



**DEPARTMENT OF WATER AND SANITATION  
REPUBLIC OF SOUTH AFRICA**

**DUE AT 11:00 ON  
22 DECEMBER 2017**

**BID NO. W11268**

**NGQAMAKAWE REGIONAL SUPPLY SCHEME PHASE 5**

**CIVIL/MECHANICAL/ELECTRICAL CONTRACT  
BUTTERWORTH EMERGENCY SUPPLY SCHEME**

**VOLUME 2: AGREEMENT AND CONTRACT DATA, AND BILL OF QUANTITIES**

**SUBMIT BID DOCUMENTS**

**TO**

**POSTAL ADDRESS:**

**DIRECTOR-GENERAL: DEPARTMENT WATER  
AND SANITATION**

**PRIVATE BAG X313  
PRETORIA, 0001**

**OR**

**TO BE DEPOSITED IN:**

**THE BID BOX AT THE ENTRANCE  
OF ZWAMADAKA BUILDING  
157 FRANCIS BAARD STREET  
PRETORIA, 0002**

**ATTENTION:**

**DIVISION: PROCUREMENT AND PSP ADMINISTRATION  
ZWAMADAKA BUILDING  
ZWAMADAKA ENTRANCE**

**BIDDER:** (Company address and stamp)

**NGQAMAKAWE REGIONAL SUPPLY SCHEME PHASE 5****BID NO. W11268****BUTTERWORTH EMERGENCY SUPPLY SCHEME****LIST OF VOLUMES**

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**NGQAMAKWE REGIONAL SUPPLY SCHEME PHASE 5**

**BID NO. W11268: BUTTERWORTH EMERGENCY SUPPLY SCHEME**

**VOLUME 2**

**PART C1 – AGREEMENT AND CONTRACT DATA**

## **PART C1.1: FORM OF OFFER AND ACCEPTANCE (AGREEMENT)**

**C1.1 FORM OF OFFER AND ACCEPTANCE (AGREEMENT)****OFFER**

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a Contract in respect of the following works:

Contract No. W11268: Ngqamakwe Regional Supply Scheme Phase 5: Butterworth Emergency Supply Scheme

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, 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.

**THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE-ADDED TAX IS**

.....

..... rand *[in words]*; R..... *[in figures]*,

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 to the Tenderer before the end of the period of validity stated in the Tender Data, 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

\_\_\_\_\_  
*[Name and address of organisation]*

Name and  
signature of  
witness

\_\_\_\_\_  
Date \_\_\_\_\_

CIDB Registration  
number

\_\_\_\_\_

**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 Agreement]*

Part C2 Pricing Data

Part C3 Scope of Work

Part C4 Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

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 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 Agreement. No amendments to or deviations from the said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Tenderer shall within two weeks after 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 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 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

.....

.....

.....

.....  
*[Name and address of organisation]*

Name and  
signature of  
witness

..... Date .....

**SCHEDULE OF DEVIATIONS**

Notes:

1. 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.
2. A Tenderer's covering letter shall not be included in the final Contract Document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the Tender Documents and which is agreed by the Parties becomes an obligation of the Contract and shall also be recorded here.
4. Any change or addition to the Tender Documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

**1 Subject .....**

Details .....

**2 Subject .....**

Details .....

**3 Subject .....**

Details .....

**4 Subject .....**

Details .....

**5 Subject .....**

Details .....

**6 Subject .....**

Details .....

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from and amendments to the documents listed in the Tender Data and Addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change 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 Agreement shall have any meaning or effect in the Contract between the parties arising from this Agreement.

**FOR THE TENDERER:**

Signature(s)

Name(s)

Capacity

.....  
 .....  
 .....

.....  
*[Name and address of organisation]*

Name and  
signature of  
witness

..... Date .....

**FOR THE EMPLOYER:**

Signature(s)

Name(s)

Capacity

.....  
 .....  
 .....

.....  
*[Name and address of organisation]*

Name and  
signature of  
witness

..... Date .....

**CONFIRMATION OF RECEIPT**

The Tenderer (now Contractor), identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

the ..... *[day]*

of ..... *[month]*

20..... *[year]*

at ..... *[place]*

For the Contractor:

.....  
Signature

.....  
Name

.....  
Capacity

Signature and name of witness:

.....  
Signature

.....  
Name

**PART C1.2: CONTRACT DATA**

**C1.2 CONTRACT DATA****PART 1: DATA PROVIDED BY THE EMPLOYER****CONDITIONS OF CONTRACT**

The *General Conditions of Contract for Construction Works*, Third Edition, 2015, published by the South African Institution of Civil Engineering, is applicable to this Contract and is obtainable from [www.saice.org.za](http://www.saice.org.za).

Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering, tel 011 805 5947.

**VARIATIONS TO THE CONDITIONS OF CONTRACT ARE:****Clause****1.1.1 Definitions**

*In Clause 1.1.1.4, the term “Certificate of Practical Completion” shall have the same meaning as, “Taking Over” as used in the document.*

*In Clause 1.1.16, the term “Employer’s Agent” shall have the same meaning as “Engineer”.*

**4.1.2 Contractor’s liability for own design errors**

*Add the following to the end of the paragraph:*

*“The Contractor shall design in accordance with C3.1 Project Specification PS 5.*

**5.3.1 Commencement of the Works**

*Add the following to Clause 5.3.1:*

*Such instruction shall, where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), also be subject to the issuing, by the Provincial Director of the Department of Labour, of a construction work permit to perform the intended construction work in terms of Clause 5.3.4 below.*

**5.3.3 Time to instruct commencement of the Works**

*Add the following to Clause 5.3.3:*

*Notwithstanding the above, where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), and a construction work permit from the Provincial Director of the Department of Labour is required, commencement of the Works shall not be deemed to take place until such construction work permit has been issued by the Provincial Director.*

*Add the following new Clause after Clause 5.3.3:*

**“5.3.4 Application for Construction Work Permit**

*Where the Contract Sum exceeds one hundred and thirty million Rand (R130 000 000), the Employer shall, in compliance with Regulation 3 of the Construction Regulations, read together with the exemptions published in Government Notice dated 7 July 2015, apply to the Provincial Director of the Department of Labour for a construction work*

permit to perform the intended construction work. The Employer will apply for the construction work permit as soon as possible after its Bid Adjudication Committee has awarded the contract, and the period that the Department of Labour requires to issue the permit will run concurrently with the appeal period.

Should the issuing of a construction work permit delay the Employer's Agent's instruction to commence executing the Works and this in turn causes a delay to Practical Completion, then the Contractor shall be entitled to make a claim in accordance with Clause 10.1. Should, however, the issuing of a construction work permit be delayed by the submission of a unacceptable draft Health and Safety Plan, in the opinion of either the Employer's Health and Safety Agent, or the Provincial Director of the Department of Labour, no claim for an extension of time will be entertained."

5.9.7 Employer's Agent to approve of Contractor's Designs and Drawings

*Replace this clause with the following:*

"The Employer's Agent shall approve the Contractor's Documents in accordance with C3.1 Project Specification – PS 6."

5.14.1 Practical Completion

*Replace the last sentence of the second paragraph:*

"Should the Employer's Agent ... on the Due Completion Date;"

*with the following:*

"Should the Employer's Agent not issue such a list within 14 days, Practical Completion shall be deemed to have been achieved on the said fourteenth day."

5.14.2 Issue of Certificate of Practical Completion

*Replace "the Employer's Agent" in the second line with the following:*

", the Contractor shall notify the Employer's Agent, who shall inspect the Works and the Employer's Agent"

5.14.4 Certificate of Completion

*Replace "the Employer's Agent" in the second and third line of the first paragraph with:*

", the Contractor shall notify the Employer's Agent, who shall inspect the works and the Employer's Agent"

5.14.5 Consequences of Completion

*Delete Clause 5.14.5.1*

6.2.1 Delivery of Security

*Replace "as selected" in the last line with:*

"as stated"

6.2.2 Contractor failing to select or provide Security

*Delete entire clause.*

**6.2.3 Validity of Performance Guarantee**

*Replace the entire clause with the following:*

"The Contractor shall ensure that the performance guarantee remains valid and enforceable until the Final Approval Certificate is issued. The performance guarantee shall specify an expiry date, and if the Contractor has not become entitled to receive the Final Approval Certificate by the date 14 days prior to the expiry date, the Contractor shall extend the validity of the performance guarantee until such time as the Final Approval Certificate is issued.

The Employer shall return the performance security to the Contractor within 14 days of receiving a copy of the Final Approval Certificate.

**6.8.2 Application of Contract Price Adjustment Factor**

*Replace "Contract Price Adjustment Schedule" with:*

"Contract Data"

**6.10.4 Delivery, dissatisfaction with and payment of payment certificate**

*Replace "28 days" in the seventh line with "35 days".*

**6.11 Variations exceeding 15 per cent**

*Replace "15 per cent" in the heading, the marginal heading and the tenth line with "25 per cent".*

**CONTRACT SPECIFIC DATA**

The following contract specific data are applicable to this Contract:

**Clause**

- 1.1.1.13 The Defects Liability Period is 365 days.
- 1.1.1.14 The time for achieving Practical Completion is 78 (seventy-eight) weeks, inclusive of the 14-day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below and the Trial Operation Period (C3.1 Project Specification – PS 7.8).
- 1.1.1.15 The name of the Employer is Department of Water and Sanitation, Republic of South Africa.
- 1.1.1.16 The name of the Employer's Agent is Aurecon South Africa (Pty) Limited (hereinafter referred to as "Aurecon") represented by an employee duly authorised thereto in writing.
- 1.1.1.26 The Pricing Strategy is: Re-measurement Contract.
- 1.2.1.2 The Employer's Agent's address for receipt of communications is:
- |                   |                 |
|-------------------|-----------------|
| Physical address: | Postal address: |
| 1 Pearce Street   | PO Box 19553    |
| Berea             | TECOMA          |
| EAST LONDON       | 5214            |
| 5241              |                 |
- Telephone: 043 721 0900
- Fax: 043 721 0902
- Email: [Leigh.Bahlmann@aurecongroup.com](mailto:Leigh.Bahlmann@aurecongroup.com)
- 3.2.3 The Employer's Agent shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract:
- |   |                |   |
|---|----------------|---|
| 1 | Clause 3.3.1:  | Nomination of the Employer's Agent Representative |
| 2 | Clause 3.3.4:  | Engineer's authority to delegate                  |
| 3 | Clause 5.8.1:  | Non-working times                                 |
| 4 | Clause 5.11.1: | Suspension of the Works                           |
| 5 | Clause 5.12:   | Extension of Time for Practical Completion.       |
| 6 | Clause 6.3:    | Variations  |
- 4.4.4 The subcontractor responsible for the Portion of the Works as defined in C3.1 Project Specification – PS 11 & 12, shall be registered with the Eskom Eastern Cape Operating Unit.

- 5.3.1 The documentation required before commencement with Works execution are:
- Health and Safety Plan (Refer to Clause 4.3)
  - Initial programme (Refer to Clause 5.6)
  - Security (Refer to Clause 6.2)
  - Insurance (Refer to Clause 8.6)
  - Cash flow projection.
  - OHS agreement (Part C1.4)
- 5.3.2 The time to submit the documentation required before commencement with Works execution is fourteen (14) days.
- 5.4.2 The access and possession of Site shall not be exclusive to the Contractor but as set out in the Scope of Works and Site Information.
- 5.8.1 The non-working days are Sundays.
- The special non-working days are:
- 1 All gazetted public holidays falling outside of the year end break
  - 2 The year end break commencing and ending on dates as specified by SAFCEC.
- 5.13.1 The penalty for failing to complete the Works is R 25 000 per day.
- 5.14.1 The requirements for achieving Practical Completion are:
- Completion of the Works, including successful completion of trial operation period. Refer to C3.1 Project Specification – PS 7.8 for trial operation requirements.
- 5.16.3 The latent defect period is ten (10) years.
- 6.2.1 The type of Security to be provided by the Contractor shall be a Performance Guarantee equal to 10% of the Contract Sum.
- 6.2.3 The Security shall remain valid and enforceable until the Final Approval Certificate is issued.
- 6.5.1.2.3 The percentage allowed to cover overhead charges is 10%.
- 6.8.2 Contract Price Adjustment: Is applicable.
- Contract Price Adjustment for the Civil and Building Works (Sections C1-7 of the Bill of Quantities)
- The value of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule included in the General Conditions of Contract.
- The value of "x" is 0,1
- The values of the coefficients are:
- a = 0.20 Labour
  - b = 0.25 Contractor's equipment
  - c = 0.50 Material
  - d = 0.10 Fuel
- The urban area nearest the site is East London.

The applicable industry for the Producer Price Index for materials is Civil Engineering.

The area for the Producer Price Index for fuel is Coast.

The base month is the month before tenders close.

Contract Price Adjustment for the Mechanical and Electrical Works – Pump Station  
(Sections ME of the Bill of Quantities)

The value of the certificates issued shall be adjusted by an amount A in respect of the billed items for the supply of Plant, an amount B in respect of the billed items for the delivery of Plant to the site, an amount C in respect of the billed items for the installation of Plant, an amount D in respect of the billed items for the testing and commissioning of Plant and an amount E in respect of the billed items for the servicing of the Plant and by an amount F in respect of the applicable items listed in Section A of the Bill of Quantities. Items pertaining to Performance Security and Insurances in Section A of the Bill of Quantities, and the value of imported equipment which is subject to rate of exchange variation shall not be subject to Contract Price Adjustment.

The amounts shall be calculated according to the following formulae:

$$A = 0,90 P_s \left( l \frac{L_s - L_o}{L_o} + m \frac{M_s - M_o}{M_o} \right)$$

$$B = 0,90 P_d \left( \frac{T_d - T_o}{T_o} \right)$$

$$C = 0,90 P_i \left( \frac{L_i - L_o}{L_o} \right)$$

$$D = 0,90 P_c \left( \frac{L_c - L_o}{L_o} \right)$$

$$E = 0,90 P_m \left( \frac{L_m - L_o}{L_o} \right)$$

$$F = 0,90 P_{pg} \left( \frac{P_G - P_{Go}}{P_{Go}} \right)$$

in which the symbols have the following meanings:

$P_s$  = sum of the net tendered prices of the items for supply of Plant.

$P_d$  = sum of the net tendered prices of items for delivery of Plant (transport to Site).

$P_i$  = sum of the net tendered prices of items for installation of Plant.

$P_c$  = sum of the net tendered prices of items for Tests on Completion for the Plant.

$P_m$  = sum of the net tendered prices of items for servicing of the Plant.

$P_{pg}$  = sum of amounts tendered for items in Section A of the Bill of Quantities, excluding items related to Performance Security and Provisional Sums.

- I = the co-efficient which represents the proportionate value of labour within the tendered prices of items for supply of Plant
- m = the co-efficient which represents the proportionate value of the materials within the tendered prices of items for supply of Plant.
- Lo = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month which incorporates the Base Date.
- Ls = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month which incorporates the actual date on which the corresponding Plant (computed by value) is certified for payment, or the date on which installation is due to commence in terms of the Contractors approved program; whichever is the earlier.
- Li = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month which incorporates the date that the corresponding installation and pre-commissioning work (computed by value) is certified for payment, or is due to be completed in terms of the Contractors approved program;; whichever is the earlier.
- Lc = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month in which the corresponding Tests on Completion are due to be completed in terms of the Contractors approved program; or the actual date of completion of the tests; whichever is the
- Li = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month during which 60%, in the opinion of the Employer's Agent, of the installation and pre-commissioning work (computed by value) is completed or is due to be completed in terms of the Contractors approved program;; whichever is the earlier.
- Lc = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month in which the corresponding Tests on Completion are due to be completed in terms of the Contractors approved program; or the actual date of completion of the tests; whichever is the earlier.
- Lm = SEIFSA Index of Actual Labour Cost (all hourly paid Employees) for the month which is mid-way through the Defects Liability Period.
- Mo = relevant SEIFSA price index or price of material for the month which incorporates the Base Date.
- Ms = the relevant SEIFSA price index or price of material stated in the Appendix to the Tender for the month which incorporates the date that the corresponding delivery (computed by value) is certified for payment, or the date on which installation is due to commence in terms of the Contractors approved program; whichever is the earlier.
- To = SEIFSA Index of Road Freight Costs for the month which incorporates the Base Date.
- Td = SEIFSA Index of Road Freight Costs for the month which incorporates the tendered or approved actual date of delivery, whichever is the earlier.
- PG = SEIFSA index Table D1 for the month which incorporates the Base Date.
- PGo = SEIFSA index Table D1 for the month which incorporates the actual date on which the corresponding items are certified for payment, or the date on

which the corresponding work is due for completion in terms of the Contractors approved program, whichever is the earlier”

"SEIFSA" means Steel and Engineering Industrial Federation of South Africa.

The selected values of "l" and "m" shall add up to 1,00. The value of "m" may be subdivided to cater for various categories of material, in which case the formula for A above shall be expanded accordingly.

Where items or groups of items to be supplied have different delivery dates, the indexes Ls and Ms shall be determined separately for the items or groups of items and used for calculating the adjustment amount A in parts. The same principle shall apply in respect of delivery, installation, testing and commissioning and servicing.

Where any of the activities, delivery, installation, testing and commissioning and/or servicing are not billed separately they shall be held to be included in the formula for the preceding activity.

The tendered date of delivery used in the determination of Ls, Ms and Td, and the due date for completion of 60% of the installation work used in the determination of Li shall be calculated taking into account any delay required or approved for this purpose by the Employer's Agent.

No Contract Price Adjustment in terms of this Clause shall be applicable to daywork”.

### **Imported Equipment**

#### **A Permissible Adjustment**

For the value of any materials, goods, plant or equipment imported from outside the Republic of South Africa, adjustments for such changes in costs will be permitted in respect of the following variables only:

- i) Variations in rates of exchange as detailed in Sub-Clause E.
- ii) Variations in customs surcharge and customs duty as detailed in Sub-Clause C.

All other fluctuations in the cost of imported materials, goods, plant and equipment shall be for the Contractor's account including any change in the cost of freight rates, marine insurance rates, wharfage, dock dues, landing charges, local cartage, agency charges, disbursement fees, delivery release orders, documentation, postage and petties and so forth.

#### **B Values of Imported Materials, Goods, Plant and Equipment**

- i) The value of materials, goods, plant, and equipment imported from outside of South Africa, for which the Contractor may cover his foreign exchange and import cost risk, shall be as listed in the Schedule of Imported Equipment and shall be deducted from the total values to be adjusted by the Contract Price Adjustment (SEIFSA Index adjustment).
- ii) The value of imported materials, goods, plant or equipment referred to in (i) above shall be the quotation value in foreign currency converted to South African Rand by using the spot selling rate quoted by the Employer's main banker on the Base Date, to which shall be added any Customs Surcharge and Customs Duty applicable at that date.

**C Variations in Customs Surcharge and Customs Duty**

- i) Any increase or decrease in the Rand value between the amounts of Customs Surcharge and Customs Duty inserted in the Schedule of Imported Equipment and those amounts actually paid to the Customs and Excise Authorities, which are due to changes in the percentage rates applicable or to the foreign exchange rate used by the authorities, shall be adjusted accordingly.

**D Special Requirements for Price Adjustment Claims on Imported Equipment**

All claims for price adjustments shall be supported by documentary evidence such as audited statements, proof of payment, receipted vouchers and other relevant information as required to the satisfaction of the Employer's Agent, all presented in a clear and concise manner. Failure to render the information and statements as required will result in the rejection of claims for price adjustment.

Documentary evidence shall include documents showing the cost to the contractor of all imported materials, goods, plant and equipment, including Banker's debit notes and Bills of Entry, in respect of each and every consignment.

**E Variations in Rates of Exchange**

Adjustment for variations in rates of exchange referred to in Sub-Clause A(i) above shall be based on the following:

- i) The Contractor shall within five working days from the date of placing a firm order on an overseas supplier, cover or recover forward by way of a contract with a bank which is an authorised foreign exchange dealer, the foreign exchange component of the cost of any imported plant or equipment listed in the Schedule of Imported Equipment.
- ii) When the Contractor so obtains forward cover he shall immediately notify the Employer of the rate obtained and furnish the Employer with a copy of the foreign exchange contract note as soon as possible thereafter.
- iii) Providing Sub-Clause E(i) and (ii) above are fully complied with the value in Rand inserted in the Schedule of Imported Equipment, Column (C) above shall be recalculated using the forward cover rate obtained, and any increase or decrease in the Rand value shall be adjusted accordingly."

6.8.3 Price adjustments for variations in the cost of special materials is provided in the Special Materials Schedule at the end of this Part 1: Contract Data provided by the Employer.

6.10.1.5 The percentage advance on materials not yet built into the Permanent Works is 80%.

6.10.3 Percentage retention is 10%.

The limit of retention money is 5% of Contract Sum.

8.6.1.1.2 The value of Plant and materials supplied by the Employer to be included in the insurance sum is R Nil

8.6.1.1.3 The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R 5 million.

8.6.1.3 The limit of indemnity for liability insurance is R20 000 000 for any single claim, the number of claims to be unlimited during construction and Defects Liability Period.

10.5.3 The number of Adjudication Board Members to be appointed is one.

10.7.1 The determination of disputes shall be by arbitration.

Additional Conditions of Contract:

- 1 Contractor to treat details of the Works as private and confidential and shall not publish information related to the contract without approval of Employers Agent.

SPECIAL MATERIALS SCHEDULE		
Each material dealt with as a special material in terms of Clause 4.1 of the Contract Price Adjustment Schedule of the General Conditions of Contract is stated in the list below. The provisions of Clause 6.8.3 of the General Conditions of Contract shall apply to such special materials. The base prices for the special materials (current at the time of tender) shall be as stated in the schedule below, or where required, shall be furnished by the tenderer/contractor. Only those materials listed by the Employer below shall be considered as special materials.		
Special Material	Unit	Base Price
Structural steel	ton	The ArcelorMittal prices, as published in their official price lists, current at the time of tender closing, will be used as the base prices for determining the adjustment in steel prices.
Steel reinforcing bars	ton	
Steel used in the manufacture of pipes	ton	
<b>Conditions:</b> 1) When called upon to do so, the contractor shall substantiate the prices to be used to determine the adjustment in respect of the special materials listed above with acceptable documentary evidence. 2) Where an adjustment for the variation in the price is claimed, the claim must be substantiated by a declaration from the manufacturer, confirming the source of such products at the time in question.		

**PART 2: DATA PROVIDED BY THE CONTRACTOR****Clause**

1.1.1.9 The Contractor is .....

1.2.1.2 The Contractor's address for receipt of communications is:

Physical address:

Postal address:

.....

.....

.....

.....

.....

.....

.....

.....

Telephone: .....

Fax: .....

Email: .....

6.2.1 The security to be provided by the Contractor shall be as stated in 6.2.1 and 6.10.3 of Part 1.

6.8.2 Application of Contract Price Adjustment Factor for the Mechanical and Electrical Works.

Coefficients representing proportionate values applying to:

(a) Labour	:	"l".....	}	The total of "l" and "m" must equal 1,00
(b) Materials	:	"m".....		

(i) If "m" is not sub-divided,

state: SEIFSA Table and title of table

.....£

(ii) If "m" is sub-divided to cater for various materials, state:

<u>Proportion of</u> <u>tender price</u>	<u>SEIFSA Table and title of table</u>
---	--

"m<sub>1</sub>" = ..... for .....

"m<sub>2</sub>" = ..... for .....

"m<sub>3</sub>" = ..... for .....

and so on depending on number of materials involved.

The total of "m<sub>1</sub>", "m<sub>2</sub>", "m<sub>3</sub>", etc. must equal "m" above.

## **PART C1.3: FORM OF PERFORMANCE SECURITY**

**C1.3 FORM OF PERFORMANCE SECURITY**

WHEREAS EMPLOYER'S NAME

(hereinafter referred to as "the Employer") entered into a Contract with .....

.....  
(hereinafter called "the Contractor") on the ..... day of ..... 20.... for CONTRACT NO. W11268 for the BUTTERWORTH EMERGENCY SUPPLY SCHEME

AND WHEREAS it is provided by such Contract that the Contractor shall provide the Employer with security by way of a guarantee for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS WE, (*name of Insurance Company/Bank*) .....  
have at the request of the Contractor, agreed to give such guarantee;

NOW THEREFORE WE do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Employer shall, without reference and/or notice to us, have complete liberty of action to act in any manner authorized and/or contemplated by the terms of the said Contract, and/or to agree to any modifications, variations, alterations, directions or extensions of the Due Completion Date of the Works under the said Contract, and that its rights under this guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason of any steps which the Employer may take under such Contract, or of any modification, variation, alterations of the Due Completion Date which the Employer may make, give, concede or agree to under the said Contract.
2. This guarantee shall be limited to the payment of a sum of money.
3. The Employer shall be entitled, without reference to us, to release any guarantee held by it, and to give time to or compound or make any other arrangement with the Contractor.
4. This guarantee shall remain in full force and effect until the issue of the Final Approval Certificate in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.
5. Our total liability hereunder shall not exceed the sum of .....  
.....(R.....)
6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guarantee Sum with the beneficiary, whereupon the Guarantor's liability hereunder shall cease.

7. We hereby choose our address for the serving of all notices for all purposes arising hereof as .....  
IN WITNESS WHEREOF this guarantee has been executed by us at .....  
on this ..... day of ..... 20.....

As witnesses:

1.	.....	Signature	.....
2.	.....	Duly authorized to sign on behalf of	.....
		Address	.....
			.....
			.....

