NEC3 Engineering & Construction Contract

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

and

For **Unit 1-6 FGD Structural Support & GRP for Recirculation Pump Valves at Kusile Power Station**

Contents: **No of pages**

CONTRACT No.

Part C1: Agreements & Contract Data

Contents: **No of pages**

C1.1 Form of Offer & Acceptance

Offer

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

Unit 1-6 FGD Structural Support & GRP for Recirculation Pump Valves at Kusile Power Station

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

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

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

This Offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document including the Schedule of Deviations (if any) to the tenderer before the end of the period of validity stated in the Tender Data, or other period as agreed, whereupon the tenderer becomes the party named as the *Contractor* in the *conditions of contract* identified in the Contract Data.

Signature(s) .....

Name(s) .....

Capacity .....

For the tenderer: .....

(Insert name and address of organisation)

Name & signature of witness .....

Date .....

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

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

Acceptance

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

The terms of the contract, are contained in:

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

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

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

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

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

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

Signature(s) .....

Name(s) .....

Capacity .....

for the Employer

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

Name & signature of witness .....

Date .....

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

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

Note:

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

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

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

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

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

C1.2 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)[1] in order to understand the implications of this Data which the tenderer is required to complete. An example of the completed Data is provided on pages 156 to 158 of the ECC3 (April 2013) Guidance Notes.
2. The number of the clause which requires the data is shown in the left hand column for each statement however other clauses may also use the same data
3. Where a form field like this [ ] appears, data is required to be inserted relevant to the option selected. Click on the form field ***once*** and type in the data. Otherwise complete by hand and in ink.

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

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

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

		CV's (and further key persons data including CVs) are appended to Tender Schedule entitled .		
11.2(3)	The *completion date* for the whole of the *works* is			
11.2(14)	The following matters will be included in the Risk Register			
11.2(19)	The Works Information for the *Contractor*'s design is in:			
31.1	The programme identified in the Contract Data is			
B	**Priced contract with bill of quantities**			
11.2(21) 11.2(31)	The *bill of quantities* is in The tendered total of the Prices is	**(in figures)** **(in words), excluding VAT**		
B	**Priced contract with bill of quantities**	**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 B

Document reference	Title	No of pages
C2.1	Pricing assumptions: Option B	
C2.2	The *bill of quantities*	

C2.1 Pricing assumptions: Option B

1. How work is priced and assessed for payment

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

Identified and defined terms 11 11.2

(21) The Bill of Quantities is the *bill of quantities* as changed in accordance with this contract to accommodate implemented compensation events and for accepted quotations for acceleration.

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

- the quantity of the work which the *Contractor* has completed for each item in the Bill of Quantities multiplied by the rate and
- a proportion of each lump sum which is the proportion of the work covered by the item which the *Contractor* has completed.

Completed work is work without Defects which would either delay or be covered by immediately following work.

(31) The Prices are the lump sums and the amounts obtained by multiplying the rates by the quantities for the items in the Bill of Quantities.

This confirms that Option B is a re-measurement contract and the bill comprises only items measured using quantities and rates or stated as lump sums. Value related items are not used. Time related items are items measured using rates where the rate is a unit of time.

2. Function of the Bill of Quantities

Clause 55.1 in Option B states, “Information in the Bill of Quantities 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 Bill, 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 Bill of Quantities. The Bill of Quantities is only a pricing document.

3. Guidance before pricing and measuring

Employers preparing tenders or contract documents, and tendering contractors are advised to consult the sections dealing with the bill of quantities in the NEC3 Engineering and Construction Contract Guidance Notes before preparing the *bill of quantities* or before entering rates and lump sums into the *bill*.

There is no general provision in Option B for payment for materials on Site before incorporation into the *works*. If secondary Option X14 Advanced payment has not been used then the tendering contractor may obtain the same effect by inserting appropriate items in the method related charges where the *method of measurement* allows, or alternatively making allowance in the rates of the *bill of quantities* for the financing of Plant and Materials until they are incorporated in the *works.*

When compensation events arise, the default position is that the Bill of Quantities is not used to calculate the cost effect of the event. Defined Cost and the resulting Fee is used and Defined Cost includes all components of cost which the *Contractor* is likely to incur, including so called P & G items. Rates and lump sums from the Bill of Quantities, or from any other source, may be used instead of Defined Cost and the Fee only if the *Contractor* and *Project Manager* agree. If they are unable to agree, then Defined Cost plus Fee is used.

4. Measurement and payment

4.1. Symbols

The units of measurement described in the Bill of Quantities are metric units abbreviated as follows:

Abbreviation	Unit
%	percent
h	hour
ha	hectare
kg	kilogram
kl	kilolitre
km	kilometre
km-pass	kilometre-pass
kPa	kilopascal
kW	kilowatt
l	litre
m	metre
mm	millimetre
m^2	square metre
m^2-pass	square metre pass
m^3	cubic metre
m^3-km	cubic metre-kilometre
MN	meganewton
MN.m	meganewton-metre
MPa	megapascal
No.	number
sum	Lump sum
t	tonne (1000kg)

4.2. General assumptions

4.2.1. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance has been made in the quantities for waste.

4.2.2. The Prices and rates stated for each item in the Bill of Quantities shall be treated as being fully inclusive of all work, risks, liabilities, obligations, overheads, profit and everything necessary as incurred or required by the *Contractor* in carrying out or providing that item.

4.2.3. An item against which no Price is entered will be treated as covered by other Prices or rates in the *bill of quantities*.

4.2.4. The quantities contained in the Bill of Quantities may not be final and do not necessarily represent the actual amount of work to be done. The quantities of work assessed and certified for payment by the *Project Manager* at each assessment date will be used for determining payments due.

4.2.5. The short descriptions of the items of payment given in the *bill of quantities* are only for the purposes of identifying the items. Detail regarding the extent of the work entailed under each item is provided in the Works Information.

4.3. Departures from the *method of measurement*

4.3.1.

4.4. Amplification of or assumptions about measurement items

The following is provided to assist in the interpretation of descriptions given in the *method of measurement*. In the event of any ambiguity or inconsistency between the statements in the *method of measurement* and this section, the interpretation given in this section shall be used.

4.4.1.

C2.2 the *bill of quantities*

Use this page as a summary page or as a cover page to the *bill of quantities*.

ITEM NO	DESCRIPTION	UNIT	NO	QTY	RATE	AMOUNT
	PRELIMINARIES AND GENERAL (P&G's)					
1.0	**PHASE 1: ENGINEERING DESIGN**					
1.1	**Resources / Labour:**					
1.1.1	Chief Surveyor (Professionally Registered) - Senior Career 10 - 19 years.	Hrs/ Mon	160	1		
1.1.2	Chief Structural Engineer (Professionally Registered) - Mid Career 10 - 19 years.	Hrs/ Mon	160	1		
1.1.3	Structural Engineer (Professionally Registered) - Mid Career 5 - 9 years.	Hrs/ Mon	240	1		
1.1.4	Senior Draughtsman - Mid Career 5 - 9 years.	Hrs/ Mon	163	4		
	Documentation and Presentation					
1.1.5	Concept and detailed design.	Hr/ Day	4	1		
	Total Amount (Excl. Vat)					
2.0	**PHASE 2: CONSTRUCTION**					
2.1	Safety File.	EA/Yearly		1		
2.2	Security clearance (Entry)	Once Off		26		
2.3	Medicals (Entry).	EA/Yearly	3	26		
2.4	Medicals (Exit).	EA/Yearly		26		
2.5	PPE.	EA/Yearly	3	26		
3.0	**SITE ESTABLISHMENT AND DE-ESTABLISHMENT**					
3.1	Site office containers: size 3 x 9m including 2 x standard AC Units.	Monthly	36	2		
3.2	Site Canteen and Kitchen: size 3 x 6m.	Monthly	36	1		
3.3	Site Storage container: size 3 x 6m.	Monthly	36	1		
3.4	Portable Ablution and Sanitory (Ladies and Mens - Serviced weekly).	Monthly	36	4		
3.5	240L Recycle bin.	Once-off		2		
4.0	**TRANSPORTATION**					
4.1	Travelling / Transport - LDV Van (Hired).	Monthly	36	1		
4.2	18 Seater Transport from Witbank/Highveld/ Del Judo route to Kusile Power Station.	Monthly	36	1		
4.3	15T Crane truck for delivery and collection of office container and Storage (Entry and Exit).	Twice		2		
4.4	12T truck for delivery of GRP Parts and structural steel material.	Twice/ Yearly		6		

