CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

Making progress possible. Together.

MEMORANDUM OF AGREEMENT

FOR THE

DESIGN-BUILD OF
MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT PLANT

MADE AND ENTERED INTO BETWEEN

CITY OF CAPE TOWN METROPOLITAN MUNICIPALITY

AND

PCI/INENZO/RAUBEX/DEVCOTECH Consortium

CONTRACT NO. 146Q/2021/22

FILE 1 OF 2

SECTIONS OF M.O.A. INCLUDED IN THIS FILE:

- **PARTS:**
  - **1: Form of Offer and Acceptance (Agreement)**
  - **2: General Conditions of Contract**
  - **3: Contract Specific Data**
  - **4: Pricing Data**
  - **5: Returnable Schedules**
- **PAGES (1 – 547)**

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MEMORANDUM OF AGREEMENT

Contract No. 146Q/2021/22

FILE 1 OF 2

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Part 2	1	General Conditions of Contract	(128 - 131)
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Part 5	1	Returnable Schedules Submitted	(544 - 547)
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Part 6	2	Scope of Works	(1078 - 1126)
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[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
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MEMORANDUM OF AGREEMENT

FOR THE

DESIGN-BUILD OF
MECHANICAL AND ELECTRICAL WORKS FOR THE
UPGRADE AND EXPANSION OF THE POTSDAM
WASTEWATER TREATMENT PLANT

MADE AND ENTERED INTO BETWEEN

CITY OF CAPE TOWN METROPOLITAN MUNICIPALITY

And

PCI/INENZO/RAUBEX/DEVCOTECH Consortium

Contract No. 146Q/2021/22

[redacted]

PREAMBLE

WHEREAS Tender 146Q/2021/22 was awarded to **PCI/INENZO/RAUBEX/DEVCOTECH Consortium** (A Consortium between Paterson Candy International (Pty) Ltd, Inenzo Water (Pty) Ltd, Raubex Construction (Pty) Ltd and Devcotech Electrical Engineering (Pty) Ltd), in line with resolution **SCMB** 107/10/22 dated **03 November 2022** for the Design-Build of Mechanical and Electrical Works for the Upgrade and Expansion of the Potsdam Wastewater Treatment Plant, **for 55 months** from date of Commencement of Contract, in the amount of **R2 797 654 686.99 (including contingency, excluding VAT) and R3 217 302 890.04 (including VAT)** plus an estimated allowance for Contract Price Adjustment and Foreign Rate of Exchange variations in the amounts of R615 485 000.00 (excluding VAT) and R419 649 000.00 (excluding VAT) respectively.

AND WHEREAS in line with resolution **SCMB 107/10/22** the conclusion of this Contract between the City of Cape Town and **PCI/INENZO/RAUBEX/DEVCOTECH Consortium** is subject to the conclusion of the process prescribed by Section 33 of the Local Government: Municipal Finance Management Act 56 of 2003, budget availability pending the mid-year Adjustment Budget review (Contracts cannot be concluded until budget provision is made available) and the commencement of Contract 295Q/2021/22: Civil, Building and Demolition Works For The Upgrade And Expansion of Potsdam Wastewater Treatment Plant.

AND WHEREAS it is recorded that this Contract will be governed by the provisions of The Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Plant, and for Building and Engineering Works, Designed by the Contractor, First Edition
1999 (Yellow Book) published by the International Federation of Consulting Engineers **(FIDIC),** Standard for Uniformity in Construction Procurement, read with the Contract Specific Data ("**CSD**") annexed hereto marked "**PART 3 CONTRACT SPECIFIC DATA**".

NOW THEREFORE THE PARTIES AGREE AS FOLLOWS:

1. PARTIES

The Parties to this Contract are:

1.1. **The City of Cape Town**, a metropolitan municipality, established in terms of the Local Government: Municipal Structures Act. 117 of 1998 read with the Province of the Western Cape: Provincial Gazette 5588 dated 22 September 2000, as amended ("**the Employer**"), herein represented by the **Executive Director: Water & Sanitation** duly authorised hereto;

1.2. **PCI/INENZO/RAUBEX/DEVCOTECH Consortium,** a consortium of private companies registered in terms of the laws of the Republic of South Africa , with its chosen domicilium situated at **B**[redacted]

[redacted]

[redacted] the "**Contractor**", herein represented by its duly authorised representative, [redacted] in his capacity as **Director of Inenzo (Pty) Ltd**; hereinafter jointly referred to as "Parties" and in singular, a "Party".

2. INTERPRETATION

2.1. In the event of any conflict between the provisions of this Contract, the GCC and any Part attached hereto, or any other document incorporated by reference to this Contract, save to the extent expressly stated to the contrary, such conflict will be resolved by giving precedence to such different parts of this Contract in the following order of precedence:

2.1.1. first, the Form of Offer and Acceptance;

2.1.2. second, the Appendix to Tender within the Contract Data;

2.1.3. third, the Particular Conditions and Annexures within the Contract Data (Part 3: Contract Specific Data)

2.1.4. fourth, General Conditions (Part 2: General Conditions of Contract);

2.1.5. fifth, the Employer's Requirements;

2.1.6. sixth, the Drawings, and

2.1.7. Any Schedules attached hereto and which includes Imported Equipment CPA, Schedule of Quantities and Part 5 Returnable Schedules.

2.2. The provisions of this Contract supersede and replace the provisions of any previous agreement entered into between the Parties relating to the same subject matter.

2.3. The Contractor shall accept that a maximum of 40% of the monetary construction value (excluding provisional sums) is allowed to be subcontracted as per Clause C.2.1.4.3.3 of Part T1.2 Tender Data. The T2.2 Returnable Schedules and Volume 3A, 3B and 4 from the Tender Document, including all attachments and references therein submitted by the Contractor for Tender **146Q/2021/22**, are incorporated into this Contract by mere reference thereto. Pertinent sections of the Returnable Schedules are included hereafter as Parts to the MOA.

3. APPOINTMENT AND DURATION

3.1. The Employer hereby appoints the Contractor to perform the Scope of Work for the Employer from the Commencement Date .

[redacted]

3.2. Unless terminated earlier or unless an extension of time for completion is granted to the Contractor in accordance with the provisions as set out in the GCC or any other provision in terms of this Contract, this Contract shall commence on the Commencement Date and shall terminate on 55 months after the Commencement Date which excludes the 12 month defects notification period.

4. MUTUAL GOOD FAITH / CO-OPERATION

4.1. The Parties represent and undertake to do all such things, perform all such acts and take all steps to procure the doing of all such things and the performance of all such acts, as may be necessary or incidental to give effect to the execution of this Contract.

4.2. The Parties shall at all times during the continuance of this Contract observe the principles of good faith towards one another in the performance of their obligations in terms of this Contract.

5. OBLIGATIONS OF THE EMPLOYER

5.1. The Employer undertakes to perform its obligations in accordance with the Contract, including but not limited to the Scope of Work (**PART 6: SCOPE OF WORKS**), subject to the satisfactory fulfilment of the obligations by the Contractor as set out in this Contract.

5.2. The Employer shall monitor and evaluate the Contractor's performance in respect of the Scope of Work.

6. OBLIGATIONS OF THE CONTRACTOR

6.1. The Contractor hereby agrees and undertakes to perform the Services to the Employer as set out in Scope of Work (**PART 6: SCOPE OF WORKS**).

6.2. The Contractor will perform the Works as expeditiously as possible and furthermore agrees and undertakes to perform the services in accordance with the operational requirements of the Employer.

6.3. The Contractor will ensure that the Works will be of a satisfactory quality and fit for purpose.

6.4. The Contractor shall, ensure that its employees, agents, representatives, sub-contractors and suppliers comply with this Contract and all applicable Laws in the execution of the Works.

[redacted]

6.5. The Contractor will not conduct any activity of whatsoever nature which may be detrimental to the Employer's reputation and goodwill.

7. PRICING DATA

7.1. The Contract Price for the Works shall be as set out in the Pricing Data annexed marked "**PART 4: PRICING DATA**".

7.2. The Contractor shall not be entitled to any other consideration for the rendering of the Works other than as provided for in this Contract.

[redacted]

DETAILS OF CONTRACTOR

[redacted]

CITY OF CAPE TOWN

DIRECTORATE: DEPARTMENT

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

SCHEDULE 1: COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.	
Section 1: Name of enterprise: [redacted]	
Section 2: VAT registration number, if any: [redacted]	
Section 2a: National Treasury Central Supplier Database registration number : [redacted]	
Section 2b: SARS Tax Compliance Status PIN : [redacted]	
Section 3: cidb registration number, if any: [redacted]	
Section 4: Particulars of sole proprietors and partners in partnerships ** Complete only if sole proprietor or partnership and attach separate page if more than 3 partners*	
Section 5: Particulars of companies and close corporations Company registration number [redacted] Close corporation number N/A Tax reference number [redacted]	
Section 6: Foreign Bidding Suppliers Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	☒Yes ☐No If yes, enclose proof
Is tenderer a foreign based supplier for the Goods / Services / Works offered?	☐Yes ☒No If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)
Questionnaire to Bidding Foreign Suppliers – N/A	
a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
c) Does the tenderer have a permanent establishment in the Republic of South Africa?	☐Yes ☐No
d) Does the tenderer have any source of income in the Republic of South Africa?	☐Yes ☐No
e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	☐Yes ☐No

[redacted]

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;

ii) confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004 or Database of Restricted Suppliers;

iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;

iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed [redacted] Date 25/04/2022

Name [redacted] Position Director

Enterprise name Inenzo Water (Pty) Ltd

[redacted]

[redacted]

CITY OF CAPE TOWN

DIRECTORATE: DEPARTMENT

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

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Section 6: Foreign Bidding Suppliers		
Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	☑ Yes If yes, enclose proof CIDB	☐ No
Is tenderer a foreign based supplier for the Goods / Services / Works offered?	☐ Yes If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)	☑ No
Questionnaire to Bidding Foreign Suppliers		
a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐ Yes	☐ No
b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐ Yes	☐ No
c) Does the tenderer have a permanent establishment in the Republic of South Africa?	☐ Yes	☐ No
d) Does the tenderer have any source of income in the Republic of South Africa?	☑ Yes	☐ No
e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	☐ Yes	☐ No

[redacted]

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iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed [redacted] Date

Name [redacted] Position [redacted]

Enterprise name [redacted]

[redacted]

CITY OF CAPE TOWN

DIRECTORATE: DEPARTMENT

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

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Section 5: Particulars of companies and close corporations Company registration number [redacted] Close corporation number N.A. Tax reference number [redacted]	
Section 6: Foreign Bidding Suppliers N.A.	
Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	☐Yes ☐No If yes, enclose proof
Is tenderer a foreign based supplier for the Goods / Services / Works offered?	☐Yes ☐No If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)
Questionnaire to Bidding Foreign Suppliers N.A.	
a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
c) Does the tenderer have a permanent establishment in the Republic of South Africa?	☐Yes ☐No
d) Does the tenderer have any source of income in the Republic of South Africa?	☐Yes ☐No
e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	☐Yes ☐No

[redacted]

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iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed [redacted] Date 26.04.2022

Name [redacted] Position [redacted]

Enterprise name [redacted]

[redacted]

CITY OF CAPE TOWN

DIRECTORATE: DEPARTMENT

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

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Is tenderer the accredited representative in South Africa for the Goods / Services / Works offered?	☐Yes ☐No If yes, enclose proof
Is tenderer a foreign based supplier for the Goods / Services / Works offered?	☐Yes ☐No If yes, answer the Questionnaire to Bidding Foreign Suppliers (below)
Questionnaire to Bidding Foreign Suppliers	
a) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
b) Is the tenderer a resident of the Republic of South Africa or an entity registered in South Africa?	☐Yes ☐No
c) Does the tenderer have a permanent establishment in the Republic of South Africa?	☐Yes ☐No
d) Does the tenderer have any source of income in the Republic of South Africa?	☐Yes ☐No
e) Is the tenderer liable in the Republic of South Africa for any form of taxation?	☐Yes ☐No

[redacted]

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iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and

iv) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed [redacted] Date 2022/04/26

Name [redacted] Position [redacted]

Enterprise name [redacted]

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[redacted]

PART 1: FORM OF OFFER AND ACCEPTANCE

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Form of Offer and Acceptance

Offer

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

CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the tenderer, deemed to be duly authorized, 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 **Three billion, two hundred and seventeen million, three hundred and two thousand, eight hundred and ninety rand and four cents** (inclusive of VAT) (in words);

R **3 217 302 890-04** (inclusive of VAT) (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 .....

for the tenderer

(Name of organization/tenderer) .

(Address of organization/tenderer)

.....

Name and signature of witness .....

Date ....

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:

The Preamble including Clauses 1 to 7, and the sub-clauses, cited in pages 1 to 4 above;
Part1: Form of Offer and Acceptance (which includes this agreement)
Part 2: General Conditions of Contract
Part 3: Contract Specific Data
Part 4: Pricing Data
Part 5: Returnable Schedules Submitted
Part 6: Scope of Work
Part 7: Site Information

and together with any drawings and documents or parts thereof, which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the returnable schedules as well as any changes to the terms of the offer agreed by the tenderer and the Employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this form of offer and acceptance. No amendments to or deviations from said documents are valid unless contained in this schedule.

The tenderer shall within two weeks 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 securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. 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 parties have signed the table below and the Contractor confirms receipt from the Employer of one fully completed original copy of this agreement, including the schedule of deviations (if any). The Tenderer (now Contractor) shall within five working days of the agreement coming into effect notify the Employer in writing of any reason why he cannot accept the contents of this agreement as a complete and accurate memorandum thereof, failing which the agreement presented to the Contractor shall constitute the binding contract between the parties.



The Parties	Employer	Contractor
Business Name	**CITY OF CAPE TOWN**	[redacted]
Business Registration	N/A	
Tax number (VAT)	[redacted]	[redacted]
Physical Address	Tower Block, Civic Centre, 12 Hertzog Boulevard Cape Town 8001	As per Schedule 3 of Returnable Schedules submitted with tender document
Accepted contract sum including tax	R 3 217 302 890-04 (inclusive of VAT)	R 3 217 302 890-04 (inclusive of VAT)
Accepted contract duration	55 months from the Commencement Date	55 months from the Commencement Date
Signed – who by signature hereto warrants authority	[redacted]	[redacted]
Name of signatory	[redacted]	
Signed: Date		
Signed: Location		
Signed: Witness		
Name of Witness		

[redacted]

Schedule of Deviations

Notes:

1. The extent of deviations from the tender documents issued by the Employer before 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 it is agreed by the parties becomes an obligation of the contract 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: **NOTICE TO TENDERERS NO.1**, DATED 17 DECEMBER 2021,
   CONTRACT NO. 146Q/2021/22:DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

2. Subject: **NOTICE TO TENDERERS NO.2**, DATED 26 JANUARY 2022,
   CONTRACT NO. 146Q/2021/22:DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

3. Subject: **NOTICE TO TENDERERS NO.3**, DATED 10 MARCH 2022,
   CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

4. Subject: **NOTICE TO TENDERERS NO. 4**, DATED 23 MARCH 2022,
   CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

5. Subject: **NOTICE TO TENDERERS NO. 5**, DATED 22 APRIL 2022,
   CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

6. Subject: **TENDER CLARIFICATION NO. 1** AND **RESPONSE FROM THE PCI /INENZO /RAUBEX/ DEVCOTECH CONSORTIUM** , DATED 20 JULY 2022 AND 28 JULY 2022 , RESPECTIVELY.
   CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

7. Subject: **CCT LETTERS OF NEGOTIATION WITH PREFERRED BIDDER, RESPONSE FROM PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM IN TENDER CLARIFICATION NO.2 – REVISED** AND **FINAL EMAIL RESPONSES FROM THE PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM,** DATED 6 SEPTEMBER 2022 , 7 OCTOBER 2022 AND 11 OCTOBER 2022, RESPECTIVELY,
   CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT



Details: SEE ATTACHED

8. Subject: **PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM DRAFT COMMENTS ON THE M.O.A. DOCUMENT, PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM EMAIL CONFIRMATION THAT THE DRAFT COMMENTS ARE THE FINAL COMMENTS FROM THE CONSORTIUM, CCT RESPONSE TO THE PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM M.O.A. COMMENTS** AND **FINAL RESPONSE LETTER FROM THE PCI/INENZO/RAUBEX/DEVCOTECH CONSORTIUM ON THE M.O.A.**, DATED 13 JANUARY 2023 , 16 JANUARY 2023, 17 JANUARY 2023 AND 17 JANUARY 2023, RESPECTIVELY. CONTRACT NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

   Details: SEE ATTACHED

All Addenda, Clarification. Responses and Letter of Negotiations are attached hereafter

By the duly authorised representatives signing this agreement, 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 returnable schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the Employer during this process of offer and acceptance.

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



CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT
[redacted]
Supply Chain Management

T: 021 400 9240
E: Ngoetsana.Mpalami@capetown.gov.za

17 DECEMBER 2021

NOTICE TO TENDERERS NO. 1
(Pages 4)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 14 February 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

QUESTIONS AND RESPONSES FROM THE CLARIFICATION MEETING HELD ON 30 NOVEMBER 2021

The following table lists the questions with associated answers raised during the clarification meeting (FOR INFORMATION PURPOSES ONLY):

Ref.	Question	Response
Q1	Will the presentation be shared with the attendees?	Will review and respond accordingly
Q2	Is sub-contracting compulsory?	No.
Q3	Will alternative equipment to Schneider be considered for electrical and electronic equipment?	Yes, no brand specific equipment is specified.
Q4	Is sub-contracting threshold applicable to specific sections or to the total contract?	Total Contract.
Q5	Does a sub-contractor require the same CIDB grading as the main contractor?	No.
Q6	Can the printed BoQ be bound into the document?	Yes, the printed BoQ must be bound into the tender document but the pages of the issued BoQ should not be removed from the tender document all as per Clause C.2.13.11 c) & d).
Q7	The functionality criteria refer to "Responsible Contractor" in item 4.1 and 5.1 but the amount of reference projects seems to indicate that the supplier will be scored. How should this be interpreted?	The Responsible Contractor will be scored (i.e. contractor or sub-contractor). Section 4 and 5 of the Functionality has been amended within the addendum hereafter. Refer to page 5 of this notice.
Q8	How is the difference between Sub-contractor and supplier defined?	Refer to FIDIC Clauses 1.1.2.8, 1.1.5.5 and 1.1.5.8 for definitions. A sub-contractor is responsible for execution of Works

[redacted]

Ref.	Question	Response
Q9	What are the expected time frames applicable to the Section 33?	It is anticipated that the Section 33 process will be completed in 6 months (excluding the evaluation, adjudication, appeal process, etc.).
Q10	Is there a possibility for an extension of time on the closing date?	Contractors are permitted to submit a request for an extension of time with appropriate motivations. The City of Cape Town (CCT) will evaluate and make a determination accordingly.
Q11	Can the decision on whether a EoT will be granted be communicated to the attendees as soon as possible?	The decision to grant an EOT to the closing date will be based on the motivations received by the tenderers and the CCT will respond as soon as possible.
Q12	Will advanced payments be made on this contract.	Normal protocols apply. Specific items have been identified which will be subject to advance payments (refer to Advance Payment Schedule on pg. 123 Part C1.2: Contract Data)
Q13	Who will operate the temporary works associated with the change over from the old to the new sludge management facilities?	Refer to Table 3.5.5.3-1 included in Part C3.5: Management Sub-clause 3.5.5.3. This table specifically addressed interface and responsibilities for the construction of the new sludge management facility.
Q14	Normal CPA does not cover large fluctuations of material costs. Can an alternative arrangement be made?	CPA does apply and does cover fluctuations of material costs.
Q15	Does the Trial Operation period precede the Defects Notification Period?	Yes, the TOP precedes the DNP for the sections of Works defined in the Contract.
Q16	Will the CCT consider making the 3D models available to the Contractors for pricing/design purposes?	The CCT will not make 3D models available to the Contractors.
Q17	Is it possible to reduce the Performance Guarantee from 10% to 7%?	Contractors are permitted to submit a request to reduce the percentage of the Performance Guarantee with appropriate motivations. The City of Cape Town (CCT) will evaluate and make a determination accordingly.
Q18	Does the printing of selective returnable schedules have to be done on the same page colour?	No. White paper is also considered acceptable.

Refer to attached documentation (FOR INFORMATION PURPOSES ONLY) included hereafter:

1. Clarification meeting presentation.
2. Compulsory site visit attendance register.
3. Compulsory clarification meeting attendance register.

[redacted]

QUESTIONS AND RESPONSES RECEIVED SUBSEQUNT TO CLARIFICATION MEETING UPTO THE ISSUE OF THIS ADDENDUM:

The following table lists key clarifications, which have been communicated to the CCT via official communication channels. It should be noted that where questions or clarifications have been submitted and is not specifically addressed herein, the relevant party shall accept that the answer to the question or clarification shall be accepted as "specified in the tender document".

Tenderers shall note that these clarifications are FOR INFORMATION PURPOSES ONLY.

	Reference	Question/Clarification	Response
C1	Volume 1, Page 10 of Part T1.2 Clause C2.1.4.3.3	How do you define a sub-contractor?	Refer to Q7 response to clarification meeting Q&A.
C2	Volume 1, Page 10 of Part T1.2 Clause C2.1.4.3.3, Table 2, Item 1.4	What amount of reference projects must be shown to acquire the score associated with the following scoring notation "1 ≤ RP ≤ 2"?	1 ≤ RP ≤ 2 stipulates that if you have 1 or 2 reference projects you will be assigned the relevant point allocation.
C3	Volume 1, Page 10 of Part T1.2 Clause C2.1.4.3.3, Table 2, Item 1.1.	What's the implication of "more than one unit process" associated with item No.1.1 in Table 2?	A unit process is considered any operation/process or combination thereof (e.g., screening, settling, aeration, etc.)
C4	Volume 2, Page TDS M10-2 of Part T2.2 Returnable Documents, Returnable Schedule M10.1 '24Pressurized UF membrane details, 5th row.	Duration under *membrane design flow criteria* states "continuous" whereas specification states peak flow for 6 hour per day. Please confirm peak duration.	Term "continuous" is deliberately stated to ensure the offered membrane performance and warrantee is not affected by a sustained peak flow of 65 Ml/d.
C5	Volume 2, Page 101 of Part C1.2 Contract Data, Appendix to Tender, Clause 14.3(c)	Can the stipulated 10% retention limit be reduced to 5%.	Refer to Q16 response to clarification meeting Q&A.
C6	Volume 3A, Part C3.6, Page C3.6.1-111 of DMS Section 25.1.3	Specification lists 6mm and 2mm screening as pretreatment to reactor. Ultra-fine screen is specified as 1.5mm. Is this intentional?	Specification 25.1.3 and 10.1 of the DMS shall be considered independently. Membrane suppliers shall offer a system as if 2 mm aperture fine screen is installed.

[redacted]

C7	Volume 3A, Part C3.6, Page C3.6.1-79 and 90 of DMS Section 20.3.3 & 21.3.2, respectively	Why has the ThOR been specified and not the SOTR?	Various suppliers have different guaranteed efficiencies. With the ThOR suppliers can price according to their capability and obtain benefit from having higher efficiencies compared to their competitors.
Note: DMS Detailed Mechanical Specifications (Part C3.6.1)			

[redacted]

ADDENDUM NO. 1

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 14 February 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

VOLUME 1: TENDERING PROCEDURES

Page i - General Tender Information

The closing date in the middle of the page is hereby amended to read:

"CLOSING DATE 14 February 2022"

Strike through and replace page i and replace with attached page i (R).

Part T1.2 Tender Data

Page 11 and 12 - Clause 2.1.4.3.3 Functionality Criteria

The scoring criteria for Section 4 and 5 is hereby amended to read:

4	**Supply and install of equipment associated with Secondary treatment : Ultra fine screens and Membrane Bioreactor (MBR)**				
4.1^	Responsible Contractor for the supply, installation and commissioning (local or internationally) of MBR equipment (i.e. membrane cassettes) where the reactor had an average dry weather flow capacity of ≥ **10 Ml/d**, based on FIDIC design – build or equivalent contract.	2000 to 2020	**RP ≤ 0**	0	20
			0 < RP ≤ 1	10	
			RP > 1	20	
4.2	Reference sites where ultra-fine screen offered with this tender was successfully commissioned in a coastal city and operational for a 8 year period without having undergo major overhaul, where the screen system had an average dry weather flow capacity of ≥ 20 Ml/d.	n/a	RSG ≤ 10	0	50
			10 < RSG ≤ 20	35	
			RSG >20	50	
4.3	Reference sites where membrane equipment offered (i.e. specifically the hollow fibre membrane) with this tender was successfully commissioned and remained operational for a 10 year period.	n/a	RSG ≤ 10	0	90
			10 < RSG ≤ 20	70	
			RSG >20	90	
4.4^	Responsible Contractor for the successful design, installation and commissioning of the operation and automation protocol (i.e. PLC, SCADA etc.) associated with a MBR system.	2000 to 2020	**RP ≤ 0**	0	10
			0 < RP ≤ 1	7	
			RP > 1	10	

[redacted]

5	**Supply and install of equipment associated with tertiary treatment: Pressurised Ultra Filtration (UF) technology & ultraviolet (UV) disinfection**				
5.1^	Responsible Contractor for the supply, installation and commissioning (local or internationally) of a pressurised ultra-filtration system, where the filter had an average dry weather flow capacity of ≥ 10 Ml/d based on FIDIC design – build or equivalent contract.	2000 to 2020	**RP ≤ 0** **0 < RP ≤ 1** **RP > 1**	**0** **7** **10**	**10**
5.2	Reference sites where micro screen offered with this tender was successfully commissioned and operational for a 5 year period without having undergone a major overhaul, where the screen system had an average dry weather flow capacity of ≥ 10 Ml/d.	n/a	RSG ≤ 10 10 < RSG ≤ 30 RSG > 30	0 10 20	20
5.3	Reference sites where UF membrane equipment offered **(i.e. specifically the hollow fibre membrane)** with this tender was successfully commissioned and remained operational for a 10 year period without having undergone a major overhaul.	n/a	RSG ≤ 10 10 < RSG ≤ 20 RSG > 20	**0** **20** **45**	**45**
5.4	Reference sites where UV disinfection equipment offered with this tender was successfully commissioned in a coastal city and has been operational for a 8 year period without having undergone a major overhaul, where the UV system had an average dry weather flow capacity of ≥ 10 Ml/d.	n/a	RSG ≤ 10 10 < RSG ≤ 20 RSG > 20	**0** **10** **20**	**20**
5.5^	Responsible Contractor for the successful design, installation and commissioning of the operation and automation protocol (i.e. PLC, SCADA etc.) associated with a UF system with an average dry weather flow of ≥ 10 Ml/d (locally).	2000 to 2020	**RP ≤ 0** **0 < RP ≤ 2** **RP > 2**	**0** **3** **5**	**5**

Strike through and replace-pages 11 and 12 and replace with attached pages 11(R) and 12(R).

VOLUME 3: DRAFT CONTRACT

Part C1.2 Contract Data

Page 99 - Clause 1.1.3.3 & 1.1.3.10 & 1.1.3.11 & 8.2 Time for Completion of the Works

The numbers stipulated for Section B has been revised and the reference to Section C in the footer note is revised with this addendum. Replace the table entry in the clause with the following:

Description	**Sections (days)**				
	A	**B**	**C**	**C Sub-A**	**D**
RFC	n/a	n/a	n/a	630	n/a
RFTO	660	**1160**	1280*		1615
Time for Completion	1025	**1190**	1645*		1645

Note:
* The Completion dates for Section C (i.e. RFTO and Time for Completion) shall be for the whole of **Section C inclusive of Section C Sub-A.**

[redacted]

Page 99 - Clause 1.1.5.6 Sections of Works

The description associated with Sections C and D is revised. Replace the table entry in the clause with the following:

Section A:	**ULTRA-FILTRATION WORKS** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section B:	**MANAGEMENT BUILDING** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section C	Whole of the Works excluding Section A, B and D shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section C Sub-Section A:	**SLUDGE STORAGE AND DEWATERING** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section D	**REFURBISHMENT OF '08 WORKS AND DEMOLITION OF THE '97 WORKS** shall be in terms of Clause 3.1.2 of C3.1: Description of Works

Strike through and replace page 99 and replace with attached page 99(R).

Page 100 - Clause 5.2 Contractors Documents

The time for submission associated with Section B is amended and a time limit for section D has been added. Replace the table entry in the clause with the following:

Time for submission	
Section A:	120 days
Section B:	**195 days**
Section C:	Critical path: 120 days
	All works: 180 days
Section C Sub-section A	Temporary Works: 90 days
	Permanent Works: 120 days
Section D	**680 days**

Page 100 - Clause 8.7* & 14.15(b) Delay penalties for the Works

Include a delay penalty for Section D for R30,000 on failure to adhere to the stipulated Time for Completion.

Description	**Sections**				
	A	**B**	**C**	**C-Sub-Section A**	**D**
RFC	n/a	n/a	n/a	R50,000	**n/a**
RFTO	R50,000	n/a	R80,000		**n/a**
Time for Completion	R50,000	R30,000	R80,000		**R30,000**
Note: Rates shown above shall be applied per calendar day.					

Strike through and replace page 100 and replace with attached page 100(R).

[redacted]

Page 105 - Sub-clause 1.6.1 Condition Precedent

Remove the term "or objection" from subclause 1.6.1.1.1 to read as follow:

1.6.1.1.1 A period of 21 (twenty one) days after the award of Contract 146Q/2021/22 has lapsed without an appeal lodged against the said award as contemplated in Section 62 of the Municipal Finance Management Act 32 of 2000;

Strike through and replace page 105 and replace with attached page 105 (R).

Page 106 - Sub-clause 1.6.1 Condition Precedent

Remove the term "or objection" from subclause 1.6.1.1.3.b to read as follow:

b) A period of 21 (twenty one) days after the award of Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT has lapsed without an appeal lodged against the said award as contemplated in Section 62 of the Municipal Finance Management Act 32 of 2000;

Strike through and replace page 106 and replace with attached page 106 (R).

Part C3.1 Description of Works

Page 141 - Clause 3.1.1 Employers Objective

Replace the third paragraph with the following:

"The Works shall be done in Sections referenced in the GCC Clause 1.1.5.6 with Sections; Section A: UF Works including UF Reuse system and Reuse site manifold, Section B: Management building and associated site services and parking, and **Section C: whole of the Works excluding Sections A, B, D and including Section C with Sub-section A: sludge storage and dewatering, Section D: Refurbishment of '08 Works and Demolition Of The '97 Works."**

Replace the reference to Part C3.1.7 in the fifth paragraph with C3.5.5.

"As mentioned, installation of mechanical and electrical equipment can only commence once the civil works have progressed to a stage where unhindered and safe access can reasonably be given to the Contractor. Therefore, specific details related to the project implementation program for planning purposes has been included under **Part C3.5.5**, and the Contractor shall be deemed to have based his tender price on these program specifications and maximum Time for Completion. Any material deviations from these program specifications shall be clearly noted in the Contractor's tender submission."

Strike through and replace page 141 and replace with attached page 141(R).

Clause 3.1.3 Extent of the Works

Page 144 - Sub-clause 3.1.3.3.

Replace the sub-clause with the following:

"3.1.3.3 '08 Train **(Section D)**

- **Refurbishment of selected mechanical and electrical equipment associated with the existing '08 Train including new pump systems (low lift and WAS pump station) & mechanical loading equipment;**
- Incorporation of an advanced aeration control philosophy;
- Supply and installation of ferric chloride dosing system for phosphate removal;"

[redacted]

Strike through and replace page 144 and replace with attached page 144(R).

Part C3.2 Engineering

Page 159 - Sub-clause 3.2.5.3.2 List of Contractor documents to be provided as part of Contractor design obligations

Replace the first paragraph and the associated list of document submissions time limits and replace with the following:

"The list of Contractors documents shall be submitted in terms of the Sections of the Works defined in terms of Clause 1.1.5.6 of the General Conditions of Contract. The Contract shall submit the documents within the time frames stipulated **in terms of Clause 5.2 of the Appendix to Tender under C1.2 Contract Data.**"

Strike through and replace page 160 and replace with attached page 160 (R).

Part C3.5 Management

Page 173 - Sub-clause 3.5.5.2 Sequencing and access to Site

Replace the stipulated time frames for Section B and at footer notes to Table 3.5.5.2.-1. Replace the table with the following:

Description	Section A[7] (days)	Section B[7] (days)	Section C[7] (days)	Section C Sub-section A[7.8] (days)	Section D[7.9] (days)
Design of Temporary Works[1]	-	-	-	90	-
Finalise design of Works[2]	120	**195**	120/180	120	-
Access to site to erect and install[3]	480	**1100**	920	450	-
RFC[4]	-	-	-	630	-
RFTO[4]	660	**1160**	1280	1280	1615
Taking over Certificate[5]	1025	**1190**	1645	1645	1645
End of Defects and Notification[6]	1390	**1555**	2010	2010	2010

Note:

1 Temporary works as defined in Table 3.5.5.3 – 1: *Interface on sludge management facility* (refer to Section 3.5.5.3.

2 Finalised design shall be in accordance with submission (and approval) of Contractor's Documents listed in Section 3.2.5.3.2 of C3.2.

3 Access to site to erect and install shall be accepted as the latest period after which the Civil contractor has progress far enough in order to begin with sections of the installation of the relevant mechanical and electrical Works. To avoid any confusion it is noted that this period does not refer to the completion date of the civil component of the Sections of Works. Exact dates shall be confirmed once the Construction Program is finalised.

4 RFC and RFTO as defined in Clauses 1.1.3.10 and 1.1.3.11 of the General Conditions of Contract.

5 As defined in terms of Clause 10.1 of the General Conditions of Contract.

6 As defined in terms of Clause 11 of the General Conditions of Contract.

7 Sections are as defined in Clause 1.1.5.6 of the General Conditions of Contract.

8 **The temporary works associated with Section C Sub-A shall be commissioned after 120 days from Commencement Date.**

9 **The '97 Works has to be decommissioned after 1400 days from Commencement Date. However, decommissioning may only take place after successful trail operation of at least 90 days for the whole of the Works excluding Section D.**

[redacted]

Replace the reference to Section B in the first paragraph after Table 3.5.5.2-1 with Section C. This paragraph shall read as follow:

"It will be a specific requirement that design review commences with Sections A and **C** of the Works to ensure civil work required in terms of these Sections of the plant can commence as soon as practically possible."

Strike through and replace page 173 and replace with attached page 173 (R).

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-264

Clause 45: '24 Pressurized ultra-filtration system

Clause 45.2.1: Design requirements and process parameters

Replace the description of the membrane unit configuration paragraph with the following:

"Membrane unit configuration: **At least eight** (8) units based on:
a) **minimum of** five (5) units for active filtration
b) **minimum of** one (1) unit for backwash events
c) **minimum of** one (1) unit for maintenance events
d) **minimum of** one (1) unit serving as a full time standby"

Replace the description of the net allowable permeate flux with the following:

"Net allowable permeate flux 50 l/m2.h at 16 degree C (net flux)
Note: Net permeate flux shall include the time required for membrane backwash (and relaxation) during operation and deduct the backwash volume from the production. **To avoid confusion the contractor shall note if 5 units (or skids) are allowed for active filtration, the effective filtration area per unit (or skid) shall be 10 833 m2. If this effective filtration area cannot be achieved, 6 active filtration units (or skid) shall be allowed for with an effective filtration area of 9 028 m2 per unit."**

Replace the description of the allowable operating trans-membrane pressure range with the following:

"Allowable operating Trans-membrane pressure (TMP) range: **140 kPa**"

Replace the description for the allowable operating trans-membrane pressure range with the following:

"**Allowable operating feed pressure: 300 kPa**"

[redacted]

Replace the description for the peak design flowrate range with the following:

"Peak design flow rate: Sustained flow of 2 708.34 m³/hr (i.e. **in excess of** 6 hours per day, 365 days per year)

Strike through and replace page C3.6.1-264 and replace with attached page C3.6.1-264 (R).

[End of addendum]

Thanking you

[redacted]

.....
On behalf of: Basil Chinasamy
Director: Supply Chain Management

ADDENDUM No. 1

ACKNOWLEDGEMENT OF RECEIPT FOR AND ON BEHALF OF THE TENDERER: TENDER No. 146Q/2021/22

At ..... on this ..... Day of ..... 20.....

Signature: .....

Name of Signatory: .....
(In ink and capitals)

TENDERER: .....
(Name of firm in ink and capitals)

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT
[redacted]
Supply Chain Management

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26 JANUARY 2022

NOTICE TO TENDERERS NO. 2
(Pages 3)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 14 FEBRUARY 2022

REVISED CLOSING DATE: 28 March 2022 (Refer to Addendum No.2 hereafter)

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

QUESTIONS AND RESPONSES RECEIVED SUBSEQUENT TO ADDENDUM NO 1 UP TO THE ISSUE OF THIS ADDENDUM:

The following table lists key clarifications which have been communicated to the CCT via official communication channels. It should be noted that where questions or clarifications have been submitted and is not specifically addressed herein, the relevant party shall accept that the answer to the question or clarification shall be accepted as "specified in the tender document".

Tenderers shall note that these clarifications are FOR INFORMATION PURPOSES ONLY.

	Reference	Question/Clarification	Response
C1	Volume 1, Page 11 of Part T1.2 Clause C2.1.4.3.3	How will scores be assigned for Section 4 of the Functionality Criteria stipulated in Table 2?	To score points for reference projects a completion certificate must be provided with the Tenderer's name referenced. Reference sites for equipment offered can be scored independently of the Tenderer's involvement.
C2	Volume 1, Section C2.2, Schedule of Quantities	Can the password for the BOQ be shared?	Password will not be shared.
C3	Volume 1, Section C2.2 page E22-1,	We kindly request a detailed list of instruments per section of the plant. This will give the client/engineer the	Tenderers offer to be in accordance with the Contract Document.

[redacted]

	Reference	Question/Clarification	Response
	Schedule of Quantities – E22	opportunity to receive like for like costings for fair evaluation	
C4	Volume 1, Section C2.2 page M4-1 & M23-1, Schedule of Quantities – M4 & M23 Pumps and pipework	We highlight the following piping drawings outstanding, and request assistance from the Engineer to provide the preliminary piping design drawings. BOQ Number: 4.2.2.6; 4.2.2.8 (a); 4.2.2.9; 4.2.2.10; 4.2.2.15; 4.2.2.16; 4.2.2.18; 4.2.2.19; 4.2.2.20; 4.2.2.21; 4.2.2.22; 4.2.2.23; 4.2.2.24; 23.2.2.1.	Tenderers offer to be in accordance with the Contract Document. Also refer to Section 3.9 of the DMS.
C5	Volume 2, Page 52 to 78 of Part T2.2, Returnable Schedules 22	Can the Annex C tables be completed in electronic format?	Annex C schedules can be completed in electronic format. Printed copy must be signed by signatory.
C6	Volume 2, Page TDS M17-1 of Part T2.2 Returnable Schedule M17 Motors	Can this schedule be copied for the various motors offered with the Tender.	Technical data sheets may be copied if separate units are offered/required.
C7	Volume 3, C1.2 Contract Data, Appendix to Tender, Clause 1.1.3.7	Can the defects notification period commence with the commencement of the trial operation period?	Referenced periods to remain as specified in the contract document.
C8	Volume 3A, Part C3.6, General	Can pneumatic actuators be supplied instead of electrical actuators.	Tenderers offer to be in accordance with the Contract Document.
C9	Volume 3A, Part C3.6, General	Will submersible dry installation be accepted for this tender.	Tenderers offer to be in accordance with the Contract Document.
C10	Volume 3A, Part C3.6, Page C3.6.1-53 of DMS Section 14	Can the discrepancy between the DMS, BOQ and DWG of the Parshall flume be clarified?	DMS takes precedence. Contractor to offer 3 number No.6 Parshall flumes (ISO9826: 1992(en)) as specified.
C11	Volume 3A, Part C3.6, Page C3.6.1-62 of DMS Section 17.	Can the drawing reference for the PST and PST division structure be provided which indicates proposed pipework arrangement?	Refer to DWG 3089.10.01.REG.01.A001 for overview. Proposed detail regarding PST and PST division structure can, *inter alia,* be found under drawing code WDA and SQA.
C12	Volume 3A, Part C3.6, Page C3.6.1-110 of DMS Section 25	Are air operated eductors acceptable for priming of the MBR filtrate pumps? What are the conditions they will be exposed to?	Tenderers offer to be in accordance with the Contract Document.
C13	Volume 3A, Part C3.6, Page C3.6.1-110 of DMS Section 25	Can process operations specified in the tender be left out if it is believed the design can be achieved without it?	Tenderers offer to be in accordance with the Contract Document.
C14	Volume 3A, Part C3.6, Page C3.6.1-111 of DMS Section 25.1.2	Specification lists max turbidity as 0.2 NTU, would you consider 90 percentile?	Tenderers offer to be in accordance with the Contract Document.
C15	Volume 3A, Part C3.6, Page C3.6.1-111 of DMS Section 25.1.1	Please confirm that only the PSTs can be bypassed as pretreatment to the MBR.	Tenderers to offer system and price in accordance with specifications and intended operation.

[redacted]

	Reference	Question/Clarification	Response
C16	Volume 3A, Part C3.6, Page C3.6.1-178 of DMS Section 30	Can the discrepancy between the number of mixers in the DMS and drawing of the WAS holding tank system be clarified?	DMS takes precedence. Contractor to offer 3 submersible mixers per tank as specified.
C17	Volume 3A, Part C3.6, Page C3.6.1-262 of DMS Section 45	Please provide expected feed water quality to pressurized ultra-filtration (PUF) from SST.	Tenderers offer to be in accordance with the Contract Document. Also refer to Section 26.1.5 of the DMS.
C18	Volume 3A, Part C3.6, Page C3.6.1-278 of DMS Section 45.7.2.1	Can a compressor/receiver be used in place of blowers as specified?	Tenderers offer to be in accordance with the Contract Document.
C19	Volume 3A, Part C3.6, Page C3.6.1-328 of DMS Section 49	What headspace height can be assumed to determine the overall square meterage GRP surface area to be covered?	Tenderers offer to be in accordance with the Contract Document.
C20	Volume 3A, Part C3.6, Page C3.6.1-328 of DMS Section 49	Will belt press covers from suppliers other than the belt press manufacturer be considered?	Tenderers offer to be in accordance with the Contract Document.
C21	Volume 3A, Part C3.6, Page C3.6.1-328 of DMS Section 49	For the new Odour Control System required in Zone 4, must we make provision for the removal of the old Odour Control System? And the building?	Tenderers offer to be in accordance with the Contract Document. Demolition of old Odour Control System not specified.
C22	Volume 3A, Part C3.6, Page C3.6.1-328 of DMS Section 49	It is interpreted that the electrical specifications calls for the odour control MCC panels to form part of larger centralized MCC panels located in predetermined positions as opposed to stand-alone panels adjacent to the odour control plants.	Tenderers offer to be in accordance with the Contract Document.
C23	Volume 3A, Part C3.6, Page C3.6.1-329 of DMS Section 49.1	Can allowance for a AERMOD be made in place of CALPUFF.	Tenderers offer to be in accordance with the Contract Document.
Note: DMS Detailed Mechanical Specifications (Part C3.6.1)			

[redacted]

ADDENDUM NO. 2
(Pages 17)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 14 FEBRUARY 2022

REVISED CLOSING DATE: 28 March 2022 (Refer to Addendum No.2 hereafter)

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

VOLUME 1: TENDERING PROCEDURE
Page i – General Tender Information

The closing date in the middle of the page is hereby amended to read:

"CLOSING DATE **28 March 2022**"

Strike through and replace page i (R) with attached page i (R1).

Volume 1
Part T1.1 Tender Notice and Invitation to Tender
Page 2

The closing date in the 4th paraph from the bottom is hereby amended to read:

"The closing time for the receipt of tenders is 10h00 on **28 March 2022**"

Strike through and replace page 2 with attached page 2 (R).

Volume 1
Part C2.2 Schedule of Quantities
Page M4-1
Schedule M4 – Pumps and pipework

Replace the payment reference for items 4.1.1.15 & 4.1.1.16 as follow:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
4.1.1	**Part 3.6.1 25**	15 '24 MBR permeate recycle pumps	Sum	-	-	
4.1.1	**Part 3.6.1 46**	16 '24 MBR off site reuse pump station	Sum	-	-	

"

Strike through and replace page M4-1 with attached page M4-1 (R).

[redacted]

Volume 1
Part C2.2 Schedule of Quantities
Page M8-3
Schedule M8 – Diffused Aeration Equipment

Include the following unit and quantity for item 8.2.5.1.b:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
8.2.5	Part 3.6.1 20	b) Retrievable diffuser set SS Feeder pipework – including connecting to Zone 1 header line	**Sum**	-	-	

"

Strike through and replace page M8-3 with attached page M8-3 (R).

Volume 1
Part C2.2 Schedule of Quantities
Page M17-3
Schedule M17 – Diffused Aeration Equipment

Replace the description of item 17.2.4 with the following:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
17.2.4	Part 3.6.1 49	.1.a) Item **17.2.1** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.1.b) Item **17.2.2** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.1.c) Item **17.2.3** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.2.a) Item **17.2.1** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.2.b) Item **17.2.2** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.2.c) Item **17.2.3** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.3.a) Item **17.2.1** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.3.b) Item **17.2.2** above	Sum	-	-	
17.2.4	Part 3.6.1 49	.3.c) Item **17.2.3** above	Sum	-	-	

"

Strike through and replace page M17-3 and replace with attached page M17-3 (R).

VOLUME 3: DRAFT CONTRACT
Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-71
Clause 18: '24 BIOLOGICAL REACTOR INLET AND MIXING EQUIPMENT
Clause 18.4: Gearbox and bearings

[redacted]

Replace the content of the last paragraph with the following:

"Installed motor sizes shall make allowance for gearbox efficiencies and a 10% margin on motor power. Impellers shall be selected to operate preferably in the range of 20 - 25 rpm with a tip speed not exceeding **3 m/s**."

Strike through and replace page C3.6.1-71 with attached page C3.6.1-71 (R).

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-74
Clause 19: AXIAL PUMP EQUIPMENT
Clause 19.1.9: Material

Replace the reference to the pump and motor casing with the following:

"

Description	Material
Pump frame	**EN Grade 1.4401 stainless steel (or better)**
Motor housing	**Grade 250 cast iron (or better) with heavy duty epoxy coating at least 300micron thick**

"

Strike through and replace page C3.6.1-74 with attached page C3.6.1-74 (R).

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-76
Clause 19: AXIAL PUMP EQUIPMENT
Clause 19.2.7: Draft Tube

Delete the contents of this clause and replace with the following:

"Not applicable"

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-76
Clause 19: AXIAL PUMP EQUIPMENT
Clause 19.2.8: Material

Replace the first paragraph and the reference to the pump and motor casing and the draft tube/pipework with the following:

"The material requirements of the **vertical** axial flow pumps are listed in the following table:

Description	Material
Pump and motor casing	**Grade 250 cast iron (or better) with heavy duty epoxy coating at least 300micron thick**
Draft tube	**Not applicable**

"

Strike through and replace page C3.6.1-76 with attached page C3.6.1-76 (R).

[redacted]

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-262
Clause 45: '24 PRESSURIZED ULTRA-FILTRATION SYSTEM

Delete the contents of the first paragraph after the heading and replace with the following:

"The membrane racks comprising the membrane modules, supporting frames, air diffuser assemble, etc. as a whole shall be supplied by the membrane manufacture who has at least 10 years compatible experience in supplying membrane units in wastewater or potable water treatment works. The membrane manufacture shall have completed at least four (4) full-scale Ultra Filtration (UF) system contracts using the proposed hollow fiber membranes for this contract, with the design average flow greater than 10 Ml/d for domestic sewage treatment. Confirmation letters on effluent reuse or water reclamation contracts by making use of membrane for treating effluent from secondary sewage treatment may be provided with the tender. A project reference on Membrane Bioreactors being used as a solids separation system will not be considered"

Strike through and replace page C3.6.1-262 with attached page C3.6.1-262 (R).

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-264
Clause 45: '24 PRESSURIZED ULTRA-FILTRATION SYSTEM
Clause 45.2.1: Design requirements and process parameters

Replace the description of the particle removal rate with the following:

"3 µm particle removal rate: > 4 Log removal"

Strike through and replace page C3.6.1-264 with attached page C3.6.1-264 (R1).

Volume 3A
Part C3.6.1: Detailed Mechanical Specifications
Page C3.6.1-346
Clause 52: WEIGHBRIDGE

Replace the content of the second paragraph with the following:

"The weighbridge shall include the following items, and shall be handed over complete and to specification, for use throughout the Trial Operation Period:
1. The electrical and electronic equipment and instruments
2. The weighbridge deck"

Strike through and replace page C3.6.1-346 with attached page C3.6.1-346 (R).

Volume 4: DRAWINGS

Replace drawing 3089.00.00.AAB.10.U019 Version **T.0** with 3089.00.00.AAB.10.U019 Version **T.1**

[End of addendum]

[redacted]

Yours Faithfully

[redacted]

.....