**PART C1.4: OHS MANDATARY FORM**

**C1.4 OHS MANDATARY FORM**

**Note: Section 1(1)(xxviii) of the Act defines a "Mandatary" as including "an Agent, a Contractor or a Subcontractor for Work."**

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37 (2) of the Occupational Health and Safety Act, Act No.85 of 1993, hereinafter referred to as "the Act", that the Contractor as an employer in its own right and in its capacity as Contractor for the execution of the works, shall have certain obligations and that the following arrangement shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:-

- i. The Contractor undertakes to acquaint the appropriate officials and the employees of the Contractor with all relevant provisions of the Act, and the regulations promulgated in terms of the Act, and
- ii. The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and regulations will be fully complied with, and
- iii. The Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and regulations in respect of the work included in the Contract, and
- iv. The Contractor shall be obliged to report forthwith to the Employer any investigation, complaint, or criminal charge which may arise as a consequence of the provisions of the Act and regulations pursuant to work performed on behalf of the Employer, and shall, on written demand, provide full details in writing of such investigation, complaint or criminal charge.

Signed at ..... on the ..... day of ..... 20.....

**WITNESS:**

.....

.....  
for and on behalf of **Contractor**

**WITNESS:**

.....

.....  
for and on behalf of **Employer's Name**

## **PART C1.5: CERTIFICATE OF OWNERSHIP OF GOODS**

**C1.5 CERTIFICATE OF OWNERSHIP OF GOODS**

FULL NAME OF CONTRACTOR: .....

ADDRESS: .....

NAME OF EMPLOYER: .....

ADDRESS: c/o Aurecon South Africa (Pty) Ltd .....

CONTRACT DATE: .....

CONTRACT NO.: .....

The undersigned Contractor hereby certifies that

- (i) the goods listed hereunder (the goods), which were formerly my sole and exclusive property and to which no third party has any rights, have been paid for and lawfully acquired by ..... (the Employer);
- (ii) upon such payment constructive delivery of the goods to the Employer took place;
- (iii) ownership of the goods vests in the Employer;
- (iv) the goods are insured in accordance with the requirements of Clause 18 of the General Conditions of Contract;
- (v) the goods are held by the Contractor in storage for and on behalf of the Employer at (address) ..... (the premises);

and certifies further that the premises are-

- \*(a) the property of the Contractor; or
- \*(b) the property of ..... (of address) ..... and are let to the Contractor by ..... of (address) .....

**LIST OF GOODS**

.....

.....

Date : ..... Signature of Contractor : .....

On behalf of : .....

\* (delete whichever is not applicable)

**NGQAMAKWE REGIONAL SUPPLY SCHEME PHASE 5**

**BID NO. W11268 BUTTERWORTH EMERGENCY SUPPLY SCHEME**

**VOLUME 2**

**PART C2 – PRICING DATA**

## **PART C2.1: PRICING INSTRUCTIONS: CIVIL WORKS AND BUILDING WORKS**

## **C2.1 PRICING INSTRUCTIONS: CIVIL WORKS AND BUILDING WORKS**

### **1. GENERAL**

The Bill of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Contract Documents, which include the Conditions of Tender, Conditions of Contract, the Specifications (including the Project Specification) and the Drawings.

The Tenderer is advised to check the number of pages and should any be found missing or in duplicate or the figures or writing indistinct or these Bill of Quantities contain any obvious errors, the Tenderer must inform the Employer's Agent at once and have it rectified. No liability whatsoever will be admitted in respect of errors due to the foregoing.

Should there be any doubt or obscurity as to the meaning of any particular item, the Tenderer must obtain an explanation of it, in writing, from the Employer's Agent. No claims for extras arising from any such doubt or obscurity will be admitted after delivery of the tender.

The pricing instructions provided in C2.1 pertain to the Civil Works and the Building Works. The sections of the Bill of Quantities applicable to the Civil Works and the Building Works include:

- a) Section A, apart from items referenced in C2.2: Pricing Instructions: Mechanical and Electrical Works.
- b) Section C1 to Section C7

### **2. DESCRIPTION OF ITEMS IN THE SCHEDULE**

The Bill of Quantities has been drawn up generally in accordance with Civil Engineering Quantities 1990 issued by the SA Institution of Civil Engineers.

The short descriptions of the items in the Bill of Quantities are for identification purposes only and comply in general with the measurement and payment clauses of the Standardized Specifications, the Project Specifications and the Particular Specifications, read together with the relevant clauses of the Scope of Work and directives on the drawings, set out what ancillary or associated work and activities are included in the rates for the operations specified.

### **3. QUANTITIES REFLECTED IN THE SCHEDULE**

The quantities given in the Bill of Quantities are the estimated quantities of work to be done, and will be subject to re-measurement during the execution of the work. The Contractor shall obtain the Employer's Agent's detailed instructions for all work before ordering any materials or executing work or making arrangements for it. Any additional works or any extension of work quantities over and above that contained in the Bill of Quantities shall be agreed before the work is completed in the form of an Extra Works Authorization in the case of additional works or a Change Order in the case of an increase in quantities, whichever is the applicable. All documentation must be signed by the Employer's Agent before the work is commenced and such additional works or increased quantities will not be paid for if certified for payment without the approved documentation.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Bill of Quantities, and the contract price for the completed contract shall be computed at the relevant unit rates and prices, all in accordance with the General and Special Conditions of Contract, the Specifications and Project Specifications and the Drawings. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment.

#### 4. PRICING OF THE BILL OF QUANTITIES

All unit prices, extensions and totals must be filled in **black ink**. Unit prices, extensions and totals submitted in electronic format will not be acceptable.

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all costs and expenses that may be required in and for the completion of the work and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Tender is based. Reasonable unit rates and prices shall be entered in the Bill of Quantities as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which only rates are required, or items which already have Prime Cost or Provisional Sums affixed thereto. If the Contractor omits to price any items in the Bill of Quantities, then these items will be considered to have a nil rate or price.

All items for which terminology such as "inclusive" or "not applicable" have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

The Tenderer shall fill in rates for all items where the words "rate only" appear in the "Total" column. "Rate Only" items have been included where:

- a) An alternative item or material is contemplated and may be used at the discretion of the Employer's Agent.
- b) Variations of specified components in the make-up of a pay item may be expected.
- c) No work under the item is foreseen at tender stage but the possibility that such work may be required is not excluded.

For "Rate Only" items no quantities are given in the "Quantity" column but the quoted rate shall apply in the event of work under this item being required. The Tenderer shall however note that in terms of the Tender Data the Tenderer may be asked to reconsider any such rates which the Employer may regard as unbalanced.

All rates and amounts quoted in the Bill of Quantities shall be in Rand and cents and shall include all levies and taxes (other than VAT). VAT will be added in the summary of the Bill of Quantities.

#### 5. PROVISIONAL SUMS

Where Provisional sums or Prime Cost sums are provided for items in the Bill of Quantities, payment for the work done under such items will be made in accordance with Clause 6.6 of the General Conditions of Contract. The Employer reserves the right, during the execution of the works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the Contract.

The Tenderer shall not under any circumstances whatsoever delete or amend any of the sums inserted in the "Amount" column of the Bill of Quantities and in the Summary of the Bill of Quantities unless ordered or authorized in writing by the Employer before closure of tenders. Unauthorized changes made by the Tenderer to provisional items in the Bill of Quantities, or to the stated provisional percentages and sums in the Summary of the Bill of Quantities, will not be tolerated.

#### 6. CORRECTION OF ENTRIES

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialed by the Tenderer.

## 7. ARITHMETICAL ERRORS

Arithmetical errors found in the Bill of Quantities as a result of faulty multiplication of addition, will be corrected by the Employer's Agent at the tender evaluation stage, as set out in the Standard Conditions of Tender Clause F3.9

## 8. MONTHLY PAYMENTS

Unless otherwise specified in the Specifications and Project Specifications, progress payments in Interim Certificates, referred to in Clause 6.10 of the General Conditions of Contract, in respect of "sum" items in the Bill of Quantities shall be by means of interim progress installments assessed by the Employer's Agent and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

## 9. CONTINGENCY

The sum provided under contingency in the Bill of Quantities is under the sole control of the Employer and may be deducted in whole or in part and shall only be expended by order of the Employer as Variation Order

## 10. UNITS OF MEASUREMENT

The units of measurement described in the Bill of Quantities are metric units for which the standard international abbreviations are used. Abbreviations used in the Bill of Quantities, including some non-standard abbreviations, are as follows:

mm	= millimetre	h	= hour
m	= metre	kg	= kilogram
km	= kilometre	t	= ton (1000 kg)
m <sup>2</sup>	= square metre	No.	= number
m <sup>2</sup> pass	= square metre-pass	Sum	= lump sum
ha	= hectare	MN	= meganewton
m <sup>3</sup>	= cubic metre	MN.m	= meganewton-metre
m <sup>3</sup> .km	= cubic metre-kilometre	P C sum	= Prime Cost sum
litre	= litre	Prov sum	= Provisional sum
kℓ	= kilolitre	%	= per cent
MPa	= megapascal	pers. Days	= person days
KW	= kilowatt		

## 11. PAYMENT REFERENCES

The payment references that appear in the "Payment Clause" column of the Bill of Quantities, reference the payment clause relevant to the item/s at hand. The payment references have the form of:

- a) Where the payment reference invokes a Standard Specification (C3.5) or a Particular Specification (C3.3): the abbreviated code for the specification, followed by the relevant payment clause number from that specification; or
- b) Where the payment reference invokes either the Amendments to the Standard Specifications (C3.4) or the Amendments to the Particular Specifications (C3.2): the abbreviated code for the corresponding root standard specification/particular specification, followed by the relevant amendment clause number suffixed by the extension "- A". The suffix is provided to distinguish between cross-references to the Standard Specifications or the Particular Specifications, and those to clauses in the Amendments to the Standard Specifications or the Amendments to the Particular Specifications.

**PART C2.2: PRICING INSTRUCTIONS: MECHANICAL  
AND ELECTRICAL WORKS – PUMP STATION**

**C2.2 PRICING INSTRUCTIONS: MECHANICAL AND ELECTRICAL WORKS – PUMP STATION****PREAMBLE**

- 1 The pricing instructions provided in C2.2 pertain to the Mechanical and Electrical Works - Pump Station. The sections of the Bill of Quantities applicable to the Mechanical and Electrical Works – Pump Station include:
  - a) Section ME, items that reference the Measurement and Payment clauses contained in C2.2: Pricing Instructions: Mechanical and Electrical Works – Pump Station.
  - b) Design of the Mechanical and Electrical Works – Pump Station is allowed for in Section A.
- 2 The Tender Data, the Contract Data, the Scope of the Work and the Site Information are to be read in conjunction with the Bill of Quantities.
- 3 The Bill of Quantities comprises items covering the Contractor's profit and costs of general liabilities and of provision of temporary and permanent Works.
- 4 Except that they shall not include Value Added Tax (VAT), the prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices to the Employer for the work described under each item. Such prices shall cover all costs and expenses that may be required in and for the construction of the work described and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based. Provision is made in the Summary to the Bill of Quantities for VAT to be added.
- 5 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to have a price or rate of R0,00.
- 6 The Tenderer must price and extend each item, total each page and carry the total of each section in the Bill of Quantities to the Summary page.
- 7 Where an item(s) has been provided for the tenderer to price any further work considered necessary by the tenderer, the tenderer must provide full details of what has been allowed for under that item(s). Where such item(s) are not priced, it will be held that the priced items adequately cover the cost of carrying out the required work.
- 8 Descriptions in the Bill of Quantities are abbreviated and must be read in conjunction with the measurement and payment clauses below and the applicable Specifications.
- 9 Contract price adjustment to allow for variations in the rate of exchange for imported equipment shall be dealt with in terms of Sub-clause 6.8.2 of the General Conditions of Contract on the basis of the rates inserted by the tenderer in the **Schedule of Imported Equipment** in Part C2.3. Note that the values of imported equipment to be inserted in this schedule will not be used for the adjudication process and will vary from the tenderer's prices inserted in the Bill of Quantities.
- 10 Where Provisional sums are provided for items in the Bill of Quantities, the Employer reserves the right, during the execution of the Works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the Contract. The Tenderer shall not delete or amend any of the sums inserted in the "Amount" column of the Bill of Quantities and in the Summary of the Bill of Quantities unless ordered or authorized in writing by the Employer before closure of tenders.

## MEASUREMENT AND PAYMENT

### PI1 General

Payment for particular items billed in the Bill of Quantities shall conform to the payment instructions in the Contract Data and Scope of Work as amended by the following:

- a) The tendered rates or sums shall cover the costs of anything not specially mentioned but which an experienced contractor can reasonably foresee as being required, (e.g. all ancillaries, including all bolts, fastenings and brackets, safety guards and any work or material or equipment required for the proper installation of such apparatus and equipment, piping, valves, gauges, instruments, either severally or collectively in complete working order), to enable the Works to be installed and to pass the tests on completion and to function safely and correctly as specified. No claims whatsoever for extras will be allowed on the grounds that a necessary piece of equipment or a part thereof is not specifically mentioned in the Bill of Quantities.
- b) With reference to Sub-Clause 6.10 of the General Conditions of Contract the Contractor will not be entitled to any payment until the required number of copies of the Progress Statement have been submitted by him to the Employer's Agent. The Statement shall contain an invoice of all items as billed in the Bill of Quantities and reflect the progress made on each item. If a pro forma is enclosed in the Contract Documents the Contractor's Progress Statement shall conform to it. If there is no pro forma in the document the form of the Progress Statement used by the Contract will be subject to the approval of the Employer's Agent.

### PI2 General Requirements and Conditions

Unit: .....Sum

Where provision is made in the Bill of Quantities for General Requirements and Conditions, the sum(s) tendered shall cover the cost of all responsibilities specified in the Scope of Work together with all responsibilities in terms of the Contract Data. In interim certificates, payment for General Requirements and Conditions will be made, unless otherwise provided for, as a percentage of the tendered lump sum(s) pro rata to the value of work certified for payment.

Where no provision is made in the Bill of Quantities for General Requirements and Conditions the rates tendered for the scheduled items shall cover the cost of all responsibilities specified in the Scope of Work together with all responsibilities in terms of the Contract Data.

### PI3 Design

Unit: .....Sum

The tendered sum shall cover the cost of the design of the Works, and the provision of the Contractor's documents in accordance with Clause 3 of Specification AUR 0010 : General requirements for design and testing and related requirements in terms of the Scope of Work.

### PI4 Supply (or supplying)

Unit: .....No or Sum

The tendered rate or sum shall cover the cost of the supply of the goods, testing as specified and as required by Act No. 85, provision of test certificates certifying compliance of the goods with SANS, IEC, ISO or BS standards, corrosion protection, if designated and not scheduled separately, and supply of all special tools and keys specified.

Payment for supply of the relevant equipment will not be effected until the draft copies of the related sections of the Operation and Maintenance Manuals have been submitted.

**PI5 Delivery**

Unit: ..... No or Sum

The tendered rate or sum shall cover the cost of delivery of the goods and offloading at the delivery point stated in the Scope of Work or at the Site.

Where a rate or sum has been tendered for delivery of goods which are then stored, the Employer's Agent at his sole discretion may certify an amount for partial or full payment of the relevant item, if in the Employer's Agent's opinion such a payment is justified by reason of the transportation of such goods to their place of storage.

**PI6 Installation**

Unit: ..... No or Sum

The tendered rate or sum shall cover the cost of all necessary site oriented activities such as handling at the Site, storing, sorting, erecting, all painting, pre-commissioning tests (unless scheduled separately), including all costs of transport of personnel and their erection gear to Site, and the cost of all materials. Where pipes are required to pass through walls of structures constructed by others, and where openings have been provided for this purpose, the installation sum shall include for building/grouting the pipe into the wall and finishing to match the surrounding structure. Where items of equipment are to be grouted in (such as for anchors and pumpset base plates), the installation sum shall include for such work.

**PI7 Pre-commissioning tests (where scheduled separately)**

Unit: ..... No or Sum

The tendered rate or sum shall cover the cost of pre-commissioning tests, including all costs of transport to and from Site, and Site accommodation of personnel and their gear.

**PI8 Commissioning tests (where scheduled separately)**

Unit: ..... No or Sum

The tendered rate or sum shall cover the cost of commissioning tests, including putting the whole of the Works into operation, and including all costs of transport to and from the Site, and Site accommodation of personnel and their gear. The cost of process chemicals required for production of any product of the Works (such as coagulants and chlorine), shall be borne by the Employer.

**PI9 Trial operation (where scheduled separately)**

Unit: ..... No or Sum

The tendered rate or sum shall cover the cost of trial operation tests, including all costs of transport to and from the Site, and Site accommodation of personnel and their gear. The cost of process chemicals required for production of any product of the Works (such as coagulants and chlorine), shall be borne by the Employer.

**PI10 Servicing visits**

Unit: ..... Sum or No of Visits

The tendered rate or sum shall exclude the cost of providing lubricants but shall cover the cost of any servicing visits and operations specified.

Payment of 95% of the tendered amount will become due monthly on a pro rata basis or after each visit, as the case may be. The remaining 5% will be regarded as Retention Money and paid at the end of the Defects Liability Period.

**PI11 Corrosion Protection and Painting**

Unit: ..... No or Sum

Where a separate item is included in the Bill of Quantities the tendered rate shall cover the cost of surface preparation, supply and application of the corrosion protection material, site repairs to paintwork, the provision of inspection equipment and the cost of the Contractors quality surveillance and his independent inspectorate.

Where a separate item is not included in the Bill of Quantities the total cost of corrosion protection as specified above shall be included in the cost of supply of the item.

The cost of the Employer's or Employer's Agent's inspection shall be borne by the Employer.

**PI12 Spares**

Unit: ..... Prime Cost Sum

The cost of special tools and keys shall be covered by the tendered rate or price for the supply of the relevant equipment (see PI4). Payment for standard spanners and cabinet(s) will be made out of the Prime Cost Sum allowed in the Bill of Quantities for such items. The Contractor's profit, administration and delivery charges will be paid at the tendered percentage of the actual purchase price of the goods.

Payment for spares will be made at the price tendered in the Spares Schedule which price shall cover the cost of supply, crating and labelling where applicable, and delivery to the Site of the relevant items.

**PI13 Miscellaneous items**

Unit: ..... No or Sum or as stated in the schedule

Where a miscellaneous item or operation is scheduled that does not match the specific measurement and payment categories in PI2 to PI12 above, the rate for such items shall cover all the costs required to execute and complete the work as specified and/or as described in the Bill of Quantities, including equipment, materials, labour, plant, and the costs related to the categories of PI1 to PI11 above.

**PI14 Resumption of Work**

Unit: ..... Month or Sum

The tendered rate or sum shall cover the cost of resumption of work and associated re-mobilisation of the Contractor's team in accordance with Sub-clauses 5.11.4 of the Contract Data, where placing of Goods in storage was ordered by the Employer's Agent in accordance with Sub-clause 5.11.1 of General Conditions Contract.

**PI15 Storage**

Unit: ..... Month or Sum

The tendered rate or sum shall cover the cost of storage of Goods in accordance with Sub-clause 5.11 of the General Conditions of Contract (as amended in the Contract Data), where placing of Goods in storage is ordered by the Employer's Agent in accordance with Sub-clause 5.11.1 of General Conditions Contract.

**PART C2.3: SCHEDULE OF IMPORTED MATERIAL**

## VOL 2 – AGREEMENT AND CONTRACT DATA, AND BILL OF QUANTITIES

**C2.3 SCHEDULE OF IMPORTED EQUIPMENT**

VALUES OF IMPORTED EQUIPMENT as per Item 9 of C2.2 Pricing Assumptions					CUSTOMS DUTY		SURCHARGE		Total in Rand of (C) + (D) + (E) included in Schedule of Quantities Item
Schedule of Quantities Item	Description of Equipment	Value in Foreign Currency	Rate of Exchange	Value in Rand (A) X (B)	%	Rand	%	Rand	
		(A)	(B)	(C)		(D)		(E)	(F)

\* STATE CUSTOMS DUTY TARIFF REFERENCE FOR EACH ITEM

**SIGNED ON BEHALF OF TENDERER:** .....

**PART C2.4: BILL OF QUANTITIES**

# **Preliminary and General**

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 A	<b>SECTION: A PRELIMINARY AND GENERAL</b>				
		<b>Fixed-charge items:</b>				
A.1	8.3.1	Contractual requirements: Refer to Section C3.1	Sum	-	-	
A.2	Project Spec. PS 9	Detailed design of Engineering: Mechanical and Electrical - Pump Station	Sum	-	-	
		<b>Establishment of facilities on the Site</b>				
A.3	PSA 8.3.2.1 PSAB 8.2.1	Facilities for the Engineer	Sum	-	-	
A.4	PSA 8.3.2.2	Facilities for the Contractor including offices, storage sheds, workshops, living accommodation, ablution and latrine facilities, tools and equipment, water supplies, electric power, communications and setting out of Works	Sum	-	-	
A.5	PSA 8.8.1	Deal with access, including construction of temporary access roads	Sum	-	-	
A.6	PSA 8.8.1	Remove temporary site roads and reinstate site	Sum	-	-	
A.7	PSA 8.8.2	Deal with traffic	Sum	-	-	
	PSA 8.8.7	Deal with water				
A.8		Deal with surface water	Sum	-	-	
A.9		Deal with subsurface water	Sum	-	-	
A.10	8.3.3	Other fixed-charge obligations	Sum	-	-	
A.11	PSA 8.3.4	Removal of Engineer's and Contractor's site establishment and reinstatement of site on completion	Sum	-	-	
	PSA 8.12	Health and safety:				
A.12		General safety obligations	Sum	-	-	
A.13		Risk assessment	Sum	-	-	
A.14		Health and safety plan	Sum	-	-	
A.15		Training	Sum	-	-	
A.16		Medical assessment of employees	Sum	-	-	
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.17		All other costs to comply with the requirements of the OHS Act and Health and Safety specification	Sum	-	-	
		<b>Time-related items:</b>				
A.18	8.4.1	Contractual requirements: Refer to Section C3.1	Sum	-	-	
		<b>Operation and maintenance of facilities on Site</b>				
A.19	PSA 8.4.2.1 PSAB 8.2.1	Facilities for Engineer	Sum	-	-	
A.20	PSA 8.4.2.2	Facilities for Contractor	Sum	-	-	
A.21	PSA 8.8.1	Deal with access, including construction and maintenance of temporary access roads	Sum	-	-	
A.22	PSA 8.8.2	Deal with traffic	Sum	-	-	
	PSA 8.8.7	Deal with water				
A.23		Deal with surface water	Sum	-	-	
A.24		Deal with subsurface water	Sum	-	-	
A.25		Deal with sewer flow	Sum	-	-	
A.26	PSA 8.4.3 8.4.4	Supervision and company and head office overhead costs	Sum	-	-	
A.27	8.4.5	Other time-related obligations	Sum	-	-	
	PSA 8.12	Health and safety:				
A.28		General safety obligations	Sum	-	-	
A.29		Health and safety plan	Sum	-	-	
A.30		All other costs to comply with the requirements of the OHS Act and Health and Safety specification	Sum	-	-	
		<b>Provisional sums</b>				
A.31	PSA 8.5.1	Maintenance and photocopy paper to be paid by the Employer	Prov Sum	-	-	R30,000.00
A.32		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R30,000.00		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.33	PSA 8.5.2	Pipeline: Independent inspectorate for testing of pipes, linings and coatings at factory	Prov Sum	-	-	R250,000.00
A.34		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R250,000.00		
A.35		Pump station and Reservoir: Independent inspectorate for testing of pipe specials, valves, linings and coatings at the factory	Prov Sum	-	-	R250,000.00
A.36		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R250,000.00		
A.37		Pipeline: Independent inspectorate for testing of field welds and joint repairs	Prov Sum	-	-	R250,000.00
A.38		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R250,000.00		
A.39		Independent inspectorate for testing and inspection of cathodic protection systems	Prov Sum	-	-	R1,500,000.00
A.40		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R1,500,000.00		
		<b>Existing services</b>				
	PSA 8.8.4.1	Provision of equipment for detecting services				
A.41		Water and sewer pipes	Sum	-	-	
A.42		Electrical and other cables	Sum	-	-	
A.43		Other	Sum	-	-	
	PSA 8.8.4.2	Hand excavation necessary for locating and exposing existing services in all materials				
A.44		In roadways	m³	300		
A.45		In all other areas	m³	1000		
A.46	PSA 8.5.1	Locating, protection, alteration and relocation of existing services carried out by authorities or Contractor	Prov Sum	-	-	R300,000.00
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.47	PSA 8.5.1	Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R300,000.00		
<b>Facilities for Engineer</b>						
A.48		Telephone calls, faxes, photocopy paper and consumables to be paid by Employer	Prov Sum	-	-	R20,000.00
A.49		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R20,000.00		
A.50		Internet connection (min 4 mbps speed) including data usage to be paid by Employer	Prov Sum	-	-	R50,000.00
A.51	8.7 PSA 8.7	Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R50,000.00		
A.52		Time lapse recording of construction activities using a remote control drone with camera and fixed camera located on a high point to monitor progress. Engineer to specify monitoring requirements and equipment details.	Prov Sum	-	-	R50,000.00
A.53		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R50,000.00		
<b>Daywork</b>						
Labour						
A.54		Skilled (incl. artisans)	h	1500		
A.55		Semi-skilled	h	2000		
A.56		Unskilled (incl flagmen)	h	4500		
A.57		Material (Not subject to price adjustments)				
A.58		Net cost of goods or material	Prov Sum	-	-	R400,000.00
A.59		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R400,000.00		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.60		Contractor's own plant	h	120		
		Bulldozer				
		Minimum power: 220 kW (35 t)				
		Manufacturer .....				
A.61		Model .....	h	120		
		Motor grader				
		Minimum power: 93 kW (similar to "Cat 120B")				
		Manufacturer .....				
A.62		Model .....	h	150		
		Excavator				
		Minimum power: 22 t				
		Manufacturer .....				
A.63		Model .....	h	300		
		T.L. Backactor				
		Minimum power: 50 kW (similar to "Case 580G")				
		Manufacturer .....				
A.64		Model .....	h	160		
		Front-end loader				
		Minimum power: 145 kW (22 t)				
		Manufacturer .....				
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.65		Model ..... Vibrating plate compactor Minimum power: 2 kW Manufacturer .....	h	160		
A.66		Model ..... Tip truck	h	300		
A.67		Minimum load mass: 10 t Minimum load capacity: 6m3 Water tank truck, with sprinkler	h	120		
A.68		Minimum capacity: 10 kl Mobile crane Minimum capacity: 10 t Manufacturer .....	h	300		
A.69		Model ..... Mobile crane Minimum capacity: 30 t Manufacturer .....	h	40		
A.70		Model ..... Sludge pump, 100mm dia with hoses Minimum output power: 10 kW	h	170		
A.71		Manufacturer ..... Dewatering Minimum output power: 15 kW (solids handling) Manufacturer .....	h	120		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.72		Model ..... Generating set Minimum output power: 10 kW Manufacturer .....	h	120		
A.73		Model ..... Plant hired by the Contractor	h	80		
A.74		Net cost of hired plant	Prov Sum	-	-	R400,000.00
A.75		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R400,000.00		
<b>Environmental management</b>						
A.76	PSA 8.13	Compliance with Environmental Management Plan	Sum	-	-	
A.77	PSA 8.10 PSA 8.5.1	Environmental rehabilitation where required by the Engineer and Employer not covered under the specifications	Prov Sum	-	-	R80,000.00
A.78		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R80,000.00		
A.79	PSA 8.10 PSA 8.5.1	Environmental Control Officer	Prov Sum	-	-	R180,000.00
A.80		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R180,000.00		
<b>Miscellaneous</b>						
A.81	PSA 8.8.8	Survey for and preparation of as-built data	Sum	-	-	
A.82	PSA 8.9	Obtain all wayleaves from the relevant service authorities (e.g. Eskom, Telkom, etc.)	Sum	-	-	
A.83	PSA 8.14	Quality management plan by Contractor	Sum	-	-	
A.84	PSA 8.11	Provision of Security Personnel	Month	18		
A.85	PSA 8.10	Dealing with the Aquatic mitigation measures required in Specifications	Month	18		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
A.86	PSA 8.10	Dealing with the Heritage mitigation measures required in Specifications	Month	18		
A.87	PSA 8.10	Dealing with the Geomorphological mitigation measures required in Specifications	Month	18		
A.88	PSA 8.10	Dealing with the Botanical mitigation measures required in Specifications	Month	18		
A.89	PSA 8.10 PSA 8.5.1	Occupational Health & Safety Training requested by the Employer or additional requirements not covered in the scope	Prov Sum	-	-	R180,000.00
A.90		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R180,000.00		
A.91	PSA 8.10 PSA 8.5.1	Stakeholder management and community facilitator	Prov Sum	-	-	R200,000.00
A.92		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R200,000.00		
A.93	PSA 8.10 PSA 8.5.1	Additional laboratory testing where instructed by Employer or Engineer	Prov Sum	-	-	R250,000.00
A.94		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R250,000.00		
A.95	PSA 8.10 PSA 8.5.1	Training as instructed by the Employer	Prov Sum	-	-	R100,000.00
A.96		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R100,000.00		
A.97	PSA 8.10 PSA 8.5.1	Institutional Social Development	Prov Sum	-	-	R180,000.00
A.98		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R180,000.00		
A.99	PSA 8.10 PSA 8.5.1	Engineer and specialist construction monitoring fee on behalf of the Employer	Prov Sum	-	-	R8,700,000.00
A.100		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R8,700,000.00		
		<b>TOTAL SECTION A Carried to Summary</b>			R	

