on site
  Maintains and promotes labour harmony on the Site and in the working environment.
  Immediately report any potential labour disharmony to the Supervisor.
  Installation includes
  - Operating and Control Philosophy
  - Construction management
  - Engineering
  - Supply
  - Testing
  - Signage and all the consumables required for commissioning
  - Cold Commissioning
  - Hot Commissioning

7.3 Geotechnical investigations

The Contractor will be provided with the geotechnical information and studies done by *Others*.

7.4 Fabrication and Construction

The works to be provided by the Contractor include:

- Provision of all embedded anchor bolts, sleeves, anchors and other miscellaneous embedded parts required for the installation of all plant and structural steel work, including if necessary setting templates required for the placement of anchor bolts/embedment.

- Provision of all scaffolding, site cranes, lifting equipment, etc. which are required by the Contractor.
- Excavations and drilling of all Drain areas for the project
- Construction of all earthworks and terracing required
- Corrosion protection of the steel supporting structures, and embedded parts.
- Sampling of concrete test cubes and slump tests shall take place at the point of deposition if required.

7.5 Construction and Erection

- The Contractor takes full professional accountability and liability for all temporary items required for the execution of the Works.
- The Contractor is responsible for the installation additional drain systems, and all associated structures in accordance with the detailed drawings and specifications.
- The Contractor disposes of all demolition waste at a licenced waste disposal site to be accepted by the Employer. Certificates of disposal submitted to the Employer.
- The Contractor is responsible for the safety of all personnel involved in the Works as well as the safety of all personnel at Kriel Power Station affected by the construction of the Works.
- The Contractor Submits a comprehensive method statement of the Works to the Employer for acceptance prior to the commencement of the works
- The Contractor removes all temporary structures required for the execution of the works.

Waste Management

- Materials such as excess silt and water will be adequately disposed of with minimum impact to the environment.
- All demolition wastes are required to be disposed in a licenced disposal facility.
- The waste management procedure for Kriel power station is required to be complied with.
- Liaise with the Supervisor regarding the location of waste disposal sites and rubbish dumps.
- The Contractor disposes of all rubble at a waste disposal site to be approved by the Employer. The waste disposal site is selected to suit the classification of the materials to be disposed of. Certificates of disposal are required to be submitted to the Employer.
- Continuously monitor the condition in demolition areas and surrounding areas for any hazardous substances and in such case, the Contractor is required to take necessary precautionary measures.

7.6 Survey control and setting out of the works

It is the responsibility of the contractor to verify and rectify the survey information where provided. It is the responsibility of the contractor for the setting out of the works. Exact locations of each drain will be advised by the APP

7.7 Excavations and associated water control

A pumping system may be required to pump excess in areas were Drains are installed. The pump is to operate via diesel and to pump water into its natural flow path.

7.8 Sequences of construction or installation

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

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

It is the Contractor’s responsibility for the detection and protection of underground and above ground services.

7.10 Materials facilities and samples for tests and inspections

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

7.11 Data Books

The Contractor compiles data Books progressively for all manufacturing and construction/erection inspection, operating manuals and test records and documents for every piece of plant worked on. The Contractor submits data books to the supervisor and Project Manager for their review for all equipment and works undertaken with the applicable requirements and specifications.
Apart from any statutory data packages required, the Contractor also compiles a data package of the relevant drawings, test certificates etc. to the Project Manager for acceptance. These include, but are not limited to:
Cube Strengths
Batch Plant certificates
Slump tests certificates
Compaction tests
QCP records
Material certificates
As-built data and drawings of the completed works upon handover

7.12 Temporary works, Site services & construction constraints

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

i. All persons entering and leaving the Site will be subject to security checks including breathalyser testing for alcohol levels. Persons failing the latter test will be denied entry to Site.
ii. No person may enter the Site without the necessary permits.
iii. All persons entering the Site for the first time shall attend a safety induction course.
iv. Copies of Site regulations shall be obtained by the *Contractor* and these regulations shall be made available to, and imposed on, all persons employed by the *Contractor* and on visitors accompanying the *Contractor* on site.
v. All persons shall obey road signs and no entry passed safety barricades shall be condoned.

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

As per the section 5.1.1

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

Working hours will be adhered to as per negotiations. 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 needed when assessing compensation events.