On behalf of: Basil Chinasamy
Director: Supply Chain Management

ADDENDUM No. 2

ACKNOWLEDGEMENT OF RECEIPT FOR AND ON BEHALF OF THE TENDERER: TENDER No. 146Q/2021/22

At ..... on this ..... Day of ..... 20.....

Signature: .....

Name of Signatory: .....
(In ink and capitals)

TENDERER: .....
(Name of firm in ink and capitals)

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT
[redacted]
Supply Chain Management

T: 021 400 9240
E:NgoetsanaFrancinah.Mpalami@capetown.gov.za

10 MARCH 2022

NOTICE TO TENDERERS NO. 3
(Pages 6)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 28 March 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

QUESTIONS AND RESPONSES RECEIVED SUBSEQUENT TO ADDENDUM NO.2 UP TO THE ISSUE OF THIS ADDENDUM:

The following table lists key clarifications which have been communicated to the CCT via official communication channels. It should be noted that where questions or clarifications have been submitted and is not specifically addressed herein, the relevant party shall accept that the answer to the question or clarification is "as specified in the tender document".

Tenderers shall note that these clarifications are FOR INFORMATION PURPOSES ONLY.

	Reference	Question/Clarification	Response
C1	General	What is the procedure for gaining access to the site to conduct assessments?	Arrangements to be made with Potsdam WWTP Manager and District Manager: janet.chunderduri@capetown.gov.za graham.vanniekerk2@capetown.gov.za
C2	Document A, Volume 1, Page 10 of Part T1.2 Clause C2.1.4.3.3, Table 2	How will the term sub-contractor and supplier be interpreted in terms of the Functionality Criteria?	The definition of a sub-contractor is a company that will execute a portion of the project, covering all aspects required by the Main Contractor and includes the design, manufacture, supply, delivery, installation, construction, testing, commissioning, trial operation and upholding during the Defects Notification Period. An example would be the split between the Mechanical and an Electrical Contractor where they can easily divide these functions from start to end. Anything else will be considered as a supplier if it does not fulfil all functions and therefore considered as either supplier of equipment or service to the Main Contractor
C3	Document A, Volume 2, Part C2.2	We have noted that there are discrepancies between the Quantities in the detailed	Tenderers offer to be in accordance with contract specifications. DMS takes precedence over BoQ.

[redacted]

	Reference	Question/Clarification	Response
		mechanical specifications and the BOQ	
C4	Document A, Volume 2, Section C2.2, Schedule 1, Item 1.4.13	What equipment, spares, wearables, or consumables is the contractor to provide during the temporary operation period of Section C sub-section A?	Tenderers to submit offer in terms of contract specifications. Refer to Part C3.5-Management Clause 3.5.5.6.g, as amended with this notice.
C5	Document A, Volume 2, Section C2.2, Schedule 1, Item 1.4.13	Are electricity and water classified as consumables for the temporary operation period of Section C sub-section A?	Tenderers to submit offer in terms of contract specifications. Refer to Clause 3.4.5 of the DMS.
C6	Document A, Volume 2, Section C2.2, Schedule 1, Item 1.4.13	On what basis is fuel to be priced during the temporary operation period of Section C sub-section A?	Tenderers to submit offer in terms of contract specifications. Refer to Clause 3.4.5 of the DMS.
C7	Document A, Volume 2, Section C2.2, Schedule 1, Item 1.2.13, 1.4.15, 1.5.13, 1.6.13.	During the trial operation period of Sections ' A, Section C and Section C sub-section A, will the contractor be expected to employ all employees to run the plant without operational input from CoCT?	Tenderers to provide offer in terms of contract specifications. Refer to Clause 9.1 of the Conditions of Contract as amended in the Contract Data.
C8	Document A, Volume 2, Section C2.2, Schedule 1, Item 1.2.13, 1.4.15, 1.5.13, 1.6.13.	What equipment, spares, wearables or consumables is the contractor to provide during the trial operation period of Sections A, Section C and Section C sub-section A?	Tenderers to submit offer in terms of contract specifications. Refer to Part 3.5-Management Clause 3.5.5.6.g, as amended with this notice.
C9	Document A, Volume 2, Section C2.2, Schedule 1, Items 1.2.12, 1.2.13, 1.4.14,1.4.15, 1.5.12, 1.5.13	On what basis is fuel to be priced during the trial operation period of Sections A, Section C and Section C sub-section A?	Tenders to provide offer in terms of contract specifications. Supply of fuel for standby power during TOP is not required.
C10	Document A, Volume 2, Section C2.2	Should the UV section's 4 x 800 NB valves be included in the BOQ? Confirm the BOQ item to be used to price the 4 x 800NB valves.	Tenders to provide offer in terms of contract specifications. Refer to Item 11A.2.1.8; 11B.2.1.7; 24A.2.1.8; 24B.2.1.7.
C11	Document A, Volume 2, Section C2.2, Schedule 2, Item 2.1.1	What does the provisional sum for Maintenance Spares amount relate to?	Provisional sums included for potential use by Employer. This item has no bearing on Tenderer's responsibility to offer spare parts in terms of contract specifications.
C12	Document B, Volume 2, Part T2.2, Page 52, Returnable Schedule 22	Can the excel version of Annexure C, Local Content Declaration be supplied?	Excel version will not be made available.
C13	Document B, Volume 3, Part C3.2, Page 156, Sub-clause 3.2.3.6.	Confirm if the design capacity of 150Ml/day and 65Ml/day for the microfiltration facility and '24 pressurised UF system, respectively, refers to the inflow of each treatment process.	Tenders to provide offer in terms of contract specifications. Minimum requirements of 150 Ml/d and 65 Ml/d specified for micro-filtration and UF systems, respectively. However, Tenderers to note minimum requirements specified in the DMS for each sub system throughout treatment train.
C14	Document B, Volume 3, Part C3.2, Page 156, Sub-clause 3.2.3.6.	Can the quality parameters (BOD, COD, Bacteria and virus load) of the worst-case scenario feedwater for both the Microfiltration and UF steps be provided?	Tenders to provide offer in terms of contract specifications.
C15	Document B, Volume 3, Part C1.2, Page 114, Contract Data, Particular Conditions, Clause 13.8.2.2 (c)	How will compensation for actual price fluctuations on imported material, outside of the rate of exchange variation, occur?	Tenders to provide offer in terms of contract specifications. Refer to Clause 13.8.3.1.3 of the conditions of contract.

[redacted]

	Reference	Question/Clarification	Response
C16	Document B, Volume 3, Part C3.5, Clause 3.5.5.2, Page 173	Can access to the site be moved to an earlier date or the RFTP period extended to allow for complete installation and temporary operation of Section A?	Tenderers to submit offer in terms of contract specifications.
C17	Document B, Volume 3, Part C3.5, Clause 3.5.5.3, Page 174 (Activity 15)	During the temporary operation period for Section C sub-section A, will the contractor be expected to employ all employees to run the plant without operational input from CCT?	Temporary operation subject to same requirements as TOP. Tenderers to provide offer in terms of contract specifications. Refer to Clause 9.1 of the conditions of contract.
C18	Document B, Volume 3, Part C3.5, Clause 3.5.5.3, Page 174 (Activity 15 & 16)	What are the daily volumes of Primary Sludge and WAS to be treated during the temporary operation period?	Tenderers to submit offer in terms of contract specifications. Refer to Part 3.5-Management Clause 3.5.5.6.g, as amended with this notice.
C19	Document B, Volume 3, Part C3.5, Page 173, Management, Clause 3.5.5.2	Will the installation of the Plant associated with Section C Sub-A only start after the specified access to site periods?	The time frame stipulated for access to site can be considered the latest period after which access will be granted. The Contractor will have to opportunity to agree sequential access earlier than the specified date subject to final construction program approvals.
C20	Document B, Volume 3, Part C3.5, Clause 3.5.5.3, Page 174 (Activity 3)	Do the existing sludge feed pumps need to be relocated?	Tenders to provide offer in terms of contract specifications.
C21	Document B, Volume 3, Part C3.5, Clause 3.5.5.3, Page 174 (Activity 3)	Will the two new temporary sludge feed pumps convey the WAS and primary sludge from the modified existing aerobic digesters to the existing relocated feed pumps?	Tenders to provide offer in terms of contract specifications.
C22	Document C, Volume 3A, Part C3.6, Page 3.6.2-108, CCT Standard Specifications for Mechanical Works	Can the QCPs referenced under Section D80 be made available?	Refer to attachments distributed with Notice 3.
C23	Document C, Volume 3A, Part C3.6, Page 3.6.1-2, DMS Section 3	Can a provisional sum be provided for spares beyond those included in the Schedule of Quantities?	Tenderers to submit offer in terms of contract specifications. Refer to Clause 3.4.5 of the DMS.
C24	Document C, Volume 3A, Part C3.6, Page 3.6.1-24, DMS Section 4	Would the design be amended to allow using the UF filtrate stream for backwashing and cleaning in place preparation?	Tenders to submit offer in terms of contract specifications. Refer to Sub-Clause 5.1 General Design Obligations of the General Conditions of Contract as amended in the Contract Data.
C25	Document C, Volume 3A, Part C3.6, Page 3.6.1-110, DMS Section 25	For the Membrane biological filtration system, is the Consultant responsible for the process sizing of the bioreactor except the MBR Filtration System?	Tenders to provide offer in terms of contract specifications. Refer to Clause 3.2.2 of Part C3.2-Engineering.
C26	Document C, Volume 3A, Part C3.6, Page 3.6.1-110, DMS Section 25	What loading needs to be taken into account for the MBR Filtration System sizing?	Tenders to provide offer in terms of contract specifications.
C27	Document C, Volume 3A, Part C3.6, Page 3.6.1-111, DMS Section 25	Is the Pre-treatment 2mm Ultra-fine screen a 2-dimensional screen (perforated/ punched hole)?	Tenders to provide offer in terms of contract specifications.
C28	Document C, Volume 3A, Part C3.6, Page 3.6.1-112, DMS Section 25	Should the membrane tank inlet baffles be constructed from concrete as part of the concrete tank or steel? If steel, can the	Tenders to provide offer in terms of contract specifications.

[redacted]

	Reference	Question/Clarification	Response
		details be clarified for pricing purposes?	
C29	Document C, Volume 3A, Part C3.6, Page 3.6.1-112, DMS Section 25	Please confirm whether the "Pumped from" as opposed to a "pumped to" membrane filtration system as shown on the drawings is acceptable as well.	Tenders to provide offer in terms of contract specifications.
C30	Document C, Volume 3A, Part C3.6, Page 3.6.1-113, DMS Section 25	What is the limiting / absolute peak net flux rate to be allowed at peak wet weather and for all wet weather flow conditions?	Tenders to provide offer in terms of contract specifications.
C31	Document C, Volume 3A, Part C3.6, Page 3.6.1-113, DMS Section 25	What is the min and max specific aeration demand (in Nm3/m2/hr) of the submerged, hollow fibre technology membrane system?	Tenders to provide offer in terms of contract specifications.
C32	Document C, Volume 3A, Part C3.6, Page 3.6.1-114, DMS Section 25	What is the minimum cumulative Sodium Hypochlorite (NaOCl) exposure of membrane fibres and units (in ppm-hours) over their lifetime?	Tenders to provide offer in terms of contract specifications.
C33	Document C, Volume 3A, Part C3.6, Page 3.6.1-115, DMS Section 25	What is the pump duty for back-pulsing conditions for the permeate pumping system?	Tenders to provide offer in terms of contract specifications.
C34	Document C, Volume 3A, Part C3.6, Page 3.6.1-196, DMS Section 35	Where are the flowmeters located on the Primary sludge Pump Station feed lines?	Tenders to provide offer in terms of contract specifications.
C35	Document C, Volume 3A, Part C3.6, Page 3.6.1-205, DMS Section 37	Can the TS% for the primary sludge tanks be confirmed?	Tenderers to submit offer in terms of contract specifications and intended operation.
C36	Document C, Volume 3A, Part C3.6, Page 3.6.1-235, DMS Section 39	What are the design capacity and pressure requirements for the Poly lubrication pumps?	Tenders to provide offer in terms of contract specifications. System details subject to Contractor's design.
C37	Document C, Volume 3A, Part C3.6, Page 3.6.1-259, DMS Section 44	Clarify how an isolation valve will check the system water pressure from both sides?	The term "*check*" in this instance must be interpreted as "*suitable for flow in either direction, and shall shut off tight in either direction against the full maximum working pressure*".
C38	Document C, Volume 3A, Part C3.6, Page 3.6.1-, DMS Section 44	Can the specification for solids handling pumps on the UF feed, UF backwash and CIP pumps be revised considering, • UF feed - 20 µm screened effluent pumped with a 20 mm solids handling pump • UF backwash and CIP – pumping with 50 mm solids handling pump	Tenders to provide offer in terms of contract specifications.
C39	Document C, Volume 3A, Part C3.6, Page 3.6.1-266, DMS Section 45.3	Where will the UF plant backwash pumps draw water from?	Tenders to submit offer in terms of contract specifications. Refer to Sub-Clause 5.1 General Design Obligations of the general conditions of contract.
C40	Document C, Volume 3A, Part C3.6, Page 3.6.1-287, DMS Section 45	Can the 4 log removal test be substituted with a third party challenge test since the permeate is strictly for irrigation purposes?	Tenders to submit offer in terms of contract specifications.
C41	Document C, Volume 3A, Part C3.6, Page 3.6.1-287, DMS Section 45	Can the Membrane Integrity Test be substituted for a Bubble test?	Tenders to submit offer in terms of contract specifications.
C42	Document C, Volume 3A, Part C3.6, Page 3.6.1-263, DMS Section 45	Can the membrane be in a rack-less module?	Tenders to submit offer in terms of contract specifications. Document does not exclude rack-less skid/unit design from offer.

[redacted]

	Reference	Question/Clarification	Response
C43	Document C, Volume 3A, Part C3.6, Page 3.6.1-267, DMS Section 45	Can the specification "in-situ integrity testing of an individual module must be capable of locating a single faulty fibre within the module" be amended to refer to "faulty module" instead of "faulty fibre" considering the impracticality of locating a faulty fibre within a module while in-situ.	Reference of in situ test to identify faulty module and reference to integrity test to identify single faulty fiber can be considered as independent activity. A faulty fiber of an identified faulty module can be located with the individual module removed from the skid/unit.
C44	Document C, Volume 3A, Part C3.6, Page 3.6.1-262, DMS Section 45	Can the specified area per skid for the UF system be reduced as there is risk of biological growth and fouling for having the units non-operational for an extended period?	Tenders to provide offer in terms of contract specifications.
C45	Document C, Volume 3A, Part C3.6, Page 3.6.1-298, DMS Section 47; Drawing 3089.00.00.SQE.14.U001	Clarify the type of flowmeter required for the UF Reuse Pump Station -600 NB electromagnetic flowmeter or 800mm ultrasonic flowmeter?	Tenders to provide offer in terms of contract specifications. DMS takes precedence over Drawings.
C46	Document C, Volume 3A, Part C3.6.1, page 354, Section 54.4	Can the scope of the servicing of the front rake screens be confirmed?	Tenderers offer to be in accordance with contract specifications. Servicing to be done in accordance with manufactures requirements.
C47	Document C, Volume 3B, Part C3.6, Page 3.6.6-369 to 373, DES Section PS ECIS-2, PS ECIS-3, PS ECIS-3B, PS ECIS-3C, PS ECIS-4A, PS ECIS-4D	Would the Signal and Data Surge protection unit not be part of the PLC or RIO panel equipment. The installation of these devices usually occurs inside the PLC cubicle?	Tenderers offer to be in accordance with contract specifications. The specification stipulates that the Tenderer supplies a controller which must be mounted inside remote enclosure and that the transducers are external mounted. The instrument enclosures must come complete with list of equipment as stipulated in the Contract.
C48	Document C, Volume 3B, Part C3.6, Page 3.6.6-369 to 373, DES Section PS ECIS-2, PS ECIS-3, PS ECIS-3B, PS ECIS-3C, PS ECIS-4A, PS ECIS-4D	Number of devices are unclear?	Tenderers offer to be in accordance with contract specifications. Quantities are specified in the schedule of quantities. The schedule of quantities refers back to Volume 3B, Part C3 which calls for the entire reference.
C49	Document C, Volume 3B, Part C3.6, Page 3.6.6-370, DES Section PS ECIS-4	Does each Transmitter need its own Stainless-steel Frame or are there applications where more than on Transmitter could be installed inside a lockable cabinet?	Tenderers offer to be in accordance with contract specifications. Each transducer has to be protected.
C50	Document C, Volume 3B, Part C3.6, Page 3.6.6-371, DES Section PS ECIS-4	Section C3.6.6 and C3.6.7 do not match. Are the Transmitters also Controllers? Are the Controllers stand-alone PID controllers? Or are the transmitters connected to the PLC? Controller Output type not Specified	Tenderers offer to be in accordance with contract specifications. DES takes precedence over Standard Specifications. Refer to DES Section PSEPLC.
C51	Document C, Volume 3B, Part C3.6, Page 3.6.6-390, DES Section PS ECIS-4	Are the EG&M fire extinguishers CO2 or Powder based?	Tenderers offer to be in accordance with contract specifications. Refer to PSEG&M-9 of the DES
C52	Document C, Volume 3B, Part C3.6, Page 3.6.6-40, DES Section PS ECIS-4	Advise on fault level for MCC's , should it be 1 or 3 seconds?	Tenderers offer to be in accordance with contract specifications. Refer to Section 8.1.1 of Part C3.6.8.

[redacted]

	Reference	Question/Clarification	Response
C53	Document C, Volume 4, Drawing	Is Drawing 3089.00.00.SQL.14. U001 available or replaced by another drawing?	Tenders to provide offer in terms of contract specifications. Dwg 3089.00.00.SQL.14.U001 not issued with tender.
C54	Document C, Volume 4, Drawings	Can the general arrangement/pipework detail drawings for the pump stations listed below be provided • '24 WAS recycle pump station • WAS dewatering ring main pump station • Primary sludge storage tank mixing pump stations (for tank 1 & 2) • Primary sludge dewatering ring main pump station	Tenders to provide offer in terms of contract specifications.
C55	Document C, Drawing 3089.10.01.AAA.13.A007	Can the tender technical detail for the decant Line be provided?	Tenders to provide offer in terms of contract specifications.
C56	Document C, Drawing 3089.10.01.AAA.13.A001	Can the functionality and purpose of the electric actuator shown on the emergency overflow at the head of works be confirmed?	Tenders to provide offer in terms of contract specifications. Refer to Section 4 of Part 3.6.1.
C57	Document C, Drawing 3089.00.00.WLA.14.D002	Is the footprint of the poly dosing skid adequate?	Tenders to provide offer in terms of contract specifications.
C58	Document C, Drawing 3089.00.00.SQC.14.U001; 3089.00.00.SDC.14.U001; 3089.00.00.SQE.14. U001	Confirm the required number of valves necessary for operation and maintenance requirements of flowmeters.	Tenders to provide offer in terms of contract specifications.

Note:
DMS Detailed Mechanical Specifications (Part C3.6.1).
DES Detailed Electrical Specifications (Part C3.6.6)

[redacted]

ADDENDUM NO. 3
(Pages 13)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 28 March 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

VOLUME 1: TENDERING PROCEDURES
Part T1.2: Tender Data
Page 9
Sub-clause C.2.1.4.3.3

Add the following footnote to Table 2:

" @ **A city whose center point is located within a 100km from the coast line shall be accepted as a coastal city."**

Strike through and replace pages 10 R to 13 R with attached page 10 (R1) to 13 (R1).

VOLUME 1: TENDERING PROCEDURES
Part T1.2: Tender Data
Page 18
Sub-clause C.2.1.4.7

Replace the content of Sub-clause C.2.1.4.7 with the following:

" Only those tenders submitted by tenderers who are in good standing with the **Bargaining Council for Metal and Engineering Industries Bargaining Council (MEIBC), and/or other relevant bargaining councils,** at the time of the tender award will be declared responsive. Tenderers must attach such proof to the schedule titled **Declaration in Respect of Compliance with Labour Legislation** or obtain such upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive."

Strike through and replace pages 18 with attached page 18 (R).

DOCUMENT A: VOLUME 2:
Part C2.2: Schedule of Quantities
Pages A-1 to A-10
SCHEDULE NO.1 PRELIMINARY AND GENERAL

Replace the content of the quantities for Time Related Items in Schedule No.1 Preliminary and General with the following:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
1.1.12	Part C1 Part C3	Contractual requirements	month	**67**		
1.1.13	Part C1 Part C3	1. Facilities for the Engineer	month	**67**		
1.1.14	Part C1 Part C3	2. Facilities for the Contractor	month	**67**		
1.1.15	Part C1	3. Supervision for the duration of installation	month	**67**		

[redacted]

	Part C3					
1.1.17	Part C1 Part C3	Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety Specification	month	67		
1.1.18	Part C1 Part C3	Compliance with Environmental Management Plan	month	67		
1.2.5	Part C1 Part C3	Contractual requirements	month	34		
1.2.6	Part C1 Part C3	2. Facilities for the Contractor	month	34		
1.3.5	Part C1 Part C3	Contractual requirements	month	44		
1.3.6	Part C1 Part C3	2. Facilities for the Contractor	month	44		

Add a new line item in Schedule No.1 under *OTHER GENERAL CHARGES* with the following description:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
1.4.11	**Part C1 Part C3**	**Supply, commission, operation and decommission temporary plant, equipment and materials required for the change over from existing to new sludge management facility. Refer to Part C3.5 Clause 3.5.5.3.**	**Sum**	**-**	**-**	

Remove the following line items in Schedule No.1 Preliminary and General:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
~~1.2.11~~	~~Part C1 Part C3~~	~~Charges and profit on maintenance spares~~	~~%~~			
~~1.3.11~~	~~Part C1 Part C3~~	~~Charges and profit on maintenance spares~~	~~%~~			
~~1.4.11~~	~~Part C1 Part C3~~	~~Charges and profit on maintenance spares~~	~~%~~			
~~1.5.11~~	~~Part C1 Part C3~~	~~Charges and profit on maintenance spares~~	~~%~~			
~~1.6.11~~	~~Part C1 Part C3~~	~~Charges and profit on maintenance spares~~	~~%~~			

"

Note the addition and removal of listed items has resulted in the item no. being updated.

Strike through and replace pages A-1 to A-10 with attached page A-1 (R) to A-10 (R).

DOCUMENT A: VOLUME 2
Part C2.2: Schedule of Quantities
Pages M12-3 & M12-4
SCHEDULE NO.M12 SLUDGE DEWATERING, STORAGE AND LOADING

Replace the content of the quantities associated with the poly lubrication pumps with the following:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
12.2.3	Part 3.6.1 39	8.a Poly lubrication pumps	No.	4		
12.2.3	Part 3.6.1 39	8.b Motors associated with pumps	No.	4		
12.2.4	Part 3.6.1 39	8.a Poly lubrication pumps	No.	4		
12.2.4	Part 3.6.1 39	8.b Motors associated with pumps	No.	4		

Strike through and replace pages M12-3 to M12-4 with attached page M12-3 (R) to M12-4 (R).

[redacted]

DOCUMENT A: VOLUME 2
Part C2.2: Schedule of Quantities
Pages M19-9
SCHEDULE NO.M19 CHANNEL GATES, SLUICE GATES AND VALVES

Add a new line item in Schedule No.19 under item 19.2.8.11 *'24 MBR WAS pump station* with the following description:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
19.2.8	**Part 3.6.1 28**	**11. f) Actuators (electric)**	**No.**	**4**		

Strike through and replace pages M19-9 with attached page M19-9 (R).

DOCUMENT A: VOLUME 2
Part C2.2: Schedule of Quantities
Pages M21-3
SCHEDULE NO.M21 PRESSURIZED ULTRA FILTRATION

Replace the content of the quantity for the no. of sodium hypochlorite dosing pumps in Schedule M21 with the following:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
21.2.11	Part 3.6.1 45.6	1. Sodium hypochlorite pumps	No.	**6**		

Strike through and replace page M21-3 with attached page M21-3 (R).

DOCUMENT A: VOLUME 2
Part C2.2: Schedule of Quantities
Pages E6-1 to 6
SCHEDULE NO.E6 GENERATOR INSTALLATION

Add additional payment items associated with the generator installation as per the table below:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E6.2.1	EBSW	Supply and delivery to site of complete Standby 2 MVA/400V/230V Generator complete frame with control panel, complete with 24 volt electric starter, batteries and diesel fuel motor complete unit 10000 litre Bulk fuel tank to be provided. **[Refer to Project Specification PSESGS & Drawings] 3089 10 20 EAA 20 D002-T.0 3089.10.20.EAA.20.D001-T.0 3089.10.20.AAA.23.U002-T.0 3089.10.20.AAA.23.A001-T.0**	**Sum**	**2**		
E6.2.3	**EMCC 21.2 (a)**	**Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.O)**	**Each**	**1**		
E6.2.4	**EMCC 26.2 (a)**	**Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.2.5	**EPLC 26.2 (b)**	**Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.2.6	**EPLC 26.2 (c)**	**Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.2.8		**Supply and delivery to site of complete Sound attenuation (70 dBA at 7 meters)**	Sum	-	-	

[redacted]

		container (12 x 2.4 x 2.68 m) with pad-lockable doors				
E6.3.1	EBSW	Supply and delivery to site of complete Standby 2 MVA/400V/230V Generator complete frame with control panel, complete with 24 volt electric starter, batteries and diesel fuel motor complete unit 10000 litre Bulk fuel tank to be provided. **[Refer to Project Specification PSESGS & Drawings] 3089 10 20 EAA 20 D002-T.0 3089.10.20.EAA.20.D001-T.0 3089.10.20.AAA.23.U002-T.0 3089.10.20.AAA.23.A001-T.0**	**Sum**	**2**		
E6.3.3	**EMCC 21.3 (a)**	**Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.O)**	**Each**	**1**		
E6.3.4	**EMCC 26.3 (a)**	**Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.3.5	**EPLC 26.3 (b)**	**Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.3.6	**EPLC 26.3 (c)**	**Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.M]**	**Each**	**1**		
E6.3.8		**Supply and delivery to site of complete Sound attenuation (70 dBA at 7 meters) container (12 x 2.4 x 2.68 m) with pad-lockable doors**	Sum	-	-	

"

Strike through and replace page E6-1 to E6-6 with attached page E6-1 (R) to E6-6 (R).

DOCUMENT A: VOLUME 2
Part C2.2: Schedule of Quantities
Pages E27-1 to 5
SCHEDULE NO.E27 SECURITY

Remove the payment items associated with the security fence replace the description for the electric fence on the gates as per the table below:

"

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
~~E.27.2.1~~	~~ESEC 12.2 (b)~~	~~Supply and delivery to site of complete security fence equal or similar to Clearbu 22 (refer to particular specifications)~~	~~m~~	~~4000~~	-	-
~~E.27.2.2~~	~~ESEC 12.2 (b)~~	~~Supply and delivery to site of complete 8m fence gate with gate motor fence (refer to particular specifications)~~	~~No.~~	~~8~~	-	-
E.27.2.2	ESEC 12.2 (c)	**Supply and delivery to site of complete 10m electric fence for gate (refer to particular specifications)**	No.	8		
~~E.27.3.1~~	~~ESEC 12.3 (b)~~	~~Installation of a complete security fence equal or similar to Clearbu 22 (refer to particular specifications)~~	~~m~~	~~4000~~	-	-
~~E.27.3.2~~	~~ESEC 12.3 (b)~~	~~Installation of a complete 8m fence gate with gate motor fence (refer to particular specifications)~~	~~No.~~	~~8~~	-	-
E.27.3.2	ESEC 12.3 (c)	**Installation of complete 10m electric fence for gate (refer to particular specifications)**	No.	8		
~~E.27.4.1~~	~~ESEC 12.4 (b)~~	~~Testing and commissioning 8m fence gate with gate motor fence (refer to particular specifications)~~	~~m~~	~~4000~~	-	-

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
~~E.27.4.2~~	~~ESEC 12.4 (b)~~	~~Installation of a complete 8m fence gate with gate motor fence (refer to particular specifications)~~	~~No.~~	~~8~~	-	-
E.27.4.4	ESEC 12.4 (c)	**Testing and commissioning of complete 10m electric fence for gate (refer to particular specifications)**	No.	8		

"

Note the addition and removal of listed items has resulted in the item no. being updated.

Strike through and replace pages E27-1 to E27-5 with attached page E27-1 (R) to E27-4 (R).

DOCUMENT B: VOLUME 2: RETURNABLE SCHEDULES
Part T2.2: Returnable Schedules
Page 87
SCHEDULE 27: INFORMATION TO BE PROVIDED WITH TENDER

Add the following clause after item c) in the list of information to be provided with tender:

"

d) **A breakdown of provisions and costs allowed for contractual requirements stipulated under Fixed-Charge Items and Time-Related Items, for each section as defined in pricing Schedule No.1-*Preliminary and General* included in Volume 1 Part C2.2 (including entire contract allowances)."**

Strike through and replace page 87 with attached page 87 (R).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C1.2: Contract Data
Page 99
APPENDIX TO TENDER
Item: Time for Completion of the Works
Sub-Clause: 1.1.3.3 & 1.1.3.10 & 1.1.3.11 & 8.2

Replace the reference to the number of days available for time for Completion of the Works specified for RFC associated with Section C-Sub-A with the following:

Item	Sub-Clause	Entry					
Time for Completion of the Works	1.1.3.3 & 1.1.3.10 & 1.1.3.11 & 8.2	**Description**	**Sections (days)**				
			A	**B**	**C**	**C Sub-A**	**D**
		RFC	n/a	n/a	n/a	**690**	n/a
		RFTO	660	1160	1280*		1615
		Time for Completion	1025	1190	1645*		1645
		Note: * The Completion dates for Section C (i.e. RFTO and Time for Completion) shall be for the whole of Section C inclusive of Section C Sub-A.					

Strike through and replace page 99 with attached page 99 (R1).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C1.2: Contract Data
Page 101
APPENDIX TO TENDER
Item: Time for Completion of the Works
Sub-Clause: 14.3 (c)

Replace the Limit of Retention Money specified under Sub-clause 14.3 (c) with the following:

Item	Sub-Clause	Entry

[redacted]

Limit of Retention Money	14.3 (c)*	**5% of the Contract Price**

Strike through and replace page 101 with attached page 101 (R).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C1.2: Contract Data
Page 113
PARTICULAR CONDITIONS
Sub-Clause: 11.10

Replace the content of the second and third paragraph after the sub-clause heading with the following:

"MBR Plant Warranty: **The Contractor shall warrant and guarantee performance of the entire offered MBR plant treatment system and associated equipment provided in accordance with Part C3: Scope of Work and MBR Plant Specifications. The Contractor shall provide/deliver the MBR Life Warranty (i.e. a minimum pro-rata warranty for eight (8) years) from date of issue of the Performance Certificate to the Employer within 14 days from the Commencement Date, and shall be in the name of the Employer.**

Ultra-Filtration (UF) Plant Warranty: **The Contractor shall warrant and guarantee performance of the entire offered UF plant treatment system and associated equipment provided in accordance with Part C3: Scope of Work and UF Plant Specifications. The Contractor shall provide/deliver the UF Life Warranty (i.e. a minimum pro-rated warranty for eight (8) years) from date of issue of the Performance Certificate to the Employer within 14 days from the Commencement Date, and shall be in the name of the Employer.**"

Strike through and replace page 113 with attached page 113 (R).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C1.2: Contract Data
Page 116
PARTICULAR CONDITIONS
Sub-Clause: 13.8

Replace the content of the first paragraph after 13.8.2.2.c with the following:

"(c) The value of any Plant and Materials imported from outside South Africa inserted on the schedule titled "**Price Basis for Imported Plant and Material**" and subject to Sub-Clause **13.8.3** shall be deducted from the total values to be adjusted by the SEIFSA Index adjustment. Any Plant and Materials not inserted in Schedule 20 shall be deemed to be manufactured in South Africa for the purposes of Contract Price Adjustment."

Strike through and replace page 116 with attached page 116 (R).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C3.5: Management
Page 173
Testing, Commissioning and Completion
Sub-Clause: 3.5.5.2

Replace the content of Table 3.5.5.3-1 with the following:

[redacted]

Description	Section A[7] (days)	Section B[7] (days)	Section C[7] (days)	Section C Sub-section A[7,8] (days)	Section D[7,9] (days)
Design of Temporary Works[1]	-	-	-	90	-
Finalise design of Works[2]	120	**195**	120/180	120	-
Access to site to erect and install[3]	480	**1100**	920	450	-
RFC[4]	-	-	-	**690**	-
RFTO[4]	660	**1160**	1280	1280	1615
Taking over Certificate[5]	1025	**1190**	1645	1645	1645
End of Defects and Notification[6]	1390	**1555**	2010	2010	2010

Note:

1 Temporary works as defined in Table 3.5.5.3 – 1: *Interface on sludge management facility* (refer to Section 3.5.5.3.

2 Finalised design shall be in accordance with submission (and approval) of Contractor's Documents listed in Section 3.2.5.3.2 of C3.2.

3 Access to site to erect and install shall be accepted as the latest period after which the Civil contractor has progress far enough in order to **begin** with sections of the installation of the relevant mechanical and electrical Works. To avoid any confusion it is noted that this period does not refer to the completion date of the civil component of the Sections of Works. Exact dates shall be confirmed once the Construction Program is finalised.

4 RFC and RFTO as defined in Clauses 1.1.3.10 and 1.1.3.11 of the General Conditions of Contract.

5 As defined in terms of Clause 10.1 of the General Conditions of Contract.

6 As defined in terms of Clause 11 of the General Conditions of Contract.

7 Sections are as defined in Clause 1.1.5.6 of the General Conditions of Contract.

8 The temporary works associated with Section C Sub-A shall be commissioned after 120 days from Commencement Date.

9 The '97 Works has to be decommissioned after 1400 days from Commencement Date. However, decommissioning may only take place after successful trail operation of at least 90 days for the whole of the Works excluding Section D.

Strike through and replace page 173 R with attached page 173 (R1).

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C3.5: Management
Page 178
Testing, Commissioning and Completion
Sub-Clause: 3.5.5.6.g

Add the following new paragraph after the clause heading:

"The Contractor can accept that electricity and process water shall be free supply items. Consumables such as poly, chemicals and lubrication (i.e. consumables required for operation other than process water and electricity) shall be allowed for in the Contractors offer for the temporary operation and trail operation period. The Contractors offer shall make allowance for a treatment capacity equivalent to 60% of the design capacity specified in Clause 3.2.3 of Part C3.2-Engineering, for each process system."

Strike through and replace page 178 with attached page 178 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C.3.6.1-2
Section 3.4.5 Spare parts and servicing

Replace the content of section with the following:

"Provision for general pay items have been included in the Schedule of Quantities to allow the Contractor to price the provision of spare parts and to service all equipment.

[redacted]

The spare parts shall be supplied with the equipment and shall be for the use of the Employer. These spare parts shall be selected based on the recommendation from the relevant manufacturer/supplier. The spare part selection criteria shall be based on the following criteria:

- Spares for any component that will have to be replaced or be worn out within a period of two (2) years after the issuing of the **Taking Over Certificate in terms of Clause 10.1 of GCC.**

It should be noted that the spare parts may be used by the Contractors in order to fulfil its responsibly to maintain and uphold equipment supplied with this tender during the defects and liability period. However, such usage shall be subject to the approval of the Engineer.

Where provision is made for the servicing of the equipment at the end of the defects and liability period the Contractor shall ensure allowance is made to not only service the equipment in terms of the manufacturers and/or suppliers requirements, but also the replenish any consumable items associated with the equipment (i.e. lubrication, **chemicals**, etc.). **Fuel shall be excluded from this allowance.**"

Strike through and replace page C3.6.1-2 to C3.6.1-3 with attached page C3.6.1-2 (R) to C3.6.1-3 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-135
Section 25 '24 MEMBRANE BIOLOGICAL REACTOR FILTRATION SYSTEM

Replace the first paragraph under heading 25.11 *Testing and commissioning* with the following:

"**Prior to the commencement of the plant commissioning, the Contractor shall be responsible for the seeding and process startup of the biological process of the MBR system subject to the flow quantity available at the time of execution or as requested by the Engineer. The Contractor shall allow for no less than thirty (30) calendar days in their Program to cater for this process startup period and the satisfactory demonstration of the required biological process meeting the specified requirements. For the avoidance of doubt, the MBR startup process and duration shall be part of the commissioning process.**"

Strike through and replace page C3.6.1-135 with attached page C3.6.1-135 (R)

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-112
Section 25.2 Membrane filtration system

Replace the content of the third paragraph with the following:

"The design sewage flows and loads and effluent discharge requirement of the MFS shall be as per the relevant specification. The design of the MFS shall be accommodated within the designated area as shown on the relevant drawing, unless accepted otherwise by the Engineer. Each membrane tank (membrane train), the membrane units, the corresponding permeate pumping system, air scour system, maintenance cleaning system, membrane recovery cleaning system and the associated works shall be designed for an **average** flow of **80 Ml/d** and a **sustained peak** flow of **130 Ml/d** (**sustained implying 6 hours per day, every day**). The MFS shall be designed with sufficient capacity to accommodate the periodic/routine stopping of filtration process for relaxation, backwashing, membrane maintenance cleaning or membrane recovery cleaning required for the operation of the MFS. The overall throughput of the MFS shall be maintained during the previously mentioned periodic/routine stopping with 13 tanks, and with three (3) complete membrane tanks in non-operative condition during the fault, on standby, or scheduled maintenance, etc."

Strike through and replace page C3.6.1-112 with attached page C3.6.1-112 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES

[redacted]

Volume 3A Part C3.6.1
Page C3.6.1-115
Section 25.3 Permeate pumping system

Replace the description associated with the flow meter specification under heading 25.3.1 *Design requirements and process parameters* in the middle of the page with the following:

"Flow meter: 250 NB Electromagnetic (**requires bi-directional functionality to link to SCADA**)"

Strike through and replace page C3.6.1-115 with attached page C3.6.1-115 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-134
Section 25.9 MFS compressed air system

Replace the unit capacity of air compressor listed in section 25.9.1 with the following:

"Unit capacity of air compressor: **288 m3/hr @ 20°C, 0% relative humidity"**

Strike through and replace page C3.6.1-134 with attached page C3.6.1-134 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-137
Section 25.12 Warranties

Replace the content of paragraph 25.12.c.ii with the following:

ii. The Contractor shall provide an extended membrane equipment warranty after issue of Performance Certificate, i.e. a minimum prorated warranty for eight (8) years after the issue of Performance Certificate, which shall include an intermittent reactor concentration (mixed liquor suspended solids) of up to 14,500 mg/l in the membrane tank for less than 24 hours.

Replace the content of paragraph 25.12.f.i with the following:

i. If the membrane system is not able to meet the required performance criteria during the warranty period of eight (8) years, the Contractor shall provide additional membrane equipment or other equipment as may be necessary, in order for the system to perform as warranted, at no additional cost to the Employer.

Replace the content of paragraph 25.12.g with the following:

g) The design production capacity shall be based on permeate production, verified by Employer and/or Contractor during the eight (8) years of membrane guarantee and warranty period. The Contractor shall at no cost to the Employer be responsible for providing alternatives if performance testing of membrane system fails to meet the design production capacity."

Strike through and replace page C3.6.1-137 and C3.6.1-138 with attached page C3.6.1-137 (R) and C3.6.1-138 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-171
Section 28 '24 Waste activated sludge pump stations

Replace the content of the first bullet under heading 28.6.3 with the following:

[redacted]

"

- The Contractor shall provide eight (8) knife gate valves (two per pump) for operation and maintenance requirements. **Four of the valves shall be equipped with electric actuators."**

Strike through and replace page C3.6.1-171 with attached page C3.6.1-171 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-205
Section 37 '24 Primary sludge storage tank

Replace the content of the second paragraph after the Section 37 heading with the following:

"A computerised fluid dynamic (CFD) analysis illustrating the mixing performance within the storage tanks shall be submitted to the Engineer prior to placing the order for this system."

Strike through and replace page C3.6.1-205 with attached page C3.6.1-205 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-217
Section 39.2 Poly dosing pumping system

Replace the content of section 39.2.2.1 with the following:

"The poly dosing pumps shall be progressive cavity feed type, suitable for sludge transfer application.

Pumps shall be fitted with mechanical seals. Gland packing shall not be permitted.
~~**Pump rotors shall be of hardened tool steel or better and preferable hard chrome plated.**~~

The pump shall be designed such that the rotors and seals are readily accessible and replaceable for maintenance, with the pump installed in place.

~~**Permeate pump shall be self-priming and dry running resistant. Pumps shall be provided with dry running detection and protection devices.**~~

The stator of the pumps shall be manufactured from Acrylonitrile butadiene rubber (NBR) with hardness less than 80 on Shore A scale."

Replace the content of the table in section 39.2.4 with the following:

"

Description	Material
Pump casing	Cast iron Grade 250 with epoxy coating
Rotors	**316 Stainless steel**
Stator	Acrylonitrile butadiene rubber
Rotating parts	Martensitic stainless steel
Seals	Mechanical seals of tungsten carbide or silicon carbide
Baseplate	Stainless steel grade 304 or better
Fasteners	Stainless steel grade 316 or better
Pipework	Stainless steel grade 304 or better

"

Strike through and replace page C3.6.1-217 to C3.6.1-218 and replace with attached page C3.6.1-217 (R) to C3.6.1-218 (R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-220
Section 39.3 Dewatering feed pump system

Replace the content of the fifth paragraph under section 39.3.2 with the following:

"The progressive cavity pumps shall be supplied with a maximum rubbing velocity of 1.5 v_{gm} (m/s) and operate at 350 rpm and **350 rpm** for WAS and PS, respectively. Any deviation from these requirements shall be done with written approval from the Engineer, prior to ordering the equipment."

Replace the content of section 39.3.2.1 with the following:

"Pumps shall be fitted with mechanical seals. Gland packing shall not be permitted.

~~**Pump rotors shall be of hardened tool steel or better and preferable hard chrome plated.**~~

The pump shall be designed such that the rotors and seals are readily accessible and replaceable for maintenance, with the pump installed in place.

~~**Permeate pump shall be self-priming and dry running resistant. Pumps shall be provided with dry running detection and protection devices.**~~

The stator of the pumps shall be manufactured from Acrylonitrile butadiene rubber (NBR) with hardness less than 80 on Shore A scale."

Strike through and replace page C3.6.1-220 and replace with attached page C3.6.1-220 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-235
Section 39.6 Sludge cake pump system

Replace the specified rubbing velocity and rotor rotational speed for the primary sludge train listed at the bottom of the page with the following:

"Rubbing velocity: **0.8 m/s**

Rotor rotational speed: **250 rpm (Maximum)"**

Replace the last paragraph of section 39.6.2 with the following:

For the primary sludge application, the progressive cavity pumps shall be supplied with a maximum rubbing velocity of **0.8 v_{gm} (m/s)** and operate at **250 rpm**. Any deviation from these requirements shall be done with written approval from the Engineer, prior to ordering the equipment.

Replace the paragraph below section 39.6.3.2 with the following:

Each discharge pipe shall be equipped with a ring dosing nozzle for injection of lubricating fluid. The system shall be capable of lubricating the pipeline with both water and poly. The dosing nozzle shall ensure the lubrication fluid covers the entire diameter of the pipe. A minimum of two dosing nozzles per discharge pipeline shall be allowed for as part of the tender. **Two poly lubrication pumps per active cake discharge pipe shall be allowed (i.e. 2 pumps per sludge cake pump station, 4 sludge cake pump stations in total).**

Strike through and replace page C3.6.1-235 and C3.6.1-237 with attached page C3.6.1-235 (R) and C3.6.1-237 (R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-253
Section 43 '24 Ultra filtration micro screening station

Replace the content Table after the second paragraph under the heading 43.1 *Design requirements* with the following:

"

Description	Design flow rate (m^3/hr)	Duty No.$	Design TSS# (mg/l)	
			Min	Max%
Minimum hydraulic load	500	1	5	80
Average dry weather flow	1667	3	5	80
Peak wet weather flow	2708	4	5	**50**
Hourly peak flow	6250	5	5	**25**
Note: # TSS = Total Suspended Solids $ Duty No. refers to the amount of active screens at the specified hydraulic loading. % Maximum solids loading can be assumed for sustained 1 hour duration.				

"

Replace the listed aperture of screen in the middle of the page under the heading 43.1 *Design requirements* with the following:

"Aperture of screen: **100 µm** (wire mesh)"

Remove the specification requirement limiting the average monthly and daily effluent TSS:

"~~**Average monthly effluent TSS: < 5 mg/l**~~

~~**Average daily effluent TSS: < 10 mg/l**~~"

Replace the third paragraph under the heading 43.4 *Disc-screen* with the following:

"Each filter disk is constructed from EN 1.4401 stainless steel. The stainless steel woven mesh shall provide for effective openings of **100 microns**."

Strike through and replace page C3.6.1-253 to C3.6.1-254 and replace with attached page C3.6.1-253 (R) to C3.6.1-254 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-285
Section 45 '24 Pressurised ultra-filtration system

Replace the first paragraph under heading 45.10 *Testing and commissioning* with the following:

"Prior to the commencement of the plant commissioning, the Contractor shall be responsible for providing the flow required to test and commission the '24 Tertiary Treatment system. The Contractor shall allow for no less than fifteen (15) calendar days in their Program to cater for this process startup period and the satisfactory demonstration of the required filtration process meeting the specified requirements. For the avoidance of doubt, the '24 Tertiary Treatment system startup process and duration shall be a part of the Section A commissioning process."

Replace the second last paragraph under heading 45.10 *Testing and commissioning* with the following:

"The membrane system must include a membrane integrity test that can demonstrate that the membrane system is achieving a minimum of 4 log removal of particles = 3 µm. "

Strike through and replace page C3.6.1-285, C3.6.1-286 & C3.6.1-287 with attached page C3.6.1-285 (R), C3.6.1-286 (R) & C3.6.1-287 (R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-288
Section 45 '24 Pressurised ultra-filtration system

Replace the content of paragraph 45.11.c.ii with the following:

"

ii. The Contractor shall provide an extended membrane equipment warranty after issue of Performance Certificate, i.e. a minimum prorated warranty for eight (8) years following the issue of the Performance certificate."

Replace the content of paragraph 45.11.f.i with the following:

"

i. If the membrane system is not able to meet the required performance criteria during the warranty period of eight (8) years, the Contractor shall provide additional membrane equipment or other equipment as may be necessary, in order for the system to perform as warranted, at no additional cost to the Employer. "

Replace the content of paragraph 45.11.g with the following:

"

g) The design production capacity shall be based on permeate production, verified by Employer and/or Contractor during the eight (8) years of membrane guarantee and warranty period. The Contractor shall at no cost to the Employer be responsible for providing alternatives if performance testing of membrane system fails to meet the design production capacity."

Strike through and replace page C3.6.1-288 with attached page C3.6.1-288 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-263
Section 45.2 '24 Pressurized membrane filtration system

Replace the content of the third paragraph under section 45.2 with the following:

The design influent flows and loads and effluent discharge requirement of the PUFS shall be as per the relevant specification. The design of the PUFS shall be accommodated within the designated area as shown on the relevant drawing, unless accepted otherwise by the Engineer. **The PUFS's pressurized membrane units/skids, the corresponding air scour system, backwash system, maintenance cleaning system, clean in place system and the associated works shall be designed for an average flow of 40 Ml/d and a sustained peak flow of 65 Ml/d (sustained implying 6 hours per day, every day).** The PUFS shall be designed with sufficient capacity to accommodate the periodic/routine stopping of filtration process for relaxation, backwashing, membrane maintenance cleaning or clean in place required for the operation of the PUFS. The overall throughput of the PUFS shall be maintained during the previously mentioned periodic/routing stopping during the filtration process, which at any time also two membrane tank in non-operative condition during the fault, on standby, or scheduled maintenance, etc.

Replace the content of the last paragraph under section 45.2 with the following:

The UF unit/skid/rack design shall allow for the unit/skid/rack to be put back into operation after the removal of a faulty module.

Remove the specification requirement limiting the maximum wet mass per module:

~~**Maximum wet mass per module: 25 kg**~~

Replace the specified solids loading design criteria listed at the top of the page with the following:

"Solids loading design criteria: **25 mg/l"**

Replace the specified peak design flow rate listed in the middle of the page with the following:

[redacted]

"Peak design flow rate: Sustained flow of 2 708.34 m³/hr (i.e. **sustained for** 6 hours per day, 365 days per year)"

Strike through and replace page C3.6.1-263 & C3.6.1-264 (R)with attached page C3.6.1-263 (R) & C3.6.1-264 (R1).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-276
Section 45.6 Chemical storage and dosing system

Replace the content of paragraph 45.6.2.a)-sodium hypochlorite with the following:

"a) **Six (6) (3 duty + 3 standby)** chemical dosing pumps; one (1) set of pipework and valves including dosing pipeline."

Strike through and replace page C3.6.1-276 with attached page C3.6.1-276 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-347
Section 52: Weighbridge

Replace the content of the first sentence on Page C3.6.1-347 with the following:

"The steel shall be de-greased, wire-brushed and coated as per **D14.5.18**, PARTS 1 and 2A."