5.0	**TOOLS AND EQUIPMENT**					
5.1	All necessary tools required to execute installation service.	Sum		1		
6.0	**RESOURCES / LABOUR**					
6.1	**Resources / Labour Normal time:**					
6.1.1	Senior/Chief Surveyor (Professionally Registered) - Senior Career 5 - 9 years.	Hrs/ Mon	720	1		
6.1.2	Senior/Commissioning Engineer (Professionally Registered) - Mid Career 10 - 19 years.	Hrs/ Mon	720	1		
6.1.3	Chief Structural Engineer (Professionally Registered) - Mid Career 10 - 19 years.	Hrs/ Mon	720	1		
6.1.4	Structural Engineer - Mid Career 5 - 9 years.	Hrs/ Mon	5868	1		
6.1.5	Project /Site Manager - Mid Career 5 - 9 years.	Hrs/ Mon	5868	1		
6.1.6	Quality Inspector (QA)/ Quality Control (QC) - Mid Career 5 - 9 years.	Hrs/ Mon	5868	1		
6.1.7	Safety Officer - Mid Career 5 - 9 years.	Hrs/ Mon	5868	1		
6.1.8	Artisan Welder - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.9	Artisan Fitter and Turner - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.10	Artisan Laminator - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.11	Artisan Scaffolder - Average Experience 1 - 4 years.	Hrs/ Mon	5868	4		
6.1.12	Semi-Skilled/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.13	Rigger/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.14	Site Clark/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	5868	1		
6.1.15	Spotter - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.1.16	General Worker - Average Experience 1 - 4 years.	Hrs/ Mon	5868	2		
6.2	**Resources / Labour Overtime (x1,5):**					
6.2.1	Structural Engineer - Mid Career 5 - 9 years.	Hrs/ Mon	288	1		
6.2.2	Project /Site Manager - Mid Career 5 - 9 years.	Hrs/ Mon	288	1		
6.2.3	Quality Inspector (QA)/ Quality Control (QC) - Mid Career 5 - 9 years.	Hrs/ Mon	288	1		
6.2.4	Safety Officer - Mid Career 5 - 9 years.	Hrs/ Mon	288	1		
6.2.5	Artisan Welder - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.6	Artisan Fitter and Turner - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.7	Artisan Laminator - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.8	Artisan Scaffolder - Average Experience 1 - 4 years.	Hrs/ Mon	288	4		
6.2.9	Semi-Skilled/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.10	Rigger/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.11	Site Clark/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	288	1		
6.2.12	Spotter - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		
6.2.13	General Worker - Average Experience 1 - 4 years.	Hrs/ Mon	288	2		

6.3	**Resources / Labour Overtime (x2):**					
6.3.1	Structural Engineer - Mid Career 5 - 9 years.	Hrs/ Mon	216	1		
6.3.2	Project /Site Manager - Mid Career 5 - 9 years.	Hrs/ Mon	216	1		
6.3.3	Quality Inspector (QA)/ Quality Control (QC) - Mid Career 5 - 9 years.	Hrs/ Mon	216	1		
6.3.4	Safety Officer - Mid Career 5 - 9 years.	Hrs/ Mon	216	1		
6.3.5	Artisan Welder - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.6	Artisan Fitter and Turner - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.7	Artisan Laminator - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.8	Artisan Scaffolder - Average Experience 1 - 4 years.	Hrs/ Mon	216	4		
6.3.9	Semi-Skilled/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.10	Rigger/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.11	Site Clark/Site Support - Average Experience 1 - 4 years.	Hrs/ Mon	216	1		
6.3.12	Spotter - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
6.3.13	General Worker - Average Experience 1 - 4 years.	Hrs/ Mon	216	2		
Total Amount (Excl. Vat)						
Total Amount carried to Final Summary (Excl. Vat)						

ITEM NO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1	**MANUFACTURE, SUPPLY AND INSTALLATION OF GRP PARTS**				
1,1	**Sunction Spool, Diffuser Spools and Joint Kit:**				
1.1.1	1300NB X 900NB X 1267mm face-to-face GRP Diffuser Spools.	No	24		
1.1.2	900NB X 800mm face-to-face GRP Suction Spools.	No	24		
1.1.3	1300NB GRP Butt and Overwrap joint kits.	No	24		
1.1.4	Testing and Commissioning.	Hours/day	40		
	Total Cost (Excluding Vat)				
2	**SUPPLY AND INSTALLATION OF FGD STRUCTURAL SUPPORT TO RECIRCULATION PUMP VALVES**				
2,1	**Site preparation to existing concrete surfaces to receive new Structural Steel Members:**				
2.1.1	Scrabble existing 20mm concrete surface.	m2	38		
2.1.2	Drill holes to existing concrete surface to anchor structural support members.	No	144		
2.1.3	Clean holes by means of pressure blow to received chemical anchor.	No	144		
2.1.4	Barrier Safety net roll - Orange/Yellow (1 x 50m).	Roll	8		
2.1.5	Cart away surplus materials to dermacated site (**NB: Eskom site skipper to be arranged by Project Manager**).	Item	1		

2.2	**Concrete, Formwork and Reinforcement:**				
	Unreinforced Concrete:				
2.2.1	40Mpa Non-shrink Sika grout 212 on concrete bases.	m3	0,24		
	Concrete Sundries:				
2.2.2	Chemical Anchorfix Sika adhesive product (Product to be approved by Engineer).	m3	8,36		
	Smooth formwork (Degree of Accurancy II):				
2.2.3	Smooth formwork to sides of exposed concrete base not exceeding 100mm high.	m	1 620		
2.3	**Temporary steel support to GRP piping and Valves:**				
2.3.1	**Design and signed-off 3 - 6 m high adjustable temporary steel supports including platforms for GRP Pipes and Recirculation Pump Valves:**				
2.3.1.1	Commissioning Engineer (PrEng) - Average Experience 10 - 1 9 years.	Hours/day	20		
2.3.1.2	Engineer (PrEng) - Average Experience 5 - 9 years.	Hours/day	82		
2.3.1.3	Senior Draughtsman - Average Experience 5 - 9 years.	Hours/day	163		
2.3.2	**Temporary steel support to FGD Unit 1 - 6**				
2.3.2.1	Supply of Temporary steel support excluding platforms to the FGD Unit 1 - 6.	Sum	96		
2.3.2.2	2500 x 1250 x 21mm plywood platforms to the FGD Unit 1 - 6.	No	25		
2.3.3	**Other related costs:**				
2.3.3.1	Transportation: 15t crane truck for delivery and removal of Temporary Formwork (Entry and Exit).	Twice	2		
2.3.3.2	Insurances (Liability).	Sum	1		
	Total Cost (Excluding Vat)				
2.4	**FGD STRUCTURAL SUPPORT**				
	COLUMNS, BEAMS AND BRACINGS				
	Welded and Bolted Columns, Beam, etc. with a single leght, flat section base, top, bearer, 7mm welding fillet (E70X) connection base plates and bolted to concrete.				
2.4.1	**Valve Support**				
2.4.1.1	Column: IPEAA140 I-section, 10.1 kg/m.	t	2,88		
2.4.1.2	Beam: PC100x50 C-sectio, 10.7 kg/m.	t	6,93		
2.4.1.3	Bracing: 80x80x8 L-section, 9.63 kg/m.	t	12,94		

2.5.1	**GRP Pipe Support**				
2.5.1.1	Column: 152x152x30 H-section, 30 kg/m.	t	8,60		
2.5.1.2	Beam: PC180x70 C-section, 22.3 kg/m.	t	2,09		
2.5.1.3	Steel Strips S355JR, 1.3m long and 10mm thick.	t	0,60		
2.6.1	**Base Plate**				
2.6.1.1	Column: 200x150x30mm, 22.3 kg/m.	t	0,06		
2.6.1.2	Column: 250x250x35mm, 22.3 kg/m.	t	0,07		
2.7.1	**Grating**				
2.7.1.1	Galvanised rectagrid steel gratings, RS40 and bended. Size: 2500mm x 2000mm x 30mm.	m2	120		
2.7.2	**Bolts, Fastners and Accessories:**				
2.7.2.1	Hexagon head - Bolts: M20 Grade 8.8, 590mm long.	No	384		
2.7.2.2	Hexagon head - Bolts: M16 Grade 8.8, 200mm long.	No	96		
2.7.2.3	Hexagon head - Bolts: M12 Grade 8.8, 200mm long.	No	96		
	Total Cost (Excluding Vat)				
Total Cost carried to final summary (Excluding Vat)					

PART 3: SCOPE OF WORK

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

C3.1: EMPLOYER'S WORKS INFORMATION

Contents

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

1 Description of the *works*

2.1 Scope

2.1.1 Purpose

This document details the scope of works for the supply of GRP parts, GRP modification. The design and construction of structural support for the proposed modifications parts (FGD Recirculation pump Isolation Valve for Unit 1-6 and GRP parts). The supply of FGD Recirculation pump Isolation Valve for Unit 1-6 is performed by Others.