# Civil Works

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 C	<b>SECTION: C1</b> <b>DN 700 STEEL PIPELINE</b>				
		<b>Excavation for DN 700 Steel Pipeline</b>				
		<b>Site Clearance</b>				
C1.1	8.2.1 PSC 8.2.1	Clear and grub vegetation and trees including tree stumps up to 25m wide strip (Max. tree girth 1m)	m <sup>2</sup>	346,000		
	8.2.2	Remove and grub trees and tree stumps of girth				
		<b>Over and Up to</b>				
C1.2		1 m 2 m	No	30		
C1.3		2 m 3 m	No	10		
C1.4	PSC 8.2.11	Take down existing fence and reinstate (stock fence up to 1.8 m high)	m	3,000		
C1.5	PSC 8.2.10	Remove 150 mm thick layer of topsoil to stockpile and maintain	m <sup>3</sup>	51,870		
C1.6	1200 D 8.3.10 PSD 8.3.10	Topsoiling	m <sup>2</sup>	346,000		
C1.7	1200 A PSA 8.10	Temporary fencing where existing fencing has been taken down	m	2,000		
	1200 DB	<b>EARTHWORKS</b>				
		<b>Trench Excavation</b>				
	8.3.2 PSDB 8.3.2 PSDB 8.3.3	Excavate in all materials for trenches, backfill, compact and disposal of surplus material for:				
		Pipes of up to DN 700 mm for depths:				
		<b>Over and Up to</b>				
C1.8		0 m 2,0 m	m	9,815		
C1.9		2,0 m 3,0 m	m	3,828		
C1.10		3,0 m 4,0 m	m	168		
C1.11		4,0 m 5,0 m	m	20		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.12	8.3.2 PSD 8.3.2	<b>Extra Over Items C1.8-C1.11 Trench Excavations above:</b>  Hard rock excavation	m <sup>3</sup>	5,173		
C1.13		Blasting along pipeline	m <sup>3</sup>	5,173		
C1.14		Boulder excavation Class A	m <sup>3</sup>	200		
C1.15		Boulder excavation Class B	m <sup>3</sup>	100		
C1.16	8.3.2 PSDB 8.3.2	Hand excavation and backfill where ordered by the Engineer	m <sup>3</sup>	524		
C1.17		Backfill stabilised by 5% where ordered by the Engineer	m <sup>3</sup>	209		
C1.18		Soilcrete backfill where directed by the Engineer	m <sup>3</sup>	419		
C1.19	8.3.2	Excavation and disposal of unsuitable material from trench bottom (only where ordered in writing by the Engineer)	m <sup>3</sup>	209		
	PSDB 8.3.10	Supply and place the following to form sound foundation to pipework for unstable trench conditions:				
C1.20		19 mm crushed stone	m <sup>3</sup>	419		
C1.21		Geotextile filter blanket (Grade A7)	m <sup>2</sup>	2,649		
C1.22	PSDB 8.3.9	Temporary stockpiling of wet material from trench excavation	m <sup>3</sup>	419		
C1.23	8.3.3.1	Make up deficiency in backfill material, fill and compact to 90% MAMDD using excess excavation material to low lying areas (where ordered by the Engineer)	m <sup>3</sup>	209		
	8.3.2 PSDB 8.3.2	<b>Extra-over to Items C1.8-C1.11 Trench Excavations for restricted working width:</b>  Working width from 5 m up to 10 m:  <b>Over      and      Up to</b>				
C1.24		0 m                  2,0 m	m	485		
C1.25		2,0 m                3,0 m	m	120		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.26	8.3.4 PSDB 8.3.4	3,0 m            4,0 m	m	10		
C1.27		4,0 m            5,0 m	m	15		
		Working width from 10 m up to 15 m:				
		<b>Over      and      Up to</b>				
C1.28		0 m            2,0 m	m	50		
C1.29		2,0 m            3,0 m	m	20		
C1.30		3,0 m            4,0 m	m	5		
C1.31		4,0 m            5,0 m	m	0		
		Working width from 15 m up to 25 m:				
		<b>Over      and      Up to</b>				
C1.32		0 m            2,0 m	m	9,280		
C1.33		2,0 m            3,0 m	m	3,688		
C1.34		3,0 m            4,0 m	m	153		
C1.35		4,0 m            5,0 m	m	5		
		Shoring by supporting sides of the excavation for trenches and at chambers with restricted access for support height of: (Provisional)				
		<b>Over      and      Up to</b>				
C1.36	8.3.5 PSDB 8.3.5	0 m            2,0 m	m	1,472		
C1.37		2,0 m            3,0 m	m	574		
C1.38		3,0 m            4,0 m	m	25		
C1.39		4,0 m            5,0 m	m	3		
		<b>Existing services:</b>				
C1.40		Existing services that intersect a trench:				
C1.41		Telkom and Neotel fibre-optic cable	No	2		
C1.42		Overhead electric cable (medium voltage up to 11 kV)	No	3		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.43	8.3.5 PSDB 8.3.5	Overhead electric cable (high voltage up to 275 kV)	No	1		
C1.44		Underground electrical cables (medium voltage up to 11 kV)	No	1		
C1.45		Watermains of pipe diameters up to DN 500 mm	No	5		
C1.46		Sewer gravity mains of pipe diameters up to DN 300 mm	No	3		
C1.47		Fences	No	11		
C1.48		Stormwater pipes up to DN 600	No	5		
C1.49		5m wide gravel track	No	10		
C1.50		Stormwater channel crossings	No	15		
C1.51		Surface Road	No	2		
C1.52		Services that adjoin a trench				
C1.52	SANS 1200 D PSD 8.3.14 PSD 8.3.15	Fences	m	2,000		
C1.53		5m wide gravel track	m	1,390		
C1.54		Sewer gravity mains of pipe diameters up to DN 300mm	m	100		
C1.55		Watermains of pipe diameters up to DN 500 mm	m	300		
C1.56		Medium voltage electric cable (up to 11 kV)	m	1,500		
C1.57		Telkom and Neotel fibre-optic cable	m	500		
C1.58		Overhead Telkom Line	m	738		
		<b>Survey and protection of structures / buildings</b>				
C1.59		Existing structures at CH 1400 to CH 1600	Sum	-	-	
C1.60		Existing structures at CH 2040 to CH 2300	Sum	-	-	
C1.61		Existing structures and services at CH 2920 - CH 3440	Sum	-	-	
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.62	SANS 1200 DK 8.2 PSDK 8.2.2	<b>Stream and donga crossings:</b>  Construct gabions of the following dimensions complete with stone				
C1.63		3.0 m x 1.0 m x 0.5 m	m <sup>3</sup>	150		
C1.64		3.0 m x 1.0 m x 1.0 m	m <sup>3</sup>	300		
C1.65	8.2.4	Supply and Place geotextile Grade A2 behind gabions and mattress	m <sup>2</sup>	3,150		
C1.66	PSDK 8.2.8	Riprap at stream and donga crossings	m <sup>3</sup>	1,000		
C1.67	1200 DB 8.3.6 8.3.6.1 PSDB 8.3.6.1	<b>Finishing</b>  Subbase (Material type G5) of 150mm thickness compacted to 95% MAMDD	m <sup>2</sup>	70		
C1.68	8.3.6.1 PSDB 8.3.6.1	Gravel (Material type G5) of 150mm thickness compacted to 95% MAMDD	m <sup>2</sup>	100		
C1.69	1200 D 8.3.3 PSD 8.3.3	<b>Restricted excavation</b>  Valve Chambers	m <sup>3</sup>	1,500		
C1.70		Excavate for chambers (not scheduled elsewhere) and earthmats for AC mitigation to expose sleeve openings and use excess material for embankment or backfill or dispose as ordered by the Engineer	m <sup>3</sup>	251		
C1.71	8.3.2 PSD 8.3.2	<b>Extra over for Restricted Excavation above:</b>  Hard Rock excavation	m <sup>3</sup>	751		
C1.72	1200 LB PSLB 8.2.1	<b>Bedding &amp; Blanket</b>  From trench excavation (incl screening):  Selected granular material	m <sup>3</sup>	679		
C1.73		Selected fill material	m <sup>3</sup>	210		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.74	8.2.2.3 PSLB 8.2.2.3	From commercial sources:  Selected granular material	m <sup>3</sup>	13,577		
C1.75		Selected fill material	m <sup>3</sup>	4,190		
		<b>Extra-over to Items C1.70 - C1.73 Bedding and Blanket above:</b>				
C1.76	PSLB 8.2.6	Cement stabilisation at 5% by volume to fill material	m <sup>3</sup>	280		
C1.77	PSLB 8.2.7	20 MPa concrete bedding for pipeline	m <sup>4</sup>	280		
	SANS 1200 A	<b>Slope stabilisation</b>				
C1.78	PSA 8.10	Cross embankments	m <sup>3</sup>	1,605		
C1.79	PSA 8.10	Cross walls	m <sup>3</sup>	100		
C1.80	PSA 8.10	Concrete anchor blocks	m <sup>3</sup>	20		
C1.81	PSA 8.10	Grassing by means of hydroseeding	m <sup>2</sup>	4,000		
		<b>PIPELINES:</b>				
	DWS 1130	<b>Supply of DN 700 Steel pipes</b>				
	10	Supply of the following pipes manufactured from Grade X52 steel, including lining and coating in accordance with DWS 9900 C7:				
C1.82		DN 700, 11.1 mm wall thickness	m	2,000		
C1.83		DN 700, 9.3 mm wall thickness	m	4,000		
C1.84		DN 700, 7 mm wall thickness	m	7,831		
C1.85		Extra over to coat pipeline with Fusion Bonded Medium Density Polyethylene as an alternative coating option	m	13,831	-	Rate Only
C1.86		Extra over to coat pipeline with 3LPE as an alternative coating option	m	1,381	-	Rate Only
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	DWS 1130	<b>Supply of specials</b>				
	10	Supply of the following bends manufactured from Grade X52 or S355JR steel, including lining and coating in accordance with DWS 9900 C7:				
		DN 700, t=11.1 mm				
C1.87		11.25° up to 22.5°	No	10		
C1.88		22.5° up to 45°	No	11		
C1.89		45° up to 67.5°	No	13		
C1.90		67.5° up to 90.0°	No	5		
C1.91		Blank flange, PN 40	No	2		
C1.92		Blank flange, PN 63	No	2		
C1.93		Extra over to coat bends with Fusion Bonded Medium Density Polyethylene as an alternative coating option	No	30	-	Rate Only
C1.94		Extra over to coat bends with 3LPE as an alternative coating option	No	39	-	Rate Only
	DWS 1110 20.14.1 20.14.2	<b>Lay and bed steel pipes complete with couplings: (supplied above)</b>				
C1.95		DN 700, 11.1 mm wall thickness	m	2,000		
C1.96		DN 700, 9.3 mm wall thickness	m	4,000		
C1.97		DN 700, 7 mm wall thickness	m	7,831		
	DWS 1110 20.14.1 20.14.2 20.14.3	<b>Lay and bed steel specials complete with couplings: (supplied above)</b>				
		DN 700, t=11.1 mm				
C1.98		11.25° up to 22.5°	No	10		
C1.99		22.5° up to 45°	No	11		
C1.100		45° up to 67.5°	No	13		
C1.101		67.5° up to 90.0°	No	5		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.102	DWS 1110 20.14.3	<b>Extra-over to Items C1.95 - C1.97 Lay and bed steel pipes, for additional mitres where ordered by the Engineer:</b>				
C1.103		DN 700	No	20		
C1.104	SANS 1200 A PSA 8.10	Temporary closure pipes where ordered by the Engineer	No	10		
C1.105	1200 LB PSLB 8.2.4	Concrete encasing of pipes at stream and river crossings including 100 kg/m <sup>3</sup> reinforcement as per drawing 106777-0501-DRG-CC-0102	m <sup>3</sup>	400		
	DWS 1110 20.22.1 20.22.2	<b>Marker Posts and benchmarks</b>  Supply and install:				
C1.106		Route marker posts as per Dwg No 106777-0501-DRG-CC-0103	No	70		
C1.107		Marking of all pipeline structures	No	35		
		<b>Miscellaneous</b>				
C1.108	DWA 1110 20.19	Hydrostatic testing of complete pipeline	m	13,831		
C1.109	DWA 1110 20.20	Sterilization of complete pipeline	m	13,831		
C1.110	DWA 1110 20.23	Lightning protection of complete pipeline	Sum	-	-	
C1.111	1200 A PSA 8.10	Connect to pump station discharge pipework	Sum	-	-	
C1.112	PSA 8.10	Pipe lining integrity testing	m	13,831		
		<b>Pipeline Cathodic Protection</b>				
C1.113	PSA 8.5.1	DN 700 Pipeline Cathodic protection	Prov Sum	-	-	5,000,000.00
C1.114	PSA 8.5.1	Percentage adjustment on Item C1.113 for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	5,000,000		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>PIPELINES: PIPEWORK SPECIALS AND VALVE CHAMBERS</b>				
	DWS 1130 10 DWS 1110 20.14.1 20.14.2	Supply, deliver, laying, bedding and jointing of fittings and pipe specials on main pipeline and within valve chambers complete with couplings and pipe supports as scheduled. All steel pipework manufactured Grade X52 or S 355 JR steel unless otherwise stated and lined and coated as specified in DWS 9900 C7				
		<b>AIR VALVE INSTALLATION (100mm)</b>				
		<b><u>PN 63: Dwg 106777-0501-DRG-CC-0111</u></b>				
C1.115		DN 700 x DN 700 equal tee; barrel 3840 mm F/F; branch 900mm C/F branch flanged; barrel plain ended; 11.1mm wall thickness	No	5		
C1.116		DN 700 blank flange with DN 100 stub; stub 4 mm wall thickness; flanged both ends; 300 mm F/F; 4 No. per assembly 50 x 50 x 10 mm thick web plate welded to blank flange and stub.	No	5		
		<b><u>PN 40: Dwg 106777-0501-DRG-CC-0111</u></b>				
C1.117		DN 700 x DN 700 equal tee; barrel 3840 mm F/F; branch 900mm C/F branch flanged; barrel plain ended; 9.3mm wall thickness	No	7		
C1.118		DN 700 x DN 700 equal tee; barrel 3840 mm F/F; branch 900mm C/F branch flanged; barrel plain ended; 7.0mm wall thickness	No	11		
C1.119		DN 700 blank flange with DN 100 stub; stub 4 mm wall thickness; flanged both ends; 300 mm F/F; 4 No. per assembly 50 x 50 x 10 mm thick web plate welded to blank flange and stub.	No	18		
		<b><u>SCOUR VALVE INSTALLATION (Type 1)</u></b>				
		<b><u>PN 63: Dwg 106777-0501-DRG-CC-0116</u></b>				
C1.120		DN 700 x DN 200 plain ended scour tee; barrel 11.1 mm wall thickness, branch 4 mm wall thickness; barrel 1600 mm F/F with 90 degree flanged branch 900 mm C/F	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.121		DN 200 restrained flange adaptor	No	2		
C1.122		DN 200 pipe, 4 mm wall thickness; loose flange one end with restraining flange at other end 1100 mm F/F	No	1		
C1.123		DN 200 pipe; 4 mm wall thickness; flanged one end with restrained flange at other end; 1700 mm F/F	No	1		
C1.124		DN 200 flanged jet disperser	No	1		
<b><u>PN 40: Dwg 106777-0501-DRG-CC-0116</u></b>						
C1.125		DN 700 x DN 200 plain ended scour tee; barrel 9.3 mm wall thickness, branch 4 mm wall thickness; barrel 1600 mm F/F with 90 degree flanged branch 900 mm C/F	No	1		
C1.126		DN 700 x DN 200 plain ended scour tee; barrel 7.0 mm wall thickness, branch 4 mm wall thickness; barrel 1600 mm F/F with 90 degree flanged branch 900 mm C/F	No	1		
C1.127		DN 200 restrained flange adaptor	No	4		
C1.128		DN 200 pipe, 4 mm wall thickness; loose flange one end with restraining flange at other end 1100 mm F/F	No	2		
C1.129		DN 200 pipe; 4 mm wall thickness; flanged one end with restrained flange at other end; 1700 mm F/F	No	2		
C1.130		DN 200 flanged jet disperser	No	2		
<b>SCOUR VALVE INSTALLATION (Type 2)</b>						
<b><u>PN 40: Dwg 106777-0501-DRG-CC-0118</u></b>						
C1.131		DN 700 x DN 200 plain ended scour tee; barrel 7.0 mm wall thickness, branch 4 mm wall thickness; barrel 1600 mm F/F with 90 degree flanged branch 900 mm C/F	No	1		
C1.132		DN 200 restrained flanged adaptor	No	3		
C1.133		DN 200 pipe, 4 mm wall thickness; flanged one end, 1100 mm F/F	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.134		DN 200 plain ended pipe, 4 mm wall thickness, 600 mm F/F	No	1		
C1.135		DN 200 pipe, 4 mm wall thickness; flanged one end; 850 mm F/F	No	1		
<b>SCOUR VALVE INSTALLATION (Type 3)</b>						
<b><u>PN 63: Dwg 106777-0501-DRG-CC-0120</u></b>						
C1.136		DN 700 x DN 700 equal tee; barrel, 11.1 mm wall thickness, 3840 mm F/F; branch 900 mm C/F; branch flanged	No	1		
C1.137		DN 700 blank flange with DN 25 nipple	No	1		
C1.138		DN 25 screw type ball valve	No	1		
<b><u>PN 40: Dwg 106777-0501-DRG-CC-0120</u></b>						
C1.139		DN 700 x DN 700 equal tee; barrel, 9.3 mm wall thickness, 3840 mm F/F; branch 900 mm C/F; branch flanged	No	2		
C1.140		DN 700 x DN 700 equal tee; barrel, 7.0 mm wall thickness, 3840 mm F/F; branch 900 mm C/F; branch flanged	No	3		
C1.141		DN 700 blank flange with DN 25 nipple	No	5		
C1.142		DN 25 screw type ball valve	No	5		
<b>NON-RETURN VALVE INSTALLATION</b>						
<b><u>PN 40: Dwg 106777-0501-DRG-CC-0124</u></b>						
C1.143		DN 700 pipe; 7mm wall thickness; flanged one end; 1100mm F/F	No	1		
C1.144		DN 700 x DN 400 reducing tee; barrel 7mm wall thickness; branch 4mm wall thickness; barrel flanged; barrel 1400mm F/F; branch 800mm C/F; flanged.	No	1		
		DN 700 x DN 200 lateral tee, 45 degrees; barrel 7mm wall thickness; branch 4mm wall thickness; barrel flanged one end; barrel 2077mm F/F; branch 1500mm C/F, plain ended				
C1.145		DN 700 restrained flange adaptor	No	1		
C1.146		DN 700 restrained flange adaptor	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.147		DN 700 straight pipe; 7mm wall thickness; flanged; 1000mm F/F	No	1		
C1.148		DN 700 x DN 200 lateral tee, 45 degrees; barrel 7mm wall thickness; branch 4mm wall thickness; barrel flanged with PN 40 puddle flange; barrel 3213mm F/F; branch 1500mm C/F; flanged	No	1		
C1.149		DN 700 blank flange	No	1		
C1.150		DN 400 restrained flange adaptor	No	1		
C1.151		DN 700 straight pipe; 4mm wall thickness; plain ended; 1270mm F/F	No	1		
C1.152		DN 400 flange adaptor for DN 400 PVC pipe	No	1		
C1.153		DN 200 45 degree bend, CF 652 mm and CF 270 mm; flanged	No	1		
C1.154		DN 200 straight pipe; 4mm wall thickness; flanged; 682mm F/F	No	2		
C1.155		DN 200 straight pipe; 4mm wall thickness; flanged; 682mm F/F	No	1		
C1.156		DN 4200 45 degree bend, CF 402 mm and CF 167 mm; flanged	No	1		
C1.157		DN 200 orifice plate, 6mm thick with 110 mm hole drilled in the middle	No	3		
C1.158		DN 200 restrained flange adaptor	No	4		
		<b>VALVES</b>				
	DWS 2510 6 AUR 7012 15 DWS 1110 20.15-A	Supply, deliver, lay, install and test valves complete as scheduled and shown on drawings.				
		<b>PN 63: Dwg 106777-0501-DRG-CC-0111</b>				
C1.159		DN 100 flanged flanged wedge gate valve supplied with handwheel	No	5		
C1.160		DN 100 flanged air valve	No	5		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.161		<b>PN 40: Dwg 106777-0501-DRG-CC-0111</b> DN 100 flanged wedge gate valve supplied with handwheel	No	18		
C1.162		DN 100 flanged air valve	No	18		
C1.163		<b>PN 63: Dwg 106777-0501-DRG-CC-0116</b> DN 200 flanged flanged wedge gate valve supplied with handwheel	No	1		
C1.164		<b>PN 40: Dwg 106777-0501-DRG-CC-0116 &amp; 118</b> DN 200 flanged flanged wedge gate valve supplied with handwheel	No	4		
C1.165		<b>PN 40: Dwg 106777-0501-DRG-CC-0124</b> DN 700 flanged non-return valve	No	1		
C1.166		DN 700 flanged butterfly valve	No	1		
C1.167		DN 400 flanged butterfly valve	No	1		
C1.168		DN 200 flanged wedge gate valve	No	2		
		<b>VALVE CHAMBERS</b>				
		<b>Air valve chambers (100mm)</b> 106777-0501-DRG-CC-0111				
C1.169	DWS 1110 20.17	Construct air valve chambers complete, 3460 mm high from bottom of foundation footing to top of roof, with 130 kg/m³ reinforcing where applicable, access manhole, air vents, ladder, etc. The rate shall include all joints, shuttering and wood-float finish	No	22		
C1.170		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C1.171	DWS 0750 15.8	Extra-over for the above per chamber for casting in of DN 700 pipes	No	44		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>Scour valve chambers</b>				
		<b>Type 1</b> 106777-0501-DRG-CC-0116				
C1.172	DWS 1110 20.17	Construct scour valve chambers complete, 3700 mm high from bottom of foundation footing to top of roof, with 130 kg/m <sup>3</sup> reinforcing where applicable, access manholes, ladders, etc. The rate shall include all shuttering, wood-float finish and screeding of floor. Concrete to be water retaining concrete (35/19 MPa).	No	3		
C1.173		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C1.174	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 200 pipes	No	6		
C1.175	DWS 1110 20.17.2	Extra-over for the above per chamber for installing fibre glass grill	No	3		
		<b>Type 2</b> 106777-0501-DRG-CC-0118				
C1.176	DWS 1110 20.17	Construct scour valve chambers complete, 3700 mm high from bottom of foundation footing to top of roof, with 130 kg/m <sup>3</sup> reinforcing where applicable, access manholes, ladders, etc. The rate shall include all shuttering, wood-float finish and screeding of floor. Concrete to be water retaining concrete (35/19 MPa).	No	1		
C1.177		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C1.178	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 200 pipes	No	2		
C1.179	DWS 1110 20.17.2	Extra-over for the above per chamber for installing fibre glass grill	No	1		
		<b>Type 3</b> 106777-0501-DRG-CC-0120				
C1.180	DWS 1110 20.17	Construct scour valve chambers complete, 3700 mm high from bottom of foundation footing to top of roof, with 130 kg/m <sup>3</sup> reinforcing where applicable, access manholes, ladders, etc. The rate shall include all shuttering, wood-float finish and screeding of floor. Concrete to be water retaining concrete (35/19 MPa).	No	6		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.181		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C1.182	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 700 pipes	No	12		
C1.183	DWS 1110 20.17	<b>Non-return valve chamber</b> 106777-0501-DRG-CC-0124  Construct Non-return valve chambers complete, 3400 mm high from bottom of foundation footing to top of roof, with 130 kg/m³ reinforcing where applicable, access manholes, ladders, etc. The rate shall include all shuttering, wood-float finish and screeding of floor. Concrete to be water retaining concrete (35/19 MPa).	No	1		
C1.184		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C1.185	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 700 pipes	No	2		
C1.186		Extra-over for the above per chamber for casting in of DN 400 pipes	No	1		
		<b>ROAD CROSSINGS</b>				
	SANS 1200 LG	<b>Jacking Establishment</b>				
C1.187	8.2.1	Fixed charges	Sum	-		
C1.188		Time related charges	Sum	-		
	8.2.4 PSD 8.3.3	<b>Excavation for jacking</b>				
C1.189		Excavate for pipe at the drilling face (including removal and disposed of surplus excavated material). Rate shall include any shoring that is required	m³	144		
	PSD 8.3.3	<b>Extra over for Excavation for jacking above:</b>				
C1.190		Hard rock excavation	m³	61		
C1.191		Excavate by hand in soft material to expose existing services	m³	20		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C1.192	8.2.6 PSLG 8.2.6	<b>Supply and install pipes by means of jacking for the following pipes:</b>  DN 1350 Class 100 D Type SC reinforced concrete pipes  <b>Miscellaneous</b>	m	70		
C1.193	DWS 1110 20.14.4 1200 A PSA 8.10	Lay, joint, fix and test DN 700 steel pipes in the pipe sleeves complete with trolley system as detailed on Dwg No 106777-0501-DRG-CC-0104	m	70		
C1.194	PSLG 8.2.10	Standing time for pipe jacking	Day	7		
C1.195	PSLG 8.2.11	Recording of movements	Sum	-	-	
C1.196	PSLG 8.2.12	Brick-up ends of pipe sleeve	No	4		
C1.197	PSLG 8.2.13	Pipe Markers	No	4		
	SANS 1200 DB	<b>FIBRE OPTIC CONDUITS</b>  <b>Trench Excavation</b>				
	8.3.2 PSDB 8.3.2 PSDB 8.3.3	Excavate in all materials for trenches, backfill, compact and disposal of surplus material for:  Pipes of up to DN 32 mm for depths:				
		<b>Over and Up to</b>				
C1.198		0 m 1,2 m	m	13,831		
C1.199		1,2 m 2,0 m	m	200		
C1.200	8.3.2 PSD 8.3.2	<b>Extra Over Items C1.197-C1.198 Trench Excavations above:</b>  Hard rock excavation	m <sup>3</sup>	1,380		
	1200 LC	<b>Supply, lay, bed and test duct</b>				
C1.201	8.2.5	32 mm HDPE Fibre optic conduit	m	13,831		
C1.202	8.2.7	Fibre optic telebox	No	75		
	8.2.2.3 PSLB 8.2.2.3	From commercial sources:				
C1.203		Selected granular material	m <sup>3</sup>	2,200		
		<b>TOTAL SECTION C1: Carried to Summary</b>			R	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 C	<b>SECTION: C2</b> <b>DN 400 PVC PIPELINE</b>				
		<b>Excavation for DN 400 uPVC Pipeline</b>				
		<b>Site Clearance</b>				
C2.1	8.2.1 PSC 8.2.1	Clear and grub vegetation and trees including tree stumps up to 25m wide strip (Max. tree girth 1m)	m <sup>2</sup>	21,125		
	8.2.2	Remove and grub trees and tree stumps of girth				
		<b>Over and Up to</b>				
C2.2		1 m 2 m	No	1		
C2.3		2 m 3 m	No	1		
C2.4	PSC 8.2.11	Take down existing fence and reinstate (stock fence up to 1.8 m high)	m	50		
C2.5	PSC 8.2.10	Remove 150 mm thick layer of topsoil to stockpile and maintain	m <sup>3</sup>	3,169		
C2.6	1200 D 8.3.10 PSD 8.3.10	Topsoiling	m <sup>2</sup>	21,125		
C2.7	1200 A PSA 8.10	Temporary fencing where existing fencing has been taken down	m	200		
	1200 DB	<b>EARTHWORKS</b>				
		<b>Trench Excavation</b>				
	8.3.2 PSDB 8.3.2 PSDB 8.3.3	Excavate in all materials for trenches, backfill, compact and disposal of surplus material for:				
		Pipes of up to DN 400 mm for depths:				
		<b>Over and Up to</b>				
C2.8		0 m 2,0 m	m	770		
C2.9		2,0 m 3,0 m	m	75		
C2.10		3,0 m 4,0 m	m	0		Rate Only
C2.11		4,0 m 5,0 m	m	0		Rate Only
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C2.12	8.3.2 PSD 8.3.2	<b>Extra Over Item C2.8 - C2.11 Trench Excavations above:</b>  Hard rock excavation	m <sup>3</sup>	145		
C2.13		Blasting along pipeline	m <sup>3</sup>	145		
C2.14		Boulder excavation Class A	m <sup>3</sup>	30		
C2.15		Boulder excavation Class B	m <sup>3</sup>	30		
C2.16	8.3.2 PSDB 8.3.2	Hand excavation and backfill where ordered by the Engineer	m <sup>3</sup>	21		
C2.17		Backfill stabilised by 5% where ordered by the Engineer	m <sup>3</sup>	10		
C2.18		Soilcrete backfill where directed by the Engineer	m <sup>3</sup>	17		
	8.3.2 PSDB 8.3.2	<b>Extra-over to Item C2.8 - C2.11 Trench Excavations for restricted working width:</b>  Working width from 5 m up to 10 m:  <b>Over and Up to</b>				
C2.19		0 m 2,0 m	m	10		
C2.20		2,0 m 3,0 m	m	0		
C2.21		3,0 m 4,0 m	m	0		
C2.22		4,0 m 5,0 m	m	0		
	8.3.2 PSDB 8.3.2	Working width from 10 m up to 15 m:  <b>Over and Up to</b>				
C2.23		0 m 2,0 m	m	10		
C2.24		2,0 m 3,0 m	m	0		
C2.25		3,0 m 4,0 m	m	0		
C2.26		4,0 m 5,0 m	m	0		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		Working width from 15 m up to 25 m:				
		<b>Over and Up to</b>				
C2.27		0 m 2,0 m	m	770		
C2.28		2,0 m 3,0 m	m	75		
C2.29		3,0 m 4,0 m	m	0		
C2.30		4,0 m 5,0 m	m	0		
	1200 D 8.3.3 PSD 8.3.3	<b>Restricted excavation</b>				
C2.31		Chambers	m <sup>3</sup>	15		
	1200 LB 8.2.2.3 PSLB 8.2.2.3	<b>Bedding &amp; Blanket</b>				
		From commercial sources:				
C2.32		Selected granular material	m <sup>3</sup>	408		
C2.33		Selected fill material	m <sup>3</sup>	172		
		<b>Extra-over to Item C2.33 &amp; C2.34 Bedding and Blanket above:</b>				
C2.34	PSLB 8.2.6	Cement stabilisation at 5% by volume to fill material	m <sup>3</sup>	10		
	1200 A	<b>Miscellaneous</b>				
C2.35	PSA 8.10	Cross embankments	m <sup>3</sup>	285		
C2.36	PSA 8.10	Cross walls	m <sup>3</sup>	15		
C2.37	PSA 8.10	Concrete anchor blocks	m <sup>3</sup>	25		
C2.38	PSA 8.10	Grassing by means of hydroseeding	m <sup>2</sup>	200		
		<b>PIPELINES:</b>				
	SANS 1200 L 8.2.1	<b>Supply, lay, and bed on flexible bedding with couplings:</b>				
C2.39		DN 400, uPVC Class 12 pipe	m	860		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	8.2.2	<b>Extra-over for the above to supply lay and bed uPVC pipe, for suppling, laying, and bedding of DN 400 mm Class 12 uPVC specials complete with couplings</b>				
C2.40		11.25° Bends	No	1		
C2.41		22.5° Bends	No	1		
C2.42		45° Bends	No	2		
	PSL 8.2.11	<b>Anchor/thrust blocks and pedestals:</b>				
C2.43		Formwork: Rough	m <sup>2</sup>	20		
C2.44		15 MPa/19 mm Concrete	m <sup>3</sup>	5		
	1200 A	<b>Marker Posts and benchmarks</b>				
		Supply and install:				
C2.45	PSA 8.10	Route marker posts as per Dwg No 106777-0501-DRG-CC-0103	No	6		
C2.46	PSA 8.8.8	Marking of all pipeline structures	No	2		
		<b>Miscellaneous</b>				
C2.47	DWA 1110 20.19	Hydrostatic testing of complete pipeline	m	860		
		<b>PIPELINES: PIPEWORK SPECIALS AND VALVE CHAMBERS</b>				
		<b>Discharge outlet structure</b> Dwg 106777-0501-DRG-CC-0128				
	DWS 1130 10 DWS 1110 20.14.1 20.14.2	Supply, deliver, laying, bedding and jointing of fittings and pipe specials on main pipeline and within valve chambers complete with couplings and pipe supppts as scheduled. All steel pipework manufactured Grade X52 or S 355 JR steel unless otherwise stated and lined and coated as specified in DWS 9900 C7				
C2.48		DN 400 steel pipe, 4 mm wall thickness, plain ended, 850 mm long with puddle flange	No	1		
C2.49		DN 400 Restrained flanged adaptor	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>VALVE CHAMBERS</b>				
		<b>DN 400 Transition chamber</b> 106777-0501-DRG-CC-0127				Rate only
C2.50	DWS 1110 20.17	Construct transition chamber complete, 2500 mm mm high from bottom of foundation footing to top of roof, access manhole, air vents, step irons, etc. The rate shall include all materials, joints, shuttering, concrete, benching and wood-float finish to complete construction as per drawing	No	1		
C2.51		Extra-over for the above chamber to increase the height by 250mm	Sum	-		
C2.52	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 400 pipes	No	2		
		<b>DN 400 Discharge Chamber</b> 106777-0501-DRG-CC-0128				
C2.53	DWS 1110 20.17	Construct discharge chamber complete, 3400 mm high from bottom of foundation footing to top of roof, access manhole, air vents, stepping ladder etc. The rate shall include all materials, joints, shuttering, concrete and wood-float finish.	No	1		
C2.54		Extra-over for the above chamber to increase the height by 250mm	Sum	-		
C2.55	DWS 0750 15.8	Extra-over for the above chamber for casting in of DN 400 pipes	No	1		
C2.56	DWS 1110 20.17.2	Extra-over for the above per chamber for installing fibre glass grill	No	1		
		<b>TOTAL SECTION C2: Carried to Summary</b>			R	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 C	<b>SECTION: C3 PUMP STATION AND RESERVOIR: SITE LAYOUT AND CIVIL WORKS</b>				
		<b>Site Clearing</b>				
C3.1	8.2.1 PSC 8.2.1	Clear and grub areas of pump station and reservoir site, including internal access roads:	m <sup>2</sup>	15,900		
	8.2.2	Remove and grub large trees and tree stumps of girth:				
C3.2		Over 1,0 m and up to and including 2,0 m	No	10		
C3.3		Over 2,0 m and up to and including 3,0 m	No	2		
C3.4	PSC 8.2.11	Take down and re-erect existing fence	m	200		
C3.5	8.2.10 PSC 8.2.10	Remove topsoil to nominal depth of 150mm and stockpile	m <sup>3</sup>	2,900		
		<b>EARTHWORKS</b>				
	1200 D	<b>Bulk excavation:</b>				
C3.6	8.3.2 PSD 8.3.2	Excavate in all materials for reservoir platform and use or dispose of	m <sup>3</sup>	3,565		
C3.7		Excavate in all materials for pump station platform and use or dispose of	m <sup>3</sup>	6,610		
C3.8	1200 D PSD 8.3.14	Temporary stockpile of material	m <sup>3</sup>	8,216		
	8.3.9	<b>Extra over Items C3.6 &amp; 3.7: Bulk excavation. Backfill to structures, using approved cohesionless material from stockpile</b>				
C3.9		To reservoir	m <sup>3</sup>	2,963		
C3.10		To pump station	m <sup>3</sup>	3,884		
C3.11		To substation platform	m <sup>3</sup>	3,500		
C3.12	8.3.4	Import G7 material from pipeline stockpile, place and compact in not more than 150 mm layers	m <sup>3</sup>	8,020		
C3.13		Import G7 material from commercial sources, place and compact in not more than 150 mm layers	m <sup>3</sup>	8,020		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.14	8.3.2 PSD 8.3.2	<b>Extra-over Items C3.6 &amp; 3.7: Bulk excavation</b> Hard rock excavation by means of explosives	m³	6,700		
C3.15		Hard rock excavation without explosives (other methods)	m³	6,700		
	1200 D	<b>Restricted excavation:</b>				
	8.3.3 PSD 8.3.3	Excavate the for following in all materials and use or dispose:				
C3.16		Pump station footings	m³	40		
C3.17		Valve chambers and the like	m³	250		
C3.18		Stormwater culvert and headwalls	m³	15		
C3.19		Subsoil pipework	m³	75		
C3.20		Pipework between inspection chambers	m³	10		
C3.21		Inspection chambers	m³	5		
C3.22		Stormwater drainage pipework	m³	60		
C3.23		Reno mattress	m³	60		
C3.24		Stilling Basin complete with headwall	m³	15		
C3.25		Sewer outlet pipe, infiltration gallery and septic tank	m³	75		
C3.26		Cable conduits	m³	200		
C3.27		Potable water pipeline	m³	180		
	8.3.3 PSD 8.3.3	<b>Extra-over for restricted excavation</b>				
C3.28		Hand excavation in soft material	m³	50		
C3.29		Hand excavation in hard rock	m³	50		
C3.30		Hard rock excavation	m³	150		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.31	8.3.10 PSD 8.3.10	<b>Topsoiling (to 150mm deep) from stockpile for:</b>  Embankments and cut slopes	m <sup>3</sup>	50		
C3.32	8.3.11	Grassing of embankments by means of hydroseeding	m <sup>2</sup>	330		
C3.33	1200 D PSD 8.3.14 PSD 8.3.15	<b>Survey and protection of structures / buildings</b>  Survey of surrounding structures before blasting	Sum	-	-	
C3.34		Protection of structures / buildings / services	Sum	-	-	
C3.35	1200 G PSG 8.4.3	Class 15 MPa/19 mm mass concrete	m <sup>3</sup>	300		
C3.36	1201 G PSG 8.4.3	Class 25 MPa/19 mm mass concrete	m <sup>3</sup>	300		
C3.37	1202 G PSG 8.4.3	Class 25 MPa/19 mm reinforced concrete anchor blocks with 100 kg / m <sup>3</sup> steel	m <sup>3</sup>	150		
<b>LAYERWORKS</b> <b><u>Reservoir and Pump Station</u></b>						
C3.38	1200 DM  8.3.3 PSDM 8.3.3	<b>Treatment of roadbed</b>  Platform preparation and compaction of material to a minimum of 93% MOD AASHTO (or 100% for sand)	m <sup>3</sup>	300		
C3.39	1200 ME  8.3.3 PSME 8.3.3	<b>Subbase:</b>  Construct the subbase course using material from commercial sources.				
C3.39		300 mm G3 selected material below reservoir footing	m <sup>3</sup>	400		
C3.40		150 mm G5 selected material for pump station platform layerworks	m <sup>3</sup>	300		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	SANS 1200 MF	<b>Base</b>				
	8.3.3	Construct the base course using material from commercial sources (G5 stabilized to C4) to a thickness of:				
C3.41		150 mm G5 selected material to pump station platform compacted	m³	300		
	8.3.5	Process base material by:				
C3.42		(d) Stabilization	m³	300		
C3.43	8.3.8	Stabilizing using portland cement	t	30		
	1200 MK	<b>KERBING</b> <b><u>Reservoir and Pump Station</u></b>				
	8.2.1 PSMK 8.2.1	<b>Kerb Type: E1 (incl concrete bedding)</b>				
C3.44		Radius up to 4 m	m			
C3.45		Radius over 4 m up to 20 m	m	16		
C3.46		Radius over 20 m and straight sections	m	70		
	8.2.1 PSMK 8.2.1	<b>Kerb Type: CK5 (incl concrete bedding)</b>				
C3.47		Radius up to 4 m	m	10		
C3.48		Radius over 4 m up to 20 m	m	16		
C3.49		Radius over 20 m and straight sections	m	130		
	1200 MJ	<b>SEGMENTED PAVING</b> <b><u>Reservoir and Pump Station</u></b>				
	8.2.2 PSMK 8.2.2	Construction of paving complete on 20mm sand:				
C3.50		80 mm thick Type S-A blocks (45MPa) in herringbone pattern	m²	1800		
C3.51	8.2.3	Cutting units to fit edge restraints	m	300		
C3.52	8.2.4	Rolling to locked up condition as specified in Clause 5.6.2 and apply eco-binder	m²	1,800		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>PIPELINES</b>				
		<b>Trench Excavation</b>				
	8.3.2 PSDB 8.3.2 PSDB 8.3.3	Excavate in all materials for trenches, backfill, compact and disposal of surplus material for:  Pipes of up to DN 700 mm for depths:  <b>Over and Up to</b>				
C3.53		0 m 2,0 m	m	150		
C3.54		2,0 m 3,0 m	m	100		
C3.55		3,0 m 4,0 m	m	10		
	8.3.2 PSD 8.3.2	<b>Extra Over Trench Excavations above:</b>				
C3.56		Hard rock excavation	m <sup>3</sup>	450		
C3.57		Boulder excavation Class A	m <sup>3</sup>	45		
C3.58		Boulder excavation Class B	m <sup>3</sup>	45		
C3.59	8.3.2 PSDB 8.3.2	Hand excavation and backfill where ordered by the Engineer	m <sup>3</sup>	100		
C3.60		Backfill stabilised by 5% where ordered by the Engineer	m <sup>3</sup>	25		
		<b><u>Interconnecting Pipework</u></b>				
		<b>PVC pipes</b>				
	8.2.1 PSL 8.2.1	Supply, lay and bed on bedding for flexible uPVC pipes, complete with couplings (Class 34) :				
C3.61		110 mm dia	m	300		
C3.62		200 mm dia	m	50		
	8.2.2 PSL 8.2.2	Extra over for PVC pipes for supplying, laying and bedding of uPVC specials with couplings				
C3.63		90°, 110 mm dia bends (Class 34):	No	2		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.64		Additional fittings that may be required	Prov Sum	-	-	50,000.00
C3.65		Percentage adjustment on the item above for Contractor's overheads and profit (state % and extend as an amount)	%	R50,000.00		
		<b>HDPE pipes</b>				
	8.2.1 PSL 8.2.1	Supply, lay and bed on bedding for HDPE PE 100 pipe				
C3.66		DN 710 pipe, PN 6 (butt-welded)	m	150		
C3.67		DN 630 pipe, PN 6 (butt-welded)	m	60		
C3.68		DN 75 pipe, PN 16 (butt-welded)	m	250		
	8.2.2 PSL 8.2.2	Extra over for HDPE pipes for supplying, laying and bedding of HDPE specials with couplings				
C3.69		DN 710 HDPE stub with SS 304 backing ring (PN 6)	No	1		
C3.70		DN 710 HDPE stub with SS 304 backing ring (PN 10)	No	1		
C3.71		DN 630 HDPE stub with SS 304 backing ring (PN 6)	No	2		
C3.72		45° DN 710 bends (PN 6)	No	2		
C3.73		90° DN 75 bends (PN 16)	No	2		
	SANS 1200 LE	<b>Supply and install subsurface drains complete:</b>				
C3.74	PSLE 8.2.14	110mm dia uPVC subsoil drain complete around the pump station structure as per Dwg No. 106777-CC-0209 including 4 x 90 deg bends	m	110		
C3.75	PSLE 8.2.15	110mm dia uPVC rodding eye with cap for subsoil pipes, complete with mass concrete for the above subsoils	No	4		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>Steel pipes</b>				
	DWS 1130 10 DWS 1110 20.14.1 20.14.2	Supply, lay and bed steel pipes and specials complete with couplings for the following items manufactured from Grade X52 steel, including lining and coating in accordance with DWS 9900 C7:				
C3.76		DN 600, 6.0 mm wall thickness, connected with Style W77 Vitaulic couplings and one pipe end flanged, PN 10	m	36		
C3.77		DN 600, 45 degree long radius bends connected with Style W77 Vitaulic couplings, PN 10	No	2		
		<b>Cable Conduits</b>				
	1200 LC	Supply, lay, bed and test duct (including draw wire)				
C3.78	8.2.5	32 mm HDPE Fibre optic conduit	m	180		
C3.79		160 mm uPVC conduit	m	250		
C3.80	8.2.7	Fibre optic telebox	No	7		
	1200 LB	<b>Bedding &amp; Blanket</b>				
	8.2.2.3 PSLB 8.2.2.3	From commercial sources:				
		Selected granular material				
C3.81		110 mm dia uPVC	m <sup>3</sup>	56		
C3.82		200 mm dia uPVC	m <sup>3</sup>	15		
C3.83		DN 710 HDPE	m <sup>3</sup>	37		
C3.84		DN 630 HDPE	m <sup>3</sup>	42		
C3.85		DN 600 steel	m <sup>3</sup>	25		
C3.86		DN 700 steel	m <sup>3</sup>	206		
		Selected fill material				
C3.87		110 mm dia uPVC	m <sup>3</sup>	38		
C3.88		200 mm dia uPVC	m <sup>3</sup>	8		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.89		DN 710 HDPE	m <sup>3</sup>	13		