7.12.4 Health and safety facilities on Site

Safety offices are located at the Fire Station building within Kriel Power Station. Office hours for the safety department are:
Monday's to Thursday's 08:00 to 15:00.
Fridays: Only on appointment between 08:00 - 09:00 in the mornings.
Safety File Approval as per Construction Regulations (OHS Act no 85 of 1993**)**

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

All waste material will be disposed of in the correct waste skips. The *contractor* will be accountable for housekeeping of his area. The *Project Manager* will inspect before hand-over will be signed

7.12.6 Title to materials from demolition and excavation

Not Applicable

7.12.7 Cooperating with and obtaining acceptance of others

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

7.12.8 Publicity and progress photographs

No photographs may be taken on Site without the written permission of the *Employer*.

7.12.9 *Contractor*'s Equipment

The *Contractor's* equipment is inspected by an authorised employee of the *Employer* on arrival at the site.
The following documentation is required to accompany the equipment where applicable;
i. The copies of all test certificates and maintenance records.
ii. Each and every piece of workshop equipment and tools, the *Contractor* brings on site must be declared and logged at Protective services, the *employer* will not issue gate release permits to take *contractors* workshop equipment/tools off site.

7.12.10 Equipment provided by the *Employer*

No equipment shall be provided by the *Employer* for this project

7.12.11 Site services and facilities

Construction and Erection on Site
Under no circumstances is the *Contractor* or his employees allowed to connect up to any piped services or electrical supply without the permission from the *Project Manager*.
Water
The *Employer* makes available free of charge, potable water required for the purpose of this *Contract*. The *Employer* does not guarantee continuity of supply and in such cases the *Contractor* is required to make his own provision for standby supplies to maintain continuity. The variation of pressure in the water supply or breakdown in the supply is not considered to be valid for an extension of time or compensation.
The *Contractor* provides, at his own cost, all connection fittings, pipe work, temporary plumbing, and pumps necessary to lead the water from the *Employer's* points of supply to the various points where it is required.
Compressed Air
The *Employer* attempts to make available compressed air (oil free and dry) to a pressure reaching lows of 620 kPa and highs of 640 kPa. No guarantees of air supply quality are given and air supply breaks of some duration may occur without warning. In the event of the *Employer* not being able to supply compressed air, the *Contractor* must supply his own air by means of a compressor.
Roads
All traffic is limited to using existing roads. The *Employer* recovers any costs from the *Contractor* that is incurred from damage caused to underground services, structures, etc., as a result of the *Contractor* not using the prescribed routes.
First Aid Centre
Ambulance and first aid facilities are available on site, during normal working hours. From Mondays to Thursdays, the **working hours** are from 07H00 to 16H15 and on Fridays the working hours are from 07H00 to 12H00. All cost incurred will be recovered from the *Contractor* to Eskom.
Telecommunications
The *Contractor* arranges with the *Employer* for the use of telecommunication services. *Contractor* shall provide everything else necessary for completion of the Works.

7.12.12 Facilities provided by the *Contractor*

Electrical equipment/appliances, lighting and power

Any electrical equipment or appliances used by the *Contractor* must comply with all relevant safety regulations and requirements as detailed in Procedure 15 MEPR-E/SAF-025 and be maintained in safe and proper working condition.
The *Project Supervisor* has the right to stop the *Contractor's* use of any electrical equipment or appliance which, in the *Project Supervisor's* opinion, does not conform to the foregoing.
The *Contractor* provides at his own expense any temporary local lighting, and ensures that it is in accordance with the requirements of the Factories Inspector.
The *Contractor* provides, at his own expense, all temporary wiring and cabling to lead power from the point of supply to the various points where it is required, maintain same and remove on completion.

Security
The *Contractor* is responsible for all security on site, viz., fencing of, night watch and access control in order to secure all plant, materials and the works itself. All these measures must be in accordance with any relevant regulations and standards and are subject to the *Project Supervisor's* acceptance.
It is also the *Contractor's* responsibility to ensure the security of all completed portions of the works prior to completion.
Accommodation of *Employees*
The *Contractor* is responsible for the provision of accommodation or meals of his own personnel, and the cost thereof to be included in their price list.
Sanitary facilities
The *Contractor* provides services, maintains and removes on Completion any facilities required and allow for same in their price list.
Housekeeping
The working areas shall be kept clean at all times. All cables are to be routed so as not to cross over floors and walkways. All equipment is packed neatly without interference to access. Where applicable, all excess scaffolding material is removed from working areas after the scaffolding has been erected. The bins can be requested from the *Employer s*hould the need arise.
The *Contractor's* equipment must not impair the operation of the surrounding plant or access to the surrounding plant.
Plant and materials
The *Contractor* is to recommend the keeping of any additional stocks of spare parts based on experience gained by them during the execution of the works.
The *Employer* reserves the right to inspect and carry out any checks of its own as they consider necessary.