2.1.2 Applicability

This document applies to Kusile Power Station only.

2.1.3 Effective date

This document will be effective from the date of its authorisation.

2.2 Normative/Informative References

Parties using this document shall apply the most recent edition of the documents listed in the following sections.

2.2.1 Normative

[1] ISO 9001 Quality Management Systems

[2] All work shall be conducted in accordance with the requirements of the Occupational Health and Safety Act (Act 85 of 1993) as amended.

[3] KUS-202301223: Concept Design Report Unit 1-6 FGD Structural Support for Recirculation Pump Valves at Kusile Power Station

[4] KUS-xxx: Kusile Power Station FGD Recirculation Pump Supply of Knife Gate Valve SoW

[5] 240-56364545: Structural Design and Engineering Standard

[6] SANS 10162-1: The structure use of steel Part 1: Limit-states design of hot-rolled steelwork

[7] SANS 10160-1: Basis of structural design and actions for buildings and industrial structures, Part 1: Basis of structural design

[8] SANS 10160-2: Basis of structural design and actions for buildings and industrial structures, Part 2: Self-weight and imposed loads

[9] SANS 10160-3: Basis of structural design and actions for buildings and industrial structures, Part 3: Wind actions

[10] SANS 2001-CS1: Construction Works Part CS1: Structural steelwork

[11] South African Steel Construction Handbook 8th Edition

[12] Construction Regulation, 2014

[13] 203-5045: Recycle Pipes Support/Guide Calculation Report Rev B

2.2.2 Informative

[1] 32-421 - Eskom Life Saving Rules

[2] 36-681 - Eskom Plant Safety Regulations

2.3 Definitions

Definition	Description
Contractor	Service provider contracted to provide a specific service to Eskom, Kusile Power Station.
Employer	Eskom, Eskom Kusile Power Station or representative

2.4 Abbreviations

Abbreviation	Explanation
FGD	Flue-gas desulfurization
GRP	Glass Reinforced Plastic
ITP	Inspection, Testing Plan
MS	Method Statement
QCP	Quality Control Procedure

2.5 Roles and Responsibilities

2.5.1 Contractor

a) Fabrication and supply of GRP parts
b) Onsite GRP lamination
c) Execute the defined scope according to contractual agreements, including design and construction of structural support for the proposed modifications of the FGD Recirculation pump Isolation Valve for Unit 1-6, and installation of the modification parts (supplied by Others).
d) Develop a design and construction methodology on how the works will be conducted.
e) Takes full professional accountability and liability for all temporary and permanent Works (design and construction) done by the Contractor.
f) All designs, design reports, design drawings, and Construction drawings prepared by the Contractor are signed off by an ECSA Professionally registered Technologist or Engineer who takes full professional accountability for the designs.
g) The *Contractor* is responsible to issue Professional Engineering Certificate's and as-built drawings for the *works*.
h) Submit subsequent design/construction proposals for approval by the Employer
i) Any discrepancy or ambiguity between the *Employer's* Specifications or requirements is immediately brought to the attention of the *Project Manager* for clarification.

2.5.2 Employer

a) Issues the Contractor with drawings for the existing Recirculation pump layout and parts.
b) Issues the Contractor with drawings for the modification parts to be installed by the Contractor.
c) Review and approves the Contractor's design
d) Review and approves the Contractor's construction method statement procedure, QCP and ITP e) Is present for all applicable points of the ITP
e) Provide Engineering support for information required by the Contractor

2.6 Process for Monitoring

Not applicable

2.7 Related/Supporting Documents

Not Applicable

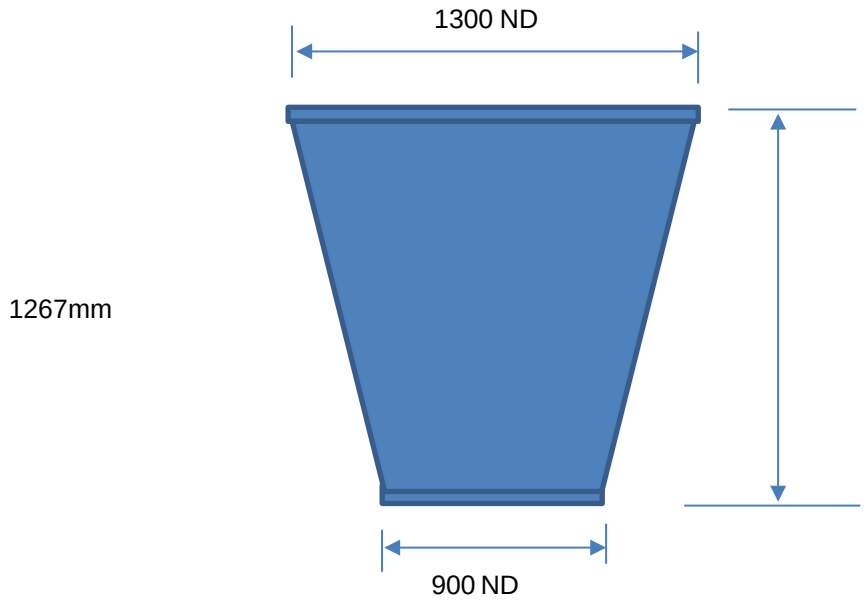
3. Scope of Works

3.1 GRP Parts

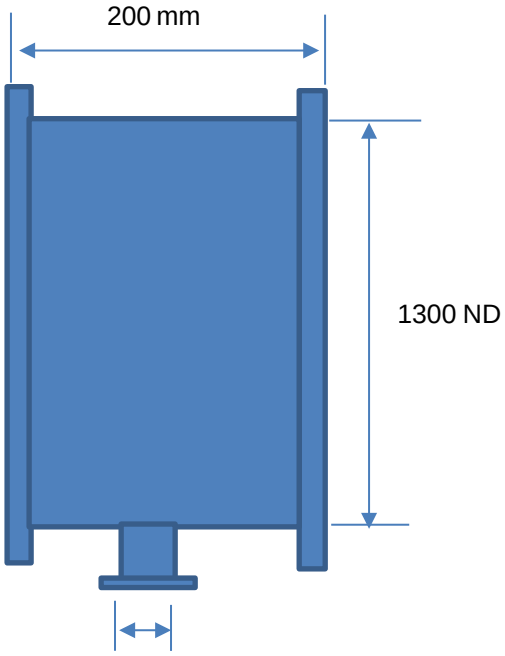
The following items to be manufactured for each Unit and accompanied by spool modification on site. The contractor to verify come to site to verify the dimensions and flanges prior to start of manufacturing. The scope of works includes the manufacturing/fabrication and delivery to site.

Area	Diffuser Spool	Suction Spool	Spool Modification on site on 1300ND suction Line
Unit 1	4	4	4
Unit 2	4	4	4
Unit 3	4	4	4
Unit 4	4	4	4
Unit 5	4	4	4
Unit 6	4	4	4

3.1.1 Diffuser Spool



3.1.2 Suction Spool Section



100ND

3.1.3 Modification on site
1x Lamination per Recirculation suction Line. The recirculation suction line is a 1300ND line.

Specification Codes and Standards for the works
All the GRP works to be done according to the below standards and Codes.