C3.90		DN 630 HDPE	m <sup>3</sup>	15		
C3.91		DN 600 steel	m <sup>3</sup>	9		
C3.92		DN 700 steel	m <sup>3</sup>	69		
		<b>Extra-over to Bedding and Blanket above:</b>				
C3.93	PSLB 8.2.6	Cement stabilisation at 5% by volume to fill material	m <sup>3</sup>	200		
	PSLB 8.2.7	<b>Provision of stone/geofabric to deal with water:</b>				
C3.94		Geotextile (A2 Bidim)	m <sup>2</sup>	100		
C3.95		Crushed stone	m <sup>3</sup>	20		
C3.96	8.2.5 PSLB 8.2.5	Encasing of pipe in Grade 20/19 concrete	m <sup>3</sup>	70		
		<b>STORMWATER STRUCTURES</b>				
	1200 DK	<b>Gabions and Reno Mattresses</b>				
	8.2.2 PSDK 8.2.2	Gabions of galvanised wire, 80 mm x 100 mm mesh, 2.7 mm dia wire:				
C3.97		3.0 m x 1.0 m, 0.5 m	m <sup>3</sup>	20		
C3.98		3.0 m x 1.0 m x 1.0 m	m <sup>3</sup>	20		
C3.99		2.0 m x 1.0 m x 1.0 m	m <sup>3</sup>	20		
	8.2.2 PSDK 8.2.2	Reno mattresses				
C3.100		2.0 m x 1.0 m 0.3 m	m <sup>3</sup>	100		
	8.2.4	Geotextile				
C3.101		Geotextile (A2 Bidim)	m <sup>2</sup>	400		
	1200 A	Extra over for Gabions and Reno Mattresses				
C3.102	PSA 8.10	Tie reno mattress into concrete with Y16 eye bolts	No	20		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	SANS 1200 LE	<b>Stormwater concrete structures</b>				
C3.103	8.2.5	Inspection concrete chamber	No	4		
C3.104	8.2.5	Stormwater concrete headwall complete for up to 375 mm dia pipe, 20/19 MPa	No	2		
C3.105	1200 A PSA 8.10	Stilling basin complete as per Dwg No. 106777-CC-212	No	1		
C3.106		Culvert complete as per Dwg No. 106777-CC-213	No	1		
	1200 A PSA 8.10 PSA 8.5.1	<b>Potable water network</b>				
C3.107		HDPE pipework plumbing outside of pump station	Prov Sum	-	-	50,000.00
C3.108		Percentage adjustment on the item above for Contractor's overheads and profit (state % and extend as an amount)	%	R50,000.00		
C3.109		Potable water DN 75 Class 16 valve chamber	Prov Sum	-	-	50,000.00
C3.110		Percentage adjustment on the item above for Contractor's overheads and profit (state % and extend as an amount)	%	R50,000.00		
C3.111		Fire Hydrant below ground	Prov Sum	-	-	20,000.00
C3.112		Percentage adjustment on the item above for Contractor's overheads and profit (state % and extend as an amount)	%	R20,000.00		
		<b>FENCING</b>				
C3.113	PF 10.1	Anti-intruder fence, 2.4m high, as detailed on Dwg 106777-CC-230	m	500		
C3.114		Double leaf manually operated vehicle entrance gate as per Dwg 110585-CC-231	No	1		
	1200 A	<b>MISCELLANEOUS</b>				
C3.115	PSA 8.10	Additional excavation to facilitate drainage where ordered by the engineer	m³	100		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.116		Connect to existing pipework (DN 710 HDPE PE100)	No	1		
C3.117		Connect to existing potable water pipework (DN 75 Class 16) including adaptor to connect PVC to HDPE	No	1		
C3.118		Septic tank to infiltration gallery including connection pipework and fittings	Sum	-	-	R10,000.00
		<b>PIPEWORK SPECIALS AND VALVE CHAMBERS</b>				
	DWS 1130 10 DWS 1110 20.14.1 20.14.2	Supply, deliver, laying, bedding and jointing of fittings and pipe specials on main pipeline and within valve chambers complete with couplings and pipe supports as scheduled. All steel pipework manufactured Grade X52 or S 355 JR steel unless otherwise stated and lined and coated as specified in DWS 9900 C7				
		<b>Reservoir: Scour and Overflow</b> PN 10: Dwg 106777-CC-0221				
C3.119		DN 250 SS 316 puddle pipe, flanged, 900 mm F/F	No	1		
C3.120		DN 600 SS 316 puddle pipe, flanged one end, 900 mm F/F	No	1		
C3.121		DN 250 SS316 pipe with 90 degree bend one end; flanged; 532mm C/F & 1212mm C/F	No	1		
C3.122		DN 600 SS 316 straight pipe, flanged, 700 mm F/F	No	1		
C3.123		DN 250 SS 316 straight pipe, flanged, 700 mm F/F	No	1		
C3.124		DN 250 SS 316 elbow, flanged one end	No	1		
C3.125		DN 600 restrained flange adaptor	No	1		
		<b>Reservoir: Inlet / Outlet</b> PN 10: Dwg 106777-CC-0220				
C3.126		DN 600 SS 316 puddle pipe, flanged, 1000 mm F/F	No	2		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.127		DN 600 SS 316 pipe, flanged one end, 500 mm F/F	No	2		
C3.128		DN 600 SS 316 puddle pipe, flanged one end, 900 mm F/F	No	2		
C3.129		DN 600 restrained flange adaptor	No	2		
		<b>VALVES</b>				
	DWS 2510 6 DWS 1110 20.15-A	Supply, deliver, lay, install and test valves complete as scheduled and shown on drawings. All valves shall be coated in accordance with DWS 9900 C7				
		<b>Reservoir: Inlet / Outlet</b> PN 10: Dwg 106777-CC-0220				
C3.130		DN 600 flanged butterfly valve	No	2		
		<b>Reservoir: Scour and Overflow</b> PN 10: Dwg 106777-CC-0221				
C3.131		DN 250 flanged flanged wedge gate valve supplied with handwheel	No	1		
		<b>VALVE CHAMBERS</b>				
		<b>Reservoir: Inlet / Outlet</b> Dwg 106777-CC-0220				
C3.132	DWS 1110 20.17	Construct chambers complete, 3250 mm high from bottom of foundation footing to top of roof, with 130 kg/m <sup>3</sup> reinforcing where applicable, access manhole, air vents, ladder, etc. The rate shall include all joints, shuttering and wood-float finish	No	2		
C3.133		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C3.134	DWS 0750 15.8	Extra-over for the above per chamber for casting in of DN 600 pipes	No	4		
		<b>Reservoir: Scour and Overflow</b> Dwg 106777-CC-0221				
C3.135	DWS 1110 20.17	Construct chamber complete, 3750 mm high from bottom of foundation footing to top of roof, with 130 kg/m <sup>3</sup> reinforcing where applicable, access manhole, air vents, ladder, etc. The rate shall include all joints, shuttering and wood-float finish	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C3.136		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C3.137	DWS 0750 15.8	Extra-over for the above per chamber for casting in of DN 600 pipes	No	2		
C3.138	DWS 0750 15.8	Extra-over for the above per chamber for casting in of DN 250 pipes	No	2		
		<b>Reservoir: Draw Access Pit</b> Dwg 106777-CC-0240				
C3.139	DWS 1110 20.17	Construct chambers complete, 3000 mm high from bottom of foundation footing to top of roof, with 130 kg/m³ reinforcing where applicable, access manhole, air vents, ladder, etc. The rate shall include all joints, shuttering and wood-float finish	No	3		
C3.140		Extra-over for the above per chamber to increase the height by 250mm	Sum	-		Rate only
C3.141	DWS 0750 15.8	Extra-over for the above per chamber for casting in of DN 160 pipes	No	15		
		<b>TOTAL SECTION C3:</b> <b>Carried to Summary</b>			R	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION: C4 PUMP STATION</b>				
	SANS 1200 D	<b>EARTHWORKS</b>				
	8.3.3 PSD 8.3.3	<b>Restricted excavation:</b>  Excavate in all materials and use for embankment or backfill or dispose, up to 1 m deep, as ordered:				
C4.1		For structure, from platform level established by bulk excavation, if applicable	m <sup>3</sup>	36		
C4.2		Extra over restricted excavations item C4.1 for hard rock excavation (without explosives)	m <sup>3</sup>	18		
C4.3		Extra over restricted excavations item C4.1 for hand excavations	m <sup>3</sup>	36		
	8.3.4 PSD 8.3.4	<b>Importing of material:</b>  Sand filling compacted to 100% of modified AASHTO density:				
C4.4		Under false floor surface beds (between channel brick walls, plinths, etc. in confined spaces)	m <sup>3</sup>	203		
C4.5		In cable trenches (after installation of cables)	m <sup>3</sup>	11		
	1200 A	<b>Testing:</b>				
C4.6	PSA 8.5	Provision for additional tests as ordered by the engineer	Sum	1	10,000.00	10,000.00
	DWS 0750	<b>WATER RETAINING CONCRETE</b>				
	15.3	<b>Scheduled formwork items:</b>				
	15.3	<b>Rough:</b>  Plane vertical to:				
C4.7		Sides of bases and floor slabs	m <sup>2</sup>	95		
C4.8		Sides of drain trench walls	m <sup>2</sup>	6		
C4.9		Sides of beams	m <sup>2</sup>	33		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	15.3	<b>Smooth (off-form):</b>				
		Plane vertical to:				
C4.10		Walls, including integrated columns	m <sup>2</sup>	726		
C4.11		Sides of drain trench walls	m <sup>2</sup>	50		
C4.12		Sides of columns	m <sup>2</sup>	460		
C4.13		Two sides of attached columns	m <sup>2</sup>	7		
C4.14		Three sides of attached columns	m <sup>2</sup>	51		
C4.15		Sides of plinths	m <sup>2</sup>	80		
C4.16		Sides of beams, crane beams and ring beams	m <sup>2</sup>	360		
C4.17		Sides of 300 mm dia columns (1,2 m high)	m <sup>2</sup>	5		
C4.18		Sides of upstand beams (100 mm - 300 mm high)	m <sup>2</sup>	4		
C4.19		Slab edges 300 mm high	m <sup>2</sup>	17		
C4.20		Slab edges 250 mm to 350 mm high	m <sup>2</sup>	18		
		Plane horizontal to:				
		Soffits of slabs for prop heights of:				
C4.21		Below 3m and up to and including 3m high	m <sup>2</sup>	478		
C4.22		Over 3 m and up to and including 5 m high	m <sup>2</sup>	644		
		Soffits of beams for prop heights of:				
C4.23		Up to 5,0 m	m <sup>2</sup>	117		
C4.24		Over 5 m and up to and including 9 m high	m <sup>2</sup>	64		
	15.3	<b>Narrow widths (up to 300 mm wide):</b>				
C4.25		Up to 100 mm	m	26		
C4.26		Over 100 mm and up to 200 mm	m	340		
C4.27		Over 200 mm and up to 300 mm	m	206		
C4.28		15 x 15 mm drip groove in soffit of slabs	m	36		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.29	15.4	<b>Box out holes/form voids:</b>  Square - 300 mm x 300 mm in 300 mm thick concrete	No	2		
C4.30		Circular - 500mm diameter in 300mm thick concrete	No	2		
C4.31		Square - 900mm x 900mm in 300 mm thick concrete	No	1		
C4.32		Square - 1,4 m x 2,7 m in 300 mm thick concrete	No	1		
C4.33		Circular - 0mm - 200mm sleeves in 300mm thick concrete	No	30		
	15.2	<b>Scheduled reinforcement items:</b>  Mild steel bars:				
C4.34		8 mm dia	t	4		
C4.35		10 mm dia	t	4		
		High-tensile steel bars:				
C4.36		10 mm dia	t	13		
C4.37		12 mm dia	t	20		
C4.38		16 mm dia	t	23		
C4.39		20 mm dia	t	33		
C4.40		25 mm dia	t	32		
C4.41		32 mm dia	t	6		
		High tensile mesh in the following:				
C4.42		Ref No 395 in surface beds and slabs	kg	3,367		
		<b>Scheduled concrete items:</b>				
	15.15	<b>Blinding layer:</b>  Grade 15 MPa/19 mm concrete to:				
C4.43		50 mm thick in blinding	m <sup>2</sup>	853		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	15.1	<b>Watertight concrete:</b>				
		Grade 15 MPa/19 mm concrete to:				
C4.44		Benching, including sloped finish	m <sup>3</sup>	8		
C4.45		blinding layer at 50mm thick	m <sup>2</sup>	570		
		Grade 35 MPa/19 mm watertight concrete to:				
C4.46		Column bases	m <sup>3</sup>	36		
C4.47		Trench floors and walls	m <sup>3</sup>	2		
C4.48		Floor slabs	m <sup>3</sup>	390		
C4.49		Jockey floor slab, including thickenings	m <sup>3</sup>	12		
C4.50		False floor surface beds to 1% slope	m <sup>3</sup>	118		
C4.51		Columns	m <sup>3</sup>	58		
C4.52		Walls, including integrated columns	m <sup>3</sup>	123		
C4.53		Slabs	m <sup>3</sup>	129		
C4.54		Beams	m <sup>3</sup>	51		
C4.55		Crane and ring beams	m <sup>3</sup>	26		
C4.56		Upstand beams	m <sup>3</sup>	2		
C4.57		Plinths	m <sup>3</sup>	42		
C4.58		Ramps	m <sup>3</sup>	4		
C4.59		Sump	m <sup>3</sup>	6		
	15.5	<b>Unformed surface finishes:</b>				
		Wood-floated finishes to:				
C4.60		Horizontal surfaces	m <sup>2</sup>	155		
C4.61		Horizontal surfaces to falls	m <sup>2</sup>	14		
		Steel- or power-floated finishes to:				
C4.62		Horizontal surfaces (floors, slabs, plinths, beams, columns, etc.)	m <sup>2</sup>	1,371		
C4.63		Horizontal surfaces to falls	m <sup>2</sup>	717		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	15.9	<b>Joints:</b>  Isolation joints as detailed on the drawings:				
C4.64		10 mm Jointex between vertical or horizontal concrete surface and brickwork, 230 mm wide	m	629		
		Construction joints as per detail:				
C4.65		Vertical construction joint in concrete walls 300mm wide as per detail type A on on drawing ST-0350	m	26		
C4.66		Horizontal construction joint in concrete foors 400 mm thick as per detail type A on on drawing ST-0350	m	96		
		Sawn joints:				
C4.67		4 mm x 40 mm saw-cut joint	m	36		
		Sealing of joints with two part polysulphide "Sondor Thioflex 600" sealant including backing cord etc.:				
C4.68		4 mm x 10 mm in saw joints	m	36		
C4.69		10 x 10 mm in isolation joints	m	1,257		
C4.70	15.13	Allowance for application of expansion/movement joint bridging flexible waterstop	m	20		
C4.71	15.14	Allowance for application of an expansive watertight seal in a construction joint	m	20		
	15.6	<b>Manufacture (or supply) and erect precast elements for small units not exceeding 0,5 m³ of formed concrete:</b>  The following types and sizes:				
C4.72		35 MPa cover slabs, size 1 400 mm x 1 350 mm x 250 mm thick with 100 kg/m³ reinforcing and recessed lifting lugs	No	2		
	15.10	<b>Grouting:</b>				
C4.73		Under base plates	m³	0.5		
C4.74		In walls	m³	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.75	15.8	<b>Casting items in concrete:</b>  Up to 300 mm nominal bore in up to 300 mm thick concrete	No	2		
C4.76		Over 300 mm up to 600 mm nominal bore in up to 300 mm thick concrete	No	2		
C4.77	15.11	<b>Subsoil drainage:</b>  Subsoil drainage - 450x450mm subsoil drain with 110 diameter perforated pipe (uPVC) core drain and 19mm clean stone wrapped in grade 3 geotextile.	m	130		
C4.78		Kaytech wick drain GPW 100 to perimeter of structure at 1m centers.	m	460		
C4.79	PSH 8.3 PSH 8.3.14	<b>Supply, fabrication, delivery and erection of steelwork:</b>  Hot-dipped galvanized steel as per drawings, including erection bolts:  Roof structure: Hot-rolled sections	t	9.86		
C4.80		Cold-rolled sections	t	6.16		
C4.81		Crane walkway: Hot-rolled sections	t	1.27		
C4.82		Posts for Armco barriers: Hot-rolled sections	t	0.55		
C4.83		Staircases complete with stair treads and handrailing: Staircase 1,0 m wide x 2,4 m high comprising thirteen Vitagrid 40 x 4,5 x 1 000x 245 stair treads, 700 mm long platform at top, PC 180 x 70 stair stringers, baseplates and tubular handrailing	No	4		
C4.84		Staircase 1,0 m wide x 2,4 m high comprising thirteen Vitagrid 40 x 4,5 x 1 000x 245 stair treads, 1400 mm long platform at top, PC 180 x 70 stair stringers, baseplates and tubular handrailing	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.85	8.3.6	Holding-down (HD) bolts: M20 Hilti Hit HY 200, 300 mm long HDG	No	72		
C4.86		M20 Hilti Hit HY 200, 200 mm long HDG	No	20		
C4.87		M16 chemical anchors 150 mm long	No	20		
C4.88		M16 chemical anchors 250 mm long	No	24		
C4.89		M24 chemical anchors 300 mm long	No	36		
	SANS 1200 HA	<b>STRUCTURAL STEELWORK (SUNDRY ITEMS)</b>				
	8.3 PSHA 8.3 8.3.2	Handrails, including erection:  Galvanized steel industrial tubular handrails 1 000 mm high as per drawings:				
C4.90		Handrail assembly complete to crane walkway	m	13		
C4.91		Rails only (hand and knee rails measured)	m	74		
C4.92		Stanchions only	No	38		
C4.93		Closed ends	No	10		
C4.94		Corners/bends	No	18		
C4.95		Knees	No	10		
C4.96		HD bolts, nuts and washers for each stanchion (fixed to concrete)	No	38		
	8.3.4	Flooring, complete and installed with frames:				
C4.97		Rectagrid RS40 HDG grating, with 40 x 4,5 mm bars in both directions, banded (fixed to steel beams)	m <sup>2</sup>	12		
		Flooring, complete and installed (frames measured separately):				
		Open grid floors, hot-dipped galvanized:				
C4.98		Rectagrid RS 40 or equal approved bonded gratings with 40 mm x 4,5 mm bearing bars, in suitable panel sizes(drain channels)	m <sup>2</sup>	29		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.99		Rectagrid RS40 or equal approved bonded gratings with 60 mm x 6 mm bearing bars, in suitable panels	m <sup>2</sup>	6		
C4.100		Frames and supports for banded grid flooring (hot-dipped galvanized):  45 mm x 45 mm x 5 mm angle sections with 30 x 5 x 150 mm long fishtail lugs welded at 500 mm centres and with 40mm x 5 mm flat section welded on along length, cast into concrete, etc. as shown on the drawings	m	215		
C4.101		70 mm x 70 mm x 8 mm angle sections with 30 x 5 x 150 mm long fishtail lugs welded at 500 mm centres and with 40mm x 5 mm flat section welded on along length, cast into concrete, etc. as shown on the drawings	m	23		
	SANS 1200 MM	<b>GUARDRAILS</b>				
	8.2.1	Guardrails on structural steel (structural steel measured elsewhere):				
C4.102		Galvanized (Armco)	m	30		
		End units:				
C4.103	8.2.3	End wings to 300 mm radius (Armco)	No	24		
	1200 HB 8.2.2 PSHB 8.2.2	<b>CLADDING AND SHEETING</b>  <b>Supply and install cladding and sheeting:</b>  0,53 mm thick Global Roofing "Klip-tite 700" profile Clean Colorbond Ultra (AZ200) heavy industrial grade G550 sheeting with "Garden Route Green" finish to one side (with 5-year guarantee):				
C4.104		Roof coverings with pitches not exceeding 25° fixed to steel purlins	m <sup>2</sup>	615		
C4.105		Roof covering for bullnose at eaves. Bullnose to have a radius of 450mm	m <sup>2</sup>	86		
C4.106		Side cladding fixed to steel girts	m <sup>2</sup>	130		
C4.107		Translucent sheeting. Global Roofing "SUNTUF Bronze 25%"	m <sup>2</sup>	120		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.108	8.2.3 PSHB 8.2.3	Extra over for "Alucushion" white polyethylene-coated roof insulation with aluminium foil to one side Code (2906), including white PVC-coated straining wire spaced at 383 mm centres:  4 mm thick insulation laid taut over purlins or grids and fixed concurrent with roof covering and cladding overlapped longitudinally by 100 mm	m²	480		
		<b>Supply and install ancillaries:</b>  0,53 mm thick Clean Colourbond Ultra AZ200 sheeting with "Garden Route Green" finish to match roof sheeting and side cladding:				
C4.109		Ridge flashing	m	43		
C4.110		External corner trim	m	14		
C4.111		Gable or barge flashing	m	31		
C4.112		Gable or barge flashing curved to suit bull nose	m	3		
C4.113		Drip flashing	m	113		
C4.114		Serrated closers	m	86		
C4.115		Polyclosers	m	86		
C4.116		Ridge roof ventilator powder-coated to match roof sheeting, 2 m long with 500 mm wide throat, manual closure, stainless steel 316 mesh bird screen, closed ends and all flashings to seal watertight to roofing	No	4		
	PD 11	<b>BUILDING WORK</b>				
	11.01	<b>Brickwork:</b>  Brick walls in Corobrick NFX 14 MPa non-facing bricks:				
C4.117		230 mm thick drain and cable trench walls	m²	86		
		Brick walls in Corobrick "Tokai Red" rustic FBX facebricks:				
C4.118		230 mm thick walls	m²	580		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.119		280 mm thick walls	m <sup>2</sup>	825		
C4.120		Facebrick piers	m <sup>3</sup>	5		
		Brick walls in Corobrick "Corojem Red" travertine FBX facebricks:				
C4.121		230 mm thick walls	m <sup>2</sup>	580		Rate Only
C4.122		280 mm thick walls	m <sup>2</sup>	825		Rate Only
C4.123		Facebrick piers	m <sup>3</sup>	5		Rate Only
	11.02	<b>Plasterwork:</b>				
		15 mm thick, steel-float finish to:				
C4.124		Brick walls in drain trenches	m <sup>2</sup>	68		
	11.03	<b>Floor or roof screeds:</b>				
C4.125		100 mm thick screeds in top of cable trenches	m <sup>2</sup>	38		
	11.04	<b>Waterproofing:</b>				
C4.126		250 micron USB green waterproof sheeting, lapped with Brickgrip DPC and sealed with pressure-sensitive tape under surface beds	m <sup>2</sup>	59		
C4.127		375 micron Brikgrip damp-proof layer in walls	m <sup>2</sup>	30		
C4.128		One coat primer and one coat Sika Cemflex with waterproofing membrane as per manufacturer's specifications in drain trenches	m <sup>2</sup>	97		
C4.129		4 mm thick "Derbit SP-FR" fully bonded torch-on waterproofing system on concrete roofs with a ten-year guarantee	m <sup>2</sup>	271		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	11.05	<b>Doors and windows:</b>  <b>Refer to Drawing 106777-0502-DRG-CC-0333 for window and door schedules:</b>  Roller shutter door by "Serranda" or similar approved, galvanized steel 1 mm thick solid slatted roller shutter doors with epoxy powder coat finish (olive green colour) including all necessary ironmongery, channel sections guides, canopy, T-bar, EPDM rubber weather seal (motorised with manual crankable override, anti-fall back safety brake and up/down switch control box):				
C4.130		Roller shutter door size 5 000 mm x 4 500 mm high complete (D1, D2)	No	2		
		Class D fire doors by "Bitcon Industries" or similar approved, finished with 2 coats of olive green colour enamel paint, including including all necessary ironmongery.				
C4.131		Double door size 1830 mm x 2 440 mm high (D6)	No	1		
C4.132		Single door size 900 mm x 2 032 mm high (D7, D8, D11, D12)	No	4		
		Purpose-made natural anodized aluminium door and frame with 6,38 mm clear laminated safety glass, , including including all necessary ironmongery.				
C4.133		Single door with half door panel size 1 200 mm x 2 400 mm (D9)	No	1		
	PS 6.01	Security interlock system doors, type TDL or similar approved with epoxy finish (olive green colour) and 3CR12 door frames as per manufacturer's detail, including all necessary ironmongery:				
C4.134		Single door size 900 mm x 2 100 mm high (D3)	No	1		
C4.135		Double door size 1 830 mm x 2 440 mm high (D4)	No	1		
C4.136		Double door size 1 830 mm x 3 500 mm high (D5)	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.137		Galvanized mild-steel security fencing, gates and frames formed of steel profiles with 2 coats of enamel paint (olive green colour), complete with all heavy-duty ironmongery, security locking system, frames, etc. as shown on drawing 106777-0502-DRG-CC-0334:  Fence panel with single gate to suit opening 1 500 mm x 4 850 mm with gate size 1 000 mm x 2 100 mm high (SG3)	No	1		
C4.138		Double gate to suit opening size 3 100 x 4 300 mm high (SG1, SG2)	No	2		
C4.139		Purpose-made natural anodised aluminium louvres complete with frame for 230 mm wall, insect screen, etc. for opening size 400 mm x 400 mm  Purpose-made natural anodized aluminium window shopfront with 6,38 mm clear laminated safety glass:	No	4		
C4.140		Window fronpfront size 3 660 mm x 3 200 mm high and 1200 mm x 800 mm, fixed panels (W1)	No	1		
C4.141		Window fronpfront size 1 240 mm x 3 200 mm high, fixed panels (W2)	No	1		
	11.08	<b>Joinery:</b>  Items measured by number:				
C4.142		Single door 813 mm x 2 032 mm solid Swartland hardwood panel door with 86 mm x 53 mm hardwood frame, including all neccesary ironmongery and sealant (D10)	No	1		
	11.10	<b>Plumbing and drainage, complete with taps, seats, traps, connections, etc. (refer to materials specifications):</b>				
C4.143		"Vaal Tuscany" water closet and cistern	No	1		
C4.144		"Vaal Tuscany" wall-mounted basin	No	1		
C4.145		"Latis LA-951" single-lever basin mixer	No	1		
C4.146		Fire hose reel with 30 m hose complete with nozzle, shut-off valve, pipework, etc.	No	3		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.147	11.11	100 mm diameter cast iron full bore roof outlet, including SSN coupling to uPVC pipe	No	5		
C4.148		110 mm diameter heavy-duty uPVC rainwater downpipes cast into concrete columns	m	23		
C4.149		Extra over 110 mm uPVC downpipe for bend or elbow	No	10		
C4.150		Waste pipework for 2 sanitary fittings or points, including all bends etc., up to and including gulley or in ground up to 1 m from building, including all stub-stacks, two-way vent valves, etc.	Sum	1		
C4.151		Cold water pipework reticulation built into walls from 1 m outside building to 2 sanitary fittings or water points, including all bends, etc.	Sum	1		
C4.152		Fire water pipework reticulation to 3 fire hose reels, including all bends, etc. (from connection point on outside of external wall up to fire hose reel)	Sum	1		
	11.12	<b>Painting:</b>  "Sikafloor 263 ZA" broad cast system trowel applied to a 4 mm thickness on primer with base layer, including casting into panels and installing 1,5 mm x 9 mm natural anodised aluminium strips with necessary sealant in joints, all in accordance with the manufacturer's specifications applied by an approved applicator inclusive of "SIKA" supervision, guarantee, etc. (type 1 floor finish):				
C4.153		On floors and plinths	m²	1,205		
		One coat wood primer and three coats exterior gloss wood sealant (clear):				
C4.154		Timber doors and frames	m²	4		
	11.12	<b>Miscellaneous items:</b>  <b>Items measured by number:</b>				
C4.155		30 mm x 1,2 mm strap 800 mm long with one end fixed to concrete with two Hilti HPS-1 6/5 anchors per strap and other end built into brickwork	No	2,590		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.156		110 mm diameter x 300 mm long uPVC sleeve cast into concrete slab	No	77		
C4.157		Coring through slabs 150 mm diameter x 300 mm deep	No	2		
C4.158		345 mm x 345 mm precast concrete pyramid-shaped coping on top of buck pier	No	7		
C4.159		5 kg CO <sub>2</sub> fire extinguisher	No	1		
C4.160		9 kg DCP fire extinguisher	No	2		
		Standard photo luminescent safety signs:				
C4.161		Code F4, 190 mm high fixed to walls	No	3		
C4.162		Code F6, 190 mm high fixed to walkway	No	3		
C4.163		Code F45, 190 mm high fixed above doors	No	2		
C4.164		Code E2, 190 mm high fixed to walls	No	2		
C4.165		Code E2, 190 mm high fixed to walkway	No	2		
		Sanitary accessories:				
C4.166		Cobra AC-0905-100 toilet roll holder	No	1		
C4.167		"KIMBERLY-CLARK" Aquarius Regular Reflex Paper Dispenser (code PRD-6959000) or similar approved, wheel suitable for 300 m paper roll (colour: white)	No	1		
C4.168		"KIMBERLY-CLARK" Aquarius Wall Bin (code: WBP-6993000-1) or similar approved, 43 litre plastic, surface-mounted wall bin (colour: white)	No	1		
C4.169		4 mm thick glass mirror size 450 mm x 600 mm high, plugged to walls	No	1		
		Office furniture:				
C4.170		"Workstation" Slimline 1 800 x 900 mm desk with 1 200 x 600 mm credenza L combination, including vanity front board or similar approved. Vancouver Maple melamine 50 x 2 mm top and 100 x 100 mm designer leg in black	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C4.171		Vancouver Maple melamine 1 500 x 800 x 450 mm 4-tier bookcase by "Workstation" or similar approved	No	1		
C4.172		Barrier mid back chairs, black colour by "Workstation" or similar approved	No	1		
C4.173		Barrier visitor chairs, black colour by "Workstation" or similar approved	No	2		
		<b>Items measured by area:</b>				
		Ant poison, aldrin emulsifiable concentrates solution to SANS 618 spread at a rate recommended by the manufacturer:				
C4.174		Under jockey floor slab	m <sup>2</sup>	49		
C4.175		200 mm x 200 mm white ceramic glazed wall tiles in splash backs	m <sup>2</sup>	1		
		<b>TOTAL SECTION C4</b>				
		<b>Carried to Summary</b>			R	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200	<b>SECTION: C5</b>				
		<b>5MI RESERVOIR</b>				
	DWS 0750	<b>WATER RETAINING CONCRETE</b>				
	15.3	<b>SCHEDULED FORMWORK ITEMS</b>				
	15.3	<b>Rough:</b>				
		Vertical formwork to:				
C5.1		External face of reservoir footing, circular in plan, with radius 18,700 m	m <sup>2</sup>	50		
C5.2		Vertical faces to mass concrete encasements under reservoir floor and footing	m <sup>2</sup>	120		
C5.3		Reservoir outlet sump walls, external face	m <sup>2</sup>	16		
C5.4		Sides of subsurface drain trenches due to overbreak	m <sup>2</sup>	180		
	15.3	<b>Smooth (off-form):</b>				
		Vertical formwork to:				
C5.5		Reservoir column footings, square in plan 250 mm high	m <sup>2</sup>	36		
C5.6		Access opening in slab, 420 mm high	m <sup>2</sup>	5		
C5.7		Reservoir columns 350mm dia	m <sup>2</sup>	135		
C5.8		Reservoir wall, internal face, circular in plan with radius 18,000 m	m <sup>2</sup>	620		
C5.9		Reservoir wall, external face, circular in plan with radius 18,300 m	m <sup>2</sup>	630		
C5.10		Reservoir roof, external face of slab, 250mm high, circular in plan with radius 18,300 m	m <sup>2</sup>	30		
C5.11		Reservoir column heads, square in plan 400 mm high	m <sup>2</sup>	45		
C5.12		Reservoir outlet sump walls, internal face	m <sup>2</sup>	11		
		Horizontal formwork to:				
C5.13		Reservoir roof soffit (with 120mm fall from centre to perimeter)	m <sup>2</sup>	1,020		
C5.14		Reservoir column head soffits	m <sup>2</sup>	32		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	15.3	<b>Narrow widths (up to 300mm wide):</b>				
		Vertical smooth formwork to:				
C5.15		Floor joint, circular in plan, 150 mm high, with radius 10,100 m	m	65		
C5.16		Floor joint, circular in plan, 150 mm high, with radius 16,900 m	m	110		
C5.17		Floor joint, 150 mm high	m	185		
C5.18		Vertical faces to upstand around access opening, 170 mm high	m	15		
C5.19		Vertical faces to upstand around ultrasonic probe opening, circular in plan, 100 mm high	m	2		
C5.20		Vertical faces to roof downstand nib, 150mm high as per Detail 03 on Dwg. No. 106777-0503-DRG-ST-0402	m	5		
C5.21		Vertical faces to divider strip under floor slab, 100mm high	m	180		
		Vertical rough formwork to:				
C5.22		Vertical face to mass concrete in lieu of no-fines concrete under column bases, 100mm high	m	190		
	15.4	<b>Box out holes/form voids:</b>				
C5.23		Small, circular up to 0,35 m dia, of depths over 0m and up to 0,5m.	No	1		
	15.2	<b>SCHEDULED REINFORCMENT ITEMS</b>				
	15.2	<b>Mild steel bars:</b>				
C5.24		8 mm dia	t	1		
C5.25		10 mm dia	t	1		
C5.26		12 mm dia	t	1		
	15.2	<b>High tensile steel bars:</b>				
C5.27		10 mm dia	t	27		
C5.28		12 mm dia	t	22		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C5.29		16 mm dia	t	32		
C5.30		20 mm dia	t	7		
C5.31		25 mm dia	t	2		
	15.1	<b>SCHEDULED CONCRETE ITEMS</b>				
	15.15	<b>Blinding layer:</b>				
		Class 15MPa/19 mm concrete for:				
C5.32		Wall, floor and column footings, 75 mm thick	m <sup>2</sup>	1,160		
	15.1	<b>Watertight concrete:</b>				
		Class 35 MPa/19 mm Watertight Concrete to:				
C5.33		Reservoir column footings	m <sup>3</sup>	13		
C5.34		Reservoir floor (including thickenings in floor)	m <sup>3</sup>	140		
C5.35		Reservoir columns	m <sup>3</sup>	12		
C5.36		Reservoir wall footing	m <sup>3</sup>	74		
C5.37		Reservoir wall	m <sup>3</sup>	185		
C5.38		Reservoir roof slab (including downstand nibs and upstands)	m <sup>3</sup>	270		
C5.39		Reservoir column heads	m <sup>3</sup>	13		
C5.40		Reservoir outlet sump base	m <sup>3</sup>	1		
C5.41		Reservoir outlet sump walls	m <sup>3</sup>	4		
		Class 15 MPa/19 mm:				
C5.42		Mass concrete for encasement of pipework and subsurface drain pipes under wall footing	m <sup>3</sup>	50		
C5.43		Mass concrete for filling overbreak of pipework and subsurface drain trenches below reservoir	m <sup>3</sup>	55		
C5.44		200 mm wide x 100 mm high divider strips under floor	m <sup>3</sup>	2		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C5.45	15.5	1900x1900x100 mm thick in lieu of no-fines concrete below column bases	m <sup>3</sup>	9		
		<b>Unformed surface finishes:</b>				
		Wood-floated finish to:				
C5.46		Top of reservoir floor and wall footing (inside of reservoir)	m <sup>2</sup>	1,000		
C5.47		Top of reservoir roof slab (with 120mm fall from centre to perimeter)	m <sup>2</sup>	1,060		
C5.48		Top of upstand beams	m <sup>2</sup>	3		
C5.49		Top of column bases	m <sup>2</sup>	50		
		Steel-floated finish to:				
C5.50		Top of mass concrete under column footings & mass concrete encasements under reservoir floor and footing	m <sup>2</sup>	125		
C5.51		Top of reservoir wall	m <sup>2</sup>	35		
C5.52	15.9	Top of divider strips under reservoir floor	m <sup>2</sup>	20		
C5.53		Top of blinding under ringfooting	m <sup>2</sup>	230		
		<b>Joints:</b>				
C5.54		Waterstop joint type A in reservoir floor, complete with corners, junctions etc. as per detail Dwg. No. 106777-0503-DRG-ST-0400	m	360		
C5.55		Horizontal construction joints in reservoir wall, complete, as per Detail 04 on Dwg. No. 106777-0503-DRG-ST-0400	m	342		
C5.56		Horizontal construction joints in reservoir outlet sump walls, complete, as per Detail 03 on Dwg. No. 106777-0503-DRG-ST-0400 & Dwg. No. 106777-0503-DRG-ST-0405	m	12		
C5.57		Joint between reservoir wall and roof, complete, as per Detail 05 on Dwg. No. 106777-0503-DRG-ST-0402	m	115		
C5.58		Joint type C between reservoir wall and concrete apron, complete as per Section B on Dwg. No. 106777-0503-DRG-ST-0400	m	115		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C5.59	15.8	Joint type C between concrete apron panels, complete as per Elevation D on Dwg. No. 106777-0503-DRG-ST-0400	m	50		
		<b>Cast in of pipes with or without puddle flanges:</b>				
		Up to 300mm nominal bore:				
C5.60	15.11	Through 250mm thick reservoir floor slab thickening	No	1		
		Over 300mm up to 600mm nominal bore:				
C5.61		Through 250mm thick reservoir floor slab thickening	No	2		
C5.62		Through 250mm thick sump wall	No	1		
		<b>Miscellaneous works:</b>				
C5.63		Internal ladder (Stainless Steel 316 with Stainless Steel bolts, nuts and washers), complete as per Dwg. No. 106777-0503-DRG-ST-0403	No	2		
C5.64		External ladder (Stainless Steel 304 with Stainless Steel bolts, nuts and washers), complete as per Dwg. No. 106777-0503-DRG-ST-0403	No	1		
C5.65		Mentis Stainless Steel 304 balustrade on roof, complete (approximately 3.5m long and 1m high) as per Note 3 on Dwg. No. 106777-0503-DRG-ST-0402	No	3		
C5.66		42 mm Ø (Stainless Steel 304) grab bar, complete as per Detail 01 on Dwg. No. 106777-0503-DRG-ST-0404	No	2		
C5.67		Roof ventilators (Stainless Steel 304 with Stainless Steel 316 cast-in pipe), complete as per Detail 01 on Dwg. No. 106777-0503-DRG-ST-0402	No	6		
C5.68		Ultrasonic probe purpose made cover (Stainless Steel 304), complete with fixing and cast in items as per Detail 02 on Dwg. No. 106777-0503-DRG-ST-0402	No	1		
C5.69		Dome cover over scour inside of reservoir (Stainless Steel 316), complete as per Detail 02 on Dwg. No. 106777-0503-DRG-ST-0404	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C5.70		Dome cover over inlet inside of reservoir (Stainless Steel 316), complete as per Detail 03 on Dwg. No. 106777-0503-DRG-ST-0404	No	1		
C5.71		Mentis rectagrid cover over outlet sump (Stainless steel 316), complete with cast-in items as per Dwg. No. 106777-0503-DRG-ST-0405	No	1		
C5.72		375 micron polyethylene bondbreaker with taped 100 mm laps and perforated at 500 mm c/c in two orthoganal directions	m <sup>2</sup>	975		
C5.73		Precast concrete slab over access opening complete with aluminium cover and cast in items as per Dwg. No. 106777-0503-DRG-ST-0404	No	2		
C5.74		Precast coping units, complete with galvanized grout-in bar as per Dwg. No. 106777-0503-DRG-ST-0402	No	190		
C5.75		20 mm thick 1:4 cement:sand mortar to the top surface of the no-fines concrete layer under the reservoir floor, with smooth steel-floated top surface	m <sup>2</sup>	860		
C5.76		Roof nib plate (Stainless Steel 316), complete with cast-in items & jointex as per Detail 04 on Dwg. No. 106777-0503-DRG-ST-0402	No	4		
C5.77		75x75x90mm concrete spacer blocks in reservoir floor (40MPa, watertight concrete)	No	1,000		
C5.78		Cast-in-situ concrete apron (25 Mpa concrete) at reservoir perimeter, complete with sand and G5 layerworks as per Drawing 106777-0502-DRG-CC-0202	m	130		
C5.79		Stainless steel 316 support frame/brackets for overflow pipe, complete with stainless steel 316 bolts, foot plates & collar plates as per Dwg. No. 106777-0503-DRG-ST-0405	Sum	1		
	15.16	<b>Cast-in-situ no-fines concrete</b>				
C5.80		No-fines concrete under floor	m <sup>3</sup>	90		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	DWS 1810	<b>SPECIALIST SERVICES</b>				
C5.81	10.2	<b>Testing for watertightness (5MI reservoir)</b>	Sum	1		
C5.82	10.3	<b>Sterilization (5 MI reservoir)</b>	Sum	1		
C5.83	10.4	<b>Crushed stone on reservoir roof (19 mm clean washed aggregate, 80 mm thick)</b>	m <sup>3</sup>	85		
C5.84	10.5	<b>Lightning Protection (5MI reservoir)</b>	Sum	1		
	DWS1130	<b>SUPPLY OF SPECIALS</b>				
	10	<b>Supply of the following SS 316 pipe specials, PN 10 with all jointing material as per Dwg. No. 106777-0503-DRG-ST-0405</b>				
C5.85		DN 600 Inlet bend with extension end and bellmouth, 6mm wall thickness	No	1		
C5.86		DN 600 overflow bend with extension end 6mm wall thickness	No	1		
C5.87		DN 600 overflow pipe with bellmouth, 6mm wall thickness	No	1		
C5.88		DN 600 outlet pipe, 6mm wall thickness	No	1		
C5.89		DN 250 scour bend with extension end and bellmouth, 4mm wall thickness	No	1		
	SANS 1200 LE PSLE 8.2.14	<b>Supply and install subsurface drains complete:</b>				
C5.90		110mm dia uPVC subsoil drain complete as per Dwg No. 106777-0502-DRG-CC-0209 & 106777-0503-DRG-ST-0401	m	110		
C5.91		110mm dia uPVC ring subsoil system complete as per Dwg No. 106777-0502-DRG-CC-0209 & 106777-0503-DRG-ST-0401	m	120		
C5.92		110mm dia uPVC Class 34 (solid wall) as per Dwg No. 106777-0502-DRG-CC-0209 & 106777-0503-DRG-ST-0401	m	90		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C5.93	PSLE 8.2.15	<b>Rodding eye with cap for subsoil pipes, complete with mass concrete encasement as per Dwg. No. 106777-0503-DRG-ST-0401</b>  110mm dia uPVC	No	6		
C5.94	PD 11 11.01	<b>BUILDING WORK</b>  <b>Brickwork:</b>  Brick walls in Corobrick NFP 7 MPa non-facing bricks (including brick reinforcing) for:  230mm thick wall around outlet sump, 0.5m high as per Dwg. No 106777-0503-DRG-ST-0405	m <sup>2</sup>	5		
		<b>TOTAL SECTION C5.:</b> <b>Carried to Summary</b>			R	