7.12.13 Existing premises, inspection of adjoining properties and checking work of others

As per scope work

7.12.14 Survey control and setting out of the *works*

As per scope work

7.12.15 Excavations and associated water control

Not Applicable

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

As per scope work

7.12.17 Control of noise, dust, water and waste

Waste is removed promptly to the designated deposit areas. No stockpiling will be permitted.

- Domestic waste to white waste bins.
- Production waste to the marked bins, e.g. "Coal and Ash Only".
- Paper and cans to their respective recycling bins.
- Contact Civil Engineering for the disposal of building rubble. Building rubble is to be removed and disposed of only in the designated area by the *Contractor*, as indicated by the *Project Manager.*

- Scrap metal (Scrap Metal bins), Wood & Rubber, old cables, Equipment, etc., to be placed in the marked bins near the potable water head tank.
- Solvents and cloths used to the cleaning bay.

7.12.18 Sequences of construction or installation

The *Contractor* shall provide the sequence of installations

7.12.19 Giving notice of work to be covered up

Not Applicable

7.12.20 Hook ups to existing works

Notification of construction work (CR4 (1))

7.13 Completion, testing, commissioning and correction of Defects

7.13.1 Work to be done by the Completion Date

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

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

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

7.13.3 Materials facilities and samples for tests and inspections

i. The *Project Manager* is free to specify 'hold and witness points' during the site integration or acceptance testing of the Soot blower system interfaced to the DCS
ii. The *Contractor* issues preliminary notification of hold and witness points by 15 calendar day advance notice to the *Project Manager*.
iii. The *Contractor* confirms hold and witness points at least 7 days prior to the activity.
iv. Arrangements for witnessing inspections are made through the *Project Manager*.
v. A minimum of 5 working days' notice is given by the *Contractor* for inspections.

7.13.4 Commissioning

As per this scope work, refer to section 3.5

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

7.13.5.1 Site Integration Test Procedure

i. The *Contractor* prepares a detailed test procedure for the SIT
ii. As a minimum, the proposed SIT procedure identifies the following;
   a. Major test activities
   b. Comprehensive list and description of the individual tests to be performed.
   c. How the tests are to be prepared and conducted.
   d. Test dates and durations
   e. Checklists - how the test results will be documented
   f. Acceptance Criteria
   g. How the identified discrepancies will be processed
   h. Retesting requirements

7.13.6 Take over procedures

The *Works* is not deemed to be in operation until the commercial operation date. The *Works* is taken over on that date and the defects period runs from that date. Takeover by the *Project*

Manager is dependent on successful completion of the *Works*, commissioning and testing, Works of plant labelling and all required documentation handed over and all known defects corrected. Take-over is after or at the same time as Completion as per agreed schedule on sections completed but before the end date as per contract for all drains.
The QCP will be used as a takeover procedure, once all the tasks contained on QC documents have been completed and approved by the Quality Control personnel. The *Works* will be signed off once the QC personnel have approved the QCP.

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

Clause 43.4 requires that the *Project Manager* arranges for the *Employer* to allow the *Contractor* access to and use of a part of the *works* which has been taken over if needed to correct a Defect.
After the *Works* have been put into operation, the *Employer* may require the *Contractor* to undertake certain procedures before such access can be granted (for example barricading a motorway).

7.13.8 Performance tests after Completion

The first 12 drains will be monitored by the APP of the Ash Dams for a given period as stipulated in the scope of work to see if the drainage performance grants a reduction in phreatic surface at the new drains location at the dam. This will then be analysed to see if the rest of the drains are to be installed.

7.13.9 Training and technology transfer

As per this scope of work

7.13.10 Operational maintenance after Completion

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

8 Plant and Materials standards and workmanship

As per this scope work, refer to section 3

8.1 Investigation, survey and Site clearance

Not applicable

8.2 Building works

Not applicable

8.3 Civil engineering and structural works

As per scope of work, refer to section 3

8.4 Electrical & mechanical engineering works

Not applicable

8.5 Process control and IT works

Not applicable

8.6 Other [as required]

9 List of drawings/documents

9.1 Drawings issued by the *Employer*

The *Contractor* shall specify other than listed below or additionally all drawings/documents required to complete the *Works* before the Contract Date. Once the list is received it will be listed in the below table and sent to the *Contractor*.