I000090387824114010OSTDES0004C - Design Criteria For FRP Gas Ducts.pdf

I000090387824114010OSTDES0003C - Design Criteria For Seismic loads.pdf

S100 - Seismic design.pdf

SANS 10160: 1989

EN 1998-1:2004

ASME code for Pressure Piping B31.1

DIN 18820-1

DIN 18820-2

DIN 18820-3

DIN 18820-4

DIN 16868-1

DIN 16868-2

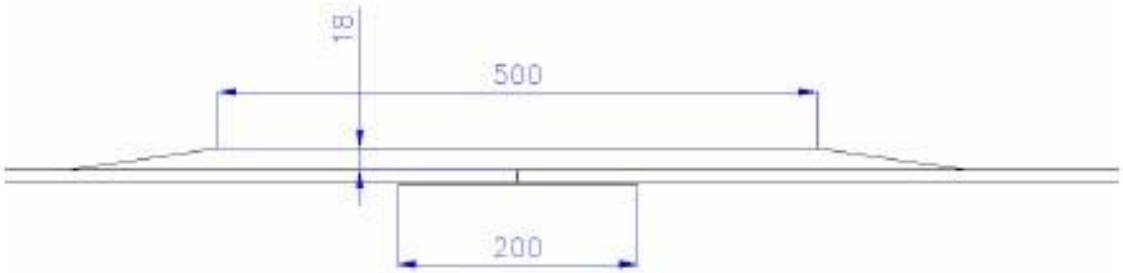
The Lamination Dimensions/Thicknesses are as follows

- All pipes, elbows and flanges are PN 6.
  The required safety factor is 10.

- The required thickness of the structural laminate excl. CBL:

Pipe	**13 mm**
Elbows	**produced by winding a tape**
	thickness on outside of bend 20 mm
	thickness on inside of bend 45 mm
Reducer suction	**base laminate 18 mm**
	overlay laminate through knuckle 25 mm
Reducer discharge	**30 mm**

- Required thickness for connection laminate: **18 mm**
  Length of connection laminate with full thickness : **250 mm on each end + taper of 125 mm**



The Piping material Properties to meet the below Specifications

Pipes

Tensile strength, tangential	360 MPa
Tensile strength, axial	180 MPa
Compressive strength, axial	180 MPa
E-modulus, tangential	18.000 MPa
E-modulus, axial	10.000 MPa
In plane shear strength	50 MPa
Inter Laminar Shear Strength	25 MPa
Mass density	1.8 g/cm^3
Coefficient of thermal expansion	25.10^{-6} 1/°C

Bends, connection laminate, flanges

Tensile strength, tangential	165 MPa
Tensile strength, axial	165 MPa
Compressive strength, axial	165 MPa
E-modulus, tangential	10.000 MPa
E-modulus, axial	8.000 MPa
In plane shear strength	50 MPa
Inter Laminar Shear Strength	25 MPa
Lap shear strength secondary bond	8 MPa
Mass density	1.6-1.7 g/cm3
Coefficient of thermal expansion	30.10-6 1/°C

Remark: all these values are at **80 °C.**

The required safety factor is 10.

All Flanges are EN 1092-1 & 2 PN 10

3.2 Structural Supports for Recirculation pump valves

The Recirculation pumps for Unit 1-3 (servicing Absorber 1-3) are and Unit 4-6 (servicing Absorber 1-3) are housed in two (2) separate Absorber Pumphouses. Each Unit has four (4) Recirculation Pumps, therefore, each Absorber Pumphouse houses twelve (12) pumps. The purpose of the pumps is to agitate the chemical reaction inside their respective absorber. Refer to Figure 2 for a typical Rectification pump for one (1) Unit.
The Glass Reinforced Plastic (GRP) Piping parts and pump isolation valves are to be installed on the pump suction side. Figure 3 indicates space constrains; therefore, the proposed structural support should not impede operations and maintenance of the pumps and associated components. With that said, a typical structural support layout with column positions and platform arrangement is indicated in Figure 3, however, the Contractor will be responsible to propose the final support arrangement.

The weight of each Recirculation pump Isolation Valve is 800kg, and the weight of each Diffuser is also 800kg. Additionally, see Figure 4 and Figure 5 for the location of the Isolation Valve.

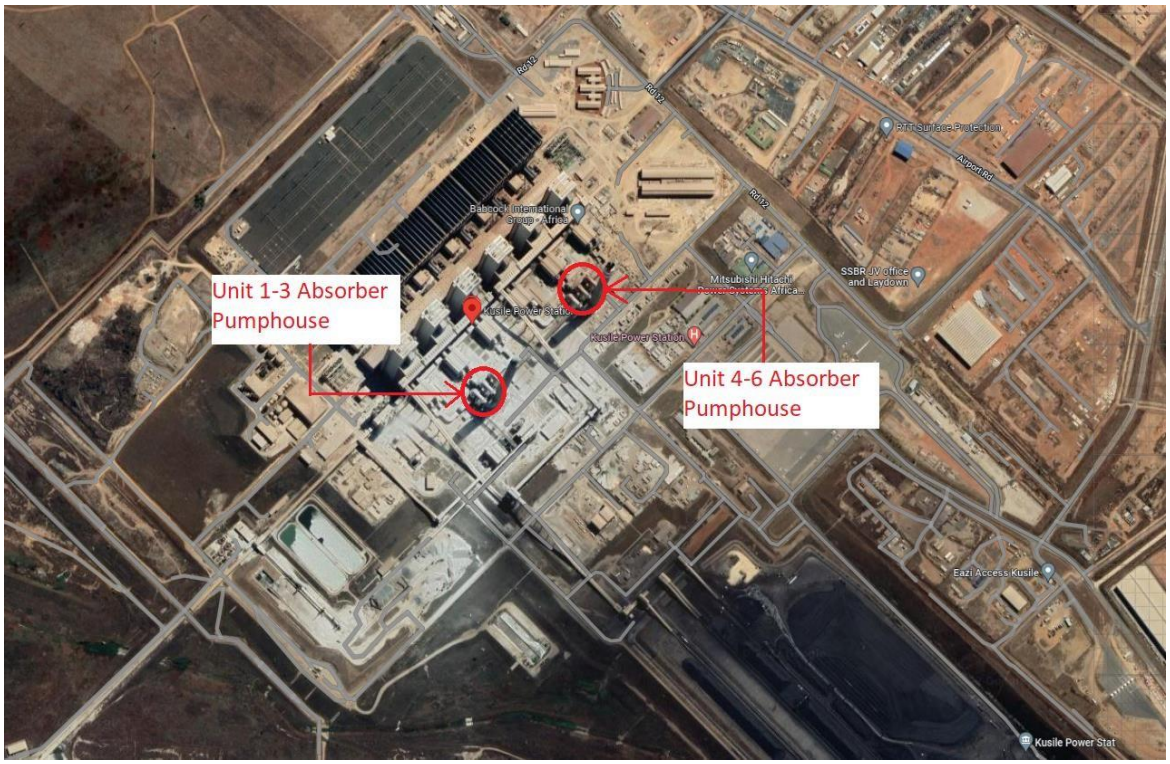


Figure 1: indicates Unit 1-3 Absorber Pumphouse and Unit 4-6 Absorber Pumphouse relative to the Power Station