Strike through and replace page C3.6.1-347 with attached page C3.6.1-347 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-71
Section PS EMCC-6.C Substation No.2 Motor Control Centre ['24 Primary Sedimentation, '24 Ultra-Fine Screens and '24 BNR Reactor]

Add additional specifications for the WAS recycle pump station and Grinder to the back of the table shown on page C3.6.6-110 as indicated below:

"

Three [x3]	**Panels comprising the following**	**'24 WAS Recycle Pump No.1 - No.3**
1	11kW TP continuous current rated motor protection MCCB complete with extended rotary handle for door interlocking [Mechanical operating handle for circuit-breaker, including door interlock, self-aligning spindle and padlocking facility] (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	Main
Set	Continuous current rated core balanced current transformers: Plus	Current inputs
3	2 Amp HRC fuse holders and fused links: Plus	Voltage inputs
1	11kW (3) phase heavy duty vector control variable frequency drive complete with 1) Programmable cards, 2) Communication card & 3) Encoder interface card. All necessary harmonic filters shall be included, EMC filter, line choke motor chokes and sinus filters [distance of the motor is far and Sinus filters shall be included] all shall be inclusive.	Variable frequency drive

[redacted]

	The following minimum protection parameters shall be available on the Variable frequency drive: • Thermal • Output Phase loss • Input phase loss • Drive overheat • Over voltage • Under voltage • Frequency meter • Locked rotor • Phase rotation • Under current • Torque detection for motor on bridge • Speed or torque control • Braking unit via re-injection to the line supply • Earth leakage set to trip at 300mA. (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	
All	A separate door mountable display and programming control unit shall be front door mounted.	Separate display unit for VSD Drives with all parameters
All	Communications module must be provided, communication links with PLC/DCS Units. The communication interface must comply with either of the following: a) Profibus-DP b) Profinet	Communication module for VSD

Note Table continues further. Refer to subsequent replacement pages for additional specifications.

Strike trough and replace page C3.6.6-110 with C3.6.6-110 (R-1) to C3.6.6-110 (R-5).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-111
Section PSEMCC-6.D Substation No.3 Motor Control Centre [Sludge Management]

Add additional specifications for the dewatering filtrate return pump stations to the back of the table shown on page C3.6.6-154 as indicated below:

"

Two [x2]	**Panel comprising the following:**	**WAS filtrate return pump station No.1 – No.2**
1	11kW TP continuous current rated motor protection MCCB complete with extended rotary handle for door interlocking [Mechanical operating handle for circuit-breaker, including door interlock, self-aligning spindle and padlocking facility] (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	Main
Set	Continuous current rated core balanced current transformers: Plus	Current inputs
3	2 Amp HRC fuse holders and fused links: Plus	Voltage inputs
1	11kW (3) phase heavy duty vector control variable frequency drive complete with 1) Programmable cards, 2) Communication card & 3) Encoder interface card. All necessary harmonic filters shall be	Variable frequency drive

[redacted]

	included, EMC filter, line choke motor chokes and sinus filters all shall be inclusive. The following minimum protection parameters shall be available on the Variable frequency drive:	

Note Table continues further. Refer to subsequent replacement pages for additional specifications.

Strike trough and replace page C3.6.6-154 with C3.6.6-154 (R-1) to C3.6.6-154 (R-7).

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VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-213
Section PSEMCC-6.J Substation No.4 Motor Control Centre ['24 Membrane Reactor Re-use Pump Station]

Add additional specifications for the '24 WAS Pump Stations to the back of the table shown on page C3.6.6-222 as indicated below:

"

Four [x4]	**Panels comprising the following**	**'24 WAS pump stations (Module No.A No.1 – No.2 & Module No.B No.1 – No.2)**
1	18.5kW TP continuous current rated motor protection MCCB complete with extended rotary handle for door interlocking [Mechanical operating handle for circuit-breaker, including door interlock, self-aligning spindle and padlocking facility] (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	Main
Set	Continuous current rated core balanced current transformers: Plus	Current inputs
3	2 Amp HRC fuse holders and fused links: Plus	Voltage inputs
1	18.5kW (3) phase heavy duty vector control variable frequency drive complete with 1) Programmable cards, 2) Communication card & 3) Encoder interface card. All necessary harmonic filters shall be included, EMC filter, line choke motor chokes and sinus filters [distance of the motor is far and Sinus filters shall be included] all shall be inclusive. The following minimum protection parameters shall be available on the Variable frequency drive: • Thermal • Output Phase loss • Input phase loss • Drive overheat • Over voltage • Under voltage • Frequency meter • Locked rotor • Phase rotation • Under current • Torque detection for motor on bridge • Speed or torque control • Braking unit via re-injection to the line supply • Earth leakage set to trip at 300mA. (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	Variable frequency drive

[redacted]

All	A separate door mountable display and programming control unit shall be front door mounted.	Separate display unit for VSD Drives with all parameters
All	Communications module must be provided, communication links with PLC/DCS Units. The communication interface must comply with either of the following: a) Profibus-DP b) Profinet c) Industrial Ethernet	Communication module for VSD

Note Table continues further. Refer to subsequent replacement pages for additional specifications.

Strike trough and replace page C3.6.6-222 with C3.6.6-222 (R-1) to C3.6.6-222 (R-3).

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VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-223
PSEMCC-6.K Substation No.5 Motor Control Centre [Maturation, Tertiary Treatment and Disinfection]

Add additional specifications for the '24 Tertiary Treatment Site Service Water Pump Station to the back of the table shown on page C3.6.6-266 as indicated below:

"

Five	**Panel comprising the following:**	**'24 Tertiary Treatment Site Service Water Pump Station**
1	45kW TP continuous current rated motor protection MCCB complete with extended rotary handle for door interlocking [Mechanical operating handle for circuit-breaker, including door interlock, self-aligning spindle and padlocking facility] (Estimated and shall be coordinated with mechanical contractor to ensure correct supplies to mechanical equipment): Plus	Main
Set	Continuous current rated core balanced current transformers: Plus	Current inputs
3	2 Amp HRC fuse holders and fused links: Plus	Voltage inputs
1	45kW (3) phase heavy duty vector control variable frequency drive complete with 1) Programmable cards, 2) Communication card & 3) Encoder interface card. All necessary harmonic filters shall be included, EMC filter, line choke motor chokes and sinus filters all shall be inclusive. The following minimum protection parameters shall be available on the Variable frequency drive: • Thermal • Output Phase loss • Input phase loss • Drive overheat • Over voltage • Under voltage • Frequency meter • Locked rotor • Phase rotation • Under current • Torque detection for motor on bridge • Speed or torque control	Variable frequency drive

Note Table continues further. Refer to subsequent replacement pages for additional specifications.

[redacted]

Strike trough and replace page C3.6.6-266 with C3.6.6-266 (R-1) to C3.6.6-266 (R-6).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-279
PSEMCC-6.O Generator Motor Control Centre [Main Substation]

Add the following specifications for the Generator Motor Control Centre after the table shown on page C3.6.6 279:
"

QTY	DESCRIPTION	IDENTIFICATION
1	Digital Running hour meter: Plus	Running Hour Meter
All	All AccuSine PCS+ units shall come complete with fuse kits, circuit breakers, terminal units, parallel connection cables, HMI's, CT's , covers, bolts, stabilizers to complete the installation in full: Plus	
All	Interlocks which include all relays and auxiliary contacts which are necessary.	Relays, timers and interlocks

PSEMCC -6.O Generator Motor Control Centre [Main Substation]
Type: Theses specification shall be considered as minimum design requirement in terms of the Contractor's Tender offer. The Electrical and Electronic Contractor(s) shall coordinate with the Mechanical Contractor to ensure sufficient allowance is made in their tender offer to provide a fit for purpose unit/system.

The motor control centre or distribution board shall be manufactured accordance to Particular Specification. The equipment referenced below does not relieve the contractor of his responsibilities in terms of quality, dimensions and proper functioning of the system.

The motor control centre board or distribution board shall be of the free-standing floor mounted type with a minimum IP rating of 42 (insect proofed enclosure). The motor control centre or distribution board shall be constructed with a minimum of 2mm 3CR12 stainless steel which will rest on a 3CR12 stainless steel rigid channel and shall be bolted down in position by means of M16 high tensile stainless-steel bolts grouted into the concrete floor, the bolts shall be inside the board.

The panel door shall be provided with a locking system suitable for padlocking. The locking system shall consist of a 3CR12 stainless steel 3-way locking mechanism locking the door at the top, middle and bottom. The unit doors shall be capable of being opened at least 110 degrees.

The board shall be provided with readily removable, sectionalized, rigidly supported unpainted 316 cable end support gland plates along the entire length of the board and at least 230 mm above floor level.

Sufficient provision for ventilation and heat dissipation as per the equipment ratings and manufacturers requirements shall be allowed for. Screwed-on engraved labels in English shall be provided below all switchgear and equipment on and in the panels, to facilitate identification. All unpainted parts shall be plated for corrosion resistance.

Special racking in and out mechanism shall be designed by the Contractor [similar to a medium voltage circuit breaker racking tool] which will assist the operators in removing the entire backplane of a panel. All the motor control centre panels shall be designed to fit the tool. Backplanes shall be fastened with easily removable bolts to ensure that the machine can remove the back plane. Under the scope of the motor control centre the Contactor shall allow for one racking tool per MCC.

Containerised: Yes shall be allowed for in the scope, the contractor shall allow for a container op top of the MCC price as complete system. The container for the MCC shall have the following minimum specifications below:

The shelter shall be a standard ISO Sea Freight container per ISO 1496 and must be converted for the explicit use of housing a Motor Control Center for the proper operating conditions of the equipment. The shelter shall be sealed to resist water ingress to IP54. The container must include small power and lighting.

The exterior envelope size of the container:

Container
Height Length Width

[redacted]

2.7m 6m 2.35m

The interior envelope size of the shelter equipment compartment shall be derived from sufficient insulation thickness to provide a minimum insulating factor of R10 or better.

Wall sections: All wall sections must meet an insulation factor of -RIO or better and adhere to ISO 1496-1. Interior walls shall be insulated with suitable material (minimum 50mm thickness) and cover with sonic liner..."

***Note specifications continues further. Refer to subsequent replacement pages for additional specifications.**

Strike trough and replace page C3.6.6-279 with C3.6.6-279 (R-1) to C3.6.6-279 (R-5).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-351

Add the following specifications for the Generator Motor Control Centre PLC after the table shown on page C3.6.6 351:

"

DESCRIPTION	RTD IN	ANALOG IN	ANALOG OUT	24V DC IN	24V DC OUT	FREE VOLT OUT	NETWORK LINK		
							HMI	SCADA	PLANT
Fire Panel Alarm				1	1		2	2	2
Fire Alarm Active				1	1		2	2	2
Fire Alarm warning				1			1	1	1
Contractor to allow for following additional signals which shall be conveyed at later stage	30			30	30		90	90	90
Contractor to allow for additional 30% spare capacity	All	All	All	All	All	All	All	All	All

PSEPLC-6.M Generator Motor Control Centre [Main Substation] PLC

Type: The motor control centre panel builder shall allow a minimum of a full tier for programmable logic controller equipment as specified below. The equipment referenced below does not relieve the contractor of his responsibilities in terms of quality, dimensions and proper functioning of the system.

Colour: Purple powder coated

Fault level: 6kA

Equipment: UPS, CPU, I/O modules and HMI

Protocol: Ethernet

Equipment will be the following:

QTY	DESCRIPTION	IDENTIFICATION
One	**Panel comprising the following:** **(Panel door shall be purple powder coated)**	**UPS supply**
1	10Amp sized continuous current rated TP door interlocked protection MCB **(Estimated and shall be confirmed by contractor and all calculations shall be supplied to Engineer for approval)**: Plus	Main Circuit Breaker UPS
2	125Amp continuous current rated HRC fuse holders and fused links: Plus	Surge arrestors connection fuses

[redacted]

QTY	DESCRIPTION	IDENTIFICATION
1	Three Phase combined class 2 surge arrestor unit connection type 2 as per SANS 10142-1 2009 equal or similar to DEHNguard DV M TT 255 with remote indicator panel & remote signalling contacts connected to the SCADA: Plus	Surge arrestor plus signals
1	Selector switch for normal/UPS power selection: Plus	Maintenance purposes
1	UPS that will provide battery standby power for at least one hour during a power failure must be supplied and installed under this contract equal or similar and have minimum GEL Batteries [inside the PLC tier]: Plus	UPS with 1 hour back-up
All	Relays and contactors for automatic transfer to UPS power once the UPS power is restored: Plus	Automatic change over
All	Termination blocks necessary for signal cable connections from motors and instrumentation equal and similar to Weidmuller: Plus	All Terminals
All	Halogen free wiring ducts, covers, fix-O-Rapid, rapid clip for din rails, rapid clip for base plate shall be used: Plus	All
All	UPS monitoring functions as specified: Plus	UPS

***Note specifications continues further. Refer to subsequent replacement pages for additional specifications.**

Strike trough and replace page C3.6.6-351 with C3.6.6-351 (R-1) to C3.6.6-351 (R-4).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-369
Section PS ECIS-2.A Pressure Sensors

Replace the content under section PS ECIS-2.A with the following:

"

Type: Pipe Mounted.

Supply: 1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened).

Equipment will be the following:

QTY	DESCRIPTION	IDENTIFICATION
All	**Supply and install absolute and gauge pressure sensor and probes. The transmitter shall be equal or similar to Cerabar PMC71 from Endress and Hauser with extended probe to the pipeline.**	**Controller**
All	**Pipe connections to pipeline and coordination with mechanical contractor: Plus**	**Mechanical Contractor coordination**
All	**Terminals and interconnecting monitoring and control wiring: Plus**	**Connection and monitoring**
All	**Earthing and bonding across the transducer.**	**Earthing**

"

Strike through and replace page C3.6.6-369 with attached page C3.6.6-369 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6

[redacted]

Page C3.6.6-370
Section PS ECIS-3.A Flow Meter Equipment

Replace the third entry in the table under Section PS ECIS-3.A with the following:

"

QTY	DESCRIPTION	IDENTIFICATION
1	10Amp Continues Rated SP MCB: Plus	Main
All	Single Phase class 2 surge arrestor unit connection type 2 as per SANS 10142-1 equal or similar to Dehnguard. DVMTT255 with remote indicator panel & remote signalling contacts connected to the SCADA: Plus	Surge arrestor
1	Supply and install clamp-on flow meter controller equal or similar to Prosonic Flow 91 complete ~~**with Modbus RS232 communication**~~: Plus	Controller
All	316 stainless steel Pipe connections to pipeline and coordination with mechanical contractor: Plus	Mechanical Contractor coordination
All	Terminals and interconnecting monitoring and control wiring: Plus	Connection and monitoring
All	Signal & Data Surge protection unit suitable for the application equal or similar to Blitzductor XT from DEHNguard.	Signal & Data Surge Protection

"

Strike through and replace page C3.6.6-370 with attached page C3.6.6-370 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-381
Section PS ECIS-18 Differential Pressure Analysers

Replace the content of the table under Section PS ECIS-18 with the following:

"

QTY	DESCRIPTION	IDENTIFICATION
1	10Amp Continues Rated SP MCB: Plus	Main
All	Single Phase class 2 surge arrestor unit connection type 2 as per SANS 10142-1 equal or similar to Dehnguard. DVMTT255 with remote indicator panel & remote signalling contacts connected to the SCADA: Plus	Surge arrestor
1 **All**	~~**Supply and install temperature controller meter equal and similar Deltabar FMD72: Plus.**~~ **Supply and install differential sensor controller equal and similar Deltabar FMD72 in enclosure: Plus**	~~**Chlorine Analyser**~~ **Differential Controller mounted inside Enclosure**
~~**1**~~ **All**	~~**Supply and install temperature controller meter equal and similar Deltabar FMD72: Plus**~~ **Supply and install differential transducers on pipework: Plus**	~~Chlorine Analyser~~ **Differential transducers mounted on pipework**
~~**1**~~	~~**Supply and install of Endress and Hauser transmitter inside reactor complete with Modbus RS232 communication: Plus**~~	~~**Controller unit**~~
~~**All**~~	~~**Calibration module for Endress and Hauser: Plus**~~	~~**Calibration purposes**~~
All	Pipe connections to pipeline and coordination with mechanical contractor: Plus	Mechanical Contractor coordination

[redacted]

QTY	DESCRIPTION	IDENTIFICATION
All	Signal & Data Surge protection unit suitable for the application equal or similar to Blitzductor XT from DEHNguard..	Signal & Data Surge Protection

"

Strike through and replace page C3.6.6-381 with attached page C3.6.6-381 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-402
Section PSESGS: Standby Generator

Add a new project specification after page C3.6.6-401 as shown below:

"

PSESGS STANDBY GENERATOR

PSESGS-1 SCOPE

This specification, read together with the applicable Particular Specifications and City of Cape Town Specification. The performance specifications, design parameters, manufacture, supply and delivery to site, installation, testing, adjustment and commissioning of the generator to be provided under this Contract.

All components shall correspond with preferred manufacturer from City of Cape Town.

Equipment shall be as follows:

Controller	–	Yes, shall be per City of Cape Town Specification
Change over shall include	–	Voltage, frequency, undervoltage, phase rotation relay with a timer shall be per City of Cape Town Specification
AMF & Change Over	–	Motorized
AMF & Change Over panel	–	Shall be built by the MCC manufacturer at the same standard Motor Control Centre particular Specification. PSEMCC-6.O Generator Motor Control Centre [Main Substation]
AMF & Changeover	–	Yes, shall be per City of Cape Town Specification
PLC	–	Shall be built by the MCC manufacturer at the same standard PLC specification particular Specification. PSEPLC-6.M Generator Motor Control Centre [Main Substation] PLC

PSESGS-3 GENERATOR DETAILS

The contractor shall make sure that the space provided for the generator and plinth dimensions are sufficient for the generator offered under this contract, all the generators shall be outdoor type and housed within a container.

An automatic mains failure and change over system shall be provided for and the generator set shall be housed within an container [See Drawings]. All electrical equipment associated with starting and stopping of the set, protection of the set, indications and starting battery charger shall be provided. Please Refer back to **PSEMCC-6.O Generator Motor Control Centre [Main Substation] & PSEPLC-6.M Generator Motor Control Centre [Main Substation] PLC**.

Weatherproof Purpose Modified standard ISO container [See drawings], enclosing the generating set completely with its Control Panel, Switch Gear and a Weatherproof Purpose Modified standard ISO container for Fuel Tank. Suitably treated, painted and bolted to the duplex base frame and mounted on concrete plinth.

Suitable openings are provided for fresh air inlet, hot air outlet, all manufactured from steel and screened with wire mesh to prevent the ingress of birds and rodents.

Lockable-hinged doors are provided on both sides fitted with container door camlocks for access to the generating set, the control panel, connection arrangements and service parts.

The size has been determined and the Generator shall be as follows:

Containerized Standby Generator Size	–	2 x 2000kVA Generators
Containerized Bulk Fuel Tank	–	1 x 10 000 liter
Voltage	–	400V..."

[redacted]

***Note specifications continues further. Refer to subsequent replacement pages for additional specifications.**

Add pages C3.6.6 402 (R) to 405 (R).

DOCUMENT C
Volume 4: DRAWINGS

Replace drawing 3089.10.01.AAA.21.P606 Version **T.0** with 3089.10.01.AAA.21.P606 Version **T.1**

Strike through and replace drawing 3089.10.01.AAA.21.P606_T.0 with attached drawing 3089.10.01.AAA.21.P606 T.1.

DOCUMENT C
Volume 4: DRAWINGS

Add the following drawings to the Volume 4 which indicate proposed details on the generator installation:
"

3089 10 20 EAA 20 D002-T.0 Version T.0	Typical standby generator bulk fuel tank details
3089.10.20.AAA.23.E001-T.0 Version T.0	Existing medium voltage electrical dist. diagram
3089.10.20.AAA.23.U002-T.0 Version T.0	Main substation, generators, transformers and bulk fuel tank layout
3089.10.20.EAA.20.D001-T.0 Version T.0	Typical standby generator container general arrangement

New drawings distributed with this Notice.

DOCUMENT C
Volume 4: DRAWINGS

Add the following drawings to the Volume 4 which indicate details on the proposed Management Building:
"

3089.92.00.SUA.16.U001 Version T.0	Management Building – Ground Floor
3089.92.00.SUA.16.U002 Version T.0	Management Building – First Floor
3089.92.00.SUA.16.U003 Version T.0	Management Building – Second Floor
3089.92.00.SUA.16.U004 Version T.0	Management Building – Roof Plan
3089.92.00.SUA.16.U005 Version T.0	Management Building – Ceiling Plan (Ground Floor)
3089.92.00.SUA.16.U006 Version T.0	Management Building - Ceiling Plan (1st and 2nd Floor)
3089.92.00.SUA.16.X001 Version T.0	Management Building - Sections"

New drawings distributed with this Notice.

[End of addendum]

Yours Faithfully,

[redacted]

On behalf of: Basil Chinasamy
Director: Supply Chain Management

[redacted]

ADDENDUM No. 3

ACKNOWLEDGEMENT OF RECEIPT FOR AND ON BEHALF OF THE TENDERER: TENDER No. 146Q/2021/22

At ..... on this ..... Day of ..... 20.....

Signature: .....

Name of Signatory: .....
(In ink and capitals)

TENDERER: .....
(Name of firm in ink and capitals)

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

[redacted]
Supply Chain Management

T : 021 400 9240
E:NgoetsanaFrancinah.Mpalami@capetown.gov.za

23 MARCH 2022

NOTICE TO TENDERERS NO. 4
(Pages 6)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 28 March 2022

REVISED CLOSING DATE: 29 APRIL 2022 (Refer to addendum hereafter)

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

QUESTIONS AND RESPONSES RECEIVED SUBSEQUENT TO ADDENDUM NO 3 AND UP TO THE ISSUE OF THIS ADDENDUM:

The following table lists key clarifications which have been communicated to the CCT via official communication channels. It should be noted that where questions or clarifications have been submitted and is not specifically addressed herein, the relevant party shall accept that the answer to the question or clarification shall be accepted as "specified in the tender document".

Tenderers shall note that these clarifications are FOR INFORMATION PURPOSES ONLY.

Item	Reference	Question/Clarification	Response
C1	General	Several items require minor civil works which would be best handled by the main Civil Contractor. Can consideration be given to moving these elements to the Civil Contract?	The civil and building-related works associated with the project will be executed under a separate contract by a Civil contractor. Refer to Sub-clause 4.6 of the General Conditions of Contract as amended.
C2	General	Can the design report for the treatment plant, including process and hydraulic calculations, be provided?	Concept design details developed for the project is incorporated into the detailed specifications of the Contract Document. No other reports will be made available.
C3	Document A, Volume 1, Part T1.2, Page 5, Clause C1.6.3	Will the proposal procedure using two stage system not be followed?	Refer to Clause C1.6.3 of the Part T1.2: Tender Data. Two stage system will not be followed.
C4	Document A, Volume 1, Part T1.1, Page 2	Are tenderers with a B-BBEE status lower than level 4 eligible to participate?	No. Only level 1 to 4 will be considered.
C5	Document A, Volume 1, Part T1.2, Page 12, Table 2, Items 6.1, 7.1	Is it acceptable to submit reference for projects executed in other countries?	Tenderers to submit offer in terms of contract specifications.

[redacted]

Item	Reference	Question/Clarification	Response
C6	Document A, Volume 1, Part T1.2, Page 13, Table 3	Is it acceptable to submit key personnel accredited by equivalent authority other than Washington Accord such as: -ENAEE (European Network for Engineering Accreditation) -German Institute for accreditation -Certification and quality assurance ACQUIN. -Minnistère de l'Enseignement supérieur, de la Recherche et de l'Innovation, France	Tenderers to submit offer in terms of contract specifications.
C7	Document A, Volume 1, Part T1.2, Page 13, Table 3	Will full points be granted for the key personnel holding a Bachelor degree of engineering rather than Master Degree?	Tenderers to submit offer in terms of contract specifications. (Note BEng + MEng implies you require a MEng Degree)
C8	Document A, Volume 1, Part T1.2, Page 6, Clause C.1.7	Is the Central Supplier Database (CSD) registration acceptable as an alternative to the CCT Supplier Database?	Tenderers to submit offer in terms of contract specifications.
C9	Document A, Volume 1, Part T1.2, Page 18, Clause C.2.1.4.7	Is registration with MEIBC mandatory to bid?	Tenderers to submit offer in terms of contract specifications. (Note: Clause C2.1.4.7 was amended in Addendum No.3)
C10	Document A, Volume 2, Section C2.2, Schedule E.27, Item E.27.2.1, E.27.2.2, E.27.2.3, E.27.2.4 & Document C, Volume 3B, Part C3.6, Page 3.6.6-393, DES Section PSESEC-2	Should the security fence be priced as per SoQ or is it supplied by others?	Tenderers to submit offer in terms of contract specifications. (Note: Schedule E27 was amended in Addendum No.3)
C11	Document A, Volume 2, Section C2.2, Schedule M1, Item 1.2.5.1 & Document B, Volume 3, Part C3.1, Page 143, Sub-clause 3.1.3.2 & Document C, Volume 3A, Part 3.6, Page 3.6.1-354, DMS Section 54.	With reference to the '08 Coarse screens: - SoQ states "Dismantle and remove" - Document B states "dismantling and servicing" - Document C, DMS states "thoroughly cleaned and serviced prior to storing the units" Must the contractors pricing include pricing for "Servicing"? If so, should the Engineer specify Scope of Servicing?	DMS takes precedence over SoQ. '08 Coarse Front Rake Screens to be serviced as per manufactures recommendations. No allowance for broken parts required. Only replacement of wearable or sacrificial items replaced with service activities.
C12	Document B, Volume 2, Part T2.2, Page TDS M13-3, Schedule M13.3	Can the required scope for supply of sludge management process air equipment be provided?	Tenderers to submit offer in terms of contract specifications.
C13	Document B, Volume 2, Part T2.2, Page 32, Schedule 16.B-2	The required method statements for "Design and Supply" are for off-site activities. Additionally, Section 2 (site establishment to final inspections), Sections 4 and 9 describe activities unrelated to "Design and Supply". Should these activities still be included under the Design and Supply section?	Tenderers to submit offer in terms of contract specifications. Should the tenderer deem a section of the proposed method statement structure not applicable, it is allowed to state so under the applicable heading.
C14	Document B, Volume 3, Part C1.2, Page 100, Sub-clause 4.2.	Can the Performance Bond requirement reduce to 7%? Also, will the bond be reduced as the completion of each section of works?	Tenderers to submit offer in terms of contract specifications.
C15	Document B, Volume 3, Part C3.2, Page 150, Item 3.2.2	Is the proposed design in tender documents mandatory for the tendering phase, with the design	Tenderers to submit offer in terms of contract specifications.

[redacted]

Item	Reference	Question/Clarification	Response
		review and detailed design required after awarding the contract?	
C16	Document B, Volume 3, Part C3.5, Page 174, Table 3.5.5.3-1 (Activity 2)	Can the detailed mechanical specifications for two temporary sludge feed pumps be provided? Can the BoQ reference for these pumps be provided?	Tenderers to submit offer in terms of contract specifications. Part C3.5 provides proposal for change over. Contractor remains responsible for allowing for Works to remain functional during switch over from '08 to '24 Works.
C17	Document B, Volume 3, Part C3.2, Page 151, Sub-clause 3.2.3, Table 3.2.3-1 & Document C, Volume 3A, Part 3.6, Page 3.6.1-110, DMS Section 25	Is the influent Raw Sewage loading equal to the influent Membrane system design loading?	Tenderers to submit offer in terms of contract specifications.
C18	Document B, Volume 3, Part C1.2, Page 123	To minimize risk and the effects of escalations, will the awarded contactor be allowed to order and store item on date of order?	Tenderers to submit offer in terms of contract specifications.
C19	Document B, Volume 3, Part C1.2, Page 113, Sub-clause 11.10	What is the required warranty period for the Wastewater Treatment Plant?	Tenderers to submit offer in terms of contract specifications.
C20	Document B, Volume 3, Part C1.2, Page 99, Item 1.1.3.3	Is the time for completion of the works 1645 days?	Tenderers to submit offer in terms of contract specifications.
C21	Document B, Volume 3, Part C3.2, Page 152, Table 3.2.3-3 & Document C, Volume 3A, Part 3.6, Page 3.6.1-7, DMS, Section 4.2	A peak influent flow of 150MLD and a design flow of 300MLD is mentioned in the two references, respectively. Can these flowrates be confirmed and clarity given on the discrepancy between PWWF & the design capacity of the '24 inlet works?	Tenders to submit offer in terms of contract specifications (refer Document B, Volume 3, Part C3.2, Head of Works p153. Note PWWF is average day flow and hydraulic design flow is hourly flow)
C22	Addendum 2 Document C, Volume 3A, Part 3.6, Page 3.6.1-71, DMS Section 18	The tip speed can only be adhered to if one of the stated specifications is given up. The specifications cannot lock installed power, tip speed and performance related to W/m3 and the output rpm. The only way to lower the tip speed is to make the impeller smaller, however the required W/m3 will then not be met. At the stated parameters, the designed blade length will exceed the available space between the concrete support columns, warranting a change in the existing civil design. Can the tip speed be increased to around 3.7m/s or other fixed parameters relaxed?	Tenderers to submit offer in terms of contract specifications. (Note: refer to Sub-clause 5.1 of the General Conditions of Contract as amended)
C23	Document C, Volume 3A, Part 3.6, Page 3.6.1-328, DMS Section 49	Can the tender be amended to fit the IMS Odour Control Unit specifications?	Tenderers to submit offer in terms of contract specifications.
C24	Document C, Volume 3A, Part 3.6, Page 3.6.1-253, DMS Section 43	A flow of 65MLD and 150MLD is specified for the PUFS system and micro-screen, respectively. Can it be assumed that if the flow through the micro screens is 150 MLD and only 65 MLD is fed to the PUFS, the remaining 85 MLD is directed to the maturation ponds or directly to the Diep River?	Tenderers to submit offer in terms of contract specifications. (Note: Interpretation is correct if UF system is operating at design capacity. More than 85 Ml/d can be diverted away from UF plant)

[redacted]

Item	Reference	Question/Clarification	Response
C25	Document C, Volume 3A, Part 3.6, Page 3.6.1-253, DMS Section 43	Can the number of duty screens in relation to the design flow rate be explained? According to the design parameters table, the flow through 4 duty screens is 2708 m3/hr, but with 5, the flow is 2.3 times more at 6250m3/hr.	Tenderers to submit offer in terms of contract specifications.
C26	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	VSD & Soft Starters Specifications calls for comms link to PLC's. Whereas PLC I/O Schedule indicate PLC I/O interface not comms. Which method of communication should be quoted?	Tenderers to submit offer in terms of contract specifications. (Note: Both comms link and I/O to PLC must be allowed for in the offer)
C27	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	Please confirm that for DOL starters that electronic motor protection relay's equal or similar to Schneider Electric Tesys U will be acceptable.	Tenderers to submit offer in terms of contract specifications. (Note: Both the U and T DOL starters will be acceptable)
C28	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	Clarify the dimensions of the cable route markers to be supplied?	Refer to City of Cape Town specification drawing AM-EE-GS-004
C29	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	Will Siemens's switchgear, VSD, soft starters, , active harmonic drives, PLC, HMI MV switchgear, MV drives, Transformers, managed switches, and instrumentation be acceptable?	Tenderers to submit offer in terms of contract specifications. (Note: Any equipment equal or similar to specification is acceptable)
C30	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	All Cable support is specified as 316 Stainless Steel Heavy-duty Cable ladder a. Please confirm that Heavy duty is required for all cable support? b. Please confirm that only cable ladder is required, as no wire mesh cable tray has been requested in BOQ?	Tenderers to submit offer in terms of contract specifications.
C31	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	Can an alternative escalation formula be considered for electrical cables?	Tenderers to submit offer in terms of contract specifications.
C32	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	The quantities of instruments are not aligned with the P&IDs or project specification. It is also not clear where the instruments are to be applied (Refer schedule E11 and E22)?	Tenderers to submit offer in terms of contract specifications. (Note: Provision has been made for items to cover the requirements of the Project. Tenderers to price the SoQs accordingly. However, should the allowance be insufficient to provide Works which are fit for purpose and operate as per intended use then Tenderers shall allow for additional units as may be required)
C33	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	Kindly provide electrical Single Line Diagram drawing	Tenderers to submit offer in terms of contract specifications. (Note: Project specification and drawings to be used to compile offer, Contractor to formalise Line Diagrams as part of Detailed Design Phase)
C34	Document C, Volume 3B, Part 3.6, Page 3.6.6, General	The P&IDs show pressure gauges/switches, flow switches, level gauge switches, and UV sensors switches but the DES and SoQ doesn't make mention of these units. Does the tender offer have to make allowance for this?	Tenderers to submit offer in terms of contract specifications. (Note: Refer to DES Section PS - ECIS)

[redacted]

Item	Reference	Question/Clarification	Response
C35	Document C, Volume 3B, Part 3.6, Page 3.6.6, General Volume 3B, C3.6.6: Section EPLC-6-A	Please advise if the raw sewage pumps signals shall be transmitted to each remote IO only (PLC6.B) or it shall be transmitted to both PLC6.A & PLC6.B	Tenderers to submit offer in terms of contract specifications. (Note: Refer to addendum below) Tenderers to submit offer in terms of contract specifications. (Note: Transmitted to each remote I/O)
C36	Document C, Volume 3B, Part 3.6, Page 3.6.6, General Volume 3B, C3.6.6: Section EPLC	Please advise if these signals shall be transmitted to each remote IO only (PLC6.F) or it shall be transmitted to both PLC6.E & PLC6.F.	Tenderers to submit offer in terms of contract specifications. (Note: Refer to addendum below) Tenderers to submit offer in terms of contract specifications. (Note: Transmitted to each remote I/O)
C37	Document C, Volume 3B, Part 3.6, Page 3.6.6, General Volume 3B, C3.6.6: Section EPLC	Please advise if these signals shall be transmitted to each remote IO only (PLC6.H) or it shall be transmitted to both PLC6.G & PLC6.H.	Tenderers to submit offer in terms of contract specifications. (Note: Refer to addendum below) Tenderers to submit offer in terms of contract specifications. (Note: Transmitted to each remote I/O)
C38	Document C, Volume 3B, Part 3.6, Page 3.6.6, General Volume 3B, C3.6.6: Section EPLC	Please advise if these signals shall be transmitted to each remote IO only (PLC6.j) or it shall be transmitted to both PLC6.I & PLC6.J.	Tenderers to submit offer in terms of contract specifications. (Note: Transmitted to each remote I/O)
C39	Document C, Volume 4, Drawing 3089.00.00.GZC.03.D001 3089.30.01.GZC.03.D005	Does the weigh bridge office form part of the civil tender?	Tenderers to submit offer in terms of contract specifications. (Note: The weighbridge office will be constructed by others)
C40	Document C, Volume 4 Drawing set: General Arrangement: Site Layout (AAB)	Drawing set AAB is corrupted. Can an uncorrupted PDF set for AAB be issued?	Distributed with this Notice.
C41	Document C, Volume 4	Can the drawing sets: SQQ and SQR be provided?	Drawing set SQQ and SQR not issued with this Tender.
C42	Document C, Volume 4, Drawing 3089.10.01.AAA.13.A007	The Emergency WAS Storage Tanks and WAS recycle Pump Station is indicated on the flow diagram. However, no drawings or layouts can be found for these two sections. Can these be provided?	Note: These are existing structures that will be repurposed as specified. Drawings distributed with this Notice.
C43	Document C, Volume 4, Drawing 3089.10.01.AAA.13.A007	The flow diagram Notes state that the current Digesters will be refurbished to form the WAS holding tanks. However, the drawing sets, and layout drawings, indicate otherwise. It is, however, in the SoQ. Is it still going to be included in the design?	Note: These are existing structures that will be repurposed as specified. Drawings distributed with this Notice.
C44	Document C, Volume 4	Can the drawing for the service water pump station that forms part of the UF stream be provided?	Refer to drawing 3089.00.00.WPD.14.U001.
C45	Document C, Volume 4	Can the following drawings be provided? - '24 MBR Blower room - '24 MBR mechanical room(s) - '24 Poly dosing and storage room - '24 Dewatering poly make up and dosing building - '24 Management Building	'24 Management Building distributed with Notice 3. All other drawings requested have already been issued with the original Tender Documentation. Confirm detail with main mechanical contractor.

[redacted]

Item	Reference	Question/Clarification	Response
		- '24 MCC substation No.5	
C46	Document C, Volume 4	Can the general site layout drawing be provided in CAD format?	CAD drawings will not be issued.
C47	Document A, Volume 2, General	Can the updated SoQ excel files be issued with amended schedules?	Distributed with this Notice.
Note: DMS Detailed Mechanical Specifications (Part C3.6.1) DES Detailed Electrical Specifications (Part C3.6.6)			

[redacted]

ADDENDUM NO. 4
(Pages 24)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 28 March 2022

REVISED CLOSING DATE: 29 APRIL 2022 (Refer to addendum hereafter)

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

VOLUME 1: TENDERING PROCEDURES
Page I GENERAL TENDERING PROCEDURES

The closing date in the middle of the page is hereby amended to read:

"CLOSING DATE **29 APRIL 2022**"

Strike through and replace page i (R1) with attached page i (R2).

VOLUME 1: TENDERING PROCEDURES
Part T1.1 Tender Notice and Invitation to Tender
Page 2

The closing date in the 4th paragraph from the bottom is hereby amended to read:

"The closing time for the receipt of tenders is 10h00 on **29 April 2022**"

Strike through and replace page 2 (R) with attached page 2 (R1).

DOCUMENT A
VOLUME 1: TENDERING PROCEDURES
PART T1.2: TENDER DATA
Page 9
Sub-clause C2.1.4.3.3

Replace the first paragraph after sub-clause C.2.1.4.3.3.i with the following:

Tenderers will be allocated a functionality score in accordance with Table 2, to rate their expertise and experience in work for this Contract. The total points allocated in terms of Table 2 will in turn be pro-rated to a score out of 55, to carry through to the total allowed for tenderer's expertise and experience in Table 1. In order to receive a score for each category, the tender offer must provide the information required in terms of Schedule 9: work experience of tenderer, in the format specified. To allow for the time value of money, project construction values must be escalated at 4% per annum from the year of completion, compounded annually, until **the Tender Closing Date**."

Replace the reference in the sub-clause C.2.1.4.3.3.i Table 2's *Year of Commissioning* column with the following:

Item No.	Project/ component of work description[*@]	Points per project			Maximum Points per category
		Year of Commis-sioning	Scoring Criteria[%#]	Point allocation	
1	**Construction Projects by the tendering entity**				

[redacted]

Item No.	Project/ component of work description*@	Points per project			Maximum Points per category
		Year of Commis-sioning	Scoring Criteria%#	Point allocation	
1.1	Construction (mechanical works) of wastewater treatment plants of which the scope of work included the provision of new equipment for the build, upgrade or expansion of a treatment facility with an average dry weather flow capacity of ≥ 20 Ml/d based on FIDIC design – build or equivalent contract. Points will only be awarded for construction activities which included the provision of more than one unit process.	2000 to **Tender Closing Date**	RP ≤ 2	0	15
			2 < RP ≤ 4	10	
			RP > 4	15	
1.2	*Construction (electrical works) of wastewater treatment plants of which the scope of work included the provision of new equipment for the build, upgrade or expansion of a treatment facility with an average dry weather flow capacity of ≥ 20 Ml/d based on FIDIC design – build or equivalent contract. Points will only be awarded for construction activities which included the provision of more than one unit process.*	*2000 to **Tender Closing Date***	*RP ≤ 2*	*0*	*15*
			2 < RP ≤ 4	*10*	
			RP > 4	*15*	

Note Table continues further. Refer to subsequent replacement pages for additional specifications.

Replace the footnote in the sub-clause C.2.1.4.3.3.i Table 2 * with the following:

"* To score points as the Responsible Contractor the relevant successful commissioning shall be confirmed by submission of a Completion Certificate (as per clause 11.9 of FIDIC Yellow or equivalent version thereof where other General Conditions of Contract were utilised) which has been signed by the relevant Employer. To score points as a supplier, a reference list with contactable details of the Employer or Engineer who was involved with the Project has to be provided. These references shall be confirmed during the tender evaluation stage."

Strike through and replace pages 9 R to 13 R1 with attached pages 9 (R2) to 13 (R2).

DOCUMENT A
VOLUME 1: TENDERING PROCEDURES
PART T1.2: TENDER DATA
Page 15
Sub-clause C2.1.4.3.3

Replace the footnote in the sub-clause C.2.1.4.3.3.ii Table 3 $ with the following:

$ Relevant experience refers to period post the basic degree listed and the years during which the Key Personnel fulfilled the role and responsibility stipulated in the table above.

Strike through and replace pages 15 with attached page 15 (R).

[redacted]

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
Part C2.2 Schedule of Quantities
Pages E14-1 to 15
SCHEDULE NO E.14: Multicore Cables & Earth Wires

Replace and add accordingly these specific payment items associated with the Multicore Cables &Earth Wires as per the table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.14.2.1.1	EMCA 18.2(a)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	~~m~~ **m**	~~300~~ **200**		
E.14.2.2.1	EMCA 18.2(b)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**Each**	**4**		
E.14.2.2.37	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends. SABS Approved Cast Resin.**	**Each**	**16**		
E.14.2.2.38	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.**	**Each**	**4**		
E.14.2.2.39	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**34**		
E.14.3.1.1	EMCA 18.3(a)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	~~m~~ **m**	~~300~~ **200**		

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.14.3.2.37	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends. SABS Approved Cast Resin**	**Each**	**16**		
E.14.3.2.38	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends. SABS Approved Cast Resin.**	**Each**	**4**		
E.14.3.2.39	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**34**		

Strike through and replace page E14-1 to E14-15 with E14-1(R) to E14-16(R).

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
Part C2.2 Schedule of Quantities
Pages E20-1 to 7
SCHEDULE NO. E.20: Programmable & Logic Controllers

Replace the payment items associated with the Programmable & Logic Controllers as per the table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.20.2.32	EPLC 26.2(a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.2.33	EPLC 26.2(b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.2.34	EPLC 26.2(c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.3.32	EPLC 26.3(a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.3.33	EPLC 26.3(b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.3.34	EPLC 26.3(c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.L]	**Each**	1		
E.20.4.31	EPLC 26.4(a)	Commissioning of a complete Wireless Enclosure and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.~~J~~. **K**]	Each	100		
E.20.4.32	EPLC 26.4(a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.~~K~~ **L**]	**Each**	1		
E.20.4.33	EPLC 26.4(b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.~~K~~ **L**]	**Each**	1		
E.20.4.34	EPLC 26.4(b)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.~~K~~ **L**]	**Each**	1		

Strike through and replace page E20-1 to E20-7 with E20-1(R) to E20-8(R).

[redacted]

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
Part C2.2 Schedule of Quantities
Pages E24-1 to 9
SCHEDULE NO.E.24: Earthing and Lightning Protection

Replace the quantities associated with the Earthing and Lightning Protection as per the table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.24.2.2	EELP 22.2	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	Each	~~50~~ **826**		
E.24.2.4	EELP 22.2	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	~~776~~ **50**		
E.24.3.2	EELP 22.3	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	Each	~~50~~ **826**		
E.24.3.4	EELP 22.3	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	~~776~~ **50**		

Strike through and replace page E24-1 to E24-18 with E24-1(R) to E24-1(R) to E24-9(R).

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
Part C2.2 Schedule of Quantities
Pages E26-1 to 19
SCHEDULE NO.E.26: Multicore Cables & Earth Wires

Replace and add accordingly these specific payment items associated with the Multicore Cables &Earth Wires as per the table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.26.2.1.1	EMCA 18.2(a)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**m**	**420**		
E.26.2.1.2	EMCA 18.2(a)	~~3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~	**m**	**560**		

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin				
E.26.2.2.1	EMCA 18.2(b)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	Each	8		
E.26.2.2.2	EMCA 18.2(b)	~~3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	Each	16		
E.26.**2.37**	**EMCA 18.2(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin**	**Each**	**30**		
E.26.**2.38**	**EMCA 18.2(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.**	**Each**	**16**		
E.26.**2.39**	**EMCA 18.2(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**200**		
E.26.**2.40**	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin**	**Each**	**38**		

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.26.**2.41**	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin**	**Each**	**16**		
E.26.**2.42**	**EMCA 18.2(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**250**		
E.26.3.1.1	EMCA 18.3(a)	~~4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**m**	**420**		
E.26.3.1.2	EMCA 18.3(a)	~~3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.~~ **3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to eachincomer. SABS Approved Cast Resin**	**m**	**560**		
E.26.3.**2.37**	**EMCA 18.3(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.**	**Each**	**30**		
E.26.3.**2.38**	**EMCA 18.3(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.**	**Each**	**16**		
E.26.3.**2.39**	**EMCA 18.3(b)**	**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper**	**Each**	**200**		

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
		Busbar Trunking joints.SABS Approved Cast Resin.				
E.26.3.**2.40**	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin**	**Each**	**38**		
E.26.3.**2.41**	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin**	**Each**	**16**		
E.26.3.**2.42**	**EMCA 18.3(b)**	**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**250**		

Strike through and replace page E26-1 to E26-19with E26-1(R) to E26-21(R).

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
Part C2.2 Schedule of Quantities
Pages E 27-1 to 5
SCHEDULE No.E.27: Security

Replace Schedule No.E.27: *Security* in its entirety with the new Schedule E.27 distributed with this addendum.

Strike through and replace pages E27-1(R) to E27-5(R) with E27-1(R1) to E27-6(R1).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 55
Returnable Schedule 22.2

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by [redacted] at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by [redacted] at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the [redacted] rate(s) of exchange used."

Strike through and replace pages 55 to 56 with attached page 55 (R) to 56 (R).

[redacted]

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 58
Returnable Schedule 22.3

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by [redacted] close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by [redacted] at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the [redacted] rate(s) of exchange used."

Strike through and replace pages 58 to 59 with attached page 58 (R) to 59 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 61
Returnable Schedule 22.4

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by [redacted] at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the [redacted] ate(s) of exchange used."

Strike through and replace pages 61 to 62 with attached page 61 (R) to 62 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 64
Returnable Schedule 22.5

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by [redacted] t close of business on the date of advertisement of the bid."

[redacted]

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the **Nedbank** rate(s) of exchange used."

Strike through and replace pages 64 to 65 with attached page 64 (R) to 65 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 67
Returnable Schedule 22.6

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by **Nedbank** at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the **Nedbank** rate(s) of exchange used."

Strike through and replace pages 67 to 68 with attached page 67 (R) to 68 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 70
Returnable Schedule 22.7

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by **Nedbank** at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the **Nedbank** rate(s) of exchange used."

Strike through and replace pages 70 to 71 with attached page 70 (R) to 71 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 73
Returnable Schedule 22.8

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

[redacted]

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by **Nedbank** at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the **Nedbank** rate(s) of exchange used."

Strike through and replace pages 73 to 74 with attached page 73 (R) to 74 (R).

DOCUMENT B
VOLUME 2: RETURNABLE DOCUMENTS
PART T2.2: RETURNABLE SCHEDULES
Page 76
Returnable Schedule 22.9

Replace second last paragraph under item 1.5 with the following:

"Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by **Nedbank** at close of business on the date of advertisement of the bid as required in paragraph 4.1 below."

Replace the first paragraph under item 3.1 with the following:

"If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the above General Conditions must be the rate(s) published by **Nedbank** at close of business on the date of advertisement of the bid."

Replace the last sentence under item 3.1 with the following:

"NB: Suppliers must submit proof of the **Nedbank** rate(s) of exchange used."

Strike through and replace pages 76 to 77 with attached page 76 (R) to 77 (R).

DOCUMENT B
VOLUME 3: DRAFT CONTRACT
PART C1.2: CONTRACT DATA
Page 115
Sub-clause 13.8.2.2.b

Replace the applicable formula for Electrical Plant and Materials under sub-clause 13.8.2.2.b with the following:

$$A = a + b\frac{Ln}{Lo} + c\frac{En}{Eo} + d\frac{CRn}{CRo} + e\frac{Cn}{Co} + f\frac{SSn}{SSo} - 1$$

where

A	=	Adjustment Factor rounded off to the sixth decimal place	
a	=	0.10	Fixed coefficient (non-adjustable portion)
b	=	0.10	
c	=	0.30	Coefficients (sum of these coefficients shall be 0,90)
d	=	**0.10**	
e	=	0.30	
f	=	**0.10**	
Ln	=	Current labour index in Table C3	
Lo	=	Base labour index in Table C3	
En	=	Current electrical engineering materials index in Table G	
Eo	=	Base electrical engineering materials index in Table G	
CRn	=	Current 3CR12 steel index in Table Q-1 (A)	
CRo	=	Base 3CR12 steel index in Table Q-1 (A)	
Cn	=	Current copper rod index in Table N	
Co	=	Base copper rod index in Table N	

[redacted]

SSn	**=**	**Current stainless steel index type 316 in Table Q-(A)**
SSo	**=**	**Base stainless steel index type 316 in Table Q-(A) "Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above"**

Strike through and replace page 115 with attached page 115 (R).