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
	SANS 1200 C	<b>SECTION: C6 RIVER PROTECTION AND CROSSINGS</b>				
		<b>Site Clearance</b>				
C6.1	8.2.1 PSC 8.2.1	Clear and grub vegetation and trees including tree stumps (Max tree girth 1.0 m)	m <sup>2</sup>	200		
	8.2.2	Remove and grub trees and tree stumps of girth				
		<b>Over and Up to</b>				
C6.2		1 m 2 m	No	1		
C6.3		2 m 3 m	No	1		
C6.4	PSC 8.2.11	Take down existing fence and reinstate (stock fence up to 1.8 m high)	m	200		
C6.5	PSC 8.2.10	Remove 150 mm thick layer of topsoil to stockpile and maintain	m <sup>3</sup>	30		
C6.6	1200 D 8.3.10 PSD 8.3.10	Topsoiling	m <sup>2</sup>	30		
C6.7	1200 A PSA 8.10	Temporary fencing where existing fencing has been taken down	m	500		
	1200 D	<b>EARTHWORKS</b>				
		<b>Bulk Excavation</b>				
C6.8	8.3.2 PSD 8.3.2	Excavate in all materials and dispose	m <sup>3</sup>	500		
	8.3.2 PSD 8.3.2	<b>Extra Over Item C6.8 Bulk Excavations above:</b>				
C6.9		Hard rock excavation	m <sup>3</sup>	200		
C6.10	8.3.3 PSDB 8.3.3	Hand excavation and backfill where ordered by the Engineer	m <sup>3</sup>	100		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
	DWS 0750	<b>CONCRETE (STRUCTURAL)</b>				
		<b>Scheduled formwork items</b>				
C6.11	15.3	Rough Vertical Formwork	m <sup>2</sup>	30		
		<b>SCHEDULED REINFORCEMENT ITEMS</b>				
C6.12	15.2	High Tensile steel bars	kg	615		
		<b>SCHEDULED CONCRETE ITEMS</b>				
	15.15	<b>Blinding Layer</b>				
		Class 15 MPa / 19 mm concrete of				
C6.13		50 mm thickness	m <sup>2</sup>	15		
	15.1	<b>Strength Concrete</b>				
		Class 25 MPa / 19 mm concrete to:				
C6.14		Top of walkway	m <sup>3</sup>	5		
C6.15		Floor of walkway	m <sup>3</sup>	5		
	15.5	<b>Unformed surface finishes</b>				
		Wood-floated finishes to:				
C6.16		Horizontal Surfaces	m <sup>2</sup>	60		
	SANS 1200 DK	<b>Gabions and Reno Mattresses</b>				
	8.2.2 PSDK 8.2.2	Gabions of galvanised wire, 80 mm x 100 mm mesh, 2.7 mm dia wire:				
C6.17		2.0 m x 1.0 m, 0.5 m	m <sup>3</sup>	300		
C6.18		2.0 m x 1.0 m x 1.0 m	m <sup>3</sup>	300		
	8.2.2 PSDK 8.2.2	Reno mattresses of galvanised wire, 60 mm x 100 mm mesh, 2.2 mm dia wire:				
C6.19		2.0 m x 1.0 m 0.3 m	m <sup>3</sup>	250		
	8.2.4	<b>Geotextile</b>				
C6.20		Supply and place geotextile Mactex 20.2 or equal approved behind gabions and mattresses	m <sup>2</sup>	1,650		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C6.21	SANS 1200 LE 8.2.2	<b>Culverts</b>  1200 x 1200 mm box culvert	No	15		
	DWS 0750	<b>CONCRETE FOR CAUSEWAY</b>				
		<b>Scheduled formwork items</b>				
C6.22	15.3	Rough Vertical Formwork	m <sup>2</sup>	10		
		<b>SCHEDULED REINFORCEMENT ITEMS</b>				
C6.23	15.2	High Tensile steel bars	kg	1,100		
		<b>SCHEDULED CONCRETE ITEMS</b>				
	15.1	<b>Strength Concrete</b>  Class 25 MPa / 19 mm concrete to:				
C6.24		Concrete Causeway	m <sup>3</sup>	15		
	15.5	<b>Unformed surface finishes</b>  Wood-floated finishes to:				
C6.25		Horizontal Surfaces	m <sup>2</sup>	80		
		<b>MISCELLANEOUS</b>				
C6.26	1200 A PSA 8.10 PSA 8.5.1	Environmental rehabilitation where required by the Engineer and Employer not covered under the specifications	Prov Sum	-	-	R200,000.00
C6.27		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R200,000.00		
C6.28		Fencing in river, 1.2 m high, 6 wire strands as directed by the Engineer	Prov Sum	-	-	R200,000.00
C6.29		Percentage adjustment on the item above for Contractor's overheads and profit ( <i>State % and extend as an amount</i> )	%	R200,000.00		
<b>TOTAL SECTION C6: Carried to Summary</b>						R