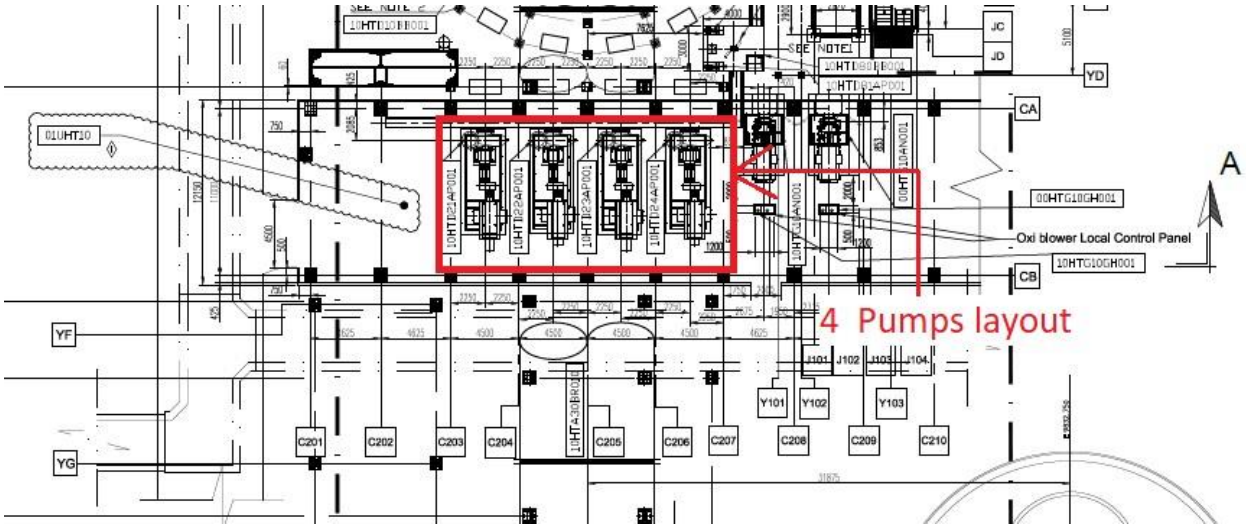


Figure 2: shows Layout of the Recirculation pumps

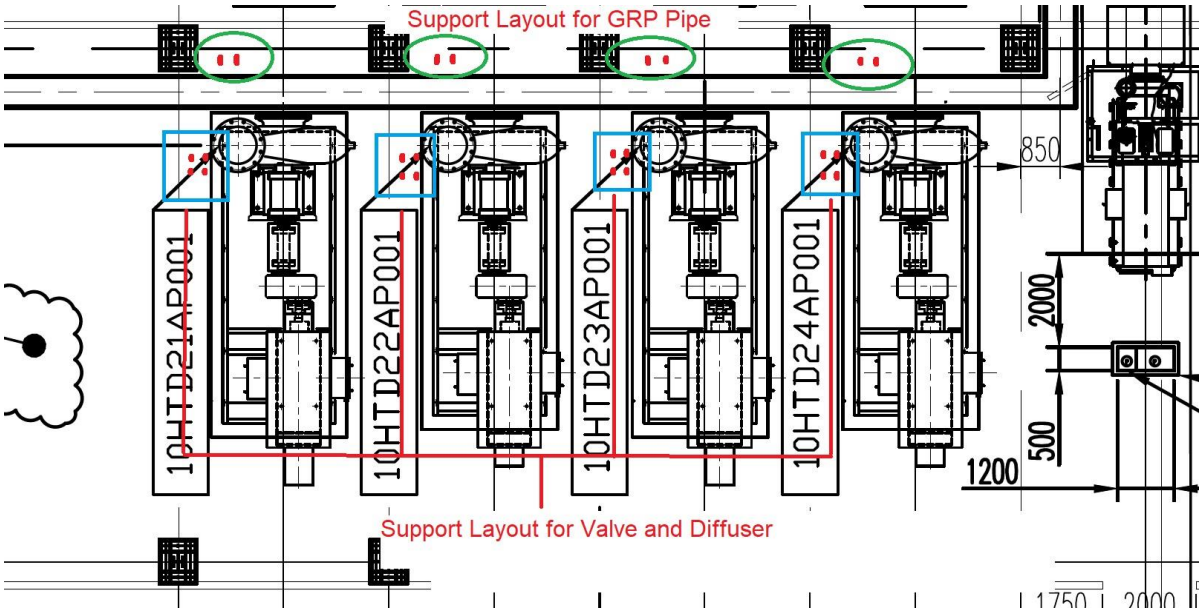


Figure 3: Typical structural support layout, indicating columns and platform

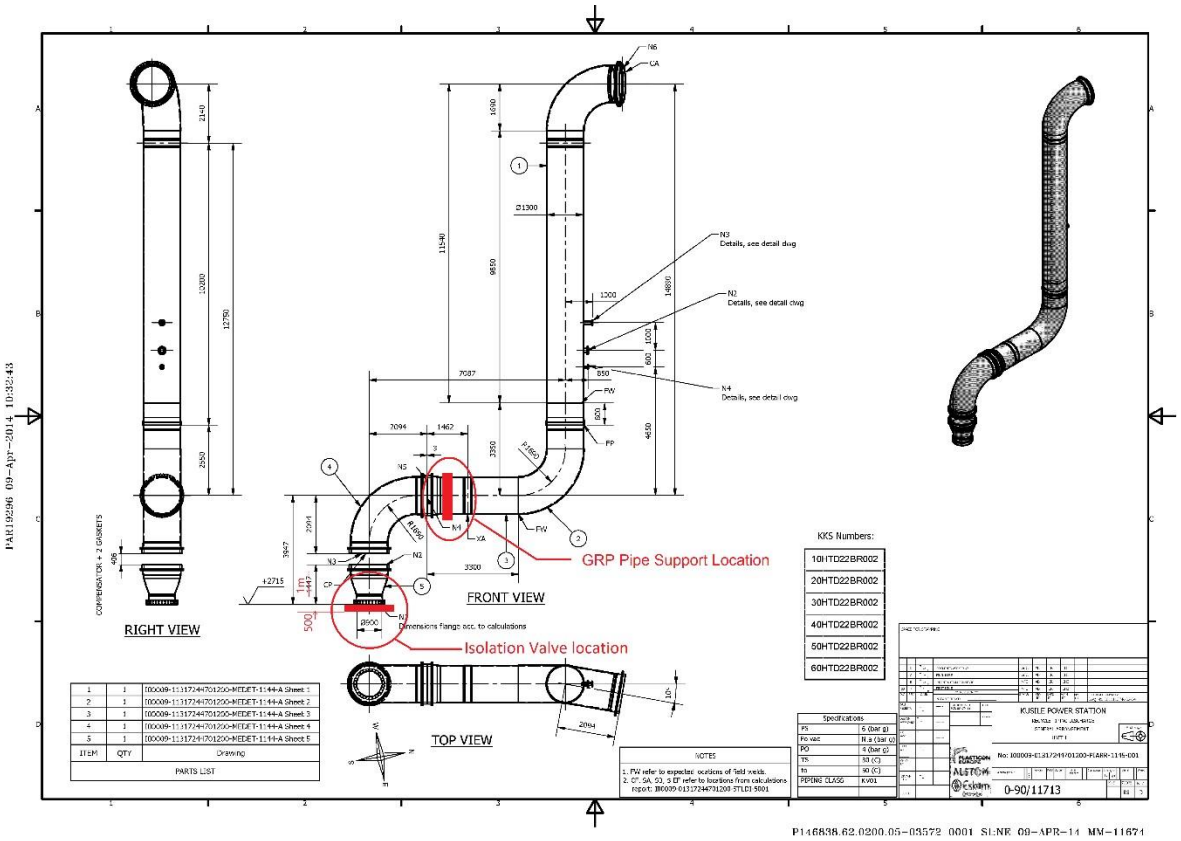


Figure 4: indicates location of the Isolation Valve and GRP Pipe

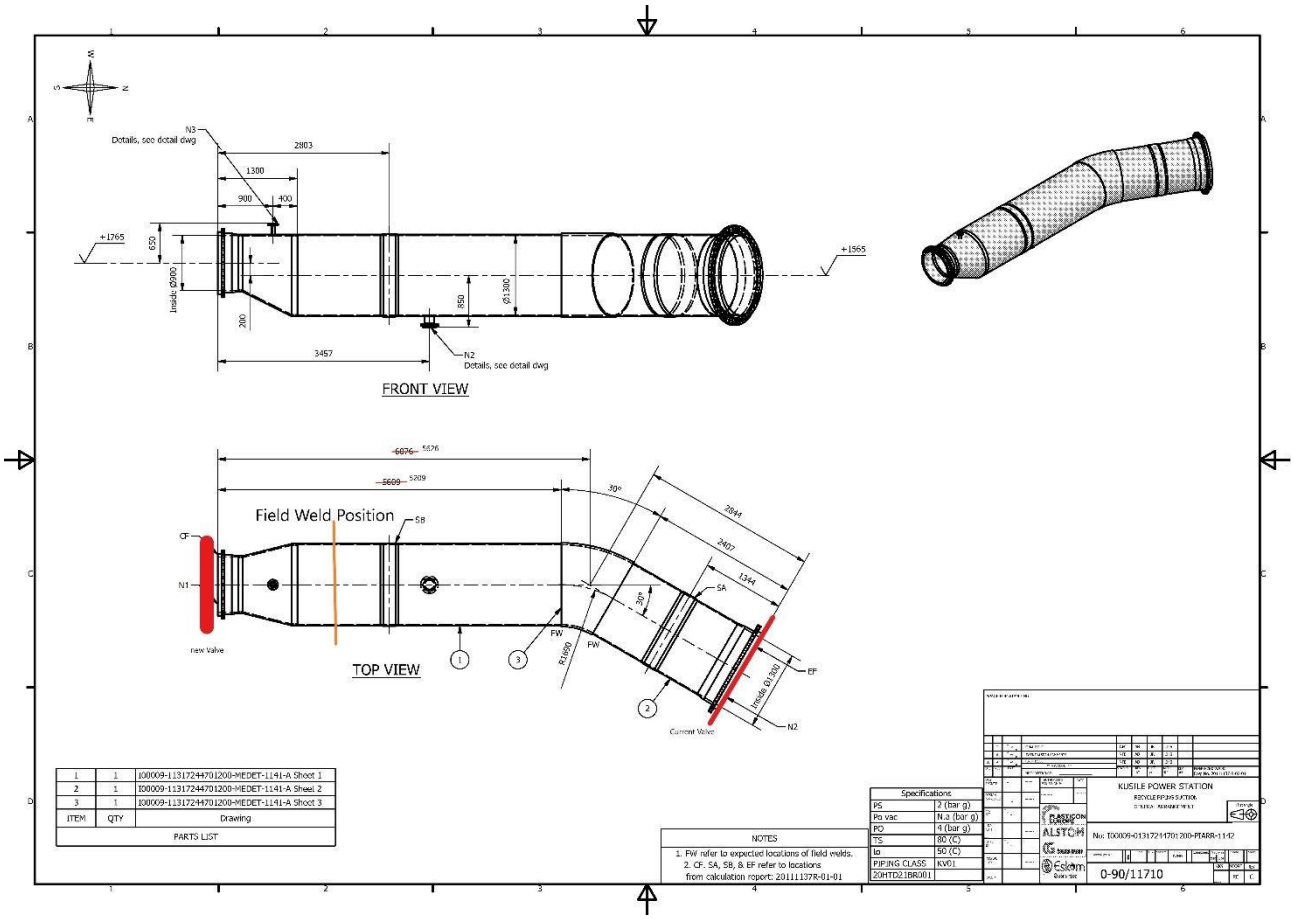


Figure 5: indicates Suction Line Valve position

Material Specification:

a) For Pipe specifications refer to [13]

b) Isolation Valve (Diffuser Spool and Suction Spools Sections)

3.3 Contractors Responsibility

The following is required from the Contractor.

3.3.1 Scope

The following is required from the Contractor.

a) Fabrication and supply of GRP parts

b) Onsite GRP lamination

c) Perform design for structural support for the proposed modifications of the FGD Recirculation pump Isolation Valve for Unit 1-6 and GRP parts

d) Prepare and supply drawings for the designs.

e) Provide a method statement which indicates, but not limited, to the following:

- Methodology on how structural support will be installed without impeding future operations and maintenance.
- Methodology on how the modified GRP Piping parts and Pumps isolation valves will in installed.
- Methodology on how the modified GRP Piping parts and Pumps isolation valves will be adequately structurally supported.

f) Perform installation work for structural support ensuring no impediment for future operations and maintenance.

g) Perform installation work for modified GRP Piping parts and Pumps isolation valves.

h) Perform works to ensure the modified GRP Piping parts and Pumps isolation valves are adequately structurally supported.

i) Provide Personal Protective Equipment for employees during the works.

j) Supply all the necessary equipment, tools, materials required to complete the works.

3.3.2 Site Visit and Documentation
The following is required from the Contractor.

a) Come to site to view the area before submitting their quote
b) Submit design report (including drawings) for approval by the Client
c) Submit proposed construction method statement, QCP and ITP for approval by the Client
d) Submit all the signed QCP and ITP documentation once works are completed
e) Submit all the supplied material documentation once works are completed
f) Submit a work schedule/programme for remedial works

3.4 Test Requirements and Procedure
Testing as per approved method statement

2 Management and start up.

2.1 Management meetings

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

Title and purpose	Approximate time & interval	Location	Attendance by:
Project Kick-off Meeting	3 days Contract Award	Kusile Power Station	Employer, Contractor and Others
SHEQ Requirements Clarification Meeting	3 days after Kick – off meeting	Kusile Power Station	Employer, Contractor and Others
Execution Progress Meeting	Daily	Kusile Power Station	Employer, Contractor and Others
Overall contract progress and feedback	Weekly on Thursdays	Kusile Power Station	Employer and Contractor
Risk register and compensation events	Daily	Kusile Power Station	Employer, Contractor and Others
Other	as and when required		Employer, Contractor and Others
Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Weekly on _____ at ___		
Overall contract progress and feedback	Monthly on _____ at ___		Employer, Contractor, Supervisor, and ___
Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Weekly on _____ at ___		
Overall contract progress and feedback	Monthly on _____ at ___		*Employer*, *Contractor*, *Supervisor*, and ___

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

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

2.2 Documentation control

The Contractor shall submit all relevant and necessary documentation requested by the Employer and both electronic and hard copy versions of all required documentation. The Contractor shall prepare and submit operations and maintenance manual including as built documents.