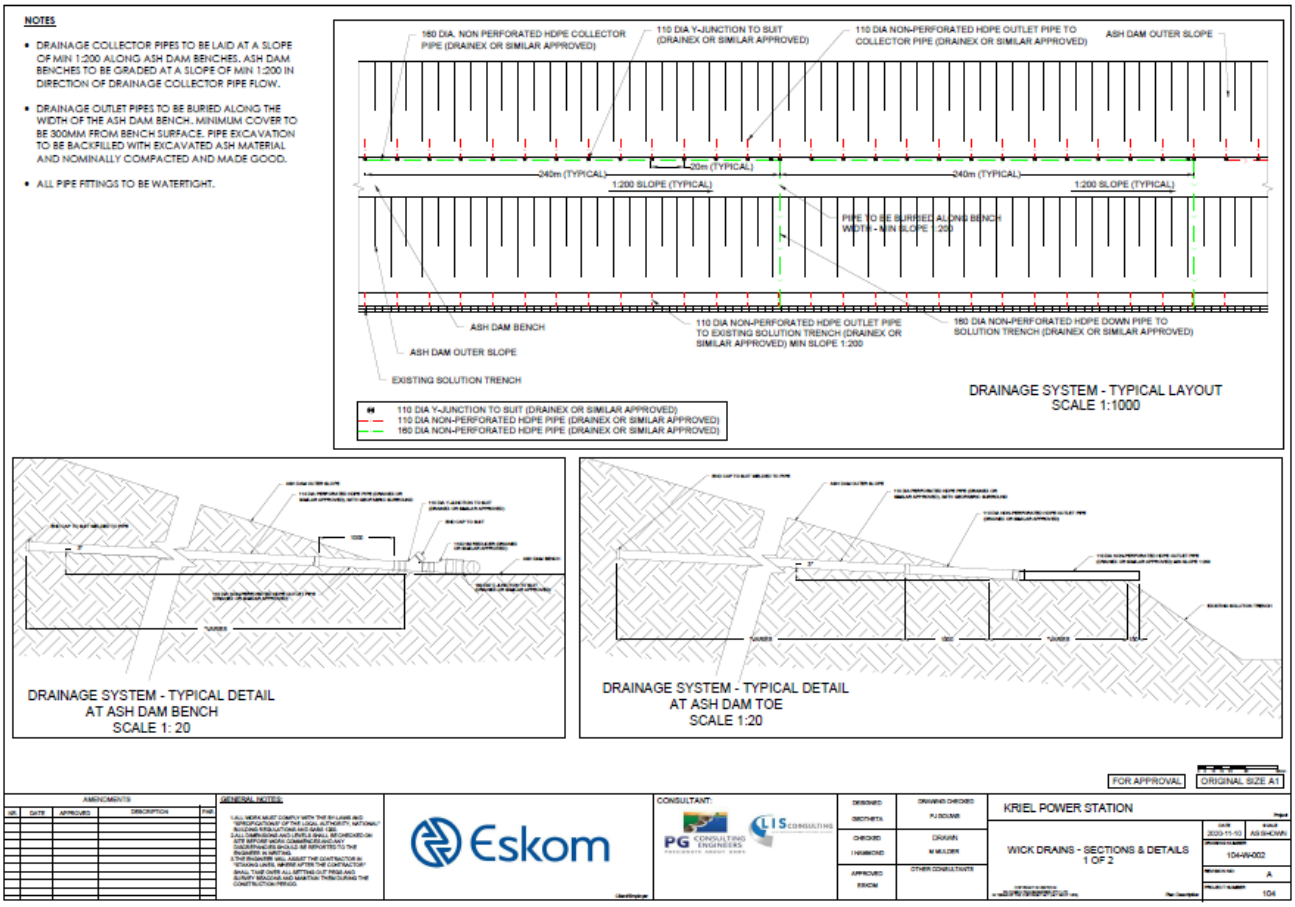
All drawings and documented information issued by the *Employer* for this contract is copyright protected and are not to be copied by the *Contractor*.

Note: Some drawings/documents may contain site Information.