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION: C7 PUMP STATION AND RESERVOIR: ACCESS ROAD</b>				
	SANS 1200 C	<b>Site Clearing</b>				
C7.1	PSC 8.2.1	Clear and grub areas of pump station and reservoir site, including internal access roads:	m <sup>2</sup>	15,695		
	8.2.2	Remove and grub large trees and tree stumps of girth:				
C7.2		Over 1,0 m and up to and including 2,0 m	No	20		
C7.3		Over 2,0 m and up to and including 3,0 m	No	5		
C7.4	PSC 8.2.11	Take down and re-erect existing fence	m	255		
C7.5	8.2.10 PSC 8.2.10	Remove topsoil to nominal depth of 150 mm and stockpile	m <sup>3</sup>	3,055		
C7.6		Provisional sum for new fence material	Sum	1		R50,000.00
		<b>EARTHWORKS</b>				
C7.7	1200 DM 8.3.4	Cut to fill for site access roads	m <sup>3</sup>	3,610		
C7.8	1200 PSDM 8.3.5	Import to fill for access roads, minimum G7 quality material	m <sup>3</sup>	2,930		
C7.9	PSD 8.3.14	Temporary stockpile of material	m <sup>3</sup>	500		
		<b>Extra-over for bulk excavation:</b>				
C7.10	8.3.2 PSD 8.3.2	For hard rock excavation	m <sup>3</sup>	720		
		<b>Topsoiling (to 150 mm deep) from stockpile for:</b>				
C7.11	8.3.10 PSD 8.3.10	Embankments and cut slopes	m <sup>2</sup>	3,400		
C7.12	8.3.11	Grassing of embankments by means of hydroseeding	m <sup>2</sup>	3,400		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>LAYERWORKS</b>				
	SANS 1200 DM	<b>Treatment of roadbed</b>				
C7.13	8.3.3 PSDM 8.3.3	Roadbed preparation and compaction of material to a minimum of 93% MOD AASHTO (or 100% for sand), 150 mm thick	m³	460		
C7.13	8.3.5	150 mm G7 selected material compacted to 93% MOD AASHTO	m³	460		
	1200 ME	<b>Subbase:</b>				
	8.3.3 PSME 8.3.3	Construct the subbase course using material from commercial sources.				
C7.14		150 mm G5 wearing course compacted to 95% MOD AASHTO	m³	910		
	1200 MF	<b>Base:</b>				
		Construct base with material from commercial source:				
C7.15	8.3.3	150mm C4 Compacted to 96% MOD AASHTO	m³	80		
	1200 MJ	<b>Segmented Paving</b>				
		Construction of paving complete				
C7.16	8.2.2	80mm Thick Type S-A blocks on 20mm sand:	m²	510		
		<b>KERBING AND CHANNELING</b>				
	1200MK	Precast concrete edging as per DWG 106777-0003-DRG-CC-0286				
	8.2.1	Kerb: type E1 (Fig.10)	m	300		
	1200 MM	<b>Ancillary Roadworks</b>				
C7.17	8.2.1	Supply and erect galvanized guardrails on timber posts	m	40		
	8.36	Supply and erect permanent regulations road sign				
C7.18		"STOP" sign (R1) 610mm DIA	No	1		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>STORMWATER</b>				
	SANS 1200 DB	<b>Pipe Trenching</b>				
C7.19	8.3.2	Excavate in all materials for trenches, backfill, compact and dispose of surplus material for:				
		Pipes up to 600 mm dia for depths:				
		<b>Over and Up to</b>				
C7.20		0,0 m 1,0 m	m	43		
C7.21		1,0 m 2,0 m	m	15		
C7.20		Side drains in all materials	m <sup>3</sup>	1,210		
C7.22		Additional excavation in all material for stone pitching	m <sup>3</sup>	1,130		
	8.3.2	Extra-over item C1.17 for:				
C7.22		Excavate unsuitable material from trench bottom and dispose of off site	m <sup>3</sup>	30		
C7.23	PSDB 8.4	Hard excavation	m <sup>3</sup>	480		
		<b>Excavation ancillaries</b>				
		Make up deficiency in backfill material:				
C7.24	8.3.3.1	From other necessary excavations on Site	m <sup>3</sup>	50		
C7.25	8.3.3.3	Additional compaction in road reserves	m <sup>3</sup>	100		
		<b>SECTION LB: BEDDING (PIPES)</b>				
	1200 LB 8.2.2.1	Provision of bedding from trench excavation				
C7.26		Selected granular material	m <sup>3</sup>	15		
C7.27		Selected fill material	m <sup>3</sup>	20		
	8.2.2.1	From other necessary excavations:				
C7.28		Selected granular material	m <sup>3</sup>	15		
C7.29		Selected fill material	m <sup>3</sup>	20		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C7.30	8.2.2.3	From commercial sources: (Provisional) Selected granular material	m <sup>3</sup>	15		
C7.31		Selected fill material	m <sup>3</sup>	20		
		<b>Existing services that intersect or adjoin a trench</b>				
	PSDB 8.3.5	Services that intersect a trench:				
C7.32		Watermains up to 200 mm dia	No	1		
C7.33		Sewers up to 200 mm dia	No	1		
C7.34		Stormwater pipes 300 mm to 600 mm dia	No	1		
C7.35		Cables	No	1		
		Services that adjoin a trench:				
C7.36		Watermains up to 200 mm dia	m	1		
C7.37		Sewers up to 200 mm dia	m	1		
		<b>SECTION LE: STORMWATER DRAINAGE</b>				
	SANS 1200 LE	<b>Pipes</b>  Supply, lay, joint and bed Class C reinforced concrete pipes Type SC Class 100D with ogee joints wrapped with geofabric				
C7.38	8.2.1	375 mm dia	m	65		
C7.39	8.2.1	450 mm dia	m	10		
C7.40	8.2.1	525 mm dia	m	10		
C7.41	8.2.1	600 mm dia	m	15		
	1200 LE 8.2.8	<b>Headwalls</b>  Supply and install Inlet Structure (Refer to DRG 106777-0502-DRG-CC-0287)				
C7.42	PSLE 8.3	On pipes up to 450 mm dia	No	2		
C7.43	PSLE 8.3	On pipes up to 600 mm dia	No	2		
Carried forward / ...						