To ensure clear communication and effective management of records, all documentation related to this project shall adhere to the following protocol:

1. Document Identification: Each document shall carry a unique alphanumeric identifier. This code will indicate the document source, recipient, and communication number, making the document easily traceable.

2. Document Format: All contractual communications must be in the form of properly compiled letters or forms attached to emails. Messages within the body of an email will not be considered formal communication. Documents should be formatted as PDFs unless otherwise specified.

3. Document Routing: Specific routing requirements must be adhered to. All contractual documents must be issued directly to the relevant party as stipulated in the ECC. The project manager will ensure the documentation is appropriately disseminated and acknowledged.

4. Record Keeping: All communications must be logged in a communication register maintained by the Contractor. The register will document the date, source, recipient, communication number, and a brief summary of the document content.

5. Revision Control: Any changes or revisions to the documents should be clearly marked and issued with a new revision number. All previous versions should be archived for reference.

6. Confidentiality: All documents should be treated as confidential and should not be shared outside the project team without appropriate authorization.

2.3 Health and safety risk management

A Safety, Health, Environment and Quality (SHEQ) specification is Kusile Power Station's minimum requirements detailing also constraints, which are required to be met for the specific contract and for the duration of the contract period by the Contractor.
The Contractor is expected to develop a SHEQ plan which meets these requirements as well as relevant and other legal and other requirements applicable to the issued scope of work.
Kusile Power Station in no way assumes the contractor's legal responsibilities. The contractor is and remains accountable for the quality and the execution of his/her health and safety programme for his/her employees and appointed contractor employees.
This SHEQ specification reflects minimum requirements and should not be construed as all encompassing. The Contractor shall comply with (SHEQ) requirements contained in Annexure A of this Works Information.

The *Contractor* shall comply with the health and safety requirements contained in Annexure **A** to this Works Information.

2.4 Environmental constraints and management

A Safety, Health, Environment and Quality (SHEQ) specification is Kusile Power Station's minimum requirements detailing also constraints, which are required to be met for the specific contract and for the duration of the contract period by the Contractor.
The Contractor is expected to develop a SHEQ plan which meets these requirements as well as relevant and other legal and other requirements applicable to the issued scope of work.

Kusile Power Station in no way assumes the contractor's legal responsibilities. The contractor is and remains accountable for the quality and the execution of his/her health and safety programme for his/her employees and appointed contractor employees.
This SHEQ specification reflects minimum requirements and should not be construed as all encompassing. The Contractor shall comply with (SHEQ) requirements contained in Annexure A of this Works Information

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure **A**

2.5 Quality assurance requirements

The quality requirements are as per ISO 9001 and Employer Quality Requirements as specified in the SHEQ specification in Annexure A.