Drawing number		Revision	Title
0.45	51380/24.2	1	EXISTING DAM WEST/EAST TOE WALL AND FILTER DRAIN LONGITUDINAL SECTION
0.45	51380/025	1	EXISTING DAM WEST/EAST BLANKET WALL AND FILTER DRAIN LONGITUDINAL SECTION
0.45	51380/027	P1	EXISTING DAM WEST/EAST CATWALK CONSTRUCTION DETAILS
0.45	51380/026.2	1	EXISTING DAM WEST/EAST BLANKET WALL AND FILTER DRAIN LONGITUDINAL SECTION
0.45	51380/030	1	EXISTING DAM 2 EAST NEW 750NB FLOATING PENSTOCK GENERAL ARRANGEMENT
0.45	48648	0	KRIEL POWER STATION - DESALINATION PLANT FIELD JUNCTION BOX NO.6 - OSP 006 CONNECTION SCHEDULE
0.45	51380/031	0	EXISTING DAM 2 EAST NEW 750NB FLOATING PENSTOCK DETAILS AND PIPE SCHEDULE
0.45	51380/033	0	EXISTING DAM 2 EAST LONGITUDINAL SECTION
0.45	51380/034	0	EXISTING DAM 2 EAST CATWALK DETAILS
0.45	51378/001	3	EXISTING ASH DAM REMEDIAL WORKS GENERAL ARRANGEMENT
0.45	51378/003	0	EXISTING DAM REMEDIAL DRAIN WORKS
0.45	51378/004	2	EXISTING DAM NEW FLOATING PENSTOCK LONG SECTION AND DETAILS
0.45	51378/005	0	EXISTING DAM MONITORING LAYOUT
0.45	51378/007	1	EXISTING DAM SOUTH FACE BUTTRESS DRAINAGE DETAILS
0.45	51378/008	0	EXISTING DAM PENSTOCK LINES AT SOUTH FACE BUTTRESS LONG SECTIONS
0.45	51378/009	0	EXISTING DAM 750 NB EXISTING PENSTOCK LINE EXTENTIONS AT SOUTH FACE BUTTRESS
0.45	51378/010	0	EXISTING DAM TEMPORARY MAIN PENSTOCK AT SOUTH FACE BOUNDARY

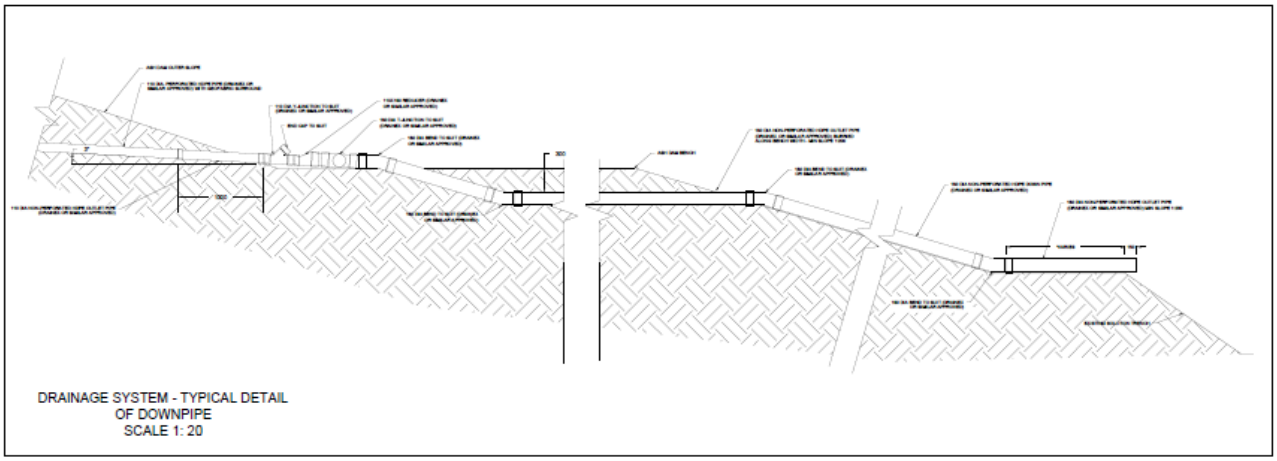
0.45	51378/011	0	EXISTING DAM TEMPORARY INTERMEDIATE PENSTOCK
0.45	51378/015	0	EXISTING ASH DAM SITE SOIL PROFILES
0.45	51378/016	0	EXISTING DAM TOE, MIDDLE AND BLANKET DRAIN LONG SECTIONS AT SOUTH FACE BUTTRESS
0.45	51378/018	0	EXISTING DAM SOUTH FACE BUTTRESS PUMP STATIOAN NUMBER 2 REINFORCE DETAILS
0.45	51378/017	0	EXISTING DAM SOUTH FACE BUTTRESS PUMP STATION NUMBER 2 GENERAL ARRANGEMENT
0.45	51378/022	1	EXISTING DAM INSPECTION MANHOLE ON DRAIN OUTLET IN 25MM STEPIN
0.45	51378/028	P1	EXISTING DAM 1 WEST NEW FLOATING PENSTOCK LONG SECTION AND DETAILS
0.45	51379/005	0	ASH DISPOSAL IN PIT NUMBER 1 CLOSURE WALL BULK EARTHWORKS UNDERDRAINAGE AND FINE ASH WALL GENERAL ARRANGEMENT AND DETAILS
0.45	51440/001	0	ASH DISPOSAL FACILITY LEVEL SURVEY 1996