DOCUMENT B
VOLUME 3: DRAFT CONTRACT
PART C1.2: CONTRACT DATA
Page 116
Sub-clause 13.8.3

Replace the paragaraph under sub-clause 13.8.3.1 with the following:

"If price adjustment for variations in the cost of plant and materials imported from outside of South Africa is required, such adjustment shall be based on the information contained on the schedule titled "**Price Basis for Imported Resources** and as below. For the purposes of this clause the Rand value of imported Plant and Materials inserted on the schedule titled "**Price Basis for Imported Resources** (column (F)) shall be the value in foreign currency (column (A)) converted to South African Rand (column (C)) by using the closing spot selling rate quoted by **Employer's** main banker, NEDBANK, on the Base Date (seven calendar days before tender closing date **or last preceding working day**) rounded to the second decimal place (column(B)), to which shall be added any Customs Surcharge and Customs Duty applicable at that date (columns (D) and (E))."

Strike through and replace page 116(R) with attached page 116 (R1).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Section 20.4

Add the following to the table at the top of page C3.6.1-79:

"

Design Ambient Temperature	**35°C**
Design relative humidity	**90**

"

Strike through and replace page C3.6.1-79 with attached page C3.6.1-79 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Section 21.3

Add the following to the table at the top of page C3.6.1-90:

"

Design Ambient Temperature	**35°C**
Design relative humidity	**90**

"

Strike through and replace page C3.6.1-90 with attached page C3.6.1-90 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Section 20.4

Replace the third paragraph under Section 20.4.4 *Air diffusers* with the following:

"The average bubble size produced by the membrane shall be smaller than **2 mm** in diameter."

[redacted]

Replace the second last paragraph under Section 20.4.4 *Air diffusers* with the following:

"At the designed airflow the maximum head loss in a diffuser which requires cleaning shall be less than 6 kPa while the head loss through a clean diffuser shall not exceed **4 kPa**."

Replace the third paragraph from the top of page C3.6.1-83 with the following:

"Membrane shall collapse and seal when aeration system air is turned off. Membrane shall collapse onto base when air is not being diffused. Design should permit air to exit through the entire periphery of the membrane. Membrane shall be designed to resist clogging, and should have a minimum of **5 200** perforations. Membranes shall be at least 70% hydrophilic."

Replace the list of minimum membrane characteristic near the middle of page C3.6.1-83 with the following:

"Tensile strength	12.4 Mpa
Tear strength	**> 5.0 N/mm**
Ozone resistance	Pass
UV resistance	Pass
Durometer	60
Ultimate elongation	**600%**
Friction coefficient	0.09

Replace the list of minimum diffuser body characteristic near the middle of page C3.6.1-83 with the following:

"Specific Gravity	**0.9 to 1.05**
Water absorption	0.02%
~~Tensile Strength~~	~~34.475 MPa~~
Maximum Temperature	100°C"

Strike through and replace page C3.6.1-82 to C3.6.1-83 with attached page C3.6.1-82 (R). to C3.6.1-83 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Section 43

Replace the listed aperture of screen in the middle of page C3.6.1-253 with the following:

"Max allowable aperture of screen: 100 µm (wire mesh)"

Replace the third paragraph after Section 43.4 in the middle of page C3.6.1-254 with the following:

"Each filter disk is constructed from EN 1.4401 stainless steel. The stainless-steel woven mesh shall provide for effective openings **of no larger than 100 microns**."

Strike through and replace page C3.6.1-253 (R) to C3.6.1-254 (R) with attached page C3.6.1-253 (R1) to C3.6.1-254 (R1).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Section 45

Replace the fifth paragraph from the top of C3.6.1-267 with the following:

"The membrane backwash and cleaning operation processes **may** utilise air scouring, permeate backflow and a membrane chemical storage and dosing system. Permeate for the cleaning processes **may** use air pressure to achieve the required back flow. ~~Any design adopting a separate backwash water storage and/or supply shall not be accepted.~~ The membrane chemical storage and dosing system shall prepare, dilute, and dose cleaning chemical for the operation process via a dedicated system utilising potable or treated wastewater."

[redacted]

Replace the second paragraph under section heading 45.4: *'24 Ultra filtration backwash pump station* on C3.6.1-267 with the following:

"Backwash **may** be drawn from the '24 Pressurised UF Feed Pump Station sump and be pumped through an ultra-filtration unit (skid) to washout out accumulated solids from the respective modules (refer to previous section for details on typical operation). **Alternative backwash draw offs will be acceptable subject to the UF suppliers' requirements.** This pump duty is subject to the process and control requirements associated with the selected equipment and the Contractor shall ensure that sufficient allowance is made in his/her tender offer to ensure that the pumps function as per the overall PUFS process requirements."

Strike through and replace page C3.6.1-267 with attached page C3.6.1-267 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-24
Section PSEMVS-25 Batteries and Charger Tripping Units [BTU]

Add the new line in the specification for Batteries and Charger Tripping Units [BTU]:

New 110V DC lithium iron batteries and chargers units shall be supplied under this contract for each substation and shall receive a supply of electricity from the mains electrical supply in the substation. The unit shall be suitably sized for each substation with atleast 30% additional spare capacity available for future upgrades.

The following monitoring functions must be available on the units:

- Battery status.
- Supply voltage
- Trip condition

Standby time for battery backup must be 12 hours.

Strike through and replace page C3.6.6-24 and C.3.6.6-25 with C3.6.6-24(R) and C3.6.6-25(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-26
Section Medium Voltage Variable Frequency Drive [x6] Situated at MBR Re-use Pump Station

Remove the specification requirement for the fault level as follow:

Medium Voltage Drive System with multi-pulse transformer and low voltage inverter cascade provides a sinusoidal sine wave at both input and output with low THD.

Supply: 70mm² 3C Cu PVC PILC PVC Table 18 cables plus a 70mm² Kwena copper cables from the Membrane Substation.

Colour: SANS code G29 or similar and approved

~~**Fault Level: 25kA.**~~

Strike through and replace page C3.6.6-26 with C3.6.6-26(R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-65
Section PSEMCC -6.B Substation No.1 Four [X4] Variable Frequency Drives Tiers Situated At The '24 Head of Works Motor Control Centre

Remove the following specification requirements:

~~**Fault Level:** 45kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-65 with C3.6.6-65(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-193
Section PSEMCC -6.F Substation No.4 - Eight [X8] Variable Frequency Drives Tiers Situated At The '24 Membrane Reactor and UV Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-193 with C3.6.6-193(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-198
Section PSEMCC-6.G Substation No.4 - Five [X5] Variable Frequency Drives Tier Complete Situated At The '24 Membrane Reactor and UV Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

[redacted]

Strike through and replace page C3.6.6-198 with C3.6.6-198(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-203
Section PSEMCC-6.H Substation No.4 - Five [X5] Variable Frequency Drives Tier Complete Situated At The '24 Membrane Reactor and UV Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-203 with C3.6.6-203(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-208
Section PSEMCC-6.I Substation No.4 - Sixteen [X16] Variable Frequency Drives Tier Complete Situated At The '24 Membrane Reactor and UV Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-208 with C3.6.6-208(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-267
Section PSEMCC-6.L Substation No.5 - Six [X6] Variable Frequency Drives Tier Complete Situated At Substation No.5 [Maturation, Tertiary Treatment and Disinfection] Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

[redacted]

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-267 with C3.6.6-267(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-272
Section PSEMCC-6.M Substation No.5 - Five [X5] Variable Frequency Drives Tiers Situated At The Ultra-Filtration Low Voltage Room

Remove the following specification requirements:

~~**Fault Level:** 70kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

~~**Future:** 30% for future extensions space.~~

Add the following specification requirement:

Construction: Standalone Tiers

Strike through and replace page C3.6.6-272 with C3.6.6-272(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-277
Section PSEMCC-6.N Combined Active Harmonic Filtering and Reactive Current Compensation Tier [Allowance of x35]

Remove the following specification requirements:

~~**Fault Level:** 45kA.~~

~~**Sectioning:** Multi-section, Form 3b or Form 4 to SANS IEC 60439.~~

Strike through and replace page C3.6.6-277 with C3.6.6-277(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-283
Section PSEPLC-6.A Substation No.1 ['24 Head of Works] Motor Control Centre PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA **19" ~~22" TFT 96 MB~~** graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6-283 with C3.6.6-283(R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-286
Section PSEPLC-6.A Schedule of Supervisory and Control I/O's For Substation No.1 ['24 Head of Works] Motor Control Centre PLC

Remove the following I/O control reference in the middle of the page as follows:

DESCRIPTION	RTD IN	ANALOG IN	ANALOG OUT	24V DC IN	24V DC OUT	VOLT FREE OUT	NETWORK LINK		
							SCADA	HMI	PLANT
~~Raw Water Sewage No.1 – No.4 healthy~~				4			4	4	4
~~Raw Water Sewage No.1 – No.4 trip~~					4		4	4	4
~~Raw Water Sewage No.1 – No.4 run/stop~~				4	4		8	8	8
~~Raw Water Sewage No.1 – No.4 E-Stop~~				4			4	4	4
~~Raw Water Sewage No.1 – No.4 Manual / Auto / Off~~				12			12	12	12
~~Raw Water Sewage No.1 – No.4 DE bearings motor~~	4		4		3		9	9	9
~~Raw Water Sewage No.1 – No.4 NDE bearings motor~~	4		4		3		9	9	9
~~Raw Water Sewage No.1 – No.4 Winding temperatures motor~~	12		12		12		36	36	36
~~Raw Water Sewage No.1 – No.4 DE bearings~~	4		4		4		12	12	12
~~Raw Water Sewage No.1 – No.4 NDE bearings~~	4		4		4		12	12	12
~~Raw Water Sewage No.1 – No.4 Vibration sensor~~	4		4		4		12	12	12
~~Raw Water Sewage No.1 – No.4 Pressure~~	4		4		4		12	12	12
~~Raw Water Sewage No.1 – No.4 Speed Control / speed monitor~~		4	4				8	8	8
~~Raw Water Sewage Level~~		1			1		2	2	2
~~Raw Water Sewage No.1 – No.4 Flume Flow Meter No.1-No.3~~		3	3		3		9	9	9
~~Raw Water Sewage No.1-No.4 duty / standby control and speed control~~			4	4	4		12	12	12

Strike through and replace page C3.6.6-286 with C3.6.6-286 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-293
Section PSEPLC-6.C Substation No.2 Motor Control Centre ['24 Primary Sedimentation, Ultra-Fine Screens and '24 BNR Reactor] PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-**19"** ~~**22" TFT 96 MB**~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6-293 with C3.6.6-293(R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-301
Section PSEPLC-6.D Substation No.3 Motor Control Centre [Sludge Management] PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-19" ~~22" TFT 96 MB~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6-301 with C3.6.6-301(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-309
Section PSEPLC-6.E Substation No.4 Motor Control Centre ['24 Membrane Reactor and UV] PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-19" ~~22" TFT 96 MB~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6-309 with C3.6.6-309(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-312
Section PSEPLC-6.E Schedule of Supervisory And Control I/O's For Substation No.4 Motor Control Centre ['24 Membrane Reactor and UV] PLC

Remove the following supervisory and control I/O's items in the table as follow:

DESCRIPTION	RTD IN	ANALOG IN	ANALOG OUT	24V DC IN	24V DC OUT	VOLT FREE OUT	NETWORK LINK		
							SCADA	HMI	PLANT
~~Permeate Pump No.1 – No.16 healthy~~				~~16~~			~~16~~	~~16~~	~~16~~
~~Permeate Pump No.1 – No.16 trip~~					~~16~~		~~16~~	~~16~~	~~16~~
~~Permeate Pump No.1 – No.16 run/stop~~				~~16~~	~~16~~		~~32~~	~~32~~	~~32~~
~~Permeate Pump No.1 – No.16 E-Stop~~				~~16~~			~~16~~	~~16~~	~~16~~

***Note: Table adjustment continues up to page 316. Refer to replacement pages for further detail.**

Strike through and replace page C3.6.6-312 to C3.6.6-316 with C3.6.6-312 (R) to C3.6.6-316 (R).

[redacted]

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-318
Section PSEPLC-6.F Substation No.4 ['24 Membrane Reactor and UV] Membrane Module A & B Enclosure Remote I/O [x16]

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-19" ~~22" TFT 96 MB~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6- 318 with C3.6.6-318(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-325
Section PSEPLC-6.G Substation No.4 Motor Control Centre [MBR Re-Use Pump Station] PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-19" ~~22" TFT 96 MB~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6- 325 with C3.6.6-325(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-326
Section PSEPLC-6.G Schedule Of Supervisory And Control I/O's For Substation No.4 Motor Control Centre [MBR Re-Use Pump Station] PLC

DESCRIPTION	RTD IN	ANALOG IN	ANALOG OUT	24V DC IN	24V DC OUT	VOLT FREE OUT	NETWORK LINK		
							SCADA	HMI	PLANT
~~MBR Re-Use Pump No.1 – No.6 healthy~~				~~6~~			~~6~~	~~6~~	~~6~~
~~MBR Re-Use Pump No.1 – No.6 trip~~					~~6~~		~~6~~	~~6~~	~~6~~
~~MBR Re-Use Pump No.1 – No.6 run/stop~~				~~6~~	~~6~~		~~12~~	~~12~~	~~12~~
~~MBR Re-Use Pump No.1 – No.6 E-Stop~~				~~6~~			~~6~~	~~6~~	~~6~~
~~MBR Re-Use Pump No.1 – No.6 Manual / Auto / Off~~				~~18~~			~~18~~	~~18~~	~~18~~

[redacted]

DESCRIPTION	RTD IN	ANALOG IN	ANALOG OUT	24V DC IN	24V DC OUT	VOLT FREE OUT	NETWORK LINK		
							SCADA	HMI	PLANT
~~MBR Re-Use Pump No.1 – No.6 DE bearings motor~~	~~6~~						~~6~~	~~6~~	~~6~~

***Note: Table adjustment continues up to page 327. Refer to replacement pages for further detail.**

Strike through and replace page C3.6.6-326 to C3.6.6-327 with C3.6.6-326 (R) to C3.6.6-327 (R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-334
Section PSEPLC-6.I Substation No.5 Motor Control Centre [Maturation, Tertiary Treatment and Disinfection] PLC

Replace the specification for the Human Machine Interface VGA graphics with the following:

QTY	DESCRIPTION	IDENTIFICATION
1	Human machine interface advanced touchscreen panel HD pixels VGA-**19"** ~~**22" TFT 96 MB**~~ graphic Terminals" colour touch screen with sufficient flash memory, soft function and static function keys and Ethernet communication port. Software as may be required shall be provided:	HMI

Strike through and replace page C3.6.6-334 with C3.6.6-334(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-386
Section PSESCA-4-5 Operator Station

Add additional specification for the main server:

Qty	Description
All	Corporate business Server: Plus
All	Intel Xeon Silver 4110 Processor (11M Cache, 3.00 GHz, 8 cores): Plus
Kit [4 x 16GB]	Corsair 16GB DDR4 2666MHz Memory Module Kit: Plus
All	All housed inside 42U server case Server Tower: Plus
2	512GB SATA 3 2.5 Solid State Drive [Main Drives]: Plus
2	3TG SATA 3 Hard Drives for Raid Back-Up: Plus
1	*Equal or similar to my cloud expert series EX4100 8TB Network Attached Storage (NAS)*
All	Power supply suitable for the application: Plus
4	27" Inch Samsung LED Screens: Plus
4	65" Inch 4k equal or similar to LG LED TV's: Plus
All	H330 Integrated Raid Controller: Plus
Standards	IEEE 802.3, IEEE 802.3u, IEEE 802.3ab: Plus
All	Dual 10/100/1000 Gigabit Ethernet: Plus
All	All cable work and accessories to complete the installation.
All	Graphic Cards required to remote display divert sections of the plant on all screens
All	42U 600mm(w) x 1000mm(d) x 2055mm(h) Cabinet with perforated front & back door which include all shelves, distribution, blanking panels, cable management, cage nuts and plinths which will complete the installation.
All	**An uninterruptable power supply shall be supplied and installed under this Contract. The Contractor shall allow for an industrial type equal or similar to APC Modular unit in its own case /cabinet Lithium Ion type batteries for the entire security, SCADA, electric fence, CCTV, and access control system.**

[redacted]

Qty	Description
	Alarm and other reports as may be required must be provided for and all alarm conditions shall be provided with a utility to view possible causes and remedies for the relevant alarm condition in a detail window.

Strike through and replace page C3.6.6-386 with C3.6.6-386(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-394
Section PSESEC-2 SCOPE

Add the following to the scope specification for security and fencing:

11. All Process will be covered with CCTV cameras. The Engineer has allowed for cameras for pricing purposes, which will be distributed when Contractor is appointed **[Refer to Schedule of Quantities item 27.2.12 - 27.2.17].**

Remove the following specification requirement for security and fencing:

~~12. **UPS shall be allowed for under this contract to cover the entire system. 15kVA 3phase shall be allowed for the system**~~

Strike through and replace page C3.6.6-394 with C3.6.6-394(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-395
Section PSESEC-6 Operator Station

Replace the content under Section PSESEC-6 with the following:

~~Latest Editions Windows Server package professional operating system software and latest edition complete Windows Office professional software shall be supplied with the server, UPS and Screens by others.~~

~~Qty~~	~~Description~~
~~All~~	~~Corporate business Server: Plus~~
~~All~~	~~Intel Xeon Silver 4110 Processor (12M Cache, 3.50 GHz, 8 cores): Plus~~
~~Kit (4 x 16GB)~~	~~Corsair 16GB DDR4 2666MHz Memory Module Kit: Plus~~
~~All~~	~~Server Tower Case: Plus~~
~~All~~	~~512GB SATA 3 2.5 Solid State Drive (Main Drives): Plus~~
~~All~~	~~SATA 3 Hard Drives for Raid Back-Up: Plus~~
~~All~~	~~Power supply suitable for the application: Plus~~
~~2~~	~~27" Inch equal or similar Samsung QLED Screens: Plus~~
~~4~~	~~65" Inch equal or similar to 4k Samsung QLED TV's: Plus~~
~~All~~	~~H330 Integrated Raid Controller: Plus~~
~~Standards~~	~~IEEE 802.3, IEEE 802.3u, IEEE 802.3ab: Plus~~
~~All~~	~~Dual 10/100/1000 Gigabit Ethernet: Plus~~
~~All~~	~~All cable work and accessories to complete the installation.~~
~~All~~	~~42U 600mm(w) x 1000mm(d) x 2055mm(h) Cabinet with perforated front & back door which include all shelves, distribution, blanking panels, cable management, cage nuts and plinths which will complete the installation.~~
~~All~~	~~Separate modular Cabinet system for the UPS [see PSESEC-7]~~

The SCADA servers will be used and all additional hardware and cables shall be allowed for connection to the SCADA servers. Latest Editions Windows Server package professional operating system software and latest edition complete Windows Office professional software shall be supplied with the server, UPS and Screens by others.

[redacted]

Strike through and replace page C3.6.6-395 with C3.6.6-395(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.6
Page C3.6.6-396
Section PSESEC-7 UPS

Replace the content under Section PSESEC-7 with the following:

~~An uninterruptable power supply shall be supplied and installed under this Contract. The Contractor shall allow for a industrial type equal or similar to APC Modular unit in its own case /cabinet Lithium Ion type batteries 30kVA 3phase UPS for the entire security, electric fence, CCTV, and access control system.~~

~~Alarm and other reports as may be required must be provided for and all alarm conditions shall be provided with a utility to view possible causes and remedies for the relevant alarm condition in a detail window.~~

~~A security overview shall be provided.~~

The SCADA System shall be used. Latest Editions Windows Server package professional operating system software and latest edition complete Windows Office professional software shall be supplied with the server, UPS and Screens by others.

Strike through and replace page C3.6.6-396 with C3.6.6-396(R).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3B Part C3.6.7
Page ESEC-1 to 51
Section ESEC – ELECTRICAL/ELECTRONIC: SECURITY & FENCING

Replace particular specification ESEC: *SECURITY & FENCING* in its entirety and replace with the new ESEC distributed with this addendum.

Strike through and replace pages ESEC-1 to ESEC-51 with ESEC-1(R) to ESEC-41(R).

DOCUMENT C
Volume 4: DRAWINGS

Add the following drawings to the Volume 4 which indicate details on the existing Emergency WAS Storage Tanks (Section 31 of DMS) and '24 WAS Recycle Pump Station (Section 33 of DMS):

"

400361 CT 10Z BIOREACTOR UNITS 1 & 2: General Arrangement
400361 CT 11Z BIOREACTOR UNITS 1 & 2: Detail
400361 CT 30Z CONTROL ROOM/WASTE SLUDGE PUMPSTATION GENERAL ARRANGEMENT"

New drawings distributed with this Notice.

[End of addendum]

Thanking you

[redacted]

On behalf of: Basil Chinasamy
Director: Supply Chain Management

ADDENDUM No. 4

[redacted]

ACKNOWLEDGEMENT OF RECEIPT FOR AND ON BEHALF OF THE TENDERER: TENDER No. 146Q/2021/22

At ..... on this ..... Day of ..... 20.....

Signature: .....

Name of Signatory: .....
(In ink and capitals)

TENDERER: .....
(Name of firm in ink and capitals)

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

Ngoetsana Mpalami
Supply Chain Management

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22 APRIL 2022

NOTICE TO TENDERERS NO. 5
(Pages 2)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 29 April 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

QUESTIONS AND RESPONSES RECEIVED SUBSEQUENT TO ADDENDUM No 4 AND UP TO THE ISSUE OF THIS ADDENDUM:

The following table lists key clarifications which have been communicated to the CCT via official communication channels. It should be noted that where questions or clarifications have been submitted and is not specifically addressed herein, the relevant party shall accept that the answer to the question or clarification shall be accepted as "specified in the tender document".

Tenderers shall note that these clarifications are FOR INFORMATION PURPOSES ONLY.

Item	Reference	Question/Clarification	Response
C1	General	Can an updated electronic Schedule of Quantities be provided in line with the amended SoQs mentioned in the Addendums?	An updated SoQ, including changes implemented via this addendum, is distributed with the Notice 5.
C2	General	Is the Civil Contractor responsible for the grouting of puddle pipes into box-outs?	Grouting of puddle pipes will be carried out and remunerated as part of the Civil Contract.
C3	Document A, Volume 2, Part C2.2, page E6-2, Schedule of Quantities & Document B, Volume 2, Part T2.2, page TDS E3-1, Electrical Data Sheets	In SoQ Item E.6.2.19 the 630mm² single core cable specified for the generator set is required to be "unarmoured". However, the TDS E3-1 states armoured. Which is correct?	Tenders to accept item E.6.2.19 in the SoQ as correct.
C4	Document B, Volume 2, Part T2.2, Schedule 22.5-12 & Document C, Volume 3A, Part C3.6.1, DMS Section 49, page 3.6.1-335	The valves listed in the BOQ and Detailed Mechanical Specification – Item 49.9.1 – Ducting & Valves Item c) refers to PVC valves that are only available internationally. However the tender documentation (Annexure C: Schedule 22.5-12) has these valves listed as part of the local content.	The local content schedules have been compiled in terms of the circulars issued by National Treasury. If a product cannot be acquired locally, Tenders are to request exemption from DTIC and include such exemption with the tender offer.

[redacted]

Item	Reference	Question/Clarification	Response
C5	Document B, Volume 3, Part C3.5, Clause 3.5.5.3, Page 174 (Activity 15)	During the Temporary Operational Period of the ultra-filtration and dewatering facilities, will the CCT's responsibility be to remove and dispose of the sludge produced?	The CCT will carry out the off-site sludge disposal activity.
C6	Document C, Volume 3A, Part C3.6.1, DMS Section 17, page 3.6.1-64.	The fifth paragraph under Section heading 17.5 - *Access bridge and walkway* states that the rotating bridge and scraper mechanism shall be stainless steel. Does bridge imply walkway?	Tender's offer to conform to the contract specifications included under Section 17.4 – Materials. The walkway section of the bridge must be mild steel (HDG) or better.
C7	Document C, Volume 3A, Part C3.6, page 3.6.1-106 &109, DMS Section 23.1 & 24.1	In both instance the specifications list the solution strength as 43% w/w in the design requirements and w/w in the subsequent storage and dosing specification. Which should be taken as correct?	The solution strength of Ferric shall be accepted as standard supply 43% (w/w) solution. The intent of the specification is to ensure the Tenders note that the dosing rate applies to the standard supplied diluted solution.
C8	Document C, Volume 3A, Part C3.6, page 3.6.1-109, DMS Section 24.1.2	Please confirm if the '08 Ferric dosing system comprises of 6 dosing pumps or 3 dosing pumps.	The minimum requirement specified is for a 2 duty + 1 standby pump configuration (i.e., 1 duty for Module A and 1 duty for Module B with common standby).
C9	Document C, Volume 3A, Part C3.6.2, page 68, Section D48.1.	Does the Contractor have to allow for the FAT's for all pumps and should they be witnessed by the engineer?	All pump testing shall be carried out in terms of the contract specifications. Instances where the Contractor must allow for the Engineer's subsistence, travel and accommodation and disbursements are listed in the relevant SoQ.
C10	Document C, Volume 3B, Part C3.6.7, page ESLS-5, Particular Specifications for Electrical Works.	Streetlights are specified to have a height of 8.5m whereas TDS E.9 lists the height as 4m. Which of the heights are correct?	Tender's offer to allow for 8.5m high streetlights.
C11	Document C, Volume 4, Drawing 3089.00.00.SQP.14.U001	Two penstocks are shown in the final effluent pipeline of the Ultra-filtration system. However, these penstocks are not in the Schedule of Quantities. Where should Contractors make provision for the supply of the two penstocks indicated?	It can be accepted that these penstocks are allowed for in SoQ M19 (item 19.2.2.18, 19.3.2, 19.4.2, 19.5.1.2 & 19.5.2.2).
C12	Document C, Volume 4, Drawing 3089.00.00.WBA.01.E001 3089.00.00.WBA.14.U001	Are the supports indicated in the referenced drawings to be priced by the Mechanical or Civil Contractor?	The support columns associated with the roof structure shall form part of the Civil Contract.

Note:
DMS Detailed Mechanical Specifications (Part C3.6.1)
DES Detailed Electrical Specifications (Part C3.6.6)

[redacted]

ADDENDUM NO. 5
(Pages 3)

TENDER NO: 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

BOX NUMBER: 121

CLOSING DATE: 29 April 2022

Your attention is specifically drawn to the tender document for the following clarifications and amendments which are to be incorporated in the tender document for the abovementioned tender in terms of Clause C.3.2 of Part T1.2 of the Standard Conditions of Tender and you will be deemed to have made any allowance necessary to provide for these amendments in your tender offer.

Kindly be advised that tenderers must complete Schedule 24, page 80 in Part T2.2 of Volume 2 (DOCUMENT B) of the Contract Document.

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
PART C2.2: Schedule of Quantities
Pages M21-2
SCHEDULE NO. M21: Pressurized Ultra Filtration

Remove the unit and quantity listed next to the description of items M.21.2.6 as per the table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
M.21.2.6	Part 3.6.1. (45)	Mobile service access platform for maintenance requirements. .1 Structural steel component of lifting equipment .2 Other components (e.g. wheels, signage, etc.)	~~No~~ Sum Sum	~~1~~ - -	 - -	

Strike through and replace page M21-2(R) with M21-2(R1)

DOCUMENT A
VOLUME 2: RETURNABLE DOCUMENTS
PART C2.2: Schedule of Quantities
Pages E26-1 to 21
SCHEDULE NO. E26: Multicore Cables & Earth Wires

Replace selected quantities associated items E26.2.5, E26.2.6, E26.2.8, E26.2.11, E26.3.5, E26.3.6, E26.3.8, E26.3.11, E26.3.12 & E23.3.13 as per table below:

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
E.26.2.5.1	EMCA 18.2(e)	150mm Wide cable ladder*	m	**2850**		
E.26.2.6.1	EMCA 18.2(f)	150mm wide 90° Horizontal Bend*	Each	**145**		
E.26.2.8	EMCA 18.2(i)	50mm² HDPE Sleeves equal or similar to Optex	m	**8900**		
E.26.2.11	EMCA 18.2(l)	Installation of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m³	**2100**		
E.26.3.5.1	EMCA 18.3 (e)	150mm Wide cable ladder*	m	**2850**		
E.26.3.6.1	EMCA 18.3(f)	150mm wide 90° Horizontal Bend*	Each	**145**		
E.26.8	EMCA 18.3(i)	50mm² HDPE Sleeves equal or similar to Optex	m	**8900**		
E.26.3.11	EMCA 18.3(l)	Installation of all soil for the bedding of cables during excavations including	m³	**2100**		

[redacted]

Item	Pay Ref	Description	Unit	Qty	Rate (R)	Amount (R)
		cleaning of cable routes complete as per particular specification				
E.26.12(a)	EMCA 18.3(m)	Pickable soil	m^3	**9800**	E.26.12(a)	EMCA 18.3(m)
E.26.12(b)	EMCA 18.3(m)	Soft rock	m^3	**1250**	E.26.12(b)	EMCA 18.3(m)
E.26.12(c)	EMCA 18.3(m)	Hard rock	m^3	**500**	E.26.12(c)	EMCA 18.3(m)
E.26.13	EMCA 18.3(m)	Dumping and removing of all rock and stone removed during excavations including cleaning of cable routes complete as per particular specification. Dumping at a registered dumping site within the border of Municipal Area. Contractor to allow dumping within a vicinity of 30km the site Contractor to allow all labour, truck hire and dumping site payments	m^3	**1750**	E.26.13	EMCA 18.3(m)

* ***Additional changes continue in schedule. For further details regarding changes refer to replacement pages distributed with this notice.***

Strike through and replace pages associated with Schedule E26 (pages E26-1(R) to E26-21(R) as per addendum adjusted pages associated with previous notices) and replace with the page E26-1(R1) to E26-21(R1) distributed with this notice.

DOCUMENT B: VOLUME 3: DRAFT CONTRACT
Part C1.2: Contract Data
Page 100
APPENDIX TO TENDER
Item: Amount of performance security
Sub-Clause: 4.2

Replace the Amount of Performance Security specified under Sub-clause 4.2 with the following:

Item	Sub-Clause	Entry
Amount of performance security	4.2	**7% of Accepted Contract Amount**

Strike through and replace page 100(R) with attached page 100(R1).

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-63
Section 17

Delete the first paragraph after Sub-heading 17.4 *Inlet/outlet and dispersion arrangements* as follows:

"~~The inlet pipe under the floor and inside the inlet structure of the clarifier will be supplied and installed by the others and does not form part of the Mechanical SoW. This also applies to the sludge draw off pipe under the floor~~."

Strike through and replace page C3.6.1-63 with C3.6.1-63(R)

DOCUMENT C
VOLUME 3: DRAFT CONTRACT
Part C3.6 ANNEXES
Volume 3A Part C3.6.1
Page C3.6.1-93
Section 21

[redacted]

Replace the fourth paragraph after Sub-heading 21.6.10 *Electric Motors* with the following:

"Since the blower motors form part of a package supply, the normal 20% excess power rating shall be waived. A margin of minimum **15% excess** shall be acceptable."

Strike through and replace page C3.6.1-93 with C3.6.1-93(R)

[End of addendum]

Yours faithfully,

[redacted]

For: Basil Chinasamy
Director: Supply Chain Management

ADDENDUM No. 5

ACKNOWLEDGEMENT OF RECEIPT FOR AND ON BEHALF OF THE TENDERER: TENDER No. 146Q/2021/22

At ..... on this ..... Day of ..... 20.....

Signature: .....

Name of Signatory: .....
(In ink and capitals)

TENDERER: .....
(Name of firm in ink and capitals)

[redacted]

[redacted]

28 July 2022

City of Cape Town
Civic Centre,
12 Hertzog Boulevard,
Cape Town,
8001

Attention: [redacted] (Director: Supply Chain Management)

RE: TENDER CLARIFICATION NO. 1
TENDER NO: 146Q/2021/22
DESCRIPTION: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

We refer to your letter dated the 20th July 2022 with regards to the above referenced tender, 146Q/2021/22, and herewith provide our response to tender clarification no. 1 in blue italics below:

1.1. Clause C.2.1.4.3: Minimum Score for Functionality

COCT Clarification Request

Clause C.2.1.4.3.1 of Tenderer's Obligations states that the Employer will allocate tender offers a functionality score out of 100. To be responsive, a tender offer must attain a minimum score of **70** out of **100** for Functionality Criteria (Tenderer's expertise, experience and equipment offered, Key personnel assigned to the project and Evidence of planning for the project), failing which, the tender offer will be non-responsive.

Due to uncertainty, the CCT cannot allocate the relevant points associated with Clause C.2.1.4.3.3 i) Table 2 and Clause C.2.1.4.3.3 ii) Table 3 with the supporting information provided.

It is hereby requested that you substantiate and/or clarify the supporting information provided in your tender submission for the CCT to allocate the relevant functionality score. For details pertaining to the particulars requested, refer to **Annexure 1** and **Annexure 2**, which provide the specific items to be substantiated and/or clarified in terms of Clause C.2.1.4.3.3 i) Table 2 and Clause C.2.1.4.3.3 ii) Table 3, respectively.

PCI/ INENZO WATER /RAUBEX/DEVCOTECH CONSORTIUM Response

With regards to the request to substantiate and or clarify the supporting information provided as contained within Annexure 1- Tenderers expertise, experience and equipment offered, for clarification we would like to emphasise that the requirements for a FIDIC design build contract is only specific to certain items numbers as detailed within Table 2 of C.2.1.4.3.3. In this regard we include a summary

[redacted]

of the table below where FIDIC design build is clearly stipulated as a particular requirement and those where is not.

Item Number	Specified Requirement where a FIDIC design build is specified.
1	
1.1	Yes FIDIC design build or equivalent contract specified.
1.2	Yes FIDIC design build or equivalent contract specified.
1.3	Not Required
1.4	Not Required
2	
2.1	Yes FIDIC design build or equivalent contract specified
2.2	Not Required
2.3	Not Required
3	
3.1	Yes FIDIC design build or equivalent contract specified
3.2	Not Required
3.3	Not Required
4	
4.1	Yes FIDIC design build or equivalent contract specified
4.2	Not Required
4.3	Not Required
4.4	Not Required
5	
5.1	Yes FIDIC design build or equivalent contract specified
5.2	Not Required
5.3	Not Required
5.4	Not Required
5.5	Not Required
6	
6.1	Not Required
6.2	Not Required
6.3	Not Required
6.4	Not Required
6.5	Not Required
7	
7.1	Not Required
7.2	Not Required
7.3	Not Required

From the above it can thus be concluded that FIDIC design build or equivalent is only applicable to the items where it is specifically mentioned viz 1.1,1.2,2.1,3.14.1 and 5.1 and not all the item numbers as implied in your letter.

*Further and for the avoidance of doubt as per the notes at the bottom of Table 2 our interpretation of the requirement to provide a Completion Certificate (as per clause 11.9 of FIDIC Yellow **or equivalent version thereof where other General Conditions of Contract were utilised**) in our view is purely a means test to show successful commissioning in whatever form of Contract, also*

[redacted]

noting our previous comments that FIDIC yellow book is not specified to all items as per the table above. This is further supported by the fact that the request is to provide a ***Completion Certificate****, firstly FIDIC does not have a Completion Certificate but has a Taking Over Certificate and Performance Certificate, whilst the other General Conditions of Contract for Construction works extensively utilised in South Africa uses the terms Certificate of Practical Completion and Certificate of Completion, therefore it is our interpretation that all the aforementioned "Certificates" can be deemed Completion Certificates and a means to support proof of successful commissioning.*

The above interpretation is thus used to support our response where projects were conducted under the General Conditions of Contract for Construction works.

In this regard we refer to completed annexure 1 and 2 attached hereto wherein our we have added our detailed response in respect to each query as well as referenced any further documents in support of our response.

1.2. Clause C.2.1.4.4: Local Content

COCT Clarification Request

Clause C2.1.4.4 of Tenderer's Obligations states that Tenders that fail to meet the minimum stipulated threshold for local production and content will result in a bid being declared non-responsive. An analysis of your local content schedules revealed a total tender value listed in the local content schedule as R0.00, which does not match the value listed in the Bill of Quantities for the line item.

Please refer to **Annexure 3** for a summary table that lists the relevant line item, and the clarification/information that must be provided for the tender to be deemed responsive.

PCI/ INENZO WATER /RAUBEX/DEVCOTECH CONSORTIUM Response

Please find attached completed Annexure 3, local content specific to item E.8.2.1.

1.3. Clause C.2.1.4.7: Good Standing with Bargaining Council

COCT Clarification Request

As per Clause C.2.1.4.7 of Tenderer's Obligations, only those tenders submitted by tenderers who are in good standing with the Bargaining Council for **Metal and Engineering Industries Bargaining Council (MEIBC), and/or other relevant bargaining councils**, at the time of the tender award will be declared responsive. Tenderers must attach such proof to the schedule titled **Declaration in Respect of Compliance with Labour Legislation** or obtain such upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.
Please refer to **Annexure 4** for the summary table that lists the relevant clause, returnable schedule and the information that must be provided for the tender to be deemed responsive.

PCI/ INENZO WATER /RAUBEX/DEVCOTECH CONSORTIUM Response

In addition to the proof of registration documents with the Metal and Engineering Industries Bargaining Council (MEIBC) for Inenzo and PCI Africa and NBCEI for Devcotech please find attached updated letters of good standing as per Annexure 4.

[redacted]

2. SCHEDULE OF QUANTITIES

COCT Clarification Request

2. SCHEDULE OF QUANTITIES
DOCUMENT A
VOLUME 2: Returnable Documents
Part C2.2: Schedule of Quantities
The CCT refers to your notes included under Part C2.2 Schedule of Quantities, Schedule A, items 1.2.19, 1.2.20, 1.5.18 and 1.5.19.

Clause C.2.1.1 of T1.2 Tender Data, states, "Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions and contract conditions will be declared responsive."

Clause C.2.24 of T1.2 Tender Data, states: "Where the tenderer cannot tender in all respects in accordance with the provisions contained in the tender documents, all deviations therefrom and qualifications thereto shall be clearly and separately listed in the schedule titled Proposed Deviations and Qualifications by Tenderer in T2.2 Returnable Schedules, or in a tenderer's covering letter expressly referenced in this schedule."

The CCT notes that your offer has no items listed under Part T2.2 Returnable Schedule 20: Proposed deviations and qualifications by Tenderer. Hence, the notes referred to in Schedule A item 1.2.19, 1.2.20, 1.5.18 and 1.5.19 are considered as discrepancies in terms of Clause C.3.9 of T1.2 Tender Data, .

In terms of Clause C3.9.3 of T1.2 Tender Data, you are hereby notified of this error and offered the opportunity to confirm the rates and amounts associated with the items listed as zero and confirm that there are no qualifications or deviations listed associated with these items.

Please refer to Annexure 5 for the summary table that lists the scheduled line items, the description and the clarification required.

[redacted]

PCI/ INENZO WATER /RAUBEX/DEVCOTECH CONSORTIUM Response

We hereby confirm that the rate for items as detailed in Schedule A item 1.2.19, 1.2.20, 1.5.18 and 1.5.19 is zero and that there are no qualifications or deviations associated with these items, this in accordance with Annexure 5.

We trust the above responses supported by the completion of the various Annexures suitably addresses the queries raised however if further information and or supporting documentation is required, please advise.

[redacted]

on behalf of
PCI-INENZO-RAUBEX-DEVCOTECH Consortium

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

Samantha Lee Mars
Supply Chain Management

T: 021 400 9240
E: Samanthalee.Mars@capetown.gov.za

06 September 2022

PCI/ Inenzo Water /Raubex/Devcotech Consortium

Attention: [redacted]

per Email: icloete@inenzo.com

CC: admin@inenzo.com

Dear Sir/Madam

Tender No: **146Q/2021/22**

Description: **DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT**

We are in the process of evaluating your tender offer for the above-mentioned tender. In terms of Clause 2.3.9 of the Conditions of Tender, we request that you provide further information or clarification on the following points:

Please note that this correspondence does not imply that your offer is being given consideration over other offers for the above tender.

1. PREFERRED BIDDER STATUS – NEGOTIATIONS

a) The Bid Evaluation Committee (BEC) obtained permission to negotiate the tendered value submitted via a preferred bidder status. The delegated authority (Bid Adjudication Committee (BAC), has authorised **Keith Olsen (Head: Projects and Implementation, Bulk Services) and Sameeh Johaadien (Principal Professional Officer, Projects and Implementation, Bulk Services),** authority to negotiate final terms of the contract with the preferred bidder(s) (as per Resolution SCMB 113/08/22).

b) The negotiation will be conducted in terms of the SCM Policy clause 274.1-3, which does not allow any preferred bidder a second or unfair opportunity; is not to the detriment of any other bidder; and does not lead to a higher price than the bid as submitted.

2. SECTIONS IDENTIFIED FOR NEGOTIATION AND REDUCTION TARGETS

Refer to **Annexure 1.**

The following sections have been identified for negotiation and the proposed reduction targets are reflected in the Annexure .

[redacted]

3. IN PERSON/SKYPE MEETING REQUEST

It is hereby requested that a brief negotiation take place between a duly authorized representative from your consortium and the City of Cape Town, via in person and/or Skype meeting, based on the proposed timeslots in the table below:

Day, Date	Timeslot
Wednesday, 05 September 2022	16h00 – 17h00

Requirement for an additional meeting can be discussed in the meeting above.

Kindly confirm your availability upon receipt of this letter via Email to Keith.Olsen@capetown.gov.za; Sameeh.Johaadien@captown.gov.za; Vuyiseka.Matsha@capetown.gov.za, & Samanthalee.Mars@capetown.gov.za

Written acceptance of the negotiated values must be submitted once the negotiations have been concluded.

Yours faithfully,

[redacted]

For: Basil Chinasamy
Director:

[redacted]

ANNEXURE 1: INENZO WATER/PCI/RAUBEX/DEVCOTECH CONSORTIUM SUMMARY			TENDERER VARIANCE FROM AVERAGE TENDERED VALUES		T12
Bill No.	Description	Tender 3 Inenzo Water/ PCI/Raubex/Devcotech Consortium	Average Tendered Amount (T1, T2 & T3)	Variance between Inenzo/PCI/Raubex/Devcotech & Average tendered amount	Tender 3 Inenzo Water/ PCI/Raubex/ Devcotech Consortium
		Amount (R)	Amount (R)	Amount (R)	(%) variance from average
			highlight variance >	*R 500 000.00*	*5%*
GENERAL ITEMS					
A-1	GENERAL REQUIREMENTS AND CONDITIONS	R414 625 476.84	R340 443 058.73	R74 182 418.11	22%
B-1	PROVISIONAL SUMS AND ADDITIONAL SERVICES	R4 277 000.00	R4 199 346.67	R77 653.33	2%
	Sub-Total for Schedules A&B(PG)	**R418 902 476.84**	**R344 642 405.39**	**R74 260 071.45**	**22%**
MECHANICAL WORKS (SECTION C)					
M1-1	DISMANTLING, DECOMMISSIONING AND REFURBISHMENT	R4 497 482.98	R5 794 096.98	-R1 296 614.00	-22%
M2-1	ACCESS PLATFORMS, WALKWAYS & HANDRAILS	R2 681 380.80	R2 339 565.26	R341 815.54	15%
M3-1	INLET WORKS AND SCREENING EQUIPEMENT	R49 475 852.88	R61 004 619.36	-R11 528 766.48	-19%
M4-1	PUMPS & PIPEWORK	R174 502 611.92	R202 020 988.41	-R27 518 376.49	-14%
M5-1	PRIMARY SEDIMENTATION EQUIPMENT	R15 698 901.38	R16 040 760.24	-R341 858.86	-2%
M6.1	MIXING EQUIPMENT	R14 638 179.36	R15 585 395.78	-R947 216.42	-6%
M7-1	AERATION BLOWER EQUIPMENT	R43 973 782.86	R48 852 967.15	-R4 879 184.29	-10%
M8-1	AERATION EQUIPMENT	R32 969 268.89	R39 889 602.82	-R6 920 333.93	-17%
M9-1	FERRIC CHLORIDE DOSING SYSTEM	R5 709 980.77	R5 408 960.44	R301 020.33	6%
M10-1	SUBMERGED MEMBRANE FILTRATION SYSTEM	R202 983 690.22	R203 101 047.03	-R117 356.81	0%
M11A-1	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R34 418 464.89	R35 262 545.23	-R844 080.34	-2%
M12-1	SLUDGE DEWATERING, STORAGE AND LOADING	R146 802 548.00	R143 534 421.92	R3 268 126.08	2%
M13-1	SLUDGE CONDITION EQUIPMENT	R10 510 709.00	R11 060 390.44	-R549 681.44	-5%
M14-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R14 763 210.00	R17 925 734.23	-R3 162 524.23	-18%
M15-1	LIFTING EQUIPMENT	R22 770 375.38	R21 809 917.82	R960 457.56	4%
M16-1	WEIGHBRIDGE	R1 308 596.78	R1 380 831.84	-R72 235.06	-5%
M17-1	ODOUR CONTROL SYSTEM	R33 149 246.90	R31 201 118.69	R1 948 128.21	6%
M18-1	DIESEL TANK	R713 329.10	R629 317.86	R84 011.24	13%
M19-1	CHANNEL GATES, SLUICE GATES AND VALVES	R99 902 849.76	R93 776 163.02	R6 126 686.74	7%
	Sub-Total for Schedules M1 to M19(C1)	**R911 470 461.87**	**R956 618 444.54**	**-R45 147 982.67**	**-5%**
MECHANICAL WORKS (SECTION B)					
M20-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R3 870 900.00	R4 750 998.43	-R880 098.43	-19%
	Sub-Total for Schedules M20(B1)	**R3 870 900.00**	**R4 750 998.43**	-R880 098.43	-19%
MECHANICAL WORKS (SECTION A)					
M21-1	PRESSURISED ULTRA FILTRATION	R91 786 972.00	R93 169 213.49	-R1 382 241.49	-1%
M22-1	SCREENING EQUIPMENT	R46 619 693.00	R42 826 356.57	R3 793 336.43	9%
M23-1	PUMPS AND PIPEWORK	R69 502 782.00	R64 100 275.30	R5 402 506.70	8%
M24A-1	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R29 466 075.00	R28 797 098.68	R668 976.32	2%
M25-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R2 987 050.00	R4 535 979.66	-R1 548 929.66	-34%
M26-1	LIFTING EQUIPMENT	R6 375 654.00	R5 046 814.91	R1 328 839.09	26%
M27-1	CHANNEL GATES, SLUICE GATES AND VALVES	R32 657 546.00	R41 648 721.95	-R8 991 175.95	-22%
	Sub-Total for Schedules M21 to M27 (A1)	**R279 395 772.00**	**R280 124 460.56**	**-R728 688.56**	**0%**
ELECTRICAL AND ELECTRONIC WORKS (SECTION A)					
E1-1	ESKOM BULK SUPPLY WORKS	R9 998 450.00	R9 832 825.52	R165 624.48	2%
E2-1	MV SWITCHGEAR INCOMER SUBSTATION	R16 193 872.00	R15 013 228.50	R1 180 643.50	8%
E3-1	BATTERY TRIPPING UNITS AND BATTERIES	R648 240.00	R1 145 045.96	-R496 805.96	-43%
E4-1	SUBSTATION EARTHING	R299 410.00	R524 586.67	-R225 176.67	-43%
E5-1	PROTECTION SCHEMES	R3 157 590.00	R3 779 698.14	-R622 108.14	-16%
E6-1	GENERATOR INSTALLATION	R23 570 687.00	R23 531 558.92	R39 128.08	0%
E7-1	MEDIUM VOLTAGE SWITCHGEAR	R5 379 832.00	R4 656 618.71	R723 213.29	16%
E8-1	POWER TRANSFORMERS	R3 785 000.00	R3 045 606.55	R739 393.45	24%
E9.1	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R19 064 651.36	R16 170 801.02	R2 893 850.34	18%
E10-1	PROGRAMMABLE & LOGIC CONTROLLERS	R7 721 745.19	R9 156 984.00	-R1 435 238.81	-16%
E11-1	CONTROL INSTRUMENTATION SYSTEM	R12 820 768.23	R11 516 730.35	R1 304 037.87	11%
E12-1	GENERAL AND MISCELLANEOUS	R1 187 827.95	R1 374 811.19	-R186 983.24	-14%
E13-1	EARTHING & LIGHTNING PROTECTION	R1 523 470.36	R1 318 991.32	R204 479.03	16%
E14-1	MULTICORE CABLES & EARTH WIRES	R37 426 420.00	R39 084 613.94	-R1 658 193.94	-4%
E15-1	MEDIUM VOLTAGE SWITCHGEAR	R42 667 089.00	R41 327 690.40	R1 339 398.60	3%
	Sub-Total for Schedules E1 to E15 (A2)	**R185 445 053.08**	**R181 479 791.19**	**R3 965 261.89**	**2%**
ELECTRICAL AND ELECTRONIC WORKS (SECTION C)					
E16-1	RING MAIN UNITS	R2 621 260.00	R1 900 826.91	R720 433.09	38%
E17-1	POWER TRANSFORMERS	R14 100 880.00	R12 652 189.16	R1 448 690.84	11%
E18-1	MINIATURE SUBSTATIONS	R4 323 955.00	R2 031 396.44	R2 292 558.56	113%
E19-1	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R118 243 876.15	R116 146 888.60	R2 096 987.55	2%
E20-1	PROGRAMMABLE & LOGIC CONTROLLERS	R49 463 747.28	R55 237 501.62	-R5 773 754.34	-10%
E21-1	SCADA SYSTEM	R1 825 911.44	R3 720 824.68	-R1 894 913.25	-51%
E22-1	CONTROL INSTRUMENTATION SYSTEM	R59 883 766.47	R75 289 437.71	-R15 405 671.24	-20%
E23-1	GENERAL AND MISCELLANEOUS	R4 693 688.55	R5 062 122.56	-R368 434.01	-7%
E24-1	EARTHING & LIGHTNING PROTECTION	R19 699 797.27	R15 399 767.82	R4 300 029.45	28%
E25-1	SITE LIGHTING	R7 568 650.00	R6 230 566.31	R1 338 083.69	21%
E26-1	MULTICORE CABLES & EARTH WIRES	R331 070 145.00	R343 364 014.61	-R12 293 869.61	-4%
E27-1	SECURITY	R49 454 685.00	R58 841 009.04	-R9 386 324.04	-16%
E28-1	ACCESS CONTROL SYSTEM	R6 895 000.00	R7 533 188.20	-R638 188.20	-8%
	Sub Total for Schedules E16 to E28 (C2)	**R669 845 362.16**	**R703 409 733.67**	**-R33 564 371.52**	**-5%**
	SUB TOTAL FOR SECTION A (A1+A2)	**R464 840 825.08**	**R461 604 251.75**	**R3 236 573.33**	**1%**
	SUB TOTAL FOR SECTION B (B1)	**R3 870 900.00**	**R4 750 998.43**	**-R880 098.43**	**-19%**
	SUB TOTAL FOR SECTION C (C1+C2)	**R1 581 315 824.03**	**R1 660 028 178.21**	**-R78 712 354.19**	**-5%**
	SUB TOTAL OF PRICED SCHEDULES (PG+A1+A2+B1+C1+C2=G1)	**R2 468 930 025.95**	**R2 471 025 833.79**	**-R2 095 807.84**	**0%**
	CONTINGENCY (G2)(@15%)	**R370 339 503.89**	**R370 653 875.07**		
	SUB TOTAL OF PRICES SCHEDULES & CONTINGENCY (G1+G2)	**R2 839 269 529.84**	**R2 841 679 708.86**		
	VALUE ADDED TAX (@15%)	**R425 890 429.48**	**R426 251 956.33**		
	GROSS TOTAL OF TENDER	**R3 265 159 959.32**	**R3 267 931 665.18**		

[redacted]

PCI AFRICA
WATER TREATMENT TECHNOLOGY

INENZO WATER

RAUBEX CONSTRUCTION

devcotech
electrical engineering

City of Cape Town
Civic Centre,
12 Hertzog Boulevard,
Cape Town,
8001

07 Oct 2022

Attention: Basil Chinasamy (Director: Supply Chain Management)
Copy: Keith Olsen, Sameeh Johaadien

RE: TENDER CLARIFICATION NO. 2 - REVISED
TENDER NO: 146Q/2021/22
DESCRIPTION: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

We refer to your letter dated the 6th Sept 2022 with regards to the above referenced tender, 146Q/2021/22, subsequent meeting and minutes of meeting dated 5 Oct 2022. Herewith we provide our response thereto.