This quality management philosophy is developed from the basis that suppliers produce quality products, supervisor oversees the process, checks quality but liability for quality remains with the Contractor. The Contractor submits a QMS as a returnable schedule and uses it for all phases of the Project. The QMS complies with the requirements of ISO 9001:2008 standard. The Contractor provides evidence of a fully implemented QMS as and when requested by the Project manager. The Project Manager may at his sole discretion carry out an audit on the Contractor, the Contractor's suppliers and Sub-Contractors

Quality control plans will be produced by the Contractor or manufacturer which will indicate the level of product quality control to be applied. The CQP must be aligned to, and reference ISO 10006 QMS, guidelines for quality plans and in compliance with the guideline in 240-105658000. The CQP will make reference to the Contractor's QMS Procedures to be used in this Contract. This plan will be reviewed by the Project Manager. The project team monitors that these plans are being implemented and that it is yielding the expected results through process and product verifications.

The Contractor shall comply with (SHEQ) requirements contained in Annexure A of this Works Information.

2.6 Programming constraints

The Contractor shall execute the Works per the submitted schedule or as agreed between the Contractor and the Employer. The Contractor shall notify the Employer timeously should there be any changes in the submitted programme. The Contractor shall also acquaint themselves with the work involved and verify all quantities, materials etc. necessary to undertake the Works, for proper programming and co-ordination.
Programme format – The Contractor to issue the programme using either MS Projects (soft copy) or Primavera (soft copy)
The program should be updated as per the changes on Outage listing

Programme is to be submitted as indicated in the Contract Data.

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

The Contractor must submit an organogram one month after Contract Start Date, to the Project Manager, based on the Contractor's plan and their lines of authority / communication.

2.8 Invoicing and payment

The Z clauses make reference to invoicing procedures stated here in this Service Information. Also include a list of information which is to be shown on an invoice.

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;

The invoice is to be submitted to **invoiceseskomlocal@eskom.co.za** once confirmed with the payment certificate.
Add procedures for invoice submission and payment (e. g. electronic payment instructions)

2.9 Insurance provided by the *Employer*

As stated in the Contract Data

2.10 Contract change management

All changes to the Contract, such as Contractor management changes or Compensation events shall be communicated through standard NEC ECC 3 forms.

2.11 Provision of bonds and guarantees

Not applicable

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

Not applicable as Option A applies. Indicated rates will be used for assessment of compensation events.

2.13 Training workshops and technology transfer

Not Applicable

3 Engineering and the *Contractor*'s design

Employer to keep the designs after the contract lapse ,after approval from the Employers side

3.1 *Employer*'s design

The contractor to provide design after the service completion

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

Contractor to provide Supports designs and Drawings as per the Scope of Work

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

All designs and specifications to be submitted to the Project Manager and approved by the Engineer of the Employer prior construction works commence.

"As built" drawings, compliance certificates, guarantees to be submitted to the Project Manager as part of handover before Completion of the works.

3.4 Other requirements of the *Contractor*'s design

Applicable as per the Scope of Work

3.5 Use of *Contractor*'s design

- Detailed drawings for fabrication and construction. Drawings shall be submitted in DWG/DGN and PDF formats.
- All submitted drawings to be signed by an applicable Professionally Registered Engineer.
- Construction/installation Specifications for the works including measurement and payment items

3.6 Design of Equipment

To be incorporated within the main design

3.7 Equipment required to be included in the *works*

As per the scope of work, Contractor to provide their own Equipment

3.8 As-built drawings, operating manuals and maintenance schedules

The Contractor is responsible to plan for the supply of the commissioning manual, maintenance manual, functional description, and operating manual of the system including safety procedures for operating and maintain the system. The Contractor shall provide P&ID, Piping drawings, and wiring drawings for the system.

The Contactor shall develop and submit as-built data and drawings of the completed Works upon handover. As-built drawings shall be submitted in PDF and DGN/DWG formats

4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed on the Site

Minimum requirements of people employed
- All staff required to perform the activities within the works information
- All relevant personnel names and titles must be specified to the Service Manager
- All Contractors personnel specified in this contract as per 2.3 to be on site at all times
- All new staff to be appointed in writing.
- Contract Staff are not allowed to work on any other contract.
- All new staff to do induction training
- All replacements of staff will be in the same discipline (like an artisan with an artisan with proof of qualifications)
- All new staff to be approved by Service Manager before entering the site or commencing work
- All new staff must hand in all qualifications and relevant documentation to the Service Manager
- When changing personnel a new access to work form to be completed by the Contractor
- Only required specified approved amount of personnel to be allowed on site, pre-arrange with Service Manager

4.1.2 BBBEE and preferencing scheme

Specify constraints which *Contractor* must comply with after contract award in regard to any Broad Based Black Economic Empowerment (B-BBEE) or preferencing scheme measures.

4.1.3 Supplier Development, Localisation and Industrialisation (SDL&I)

There will be no minimum threshold for local content and production, however suppliers are encouraged to procure South African products/goods and/or use South African human resources.

Local Procurement Content

Tender will stipulate local procurement content for the works.

We are not in position to confirm the names and numbers of Black Owned Suppliers that are expected to participate; however, the open competitive tender will be used.

No, however tenderers will be encouraged to use Local-to-site Suppliers whenever feasible

The winning tenderer is encouraged to procure/spend on designated groups.

Procurement from Designated Group	Eskom Target	Tenderer Proposal
Black Owned	10%	

Returnable
Letter of intent to subcontract

The SD&L Matrix is not an evaluation criterion; however, Tenderer are encouraged to make proposals before they are eligible for award in accordance with develop the skills in line with the SOW as illustrated on a below table. Skills development candidates should be from the vicinity of the station.

Category	Quantity	Entry Level	Output	Tenderers proposal
Mechanical Fitters (Fitting and Turning)	3	N3/Grade 12	Trade Test	

4.2 Subcontracting

4.2.1 Preferred subcontractors

Not Applicable

4.2.2 Subcontract documentation, and assessment of subcontract tenders

Not Applicable

4.2.3 Limitations on subcontracting

Not Applicable

4.2.4 Attendance on subcontractors

Not Applicable

4.3 Plant and Materials

4.3.1 Quality

Refer to Quality Requirements

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

- Water
- Ablution Facilities
- Electricity

4.3.3 *Contractor*'s procurement of Plant and Materials

Contractor to procure plant and material to fulfil the technical requirements for the works.

4.3.4 Spares and consumables

No spares required

4.4 Tests and inspections before delivery

To ensure the quality and performance of the work, the inspections of supports must be carried out before the delivery of Supports to the Working Areas. These procedures aim to mitigate risks and ensure that the project adheres to the agreed specifications and standards. Inspection by the Employer's Engineer and Project Manager: The Employer's Engineer and Project Manager are to carry out a thorough inspection of the Supports prior to delivery.

This inspection will involve checking the physical condition of the Supports, its alignment with design specifications, and its readiness for installation. The contractor must facilitate this inspection, providing all necessary documentation and access.

4.5 Marking Plant and Materials outside the Working Areas

Not applicable

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

The Contractor to purchase all equipment required for the works.

4.7 Cataloguing requirements by the *Contractor*

The Contractor is required to submit technical specification of all components for cataloguing. The Employer will furnish the Contract with forms to complete according to Procurement Instruction Number 1 of 2018 – Incorporating Cataloguing into the Procurement Environment, Unique Identifier 240-1289988974 after Contract award for submission after completion of the works.

5 Construction

5.1 Temporary works, Site services & construction constraints

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

The Contractor is to inform the Project Manager of the request for access to Site prior to the date of reporting to Site.
The Contractor to report to the Kusile Power Station Security gate on arrival, to comply with all security requirements.

- Lifesaving rules to be adhered at all times
- All personnel must attend induction before working on site and must obtain gate permits via the Project Manager.
- Contractor to comply to the Eskom values and rules, e.g No taking Pictures without approval, no walking and texting
- Access is limited and controlled by Plant Safety Regulations requirements.
- No employee will be allowed to access the plant or to work without access permit issued.
- All personnel to work on the plant must be registered on the Worker's Register by the Responsible Person.
- Each personnel to have an Identification card at all times
- Unauthorized access to site is prohibited. The personnel are expected to be at their working site area at all times.
- No recruitment on site or at the main access gates or any Premises of the Employer is allowed.
- All activities to comply with the OSHACT and Regulations
- All activities on plant must be preceded by a plant risk assessment – Risk assessment as per the standard of the Employer, to be current at all times (Live Document)
- All work to be done according to the construction regulations at all times

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

Site restructuration on site to be shared after contract date.