APPENDIX A: Appendix A: Drawings



NOTES

- DRAINAGE COLLECTOR PIPES TO BE LAID AT A SLOPE OF MIN 1:200 ALONG ASH DAM BENCHES. ASH DAM BENCHES TO BE GRADED AT A SLOPE OF MIN 1:200 IN DIRECTION OF DRAINAGE COLLECTOR PIPE FLOW.
- DRAINAGE OUTLET PIPES TO BE BURIED ALONG THE WIDTH OF THE ASH DAM BENCH. MINIMUM COVER TO BE 300MM FROM BENCH SURFACE. PIPE EXCAVATION TO BE BACKFILLED WITH EXCAVATED ASH MATERIAL AND NOMINALLY COMPACTED AND MADE GOOD.
- ALL PIPE FITTINGS TO BE WATERTIGHT.



DRAINAGE SYSTEM - TYPICAL DETAIL
OF DOWNPIPE
SCALE 1: 20

FOR APPROVAL | ORIGINAL SIZE A1

AMENDMENTS

NR	DATE	APPROVED	DESCRIPTION	PAR

GENERAL NOTES:

1. ALL WORK MUST COMPLY WITH THE BY-LAWS AND SPECIFICATIONS OF THE LOCAL AUTHORITY, NATIONAL BUILDING REGULATIONS AND SABS 1200.
2. ALL DIMENSIONS AND LEVELS SHALL BE CHECKED ON SITE BEFORE WORK COMMENCES AND ANY DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER IN WRITING.
3. THE ENGINEER WILL ASSIST THE CONTRACTOR IN ESTABLISHING LEVEL MARKS AFTER THE CONTRACTOR SHALL THAT OVER ALL SETTING OUT PEGS AND SURVEY BEACONS AND MAINTAIN THEM DURING THE CONSTRUCTION PERIOD.

Eskom

CONSULTANT: PG CONSULTING ENGINEERS | LTS CONSULTING

DESIGNED: BKOTHETA	DRAWING CHECKED: PJ DOLMAR
CHECKED: I HAMMOND	DRAWN: M MULDER
APPROVED: ESKOM	OTHER CONSULTANTS

KRIEL POWER STATION

WICK DRAINS - SECTIONS & DETAILS
2 OF 2

DATE: 2020-11-10	SCALE: AS SHOWN
DRAWING NUMBER: 104-W-003	
REVISION NO: A	
PROJECT NUMBER: 104	

PART 4: SITE INFORMATION

Document reference	Title	No of pages
	This cover page	1
C4	Site Information	
	Total number of pages	2

PART 4: SITE INFORMATION

General

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

Climate

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

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

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

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

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

Weather Data

- The assumed 1 in 10 year rainfall figures are:

Month	Cumulative rain (mm)	No of days with rainfall > 10mm
January	200	6
February	150	6
March	120	5
April	110	4
May	40	3
June	20	2
July	30	2
August	30	2
September	60	3
October	140	6
November	160	7
December	170	6

Relative Humidity

Records for Bethal (2008 - 2009)
The average relative humidity on an annual base are as follows:
08:00 = 80%
14:00 = 52%
20:00 = 73%

Prevailing Winds

Records for Bethal (2008 - 2009)
Winds are mostly north-westerly except for February and March when they are easterly to south-easterly. The highest wind speeds are recorded from the south-east: on average 14km/h.

Other Climatic Factors

Records for Bethal (2008 - 2009)
Thunder occurs mostly from November to January with average of 35.7 days annually.

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

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

Topography

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

Air Quality

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

- Kriel Power Station stack emissions
- Kriel Power Station dry dust (fly ash) handling plant
- Dust blow from the Eskom coal stock yard
- Dust blow from the roads in the area
- Seasonal dust blow caused by ploughing of farmlands, and dust blow off denuded fields
- Dust blow from dried out exposed surfaces of the wet ash dam.

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