In order to avoid any confusion w.r.t savings offered, this letter serves to replace our previous letter dated 20 Sept 2022.

The Contractor has entered into negotiations with various suppliers for this project and the following savings can be offered to the Client with reference to the bill of quantities item numbers:

BOQ Item 1.1.15 – P&G

The Contractor offer a saving of R 33,170,000.00+VAT

The saving offered is a combination of several savings, but also include the following adjustment which we wish to qualify as follows:

Clarification on our interpretation of key personnel required for the project.
Part C3: Scope of Work Item no 3.5.6 – Key Personnel
In our original tender submission, we allocated the top structure for the construction period, including the defects liability period (67 months). The top structure includes: The Project Director, Contractors Representative, Integration Manager, and Health & Safety/Environmental Officer. Our saving is based on reducing the duration required of the key personnel as set out below:

- Project Director (part time) 1 week per month for 55 months
- Contractors Representative (full time) for 67 months
- Integration Manager (part time) 2 weeks per month for 43 months. The integration manager will not be involved in the final trial operation period.

[redacted]

- Health & Safety Officer (full time) for 42 months.
- Environmental Officer (part time) for 42 months. We will provide an environmental officer for 1 day per month and an environmental representative full time on site.

We have had increases in our insurance rates and the possible saving on the bond reduction will be offset by this premium increase.

BOQ Items M12.2 - Dewatering

The Contractor offers the following savings:

Item 12.2.1.3 - Primary belt filter presses	R 647,478.00
Item 12.2.2.3.a - Gravity belt thickener / linear screen	R 273,204.00
Item 12.2.2.3.b – WAS Belt filter press	R 849,172.00

Thus giving a total reduction of R 1,769,854.00+VAT on the belt presses and linear screens.

The savings offered is based on savings negotiated with the belt press supplier, Bellmer.

BOQ Items M17 – Odour Control

The Contractor offers the following savings:

Item 17.2.1.5 – Zone 3 - Biological odour control system	R 106,453.00
Item 17.2.2.5 – Zone 3 - Biological odour control system	R 70,333.00
Item 17.2.3.5 – Zone 3 - Biological odour control system	R 373,214.00

Thus giving a total reduction of R 550,000.00 +VAT on odour control.

The savings offered is based on savings negotiated with the odour control supplier.

BOQ Items E19 – MCC Steelwork & Switchgear

The Contractor offers the following savings:

No.	Description	Qty	Discount Offered Total	Line item Affected
1	A SUBS NO.1 MCC 24 HEADS OF WORKS	1	R 60 711.43	E.19.2.1
2	C SUBS NO.2 MCC PRIMARY SEDIMENTATION	1	R 151 763.90	E.19.2.3
3	D SUBS NO.3 MCC SLUDGE MANAGEMENT	1	R 131 917.70	E.19.2.4
4	E SUBS NO.4 MCC 24 MEMBRANE REACTOR	1	R 168 815.68	E.19.2.5
5	J SUBS NO.4 MCC 24 M REACTOR RE-USE	1	R 29 624.18	E.19.2.10
6	K SUBSTATION NO.5 MCC MATURATION, TER	1	R 93 619.68	E.9.2.1
7	B SUBSTATION NO.1 [X4] VFD	4	R 3 038.10	E.19.2.2
8	F SUBSTION NO4 [X8] VFD	8	R 5 400.00	E.19.2.6
9	G SUBSTATION NO. 4 [X5] VFD	5	R 3 995.50	E.19.2.7
10	I SUBSTATION NO.4 [X16] VFD	16	R 9 087.15	E.19.2.9
11	L SUBSTATION NO.4 [X6] VFD	6	R 4 672.65	E.9.2.2
11	MODULAR ACTIVE HAMORNIC FILTERS	35	R 30 762.90	E.19.2.11
11	M SUBSTATION NO.5 [X5] VFD	5	R 3 557.00	E.9.2.3
			R 696 965.85	

Thus giving a total reduction of R 696 965.85+VAT on MCC Steelwork.

The savings offered is based on savings negotiated with the MCC Steelwork supplier.

[redacted]

BOQ Items M19 – Channel Gates, Sluices and Valves

Channel Gates and Sluice Gates:

The Contractor has considered various suppliers for Channel Gates and Sluice Gates. We did receive an offer from a specific supplier that was significantly lower priced than the other suppliers. From previous experience we know that this specific supplier does not manufacture quality Channel Gates and Sluice Gates. The Channel Gates and Sluice Gates manufactured by this specific supplier are prone to bending, leaking and a lot of re-work and modification on site after installation.

We do not know what was offered by our competitors, but looking at the price comparison provided by the Client, we can only we can only guess that our competitors have offered the inferior products of the lowest cost manufacturer.

Unfortunately, we are not prepared to offer these inferior Channel Gates and Sluice Gates as it holds a serious risk for the Contractor as well as the Client.

Valves:

We confirm that our valves are fully compliant to the specified local content requirements. Unfortunately, locally manufactured valves comes with an increased price tag. We do not know what was offered by our competitors, but looking at the price comparison provided by the Client, we can only we can only guess that our competitors might have offered valves that do not comply with the local content requirements, i.e. lower priced.

BOQ – Other Items

Further to the above we have also negotiated with the following high value suppliers for possible better pricing. These suppliers all replied that they have had actual price increases since the time of tender and therefor cannot reduce their tendered price:

M4	Pumps
M7	Blowers
M10	Membranes
M11/M24	UV
	UF
M12	Pumps Dewatering
M23	Pumps and Pipework
Various	Electrical LV
E15-1	Medium voltage switchgear
E18-1	Miniature substations
E19-1	MCCs and distribution boards

All above savings amounts are exclusive of VAT and exclusive of 15% Contingencies. All pricing and savings remain base dated as tendered for CPA calculation purposes.

[redacted]

For your convenience we have summarized the above savings in a table attached hereto, showing the **original tendered value** and the new **reduced tender value.**

Please also find attached a spreadsheet file with supporting correspondence and calculations from all our major suppliers.

We trust you will find the above savings acceptable and we are looking forward to your reply.

Yours Faithfully,

[redacted]

on behalf of
PCI-INENZO-RAUBEX-DEVCOTECH Consortium

[redacted]

SUMMARY OF SAVINGS

BOQ item nrs	Description	JV Partner	Supplier	Supporting Docs	Saving to BOQ item tendered
1.1.15	P&G - Supervision	All	NA	P&G Supervision sheet	- 33 170 000.00
1.4.13.2	P&G - Chemicals	PCI	Bellmer Spares & Other	P&G Chemical sheet	Nil
M4	Pumps	IW	Tricom - Ermi	Attached	Nil
M7	Blowers	IW	Howden - Theuns	Attached	Nil
M10	Membranes	IW	Suez - Roy	Attached	Nil
M11/M24	UV	IW/PCI	Trojan - Christ	Attached	Nil
	UF	PCI	Alveo - Meyer	Refer PCI sheet	Nil
M12.2.1.3	Primary belt filter presses	PCI	Bellmer - Rudiger	Refer PCI sheet	- 647 478.00
M12.2.2.3.a	Gravity belt thickener	PCI	Bellmer - Rudiger	Refer PCI sheet	- 273 204.00
M12.2.2.3.b	WAS belt filter press	PCI	Bellmer - Rudiger	Refer PCI sheet	- 849 172.00
M12	Pumps Dewatering	PCI	Dune Eng - Dave	Refer PCI & Dune Eng sheet	Nil
M17.2.1.5	Zone 3 - Biological odour control system	Raubex - Empa	Vitacure		- 106 453.00
M17.2.2.5	Zone 3 - Biological odour control system	Raubex - Empa	Vitacure		- 70 333.00
M17.2.3.5	Zone 3 - Biological odour control system	Raubex - Empa	Vitacure		- 373 214.00
M19	Channel gates, sluice gates and valves	IW/PCI	Lektratek/Various		Nil
M23	Pumps and Pipework	PCI	Samco, Gorman Rupp, Grundfos	Attached	Nil
Various	Electrical LV	Devcotech	Devcotech	Attached	Nil
E15-1	Medium voltage switchgear	Raubex - Empa	Actom	Attached	Nil
E18-1	Miniature substations	Raubex - Empa	Actom	Attached	Nil
E19-1	MCCs and distribution boards	Devcotech	Siemens	Attached	Nil
E.19.2.1	A SUBS NO.1 MCC 24 HEADS OF WORKS	Devcotech	Sabelco	Attached	- 60 711.43
E.19.2.3	C SUBS NO.2 MCC PRIMARY SEDIMENTATION	Devcotech	Sabelco	Attached	- 151 763.90
E.19.2.4	D SUBS NO.3 MCC SLUDGE MANAGEMENT	Devcotech	Sabelco	Attached	- 131 917.70
E.19.2.5	E SUBS NO.4 MCC 24 MEMBRANE REACTOR	Devcotech	Sabelco	Attached	- 168 815.68
E.19.2.10	J SUBS NO.4 MCC 24 M REACTOR RE-USE	Devcotech	Sabelco	Attached	- 29 624.18
E.9.2.1	K SUBSTATION NO.5 MCC MATURATION, TER	Devcotech	Sabelco	Attached	- 93 619.68
E.19.2.2	B SUBSTATION NO.1 [X4] VFD	Devcotech	Sabelco	Attached	- 3 038.10
E.19.2.6	F SUBSTION NO4 [X8] VFD	Devcotech	Sabelco	Attached	- 5 400.00
E.19.2.7	G SUBSTATION NO. 4 [X5] VFD	Devcotech	Sabelco	Attached	- 3 995.50
E.19.2.9	I SUBSTATION NO.4 [X16] VFD	Devcotech	Sabelco	Attached	- 9 067.15
E.9.2.2	L SUBSTATION NO.4 [X6] VFD	Devcotech	Sabelco	Attached	- 4 672.65
E.19.2.11	MODULAR ACTIVE HAMORNIC FILTERS	Devcotech	Sabelco	Attached	- 30 762.90
E.9.2.3	M SUBSTATION NO.5 [X5] VFD	Devcotech	Sabelco	Attached	- 3 557.00

All above amounts in ZAR; VAT excluded; Contingencies excluded

TOTAL SAVINGS	- 36 186 819.87
CONTINGENCY TOTAL	- 5 428 022.98
SUB-TOTAL OF PRICES SCHEDULE & CONTINGENCY (G1+G2)	- 41 614 842.85
VALUE ADDED TAX (@15%)	- 6 242 226.43
GROSS TOTAL OF TENDER(CARRIED FORWARD TO FORM OF OFFER C1.1 of CONTRACT)	- 47 857 069.28

	Tendered	Reduced Now
SUB-TOTAL OF PRICES SCHEDULES	2 468 930 025.95	2 432 743 206.08
CONTINGENCY TOTAL	370 339 503.89	364 911 480.91
SUB-TOTAL OF PRICES SCHEDULE & CONTINGENCY (G1+G2)	2 839 269 529.84	2 797 654 686.99
VALUE ADDED TAX (@15%)	425 890 429.48	419 648 203.05
GROSS TOTAL OF TENDER(CARRIED FORWARD TO FORM OF OFFER C1.1 of CONTRACT)	3 265 159 959.32	3 217 302 890.04

[redacted]

CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

BULK SERVICES DEPARTMENT
WATER AND SANITATION DIRECTORATE

Keith Olsen
Head: Projects and Implementation (Wastewater Branch)

T: +27 21 400 2651**M:** +27 84 609 8668
E: Keith.Olsen@capetown.gov.za

REFERENCE NO: 146Q/2021/22

DATE: 11/10/2022

per email: jcloete@inenzo.com
CC: admin@inenzo.com

PCI/ Inenzo Water /Raubex/Devcotech Consortium

Dear Mr J.A.M Cloete

RE: TENDER NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT: PREFERRED BIDDER STATUS – NEGOTIATIONS

The above tender negotiation process along with the following correspondence and meetings has reference:

1. 06 September 2022: Notification of preferred bidder status;
2. 07 September 2022: Preferred Bidder Negotiations: Meeting No. 1;
3. 19 September 2022: Preferred Bidder Negotiations: Meeting No. 2;
4. 20 September 2022: PCI/ Inenzo Water /Raubex/Devcotech Consortium tender savings proposal (Subsequently replaced by revised proposal dated 07 October 2022);
5. 05 October 2022: Preferred Bidder Negotiations: Meeting No. 3;
6. 07 October 2022: PCI/ Inenzo Water /Raubex/Devcotech Consortium revised tender savings proposal.

The proposal submitted dated 07 October 2022 via email correspondence included your letter itemising the savings of your submitted Bill of Quantities (BoQ) as well as an Excel file which summarised the savings and included correspondence from your suppliers and consortium partners.

Following internal discussions, we hereby formally accept the proposed savings/reduction of your tender proposal dated the 07 October 2022. We now require the following:

1. A summary sheet of your tender submission with additional columns showing the saving provided alongside the relevant BoQ Section and the final tender value which includes the saving. The summary sheet should also reflect the total tender amount submitted and the revised tender value which includes the savings provided. An example has been attached hereto for reference purposes and please ensure accuracy of all values reflected.

[redacted]

2. A revised BoQ which includes the savings provided in your correspondence.

As we are compiling our report to our SCMBAC submission and hence your earliest response to this letter with the required information will be appreciated.

[redacted]

.....
Keith Olsen

CC: Gerhard Vivier (CCT)
Samantha Lee Mars (CCT)
Sameeh Johaadien (CCT)

FOR REPORTING/ QUERIES:
Phone: *0860 103 089* | ***WhatsApp:*** *060 018 1505* | ***SMS:*** *31373 (max 160 characters)* |
Email: *water@capetown.gov.za* | ***Online:*** *www.capetown.gov.za/servicerequests*
Visit *a walk-in Customer Interaction Center, see www.capetown.gov.za/facilities* |

[redacted]

ANNEXURE 1: INENZO WATER/PCI/RAUBEX/DEVCOTECH CONSORTIUM SUMMARY EXAMPLE

Bill No.	Description	Original Tender Submission Inenzo Water/ PCI/Raubex/Devcotech Consortium (Column A)	BoQ Reduction/ Savings provided (Column B)	Revised Tender Value (Including Saving) (A - B)
		Amount (R)	Amount (R)	Amount (R)
GENERAL ITEMS				
A-1	GENERAL REQUIREMENTS AND CONDITIONS	R414 625 476.84	Rxxxx	Rxxxx
B-1	PROVISIONAL SUMS AND ADDITIONAL SERVICES	R4 277 000.00	Rxxxx	Rxxxx
	Sub-Total for Schedules A&B(PG)	**R418 902 476.84**	**Rxxxx**	**Rxxxx**
MECHANICAL WORKS (SECTION C)				
M1-1	DISMANTLING, DECOMMISSIONING AND REFURBISHMENT	R4 497 482.98	Rxxxx	Rxxxx
M2-1	ACCESS PLATFORMS, WALKWAYS & HANDRAILS	R2 681 380.80	Rxxxx	Rxxxx
M3-1	INLET WORKS AND SCREENING EQUIPEMENT	R49 475 852.88	Rxxxx	Rxxxx
M4-1	PUMPS & PIPEWORK	R174 502 611.92	Rxxxx	Rxxxx
M5-1	PRIMARY SEDIMENTATION EQUIPMENT	R15 698 901.38	Rxxxx	Rxxxx
M6.1	MIXING EQUIPMENT	R14 638 179.36	Rxxxx	Rxxxx
M7-1	AERATION BLOWER EQUIPMENT	R43 973 782.86	Rxxxx	Rxxxx
M8-1	AERATION EQUIPMENT	R32 969 268.89	Rxxxx	Rxxxx
M9-1	FERRIC CHLORIDE DOSING SYSTEM	R5 709 980.77	Rxxxx	Rxxxx
M10-1	SUBMERGED MEMBRANE FILTRATION SYSTEM	R202 983 690.22	Rxxxx	Rxxxx
M11A-1	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R34 418 464.89	Rxxxx	Rxxxx
M12-1	SLUDGE DEWATERING, STORAGE AND LOADING	R146 802 548.00	Rxxxx	Rxxxx
M13-1	SLUDGE CONDITION EQUIPMENT	R10 510 709.00	Rxxxx	Rxxxx
M14-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R14 763 210.00	Rxxxx	Rxxxx
M15-1	LIFTING EQUIPMENT	R22 770 375.38	Rxxxx	Rxxxx
M16-1	WEIGHBRIDGE	R1 308 596.78	Rxxxx	Rxxxx
M17-1	ODOUR CONTROL SYSTEM	R33 149 246.90	Rxxxx	Rxxxx
M18-1	DIESEL TANK	R713 329.10	Rxxxx	Rxxxx
M19-1	CHANNEL GATES, SLUICE GATES AND VALVES	R99 902 849.76	Rxxxx	Rxxxx
	Sub-Total for Schedules M1 to M19(C1)	**R911 470 461.87**	**Rxxxx**	**Rxxxx**
MECHANICAL WORKS (SECTION B)				

[redacted]

M20-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R3 870 900.00	Rxxxx	Rxxxx
	Sub-Total for Schedules M20(B1)	**R3 870 900.00**	**Rxxxx**	**Rxxxx**
MECHANICAL WORKS (SECTION A)				
M21-1	PRESSURISED ULTRA FILTRATION	R91 786 972.00	Rxxxx	Rxxxx
M22-1	SCREENING EQUIPMENT	R46 619 693.00	Rxxxx	Rxxxx
M23-1	PUMPS AND PIPEWORK	R69 502 782.00	Rxxxx	Rxxxx
M24A-1	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R29 466 075.00	Rxxxx	Rxxxx
M25-1	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R2 987 050.00	Rxxxx	Rxxxx
M26-1	LIFTING EQUIPMENT	R6 375 654.00	Rxxxx	Rxxxx
M27-1	CHANNEL GATES, SLUICE GATES AND VALVES	R32 657 546.00	Rxxxx	Rxxxx
	Sub-Total for Schedules M21 to M27 (A1)	**R279 395 772.00**	**Rxxxx**	**Rxxxx**
ELECTRICAL AND ELECTRONIC WORKS (SECTION A)				
E1-1	ESKOM BULK SUPPLY WORKS	R9 998 450.00	Rxxxx	Rxxxx
E2-1	MV SWITCHGEAR INCOMER SUBSTATION	R16 193 872.00	Rxxxx	Rxxxx
E3-1	BATTERY TRIPPING UNITS AND BATTERIES	R648 240.00	Rxxxx	Rxxxx
E4-1	SUBSTATION EARTHING	R299 410.00	Rxxxx	Rxxxx
E5-1	PROTECTION SCHEMES	R3 157 590.00	Rxxxx	Rxxxx
E6-1	GENERATOR INSTALLATION	R23 570 687.00	Rxxxx	Rxxxx
E7-1	MEDIUM VOLTAGE SWITCHGEAR	R5 379 832.00	Rxxxx	Rxxxx
E8-1	POWER TRANSFORMERS	R3 785 000.00	Rxxxx	Rxxxx
E9.1	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R19 064 651.36	Rxxxx	Rxxxx
E10-1	PROGRAMMABLE & LOGIC CONTROLLERS	R7 721 745.19	Rxxxx	Rxxxx
E11-1	CONTROL INSTRUMENTATION SYSTEM	R12 820 768.23	Rxxxx	Rxxxx
E12-1	GENERAL AND MISCELLANEOUS	R1 187 827.95	Rxxxx	Rxxxx
E13-1	EARTHING & LIGHTNING PROTECTION	R1 523 470.36	Rxxxx	Rxxxx
E14-1	MULTICORE CABLES & EARTH WIRES	R37 426 420.00	Rxxxx	Rxxxx
E15-1	MEDIUM VOLTAGE SWITCHGEAR	R42 667 089.00	Rxxxx	Rxxxx
	Sub-Total for Schedules E1 to E15 (A2)	**R185 445 053.08**	**Rxxxx**	**Rxxxx**
ELECTRICAL AND ELECTRONIC WORKS (SECTION C)				
E16-1	RING MAIN UNITS	R2 621 260.00	Rxxxx	Rxxxx
E17-1	POWER TRANSFORMERS	R14 100 880.00	Rxxxx	Rxxxx
E18-1	MINIATURE SUBSTATIONS	R4 323 955.00	Rxxxx	Rxxxx
E19-1	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R118 243 876.15	Rxxxx	Rxxxx
E20-1	PROGRAMMABLE & LOGIC CONTROLLERS	R49 463 747.28	Rxxxx	Rxxxx
E21-1	SCADA SYSTEM	R1 825 911.44	Rxxxx	Rxxxx
E22-1	CONTROL INSTRUMENTATION SYSTEM	R59 883 766.47	Rxxxx	Rxxxx
E23-1	GENERAL AND MISCELLANEOUS	R4 693 688.55	Rxxxx	Rxxxx

E24-1	EARTHING & LIGHTNING PROTECTION	R19 699 797.27	Rxxxx	Rxxxx
E25-1	SITE LIGHTING	R7 568 650.00	Rxxxx	Rxxxx
E26-1	MULTICORE CABLES & EARTH WIRES	R331 070 145.00	Rxxxx	Rxxxx
E27-1	SECURITY	R49 454 685.00	Rxxxx	Rxxxx
E28-1	ACCESS CONTROL SYSTEM	R6 895 000.00	Rxxxx	Rxxxx
Sub Total for Schedules E16 to E28 (C2)		**R669 845 362.16**		**RXXXX**
SUB TOTAL FOR SECTION A (A1+A2)		**R464 840 825.08**		**RXXXX**
SUB TOTAL FOR SECTION B (B1)		**R3 870 900.00**		**RXXXX**
SUB TOTAL FOR SECTION C (C1+C2)		**R1 581 315 824.03**		**RXXXX**
SUB TOTAL OF PRICED SCHEDULES (PG+A1+A2+B1+C1+C2=G1)		**R2 468 930 025.95**	**Rxxxx**	**RXXXX**
CONTINGENCY (G2)(@15%)		**R370 339 503.89**		**RXXXX**
SUB TOTAL OF PRICES SCHEDULES & CONTINGENCY (G1+G2)		**R2 839 269 529.84**		**RXXXX**
VALUE ADDED TAX (@15%)		**R425 890 429.48**		**RXXXX**
GROSS TOTAL OF TENDER		**R3 265 159 959.32**		**RXXXX**

[redacted]

From: Jan Cloete <jcloete@inenzo.com>
Sent: Thursday, 13 October 2022 08:55
To: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>; Mike Hughes <mike@pciafrica.com>; cameron@empa.co.za; Deon Laubscher <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

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Dear Sameeh,

Our draft response email dated 11Oct can be taken as our formal response. No changes needed.

Rgds

[redacted]
Cell: +27 (0)83 232 6929
Tel: +27 (0)21 987 2402
Email: [redacted]
Website: www.inenzo.com

From: Jan Cloete
Sent: Tuesday, 11 October 2022 17:17
To: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>; Mike Hughes <mike@pciafrica.com>; cameron@empa.co.za; Deon Laubscher <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

Dear Sameeh & JVTeam,

Plse find attached our draft submission as requested by Client.

Kindly advise if anything needs to be revised before we do a formal submission to COCT.

Rgds

Jan Cloete

[redacted]

From: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Sent: Tuesday, 11 October 2022 14:26
To: Jan Cloete <jcloete@inenzo.com>; Mike Hughes <mike@pciafrica.com>; cameron@empa.co.za;

[redacted]

Deon Laubscher <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; Gerhard Vivier <Gerhard.Vivier@capetown.gov.za>; Samantha Lee Mars <SamanthaLee.Mars@capetown.gov.za>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

Dear All,

Thank you for your efforts, contribution and assistance during this process. Please find attached response letter for your information and action.

Your earliest response regarding the additional information will be appreciated.

Kind regards

Sameeh Johaadien
Principal Professional Office: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate; City of Cape Town
Tel: 021 400 1097 | **Cell:** 072 491 7161

From: Jan Cloete <jcloete@inenzo.com>
Sent: Friday, 07 October 2022 11:59
To: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>; Mike Hughes <mike@pciafrica.com>; cameron@empa.co.za; Deon Laubscher <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

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Dear Sameeh,

Attached, please find our response to the previous meetings/letters for your favourable consideration.

Rgds

[redacted]

From: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Sent: Thursday, 06 October 2022 10:39
To: Jan Cloete <jcloete@inenzo.com>; Mike Hughes <mike@pciafrica.com>; cameron@empa.co.za; Deon Laubscher <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; Gerhard Vivier <Gerhard.Vivier@capetown.gov.za>; Samantha Lee Mars <SamanthaLee.Mars@capetown.gov.za>;

[redacted]

Gideon de Villiers (gideon.devilliers@bigengroup.com) <gideon.devilliers@bigengroup.com>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

Morning All,

It has come to my attention that I had not included the agreed submission date of the revised proposal (See item 3.10) and not correctly included the appropriate action in the minutes distributed of our meeting No. 3.

Apologies for this, but for clarity and to avoid confusion, please delete my prior emails and replace with this one.

Kind regards

Sameeh Johaadien
Principal Professional Office: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate; City of Cape Town
Tel: 021 400 1097 | **Cell:** 072 491 7161

From: Sameeh Johaadien
Sent: Thursday, 06 October 2022 09:04
To: jcloete@inenzo.com; 'Mike Hughes' <mike@pciafrica.com>; 'cameron@empa.co.za' <cameron@empa.co.za>; 'Deon Laubscher' <deon@devcotech.co.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; Gerhard Vivier <Gerhard.Vivier@capetown.gov.za>; Samantha Lee Mars <SamanthaLee.Mars@capetown.gov.za>; Gideon de Villiers (gideon.devilliers@bigengroup.com) <gideon.devilliers@bigengroup.com>
Subject: RE: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

Morning All

It has come to my attention (thanks Gerhard) that the pdf file distributed last night cannot open.

Please find attached the resaved pdf document of the minutes record of our meeting yesterday afternoon. I have also attached the Annex 1 included in my mail yesterday.

For the final proposal, we will require a summary sheet which reflects which section of the BoQ the savings are attributed to. We will also require an amended BoQ and in particular reflect the amended saving to the particular item in the BoQ section where the saving/s are impacted.

Kind regards

Sameeh Johaadien
Principal Professional Office: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate; City of Cape Town
Tel: 021 400 1097 | **Cell:** 072 491 7161

From: Sameeh Johaadien
Sent: Wednesday, 05 October 2022 19:40
To: jcloete@inenzo.com; 'Mike Hughes' <mike@pciafrica.com>; 'cameron@empa.co.za' <cameron@empa.co.za>; 'Deon Laubscher' <deon@devcotech.co.za>



Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; Gerhard Vivier <Gerhard.Vivier@capetown.gov.za>; Samantha Lee Mars <SamanthaLee.Mars@capetown.gov.za>; Gideon de Villiers (gideon.devilliers@bigengroup.com) <gideon.devilliers@bigengroup.com>
Subject: 46Q/2021/22: Design-Build of Mech/Elec Works for the Upgrade and Expansion of Potsdam WWTW: Negotiation Meeting No.2

Evening All,

Thank you for availing yourself this afternoon. Please find attached our minutes of our Meeting No.3.

Please advise any corrections if I may have misunderstood or misinterpreted our discussions.

Kind regards

Sameeh Johaadien
Principal Professional Officer: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate
4th Floor, Water and Sanitation Head Office, 8 Voortrekker Road, corner of Mike Pienaar Boulevard, Bellville, 7535
Tel: 021 400 1097 | **Cell:** 072 491 7161 | **Email:** sameeh.johaadien@capetown.gov.za | **Web:** www.capetown.gov.za
CCT Contacts | **Report Water Issues - Email:** Water@capetown.gov.za | **Call Center:** 0860 103 089 | **SMS:** 31373



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[redacted]

Inenzo Consortium Draft response to MOA – 13 Jan 2023

1. Part 1 – Preamble page 2 par 1 - 55months to be replaced with 1645days (and 12 months DNP) in order to correspond with the Contract data
2. Part 1 – Preamble – page 3 par 2.1.7 - adjust as follows: "2.1.7. Any Schedules attached hereto and which includes Imported Equipment CPA, Schedule of Quantities and Part 5 returnable Schedules".
3. Part 1 – Preamble – page 3 par 2 – add clause 2.1.8: "Contractors proposal and/or any other documents submitted as part of the tender submission".
4. Part 1 – Preamble – page 4 par 3.2:

Clause 3.2 *Unless terminated earlier in accordance with the provisions as set out in the GCC or any other provision in terms of this Contract, this Contract shall commence on the Commencement Date and shall terminate on 55 months after the Commencement Date which excludes the 12 month defects notification period.* This provision is in conflict with any extension of time provisions in the Contract and creates a "time is of the essence" provision. By the current wording of this provision, any application for an extension of time for completion will be futile.	This provision should be amended as follows: *Unless terminated earlier **or unless an extension of time for completion is granted to the Contractor** in accordance with the provisions as set out in the GCC or any other provision in terms of this Contract, this Contract shall commence on the Commencement Date and shall terminate on 55 months after the Commencement Date which excludes the 12 month defects notification period.*

5. Part 1 – Preamble – page 4 par 3.2 - 55months to be replaced with 1645days (and 12 months DNP) in order to correspond with the Contract data
6. Part 1 – Page 16/500 – words and figures do not match. It seems like a typo and should read in words 'ninety' instead of 'nine'.
7. Part 1 – Page 18/500 – 55 months in both columns to be replaced with 1645days (and 12 months DNP) in order to correspond with the Contract data
8. Part 1 – Pages 154/500 onwards - CPA clauses submitted by the Tenderer on the imported items – every second page is missing from the document. Please add in.
9. Part 1 – Page 118/500 – The email dated 11/10/2022 at 17:17 refers to an attachment. The attachment is currently not included in the MOA and should be included in the MOA.
10. The additional clauses 21, 22 and 23 added to Part 3: Contract Specific Data. We suggest the rejection of all the additional clauses as these were not included at time of tender. In principal we would have no objection to clauses 21 and 23 being added however clause 22 would not be acceptable as this should be managed in terms of the conditions of contract.

[redacted]

Zandile Matutu

From: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Sent: Tuesday, 17 January 2023 09:52
To: Jan Cloete; 'Deon Laubscher'; Mike Hughes; Cameron Bain
Cc: Keith Olsen; Clint Coleridge; Tasneem Salie; Hein Esau; Gideon de Villiers; Zandile Matutu; Yaasin Naidoo
Subject: RE: 146Q/2021/22: DESIGN_BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WWTP: Draft MOA
Attachments: 146Q 2021 22 Inen_PCI_Rau_Dev_Consort_MOA_17Jan2023.pdf

Morning Jan and team,

Hereto, please see attached our response to your letter for your urgent attention and response. We require a formal response by COB today (17 Jan 2023). Your earliest response would be appreciated.

Kind regards

Sameeh Johaadien
Principal Professional Office: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate; City of Cape Town
Tel: 021 400 1097 | **Cell:** 072 491 7161

From: Sameeh Johaadien
Sent: Monday, 16 January 2023 08:44
To: 'Jan Cloete' <jcloete@inenzo.com>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; 'Deon Laubscher' <deon@devcotech.co.za>; Cameron Bain <cameron@empa.co.za>; Mike Hughes <mike@pciafrica.com>
Subject: RE: 146Q/2021/22: DESIGN_BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WWTP: Draft MOA

Thanks Jan and team.

Its appreciated.

Kind regards

Sameeh Johaadien
Principal Professional Office: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate; City of Cape Town
Tel: 021 400 1097 | **Cell:** 072 491 7161

From: Jan Cloete <jcloete@inenzo.com>
Sent: Monday, 16 January 2023 08:07
To: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; 'Deon Laubscher' <deon@devcotech.co.za>; Cameron Bain <cameron@empa.co.za>; Mike Hughes <mike@pciafrica.com>
Subject: RE: 146Q/2021/22: DESIGN_BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WWTP: Draft MOA

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[redacted]

Dear Sameeh,

Plse find attached our formal response (no changes from draft send on Friday).

Rgds

[redacted]

From: Jan Cloete
Sent: Friday, 13 January 2023 13:50
To: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>
Subject: RE: 146Q/2021/22: DESIGN_BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WWTP: Draft MOA

Dear Sameeh,

Attached, please find our draft response in reply to your email dated 23 Dec 2022.

I am awaiting our partners final approval and then we will submit our formal response early next week.

We trust the above be in order.

Rgds

[redacted]

From: Sameeh Johaadien <Sameeh.Johaadien@capetown.gov.za>
Sent: Friday, 23 December 2022 16:24
To: Jan Cloete <jcloete@inenzo.com>; Johan De Jong <admin@inenzo.com>
Cc: Keith Olsen <Keith.Olsen@capetown.gov.za>; Clint Coleridge <Clint.Coleridge@capetown.gov.za>; Tasneem Salie <Tasneem.Salie2@capetown.gov.za>; Hein Esau <Hein.Esau@capetown.gov.za>; Yaasin Naidoo <Muhammad.Naidoo@capetown.gov.za>
Subject: 146Q/2021/22: DESIGN_BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WWTP: Draft MOA

Dear Mr [redacted]

With reference to the above mentioned project, please follow the links below to the respective draft MOA for the above mentioned project for your review. Due to file limitations, the MOA has been separated into four parts and the respective hyperlinks are using our BigFiles large data share tool. It should be noted that there is a time limit for the download of the files from the listed links (13/01/2023).

- Part 1:https://web1.capetown.gov.za/web1/BigFilesAccess/DownloadBigFile.aspx?file=641989a8-99d0-45ea-8532-fde26e29aaf6

[redacted]

- Part 2:https://web1.capetown.gov.za/web1/BigFilesAccess/DownloadBigFile.aspx?file=1b15efd4-1204-47fc-9daa-b29d56ccc507
- Part 3: https://web1.capetown.gov.za/web1/BigFilesAccess/DownloadBigFile.aspx?file=3a8190e0-78df-4949-a10b-dd79d487bd60
- Part 4:https://web1.capetown.gov.za/web1/BigFilesAccess/DownloadBigFile.aspx?file=b1e831c7-1b7a-4f7e-b575-f4fb957cb6d9

In brief, the MOA is a reformulation of your tender submission with the following amendments:

1. Inclusion of the "Preamble" to the MOA,
2. All replacement pages issued during the tender period forms part of the MOA and included with the visible R/R1, etc. listed page number,
3. Tender Notices, addendums, clarification and negotiation correspondence have been include under the Schedule of Deviations under Part 1: Form of Offer and Acceptance,
4. Additional clauses have been included under the Part 3: Contract Specific Data (See Clauses 21 to 23) as included by our Legal Services and instruction by National Treasury,
5. Inclusion of your revised BoQ provided following the negotiation process.

Please note that we are planning to make the Council meeting in March 2023 for final award and hence require your feedback in a short time frame in order to keep within our programme. We require your feedback of your review and acceptance by the 13 January 2023 of the draft MOA or any comment thereto.

In addition, I will be on leave from this afternoon and will return to the office on the 9 January 2023. During this time, you can contact Keith Olsen (CC'ed into this email) should you have any queries.

Kind regards

Sameeh Johaadien
Principal Professional Officer: Wastewater Branch – Water and Sanitation Department; Water and Waste Directorate
4th Floor, Water and Sanitation Head Office, 8 Voortrekker Road, corner of Mike Pienaar Boulevard, Bellville, 7535
Tel: 021 400 1097 | **Cell:** 072 491 7161 | **Email:** sameeh.johaadien@capetown.gov.za | **Web:** www.capetown.gov.za
CCT Contacts | **Report Water Issues - Email:** Water@capetown.gov.za | **Call Center:** 0860 103 089 | **SMS:** 31373



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STAD KAAPSTAD

BULK WATER DEPARTMENT
WATER AND SANITATION DIRECTORATE

Keith Olsen
Head: Projects and Implementation

T: +27 21 400 2651 **M**: +27 84 609 8668
E: Keith.Olsen@capetown.gov.za

REFERENCE NO: 146Q/2021/22 MOA

DATE: 17/01/2023

PCI/ Inenzo Water /Raubex/Devcotech Consortium

Attention: [redacted] **per Email:** [redacted]

CC: [redacted]

Dear Sir

RE: 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT: MOA FORMAL RESPONSE

We refer to your formal response letter dated 16 January 2023 regarding the draft MOA for the above mentioned project forwarded per email to you on 23 December 2022.

With reference to your letter forwarded, we respond below per item of your proposal all of which is to be rectified in the MOA as follows:

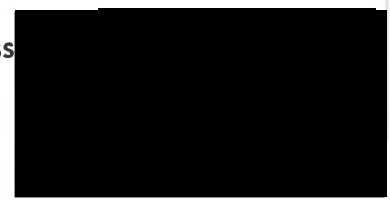
1. Part 1 - Preamble Page 2 par 1: We note that the letter of award (subject to provisions stated therein) issued by our Supply Chain Management (SCM) and the draft MOA refers to the Contract Duration as 55 months as opposed to the 1645 days stated in the Contract Specific Data Clause. To clarify, the accurate conversion of 1645 days to months is 54.0822 months. Hence for brevity, the rounded up figure of 55 months was utilised, included as such in the resolution issued and used in the formulation of the MOA. The correct Contract Duration is 1645 days which will be utilised in determining the actual contractual completion date once the Commencement Date has been finalised.
2. Part 1 – Preamble – Page 3 par 2.1.7: The request to amend the item as "2.1.7. Any Schedules attached *hereto and which includes Imported Equipment CPA, Schedule of Quantities and Part 5 Returnable Schedules*" is accepted as these documents have been included in the draft MOA.
3. Part 1 – Preamble – Page 3 par 2: Additional Clause 2.1.8 proposed to be added by the Consortium as, "Contractor's proposal and/or any other documents submitted as part of the tender submission". The MOA has been formulated to include all information submitted during the tender submission, the clarifications provided during the evaluation phase, the reduced/revised BoQ agreed to during Preferred Bidder Negotiation stage and includes references to other portions of the tender document

not included specifically in the MOA. Can you please be more specific as to what is being referenced to in the additional clause proposed?

4. Part 1 – Preamble – Page 4 par 3.2: The request to amend the Clause to read "Unless terminated earlier *or unless an extension of time for completion is granted to the Contractor* in accordance with the provisions as set out in the GCC or any other provision in terms of this Contract, this Contract shall commence on the Commencement Date and shall terminate on 55 months after the Commencement Date which excludes the 12 month defects notification period" is accepted and the amendment will be made in the final version of the MOA.
5. Part 1 – Preamble – Page 4 par 3.2: 55 months to be replaced by 1645 days and 12 months DNP: Please refer to the response under item 1 above.
6. Part 1 – Page 16/500: The total offered written in words, the word typed as "nine" will be replaced with "ninety" and be read as, "Rand Three billion, two hundred and seventeen million, three hundred and two thousand and ninety rand and four cents (inclusive of VAT) (in words)".
7. Part 1 – Page 18/500: 55 months to be replaced by 1645 days and 12 months DNP: Please refer to the response under item 1 above.
8. Part 1 – Page 154/500 onwards: Missing pages of the CPA clauses submitted by the Tenderer in their tender submission will be included in the final version of the MOA advertised during the Section 33 public participation process.
9. Part 1 – Page 118/500: The email dated 11/10/2022 at 17:17 sent by Mr J.A.M. Cloete refers to an attachment which was the revised and final BoQ and summary sheet following the preferred bidder negotiations which has been included in the draft MOA forwarded to the Consortium on 23 December 2022. Please confirm if all in order.
10. The additional clauses 21, 22 and 23 added to Part 3: Contract Specific Data: The Consortium confirmed in your letter that they have no objection to clauses 21 and 23 which has been added to the however does not accept the addition of Clause 22: Review Clause. Our legal department has advised that the inclusion of the Clause is a requirement for all MOA's formulated going forward by the City and hence we cannot remove the said Clause from the MOA.

With reference to item 10 above, it should be noted that Clause 22 Review Clause has erroneously swopped around the responsibility of the Employer and the Contractor. The amended clause should be read as follows, "This Agreement is valid from the commencement date outlined herein and is valid until further notice. This Agreement shall be reviewed once every three years; however, in lieu of a review during any period specified, the current Agreement will remain in effect. The *Employer* reserves the right to reduce or increase the scope of works according to the dictates of the budget, to terminate this contract, and/or to review and terminate this contract as is contemplated in Section 116(1)(b)(iii) of the Local Government: Municipal Finance Management Act 56 of 2003, without adjustment to the agreed rates, sums or fees and without payment of any penalty or surcharge in this regard. The *Contractor* shall however be entitled to pro-rata payment for all services carried out in terms of any adjustment to the Scope of Work or, in the case of termination, payment for work done."

Thank for your feedback regarding the draft MOA forwarded. As per our email on 23 December 2022, we are planning to make the Council meeting in March 2023 for final award and hence require your feedback in a short time frame in order to keep within our programme



and hence I would like to request a written response regarding the above by the close of business on 17 January 2023.

Yours sincerely.

[redacted]

.....

FOR REPORTING/ QUERIES:
Phone: *0860 103 089* | ***WhatsApp:*** *060 018 1505* | ***SMS:*** *31373 (max 160 characters)* |
Email: water@capetown.gov.za | ***Online:*** www.capetown.gov.za/servicerequests
Visit *a walk-in Customer Interaction Center, see* www.capetown.gov.za/facilities |

City of Cape Town
Civic Centre
12 Hertzog Boulevard
Cape Town
8001

17 Jan 2023

Attention: Sameeh Johaadien
Copy: Keith Olsen

RE: MOA - FORMAL RESPONSE TO LETTER DATED 17 JANUARY 2023
TENDER NO: 146Q/2021/22
DESCRIPTION: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

We refer to your letter dated the 17 January 2023 with regards to the above referenced tender, 146Q/2021/22, and herewith provide our response.

With reference to the same numbering as per your letter:

1. We accept the Client's reply with the understanding that the Consortium has tendered on a contract period of 1645 days (and 12 months DNP) as per Contract Data. Any contractual program, delays, extension of time, etc. will be based on contract period of 1645 days (and 12 months DNP) as per Contract Data and not on 55 months mentioned in the MOA.
2. Agreed.
3. Clause 2.3 of the Preamble reference to the entire T2.2. Returnable schedules are incorporated into the agreement by mere reference thereto in this clause. Therefor this is acceptable and agreed.
4. Agreed.
5. Refer item 1 above.
6. Agreed.
7. Refer item 1 above.
8. Agreed.
9. Attached letter by the Consortium dated 7 Oct 2022 should be included in the MOA.

[redacted]

10. We have no option but to accept the corrected clause 22.

Yours Faithfully,

[redacted]

on behalf of
PCI-INENZO-RAUBEX-DEVCOTECH Consortium

[redacted]

PART 2: GENERAL CONDITIONS OF CONTRACT

[redacted]

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

C1.2 Contract Data

GENERAL CONDITIONS OF CONTRACT

The following standardised General Conditions of Contract:

General Conditions which form part of the **Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition 1999 (Yellow Book)** published by the International Federation of Consulting Engineers (FIDIC).

Copies of these Conditions of Contract (Yellow Book) may be obtained from the South African Institution of Civil Engineering (SAICE) (tel 011 805 5947) or Consulting Engineers South Africa (CESA) (tel 011 463 2022).

Copies of the Conditions of Contract (Yellow Book) are also available for inspection and scrutiny at the offices of the Employer.

The Annexes and Forms bound in the Conditions of Contract (Yellow Book) shall not apply to this Contract and shall be replaced with the documentation bound into this Contract Document.

The General Conditions make reference to the Appendix to Tender and Particular Conditions (contained in the Contract Data) which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract.

The General Conditions shall be read in conjunction with the variations, amendments and additions set out in the Appendix to Tender and Particular Conditions below. Each item of data given below is cross-referenced to the Clause or Sub-Clause in the General Conditions to which it mainly applies.

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the sequence as stated in sub-clause 1.5 as amended in the Particular Conditions.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction

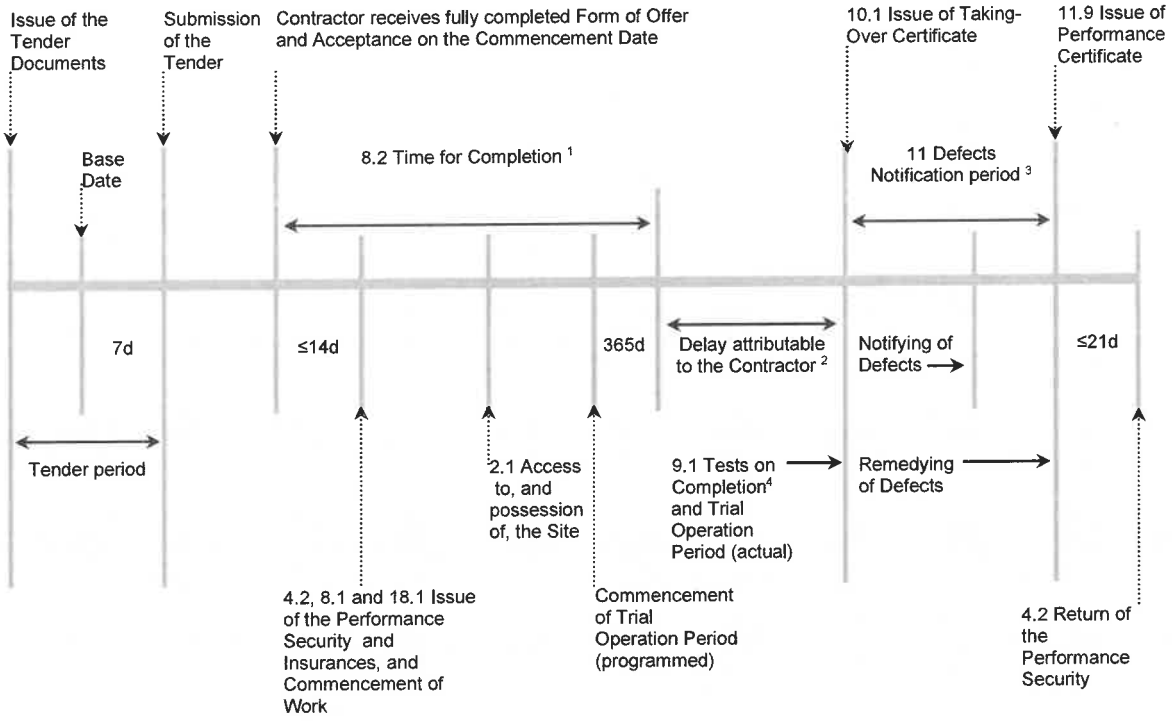
The Foreword to the Conditions of Contract (Yellow Book) concludes with the following:

"In order to clarify the sequence of Contract activities, reference may be made to the charts on the next two pages and to the Sub-Clauses listed below (some Sub-Clause numbers are also stated in the charts). The charts are illustrative and must not be taken into consideration in the interpretation of the Conditions of Contract.