Item No	Payment Clause	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
C7.44	PSLE 8.3	Supply and install headwall (Refer to DRG 106777-0502-DRG-CC-0288) Pipes up to 450 mm dia	No	6		
C7.45	PSLE 8.3	Pipe up to 600 mm dia	No	2		
	SANS 1200 DK	<b>Gabions and Pitching</b> Medium grouted stone pitching for:				
C7.46	8.2.5	Side drain	m <sup>2</sup>	3,670		
C7.47	8.2.5	Headwall outlet	m <sup>2</sup>	25		
	DWA 0750	<b>Concrete Small Works</b> Repair or replacement of existing road side drain at access road intersection with R409 Highway				
C7.48	15.3	Formwork: Rough	m <sup>2</sup>	40		
C7.49	15.1	20MPa Concrete	m <sup>3</sup>	20		
		<b>TOTAL SECTION C7: Carried to Summary</b>			R	

# **Mechanical and Electrical Works**

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
ME1.1		<b>SECTION ME1.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>MULTI-STAGE PUMPS</b>  <b>Allow for all costs and expenses in connection with the following items:</b>  Plinth Design	Sum	-	-	
ME1.2	PS 9.4	<b>Allow for all the costs and expenses in connection with the design, manufacture, painting, factory testing and supplying of the following materials and equipment:</b>  Pump	No.	4.00		
ME1.3		Pump Motor	No.	4.00		
ME1.4	PS 9.4	Baseplates and anchor fasteners	Sum	-	-	
ME1.5		Flushing/cooling water system for seals complete with filter and isolation valves	Sum	-	-	
ME1.6		<b>Allow for all the costs and expenses in connection with the delivery, offloading and storage of the following:</b>  All materials and equipment summarized in SECTION ME1. complete	Sum	-	-	
ME1.7		<b>Allow for all costs and expenses in connection with the Site installation of the following:-</b>  All materials and equipment summarized in SECTION ME1. complete	Sum	-	-	
ME1.8		<b>Other:-</b>  All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-	-	
		<b>TOTAL SECTION ME1.:</b>				
		<b>Carried to Summary</b>			R	

[illegible]

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME3.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>ISOLATION AND CHECK VALVES</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, painting, factory testing and supplying of the following materials and equipment:</b>				
ME3.1	PS 9.5	DN600 eccentric axis butterfly valve (PN10), including electric actuator	No	1		
ME3.2	PS 9.5	DN400 eccentric axis butterfly valve (PN63), complete with electric actuator	No	4		
ME3.3	PS 9.6	DN400 metal seated wedge gate valve (PN63) complete with electric actuator	No	4		
ME3.4	PS 9.5	DN500 eccentric axis butterfly valve (PN63), complete with electric actuator	No	1		
ME3.5	PS 9.8	DN500 Nozzle check valve (PN63)	No	1		
		<b>Allow for all the costs and expenses in connection with the delivery, offloading and storage of the following:</b>				
ME3.6		All materials and equipment summarized in SECTION ME3. complete	Sum	-	-	
		<b>Allow for all costs and expenses in connection with the Site installation of the following:-</b>				
ME3.7		All materials and equipment summarized in SECTION ME3. complete	Sum	-	-	
		<b>Other:-</b>				
ME3.8		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-	-	
		<b>TOTAL SECTION ME3.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME4. M&amp;E WORKS - PUMP STATION PIPEWORK AND SUPPORTS</b>				
		<b>Allow for all costs and expenses in connection with the following items:</b>				
ME4.1		Design of pipework	Sum	-	-	
ME4.2	PS 9.11	Design of pipework supports	Sum	-	-	
		<b>Allow for all the costs and expenses in connection with the design, manufacture, painting, factory testing and supplying of the following materials and equipment:</b>				
ME4.3	PS 9.9	Suction manifold pipework upstream of pump suction isolation valves	Sum	-	-	
ME4.4	PS 9.9	Discharge manifold pipework downstream of pump discharge isolation valves	Sum	-	-	
ME4.5	PS 9.9	Pump suction line pipework from pump suction isolation valves to pump inlets	Sum	-	-	
ME4.6	PS 9.9	Pump discharge line pipework from pump outlets to pump discharge isolation valves	Sum	-	-	
ME4.7	PS 9.11	Pipework supports for suction manifold	Sum	-	-	
ME4.8	PS 9.11	Supports for suction isolation valves	Sum	-	-	
ME4.9	PS 9.11	Pipework supports for discharge manifold	Sum	-	-	
ME4.10	PS 9.10	Suction manifold flange adaptors	No	2		
ME4.11	PS 9.10	Pump suction line restrained flange adaptors	No	8		
ME4.12	PS 9.10	Pump discharge line restrained flange adaptors	No	8		
ME4.13	PS 9.10	Discharge manifold isolation valve restrained flange adaptor	No	1		
ME4.14	PS 9.9	DN100 flanged stubs forming part of above pipework for pressure gauges, and pressure transmitter connections, insertion magnetic flow meter and drain fittings.	Sum	-	-	
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME4.15	PS 9.9	DN100 flanged stubs forming part of above pipework for insertion magnetic flow meter	Sum	-	-	
ME4.16	PS 9.9	DN100 flanged stubs at low point of pump discharge line for scouring of pump line	Sum	-	-	
		<b>Allow for all the costs and expenses in connection with the delivery, offloading and storage of the following:</b>				
ME4.17		All materials and equipment summarized in SECTION ME4. complete	Sum	-	-	
		<b>Allow for all costs and expenses in connection with the Site installation of the following:-</b>				
ME4.18		All materials and equipment summarized in SECTION ME4. complete	Sum	-	-	
		<b>Other:-</b>				
ME4.19		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> )	Sum	-	-	
		.....				
		.....				
		.....				
		.....				
		.....				
		<b>TOTAL SECTION ME4.:</b>				
		<b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME5. M&amp;E WORKS - PUMP STATION VENTILATION</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, painting, factory testing and supplying of the following materials and equipment:</b>				
ME5.1	PS 9.14	Pump Room Ventilation Fan	No	2		
ME5.2	PS 9.14	Accoustic attenuators with dampers	No	4		
ME5.3	PS 9.14	Filter Bank with spare set of filters	No	1		
ME5.4	PS 9.14	Ducting, complete with diffuser for each pump motor, ducting supports and stainless steel screens for inlets	Sum	-	-	
ME5.5	PS 9.14	MV switchgear room louvre with fan	No	2		
ME5.6	PS 9.14	Cable gallery inlet louvre with fan	No	1		
ME5.7	PS 9.14	Cable gallery outlet louvre	No	1		
		<b>Allow for all the costs and expenses in connection with the delivery, offloading and storage of the following:</b>				
ME5.8	PS 9.14	All materials and equipment summarized in SECTION ME5. complete	Sum	-	-	
		<b>Allow for all costs and expenses in connection with the Site installation of the following:-</b>				
ME5.9	PS 9.14	All materials and equipment summarized in SECTION ME5. complete	Sum	-	-	
		<b>Other:-</b>				
ME5.10		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-	-	
		<b>TOTAL SECTION ME5.: Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
ME6.1	PS 19.18	<b>SECTION ME6.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>MV CABLE INSTALLATION</b>  <b>Allow for all costs and expenses in connection with the following items:</b>  Liaison with Supply Authority for powering pump station  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>	Sum	-		
ME6.2		<u>XLPE insulated 6,35/11 kV screened copper conductor cable</u> 95mm <sup>2</sup> x 3 core	m	500		
ME6.3		35mm <sup>2</sup> x 3 core  <u>XLPE insulated 6,35/11 kV screened copper conductor cable joints</u>	m	200		
ME6.4		95mm <sup>2</sup> x 3 core	No.	2		
ME6.5		35mm <sup>2</sup> x 3 core  <u>XLPE insulated 6,35/11 kV screened copper conductor terminations</u>	No.	10		
ME6.6		95mm <sup>2</sup> x 3 core	No.	4		
ME6.7		35mm <sup>2</sup> x 3 core  <u>Earthing and bonding</u>  <u>Bare copper earth conductor</u>	No.	18		
ME6.8		70mm <sup>2</sup>	m	1000		
ME6.9		95mm <sup>2</sup>	m	200		
ME6.10		Terminations to earthing bar  <u>Cable trench excavations, including backfilling, compaction and disposal of excess material</u>	Sum	-		
ME6.11		Backfill material imported from off-site source (provisional)	m <sup>3</sup>	200		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME6.12		<u>Underground cable ancillaries</u> Cable warning/danger tape	m	600		
ME6.13		Concrete pyramid cable markers	No.	20		
ME6.14		Concrete protective slabs	m	400		
<b>Allow for all costs and expenses in connection with the Site installation of the following:</b>						
<u>XLPE insulated 6,35/11 kV screened copper conductor cable</u>						
ME6.15		95mm <sup>2</sup> x 3 core	m	500		
ME6.16		35mm <sup>2</sup> x 3 core	m	200		
<u>XLPE insulated 6,35/11 kV screened copper conductor cable joints</u>						
ME6.17		95mm <sup>2</sup> x 3 core	No.	2		
ME6.18		35mm <sup>2</sup> x 3 core	No.	10		
<u>XLPE insulated 6,35/11 kV screened copper conductor terminations</u>						
ME6.19		95mm <sup>2</sup> x 3 core	No.	4		
ME6.20		35mm <sup>2</sup> x 3 core	No.	18		
<u>Earthing and bonding</u>						
<u>Bare copper earth conductor</u>						
ME6.21		70mm <sup>2</sup>	m	1000		
ME6.22		95mm <sup>2</sup>	m	200		
ME6.23		Terminations to earthing bars and transformer	No.	-		
<u>Cable trench excavations, including backfilling, compaction and disposal of excess material</u>						
ME6.24		Extra-over for earth material	m <sup>3</sup>	300		
ME6.25		Extra-over for intermediate material (soft rock)	m <sup>3</sup>	50		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME6.26		Extra-over for in hard rock	m³	20		
ME6.27		Backfill material imported from off-site source (provisional)	m³	200		
		<u>Underground cable ancillaries</u>				
ME6.28		Cable warning/danger tape	m	600		
ME6.29		Concrete pyramid cable markers	No.	20		
ME6.30		Concrete protective slabs	m	400		
		<b>Other:-</b>				
ME6.31		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		TOTAL SECTION ME6.: Carried to Summary			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.19	<b>SECTION ME7.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>11 kV OVERHEAD LINE</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>Wooden Poles</u>				
ME7.1	D-DT-0051	Pole, Wood 11,0 m x 180-199 Top Dia.	No.	2		
ME7.2	D-DT-0053	Pole, Wood 12,0 m x 180-199 Top Dia.	No.	4		
		<u>MV Links</u>				
ME7.3	D-DT-3086	11 kV MV Cut-out or Link Unit (900 mm Creepage)	No.	6		
ME7.4	D-DT-3086	Solid Insert	No.	6		
		<u>MV Link Assembly</u>				
ME7.5	D-DT-1851	Cable Termination Links - Cut-outs - 4,5 m Wood X-arm / H-pole - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.6	D-DT-1851	Cable Termination Links - Cut-outs - 2,5 m Wood X-arm / Single - 63 mm <sup>2</sup> Conductor	No.	1		
		<u>MV Miscellaneous</u>				
ME7.7	D-DT-3175	Vibration Damper - 63 mm <sup>2</sup> Conductor	No.	6		
		<u>MV Structures (Including cross-arms and Crimping)</u>				
ME7.8	D-DT-1748	Delta / 2 x 2,5 m Wood X-arm - Strain - Medium(1°-60°) Deviation - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.9	D-DT-1749	Delta / 2 x 2,5 m Wood X-arm - Strain - Terminal - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.10	D-DT-1778	2 x 4,5m Wood X-arm - Strain - Medium(1°-60°) Deviation - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.11	D-DT-1779	2 x 4,5m Wood X-arm - Terminal - 63 mm <sup>2</sup> Conductor	No.	1		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME7.12	D-DT-0851	<u>MV Cable Termination Structures (Station Class Surge Arrestors to be used)</u> 11kV Overhead line to 11kV cable T-off	No.	2		
ME7.13	D-DT-0341	<u>MV Anchors (Including labels &amp; barbed wire for anti-climb. BIL stay insulator option is applicable)</u> Conventional Anchor (M20)	No.	13		
ME7.14	D-DT-3136	<u>MV Conductor</u> ACSR (Aluminium Conductor Steel Reinforced) - Mink 63mm <sup>2</sup> Bare Conductor (10.98 Dia)	m	1890		
ME7.15	D-DT-8000	<u>Armoured MV Cable</u> Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE, including cable warning tape	m	300		
ME7.16	D-DT-0851	<u>Cable Terminations</u> Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Overhead Line termination (Station Class Surge Arrestors included)	No.	2		
ME7.17	D-DT-8005	Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Indoor Switchgear	No.	1		
ME7.18	D-DT-8005	Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Minisub MV Cubicle	No.	1		
ME7.19	D-DT-0862	<u>MV Earthing</u> Trench Electrode, MV Earth electrode system, complete	No.	2		
ME7.20		<u>Labelling</u> Pole Labels	No.	4		
ME7.21		MV Link Labels	No.	2		
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:-</b>				
		<u>Wooden Poles</u>				
ME7.22	D-DT-0051	Pole, Wood 11,0 m x 180-199 Top Dia.	No.	2		
ME7.23	D-DT-0053	Pole, Wood 12,0 m x 180-199 Top Dia.	No.	4		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME7.24	D-DT-3086	<u>MV Links</u> 11 kV MV Cut-out or Link Unit (900 mm Creepage)	No.	6		
ME7.25	D-DT-3086	Solid Insert	No.	6		
<u>MV Link Assembly</u>						
ME7.26	D-DT-1851	Cable Termination Links - Cut-outs - 4,5 m Wood X-arm / H-pole - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.27	D-DT-1851	Cable Termination Links - Cut-outs - 2,5 m Wood X-arm / Single - 63 mm <sup>2</sup> Conductor	No.	1		
<u>MV Miscellaneous</u>						
ME7.28	D-DT-3175	Vibration Damper - 63 mm <sup>2</sup> Conductor	No.	6		
<u>MV Structures (Including cross-arms and Crimping)</u>						
ME7.29	D-DT-1748	Delta / 2 x 2,5 m Wood X-arm - Strain - Medium(1°-60°) Deviation - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.30	D-DT-1749	Delta / 2 x 2,5 m Wood X-arm - Strain - Terminal - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.31	D-DT-1778	2 x 4,5m Wood X-arm - Strain - Medium(1°-60°) Deviation - 63 mm <sup>2</sup> Conductor	No.	1		
ME7.32	D-DT-1779	2 x 4,5m Wood X-arm - Terminal - 63 mm <sup>2</sup> Conductor	No.	1		
<u>MV Cable Termination Structures (Station Class Surge Arrestors to be used)</u>						
ME7.33	D-DT-0851	11kV Overhead line to 11kV cable T-off	No.	2		
<u>MV Anchors (Including labels &amp; barbed wire for anti-climb. BIL stay insulator option is applicable)</u>						
ME7.34	D-DT-0341	Conventional Anchor (M20)	No.	13		
<u>MV Conductor</u>						
ME7.35	D-DT-3136	ACSR (Aluminium Conductor Steel Reinforced) - Mink 63mm <sup>2</sup> Bare Conductor (10.98 Dia)	m	1890		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME7.36	D-DT-8000	<u>Armoured MV Cable</u> Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE, including cable warning tape	m	300		
ME7.37	D-DT-0851	<u>Cable Terminations</u> Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Overhead Line termination (Station Class Surge Arrestors included)	No.	2		
ME7.38	D-DT-8005	Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Indoor Switchgear	No.	1		
ME7.39	D-DT-8005	Cable 11kV 3C 35mm <sup>2</sup> Cu XLPE to Minisub MV Cubicle	No.	1		
ME7.40	D-DT-0862	<u>MV Earthing</u> Trench Electrode, MV Earth electrode system, complete	No.	2		
ME7.41		<u>Labelling</u> Pole Labels	No.	4		
ME7.42		MV Link Labels	No.	2		
ME7.43		<u>Excavation (Drill Rig / Hand) for new pole installations. (Anchor holes are to be slotted if drilled by machine)</u> 1,8 m depth for pole - Hard rock	No.	2		
ME7.44		2,0 m depth for pole - Hard rock	No.	4		
ME7.45		1,8 m depth for MV stay - Hard rock	No.	13		
ME7.46		<u>Excavation - Trenching</u> MV Cable Trench Excavations (1000 mm Deep X 600 mm Wide) - Hard Rock	m <sup>3</sup>	180		
ME7.47		<u>Bush Clearing. Bush clearing to take place in accordance with the Environmental Management Programme</u> Bush clearing - Thick. Allow for the clearing of bush for a 1 m wide strip under the line route	m	200		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>Other:-</b>				
		<u>Testing &amp; Commissioning (Test equipment, perform tests and supply test certificates)</u>				
ME7.48		11 kV Cable Pressure Test	No	2		
ME7.49		MV Earth Resistance Test	No	2		
ME7.50		MV Earth Continuity Test	No	2		
ME7.51		Phase Rotation Tests	No	2		
ME7.52		Voltage level measurements	No	4		
ME7.53		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME7.: Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.20, PS 9.21	<b>SECTION ME8.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>MV SWITCHGEAR</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>				
ME8.1		Extensible 11kV switchboard	Sum	-		
ME8.2		MV control panel for 11 kV switchgear	Sum	-		
ME8.3		Battery Tripping Unit (incl 110V DB) complete	No.	1		
ME8.4		Power Factor Correction Units for MV Motor Starters, complete with wiring, output to SCADA, and all necessary items to complete installaton	No.	4		
ME8.5		Zorc Type Surge Protection for MV Motors, complete with wiring, and all necessary items to complete installaton	No.	4		
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:-</b>				
ME8.6		Extensible switchpanel, 11 kV	Sum	-		
ME8.7		MV control panel for 11 kV switchgear	Sum	-		
ME8.8		Battery Tripping Unit (incl 110V DB) complete	No.	1		
ME8.9		Protection coordination by Specialist for MV Switchgear commissioning	Sum	-		
ME8.10		Power Factor Correction Units for MV Motor Starters, complete with wiring, output to SCADA, and all necessary items to complete installaton	No.	4		
ME8.11		Zorc Type Surge Protection for MV Motors, complete with wiring, and all necessary items to complete installaton	No.	4		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME8.12		<b>Other:-</b> Interim storage of equipment as ordered by the Engineer including insurances	Month	12		
ME8.13		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME8.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.22	<b>SECTION ME9. M&amp;E WORKS - PUMP STATION DISTRIBUTION TRANSFORMERS</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing and supply of the following materials and equipment:</b>  <u>ONAN Type Transformer</u>  ME9.1 Transformer 1 & 2 100kVA, 11/0.42kV No. 2 ME9.2 Transformer 1000kVA, 11/0.42kV at WTW Prov sum - R600,000.00 ME9.3 Charges and profit on Transformer 1000kVA, 11/0.42kV at WTW ( <i>expressed as a percentage of the provisional sum amount</i> ) % R600,000.00  <b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:-</b>  ME9.4 All materials and equipment summarized in Section ME9. complete Sum -  <b>Other:-</b> ME9.5 All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) Sum - ..... ..... ..... ..... .....				
		<b>TOTAL SECTION ME9.: Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.24	<b>SECTION ME10.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>LOW VOLTAGE CABLES</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>  ME10.1 2.5mm <sup>2</sup> x 4 core m 300 ME10.2 4.0mm <sup>2</sup> x 4 core m 300 ME10.3 6mm <sup>2</sup> x 4 core m 400 ME10.4 50mm <sup>2</sup> x 4 core m 100  <u>Cable Terminations for Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>  ME10.5 2.5mm <sup>2</sup> x 4 core No. 12 ME10.6 4.0mm <sup>2</sup> x 4 core No. 10 ME10.7 6mm <sup>2</sup> x 4 core No. 10 ME10.8 50mm <sup>2</sup> x 4 core No. 4  <u>Bare Copper Earth Conductor (BCEC) with stranded conductors</u>  ME10.9 4mm <sup>2</sup> m 100 ME10.10 6mm <sup>2</sup> m 100 ME10.11 25mm <sup>2</sup> m 100 ME10.12 70mm <sup>2</sup> m 300  <u>Terminations for Bare Copper Earth Conductor (BCEC) with stranded conductors</u>  ME10.13 4mm <sup>2</sup> No. 20 ME10.14 6mm <sup>2</sup> No. 20				
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME10.15		25mm²	No.	20		
ME10.16		70mm²	No.	20		
		<u>Underground cable ancillaries</u>				
ME10.17		Cable warning/danger tape	m	500		
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>				
		<u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>				
ME10.18		2.5mm² x 4 core	m	300		
ME10.19		4.0mm² x 4 core	m	300		
ME10.20		6mm² x 4 core	m	400		
ME10.21		50mm² x 4 core	m	100		
		<u>Cable Terminations for Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>				
ME10.22		2.5mm² x 4 core	No.	12		
ME10.23		4.0mm² x 4 core	No.	10		
ME10.24		6mm² x 4 core	No.	10		
ME10.25		50mm² x 4 core	No.	4		
		<u>Bare Copper Earth Conductor (BCEC) with stranded conductors</u>				
ME10.26		4mm²	m	100		
ME10.27		6mm²	m	100		
ME10.28		25mm²	m	100		
ME10.29		70mm²	m	300		
		<u>Terminations for Bare Copper Earth Conductor (BCEC) with stranded conductors</u>				
ME10.30		4mm²	No.	20		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME10.31		6mm <sup>2</sup>	No.	20		
ME10.32		25mm <sup>2</sup>	No.	20		
ME10.33		70mm <sup>2</sup>	No.	20		
		<u>Underground cable ancillaries</u>				
ME10.34		Cable warning/danger tape	No.	500		
		<b>Other:-</b>				
ME10.35		Bonding of entire installation including MV cable supports	Sum	-		
ME10.36		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> )	Sum	-		
		.....				
		.....				
		.....				
		.....				
		.....				
		TOTAL SECTION ME10.: Carried to Summary			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.24	<b>SECTION ME11.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>CABLE SUPPORTS</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>Heavy Duty Hot Dipped Galvanised Mild Steel Cable ladder</u>  100 x 100mm (W x H) 200 x 100mm (W x H) 400 x 100mm (W x H) 600 x 100mm (W x H) 800 x 100mm (W x H)  <u>Heavy Duty Hot Dipped Galvanised Mild Steel Cable ladder Tee off / 90 deg horizontal elbow / internal Riser / dropper pieces.</u>  100 x 100mm (W x H) 200 x 100mm (W x H) 400 x 100mm (W x H) 600 x 100mm (W x H) 800 x 100mm (W x H)  <u>Hot Dipped Galvanised Wire Mesh Cable Tray</u>  100 x 50mm (W x H), Ø 4mm Wire 200 x 50mm (W x H), Ø 4mm Wire 400 x 50mm (W x H), Ø 4mm Wire				
ME11.1		100 x 100mm (W x H)	m	40		
ME11.2		200 x 100mm (W x H)	m	40		
ME11.3		400 x 100mm (W x H)	m	40		
ME11.4		600 x 100mm (W x H)	m	80		
ME11.5		800 x 100mm (W x H)	m	60		
ME11.6		100 x 100mm (W x H)	No.	20		
ME11.7		200 x 100mm (W x H)	No.	20		
ME11.8		400 x 100mm (W x H)	No.	20		
ME11.9		600 x 100mm (W x H)	No.	25		
ME11.10		800 x 100mm (W x H)	No.	25		
ME11.11		100 x 50mm (W x H), Ø 4mm Wire	m	60		
ME11.12		200 x 50mm (W x H), Ø 4mm Wire	m	60		
ME11.13		400 x 50mm (W x H), Ø 4mm Wire	m	60		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>				
		<u>Heavy Duty Hot Dipped Galvanised Mild Steel Cable ladder</u>				
ME11.14		100 x 100mm (W x H)	m	40		
ME11.15		200 x 100mm (W x H)	m	40		
ME11.16		400 x 100mm (W x H)	m	40		
ME11.17		600 x 100mm (W x H)	m	80		
ME11.18		800 x 100mm (W x H)	m	60		
		<u>Heavy Duty Hot Dipped Galvanised Mild Steel Cable ladder Tee off / 90 deg horizontal elbow / internal Riser / dropper pieces.</u>				
ME11.19		100 x 100mm (W x H)	No.	20		
ME11.20		200 x 100mm (W x H)	No.	20		
ME11.21		400 x 100mm (W x H)	No.	20		
ME11.22		600 x 100mm (W x H)	No.	25		
ME11.23		800 x 100mm (W x H)	No.	25		
		<u>Hot Dipped Galvanised Wire Mesh Cable Tray</u>				
ME11.24		100 x 50mm (W x H), Ø 4mm Wire	m	60		
ME11.25		200 x 50mm (W x H), Ø 4mm Wire	m	60		
ME11.26		400 x 50mm (W x H), Ø 4mm Wire	m	60		
ME11.27		600 x 50mm (W x H), Ø 4mm Wire	m	-		
ME11.28		Labeling of Cables and Equipment	Sum	-		
ME11.29		Bonding of all extraneous conductive parts	Sum	-		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME11.30		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME11.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.26	<b>SECTION ME12.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>LV SWITCHGEAR AND CONTROLGEAR ASSEMBLIES</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>				
ME12.1		Pump station MCC (MCC-PS) complete	No.	1		
ME12.2		Field Control Station for motor (start/E-stop)	No.	16		
ME12.3		Field Switch Disconnecter for actuated valve	No.	12		
ME12.4		Field Switch Disconnecter for crane	No.	1		
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>				
ME12.5		All materials and equipment summarized in Section ME12. complete	Sum	-		
		<b>Other:-</b>				
ME12.6		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME12.:</b>				
		<b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME13.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>EARTHING AND LIGHTNING PROTECTION</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>Lightning protection of structures</u>				
ME13.1	PS 9.28, PS 9.29 & DWS1810 clause 10.5	Earthing and lightning protection for the 5 ML reservoir in accordance with drawing 106777-0502-DRG-ST-0406	Sum	-		
ME13.2		Earthing and lightning protection for the Pump Station Building, in accordance with drawing 106777-0504-DRG-EE-0560  <b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>  <u>Lightning protection of structures</u>	Sum	-		
ME13.3		Earthing and lightning protection for the 5 ML reservoir in accordance with drawing 106777-0502-DRG-ST-0406	Sum	-		
ME13.4		Earthing and lightning protection for the Pump Station Building, in accordance with drawing 106777-0504-DRG-EE-0560	Sum	-		
ME13.5		Ground Resistivity Survey for all Buildings' locations on site, by accredited Sub-Contractor	Sum	-		
ME13.6		Lightning Protection Survey of Pump Station and 5 ML reservoir including design by accredited Sub-Contractor	Sum	-		
ME13.7		Additional Lightning protection required as required after survey	Sum	-		R100,000.00
ME13.8		Contractor's markup on Lightning subcontractor's quote	Sum	R100,000		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME13.9		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME13.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.30	<b>SECTION ME14.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>CONTROL, INSTRUMENTATION DATA</b> <b>CABLING</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>  ME14.1 1.5mm <sup>2</sup> x 4 core m 100 ME14.2 1.5mm <sup>2</sup> x 12 core m 200 ME14.3 1.5mm <sup>2</sup> x 19core m 100  <u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable terminations</u>  ME14.4 1.5mm <sup>2</sup> x 4 core No. 60 ME14.5 1.5mm <sup>2</sup> x 12 core No. 10 ME14.6 1.5mm <sup>2</sup> x 19core No. 6  <u>Instrumentation cable</u>  ME14.7 1.5mm <sup>2</sup> 1-pair m 700 ME14.8 1.5mm <sup>2</sup> 2-pair m 100 ME14.9 1.5mm <sup>2</sup> 12-pair m 200 ME14.10 1.5mm <sup>2</sup> 19-pair m 100  <u>Terminations for instrumentation cable</u>  ME14.11 1.5mm <sup>2</sup> 1-pair No. 50 ME14.12 1.5mm <sup>2</sup> 2-pair No. 50 ME14.13 1.5mm <sup>2</sup> 12-pair No. 10 ME14.14 1.5mm <sup>2</sup> 19-pair No. 10				
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME14.15		<u>Instrumentation Power Cable</u> 2.5mm <sup>2</sup> x 3 core	m	300		
ME14.16		4mm <sup>2</sup> x 3 core	m	10		
<u>Terminations for Instrumentation power cable</u>						
ME14.17		2.5mm <sup>2</sup> x 3 core	No.	30		
ME14.18		4mm <sup>2</sup> x 3 core	No.	10		
<u>Data Cables</u>						
ME14.19		8 Core Single Mode Fibre Optic cable	m	600		
ME14.20		CAT5 Cables	m	200		
<u>Terminations for Data Cables</u>						
ME14.21		8 Core Single Mode Fibre Optic cable per core	No.	16		
ME14.22		CAT5 Cables	No.	40		
<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>						
<u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable</u>						
ME14.23		1.5mm <sup>2</sup> x 4 core	m	100		
ME14.24		1.5mm <sup>2</sup> x 12 core	m	200		
ME14.25		1.5mm <sup>2</sup> x 19core	m	100		
<u>Cu/PVC/PVC/SWA/PVC 600/1000V multicore cable terminations</u>						
ME14.26		1.5mm <sup>2</sup> x 4 core	No.	60		
ME14.27		1.5mm <sup>2</sup> x 12 core	No.	10		
ME14.28		1.5mm <sup>2</sup> x 19core	No.	6		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<u>Instrumentation cable</u>				
ME14.29		1.5mm <sup>2</sup> 1-pair	m	700		
ME14.30		1.5mm <sup>2</sup> 2-pair	m	100		
ME14.31		1.5mm <sup>2</sup> 12-pair	m	200		
ME14.32		1.5mm <sup>2</sup> 19-pair	m	100		
		<u>Terminations for instrumentation cable</u>				
ME14.33		1.5mm <sup>2</sup> 1-pair	No.	50		
ME14.34		1.5mm <sup>2</sup> 2-pair	No.	50		
ME14.35		1.5mm <sup>2</sup> 12-pair	No.	10		
ME14.36		1.5mm <sup>2</sup> 19-pair	No.	10		
		<u>Instrumentation Power Cable</u>				
ME14.37		2.5mm <sup>2</sup> x 3 core	m	300		
ME14.38		4mm <sup>2</sup> x 3 core	m	10		
		<u>Terminations for Instrumentation power cable</u>				
ME14.39		2.5mm <sup>2</sup> x 3 core	No.	30		
ME14.40		4mm <sup>2</sup> x 3 core	No.	10		
		<u>Data Cables</u>				
ME14.41		8 Core Single Mode Fibre Optic cable	m	600		
ME14.42		CAT5 Cables	m	200		
		<u>Terminations for Data Cables</u>				
ME14.43		8 Core Single Mode Fibre Optic cable per core	No.	16		
ME14.44		CAT5 Cables	No.	40		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME14.45		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME14.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.31	<b>SECTION ME15.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>PROGRAMMABLE LOGIC CONTROLLER</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, programming, simulation, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>PLC per Pump</u>				
ME15.1		Control Desk (Steelwork)	Sum	-		
ME15.2		PLC and HMI hardware, complete	No.	4		
ME15.3		PLC and HMI Software, complete	No.	4		
		<u>Master PLC</u>				
ME15.4		PLC panel (steelwork)	Sum	-		
ME15.5		PLC and HMI hardware, complete	Sum	-		
ME15.6		PLC and HMI Software, complete	Sum	-		
		<b>Allow for all costs and expenses in connection with the Site installation, programming, configuring, simulation, testing and commissioning of the following:-</b>				
ME15.7		All materials and equipment summarized in Section ME15. complete	Sum	-		
		<b>Other:-</b>				
ME15.8		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME15.: Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.32	<b>SECTION ME16.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>INSTRUMENTATION</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>				
ME16.1		Temperature Transmitter for Motor Winding Temperature PT100 RTDs, including mounting materials (2 sets per motor)	No.	24		
ME16.2		Temperature Transmitter for Pump and Motor Bearing Temperature PT100 RTDs, built into the Motors and Pumps	No.	16		
ME16.3		Temperature Transmitter PT100 RTD for Pump Casing Temperature, including mounting materials	No.	5		
ME16.4		Vibration Transmitter for Pumps including two sensors (x,y), electronic vibration monitoring system, transmitter and mounting materials	No.	4		
ME16.5		Ultrasonic Flow Transmitter (DN 700) (Clamp On) including sensor, transmitter and mounting materials	No.	1		
ME16.6		Insertion Magnetic Flow Meter for Pump Leg including mounting materials	No.	4		
ME16.7		Pump circulation flow switch including mounting materials	No.	4		
ME16.8		Level Transmitter (Hydrostatic) for reservoirs including sensor and transmitter	No.	2		
ME16.9		Level Switch (float) for reservoirs including mounting materials	No.	3		
ME16.10		Pressure Transmitter including sensor, transmitter and mounting materials	No.	9		
ME16.11		Proximity Sensors including mounted materials	No.	8		
ME16.12		JB-01 to JB-04: Pump Instrumentation and Control junction box complete with terminations and accessories etc.	No.	4		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME16.13		Instrumentation Transmitter Outdoor housing box complete with terminations and accessories etc.	No.	2		
		<b>Allow for all costs and expenses in connection with the Site installation, programming, configuring, simulation, testing and commissioning of the following:-</b>				
ME16.14		Temperature Transmitter for Motor Winding Temperature PT100 RTDs, including mounting materials (2 sets per pump)	No.	24		
ME16.15		Temperature Transmitter for Pump and Motor Bearing Temperature PT100 RTDs, built into the Motors and Pumps	No.	16		
ME16.16		Temperature Transmitter PT100 RTD for Pump Casing Temperature, including mounting materials	No.	5		
ME16.17		Vibration Transmitter for Pumps including two sensors, transmitter and mounting materials	No.	4		
ME16.18		Ultrasonic Flow Transmitter (DN 700) (Clamp On) including sensor, transmitter and mounting materials	No.	1		
ME16.19		Insertion Magnetic Flow Meter for Pump Leg including mounting materials	No.	4		
ME16.20		Pump circulation flow switch including mounting materials	No.	4		
ME16.21		Level Transmitter (Hydrostatic) for reservoirs including sensor and transmitter	No.	2		
ME16.22		Level Switch (Float) for reservoirs including mounting materials	No.	3		
ME16.23		Pressure Transmitter including sensor, transmitter and mounting materials	No.	9		
ME16.24		Proximity Sensors including mounted materials	No.	8		
ME16.25		JB-01 to JB-04: Pump Instrumentation and Control junction box complete with terminations and accessories etc.	No.	4		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME16.26		Instrumentation Transmitter Outdoor housing box complete with terminations and accessories etc.	No.	2		
ME16.27		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME16.:</b>				
		<b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.33	<b>SECTION ME17.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>SCADA</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, programming, simulation, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>				
ME17.1		SCADA Software Pump Station	Sum	-		
ME17.2		SCADA Hardware Pump Station	Sum	-		
ME17.3		SCADA Software Tsomo WTW	Sum	-		
ME17.4		SCADA Hardware Tsomo WTW	Sum	-		
		<b>Allow for all costs and expenses in connection with the Site installation, programming, configuring, simulation, testing and commissioning of the following:-</b>				
ME17.5		All materials and equipment summarized in Section ME17. complete	Sum	-		
		<b>Other:-</b>				
ME17.6		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME17.: Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.35	<b>SECTION ME18.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>BUILDING ELECTRICAL</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>LUMINAIRES</u>  ME18.1 108W LED Flood Light No 6 ME18.2 65W LED Tube Vapour Proof Fitting No 100 ME18.3 40W LED Luminaire complete with parabolic reflector No 9 ME18.4 18W LED wall mounted exterior bulkhead No 15 ME18.5 Emergency exit light fitting No 10 ME18.6 Photocell No 2 ME18.7 Battery Packs (installed into light fittings) No 18  <u>POWER</u>  ME18.8 16 Amp 3-pin 250V Power Skirting Modular Outlets double switched socket No 2 ME18.9 16 Amp 3-pin 250V double switched socket outlet No 10 ME18.10 16 Amp 3-pin 250V Power Skirting Modular single dedicated switched socket outlet No 2 ME18.11 32 Amp 5-pin 400V industrial switched socket outlet No 5  Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range ME18.12 1-Lever, 1-Way No 8 ME18.13 1-Lever, 2-Way No 8 ME18.14 1-Lever, 3-Way No 3				
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
		<u>Power Skirting</u>				
ME18.15		Double compartment power skirting	m	16		
ME18.16		Double compartment power skirting: End Cap	No	2		
ME18.17		Double compartment power skirting: Internal Bend	No	2		
		<u>WIRING</u>				
		<u>Single core PVC insulated house wire</u>				
ME18.18		1.5mm <sup>2</sup>	m	25		
ME18.19		2.5mm <sup>2</sup>	m	3,000		
ME18.20		4mm <sup>2</sup>	m	400		
		<u>Single core PVC insulated earth wire</u>				
ME18.21		1.5mm <sup>2</sup>	m	25		
ME18.22		2.5mm <sup>2</sup>	m	850		
ME18.23		uPVC sleeve class 6 piping	m	1,000		
ME18.24		Hot-dipped Galvanised Steel P9000 cable trunking	m	200		
		<b>Allow for all costs and expenses in connection with the Site installation, testing and commissioning of the following:</b>				
		<u>LUMINAIRES</u>				
ME18.25		108W LED Flood Light	No	6		
ME18.26		65W LED Tube Vapour Proof Fitting	No	100		
ME18.27		40W LED Luminaire complete with parabolic reflector	No	9		
ME18.28		18W LED wall mounted exterior bulkhead	No	15		
ME18.29		Emergency exit light fitting	No	10		
ME18.30		Photocell	No	2		
ME18.31		Battery Packs (installed into light fittings)	No	18		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME18.32		<u>POWER</u> 16 Amp 3-pin 250V Power Skirting Modular Outlets single switched socket	No	2		
ME18.33		16 Amp 3-pin 250V double switched socket outlet	No	10		
ME18.34		16 Amp 3-pin 250V Power Skirting Modular single dedicated switched socket outlet	No	2		
ME18.35		32 Amp 5-pin 400V industrial switched socket outlet	No	5		
		<u>Industrial Flush Mounted 16A Light Switches complete with boxes, cover plates switches etc; Similar or equivalent to Crabtree Classic Range</u>				
ME18.36		1-Lever, 1-Way	No	8		
ME18.37		1-Lever, 2-Way	No	8		
ME18.38		1-Lever, 3-Way	No	3		
		<u>Power Skirting</u>				
ME18.39		Double compartment power skirting	m	16		
ME18.40		Double compartment power skirting: End Cap	No	2		
ME18.41		Double compartment power skirting: Internal Bend	No	2		
		<u>WIRING</u>				
		<u>Single core PVC insulated house wire</u>				
ME18.42		1.5mm <sup>2</sup>	m	25		
ME18.43		2.5mm <sup>2</sup>	m	3,000		
ME18.44		4mm <sup>2</sup>	m	400		
		<u>Single core PVC insulated earth wire</u>				
ME18.45		1.5mm <sup>2</sup>	m	25		
ME18.46		2.5mm <sup>2</sup>	m	850		
ME18.47		uPVC sleeve class 6 piping	m	1,000		
ME18.48		Hot-dipped Galvanised Steel P9000 cable trunking	m	200		
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME18.49		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME18.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
	PS 9.36 & PS 9.37	<b>SECTION ME19.</b> <b>M&amp;E WORKS - PUMP STATION BUILDING ELECTRONICS</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, routine testing, factory testing, supply, delivery, offloading and storage of the following materials and equipment:</b>  <u>INTRUDER DETECTION</u>  ME19.1 Alarm Intruder Panel No 1 ME19.2 Long Range PIR Detector, 90° Wide No 16 ME19.3 Magnetic Door Monitor No 8 ME19.4 Intruder Detection Keypad No 1 ME19.5 Intruder Detection Loop Cable m 1000  <u>FIRE DETECTION</u>  ME19.6 Fire Detection Panel No 1 ME19.7 Fire Detection Loop Cable m 1000 ME19.8 Optical Smoke Detector No 10 ME19.9 Laser Smoke Detector and Reflector No 2 ME19.10 Break Glass Unit No 6  <u>ALARM NOTIFICATION</u>  ME19.11 Strobe Lights No 2 ME19.12 Siren/Strobe Light Combination No 1  <b>Allow for all costs and expenses in connection with the Site installation, programming, configuring, simulation, testing and commissioning of the following:-</b>  ME19.13 All materials and equipment summarized in Section ME19. complete Sum -				
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME19.14		<b>Other:-</b> All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-		
		<b>TOTAL SECTION ME19.:</b> <b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME20.</b> <b>M&amp;E WORKS - PUMP STATION</b> <b>LIFTING &amp; ACCESS EQUIPMENT</b>  <b>Allow for all the costs and expenses in connection with the design, manufacture, painting, factory testing and supplying of the following materials and equipment:</b>				
ME20.1	PS 9.14	Cat ladder for access to travelling crane	No	1		
ME20.2	PS 9.14	Cat ladder for access to travelling crane service platform	No	4		
ME20.3	PS 9.14	Stainless Steel Grade 304 cat ladder for access to roof of electrical rooms	No	1		
ME20.4	PS 9.14	Access platform for discharge isolation valve to allow easy manual operation	No	4		
ME20.5	PS 9.13	Overhead travelling crane	No	1		
		<b>Allow for all the costs and expenses in connection with the delivery, offloading and storage of the following:</b>				
ME20.6		All materials and equipment summarized in SECTION ME20. complete	Sum	-	-	
		<b>Allow for all costs and expenses in connection with the Site installation of the following:-</b>				
ME20.7		All materials and equipment summarized in SECTION ME20. complete	Sum	-	-	
		<b>Other:-</b>				
ME20.8		All other items not included above but which are nevertheless necessary to meet the Scope of Work and/or are required for the proper, safe and effective operation of the plant ( <i>Specify</i> ) ..... ..... ..... .....	Sum	-	-	
		<b>TOTAL SECTION ME20.:</b>				
		<b>Carried to Summary</b>			R	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME21. M&amp;E WORKS - PUMP STATION SPARES</b>				
		<b>Allow for all costs and expenses in connection with the following items:-</b>				
ME21.1		Pumpset complete with motor, coupling and baseframe	No	1		
ME21.2	PS 9.5	DN600 eccentric axis butterfly valve (PN10)	No	1		
ME21.3	PS 9.5	DN400 eccentric axis butterfly valve (PN63)	No	1		
ME21.4	PS 9.6	DN400 metal seated wedge gate valve (PN63)	No	1		
ME21.5	PS 9.5	DN500 eccentric axis butterfly valve (PN63)	No	1		
ME21.6	PS 9.15	Filter set for main ventilation system	No	2		
ME21.7	PS 9.15	Filter set for MV switchgear room louvre with fan	No	2		
ME21.8	PS 9.15	Filter set for cable gallery inlet louvre	No	1		
ME21.9	PS 9.15	Filter set for cable gallery outlet louvre	No	1		
ME21.10	PS 9.7	Spares for plunger valve	Sum	-		
		<b>TOTAL SECTION ME21.: Carried to Summary</b>			<b>R</b>	