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

The Contractor is responsible for management and administration of his people to comply with all the Employer's requirements for the duration of the contract.

Normal working hours: 07h00 to 16h30 (Monday to Thursday)
07h00 to 12h00 Fridays

The Contractor keeps records of his people working on the Affected Property
Time sheets to be controlled weekly and signed of by the Employer Supervisor.
No valuable assets of the Contractor to be left onsite without security approval.

5.1.4 Health and safety facilities on Site

Refer to Section 2.3

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

Refer to Section 2.4

5.1.6 Title to materials from demolition and excavation

Not applicable

5.1.7 Cooperating with and obtaining acceptance of Others

1) The Contractor will be required to work with Others with whom the Contractor may be required to share the Affected Property.
2) Requirements for liaison with and acceptance from statutory authorities or inspection agencies will be communicated when required

5.1.8 Publicity and progress photographs

The Contractor to Comply to Eskom rules of no Photography

5.1.9 *Contractor*'s Equipment

Contractor to declare their equipment's and tools

- Contractor's equipment (Cell phones with Camera's, Computers, Camera's etc.) to be and signed in at security.
- All test equipment must be calibrated and tested regularly and certificates must be handed in to the Service Manager for record keeping
- All equipment and tools needs to be marked and a list off all tools with the identification number to be provided to the Service Manager when entering site.
- All lost equipment and tools to be declared to the Service Manager and full details of incident.

5.1.10 Equipment provided by the *Employer*

The Contractor supplies equipment required for the works.

5.1.11 Site services and facilities

The Employer will provide the Contractor with the following services whilst doing work on the Affected Property

1. Water
2. Electricity
3. Ablution Facilities
4. Fire Protection equipment
5. Waste disposal Facilities
6. Other facilities e.g., Canteens for personal accounts are available on site.
7. The Employer shall provide a Contractor's employee with internet access for communication purposes.
8. Contractor shall provide everything else necessary for providing the Works.

5.1.12 Facilities provided by the *Contractor*

The Contractor is to provide for himself the following:
1. Vehicles
2. Site Establishment containers
3. Personal Protective Equipment (branded with the Contractor's name) as per safe work requirements.
4. Contractor shall provide everything else necessary for providing the works.

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

The contractor shall do inspections as per Scheduled Work Order and report al defects to the Employer's Supervisor / Employer

5.1.14 Survey control and setting out of the *works*

The Contractor is responsible for setting out of the works.

5.1.15 Excavations and associated water control

Excavation is not required

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

Contractor to asses' area of works as report risks prior to works commence.

5.1.17 Control of noise, dust, water and waste

- All necessary and relevant PPE must be used at all time when entering or working on plant
- Risk assessments must be completed before commencing with any task to be current at all times (Live Document)
- All relevant procedures to be used at all times

5.1.18 Sequences of construction or installation

Sequence to be detailed by the Contractor in the submitted programme

5.1.19 Giving notice of work to be covered up

- The Supervisor to be notified within the notification period as per Contract Data
- The employer shall Issue notice as early as possible as per the ECC contract

5.1.20 Hook ups to existing works

Contractor to assess area of works and report hook ups prior to works commence. Hooking up on heights is a non-negotiable Lifesaving rule of Eskom. Kusile Power Station applies Zero Tolerance to non-compliance of this rule or any other Lifesaving rule. The same disciplinary process procedure will be followed when any of the Lifesaving rules have been breached

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the Completion Date

All work is to be done by the Completion Date.

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

Completion is when the Contractor has done all the work, which the Works Information states he is to do by the Completion Date and has corrected notified Defects, which would have prevented the Employer from using the works. The Site is handed back to the Employer in a condition acceptable to the Project Manager

5.2.3 Materials facilities and samples for tests and inspections

The Contractor shall be responsible for the testing of the Works. The Works shall be tested in accordance with the latest standards and procedures as outlined by the South African Bureau of Standards (SABS)/South African National Standards (SANS) as well as any other applicable and relevant standards and specifications.

5.2.4 Commissioning

Refer to the scope of works for commissioning works. Commissioning is performed with the involvement of the Employer and Others.

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

Contractor to issue procedures to the employer

5.2.6 Take over procedures

Takeover is at the same time as Completion.

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

The Project Manager arranges in time 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.

5.2.8 Performance tests after Completion

Upon the completion of the installation, the Contractor will be required to perform comprehensive performance tests on the Installed Supports to demonstrate that it operates correctly and meets all the requirements specified in the Contractor's Works Information. The performance tests should follow a well-defined procedure, and any deviations from the expected performance should be duly reported, with appropriate corrective measures taken.

The performance tests should assess the following aspects:
- Functionality: Confirm that all features of the GRP Supports operate as intended.
- Reliability: Determine the ability of the Supports to perform consistently over time.
- Compatibility: Ensure the Supports structure integrates seamlessly with the existing infrastructure

5.2.9 Training and technology transfer

N/A

5.2.10 Operational maintenance after Completion

The Employer will require the Contractor before the defects date to perform fault finding and repairs should there be a standing fault as a result of a defect as per notification of the Employer.

6 Plant and Materials standards and workmanship

6.1 Investigation, survey and Site clearance

Not applicable

6.2 Building works

Not applicable

6.3 Civil engineering and structural works

Applicable as per SOW

6.4 Electrical & mechanical engineering works

Not applicable

6.5 Process control and IT works

Not applicable

6.6 Other [as required]

Not applicable

7 List of drawings

7.1 Drawings issued by the *Employer*

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

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

Drawing number	Revision	Title
To be supplied upon request		

C3.2 *CONTRACTOR*'S WORKS INFORMATION

- The Contractor shall execute the Works per the submitted schedule or as agreed between the Contractor and the Employer. The Contractor shall notify the Employer timeously should there be any changes in the submitted programme. The Contractor shall also acquaint themselves with the work involved and verify all quantities, materials etc. necessary to undertake the Works, for proper programming and co-ordination.
- Programme format – The Contractor to issue the programme using either MS Projects (soft copy) or Primavera (soft copy)
- The program should be updated as per the changes on Outage listing
- Programme is to be submitted as indicated in the Contract Data.

PART 4: SITE INFORMATION

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

PART 4: SITE INFORMATION

Core clause 11.2(16) states

"Site Information is information which

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

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

1. General description

Site	:	Kusile Power Station
Regional Authority	:	Emalahleni Local Municipality, Mpumalanga Province
Nearest Towns	:	Emalahleni – 42km north east of power station
		Bronkhorstspruit – 41km south of power station
		Delmas – 45km north of power station
		There are informal settlements within a 10 km radius of the power station.
Infrastructure	:	Kusile Power Station is situated approximately 3km from the N4 highway and is connected to it by means of a tarred road. There is also a secondary tarred road connecting the site with the R545 and D686.
Latitude & longitude	:	
Landowner	:	Portions of Horingkraans Farm
River catchment	:	Wilge River
Regional Climate		Kusile Power Station is situated in the Mpumalanga Province on the Highveld in the western part of Mpumalanga province on the escarpment, at an average height of 1551 m above sea level. The winters are generally dry and cold with regular frost and temperatures varying between -7ºC and 23ºC.
		The summers are mild with most of the rainfall occurring during this season. Temperatures vary between 12º & 32º C.
Wind direction		Data from the Emalahleni weather station shows that Kusile Power Station is sited in such a way that for most of the year (291 days) the wind direction is from the power station in a direction that is North West.
Rainfall		Based on information recorded at the Emalahleni weather station, the average annual rainfall for the Emalahleni area is approximately 691 mm. (Weather Bureau, Pretoria).

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

- The Contractor will be required to work with Others with whom the Contractor may be required to share the Affected Property.
- Requirements for liaison with and acceptance from statutory authorities or inspection agencies will be communicated when required
- Any risk arises due to buildings, structures, and plant & machinery on the Site to be communicated with the project manager prior to work commencement.

3. Subsoil information

Not Applicable

4. Hidden services

Not Applicable

5. Other reports and publicly available information

Not Applicable