1.1.3.1	&	13.7	Base Date
1.1.3.2	&	8.1	Commencement Date
1.1.6.6	&	4.2	Performance Security
1.1.4.7	&	14.3	Interim Payment Certificate
1.1.3.3	&	8.2	Time for Completion (as extended under 8.4)
1.1.3.4	&	9.1	Tests on Completion
1.1.3.5	&	10.1	Taking-Over Certificate
1.1.3.6	&	12.1	Tests after Completion (if any)
1.1.3.7	&	11.1	Defects Notification Period (as extended under 11.3)
1.1.3.8	&	11.9	Performance Certificate
1.1.4.4	&	14.13	Final Payment Certificate"

The charts referred to above are reproduced on the following two pages, amended and amplified where necessary to conform to the Particular Conditions for this Contract. The charts are illustrative and must not be taken into consideration in the interpretation of the Conditions of Contract.

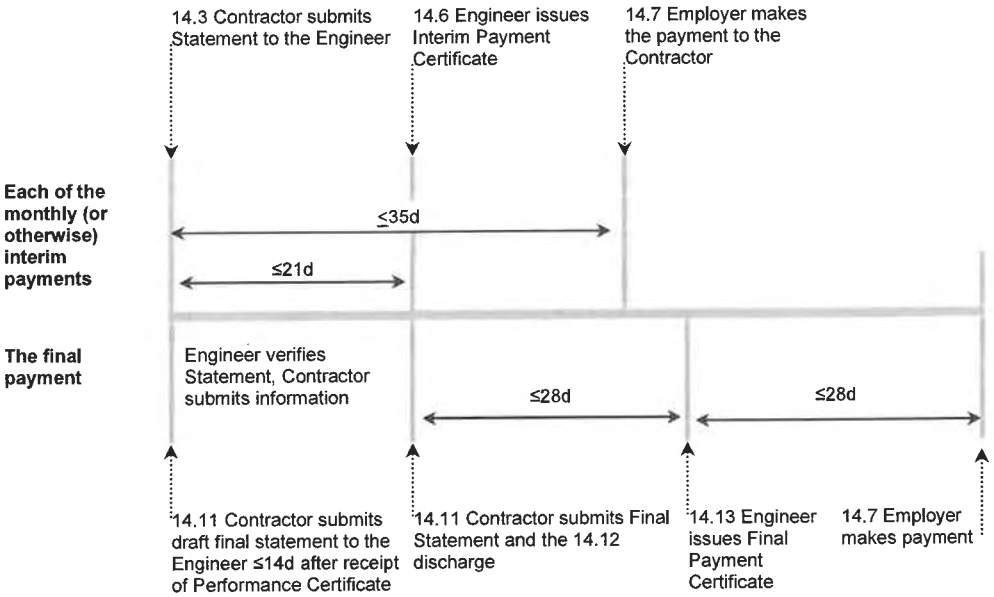
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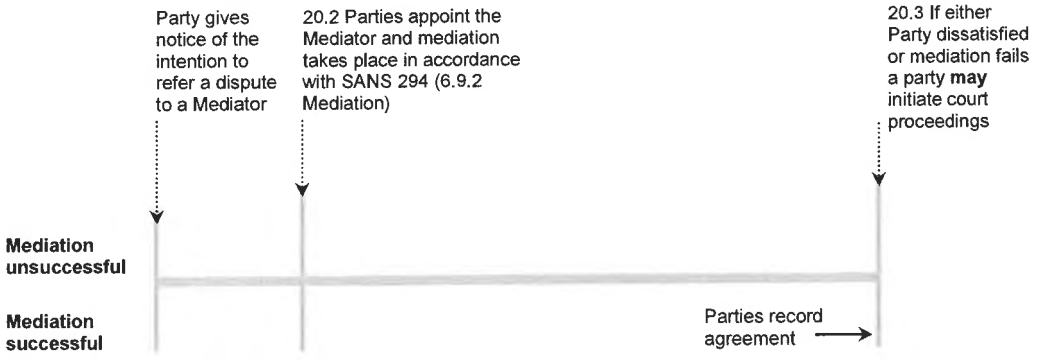
Typical sequence of Principal Events during Contracts for Plant and Design-Build
(Modified to suit this Contract)

1. The Time for Completion is stated (in the Appendix to Tender) as a number of days, to which is added any extensions of time under Sub-Clause 8.4.
2. In order to indicate the sequence of events, the above diagram is based upon the example of the Contractor failing to comply with Sub-Clause 8.2.
3. The Defects Notification Period is stated (in the Appendix to Tender) as a number of days, to which is added any extensions under Sub-Clause 11.3.
4. Depending on the type of Works, Tests after Completion may also be required, if provided for in the Contract.

[redacted]



Typical Sequence of Payment Events Envisaged in Clause 14
(Modified to suit this Contract)



Typical Sequence of Dispute Events Envisaged in Clause 20
(Modified to suit this Contract)

[redacted]

PART 3: CONTRACT SPECIFIC DATA



APPENDIX TO TENDER

Part 1 : Contract Data completed by the Employer

Item	Sub-Clause	Entry
Employer's name and address	1.1.2.2 & 1.3(b)	CITY OF CAPE TOWN, represented by the Director: Bulk Services: Wastewater, Tower Block, Civic Centre, 12 Hertzog Boulevard, Cape Town, 8001 and/or such other person or persons duly authorised thereto by the Employer in writing; the Employer is referred to in this Contract Document by the terms "Employer", "City of Cape Town" or "Council" as the context provides.
Engineer's name and address.....	1.1.2.4 & 1.3(b)	[redacted] Email: potsdam.mc@bigengroup.com Tel: 021 919 6976
Time for Completion of the Works.....	1.1.3.3 & 1.1.3.10 & 1.1.3.11 & 8.2	See table below
Defects Notification Period	1.1.3.7.....	365 days
Sections of the Works	1.1.5.6.....	See table below
Electronic transmission systems	1.3(a)	e-mail or facsimile
Governing Law.....	1.4.....	Republic of South Africa
Ruling language.....	1.4.....	English
Language for communications	1.4.....	English

Description	Sections (days)				
	A	B	C	C Sub-A	D
RFC	n/a	n/a	n/a	**690**	n/a
RFTO	660	**1160**	1280*		1615
Time for Completion	1025	**1190**	1645*		1645

Note:
* The Completion dates for Section C (i.e. RFTO and Time for Completion) shall be for the whole of Section C inclusive of Section C Sub-A.

Section A:	**ULTRA-FILTRATION WORKS** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section B:	**MANAGEMENT BUILDING** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section C	Whole of the Works excluding Section A, B and D shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section C Sub-Section A:	**SLUDGE STORAGE AND DEWATERING** shall be in terms of Clause 3.1.2 of C3.1: Description of Works
Section D	**REFURBISHMENT OF '08 WORKS AND DEMOLITION OF THE '97 WORKS** shall be in terms of Clause 3.1.2 of C3.1: Description of Works

[redacted]

APPENDIX TO TENDER (CONT'D)

Item	Sub-Clause	Entry
Time for access to, and possession of, the Site	2.1*	The right and possession are not exclusive to the Contractor. The right of access to and possession of the Site (or parts thereof) shall be in terms of Clause 3.5.5 of C3.5: Management
Amount of Performance Security	4.2	**7% of the Accepted Contract Amount**
Period for notifying unforeseeable errors, faults and defects in the Employer's Requirements	5.1	Within 21 days
Contractor's Documents	5.2	See table below
Normal working hours.....	6.5	Between 07h00 and 17h00 on week days and between 07h00 and 14h00 on Saturdays.
Special non-working days	6.5	The South African construction industry customary year end break plus South African Statutory Public Holidays and Sundays.
Delay penalties for the Works	8.7* & 14.15(b).....	Failing to produce documents: R10,000/day per Section as defined for Contractor's Documentation Sub-Clause 5.2.
Maximum amount of daily delay penalties	8.7	The daily amount for whichever relevant Section has the highest Delay penalties. For Contractors documents (Refer to Sub-Clause 5.2) the daily amount shall be the cumulative penalty amount for all the Sections.
Maximum amount of Delay penalties	8.7	No limit.
Trail operation period.....	9.1	Sections A & C: 365 days Section B & D: 30 days
Failure to pass test on completion	9.4(c)	Method of calculation is defined in Part C3 Specifications, Part 3.6.1 Detailed Specification for Mechanical Works, Clause 3.10: Performance Penalties.
Adjustments for Changes in Cost	13.8	This Contract shall be subject to Contract Price Adjustment in strict accordance with Sub-Clause 13.8 of the Particular Conditions. Variations in Rates of Exchange shall be for the Employer's account in accordance with Sub-Clause 13.8 of the Particular Conditions.

Time for submission	
Section A:	120 days
Section B:	**195 days**
Section C:	Critical path: 120 days
	All works: 180 days
Section C Sub-section A	Temporary Works: 90 days
	Permanent Works: 120 days
Section D	**680 days**

Failure to complete works:

Description	**Sections**				
	A	**B**	**C**	**C-Sub-Section A**	**D**
RFC	n/a	n/a	n/a	R50,000	**n/a**
RFTO	R50,000	n/a	R80,000		**n/a**
Time for Completion	R50,000	R30,000	R80,000		**R30,000**
Note: Rates shown above shall be applied per calendar day.					

[redacted]

APPENDIX TO TENDER (CONTD)

Item	Sub-Clause	Entry
Total advance payment.....	14.2.....	In accordance with the ADVANCED PAYMENT SCHEDULE.
Percentage of retention	14.3(c)*.....	10% reducing to 2.5% upon the issue of a Taking-Over Certificate.
Limit of Retention Money.....	14.3(c)*.....	**5% of Contract Price**
Plant and Materials Intended for the Works	14.5(b)	No payment for plant and materials upon shipment
Plant and materials for payment when delivered to the Site	14.5(c)	All plant and materials delivered to site will be subject to payment in terms of this clause
Minimum amount of Interim Payment Certificates	14.6.....	No minimum
Currency/currencies of payment.....	14.15.....	South African Rand, as named in that section of the Form of Offer and Acceptance called "Offer"
Periods for submission of insurance: (a) evidence of insurance	18.1*.....	14 days
(b) relevant policies	18.1.....	14 days
Maximum amount of deductibles for insurance of the Employer's risks.....	18.2(d).....	R10 000,00
Minimum amount of third party insurance	18.3.....	R20 000 000,00
The DAB shall be.....	20.2.....	One sole Member / adjudicator
Appointment (if not agreed) to be made by.....	20.3.....	Chairman of the Association of Arbitrators
Amicable Settlement will be conducted as	20.5.....	Mediation
Appointment (if not agreed) to be made by.....	20.5.....	Chairman of the Association of Arbitrators
Litigation will be conducted in.....	20.6*.....	Applicable Court of Jurisdiction in Cape Town

* See Particular Conditions

[redacted]

APPENDIX TO TENDER (CONTD)

Part 2 : Contract Data completed by the Contractor

Item	Sub-Clause	Entry
Contractor's name and address.....	1.1.2.3 & 1.3(b)	[redacted]
Contractor's Representative's name.....	4.3.....	

The Tenderer shall complete the above Part 2 of the Appendix to Tender.

SIGNED ON BEHALF OF TENDERER..... [redacted] .....

[redacted]

PARTICULAR CONDITIONS

The Particular Conditions are:

1 General Provisions

Sub-Clause 1.1 Definitions

1.1.1 The Contract

1.1.1.1 is deleted and replaced by:

"**Contract**" means the Form of Offer and Acceptance, Contract Data, these General Conditions, the Employer's Requirements, the Drawings, the Schedules, and the further documents (if any) which are listed in the Form of Offer and Acceptance, and further includes drawings and documents or parts thereof which any of the aforesaid documents incorporate by reference.

1.1.1.2 is deleted and replaced by:

"**Contract Agreement**" means the document called "Form of Offer and Acceptance".

1.1.1.3 is deleted and replaced by:

"**Letter of Acceptance**" means that section of the Form of Offer and Acceptance called "Acceptance".

1.1.1.4 is deleted and replaced by:

"**Letter of Tender**" means that section of the Form of Offer and Acceptance called "Offer".

1.1.1.5 is deleted and replaced by:

"**Employer's Requirements**" means the document titled "Part C3: Scope of Work", as included in the Contract, and any additions and modifications to such document in accordance with the Contract. Such document specifies the purpose, scope, and/or design and/or other technical criteria, for the Works, and includes the Specifications.

1.1.1.6 is deleted and replaced by:

"**Schedules**" means the document(s) entitled schedules, completed by the Contractor and submitted with his tender offer, as included in the Contract. Such document(s) shall include the Returnable Schedules and the Schedules of Quantities, and may include data, lists and schedules of rates and/or prices.

1.1.1.7 is deleted and replaced by:

"**Contractor's Proposal**" means the information which the Contractor submitted with the Form of Offer and Acceptance, as included in the Contract. Such information shall include the information listed in Schedule 18 in Part T2.2 Returnable Schedules and may also include the Contractor's preliminary design.

1.1.1.8 is deleted and replaced by:

"**Tender**" means that section of the Form of Offer and Acceptance called "Offer" and all other documents which the Contractor submitted as Returnable Documents, as included in the Contract.

1.1.1.9 is deleted and replaced by:

"**Appendix to Tender**" means the completed section entitled appendix to tender included in the Contract Data.

Add the following Sub-Clause after Sub-Clause 1.1.1.10:

1.1.1.11
"**Returnable Schedules**" means the Schedules contained in Part T2.2 in the Tender Data and Part C2.1 in the Pricing Data, and **"Schedules of Quantities"** means the document entitled schedules of quantities contained in Part C2.2 in the Pricing Data.

[redacted]

1.1.2 Parties and Persons

1.1.2.3 is deleted and replaced by:

"**Contractor**" means the person(s) named as Contractor in that section of the Form of Offer called "Offer" accepted by the Employer and the legal successors in title to this person(s).

1.1.2.9 is deleted and replaced by:

"**Mediator**" means the person appointed under Sub-Clause 20.2 [*Mediation*] in the Contract Data.

1.1.3 Dates, Tests, Periods and Completion

1.1.3.1 is deleted and replaced by:

"**Base Date**" means the date 7 days prior to the closing date for the submission of the Tender.

1.1.3.2 is deleted and replaced by:

"**Commencement Date**" means the date the Contractor receives one fully completed original copy of the document

Add the following Sub-Clauses after Sub-clause 1.1.3.9 :

1.1.3.10 **"Ready for Commissioning"** (RFC) means the status of the Works at the point in time when the obligations in respect of the pre-commissioning tests required pursuant to Sub-Clauses 7.4 [Testing] and 9.1(a) have been complied with and that the commissioning tests required pursuant to Sub-Clause 9.1(b) can safely be commenced.

1.1.3.11 **"Ready for Trial Operation"** (RFTO) means the status of the Works at the point in time when the obligations in respect of the commissioning tests required pursuant to Sub-Clauses 7.4 [Testing] and 9.1(b) have been complied with and that the trial operations required pursuant to Sub-Clause 9.1(c) can safely be commenced, and provided that:

(a) as a condition precedent, the Contractor has complied with his obligations to achieve the RFC status of the Works; and

(b) the period of time between RFC and RFTO shall not be less than 30 days.

1.1.4 Money and Payments

1.1.4.1 is deleted and replaced by:

"**Accepted Contract Amount**" means the amount accepted in that section of the Form of Offer and Acceptance called "Acceptance" for the execution and completion of the Works and the remedying of any defects.

1.1.4.6 is deleted and replaced by:

"**Foreign Currency**" means a currency in which part (if any) of the Contract Price is payable, but not the Local Currency.

Add the following Sub-Clause after Sub-Clause 1.1.4.12:

1.1.4.13 "**Contract Price Adjustment**" means the adjustment to be included in the Contract Price for fluctuations in the Cost of Plant and Materials, Site Installation, General Items (comprising General Requirements and Conditions, Health and Safety, Environmental Management, Sundries, etc.), and Variations in Rates of Exchange, Customs Surcharge and Customs Duty, all as provided for in Sub-Clause 13.8 [*Adjustments for Changes in Cost*] in the Contract Data.

1.1.4.14 "**Reasonable Profit**" means an amount not exceeding 10% of the Cost of any item or activity

1.1.5 Works and Goods

1.1.5.6 *is deleted and replaced by:*

"**Section**" means a part of the Works specified in the Appendix to Tender as a Section (if any), or a part of the Works specified as a Section during the course of the Contract by the Employer (such Section may be an item of Plant).

[redacted]

1.1.6 Other Definitions

Add the following Sub-Clause after Sub-Clause 1.1.6.9:

1.1.6.10 "**Letter of Notification**" means the letter of formal notification, signed by the Employer, of the decision of the Supply Chain Management Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderer's Form of Offer and no rights shall accrue.

1.1.6.11 **"Intellectual Property"** means any and all intellectual property rights of any nature anywhere in the world whether registered, registerable or otherwise, including patents, trademarks, registered designs and domain names, applications for any of the foregoing, trade or business names, copyright and rights in the nature of copyright, design rights, rights in databases, know-how, trade secrets and any other intellectual property rights which subsist in computer software, computer programs, websites, documents, information, techniques, business methods, drawings, logos, instruction manuals, lists and procedures and particulars of customers, marketing methods and procedures and advertising literature, including the "look and feel" of any websites

Sub-Clause 1.5 Priority of Documents

Deleted and replaced by:

The documents forming the Contract are to be taken as mutually explanatory of one another. For the purposes of interpretation, the priority of the documents shall be in accordance with the following sequence:

(a) the Form of Offer and Acceptance,
(b) the Appendix to Tender within the Contract Data,
(c) the Particular Conditions within the Contract Data,
(d) these General Conditions,
(e) the Employer's Requirements,
(f) the Drawings, and
(g) the Schedules.

If an ambiguity or discrepancy is found in the documents, the Engineer shall issue any necessary clarification or instruction.

Sub-Clause 1.6 Contract Agreement

Deleted and replaced by:

The Parties shall enter into a Contract Agreement after the Contractor is called upon to do so by the Employer. The Agreement shall be the fully completed Form of Offer and Acceptance contained in the Contract Document.

Add the following Sub-Clause after Sub-Clause 1.6:

Sub-Clause 1.6.1 Condition Precedent

1.6.1 Conditions Precedent

1.6.1.1 This Contract 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT , the award of Contract 146Q/2021/22, the subsequent letter of appointment issued to the winning tenderer (Contractor) and the appointment of the Contractor is subject to the fulfilment of the following conditions precedent:

1.6.1.1.1 A period of 21 (twenty one) days after the award of Contract 146Q/2021/22 has lapsed without an appeal lodged against the said award as contemplated in Section 62 of the Municipal Finance Management Act 32 of 2000;

1.6.1.1.2 The conclusion of a Section 33 of the Municipal Finance Management Act 56 of 2003 process and council adopting the resolution in which it approves the entire Contract 146Q/2021/22 and in which it authorises the municipal manager to sign the Contract 146Q/2021/22 on behalf of the municipality.

1.6.1.1.3 Pertaining to Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT:

[redacted]

a) Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT must be awarded to a winning tenderer;

b) A period of 21 (twenty one) days after the award of Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT has lapsed without an appeal lodged against the said award as contemplated in Section 62 of the Municipal Finance Management Act 32 of 2000;

c) The conclusion of a Section 33 of the Municipal Finance Management Act 56 of 2003 process and council adopting the resolution in which it approves the entire Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT and in which it authorises the municipal manager to sign the Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT on behalf of the municipality.

d) A letter of appointment must be issued to the winning tenderer;

e) All conditions precedent in the letter of appointment must be fulfilled and the appointment of the winning tenderer for Contract CIVIL, BUILDING AND DEMOLITION WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT must be unconditional, binding and enforceable.

1.6.1.1.4 All other conditions precedent included in the letter of appointment to the Contractor for Contract 146Q/2021/22 must be fulfilled and the appointment of the Contractor must be unconditional, binding and enforceable.

1.6.1.2. The Parties shall (to the extent same falls within their power) use reasonable commercial endeavours to procure the fulfilment of these conditions precedent as soon as reasonably possible after the submission of the bid.

1.6.1.3. If all of these conditions precedent are not fulfilled or waived by the conditions precedent fulfilments date or such extended date as stipulated in writing by the Employer to the Contractor before the conditions precedent fulfilments date, this Contract 146Q/2021/22, the award of Contract 146Q/2021/22, the subsequent letter of appointment issued to the Contractor and the appointment of the Contractor shall be of no force or effect and no Party shall have any claim against any other party for anything done hereunder or arising here from.

1.6.1.4. The conditions precedent in Clause 1.6.1 may not be waived unless by written agreement of the Employer.

Sub-Clause 1.8 Care and Supply of Documents

Delete "six copies" in the second sentence of the first paragraph and replace with "three copies".

Sub-Clause 1.10 Employer's Use of Contractor's Documents

Deleted and replaced by:

Intellectual Property

The Contractor acknowledges that it shall not acquire any right, title or interest in or to the Intellectual Property of the Employer.

The Contractor hereby assigns to the Employer, all Intellectual Property created, developed or otherwise brought into existence by it for the purposes of the contract, unless the Parties expressly agree otherwise in writing.

The Contractor shall, and warrants that it shall:

(a) not be entitled to use the Employer's Intellectual Property for any purpose other than as contemplated in this contract;

(b) not modify, add to, change or alter the Employer's Intellectual Property, or any information or data related thereto, nor may the Contractor produce any product as a result of, including and/or arising from any such information, data and Intellectual Property, and in the event that it does produce any such product, the product shall be, and be deemed in law to be, owned by the Employer;

[redacted]

(c) not apply for or obtain registration of any domain name, trademark or design which is similar to any Intellectual Property of the Employer;

(d) comply with all reasonable directions or instructions given to it by the Employer in relation to the form and manner of use of the Employer Intellectual Property, including without limitation, any brand guidelines which the Employer may provide to the Contractor from time to time;

(e) procure that its employees, directors, members and Contractors comply strictly with the provisions of clauses 1.10 (a) to 1.10 (c) above;

unless the Employer expressly agrees thereto in writing after obtaining due internal authority.

The Contractor represents and warrants to the Employer that, in providing goods, services or both, as the case may be, for the duration of the contract, it will not infringe or make unauthorised use of the Intellectual Property rights of any third party and hereby indemnifies the Employer from any claims, liability, loss, damages, costs, and expenses arising from the infringement or unauthorised use by the Contractor of any third party's Intellectual Property rights.

In the event that the contract is cancelled, terminated, ended or is declared void, any and all of the Employer's Intellectual Property, and any and all information and data related thereto, shall be immediately handed over to the Employer by the Contractor and no copies thereof shall be retained by the Contractor unless the Employer expressly and in writing, after obtaining due internal authority, agrees otherwise.

Sub-Clause 1.11 Contractor's Use of Employer's Documents

Deleted this Sub-Clause.

Sub-Clause 1.12 Confidential details

Insert the following after the first paragraph:

The Parties shall treat the details of the Works comprised in this Contract as private and confidential (save in so far as may be necessary for the purposes hereof) and shall not publish or disclose the same or any particulars thereof in any trade or technical paper elsewhere without the prior written consent of the other Party.

Sub-Clause 1.13 Compliance with Laws

Insert "deposits" after "taxes" in 1.13 b).

Add the following paragraph after 1.13 (b):

(c) Where the Employer is required to 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.

Sub-clause 1.14 General Provisions

The parties agree that this contract shall also be subject to the Employer's Supply Chain Management Policy that was applicable on the date the tender was advertised, **save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract.** Please refer to this document contained on the CCT's website.

Abuse of the supply chain management system is not permitted and may result in cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy.

2 The Employer

Sub-Clause 2.1 Right of Access to the Site

Add the following after the first sentence of the first paragraph:

Access to, and possession of the Site shall not take place until 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 1.13 *[Compliance with Laws]*.

[redacted]

Add the following paragraph after 2.1 (b):

Should the issuing of a construction work permit delay the Engineer's instruction to commence executing the Works and this in turn causes a delay to Practical Completion by more than 60days, then the Contractor shall be entitled to make a claim in accordance with the contract. 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.

Sub-Clause 2.4 Employer's Financial Arrangements

Delete this Sub-Clause.

Sub-Clause 2.5 Employer's Claims

Insert "or by law" after "Contract" in the first sentence of the first paragraph.

3 The Engineer

Add the following at the end of the third paragraph:

If, in exercising any discretion, the result of such decision would be to utilise the contingency allowance, increase the contract value or granting of time for practical completion, the Engineer must obtain approval from the Employer that such funding or time is available and granted by the Employer to be awarded prior to finalising such a decision.

The requirements for the Engineer to obtain the approval of the Employer before exercising a specified authority are:

(a) Clause 3.2: The delegation of duties to others
(b) Clause 4.24: The issuing of instructions for dealing with fossils and the like.
(c) Clause 6.5 (b): Giving consent for work to be carried out on days of rest or outside normal working hours.
(d) Clause 8.6: The approval of a revised programme and supporting report in order to expedite progress.
(e) Clause 8.8: Instruction to suspend the works
(f) Clause 13.1: All actions in terms of this clause that would result in the utilisation of the contingency allowance, increasing the contract value or awarding any additional time.t
(g) Clause 14.2: Agreeing to advance payment for deposits for items not listed in the Advance Payment Schedule.

Sub-Clause 3.4 Replacement of the Engineer

Deleted and replaced by:

The Employer shall have the right to replace the Engineer.

4 The Contractor

Sub-Clause 4.2 Performance Security

Delete the first sentence of the second paragraph and replace with:

The Contractor shall deliver the Performance Security to the Employer within 14 days from the Commencement Date.

Add the following at the end of the second paragraph:

The form of Performance Security shall contain the precise wording of the document included in Part C1.3 of the Contract Data: **Form of Performance Guarantee,** and it shall be issued by a financial institution approved by the Employer at the date when the guarantee is issued. The list of approved financial institutions current at the date of tender is attached to the **Form of Performance Guarantee.**

Sub-Clause 4.3 Contractor's Representative

Delete "prior to the Commencement Date" in the first sentence of the second paragraph and replace with "within 14 days from the Commencement Date".

Sub-Clause 4.4 Sub-contractors

Delete sub-paragraph (b) and replace with the following:

[redacted]

b) the prior written consent of the Engineer shall be obtained to other proposed sub-contractors and Suppliers identified in the Tender Offer.

Delete "28 days' notice" in sub-paragraph (c) and replace with "14 days' notice".

Add the following clause:

d) The Contractor shall supply the Employer with proof of all orders placed with sub-contractors upon request by the Engineer. Information is to be given on each sub-order sufficient to identify the material or equipment to which the sub-order relates and to notify the sub-contractor that the conditions of the Specification apply.

Sub-Clause 4.6 Co-operation

Add the following new paragraph after paragraph three:

The Site incorporates treatment processes and infrastructure that is in permanent use by the Employer plus construction activities of new infrastructure by other contractors. The Contractor shall accommodate the Employer and other contractors in this regard:

a) The main civil works including site preparation, structures, and bulk supply services will be carried out by a contractor employed by the Employer, hereafter referred to as the "Civil contractor".

b) The Contractor shall be responsible for providing all the necessary information and inputs to the Engineer in accordance to Sub-Clause 5.2 [*Contractor's Documents*] in a timely manner to avoid delays or re-work to the execution of the main civil works.

c) Co-operation and communication between the Engineer, Contractor and Civil contractor for purposes of co-ordinating the main civil works activities and the Contractor's activities will take place as follows:

i. The Engineer (or his mandated representative) will establish and chair a Co-ordination Meeting that will meet at regular weekly intervals. The Contractor shall mandate the approved coordination personnel to attend this meeting who are technically proficient and competent in their specific fields of practice to review programmes, provide information and inputs so that activities can be effectively and expeditiously planned and coordinated and so that changes required during execution are minimised.

ii. In addition to the abovementioned meeting the Contractor shall be responsible for on-going communicating with the Civil contractor and to monitor and inspect the Civil contractor's construction activities on the Site in order to verify that setting out, dimensions, positions, sizes and quality of materials, etc. meet with the Contractor's design specification and requirements, and to co-ordinate the timing of his own activities to comply with planned and contractual completion dates. Any discrepancies in the civil works that require remediation must be reported to the Engineer promptly on a daily basis including any aspects that will have a time related impact on the Contractor's Programme.

Sub-Clause 4.8 Safety Procedures

Add the following:

The Contractor's attention is also drawn to the Health and Safety Specification in the Employer's Requirements.

The Employer and the Contractor shall enter into an agreement to complete the work required for the construction of the Works in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 promulgated thereunder.

An agreement is included in the Contract Document (Part C1.5 in Agreements and Contract Data) and shall be completed and submitted to the Employer together with a letter of good standing from the Compensation Commissioner (if not insured with a licenced compensation insurer) within fourteen (14) days after the Commencement Date. The Contractor shall ensure that any letter of good standing shall be timeously renewed in order that it remains in full force for the duration of the Contract.

Sub-Clause 4.10 Site Data

Add the following at the end of the first sentence:

"as contained in the Employer's Requirements, if applicable."

[redacted]

Sub-Clause 4.16 Transport of Goods

Delete "and" after sub-paragraph (b) and add the following to sub-paragraph(c):

In this regard the Contractor's attention is also drawn to Sub-Clause 18.2(f)(i) in the Particular Conditions; and

Add the following sub-paragraph:

(d) the Contractor shall provide all lifting facilities unless specified otherwise in the Detailed Mechanical Specification in the Employer's Requirements.

Sub-Clause 4.17 Contractor's Equipment

Add the following:

The Contractor shall provide all necessary storage facilities on Site.

Sub-Clause 4.18 Protection of the Environment

Add the following:

The Contractor's attention is also drawn to the Environmental Management Specification in the Employer's Requirements.

Sub-Clause 4.21 Progress Reports

Delete " in six copies" in the first sentence and replace with "electronically and one hard copy".

Sub-Clause 4.22 Security of the Site

Add the following sub-paragraph:

(c) The Contractor shall in connection with the Works provide and maintain at his own cost all lights, guards, fencing, watching and other appropriate security measures when and where necessary or required by the Engineer or by any competent statutory or other authority for the protection and security of the Works and the Contractor's Equipment, or for the safety and convenience of the public and for the protection of life and property.

Sub-Clause 4.23 Contractor's Operations on Site

Add the following:

The Contractor shall protect and cover up all works as may be required and take all other precautions necessary to avoid causing damage or soiling of new and existing plant, equipment, buildings and structures. This shall inter alia apply when activities such as abrasive blasting, painting, welding, grinding, sealing, lagging and so forth, must be performed on the Site. The Contractor shall, on completion, remove all covers and shall at his cost rectify all soiling and damage to finishes to the satisfaction of the Engineer.

5 Design

Sub-Clause 5.1 General Design Obligations

After the last paragraph, add a new paragraph:

The preliminary design of the main civil works has been carried out by the Employer's Agent. These preliminary designs are to be finalised using inputs that shall be provided by the Contractor, typically covering process sizing, technical requirements for housing the specific mechanical, electrical, electronic and process equipment to be supplied, the routing of electrical supply cables, etc.

The Contractor shall be responsible for providing all the necessary information and inputs to the Engineer in a timely manner to avoid delays or re-work to the execution of the main civil works.

Co-operation and communication between the Engineer, Contractor and Civil contractor for purposes of co-ordinating and finalising the design of the main civil works with the Contractor's design will take place as follows:

a) The Engineer (or his mandated representative) will establish and chair a Design Co-ordination Meeting that will meet at regular weekly intervals. The Contractor shall mandate the approved design personnel to attend this meeting who are technically proficient and competent in their specific fields of practice, to

[redacted]

provide information and inputs so that designs can be effectively and expeditiously finalised and so that changes required during execution are minimised.

b) After receiving the Contractor's design the Employer's Agent will complete the civil construction drawings. The Engineer will submit to the Contractor in electronic format the civil construction drawings submitted to, or intended to be submitted to, the Civil contractor for review by the Contractor. The Contractor shall review the drawings and give notice to the Engineer within a review period not exceeding 14 days that the drawings are accepted, with or without comments, and that the drawings comply with the Contractor's design requirements. The Contractor shall be deemed to have accepted the Engineer's civil construction drawings as correct upon the expiry of the review period.

6 Staff and Labour

Sub-Clause 6.9 Contractors personnel

After the last paragraph, add a new paragraph:

In order to meet the requirements of this Sub-Clause the Contractor shall commit the named Key PersonnelPersonnelkey personnel to each of the Key Personnel RolesRoleskey personnel roles identified in the Tender Offer, which personnel shall remain permanently assigned to the Contract and dedicated full-time at least until the Engineer agrees that such personnel have completed their assignments. The exception to this will be the situation where any of the Key PersonnelPersonnelkey personnel ceases to be employed by the Contractor for any reason, or decides to withdraw from the Contractor's team, for reasons beyond the Contractor's control. In such instances the Contractor will be required to submit to the Engineer proposals to replace the Key Person, which will only be considered by the Engineer if the Contractor can show that the proposed replacement has qualifications and experience equivalent to, or better than, the original Key Person and scores the same or higher than the offered Key person in terms of the Functionality Criteria in the Tender Offer.

Sub-Clause 6.10 Records of Contractor's Personnel and Equipment

Add the following:

The Contractor shall also submit the monthly returns as described in the Scope of Work, Part C3.5 Management, Clause C3.5.1.

8 Commencement, Delays and Suspension

Sub-Clause 8.1 Commencement of Work

Add the following at the end of the first paragraph:

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 in terms of Clause 1.13 *[Compliance with Laws]*.

Delete the first paragraph.

Delete the words "the design and execution of the Works as soon as is reasonably practicable after" in the second paragraph and replace with "executing the Works within 14 days from".

The Contractor will not be given access to, and possession of the Site, until the following documentation has been submitted and approved by the Engineer:

(a) Health and Safety Plan (refer to Section 1.4 in the Health and Safety Specification included in Volume 3A.

(b) Method Statements (refer to Section 16 in the Environmental Management Specification in Volume Specification included in Volume 3A.)

(c) Proof of Registration / Letter of Good Standing with the Metal and Engineering Industries Bargaining Council

Sub-Clause 8.3 Programme

Delete the first sentence of the first paragraph and replace with:

The Contractor shall submit a detailed time programme to the Engineer within 14 days from the Commencement Date.

[redacted]

Add the following after the first paragraph:

The Contractor shall incorporate any programming restrictions that may be specified in Sub-Clause 2.1 in the Particular Conditions into the programme.

Sub-Clause 8.4 Extension of Time for Completion

Add the following after par (e):

Regarding sub-paragraph (c), no extension of the Time for Completion will be granted in respect of any delays attributed to normal climatic conditions. Normal climatic conditions shall be deemed to include normal rainfall and associated wet conditions and materials, strong winds and extremes of temperature. However, in the event that delays to critical activities exceed the number of working days listed below for each month, then exceptionally adverse climatic conditions shall be deemed to exist, and an extension of the Time for Completion shall be granted in accordance with the provisions of this Sub-Clause.

The number of days quoted below shall be regarded as a fair estimate of the delays to be anticipated and allowed for under normal climatic conditions where adverse weather prevents or disrupts critical work.

January	2 days
February	2 days
March	2 days
April	2 days
May	2 days
June	4 days
July	4 days
August	4 days
September	4 days
October	2 days
November	2 days
December	2 days

At the end of the Sub-Clause, add a new paragraph:

Notwithstanding anything to the contrary in the Contract, the Contractor shall not be entitled to an extension of the Time for Completion where he has not used all reasonable endeavours to prevent, reduce or mitigate the delay, including providing such temporary measures as may be necessary to enable work to continue and the Works and Contractor's Equipment to be protected during exceptionally adverse climatic conditions.

Sub-Clause 8.7 Delay Damages

Wherever the phrase "Delay Damages" occur in the Contract it should be replaced with the phrase "Delay Penalties".

Insert the following at the end of the second sentence in the first paragraph:

....or, in the event of termination by the Employer under Sub-Clause 15.2 [*Termination by Employer*], the actual date of termination.

Insert the following at the end of the second paragraph:

The Employer further has the right to deduct any other fines or penalties that become due under the Contract.

Sub-Clause 8.10 Payment for Plant and Materials in Event of Suspension

Replace sub-paragraph (b) with the following:

(b) the Contractor has provided an advance payment guarantee in accordance with Sub-Clause 14.2 in the Particular Conditions.

9 Tests on Completion

Sub-Clause 9.1 Contractor's Obligations

Delete "21 days" in the first sentence of the second paragraph and replace with "14 days".

After the third paragraph, add a new paragraph:

[redacted]

The Contractor shall take full responsibility for the care of the Works and Goods from the RFC date (Sub-Clause 1.1.3.10) until the start of the Commissioning tests (Sub-Clause 9.1(b)) during the operation period and shall operate the plant "as specified" during the Trial Operation Period and which operation shall not constitute a taking-over under Clause 10 [*Employer's Taking Over*].

During the Trial Operation Period the Contractor shall carry out all necessary servicing and adjustments required. The Council's staff will assist the Contractor in operating the Works or Section during this period and at this time the Contractor shall train the Council's operational staff in the starting, operating and stopping of the Works or Section, and the Council's maintenance staff on the maintenance requirements and procedures.

10 Employer's Taking Over

Sub-Clause 10.1 Taking Over of the Works and Sections

Delete 28 days in the 3rd and final paragraph and replace with 14 days

11 Defects Liability

Sub Clause 11.3 Extension of Defects Notification Period

Delete the first paragraph and replace with:

The Employer shall be entitled subject to Sub-Clause 2.5 [*Employer's Claims*] to an extension of the relevant Defects Notification Period for the Works or a Section if and to the extent that the Works or Section (as the case may be, and after taking-over) cannot be used for the purposes for which they are intended by reason of a defect or damage. However, a Defects Notification Period shall not be extended by more than five years.

Sub Clause 11.6 Further Tests

At the end of Sub-Clause 11.6 add the following:

In the case of any defect in the Plant for which the Contractor is liable which requires repair or replacement of the Plant or any part thereof the Defects Notification Period for such repaired or replaced Plant or part shall commence from the date on which such Plant or part has recommenced operation (and if necessary has passed any repeated Tests on Completion) and shall extend from such date for the period specified in the Appendix to Tender.

Sub Clause 11.10 Unfulfilled Obligations

At the end of Sub-Clause 11.10 add the following paragraphs:

Latent Defects: The liability period for latent defects shall be 10 years from the issuance of the Taking Over Certificate for the Whole of the Works or Section.

MBR Plant Warranty: The Contractor shall warrant and guarantee performance of the entire offered MBR plant treatment system and associated equipment provided in accordance with Part C3: Scope of Work and MBR Plant Specifications. The Contractor shall provide/deliver the MBR Life Warranty (i.e. a minimum pro-rata warranty for eight (8) years) from date of issue of the Performance Certificate to the Employer within 14 days from the Commencement Date, and shall be in the name of the Employer.

Ultra-Filtration (UF) Plant Warranty: The Contractor shall warrant and guarantee performance of the entire offered UF plant treatment system and associated equipment provided in accordance with Part C3: Scope of Work and UF Plant Specifications. The Contractor shall provide/deliver the UF Life Warranty (i.e. a minimum pro-rated warranty for eight (8) years) from date of issue of the Performance Certificate to the Employer within 14 days from the Commencement Date, and shall be in the name of the Employer.

Warranties: The Contractor shall warrant and guarantee the Works and Goods as specified in any and all warranties provided for specific Works and Goods.

13 Variations and Adjustments

Sub-Clause 13.3 Variation Procedure

Delete "and the Schedule of Payments" in the last paragraph.

Sub-Clause 13.5 Provisional Sums

[redacted]

Add the following to the last paragraph:

The number of quotations shall be three (3). Quotations shall include full technical descriptions as well as a breakdown of prices.

Sub-Clause 13.7 Adjustments for Changes in Legislation

Add the following to the first paragraph:

Any increase or decrease in the amount of Value Added Tax inserted in the Schedules of Quantities due to a change in the percentage rates applicable shall be the subject of adjustment under this Sub-Clause.

Sub-Clause 13.8 Adjustments for Changes in Cost

Deleted and replaced by:

13.8.1 **General**

The Accepted Contract Amount shall be deemed to have included amounts to cover the contingency of all other rises and falls in costs not covered by the provisions of this or other Clauses.

If provision has been made in the Appendix to Tender for prices to be subject to adjustment, such adjustments claimed by the Contractor shall be made in accordance with the Sub-Clauses referred to therein.

The following general provisions shall apply in all cases:

(a) The Base Date shall be as defined in Sub-Clause 1.1.3.1 in the Particular Conditions.

(b) Adjustments for changes in cost shall be calculated as if the Works are executed within the time for completion and no additional costs due to any work being executed outside the time for completion shall be payable unless the Engineer allows an extension of time in accordance with Sub-Clause 8.4 [*Extension of Time for Completion*] and Sub-Clause 8.4 in the Particular Conditions.

(c) Claims for adjustments for changes in cost shall be supported by such documentary evidence that may be required by the Engineer. Failure to render this information may result in the rejection of claims for price adjustment.

(d) The value of imported Plant and Materials shall be as defined in the sub-clause below.

(e) No claims for adjustments for changes in cost will be accepted which are submitted later than 28 days after the date of issue of the Taking-Over Certificate.

13.8.2 **Plant and Materials Manufactured in South Africa**

13.8.2.1 Permissible Adjustments

Adjustment to the Contract Price for the design, manufacture, painting, testing, supply, delivery, offloading and storage of Plant and Materials manufactured in the Republic of South Africa, shall be allowed **only** for variations in the cost of labour and material based on the indices published by the Steel and Engineering Industries Federation of South Africa (SEIFSA) using the method described in Sub-Clause 13.8.2.1.2.

The following SEIFSA tables shall be regarded as relevant to Mechanical and Electrical Works in this Contract:

Table C3	Index of actual labour cost
Table G	Statistics SA - production price index, Mechanical and Electrical Engineering Materials, as applicable
Table E -	**EX** Merchant Steel Price Index, Hot Rolled Sheets
Table Q -	**(A)** Index of stainless steel flat products (excluding imports), Hot rolled steel
Table Q -	**1 (A)** Corrosion resisting steel 3CR12, Hot rolled plate

[redacted]

Table N Ruling price of certain electrical cable manufacturing materials, Copper rod 7,90 mm

13.8.2.2 Method of Price Adjustment

Adjustment of the total values inserted in the Schedules of Quantities for the design, manufacture, painting, testing, supply, delivery, offloading and storage of Plant and Materials manufactured in the Republic of South Africa shall be based on the following:

(a) The estimated proportions (represented by the coefficients "b", "c", "d" and "e" in the formulae in sub-paragraph (b) below) of the total values shall be adjusted on the basis of the increase or decrease between the indices in the relevant tables at the Base Date and these indices at a date 42 days prior to the valuation date, for each month in which the Plant and Materials are contractually delivered to Site, by multiplying the monthly values certified by the relevant Adjustment Factor in the formulae in sub-paragraph (b) below.

(b) the applicable formulae are:

Mechanical Plant and Materials

$$A = a + b\frac{Ln}{Lo} + c\frac{Mn}{Mo} + d\frac{Sn}{So} + e\frac{SSn}{SSo} - 1$$

where
A = Adjustment Factor rounded off to the sixth decimal place
a = 0.10 Fixed coefficient (non-adjustable portion)
b = 0.15
c = 0.35 Coefficients (sum of these coefficients shall be 0,90)
d = 0.25
e = 0.15
Ln = Current labour index in Table C3
Lo = Base labour index in Table C3
Mn = Current mechanical engineering materials index in Table G
Mo = Base mechanical engineering materials index in Table G
Sn = Current steel price index in Table E-EX
So = Base steel price index in Table E-EX
SSn = Current stainless steel index type 316 in Table Q-(A)
SSo = Base stainless steel index type 316 in Table Q-(A) "Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above

"Base" indices are those applicable at Base Date, as stated in sub-paragraph (a) above

Electrical Plant and Materials

$$A = a + b\frac{Ln}{Lo} + c\frac{En}{Eo} + d\frac{CRn}{CRo} + e\frac{Cn}{Co} + f\frac{SSn}{SSo} - 1$$

where
A = Adjustment Factor rounded off to the sixth decimal place
a = 0.10 Fixed coefficient (non-adjustable portion)
b = 0.10
c = 0.30 Coefficients (sum of these coefficients shall be 0,90)
d = 0.10
e = 0.30
f = 0.10
Ln = Current labour index in Table C3
Lo = Base labour index in Table C3
En = Current electrical engineering materials index in Table G
Eo = Base electrical engineering materials index in Table G
CRn = Current 3CR12 steel index in Table Q -1 (A)
CRo = Base 3CR12 steel index in Table Q -1 (A)
Cn = Current copper rod index in Table N
Co = Base copper rod index in Table N
SSn = Current stainless steel index type 316 in Table Q-(A)
SSo = Base stainless steel index type 316 in Table Q-(A)
"Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above

"Base" indices are those applicable at Base Date, as stated in sub-paragraph (a) above

[redacted]

(c) The value of any Plant and Materials imported from outside South Africa inserted on the schedule titled "**Price Basis for Imported Plant and Material**and subject to Sub-Clause **13.8.3** shall be deducted from the total values to be adjusted by the SEIFSA Index adjustment. Any Plant and Materials not inserted in Schedule 20 shall be deemed to be manufactured in South Africa for the purposes of Contract Price Adjustment.

13.8.2.3 **Site Installation and General Items**

For the purpose of this Sub-Clause, General Items (defined below) are included with Site Installation for the sake of convenience, and which otherwise have no relationship with each other.

General Items shall comprise General Requirements and Conditions, Health and Safety, Environmental Management, Sundries, and any other items so described or implied in the Schedules of Quantities to be adjusted under this Sub-Clause.

Adjustment of the total values inserted in the Schedules of Quantities for Site Installation and General Items, shall be based on the following:

(a) No Contract Price Adjustment shall be applied to the total values in respect of providing the Performance Security (Demand Guarantee under URDG 758) and Insurances.

(b) The estimated proportion (represented by the 0.90 coefficient in the formula in sub-paragraph (c) below) of the total values shall be adjusted on the basis of the increase or decrease between SEIFSA **Table C3(A)** Index of actual labour cost (field force) where subsistence allowance is paid, at the Base Date and this index at the valuation date, for each month in which the work is contractually executed, by multiplying the monthly values certified by the Adjustment Factor in the formula in sub-paragraph (c) below.

(c) the applicable formula is:

Site Installation and General Items

$$A = 0.10 + 0.90 \frac{Ln}{Lo} - 1$$

where
A = Adjustment Factor rounded off to the sixth decimal place
0.10 = Fixed coefficient (non-adjustable portion)
0.90 = Coefficient
Ln = Current labour index in Table C3(A)
Lo = Base labour index in Table C3(A)

"Current" index is that applicable at the valuation date, as stated in sub-paragraph (b) above

"Base" index is that applicable at Base Date, as stated in sub-paragraph (b) above

13.8.3 **Plant and Materials Imported from Outside South Africa**

13.8.3.1 If price adjustment for variations in the cost of plant and materials imported from outside of South Africa is required, such adjustment shall be based on the information contained on the schedule titled "**Price Basis for Imported Resources** and as below. For the purposes of this clause the Rand value of imported Plant and Materials inserted on the schedule titled "**Price Basis for Imported Resources** (column (F)) shall be the value in foreign currency (column (A)) converted to South African Rand (column (C)) by using the closing spot selling rate quoted by **Employer's** main banker, NEDBANK, on the Base Date (seven calendar days before tender closing date **or last preceding working day**) rounded to the second decimal place (column(B)), to which shall be added any Customs Surcharge and Customs Duty applicable at that date (columns (D) and (E)).

13.8.3.1.1 Adjustment for variations in rates of exchange:

(a) The value in foreign currency inserted in column (A) shall be subject to clause (h) below when recalculating the Rand value.

[redacted]

(b) The rate of exchange inserted in column (B) shall be the closing spot selling rate quoted by Council's main banker, [redacted] on the Base Date, rounded to the second decimal place, subject to sub-paragraph (c) below.

(c) If the rate of exchange inserted by the Tenderer differs from the [redacted] rate referred to above, then the [redacted] rate shall apply and the Rand value in columns (C) and (F) shall be recalculated accordingly, without altering the price in the Schedules of Quantities for the relevant items.