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION ME22. M&amp;E WORKS - PUMP STATION SUNDRIES</b>				
		<b>Allow for all costs and expenses in connection with the following items:</b>				
ME22.1	PS 5.5	Hazop Study	Sum	-	-	
ME22.2	PS 6	Submission of Contractor's Documents	Sum	-	-	
ME22.3	PS 6.2	Providing 2 draft copies of the Installation, Operation and Maintenance Manual prior to commissioning of the Works; until acceptance	Sum	-	-	
ME22.4	PS 6.2	Providing 6 final copies of the Installation, Operation and Maintenance Manual prior to the Issue of the Taking-Over Certificate	Sum	-	-	
ME22.5		Operating instructions and signage, as specified	Sum	-	-	
ME22.6	PS 9.4	Factory inspection of pumps	Sum	-	-	
ME22.7	PS 9.4	Witnessed testing for pumps, including all travel and accommodation costs for 2 Engineers and 2 persons from Employer; and test report	Sum	-	-	
ME22.8	PS 9.7	Witnessed testing for plunger valves, including all travel and accommodation costs for 1 Engineer and 1 Employer; and test certificate	Sum	-	-	
ME22.9	PS 9.4	Factory inspection of butterfly valves	Sum	-	-	
ME22.10	PS 9.4	Witnessed testing for butterfly valves, including all travel and accommodation costs for 2 Engineers and 2 Employers; and test certificate	Sum	-	-	
ME22.11	PS 9.5	Factory inspection of gate valves	Sum	-	-	
ME22.12	PS 9.5	Witnessed testing for gate valves, including all travel and accommodation costs for 1 Engineers and 1 Employer; and test certificate	Sum	-	-	
ME22.13	PS 9.8	Factory inspection of nozzle check valve	Sum	-	-	
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME22.14	PS 9.8	Witnessed testing for nozzle check valve, including all travel and accommodation costs for 1 Engineer and 1 Employer; and test certificate	Sum	-	-	
ME22.15		Factory acceptance testing of electric motors (including temperature rise test) including all travel and accommodation costs for 1 Engineers and 1 person from Employer; and test certificate	Sum	-	-	
ME22.16	PS 9.9	Factory inspections of pipework (six occasions)	Sum	-	-	
ME22.17	PS 9.10	Inspection of couplings and flange adaptors for compliance prior to payment	Sum	-	-	
ME22.18	PS 9.11	Inspection of pipework supports for compliance prior to payment	Sum	-	-	
ME22.19	PS 9.12	Calibration and test certificates for ultrasonic flow meter unit after installation	Sum	-	-	
ME22.20	PS 9.13	Load test certificate for overhead travelling crane	Sum	-	-	
ME22.21	PS 12.19	Factory acceptance testing of MV Switchgear, including all travel and accommodation costs for 2 Engineers and 2 persons from Employers, and test report	Sum	-	-	
ME22.22		Factory acceptance testing of transformers including all travel and accommodation costs for 1 Engineers and 1 person from Employer, and test report	Sum	-	-	
ME22.23		Factory acceptance testing of LV MCC including all travel and accommodation costs for 1 Engineer and 1 person from Employer and test report	Sum	-	-	
ME22.24		Factory acceptance testing including simulation of Control System including all travel and accommodation costs for 2 Engineers and 2 persons from Employer and	Sum	-	-	
ME22.25		Provision of all test certificates and certificate of compliance in terms of the Code of Practice for Wiring of Premises (for each MCC and DB)	Sum	-	-	
Carried forward / ...						

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
Brought forward / ...						
ME22.26	PS 7	Checking, starting up, pre- commissioning testing and commissioning of the Works; including reports	Sum	-	-	
ME22.27	PS 7	Performance Acceptance Testing	Sum	-	-	
ME22.28	PS 7	Trial Operation Period	Sum	-	-	
ME22.29	PS 7	Operational and Maintenance Training, including certification	Sum	-	-	
ME22.30	PS 7	Tuition	Sum	-	-	
ME22.31	PS 7	Performing the specified duties during the Defects Notification Period	Sum	-	-	
ME22.32	PS 9.15	Performing routine maintenance of pump station during Defects Notification Period, over and above duties already included as part of the Defects Notification Period.	Month	12		
ME22.33	PS 9.15	Performing routine maintenance of pump station.	Month	12		
ME22.34	PS 9.15	Testing of the ventilation system	Sum	-	-	
ME22.35	PS 9.4	Provision for the completed installation to be suitable for testing to ISO 9906 Grade 2B on Site during commissioning.	Sum	-	-	
ME22.36	PS 6	Providing "as built" drawings	Sum	-	-	
ME22.37		Point cloud 3D model of complete finished pump station, including reservoir.	Sum	-	-	
ME22.38		Independent inspectorate for inspection of equipment	Prov sum	-	-	R180,000.00
ME22.39		Charges and profit on independent inspectorate ( <i>expressed as a percentage of the provisional sum amount</i> )	%	R180,000.00		
ME22.40	PS 6	Submission of method statements	Sum	-	-	
ME22.41	PS 5.4	Design Workshops	Sum	-	-	
<b>TOTAL SECTION ME22.: Carried to Summary</b>						<b>R</b>

# **Sub-Station and 66kV Line**

Item No	Chief Reference	Short Description	Unit	Quantity	Rate	Amount R c
		<b>SECTION SS1. SUB-STATION AND 66kV LINE</b>				
		<b>Allow for all costs and expenses in connection with the following items:</b>				
SS1.1		7km Double Circuit 66kV line	Prov sum	-	-	R17,200,000.00
SS1.2		Charges and profit on 7km double circuit 66kV line <i>(expressed as a percentage of the provisional sum amount)</i>	%	R17,200,000.00		
SS1.3		66/11kV, 2 x 10MVA TRF Sub-Station	Prov sum	-	-	R33,800,000.00
SS1.4		Charges and profit on 66/11kV, 2 x 10MVA TRF Sub-Station <i>(expressed as a percentage of the provisional sum amount)</i>	%	R33,800,000.00		
SS1.5		Distribution Connection Charge	Prov sum	-	-	R15,000,000.00
SS1.6		Charges and profit on Distribution and Connection Charge <i>(expressed as a percentage of the provisional sum amount)</i>	%	R15,000,000.00		
		<b>TOTAL SECTION SS1.: Carried to Summary</b>			R	

# Summary

SUMMARY		
SECTION A:	PRELIMINARY AND GENERAL	R
	<u>CIVIL WORKS</u>	
SECTION C1:	DN 700 STEEL PIPELINE	R
SECTION C2:	DN 400 PVC PIPELINE	R
SECTION C3:	SITE LAYOUT AND CIVIL WORKS	R
SECTION C4:	PUMP STATION	R
SECTION C5:	5 MI RESERVOIR	R
SECTION C6:	RIVER PROTECTION AND CROSSINGS	R
SECTION C7:	MAIN ACCESS ROAD	R
	<u>MECHANICAL AND ELECTRICAL WORKS</u>	
SECTION ME1:	MULTI-STAGE PUMPS	R
SECTION ME2:	PLUNGER VALVE	R
SECTION ME3:	ISOLATION AND CHECK VALVES	R
SECTION ME4:	PIPEWORK AND SUPPORTS	R
SECTION ME5:	VENTILATION	R
SECTION ME6:	MV CABLE INSTALLATION	R
SECTION ME7:	11 kV OVERHEAD LINE	R
SECTION ME8:	MV SWITCHGEAR	R
SECTION ME9:	DISTRIBUTION TRANSFORMERS	R
SECTION ME10:	LOW VOLTAGE CABLES	R
SECTION ME11:	CABLE SUPPORTS	R
SECTION ME12:	LV SWITCHGEAR AND CONTROLGEAR ASSEMBLIES	R
SECTION ME13:	EARTHING AND LIGHTNING PROTECTION	R
SECTION ME14:	CONTROL, INSTRUMENTATION DATA CABLING	R
SECTION ME15:	PROGRAMMABLE LOGIC CONTROLLER	R
SECTION ME16:	INSTRUMENTATION	R
SECTION ME17:	SCADA	R
SECTION ME18:	BUILDING ELECTRICAL	R
SECTION ME19:	BUILDING ELECTRONICS	R
SECTION ME20:	LIFTING & ACCESS EQUIPMENT	R
SECTION ME21:	SPARES	R
SECTION ME22:	SUNDRIES	R
	<u>SUB-STATION AND 66kV LINE</u>	
SECTION SS1	SUB-STATION AND 66kV LINE	R
	TOTAL OF PRICED ITEMS	R
	Allow 15% contingencies ( <i>to be expended as directed by the Engineer and to be deducted in whole or in part if not required</i> )	R
	SUB-TOTAL OF TENDER	R
	Allow 10% contract price adjustment ( <i>the provisional sum provided here may be employed only as necessary in terms of the Contract Price Adjustment Schedule</i> )	R
	NET TOTAL OF TENDER	R
	Add 14% for Value Added Tax	R
	<b>GROSS TOTAL OF TENDER</b>	R
	<b>Carried to Form C1.1, Form of Offer</b>	