(d) If a tender from a supplier or sub-contractor provides for variations in rates of exchange, the Contractor may **only** claim for variations in rates of exchange if he binds the supplier or sub-contractor to the same provision to take out forward cover as described in sub-paragraph (e) below.

(e) The Contractor (or supplier or sub-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 and Materials inserted by the Tenderer on the schedule titled "**Price Basis for Imported Resources**.

(f) When the Contractor (or supplier or sub-contractor) so obtains forward cover, the Contractor shall immediately notify the Employer of the rate obtained and furnish the Employer with a copy of the foreign exchange contract note.

(g) Based on the evidence provided in sub-paragraph (f) above, the value in Rand inserted in column (C) of the schedule titled "**Price Basis for Imported Resources** shall be recalculated using the forward cover rate obtained, and any increase or decrease in the Rand value defined in this clause shall be adjusted accordingly, subject to sub-paragraph (h) below. Failure to provide such evidence shall result in no such recalculation shall be considered by the Employer.

(h) The adjustments shall be calculated upon the value in foreign currency in the Contractor's (or supplier's or sub-contractor's) **forward cover contract**, provided that, should this value exceed the value in foreign currency inserted in column (A) of the schedule titled "**Price Basis for Imported Resources**, then the value in column (A) shall be used.

13.8.3.1.2 Adjustment for variations in customs surcharge and customs duty

(a) Any increase or decrease in the Rand value between the amounts of Customs Surcharge and Customs Duty inserted on the schedule titled "**Price Basis for Imported Resources** 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.

(b) The Tenderer shall state the Customs Duty Tariff Reference applicable to each item and the Contractor shall advise the Employer's Agent of any changes which occur.

13.8.3.1.3 Adjustment for variation in labour and material Costs

If the prices for imported Plant and Materials are not fixed, the Contractor shall in his Tender specify the formula for calculating Contract Price Adjustments normally used in the country of manufacture and the indices and relative proportions of labour and material on which his Tender prices are based. Evidence of the indices applicable shall be provided with each claim. The indices applicable 42 days before contractual dispatch date from the factory will be used for the purposes of Contract Price Adjustment.

Failure to specify a formula in the Tender shall mean that the prices are fixed or shall be deemed to be fixed.

14 Contract Price and Payment

Sub-Clause 14.1 The Contract Price

Delete sub-paragraph (d) and replace with:

(d) Price data in any Schedule, will be used for calculating the value of completed works for the purpose of interim payments or for determining the value of changes, omissions and additions for variation instructions when in the opinion of the Engineer such prices are applicable.

Add the following at the end of the Sub-clause:

[redacted]

(e) Except as otherwise stated in the Contract all parts of the Works are to be measured and the value agreed or determined, in accordance with Sub-Clause 3.5. Measurement shall be made of the net actual quantities of those parts, notwithstanding local practice.

Whenever the Engineer requires any part of the Works to be measured, reasonable notice shall be given to the Contractor's Representative, who shall:

(i) promptly either attend or send another qualified representative to assist the Engineer in making the measurement, and

(ii) supply any particulars requested by the Engineer.

If the Contractor fails to attend or send a representative, the measurement made by (or on behalf of) the Engineer shall be accepted as accurate.

(f) Except as otherwise stated in the Contract, wherever any Permanent Works are to be measured by records, they shall be prepared by the Engineer. The Contractor shall, as and when requested, attend to examine and agree the records with the Engineer, and shall sign the same when agreed. If the Contractor does not attend to examine and agree, these records shall be accepted as accurate.

If the Contractor examines and disagrees the records, and/or does not sign them as agreed, then the Contractor shall notify the Engineer of the respects in which the records are asserted to be inaccurate. After receiving this notice, the Engineer shall review the records and either confirm or vary them. If the Contractor does not so notify the Engineer within 14 days after being requested to examine the records, they shall be accepted as accurate.

(g) All measurements of quantity, length and mass for the purpose of payment shall be to the nearest standard unit for which rates are given in the Schedules of Quantities or have been agreed by the Engineer and shall be taken from the actual work on Site.

(h) Surplus or waste material will not be taken over or paid for by the Employer except where at the time when it was reasonable for the material to be provided or manufacture to be put in hand it was not possible to determine the quantity of material required. The route lengths determined by the Contractor in accordance with the specification shall be used for the purposes of manufacture in place of the estimated route lengths and any surplus after completion arising therefrom will not be taken over or paid for by the Employer unless the Employer so decides.

Sub-Clause 14.2 Advance Payment

Deleted and replaced by:

Subject to sub-paragraphs (a) and (e) of Sub-Clause 14.3 in the Particular Conditions, and the Advance Payment Schedule, the Employer shall make an advance payment for Plant and Materials stored at places other than the Site, or in respect of which a deposit with order is required, only once the Contractor has submitted an advance payment guarantee in accordance with this Sub-Clause, the authenticity of which has been verified by the City's Treasury Department.

Unless and until the Employer receives this guarantee, the following paragraphs shall not apply.

The Engineer shall issue an Interim Payment Certificate for, or including, advance payment after receiving a Statement under Sub-Clause 14.3 [*Application for Interim Payment Certificates*] and after the Employer has received a guarantee in an amount equal to the advance payment requested. This guarantee shall be issued by a financial institution approved by the Employer, as listed in the Annexure in Part C1.3 of the Contract Data, and shall be in the form of and shall contain the precise wording of the document included in Part C1.4: **Form of Advance Payment Guarantee** and shall come into force, be administered and expire in terms thereof.

The Employer shall return the guarantee to the Contractor within 14 days after the expiry date.

The provision of the Advanced Payment Guarantee shall be at the Contractor's cost.

The term "deposit" or "deposit with order" used in the context of this Sub-Clause and elsewhere by reference to this Sub-Clause, means a sum payable by the Contractor to a manufacturer/supplier prior to the manufacture of an item of Plant or Material, required at the time of placing an order, the balance of the value of the item being payable later.

Sub-Clause 14.3 Application for Interim Payment Certificates

Delete "in six copies" in the first line of the first paragraph.

[redacted]

Sub-Clause 14.5 Plant and Materials intended for the Works

Add to (c)(ii):

or are ready to be delivered to site and the Engineer has instructed the Contractor to store the Plant and Materials until the site can accommodate their delivery, and are properly stored at the Contractor's or the sub-Contractor's Works, are protected against loss, damage or deterioration, and appear to be in accordance with the Contract and for which an advance payment guarantee has been provided in accordance with Sub-Clause 14.2 in the Particular Conditions. The advance payment guarantee shall be valid until the Plant and Materials are properly stored on Site and protected against loss, damage or deterioration.

Sub-Clause 14.6 Issue of Interim Payment Certificates

Delete "within 28 days" in the second sentence of the first paragraph and replace with "within 21 days".

Sub-Clause 14.7 Payment

Delete sub-paragraphs (a) to (c) and replace with:

(a) the amount certified in each Interim Payment Certificate within 35 days after the Engineer receives the Statement and supporting documents; and

(b) the amount certified in the Final Payment Certificate within 28 days after the Employer receives this Payment Certificate.

Add the following paragraph:

Notwithstanding the above, the Engineer shall be empowered to withhold the delivery of a payment certificate until the Contractor has complied with his obligations to submit the monthly returns in terms of Sub-Clause 6.10 in the Particular Conditions and as described in the Employer's Requirements.

The Contractor may submit a fully motivated application regarding more frequent payment to the Engineer to be submitted to the Employer for consideration. Requests for more frequent payments will be considered at the sole discretion of the Employer and is not a right in terms of this contract.

Sub-Clause 14.9 Payment of Retention Money

Delete the last paragraph and replace with:

The relevant contract value for each Section shall be determined by the Engineer, based on the Schedules of Quantities and any variations and adjustments thereto.

Sub-Clause 14.10 Statement at Completion

Delete "Within 84 days" in the first paragraph and replace with "Within 28 days,".

Delete "six copies of" in the first paragraph.

Sub-Clause 14.11 Application for Final Payment Certificate

Delete "Within 56 days" in the first paragraph and replace with "Within 14 days".

Delete "six copies of" in the first paragraph.

Add the following new Sub-Clause after Sub-Clause 14.5:

Sub-Clause 14.16 Tax Invoices

Section 20(1) of the Value Added Tax Act, 89 of 1991 requires that a supplier (person supplying goods or services) who is registered as a VAT vendor issue to the recipient a tax invoice within 21 days of the date of a supply whether requested or not.

The Contractor shall provide a tax invoice (VAT invoice) which shall be included with each Payment Certificate and a Final Payment Certificate delivered to the Employer by the Engineer in terms of Sub-Clause 14.6 [*Issue of Interim Payment Certificates*] and Sub-Clause 14.6 in the Particular Conditions, and Sub-Clause 14.13 [*Issue of Final Payment Certificate*], respectively. Failure by the Contractor to provide a tax invoice (VAT invoice) timeously may delay delivery of the payment certificate by the Engineer and no interest shall accrue.

[redacted]

Tax invoices may only be dated on or after the date of the relevant Payment Certificate as issued by the Engineer.

15 Termination by Employer

Sub-Clause 15.1 Notice to Correct

Delete "..a specified reasonable time." in the first paragraph and replace with:

"14 days or as otherwise agreed in writing.".

Sub-Clause 15.2 Termination by Employer

Add the following additional Sub-Clause after Sub-Clause (f):

(g) who was a Sole Proprietor, or a sole member of a Close Corporation dies

Insert the following after paragraph three:

The Employer may terminate the contract if a material irregularity vitiates the procurement process leading to the conclusion of the contract, rendering the procurement process and the conclusion of the resulting contract unfair, inequitable, non-transparent, uncompetitive or not cost-effective, provided the Employer follows the processes as described in its SCM Policy.

The Employer, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate the contract if the implementation of the contract may result in reputational risk or harm to the City as a result of (inter alia):

(a) reports of poor governance and/or unethical behaviour;
(b) association with known family of notorious individuals;
(c) poor performance issues, known to the Employer;
(d) negative social media reports; or
(e) adverse assurance (e.g. due diligence) report outcomes.

In addition to anything else contained in this contract, the Employer may make either of the following elections to ensure its rights are protected and any negative impact on service delivery is mitigated in the case of the insolvency of the Contractor:

(a) accept a Contractor's proposal (via the trustee / liquidator) to render delivery utilising the appropriate contractual mechanisms; or
(b) terminate the contract, as the liquidator proposed Contractor is deemed unacceptable to the Employer, at any time by giving written notice to the Contractor (via the trustee / liquidator).

16 Suspension and Termination by Contractor

Sub-Clause 16.1 Contractor's Entitlement to Suspend Work

Delete "Sub-Clause 2.4 [*Employer's Financial Arrangements*] or" in the first paragraph.

Sub-Clause 16.2 Termination by Contractor

Delete the content of sub-paragraph (a)

17 Risk and Responsibility

Sub-Clause 17.2 Contractor's Care of the Works

Add the following paragraph at the end of the Sub-Clause:

The Contractor shall during the Defects Notification Period maintain and uphold the Works and check all equipment for operation and functioning at 3 months, 6 months, 9 months and 12 months after Take Over. The Contractor shall submit reports to the Engineer after each inspection.

Sub-Clause 17.3 Employer's Risks

Add the following after sub-clause (h):

(i) defects in the materials supplied by the Employer for incorporation in the Works,

[redacted]

(j) the confiscation, commandeering, nationalisation, requisition or destruction of or damage to property by an order of government, or any public or local authority, and

(k) the amounts by which the replacement value of free issue materials exceeds the values as specified in the tender document by the Employer.

18 Insurance

Sub-Clause 18.1 General Requirements for Insurances

Add the following at the end of the first paragraph:

Save as otherwise provided in the Contract, nothing herein contained shall oblige the Insuring Party to effect any insurance which is not generally obtainable from a registered insurer in South Africa.

Add the following at the end of the second last paragraph:

The Insuring Party shall be liable for the payment of all deductibles.

Add the following at the end of Sub-Clause (a) before the comma:

"or an insurance broker's warranty worded precisely as given in Part C1.7 Insurance Broker's Warranty".

Sub-Clause 18.2 Insurance for Works and Contractor's Equipment

Add the following at the end of the first paragraph:

In addition to and in terms of the same conditions as the rest of this clause, the Insuring Party shall further provide special risks / supplementary insurance issued by the South African Special Risks Insurance Association (SASRIA) in respect of civil commotion, riot and strike in the same value as the works insurance.

Delete "Sub-Clause 14.5 [(e) (i) and (ii) ".

Sub-clause 18.3 Insurance against Injury to Persons and Damage to Property

Add the following at the end of the first paragraph:

In addition to and in terms of the same conditions as the rest of this clause, the Insuring Party shall provide Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability Indemnity.

Sub-Clause 18.4 Insurance of Contractor's Personnel

Add the following at the end of the first paragraph:

This insurance shall be in terms of the provisions of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

20 Claims, Disputes and Arbitration

Sub-Clause 20.5 Amicable Settlement

Add the following after the first paragraph:

Any amicable settlement conducted in terms of this clause will be done by mediation in accordance with rules determined by the mediator. Where the parties fail to agree on a mediator, the mediator shall be appointed by the entity or official named in the Appendix to Tender.

Mediation shall be conducted without legal representation with the costs being borne equally by the parties.

The parties shall record any agreement reached in writing and thereafter they shall be bound by such agreement.

The mediator shall be authorized to end the mediation process whenever, in his opinion, further efforts at mediation would not contribute to a resolution of the dispute between the parties.

If the mediation fails, then either party may require that the dispute be settled by litigation.

Delete all references to "Arbitration" in the conditions and replace it with "Litigation"

[redacted]

Delete Sub-Clause 20.6 and replace with the following:

Sub-Clause 20.6 Litigation

Any unresolved dispute shall be finally determined by court proceedings in the Court as stated in the Appendix to Tender.

21 Protection of Personal Information

Sub-Clause 21.1

The Employer acknowledges that, for the purposes of this agreement, they may come into contact with or have access to personal information and other information that may be classified or deemed as private or confidential and for which Contractor is responsible in terms of Protection of Personal Information Act ("POPIA"). Such personal information may also be deemed or considered as private and confidential as it relates to POPIA.

Sub-Clause 21.2

The Employer agrees that they will at all times comply with POPIA and Contractor's Privacy Notice, and that it shall only collect, use and process personal information it comes into contact with pursuant to this agreement in a lawful manner, and only to the extent required to execute the services, or to provide the goods and to perform their obligations in terms of the service level agreement.

Sub-Clause 21.3

The Employer agrees that it shall put in place, and at all times maintain, appropriate physical, technological and contractual security measures to ensure the protection and confidentiality of the personal information that it, or its employees, its contractors or other authorised individuals comes into contact in relation to the service level agreement.

Sub-Clause 21.4

The Employer agrees that it shall notify the Contractor immediately where there are reasonable grounds to believe that the personal information of a data subject has been accessed or acquired by any unauthorised person.

Sub-Clause 21.5

Unless so required by law, the Employer agrees that it shall treat the personal information as confidential and further not disclose any personal information as defined in POPIA to any third party without the prior written consent of the Contractor.

Sub-Clause 21.6

The Employer hereby indemnifies and holds the Contractor harmless against all claims, losses, damages and costs of whatsoever nature suffered by the Contractor arising from or in relation to the Employer's (and/or its employees', agents' and sub-contractors') non-compliance with applicable data protection laws and/or other legislation.

Sub-Clause 21.7

The Employer agrees that the Contractor may conduct regular data protection audits on the Employer and undertakes to give its full co-operation in this regard

22 Review Clause

This Agreement is valid from the commencement date outlined herein and is valid until further notice. This Agreement shall be reviewed once every three years; however, in lieu of a review during any period specified, the current Agreement will remain in effect. The Employer reserves the right to reduce or increase the scope of works according to the dictates of the budget, to terminate this contract, and/or to review and terminate this contract as is contemplated in Section 116(1)(b)(iii) of the Local Government: Municipal Finance Management Act 56 of 2003, without adjustment to the agreed rates, sums or fees and without payment of any penalty or surcharge in this regard. The Contractor shall however be entitled to pro-rata payment for all services carried out in terms of any adjustment to the Scope of Work or, in the case of termination, payment for work done.

23 Performance Monitoring

As required by section 116(2)(b) of the Local Government: Municipal Financial Management Act 56 of 2003, the City shall monitor the performance of the contractor/Employer on at least a monthly basis, and the Employer agrees to provide the City with its full cooperation in this regard.

[redacted]

ADVANCE PAYMENT SCHEDULE

This Advance Payment Schedule is to be read in conjunction with Sub-Clauses 14.2 and 14.3 (sub-paragraphs (a) and (e)) in the Particular Conditions. The purpose of this schedule is to itemise specific Plant and Materials not yet brought on to the Site for building into the Permanent Works and for which the Employer is prepared to make advance payments to the Contractor, subject to the conditions below.

The items of Plant and Materials which have been identified by the Employer as being suitable for advance payment in terms of the Contract are listed in the table below. Should an item or items be added to the list at tender stage by a tenderer, such item(s) will not be binding on the Employer.

Plant and Materials which have been manufactured and are stored at places other than the Site:	**Plant and Materials yet to be manufactured and for which a deposit with order is required from the Contractor by a manufacturer/supplier, and which may be stored at places other than the Site after manufacture:**
Steel bridges for sedimentation tanks	Screens at inlet works
Electrical distribution boards	Ultra fine screens
Variable frequency drives (VFDs)	FBDA Blowers
Electrical cables	Imported membranes for membrane bioreactor (MBR) process
FBDA Blowers	Air scour blowers for membrane bioreactor (MBR) process
Imported membranes for membrane bioreactor (MBR) process	UV Equipment
Air scour blowers for membrane bioreactor (MBR) process	Micro screens for pretreatment of ultra filtration (UF) process
De-watering equipment (GBT & BFP)	Imported membranes for pressurized ultra filtration (UF) process
Diesel generators	De-watering equipment (GBT & BFP)
Medium Voltage Panels	Off-site Reuse Pumps
Distribution and power transformers	Raw Sewage Pumps
	Diesel generators
	Variable frequency drives (VFDs)
	Medium Voltage Switchgear Panels
	Distribution and power transformers

Conditions:

1) The Contractor can only rely on advance payment being permitted by the Employer in respect of the Plant and Materials listed in the table above, and in respect of condition 5) below. The Employer may, however, permit advance payment for other Plant and Materials in exceptional circumstances and at its sole discretion, during the course of the Contract, and upon reasonable request from the Contractor.
2) Advance payment for the purposes of deposits will only be provided up to a limit of 30% of the value of any one item being claimed.
3) The Contractor shall provide the Employer with documentary evidence of the terms and conditions for which a deposit with order is required by a manufacturer/supplier, together with the advance payment guarantee.
4) The Contractor will also be permitted to obtain advance payment for the balance of the value of the Plant and Materials in respect of which he has paid a deposit, for an item which after manufacture is stored at a place other than the Site. The Contractor shall, in respect of such payment, provide an advance payment guarantee, either for such balance or, if the advance payment guarantee in respect of the deposit is to be returned by the Employer upon request, for the whole value of the item.
5) In the event of suspension in terms of Sub-Clause 8.10 in the General and Particular Conditions, as referred to in sub-paragraph (a) in Sub-Clause 14.3 in the Particular Conditions, the Employer shall also permit advance payment for Plant and Materials which have not been delivered to Site, subject also to the terms of Sub-Clause 14.2 in the Particular Conditions.

[redacted]

IMPORTED EQUIPMENT CPA

REFER TO ESCALATION CLAUSES TO APPLY TO IMPORTED EQUIPMENT

[redacted]



IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS

Tender No: 146Q/2021/22

The tender specification make allowance for the Tenderer to provide escalation formulas for imported equipment in the following clause:

13.8.3.1.3 Adjustment for variation in labour and material Costs

If the prices for imported Plant and Materials are not fixed, the Contractor shall in his Tender specify the formula for calculating Contract Price Adjustments normally used in the country of manufacture and the indices and relative proportions of labour and material on which his Tender prices are based. Evidence of the indices applicable shall be provided with each claim. The indices applicable 42 days before contractual dispatch date from the factory will be used for the purposes of Contract Price Adjustment.

Failure to specify a formula in the Tender shall mean that the prices are fixed or shall be deemed to be fixed.

Below please find the escalation formulas applicable for imported equipment

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

BOQ Items 3.2.4, 3.2.6, 3.5.1.3 – Perforated drum ultra-fine screens, screenings presses & spares

The indices is based on the 316 s/s price increase index as published on https://legierungszuschlag.info/en/ . The total amount of stainless steel for this shipment is about 28 ton.

The following formula applies: Price increase = Legierungszuslag (LZ) for 1.4571 (at time of purchase) – LZ 1.4571 (now, 3815 Eur/ton)* 28 ton * 1,3 (factor for taxes etc.).

BOQ Item M6 - Mixer gearboxes

Escalation clause 18.3.2 as per tender specifications will also be applicable to the mixer gearboxes.

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

BOQ Items 7.2.1.1, 7.2.1.2, 10.2.2.1, 10.2.2.2, 10.2.2.3 – FBDA blowers, air scour blowers, fittings & instrumentation

Adjustment for variation in labour and material costs for imported Plant and Materials.

Howden propose to offer 2 year validity from the base date 29 April 2022 for the Imported Plant and Materials based on the escalation rate SEIFSA mechanical plant and materials formula as per 13.8.2.2. After 2 years, the prices will be re-validated.

13.8.2.2 Method of Price Adjustment

Adjustment of the total values inserted in the Schedules of Quantities for the design, manufacture, painting, testing, supply, delivery, offloading and storage of Plant and Materials manufactured in the Republic of South Africa shall be based on the following:

(a) The estimated proportions (represented by the coefficients "b", "c", "d" and "e" in the formulae in sub-paragraph (b) below) of the total values shall be adjusted on the basis of the increase or decrease between the indices in the relevant tables at the Base Date and these indices at a date 42 days prior to the valuation date, for each month in which the Plant and Materials are contractually delivered to Site, by multiplying the monthly values certified by the relevant Adjustment Factor in the formulae in sub-paragraph (b) below.

(b) the applicable formulae are:

Mechanical Plant and Materials

$$A = a + b\frac{Ln}{Lo} + c\frac{Mn}{Mo} + d\frac{Sn}{So} + e\frac{SSn}{SSo} - 1$$

where

A	=	Adjustment Factor rounded off to the sixth decimal place	
a	=	0.10	Fixed coefficient (non-adjustable portion)
b	=	0.15	
c	=	0.35	Coefficients (sum of these coefficients shall be 0,90)
d	=	0.25	
e	=	0.15	
Ln	=	Current labour index in Table C3	
Lo	=	Base labour index in Table C3	
Mn	=	Current mechanical engineering materials index in Table G	
Mo	=	Base mechanical engineering materials index in Table G	
Sn	=	Current steel price index in Table E-EX	
So	=	Base steel price index in Table E-EX	
SSn	=	Current stainless steel index type 316 in Table Q-(A)	
SSo	=	Base stainless steel index type 316 in Table Q-(A) "Current" indices are those applicable 42 days prior to date of claim, as stated in sub-paragraph (a) above	

"Base" indices are those applicable at Base Date, as stated in sub-paragraph (a) above

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

BOQ Item M8 - FBDA diffusers

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the FBDA System

$$NP = TP / \left[1 - 0{,}85 \left[0{,}35\left\{\frac{MPPn - MPPb}{MPPb}\right\} + 0{,}2\left\{\frac{MEn - MEb}{MEb}\right\} + 0{,}2\left\{\frac{MPVn - MPVb}{MPVb}\right\} + 0{,}05\left\{\frac{MSSn - MSSb}{MSSb}\right\} + 0{,}15\left\{\frac{LABn - LABb}{LABb}\right\} + 0{,}05\left\{\frac{SHPn - SHPb}{SHPb}\right\}\right]\right]$$

NP = New Price
TP = Tender Price
MPPn = New Material Index (Polypropelene)
MPPb = Base Material Index (Polypropelene)
MEn = New Material Index (EPDM)
MEb = Base Material Index (EPDM)
MPVn = New Material Index (uPVC)
MPVb = Base Material Index (uPVC)
MSSn = New Material Index (stainless steel)
MSSb = Base Material Index (stainless steel)
LABn = New Labour Index
LABb = Base Labour Index
SHPn = New Shipping Index
SHPb = Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Items 10.2.1.1 & 10.2.1.4 – MBR cassettes & On-line performance monitoring

Suez proposed price is subject to adjustment between the period from the expiry of proposal validity until NTP. During this period our price will be adjusted according to any increase in a combination of 2 indices:

1. 60%: PPI Industry Chemicals and Allied Product Industrial Chemicals (WPU061s): https://fred.stlouisfed.org/series/WPU061
2. 40%: CPI for Hungary https://data.worldbank.org/indicator/FP.CPI.TOTL.ZG?locations=HU

BOQ Item M11 - UV Equipment

PRICE ESCALATION

As the duration from the bid submission to the actual equipment delivery is expected to be longer than 1 year, the quoted price shall be subject to price escalation. Price escalation shall be calculated using the following formula:

$$P1 = P0 \times \{ [a \times (Mn/M0)] + [b \times (Sn/S0)] + [c \times (Tn/T0)] \}$$

Where:

P1	=	Adjusted price
P0	=	Contract price
a	=	0.3, Goods coefficient
b	=	0.5, Services coefficient
c	=	0.2, Transportation coefficient
Mn	=	Current Total Manufacturing Industries Index in Table 11, monthly Producer Price Index, not seasonally adjusted; U.S. Bureau of Labor Statistics.
M0	=	Base Date Total Manufacturing Industries Index in Table 11, monthly Producer Price Index, not seasonally adjusted; U.S. Bureau of Labor Statistics.

https://www.bls.gov/web/ppi/ppitable11.pdf

Sn	=	Current Services Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
S0	=	Base Date Services Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
Tn	=	Current Transportation Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
T0	=	Base Date Transportation Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.

https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401&pickMembers%5B0%5D=1.14&cubeTimeFrame.startMonth=01&cubeTimeFrame.startYear=2021&cubeTimeFrame.endMonth=02&cubeTimeFrame.endYear=2022&referencePeriods=20210101%2C20220201

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Item E22 - Instrumentation

Endress & Hauser has advised that their escalation will be 3% per annum – refer screenshot below

6. Commercial Conditions

6.1. This quotation is valid for a period of 30 Days from date of quotation but can be extended on request.
6.2. All pricing is subject to the following
6.2.1. Rate of exchange as indicated.
6.2.1.1. Items 10 to 660: 1Euro = 17.9 ZAR
6.2.1.2. Items 670: 1 CHF = 16.5 ZAR
6.2.1.3. Cost price adjustment as indicated by the inflation numbers published by StatsSA.
6.2.1.4. Annual production centre cost increases, in foreign currency, capped at 3.0% per annum.
6.3. Delivery will be quoted once quantities and point of delivery has been confirmed.
6.4. Complete delivery is estimated to be 10 Weeks from date of order acknowledgment by Endress+Hauser South Africa. Please note that this delivery is to Endress+Hauser Sandton and does not include inspection and delivery to site.
6.5. Endress+Hauser standard Terms & Conditions apply unless agreed upon otherwise.

Regards

[redacted]

Project Manager Managing Director

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Item M19 - Electric actuators

VARIATION OF PRICE

All prices remain firm for the validity of the quotation for the initial order, after which the VOP formula as in 'Appendix A - Variation of Price' will apply for any future orders.

Appendix A – Variation of Price

The Variation of Price formula will use indices provided be the UK 'Office for National Statistics' as indicated below.

Agreed base date is **(Insert date of original quotation).**

If the cost to the Supplier (Rotork) of performing its obligations under the Contract shall be increased by reason of any rise in labour costs or in the cost of material and fuel, the amount of such increase shall be added to the Purchase Price.

Any such variation to the Purchase prices shall be calculated in accordance with the following formula:

$$VOP = MP\ [(A \times La/Lb) + (B \times Ma/Mb) + C\ ] - MP$$

Where:-

VOP	=	Represents the variation in the initial price quoted.
MP	=	Initial prices
A*	=	The labour (including relevant overheads and profits) element of the payment and is 15%.
B*	=	The materials and fuel (including relevant overhead and profit) element of the payment and is 80%.
C*	=	The 5% non variable element of the payment.
Lb	=	The mean labour index for the month of **Insert month of original quotation**
La	=	In the case of the first period the mean published labour index figure for the three months preceding the month containing the initial Order Date. For subsequent pricing, the index will be the mean for the period between the new and the previous Order Date
Mb	=	The material index for the month of **Insert month of original quotation**
Ma	=	In the case of the first period the mean published material index figure for the three months preceding the month containing the initial Order Date. For subsequent pricing, the index will be the mean for the period between the new and the previous Order Date

* Where :A + B + C = 100%

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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The VOP formula is to be used to calculate variations in the cost of materials and labour between **(Insert date of original quotation)** and each future order placed after expiry of the original quotation validity.

VOP Indices

a. **Material Index**
The material indices to be used to calculate the variation in price shall be:

Producer price inflation (MM22) - Office for National Statistics (ons.gov.uk)

Producer price inflation (MM22)

Table 3 (T3b) Price Indices of Materials & Fuels purchased by Group (CPA 2.1)2

Electrical machinery & apparatus n.e.c.

Electrical equipment CPA group C27 GHGS 7398270000

Or alternatively (delete as applicable):

Machinery & equipment n.e.c.

Machinery & equipment N.E.C. CPA group C28 GHGU 7398280000

b. **Labour Index**
The labour index to be used to calculate the variation in price shall be:

EARN03: Average weekly earnings by industry - Office for National Statistics (ons.gov.uk)

Average weekly earnings by industry (Monthly Wages and Salaries Survey)

EARN03 Average Weekly Earnings - Not Seasonally Adjusted Average (NSA) Weekly Earnings - Index Figures Excluding Bonuses, Including Arrears

4. NSA ind index xbia

(C5) K5AE: Manufacturing - Engineering and Allied Industries : Index 2000 = 100:GB

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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M4.2.1.2.b – Drainage sump pump

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP \left\{ 1 - 0{,}85 \left[0{,}65 \left(\frac{MCIn - MCIb}{MCIb} \right) + 0{,}15 \left(\frac{MSSn - MSSb}{MSSb} \right) + 0{,}15 \left(\frac{LABn - LABb}{LABb} \right) + 0{,}05 \left(\frac{SHPn - SHPb}{SHPb} \right) \right] \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.8.a – '24 Scum pumps

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.

$$NP = TP / \left\{ 1 - 0{,}85 \left[0{,}65 \left\{ \frac{MCIn - MCIb}{MCIb} \right\} + 0{,}15 \left\{ \frac{MSSn - MSSb}{MSSb} \right\} + 0{,}15 \left\{ \frac{LABn - LABb}{LABb} \right\} + 0{,}05 \left\{ \frac{SHPn - SHPb}{SHPb} \right\} \right] \right\}$$

NP = New Price
TP = Tender Price
MCIn = New Material Index (cast iron)
MCIb = Base Material Index (cast iron)
MSSn = New Material Index (stainless steel)
MSSb = Base Material Index (stainless steel)
LABn = New Labour Index
LABb = Base Labour Index
SHPn = New Shipping Index
SHPb = Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.9.a – '24 MBR tank feed pumps

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP / \left\{ 1 - 0{,}85 \left(0{,}3 \left[\frac{MCIn - MCIb}{MCIb} \right] + 0{,}5 \left[\frac{MSSn - MSSb}{MSSb} \right] + 0{,}15 \left[\frac{LABn - LABb}{LABb} \right] + 0{,}05 \left[\frac{SHPn - SHPb}{SHPb} \right] \right) \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

- For the Membrane Feed Pumps

$$NP = TP / \left\{ 1 - 0{,}85 \left(0{,}65 \left[\frac{MCIn - MCIb}{MCIb} \right] + 0{,}15 \left[\frac{MSSn - MSSb}{MSSb} \right] + 0{,}15 \left[\frac{LABn - LABb}{LABb} \right] + 0{,}05 \left[\frac{SHPn - SHPb}{SHPb} \right] \right) \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.13.a – '24 MBR service water supply pumps

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.

$$NP = TP / \left\{1 - 0{,}85 \left(0{,}2 \left[\frac{MCIn - MCIb}{MCIb} \right] + 0{,}6 \left[\frac{MSSn - MSSb}{MSSb} \right] + 0{,}15 \left[\frac{LABn - LABb}{LABb} \right] + 0{,}05 \left[\frac{SHPn - SHPb}{SHPb} \right] \right) \right\}$$

NP – New Price
TP – Tender Price
MCIn – New Material Index (cast iron)
MCIb – Base Material Index (cast iron)
MSSn – New Material Index (stainless steel)
MSSb – Base Material Index (stainless steel)
LABn – New Labour Index
LABb – Base Labour Index
SHPn – New Shipping Index
SHPb – Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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M4.2.1.15 – '24 MBR Permeate recycle pumps

Validity

- Prices are valid for 180 days – subject to ROE – Thereafter the following escalations apply –
- 20% of the price is subject to material price increases – escalation of material prices from today to date of order (Steel, copper etc).
- 52% is subject to German CPI index For item 29, 40,41,42,45.9, 19.1 & 19.2
- 52 %is subject to SA cpi For Items 27, 16, 44, 45.4, 45.5, 46.1 , 47.1, 25.7 & 33.
-
- 8% subject to increases in shipping costs
- Balance is fixed.
-

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.16.b – Drainage sump pump

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP / \left\{ 1 - 0{,}85 \left[0{,}05 \left\{ \frac{MCIn - MCIb}{MCIb} \right\} + 0{,}15 \left\{ \frac{MSSn - MSSb}{MSSb} \right\} + 0{,}15 \left\{ \frac{LABn - LABb}{LABb} \right\} + 0{,}05 \left\{ \frac{SHPn - SHPb}{SHPb} \right\} \right] \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.17.a – Overflow dam recycle pumps

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP / \left\{ 1 - 0.85 \left(0.55 \left[\frac{MCIn - MCIb}{MCIb} \right] + 0.15 \left[\frac{MSSn - MSSb}{MSSb} \right] + 0.15 \left[\frac{LABn - LABb}{LABb} \right] + 0.05 \left[\frac{SHPn - SHPb}{SHPb} \right] \right) \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.31.a – General drainage pumps

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP / \left\{ 1 - 0.85 \left(0.65 \left\{ \frac{MCIn - MCIb}{MCIb} \right\} + 0.15 \left\{ \frac{MSSn - MSSb}{MSSb} \right\} + 0.15 \left\{ \frac{LABn - LABb}{LABb} \right\} + 0.05 \left\{ \frac{SHPn - SHPb}{SHPb} \right\} \right) \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M4.2.1.32.a – Ground water drainage pumps

Contract Price Adjustment (CPA) :

- Prices will be subject to a CPA as per below formula if order is placed in 2023 or thereafter.
- For the Recycle Pumps

$$NP = TP / \left\{ 1 - 0{,}85 \left[0{,}05 \left\{ \frac{MCIn - MCIb}{MCIb} \right\} + 0{,}15 \left\{ \frac{MSSn - MSSb}{MSSb} \right\} + 0{,}15 \left\{ \frac{LABn - LABb}{LABb} \right\} + 0{,}05 \left\{ \frac{SHPn - SHPb}{SHPb} \right\} \right] \right\}$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (cast iron)
MCIb - Base Material Index (cast iron)
MSSn - New Material Index (stainless steel)
MSSb - Base Material Index (stainless steel)
LABn - New Labour Index
LABb - Base Labour Index
SHPn - New Shipping Index
SHPb - Base Shipping Index

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

All Stainless Steel Material

From: James Barnard <james@berricktrading.co.za>
Sent: Wednesday, 16 March 2022 14:20
To: Jan Cloete <jcloete@inenzo.com>
Subject: Stainless costings

Hi Jan,

Hereby the information discussed.

The current pricing is in turmoil due to the supply and demand created by the sanctions and uncertainty in Russia. We use two factors to determine costs in stainless steel.

The first would be the Rand to US Dollar rate of exchange, as all the raw materials used to produce stainless is traded in USD.

Meaning that this will affect the costings in both imported and locally produced material.

The second is the Nickle surcharge, attached to stainless with a Nickle component for example 304, 316, 2101, 2304.

Nickle is traded on the London Metals Exchange www.lme.com

Trading was suspended 3 days ago, as it went from +/- $ 50 000.00 per ton to over $ 100 000.00 per ton.

I have attached a newsletter giving more detail around this.

You will have to make your offer subject to changes in the Nickle surcharge.

Also be careful as we have current stock on the floor costings and replacement costings due to the length of project realization.

I hope you find this helpful, shout if you require any further information.

Regards.

[redacted]

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS

Tender No: 146Q/2021/22

BOQ Items M4.2.1.22a/23a/24a/25a/26a/27a NETSZCH PUMPS

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

M4 4.2.1	.22. a WAS dewatering feed pumps- Progressive Cavity	No	8	
	.23. a Primary sludge dewatering feed pumps- Progressive Cavity	No	8	
	.24.a. Primary sludge cake pumps- Progressive Cavity	No	4	
	.25.a. WAS cake pumps- Progressive Cavity	No	4	
	.26.a. WAS poly dosing pumps complete as per specification- Progressive Cavity	No	8	
	.27.a. Primary sludge poly dosing pumps complete as per specification- Progressive Cavity	No	8	

Netzsch pump price escalation formula:

Parameters:

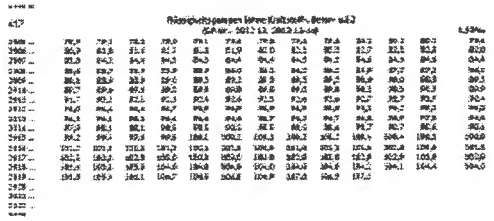
Rate of Exchange (quoted):	ROE[q]
Rate of Exchange (at order time):	ROE[o]
Table 417 index value (at quote time):	I[q]
Table 417 index value (at order time):	I[o]
Local South African CPA:	CPA
Imported content %:	Im
Local content %:	Lo
Base price:	P[b]
Escalated price:	P[e]

P[e] = P[b] x Im% x [ROE [o] / ROE [q]] x [I[o] / I[q]] + P[b] x Lo% x CPA

Notes:

CPA will be the according to the applicable contract CPA from the time of the close of tender until the time of order.

Example of Table 417:



Jan 2013 has relative value of 99.2, Feb 2017 has relative value of 102.8, therefore total inflation between those dates is 3.629% and in the formula above, [I[o] / I[q]] = 1.03629



IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Items M4.2.1b, M4.2.131, M4.2.1.32, M4.2.1.(a)/(b)/6.a - GRUNDFOS SUMP DRAINAGE PUMP

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

M4 4.2.1	.b Drainage sump pump (complete unit)- **1.5lps @10m discharge pressure**	No	1
	.31 General drainage sump pumps as per specification (complete units)	No	14
	.32 Groundwater drainage pumps as per specification (complete units)- **5lps @10m discharge pressure**	No	2
	.b Drainage sump pump (complete unit)	No	1
	.b Drainage sump pump	No	1
	.6 .a '24 Reject Return pumps- **Submersible**	No	3

- For the Groundwater Drainage Pump

$$NP = TP\left[1 - 0{,}9\left[0{,}6\left\{\frac{MCIn - MCIb}{MCIb}\right\} + 0{,}15\left\{\frac{MSSn - MSSb}{MSSb}\right\} + 0{,}2\left\{\frac{MCOn - MCOb}{MCOb}\right\} + 0{,}1\left\{\frac{LABn - LABb}{LABb}\right\} + 0{,}05\left\{\frac{SHPn - SHPb}{SHPb}\right\}\right]\right]$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (Cast Iron)
MCIb - Base Material Index (Cast Iron)
MSSn - New Material Index (Stainless Steel)
MSSb - Base Material Index (Stainless steel)
MCOn - New Material Index (Copper)
MCOb - Base Material Index (Copper)
SHPn - New Shipping Index
SHPb - Base Shipping Index
LABn - New Labour Index
LABb - Base Labour Index

Indexes are to be referenced from www.eurostat.com

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

BOQ Item M4.2.1.32 - GRUNDFOS – Groundwater Discharge Pumps

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

M4 4.2.1	.32 Groundwater drainage pumps as per specification (complete units)- **5lps @10m discharge pressure**	No	2

- For the Groundwater Drainage Pump

$$NP = TP\,f\left[1 - 0{,}9\left[0{,}6\frac{MCIn - MCIb}{MCIb} + 0{,}15\frac{MSSn - MSSb}{MSSb} + 0{,}2\frac{MCOn - MCOb}{MCOb} + 0{,}1\frac{LABn - LABb}{LABb} + 0{,}05\frac{SHPn - SHPb}{SHPb}\right]\right]$$

NP - New Price
TP - Tender Price
MCIn - New Material Index (Cast Iron)
MCIb - Base Material Index (Cast Iron)
MSSn - New Material Index (Stainless Steel)
MSSb - Base Material Index (Stainless steel)
MCOn - New Material Index (Copper)
MCOb - Base Material Index (Copper)
SHPn - New Shipping Index
SHPb - Base Shipping Index
LABn - New Labour Index
LABb - Base Labour Index

Indexes are to be referenced from www.eurostat.com

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Item M23.2.1. GRUNDFOS – Tertiary and Dewatering Pumps

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

	SCHEDULE M23 PUMPS & PIPEWORK		
23.2.1	.1 .a '24 Tertiary treatment service water supply pumps	No	5

M4 4.2.1	.14 .a 24 Dewatering wash water supply pumps	No	4

$$NP = TP\left[1 - 0{,}9\left[0{,}1\left\{\frac{MCIn - mCIb}{MCIb}\right\} + 0{,}6\left\{\frac{MSSn - MSSb}{MSSb}\right\} + 0{,}15\left\{\frac{MCOn - MCOb}{MCOb}\right\} + 0{,}1\left\{\frac{LABn - LABb}{LABb}\right\} + 0{,}05\left\{\frac{SHPn - SHPb}{SHPb}\right\}\right]\right]$$

NP – New Price
TP – Tender Price
MCIn – New Material Index (Cast Iron)
MCIb – Base Material Index (Cast Iron)
MSSn – New Material Index (Stainless steel)
MSSb – Base Material Index (Stainless steel)
MCOn – New Material Index (Copper)
MCOb – Base Material Index (Copper)
SHPn – New Shipping Index
SHPb – Base Shipping Index
LABn – New Labour Index
LABb – Base Labour Index

Indexes are to be referenced from www.eurostat.com

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Items M12.2.1.3 (a)/(b) BELLMER – Dewatering Equipment (Belt Filter Press, Gravity Belt Thickener and Linear Screens)

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

12.2.1	.3 Primary belt filter presses complete as per	No	8
12.2.1	specification		
12.2.2	a) Gravity belt thickener / linear screen	No	8
12.2.2	b) Belt filter press	No	8

M. PRICE ESCALATION FORMULA

$$P_c = P_q \times \frac{I_c}{I_r}$$

P_c: **Current Price**
Calculated current item unit price / item total price based on the chosen price in this quotation.

P_q: **Price in this quotation**
Item price within this quotation: item unit price if any resp. item total price if no unit price is given.

I_c: **Current Index**
Normalized index (2015 = 100) of producer prices mechanical engineering GP09-28 released by the Federal Statistical Office of Germany under https://www.destatis.de for the previous month calculated from the date of purchase order receipt. This current index shall be ≥ 108,4.

I_r: **Reference Index**
Normalized index (2015 = 100) of producer prices mechanical engineering GP09-28 released by the Federal Statistical Office of Germany under https://www.destatis.de for the annual average of 2021 =108,4.

The above mentioned normalized index GP09-28 covers raw materials, its manufacturing and corresponding services and therefore has to be applied on each item within this quotation.

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Item M22.2.1 Micro Screens

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

22.2	**MANUFACTURE, FACTOR ACCEPTANCE TEST,**		
	TRANSPORT AND DELIVERY TO SITE		
	Disc Screens		
22.2.1	New sintered wire mesh disc micro screens,		
	including control panel and electrical connections	No	6

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

M. PRICE ESCALATION FORMULA

$$P_c = P_q \times \frac{I_c}{I_r}$$

P_c: **Current Price**
Calculated current item unit price / item total price based on the chosen price in this quotation.

P_q: **Price in this quotation**
Item price within this quotation: item unit price if any resp. item total price if no unit price is given.

I_c: **Current Index**
Normalized index (2015 = 100) of producer prices mechanical engineering GP09-28 released by the Federal Statistical Office of Germany under https://www.destatis.de for the previous month calculated from the date of purchase order receipt. This current index shall be ≥ 108,4.

I_r: **Reference Index**
Normalized index (2015 = 100) of producer prices mechanical engineering GP09-28 released by the Federal Statistical Office of Germany under https://www.destatis.de for the annual average of 2021 =108,4.

The above mentioned normalized index GP09-28 covers raw materials, its manufacturing and corresponding services and therefore has to be applied on each item within this quotation.

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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BOQ Item M24.2.1 UF UV Disinfection Equipment -

Prices for the below imported Plant and Materials are not fixed, and will be subject to Contract Price Adjustments in accordance with the below listed CPA formula(e) and indices.

SOQ Extract:

ITEM	DESCRIPTION	UNIT
24.2.1	'24 UF UV System	
24.1.1	.1 Closed UV disinfection reactors-FLEX	-
-	(complete with lamps, cleaning devices,	-
24.1.1	mounting, draining, valves, connections, etc.)	Sum
-	-	-
-	.2 UV Panels complete with power distribution	-
-	centre and system control centre	Sum
-	-	-
-	.3 Equipment associated with closed vessel	-
-	UV reactor	Sum
-	-	-
-	.4 Automatic chemical / mechanical cleansing	Sum
-	equipment	-
-	-	-
-	.5 Online monitoring equipment required for	Sum
-	dose adjustment (e.g. UVt, Temp, etc.)	-
-	-	-
-	.6 Operator safety equipment as per manufactures	-
-	recommendations	Sum

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS

Tender No: 146Q/2021/22

PRICE ESCALATION

As the duration from the bid submission to the actual equipment delivery is expected to be longer than 1 year, the quoted price shall be subject to price escalation. Price escalation shall be calculated using the following formula:

P1 = P0 x { [a x (Mn/M0)] + [b x (Sn/S0)] + [c x (Tn/T0)] }

Where:

P1	=	Adjusted price
P0	=	Contract price
a	=	0.3, Goods coefficient
b	=	0.5, Services coefficient
c	=	0.2, Transportation coefficient
Mn	=	Current Total Manufacturing Industries Index in Table 11, monthly Producer Price Index, not seasonally adjusted; U.S. Bureau of Labor Statistics.
M0	=	Base Date Total Manufacturing Industries Index in Table 11, monthly Producer Price Index, not seasonally adjusted; U.S. Bureau of Labor Statistics.

https://www.bls.gov/web/ppi/ppitable11.pdf

Sn	=	Current Services Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
S0	=	Base Date Services Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
Tn	=	Current Transportation Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.
T0	=	Base Date Transportation Index in Table 18-10-0004-01 Consumer Price Index, monthly, not seasonally adjusted for state of Ontario, Canada.

https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1810000401&pickMembers%5B0%5D=1.14&cubeTimeFrame.startMonth=01&cubeTimeFrame.startYear=2021&cubeTimeFrame.endMonth=02&cubeTimeFrame.endYear=2022&referencePeriods=20210101%2C20220201

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
Tender No: 146Q/2021/22

BOQ Item M1.4.13 Chemicals – Polyelectrolyte For the dewatering plant

Polyeletrolyte which is to be utilised during the running of the old/new dewatering equipment will be supplied under the Contract, and will be subject to consumer price adjustment in accordance with the below formula(e).

See the below listed SOQ items for which the rise and fall of chemical prices will be applicable:

ITEM	DESCRIPTION	UNIT
M 1.4.13	.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of temporary operational period	Sum
M 1.4.15	Execution of Trial operation Period .2 Supply of consumables (i.e chemicals, lubrication, fuel, etc) for execution of temporary operation period	Sum
1.4.16	Refill and replenish consumables at the start of the defects and Notifications Period a) Polymer in granular form for primary sludge stream	Sum
1.4.17	Refill and replenish consumables at the start of the defects and Notifications Period b) Polymer in granular form for waste activated sludge stream	

- The product consists of two components, i.e. Imported Component (IC) - 85% and the Local Component (LC) – 15%
- The 85% (IC) is adjusted regularly, generally quarterly for Exchange Rate and as well as ACN.
- The Exchange Rate adjustment is basically your 85% x Base ROE/New ROE.
- For ACN the adjustment follows the formula **P = P0 + 0,6 (ACN - ACN0)**
    - Where P = the new 85% price being determined
    - P0 = Base price (85% of the base price) at the time of submission.
    - ACN is the Acrylonitrile price at the time of revision.

[redacted]

IMPORTED EQUIPMENT ESCALATION CLAUSES

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT WORKS
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- ACN0 is the base Acrylonitrile price at the time of submission.
- NB:- Acrylonitrile price is averaged on a quarter to quarter basis, for example, ACN0 will be an average of Acrylonitrile price of the quarter preceding the submission and of course, ACN will be the quarter just preceding your revision.

- The 15% (LC) is generally adjusted for your local inflation (CPI or PPI).

[redacted]

Annexure A: Form of Performance Guarantee

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Form of Performance Guarantee

PERFORMANCE GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

"Physical address: .....

"Employer" means: The City of Cape Town, WATER AND SANITATION.

"Contractor" means: .....

"Engineer" means: .....

"Works" means: .....

"Site" means: The site as defined in the Contract Data.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R.....

Amount in words: .....

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words: .....

"Expiry Date" means: The date of issue by the Engineer of the Performance Certificate.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Performance Certificate as defined in the Contract.

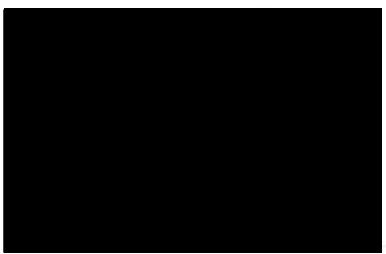
PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Performance Certificate has been issued.

3. The Guarantor hereby acknowledges that:

3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;



3.2 its obligation under this Performance Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or

5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and

5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9. 9. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

10. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

11. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

12. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

13. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

[redacted]

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....

[redacted]

ANNEXURE

LIST OF APPROVED FINANCIAL INSTITUTIONS

The following financial institutions are currently (as at 12 October 2021) approved for issue of contract guarantees to the City:

[redacted]

[redacted]

Annexure B: Form of Advance Payment Guarantee

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Form of Advance Payment Guarantee

ADVANCE PAYMENT GUARANTEE

For use with the Conditions of Contract as described in C1.2: Contract Data Part 1: Contract Data provided by the Employer

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

"Physical address: .....

"Employer" means: The City of Cape Town, WATER AND SANITATION.

"Contractor" means: .....

"Engineer" means: .....

"Works" means: .....

"Site" means: The site as defined in the Contract Data.

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Plant and Materials" means: The Plant and Materials stored at places other than the Site, or in respect of which an advance payment prior to manufacture is required, which the Employer has agreed may be subject to advance payment, such Plant and Materials being listed in the Schedule of Plant and Materials.

"Schedule of Plant and Materials" means: A list of Plant and Materials which shows the value thereof to be included in the Guaranteed Advance Payment Sum.

"Guaranteed Advance Payment Sum" means: The maximum aggregate amount of R.....

Amount in words: .....

"Expiry Date" means: The date of the payment certificate wherein the Plant and Materials have been certified by the Engineer as having been built into the Permanent Works.

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates and Final Payment Certificate.

ADVANCE PAYMENT GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Advance Payment Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Advance Payment Guarantee and up to and including the Expiry Date or the date of payment in full of the Guaranteed Advanced Payment Sum, whichever occurs first.



3. The Guarantor hereby acknowledges that:

3.1 any reference in this Advance Payment Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;

3.2 its obligation under this Advance Payment Guarantee is restricted to the payment of money.

4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) calendar days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.

5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Advance Payment Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Advance Payment Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Advance Payment Guarantee is called up in terms of 5; or

5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Advance Payment Guarantee is called up in terms of 5; and

5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.

8. 8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Advance Payment Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

10. This Advance Payment Guarantee is neither negotiable nor transferable and shall expire in terms of 2, whereafter no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

11. This Advance Payment Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

12. Where this Advance Payment Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at .....

[redacted]

Date .....

Guarantor's signatory (1) .....

Capacity .....

Guarantor's signatory (2) .....

Capacity .....

Witness signatory (1) .....

Witness signatory (2) .....



Schedule of Plant and Materials

For use with Advance Payment Guarantees on contracts using the General Conditions of Contract for Plant and Design-Build for Electrical and Mechanical Works and for Building and Engineering Works Designed by the Contractor, First Edition, 1999 (Yellow Book) published by the International Federation of Consulting Engineers (FIDIC).

Employer

Contractor .....

Works Contract No. and Title.....

Payment Certificate No. .....

Advance payment is requested in respect of the following items of Plant and Materials, which have been manufactured and are stored at places other than the Site, or in respect of which a deposit with order is required from the Contractor by a manufacturer/supplier:

Schedule of Quantities item no.	Description of Plant and Materials	Deposit with order required (Y/N)	Place of storage (or manufacture, if deposit with order is required)	Unit	Quantity	Unit price R c	Total Price R c
Total Value of Plant and Materials to be included in Guaranteed Advance Payment Sum						R	

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

.....
for the Contractor

.....
As witness

.....
Approved by Engineer

Annexure C: Occupational Health and Safety Agreement

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Occupational Health and Safety Agreement

AGREEMENT MADE AND ENTERED INTO BETWEEN THE CITY OF CAPE TOWN (HEREINAFTER CALLED THE "EMPLOYER") AND

..... PCI / INENZO / RAUBEX / DEVCOTECH CONSORTIUM ,
(Contractor/Mandatary/Company/CC Name)

IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993 AS AMENDED.

I, [redacted] , representing

..... CONSORTIUM , as an Employer
in its own right, do hereby undertake to ensure, as far as is reasonably practicable, that all work will be performed, and all equipment, machinery or plant used in such a manner as to comply with the provisions of the Occupational Health and Safety Act (OHSA) and the Regulations promulgated thereunder.

I furthermore confirm that I am/we are registered with the Compensation Commissioner and that all registration and assessment monies due to the Compensation Commissioner have been fully paid or that I/We are insured with an approved licensed compensation insurer.

COID ACT Registration Number: .....

OR Compensation Insurer: ..... Policy No.: .....

I undertake to appoint, where required, suitable competent persons, in writing, in terms of the requirements of OHSA and the Regulations and to charge him/them with the duty of ensuring that the provisions of OHSA and Regulations as well as the Council's Special Conditions of Contract, Way Leave, Lock-Out and Work Permit Procedures are adhered to as far as reasonably practicable.

I further undertake to ensure that any sub-contractors employed by me will enter into an occupational health and safety agreement separately, and that such sub-contractors comply with the conditions set.

I hereby declare that I have read and understand the Occupational Health and Safety Specifications contained in this tender and undertake to comply therewith at all times.

I hereby also undertake to comply with the Occupational Health and Safety Specification and Plan submitted and approved in terms thereof.

Signed at CAPE TOWN on the 13 day of APRIL 20 23

[redacted]
Witness

[redacted]
Mandatary

Signed at CAPE TOWN on the 17 day of APRIL 20 23

[redacted]
Witness

[redacted]
for and on behalf of
City of Cape Town

[redacted]

Annexure D: Protection of the Environment Declaration

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Protection of the Environment Declaration

PROTECTION OF THE ENVIRONMENT DECLARATION

The Contractor will not be given right of access to the Site until this form has been signed

CONTRACT NO.: **146Q/2021/22**

CONTRACT TITLE: **DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT**

I/ we, PCI / INENZO / RAUBEX / DEVOTECH CONSORTIUM. {Contractor} record as follows:

1. I/ we, the undersigned, do hereby declare that I/ we am/ are aware of the increasing requirement by society that construction activities shall be carried out with due regard to their impact on the environment.

2. In view of this requirement of society and a corresponding requirement by the Employer with regard to this Contract, I/ we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I/ we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I/ we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.

3. I/ we declare that I/ we have read and understood the contents of the Environmental Management Programme (which is comprised of the Environmental Management Specification and its Annexures) for this Contract, and that I/ we understand my/our responsibilities in terms of enforcing and implementing the Environmental Management Programme. I/ we also declare that I/ we have made appropriate provision in my/ our pricing of the Schedules of Quantities items for the Environmental Management Programme.

4. I/ we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me/ us, such amounts (hereinafter referred to as fines) as the Engineer shall certify as being warranted in view of my/ our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:

4.1 The Engineer, in determining the amount of such fine, shall take into account, *inter alia*, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance/non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate/reduce future occurrences

4.2 The Engineer shall, with respect to any fine imposed, provide me/ us with a written statement giving details of the offence, the facts on which the Engineer has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed [redacted] Date 14/03/2023

CONTRACTOR

[redacted]

Annexure E: Insurance Broker's Warranty

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Insurance Broker's Warranty

Pro Forma

Logo

Letterhead of Contractor's Insurance Broker

Date _____

CITY OF CAPE TOWN
City Manager
Civic Centre
12 Hertzog Boulevard
Cape Town
8001

Dear Sir

CONTRACT NO.: 146Q/2021/22

CONTRACT TITLE: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

NAME OF CONTRACTOR: _____

I, the undersigned, do hereby confirm and warrant that all the insurances required in terms of the abovementioned contract have been issued and/or in the case of blanket/umbrella policies, have been endorsed to reflect the interests of the CITY OF CAPE TOWN with regard to the abovementioned contract, and that all the insurances and endorsements, etc., are all in accordance with the requirements of the contract.

I furthermore confirm that all premiums in the above regard have been paid.

Yours faithfully

Signed: _____

For: _____

[redacted]

PART 4: PRICING DATA



CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

C2.1 Pricing Assumptions

Pricing Assumptions mean the criteria as set out below, read together with all Parts of this contract document, which it will be assumed in the contract, that the tenderer has taken into account when developing his prices.

1. Pricing of Mechanical and Electrical Works shall be conducted in the following manner:

   a. Design and Drawings
   With reference to clause 5 [Design] of the General Conditions of Contract, the Contractor shall carry out and be responsible for the design of the Works and the tenderer shall include, under the respective payment items for Design and Drawings for the detail design and submission of associated General Arrangement (GA), Process and Instrumentation Diagrams (P&IDs), workshop drawings and equipment data packs for the respective equipment and/or system.

   The Engineer's design included in the tender shall be seen as conceptual in nature for tendering purposes and hence detailed designs shall be required for all equipment and/or systems included in the tender in accordance with the Employer's Requirements.

   b. Manufacture, supply and delivery to Site
   The prices quoted for the manufacture and supply of plant and equipment shall make provision for:
   - Supply of all materials, labour and plant required for manufacturing purposes;
   - Application of any/all factory-applied corrosion protection;
   - Execution of any/all factory-acceptance testing;
   - Loading, handling, shipping, transport, delivery to and off-loading at the Site;
   - Double handling in cases where immediate installation is not possible.
   - All relevant fixing hardware (i.e. nuts, bolts, washers, gaskets etc.)

   Unless otherwise specified, the attendance of any factory-acceptance tests outside the border of South Africa by the Engineer and Employer shall not be required.

   c. Installation
   The prices quoted for erection and/or installation shall make provision for:
   - Supply of all rigging and associated equipment for the handling, alignment and fixing in final position;
   - Repair of damaged corrosion protection;
   - Painting as per specified colour coding;
   - Supply and installation of first charge consumable i.e. oil, grease etc.;
   - Guaranteeing for the period of the defects notification period
   - Full servicing, including replacement of all consumables, at the end of the defects notification period.

   If the supply of the first charge chemicals (ferric chloride, lime, poly electrolyte etc.) is required a separate payment item shall be provided.

   d. Testing and Commissioning
   The prices quoted for the testing and commissioning of equipment and/or systems shall make provision for the supply of all required testing apparatus, drafting of functional design specifications and testing plans, attendance on Site of any/all commissioning experts and specialists, operating, mechanical and electrical testing, adjusting, optimizing in order to commence with the Trial Operation Period (if applicable) or handing over in proper working condition.

   e. Trial Operation Period
   Unless otherwise specified, a Trial Operation Period shall be applicable to the Contract and adequate allowance shall be made in terms of costs, resources and programming. The requirements of the Trial Operation Period shall be included under Project Specification.

[redacted]

f. Scope
The Employer reserves the right to sub-divide the contract or omit certain portions thereof. Prices quoted under a specific Section or Schedule shall be deemed to apply to that Section or section of work only.

2. Descriptions in the Schedules of Quantities are abbreviated and comply generally with those in the Standardised Specifications. The applicable clause of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Schedule, the requirements of the Standardised Specification or Scope of Work, as applicable, shall prevail.

3. The measurement and payment clauses in a specification in which further information regarding the scheduled items is given, are referenced under "Item" (pay items) in the Schedules of Quantities. The referenced clauses are not necessarily the only sources of information in respect of scheduled items. Further information and specifications may be found elsewhere in the contract documents.

4. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

5. The quantities set out in the Schedules of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

6. The prices and rates to be inserted in the Schedule of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution 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, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

7. A price or rate should be entered against each item in the Schedules of Quantities, whether the quantities are stated or not. An item against which no price (in any format) or a nil rate is entered will be considered to be covered by the other prices or rates in the Schedules of Quantities, and that there is no charge for that particular item (even if the quantity subsequently increases).

8. Except where rates only are required, insert all amounts to be included in the total tendered price in the "Amount" column and show the corresponding total tendered price.

9. Items have been provided where any further items considered necessary by the Tenderer can be priced. The Tenderer must provide full details of what has been allowed for with his Tender under these items.

10. The units of measurement described in the Schedule of Quantities are metric units. Abbreviations which may be used in these Schedule of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000 kg)
m2	=	square metre	No.	=	number
m2.pass	=	square metre-pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m3	=	cubic metre	MN.m	=	meganewton-metre
m3.km	=	cubic metre-kilometre	P C sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	per cent
MPa	=	megapascal	kW	=	kilowatt
Days	=	"Day" as defined in the Conditions of Contract			

11. Where fractions of a cent occur in calculations of prices and amounts, they shall be rounded up/down to the nearest whole cent.

12. The Tenderer is referred to F2.24 in Part T1.2 Tender Data regarding the pricing of Deviations and/or Qualifications.

Clause C.2.13.11 c) in Part T1.2 Tender Data shall be applicable to the submission of Schedules of Quantities which have been priced electronically, and which the Tenderer wishes to submit as a printed



version with his/her tender in the place of handwritten priced Schedule of Quantities. If there is found to be any variance between the printed version and the original issued document, the original shall stand. However, where addenda have been issued which amend the Schedules of Quantities, then the printed Schedules of Quantities shall take these into account.

13. Tenderers are referred to Clause 8 Measurement and Payment in the Environmental Management (EM) Specification in Part C3.5 in the Scope of Work for the basic principles of measurement and pricing of the EM Specification.

14. All descriptions or clauses where trade names or proprietary products are specified, are deemed to include the phrase "or equal approved"

15. Tenderers are referred to Sub-Clause 13.8 in the Appendix to Tender in Part C1.2 Contract Data regarding contract price adjustment.

16. Design of the Works, Contractor's Documents (including "as built" drawings and Manual), and design for the manufacture of materials and equipment, must be priced and will be paid for as follows:

    a) An item is provided in the Schedules of Quantities (Schedule No. 1, General Requirements and Conditions) for Design of the Works and submission of Contractor's Documents – this item includes *inter alia* the Contractor's obligations under Clause 2 in Part C3.2 Engineering, up to Sub-Clause 2.3.

    b) Items are provided in the Schedules of Quantities for Providing "as built" drawings, and draft and final copies of the Installation, Operation and Maintenance Manuals – these items cover the Contractor's obligations under Clause 2 in Part C3.2 Engineering, Sub-Clauses 2.4 and 2.5.

    c) Items of materials and equipment are provided in the Schedules of Quantities under headings containing the words "design, manufacture, painting, testing, supply, delivery, offloading and storage" – "design" in these items will usually only be paid upon supply of the materials and equipment, but may be paid for separately at the discretion of the Engineer.

[redacted]

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SCHEDULE NO. M.26	LIFTING EQUIPMENT	M26-1
SCHEDULE NO. M.27	CHANNEL GATES, SLUICE GATES AND VALVES	M27-1
SCHEDULE NO. E.1	ESKOM BULK SUPPLY WORKS	E1-1



SCHEDULE NO. E.2	MV SWITCHGEAR INCOMER SUBSTATION	E2-1
SCHEDULE NO. E.3	BATTERY TRIPPING UNITS AND BATTERIES	E3-1
SCHEDULE NO. E.4	SUBSTATION EARTHING	E4-1
SCHEDULE NO. E.5	PROTECTION SCHEMES	E5-1
SCHEDULE NO. E.6	GENERATOR INSTALLATION	E6-1
SCHEDULE NO. E.7	MEDIUM VOLTAGE SWITCHGEAR	E7-1
SCHEDULE NO. E.8	POWER TRANSFORMERS	E8-1
SCHEDULE NO. E.9	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	E9.1
SCHEDULE NO. E.10	PROGRAMMABLE & LOGIC CONTROLLERS	E10-1
SCHEDULE NO. E.11	CONTROL INSTRUMENTATION SYSTEM	E11-1
SCHEDULE NO. E.12	GENERAL AND MISCELLANEOUS	E12-1
SCHEDULE NO. E.13	EARTHING & LIGHTNING PROTECTION	E13-1
SCHEDULE NO. E.14	MULTICORE CABLES & EARTH WIRES	E14-1
SCHEDULE NO. E.15	MEDIUM VOLTAGE SWITCHGEAR	E15-1
SCHEDULE NO. E.16	RING MAIN UNITS	E16-1
SCHEDULE NO. E.17	POWER TRANSFORMERS	E17-1
SCHEDULE NO. E.18	MINIATURE SUBSTATIONS	E18-1
SCHEDULE NO. E.19	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	E19-1
SCHEDULE NO. E.20	PROGRAMMABLE & LOGIC CONTROLLERS	E20-1
SCHEDULE NO. E.21	SCADA SYSTEM	E21-1
SCHEDULE NO. E.22	CONTROL INSTRUMENTATION SYSTEM	E22-1
SCHEDULE NO. E.23	GENERAL AND MISCELLANEOUS	E23-1
SCHEDULE NO. E.24	EARTHING & LIGHTNING PROTECTION	E24-1
SCHEDULE NO. E.25	SITE LIGHTING	E25-1
SCHEDULE NO. E.26	MULTICORE CABLES & EARTH WIRES	E26-1
SCHEDULE NO. E.27	SECURITY	E27-1
SCHEDULE NO. E.28	ACCESS CONTROL SYSTEM	E28-1



Schedule of Quantities – Mechanical and Electrical Works

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
1	*Part C1*	**SCHEDULE NO. 1**				
	Part C3	**GENERAL REQUIREMENTS AND CONDITIONS**				
1.1		**ENTIRE CONTRACT**				
		FIXED-CHARGE ITEMS				
1.1.1		Contractual Requirements	Sum	-	-	56 293 875.00
		Establishment of Facilities on Site				
1.1.2		.1 Facilities for the Engineer Dwg 3089.10.01.AAC.01.U001 & U002	Sum	-	-	188 146.41
1.1.3		a) Furnished offices, latrines and carports	Sum	-	-	166 419.62
		.2 Facilities for the Contractor				
1.1.4		a) Offices and storage sheds	Sum	-	-	1 434 122.49
1.1.5		b) Workshops	Sum	-	-	37 732.04
1.1.6		c) Laboratories	Sum	-	-	0.00
1.1.7		d) Ablution and latrine facilities	Sum	-	-	116 050.00
1.1.8		e) Tools and equipment	Sum	-	-	242 189.00
1.1.9		f) Water supplies, power and communication	Sum	-	-	286 408.00
		Occupational Health and Safety				
1.1.10		Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety Specification	Sum	-	-	490 681.32
		Environmental Management				
1.1.11		Compliance with Environmental Management Plan	Sum	-	-	168 600.00
		TIME-RELATED ITEMS				
1.1.12		Contractual requirements	month	**67**	129 946.74	8 706 431.58
		Operation and maintenance of facilities on the Site for the duration of construction				
1.1.13		.1 Facilities for the Engineer	month	67	5 827.61	390 449.87
1.1.14		.2 Facilities for the Contractor	month	67	147 455.50	9 879 518.50
1.1.15		.3 Supervision for the duration of installation	month	67	**2 047 823.00**	**137 204 156.94**
				Carried Forward		215 604 780.77

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				215 604 780.77
		Other time-related charge obligations				
1.1.16		..... (Contractor to specify)	Sum	-	-	0.00
		Occupational Health and Safety				
1.1.17		Compliance with Occupational Health and Safety Act (Act 85 of 1993) and its regulations and with the Employers Health and Safety Specification	month	67	86 958.59	5 826 225.53
		Environmental Management				
1.1.18		Compliance with Environmental Management Plan	month	67	10 364.00	694 388.00
		OTHER GENERAL CHARGES				
1.1.19		Arrangements and hosting of the design workshop as specified in Clause C3.2.5.1	No	12	43 878.00	526 536.00
1.1.20		Arrangements and hosting of the HAZOP workshop as specified in Clause C3.2.5.2	No	2	661 512.00	1 323 024.00
1.1.21		Provide as-built drawings	Sum	-	-	0.00
1.1.22		Provide Operational & Maintenance Manuals	Sum	-	-	0.00
1.1.23		Training	Sum	-	-	0.00
		Co-ordination meetings (Refer Sub-clause 4.6 of GCC)				
1.1.24		.1 Attending and hosting program co-ordination meetings with Civil Contractor for duration of Contract	Sum	-	-	492 463.00
1.2		**SECTION A**				
		Preliminary and General charges for Section A as defined in Clause 1.1.5.6 of Part C1.2-Contract Data				
		FIXED-CHARGE ITEMS				
1.2.1		Contractual Requirements	Sum	-	-	2 729 477.57
		Establishment of Facilities on Site				
1.2.2		.2 Facilities for the Contractor	Sum	-	-	0.00
		Carried Forward				227 196 894.87

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				227 196 894.87
1.2.3		Other fixed-charge obligations	Sum	-	-	0.00
1.2.4		Removal of Contractor's and Engineers site establishment on completion	Sum	-	-	0.00
		TIME-RELATED ITEMS				
1.2.5		Contractual requirements	month	34	221 953.00	7 546 402.00
		Operation and maintenance of facilities on the Site for the duration of construction				
1.2.6		.2 Facilities for the Contractor	month	34	0.00	0.00
1.2.7		Supervision for duration of installation	Sum	-	-	1 587 613.30
		OTHER GENERAL CHARGES				
1.2.8		Provide as-built drawings	Sum	-	-	123 634.00
1.2.9		Provide Operational & Maintenance Manuals	Sum	-	-	224 326.00
1.2.10		Training	Sum	-	-	421 056.00
		Execution of Trail Operation Period				
1.2.11		.1 Attendance and equipment for execution of 12 month Trial Operation Period	Sum	-	-	3 640 560.00
1.2.12		.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of 12 month Trial Operation Period	Sum	-	-	4 880 901.00
		Refill and replenish consumables at the start of the Defects and Notification Period				
1.2.13		a) Citric Acid made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	78 615.00
1.2.14		b) Sodium Hypochlorite made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	391 207.00
		Carried Forward				246 091 209.17

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				246 091 209.17
1.2.15		c) Sulphuric acid in made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	53 870.00
1.2.16		d) Sodium metabisulfide in made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	11 800.00
1.2.17		e) Sodium hydroxide in made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	63 586.00
1.2.18		Maintaining and upholding of Works during Defects and Notification Period .1 Attendance and equipment for execution of 12 month Defects and Notification Period	Sum	-	-	23 040.00
1.2.19		Allow for any additional Cost and profit required per day in the event of access to, and possession of, the Site not being available within the times stated in the Appendix to Tender and the resultant delay in the commencement of testing and commissioning on Site as per Sub-Clause 2.1 and 8.4 (e) of the Conditions of Contract, for:	Days	20		No cost for 20 days thereafter subject to value as determined by FIDIC
1.2.20		Allow for any additional Cost and Profit required per day in the event of a delay in the testing and commissioning on Site and the resultant delay in the commencement of the Defects Notification Period from causes not attributable to the Contractor, as per Sub-Clause 10.3 (b) and 7.4 (b) of the Conditions of Contract.	Days	20		No cost for 20 days thereafter subject to value as determined by FIDIC
1.2.21		Allow for all costs and expenses in leaving Site and returning at a later date due to causes not attributable to the Contractor.	Sum	-	-	0.00
1.3		**SECTION B** Preliminary and General charges for Section B as defined in Clause 1.1.5.6 of Part C1.2-Contract Data **FIXED-CHARGE ITEMS**				
1.3.1		Contractual Requirements Establishment of Facilities on Site	Sum	-	-	297 423.63
		Carried Forward				246 540 928.79

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				246 540 928.79
1.3.2		.2 Facilities for the Contractor	Sum	-	-	0.00
1.3.3		Other fixed-charge obligations	Sum	-	-	0.00
1.3.4		Removal of Contractor's and Engineers site establishment on completion	Sum	-	-	0.00
		TIME-RELATED ITEMS				
1.3.5		Contractual requirements	month	44	0.00	0.00
		Operation and maintenance of facilities on the Site for the duration of construction				
1.3.6		.2 Facilities for the Contractor	month	44	0.00	0.00
1.3.7		Supervision for duration of installation	Sum	-	-	97 629.92
		OTHER GENERAL CHARGES				
1.3.8		Provide as-built drawings	Sum	-	-	26 240.00
1.3.9		Provide Operational & Maintenance Manuals	Sum	-	-	32 800.00
1.3.10		Training	Sum	-	-	9 840.00
		Maintaining and upholding of Works during Defects and Notification Period				
1.3.11		.1 Attendance and equipment for execution of 12 month Defects and Notification Period	Sum	-	-	46 080.00
1.4		**SECTION C SUB-SECTION A**				
		Preliminary and General charges for Section C-Sub-section A as defined in Clause 1.1.5.6 of Part C1.2-Contract Data				
		FIXED-CHARGE ITEMS				
1.4.1		Contractual Requirements	Sum	-		297 423.63
		Establishment of Facilities on Site				
1.4.2		.2 Facilities for the Contractor	Sum	-		0.00
1.4.3		Other fixed-charge obligations	Sum	-		0.00
						247 050 942.34

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				247 050 942.34
1.4.4		Removal of Contractor's and Engineers site establishment on completion	Sum	-		0.00
		TIME-RELATED ITEMS				
1.4.5		Contractual requirements	month	55	190 798.00	10 493 890.00
		Operation and maintenance of facilities on the Site for the duration of construction				
1.4.6		.2 Facilities for the Contractor	month	55	0.00	0.00
1.4.7		Supervision for duration of installation	Sum	-	-	3 908 287.40
		OTHER GENERAL CHARGES				
1.4.8		Provide as-built drawings	Sum	-	-	172 331.00
1.4.9		Provide Operational & Maintenance Manuals	Sum	-	-	224 326.00
1.4.10		Training	Sum	-	-	413 075.00
1.4.11		**Supply,commission, operation and decommission temporary plant, equipment and materials required for the change over from existing to new sludge management facility. Refer to Part C3.5 Clause 3.5.5.3.**	Sum	-	-	2 125 300.00
		Execution of Temporary Operation Period from RFC to RFTO				
1.4.12		.1 Attendance and equipment for execution of temporary operation period	Sum	-	-	5 305 393.00
1.4.13		.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of temporary operational period	Sum	-	-	23 135 742.00
		Execution of Trail Operation Period				
1.4.14		.1 Attendance and equipment for execution of 12 month Trial Operation Period	Sum	-	-	3 034 122.00
1.4.15		.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of 12 month Trial Operation Period	Sum	-	-	8 998 461.00
		Carried Forward				304 861 869.74

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				304 861 869.74
		Refill and replenish consumables at the start of the Defects and Notification Period				
1.4.16		a) Polymer in granular form for primary sludge stream	tonne	9	64 425.00	579 825.00
1.4.17		b) Polymer in granular form for waste activated sludge stream	tonne	9	64 425.00	579 825.00
		Maintaining and upholding of Works during Defects and Notification Period				
1.4.18		.1 Attendance and equipment for execution of 12 month Defects and Notification Period	Sum	-	-	23 040.00
1.5		**SECTION C**				
		Preliminary and General charges for Section C as defined in Clause 1.1.5.6 of Part C1.2-Contract Data				
		FIXED-CHARGE ITEMS				
1.5.1		Contractual Requirements	Sum	-	-	14 625 279.45
		Establishment of Facilities on Site				
1.5.2		.2 Facilities for the Contractor	Sum	-	-	0.00
1.5.3		Other fixed-charge obligations	Sum	-	-	3 512 551.94
1.5.4		Removal of Contractor's and Engineers site establishment on completion	Sum	-	-	0.00
		TIME-RELATED ITEMS				
1.5.5		Contractual requirements	month	**55**	598 201.91	32 901 105.05
		Operation and maintenance of facilities on the Site for the duration of construction				
1.5.6		.2 Facilities for the Contractor	month	**55**	0.00	0.00
1.5.7		Supervision for duration of installation	Sum	-	-	2 125 837.40
		Carried Forward				359 209 333.57

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				359 209 333.57
		OTHER GENERAL CHARGES				
1.5.8		Provide as-built drawings	Sum	-	-	164 409.00
1.5.9		Provide Operational & Maintenance Manuals	Sum	-	-	365 291.00
1.5.10		Training	Sum	-	-	646 075.00
		Execution of Trail Operation Period				
1.5.11		.1 Attendance and equipment for execution of 12 month Trial Operation Period	Sum	-	-	2 335 760.00
1.5.12		.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of 12 month Trial Operation Period	Sum	-	-	14 152 897.00
		Refill and replenish consumables at the start of the Defects and Notification Period				
		a) MBR System				
1.5.13		i) Citric Acid in made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	320 142.00
1.5.14		ii) Sodium Hypochlorite in made-up solution for 2 months storage equivalent at full capacity	Sum	-	-	585 412.50
		b) Phosphate removal systems				
1.5.15		i) Ferric chloride in made-up solution for '08 activated sludge process train	m^3	40	18 465.25	738 610.00
1.5.16		i) Ferric chloride in made-up solution for '24 activated sludge process train	m^3	80	18 465.25	1 477 220.00
		Maintaining and upholding of Works during Defects and Notification Period				
1.5.17		.1 Attendance and equipment for execution of 12 month Defects and Notification Period	Sum	-	-	605 540.00
		Carried Forward				380 600 690.07

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				380 600 690.07
1.5.18		Allow for any additional Cost and profit required per day in the event of access to, and possession of, the Site not being available within the times stated in the Appendix to Tender and the resultant delay in the commencement of testing and commissioning on Site as per Sub-Clause 2.1 and 8.4 (e) of the Conditions of Contract, for:	Days	20	0.00	No cost for 20 days thereafter subject to value as determined by FIDIC
1.5.19		Allow for any additional Cost and Profit required per day in the event of a delay in the testing and commissioning on Site and the resultant delay in the commencement of the Defects Notification Period from causes not attributable to the Contractor, as per Sub-Clause 10.3 (b) and 7.4 (b) of the Conditions of Contract.	Days	20	0.00	No cost for 20 days thereafter subject to value as determined by FIDIC
1.5.20		Allow for all costs and expenses in leaving Site and returning at a later date due to causes not attributable to the Contractor.	Sum	-	-	0.00
1.6		**SECTION D**				
		Preliminary and General charges for Section D as defined in Clause 1.1.5.6 of Part C1.2-Contract Data				
		FIXED-CHARGE ITEMS				
1.6.1		Contractual Requirements	Sum	-	-	297 423.63
		Establishment of Facilities on Site				
1.6.2		.2 Facilities for the Contractor	Sum	-	-	0.00
1.6.3		Other fixed-charge obligations	Sum	-	-	0.00
1.6.4		Removal of Contractor's and Engineers site establishment on completion	Sum	-	-	0.00
		TIME-RELATED ITEMS				
1.6.5		Contractual requirements	month	55	4 886.65	268 765.75
		Operation and maintenance of facilities on the Site for the duration of construction				
1.6.6		.2 Facilities for the Contractor	month	55	0.00	0.00
		Carried Forward				381 166 879.45

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule 1: Preliminary and General

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				381 166 879.45
1.6.7		Supervision for duration of installation	Sum	-	-	122 037.40
		OTHER GENERAL CHARGES				
1.6.8		Provide as-built drawings	Sum	-	-	26 240.00
1.6.9		Provide Operational & Maintenance Manuals	Sum	-	-	32 800.00
1.6.10		Training	Sum	-	-	78 720.00
		Execution of Trail Operation Period				
1.6.11		.1 Attendance and equipment for execution of 12 month Trial Operation Period	Sum	-	-	5 760.00
1.6.12		.2 Supply of consumables (i.e. chemicals, lubrication, fuel, etc.) for execution of 12 month Trial Operation Period	Sum	-	-	0.00
		Maintaining and upholding of Works during Defects and Notification Period				
1.6.13		.1 Attendance and equipment for execution of 12 month Defects and Notification Period	Sum	-	-	23 040.00
		Provision of services of Compotent Persons for Medium Voltage Work:				
1.6.14		Competent person to provide services in terms of the Occupational health & Safety Act (Act 85 of 1993) with valid ORHVS switching certificate	Days	5	0.00	0.00
		SCHEDULE NO. 1 PRELIMINARY AND GENERAL CARRIED TO SUMMARY				
		Total Carried forward to Summary of Schedules				**381 455 476.84**

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule 2: Provisional Sums & Additional services

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
2		**SCHEDULE NO. 2 PROVISIONAL SUMS AND ADDITIONAL SERVICES**				
2.1		**SUMS STATED PROVISIONALLY**				
2.1.1		a) Maintenance Spares	P.Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.1.2		a) Specialist external inspectorate	P.Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.1.3		a) W Water Quality sampling	P.Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.1.4		a) Water Quality Instruments	P.Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.1.5		a) Carbon footprint assessment	P.Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.2		**ADDITIONAL SERVICES**				
2.2.1		a) Water quality instruments and meters	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.2.2		a) Reagents for water quality instruments	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.2.3		a) Laboratory equipment	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.2.4		Provisional sum for work as directed by the Engineer				
		a) Work as directed by the Engineer	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
2.2.5		Supply of chemicals and consumables				
		.1 a) Powder poly electrolyte	Sum	-	-	260 000.00
				Carried Forward		3 009 500.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule 2: Provisional Sums & Additional services

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				3 009 500.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
		.2 a) Ferric chloride	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
		.3 a) Diesel for generators	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
		.4 a) Citric acid	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
		.5 a) Sodium hypochlorite	Sum	-	-	260 000.00
		b) Overheads, charges and profit on the above	%	17.5	260 000.00	45 500.00
		SCHEDULE NO. 2 **PROVISIONAL SUMS AND ADDITIONAL SERVICES** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				4 277 000.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M1 - Decommissioning, dismantling and refurbishment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M1	Part 3.6.1 54	**SCHEDULE NO. M1 DECOMMISSIONING, DISMANTLING AND REFURBISHMENT**				
1.1		**DESIGN, DRAWINGS AND GENERAL**				
		Provision of designs, drawings and design information as required:				
1.1.1		'08 reactor aeration control system	Sum	-	-	19 805.00
1.1.2		'08 reactor process monitoring equipment	Sum	-	-	19 805.00
1.1.3		'08 reactor loading equipment	Sum	-	-	75 142.50
1.1.4		'08 PST refurbishment	Sum	-	-	18 057.50
1.1.5		'08 Primary sludge pump station pipework mod.	Sum	-	-	18 057.50
1.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
1.2.1	Part 3.6.1 54.1.1	Upgrade of '08 reactor aeration control system.				
		.1 Dissolved oxygen sensors & swivel-type fixing arrangement, including common controller with local display in suitable pedestal-mounted protective housing	No	10	73 230.64	732 306.40
		.2 Electrical & signal cabling between instruments, controllers and control room control system to complete installation	Sum	-	-	DEVCOTECH
		.3 Additional programming for electrical works	P.Sum	-	-	100 000.00
1.2.2	Part 3.6.1 54.1.2	Upgrade of '08 reactor process monitoring system.				
		.1 Total suspended solids sensors & swivel-type fixing arrangement, including common controller with local display in suitable pedestal-mounted protective housing	No	6	98 703.66	592 221.96
		.2 Electrical & signal cabling between instruments, controllers and control room control system to complete installation	Sum	-	-	0.00
				Carried Forward		1 575 395.86

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M1 - Decommissioning, dismantling and refurbishment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				1 575 395.86
		.3 Additional programming for electrical works	P.Sum	-	-	100 000.00
1.2.3	Part 3.6.1 54.1.3	Upgrade of '08 reactor equipment loading and transport equipment				
		.1 Gantries for four walkways				
		.a) Structural steel component of lifting equipment	Sum	-	-	377 460.00
		.b) Other components (e.g. crawler, hoist, etc)	Sum	-	-	23 300.00
		.2 A-frames for four walkways				
		.a) Structural steel component of lifting equipment	Sum	-	-	377 460.00
		.b) Other components (e.g. hoist, chains, etc)	Sum	-	-	23 300.00
		.3 Trolleys for four walkways				
		.a) Structural steel component of lifting equipment	Sum	-	-	95 668.64
		.b) Other components (e.g. wheels)	Sum	-	-	0.00
1.2.4	Part 3.6.1 54.3.2	Refurbishment of '08 PSTs				
		.1 Serrated weirs for 33 m diameter tanks	No	3	98 525.90	295 577.70
		.2 Scum baffle & supports for 33 m diameter tanks	No	3	109 510.00	328 530.00
		.3 Scum removal system complete	No	3	27 960.00	83 880.00
1.2.5	Part 3.6.1 54.4	Dismantling and removal of '08 Coarse screens				
		.1 Dismantle and remove two front rake screens, clean and store on site.	Sum	-	-	58 250.00
1.2.6	Part 3.6.1 54.5	08 Raw Sewage Pump Station Sump				
		.1 Supply of new spindle, anchors, pedestal, fasteners, etc. for the amended wall mounted sluice gates: (refer to relevant dwg)				
		Carried Forward				3 338 822.20

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M1 - Decommissioning, dismantling and refurbishment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				3 338 822.20
		a) Sump inlet sluice gates	No.	4	33 181.53	132 726.12
		b) Inlet channel diversion sluice gate	No.	1	32 373.02	32 373.02
		c) Inlet bypass sluice gate	No.	1	34 470.02	34 470.02
		d) Sump interconnecting sluice gate	No.	1	50 570.32	50 570.32
1.2.7	Part 3.6.1 54.6	'08 Generator service				
		.1 Service existing generator system	Sum	-	64 075.00	64 075.00
1.2.8	Part 3.6.1 54.7	'08 Primary sludge pump station pipework mod.				
		.1 Supply of T-off on discharge manifold to 1 m outside pump station building	Sum	-		0.00
		.2 Supply of knife gate valves	No.	2	18 438.23	36 876.46
		.3 Supply of electrical actuator	No.	2	69 900.00	139 800.00
		.4 Supply of pipework to the '08 PST division structure, complete with all bends, fittings, fasteners,etc.	Sum	-		196 643.84
		.5 Pipe supports	Sum	-		39 027.50
1.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
		.1 for Item 1.2.1 above	Sum	-		20 387.50
		.2 for Item 1.2.2 above	Sum	-		14 562.50
		.3 for Item 1.2.3 above	Sum	-		166 362.00
		.4 for Item 1.2.4 above *Note: Rate to include cost associated with dismantling and disposal of existing equipment to be replaced*	Sum	-		50 794.00
		.5 for Item 1.2.5 above	Sum	-		26 096.00
		Carried Forward				4 343 586.48

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M1 - Decommissioning, dismantling and refurbishment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				4 343 586.48
		.6 for Item 1.2.6 above *Note: Rate to include cost associated with dismantling and disposal of existing equipment to be replaced*	Sum	-	-	32 620.00
		.7 for Item 1.2.7 above	Sum	-	-	0.00
		.8 for Item 1.2.8 above	Sum	-	-	39 144.00
1.4		**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
		.1 for Item 1.2.1 above	Sum	-	-	5 825.00
		.2 for Item 1.2.2 above	Sum	-	-	5 825.00
		.3 for Item 1.2.3 above	Sum	-	-	44 852.50
		.4 for Item 1.2.4 above	Sum	-	-	9 902.50
		.5 for Item 1.2.5 above	Sum	-	-	0.00
		.6 for Item 1.2.6 above	Sum	-	-	5 825.00
		.7 for Item 1.2.8 above	Sum	-	-	9 902.50
1.5		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE NO. M1** **DECOMMISSIONING, DISMANTLING AND REFURBISHMENT** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				4 497 482.98

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M2 - Access Platforms, Walkways & Handrails

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M2	Part 3.6.1 16,46,47	**SCHEDULE NO. M2** **ACCESS PLATFORMS, WALKWAYS & HANDRAILS** *MBR and Dewatering building access platforms measure elsewhere*				
2.1		**DESIGN, DRAWINGS AND GENERAL** Provision of designs, drawings and design information as required:				
2.1.1		Access platforms and walkways for '24 Raw Sewage Pump Station	Sum	-	-	18 700.00
2.1.2		Access platforms and walkways for '24 MBR Reuse Pump Station	Sum	-	-	18 700.00
2.1.3		Access platforms and walkways for '24 UF Reuse Pump Station	Sum	-	-	47 882.00
2.1.4		Access platforms and walkways for '24 Primary Sludge Pump Station	Sum	-	-	23 941.00
2.1.5		Access platforms and walkways for '24 Sludge Silos	Sum	-	-	Included in Schedule 12
2.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
2.2.1	Part 3.6.1 16.5	Access platforms and walkways for '24 Raw Sewage Pump Station	Sum	-	-	154 202.40
2.2.2	Part 3.6.1 46.7	Access platforms and walkways for '24 MBR Reuse Pump Station	Sum	-	-	154 202.40
2.2.3	Part 3.6.1 47.7	Access platforms and walkways for '24 UF Reuse Pump Station	Sum	-	-	480 566.00
2.2.4	Part 3.6.1 35.5	Access platforms and walkways for '24 Primary Sludge Pump Station	Sum	-	-	132 255.00
2.2.5	Part 3.6.1 39.8	Access platforms and walkways for '24 Sludge Silos (GBT and BFP walkways measured elsewhere)	Sum	-	-	Included in Schedule 12
				Carried Forward		1 030 448.80

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M2 - Access Platforms, Walkways & Handrails

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		1 030 448.80
2.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
		.1 for Item 2.2.1 above	Sum	-	-	29 260.00
		.2 for Item 2.2.2 above	Sum	-	-	29 260.00
		.3 for Item 2.2.3 above	Sum	-	-	112 260.00
		.4 for Item 2.2.4 above	Sum	-	-	24 885.00
		.5 for Item 2.2.5 above	Sum	-	-	Included in Schedule 12
2.4		**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
		.1 for Item 2.2.1 above	Sum	-	-	7 700.00
		.2 for Item 2.2.2 above	Sum	-	-	7 700.00
		.3 for Item 2.2.3 above	Sum	-	-	15 670.00
		.4 for Item 2.2.4 above	Sum	-	-	15 670.00
		.5 for Item 2.2.5 above	Sum	-	-	Included in Schedule 12
2.5		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
2.5.1		UF Feed Pump Station Access Platforms	Sum	1	-	874 745.00
2.5.2		UF UV Bypass Staircase	Sum	1	-	111 517.00
2.5.3		UF Building Stairs	Sum	1	-	132 788.00
2.5.4		Grit Washing Inspection Stairs	Sum	1	-	121 267.00
				Carried Forward		2 513 170.80

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M2 - Access Platforms, Walkways & Handrails

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				2 513 170.80
		Dewatering building stairs	Sum	2	84 105.00	168 210.00
		SCHEDULE NO. M2 **ACCESS PLATFORMS, WALKWAYS & HANDRAILS** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				2 681 380.80

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M3	Part 3.6.1 7, 8, 9, 43	**SCHEDULE NO. M3** **INLET WORKS AND SCREENING EQUIPMENT**				
3.1		**DESIGN, DRAWINGS AND GENERAL**				
		Provision of designs, drawings and design information as required:				
3.1.1		Inlet works complete with screens, washer compactors, hydro conveyors, degritting, flumes, etc.)	Sum	-	-	559 783.00
3.1.2		Ultra fine screening system complete with screens, washpress units, conveyors, pipework etc.)	Sum	-	-	244 650.00
3.1.3		Factory testing of inlet works equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	29 125.00
3.1.4		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 3.1.3	Sum	-	-	40 775.00
3.1.5		Factory testing of ultra fine screen equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	89 902.12
3.1.6		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 3.1.5	Sum	-	-	160 187.50
3.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
3.2.1		Manual screen				
	Part 3.6.1 7	.1 Emergency overflow screen	No	1		78 807.00
	Part 3.6.1 8	Mechanical Screens				
3.2.2		New mechanical front-rake screen, including control panel and electrical connections				
				Carried Forward		1 203 229.62

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				1 203 229.62
		.1 Coarse screens	No	4	590 847.00	2 363 388.00
		.2 Medium screens	No	4	633 398.00	2 533 592.00
3.2.3	Part 3.6.19	New mechanical perforated plate screen, including control panel and electrical connections	No	4	1 796 769.00	7 187 076.00
3.2.4	Part 3.6.10	New perforated drum ultra-fine screens, including control panel and electrical connections	No	6	2 454 372.14	14 726 232.84
	Part 3.6.13	Hydro conveyors				
3.2.5		Hydro conveyor complete with flapper gates for screenings transport of:				
		.1 Coarse & medium screen conveyor	Sum	-	-	982 095.00
		.2 Coarse & medium screen conveyor supports	Sum	-	-	46 332.00
		.3 Fine screen conveyor	Sum	-	-	491 048.00
		.4 Fine screens conveyor supports	Sum	-	-	25 496.00
		Centreless screw conveyors				
3.2.6	Part 3.6.10	Centreless screw conveyors for ultra fine screenings transport (Note: these are the common conveyors, not the integrated conveyors forming part of the screen)	No.	2	275 368.03	550 736.06
	Part 3.6.11	Washer compactors				
3.2.7		Screenings wash compactor complete				
		.1 Coarse & medium screens	No.	2	1 363 151.00	2 726 302.00
		.2 Fine screens	No.	2	681 576.00	1 363 152.00
	Part 3.6.10	Screening press units				
3.2.8		.1 Ultra-fine screens	No.	2	644 873.99	1 289 747.98
	Part 3.6.14	Parshall flumes				
3.2.9		.1 GRP prefabricated Parshall flume (No.6 unit)	No	3	109 463.00	328 389.00
		Carried Forward				35 816 816.50

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				35 816 816.50
3.2.10	Part 3.6.1 12	Grit removal equipment				
		.1 Paddle system (vortex inducer) complete with motor, gearbox, shaft, etc.)	No	4	178 798.00	715 192.00
		.2 Airlift pump blowers	No	4	197 040.00	788 160.00
		.3 Airlift pump system (complete with pipework, fittings, etc.)	No	4	105 838.00	423 352.00
		.4 Grit classifiers	No	2	292 890.00	585 780.00
		.5 Drainage pipework from grit classifier	Sum	-	-	88 984.00
		.6 Grit removal system pipe supports	Sum	-	-	10 697.00
3.2.11	Part 3.6.1 15	Dolly & skips				
		.1 Screenings system for Coarse & medium screen installation				
		a) Structural steel component of dolly system	Sum	-	-	111 258.00
		b) All other components of dolly system	Sum	-	-	694 340.00
		.2 Screenings system for fine screen installation				
		a) Structural steel component of dolly system	Sum	-	-	111 258.00
		b) All other components of dolly system	Sum	-	-	349 500.00
		.3 Screenings system for ultra fine screen installation				
		a) Structural steel component of dolly system	Sum	-	-	264 330.09
		b) All other components of dolly system	Sum	-	-	145 969.84
		.4 Grit classifier system				
		a) Structural steel component of dolly system	Sum	-	-	111 258.00
		b) All other components of dolly system	Sum	-	-	524 250.00
		Carried Forward				40 741 145.43

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				40 741 145.43
3.2.12		Provision for service water connection, including all:				
		.1 Pipework				
		a) for Item 3.2.2 above	Sum	-	-	684 612.00
		b) for Item 3.2.3 above	Sum	-	-	397 587.00
		c) for Item 3.2.4 above	Sum	-	-	69 900.00
		d) for Item 3.2.6 above	Sum	-	-	22 135.00
		e) for Item 3.2.8 above	Sum	-	-	36 406.25
		f) for Item 3.2.10 above	Sum	-	-	162 329.00
		g) for Item 3.2.11 above	Sum	-	-	0.00
		.2 Support members				
		a) for Item 3.2.12.a above	Sum	-	-	20 637.00
		b) for Item 3.2.12.b above	Sum	-	-	10 763.00
		c) for Item 3.2.12.c above	Sum	-	-	17 475.00
		d) for Item 3.2.12.d above	Sum	-	-	7 281.25
		e) for Item 3.2.12.e above	Sum	-	-	17 475.00
		f) for Item 3.2.12.f above	Sum	-	-	11 902.00
		g) for Item 3.2.12.g above	Sum	-	-	0.00
		.3 Control equipment, or any other component required for sufficient operation				
		a) for Item 3.2.2 above	Sum	-	-	0.00
		b) for Item 3.2.3 above	Sum	-	-	0.00
		c) for Item 3.2.4 above	Sum	-	-	44 959.68
		d) for Item 3.2.6 above	Sum	-	-	52 592.76
		e) for Item 3.2.8 above	Sum	-	-	14 986.56
		Carried Forward				42 312 186.93

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				42 312 186.93
		f) for Item 3.2.10 above	Sum	-	-	0.00
		g) for Item 3.2.11 above	Sum	-	-	0.00
3.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
		.1 for Item 3.2.1 above	Sum	-	-	5 825.00
		.2 for Item 3.2.2 above	Sum	-	-	150 285.00
		.3 for Item 3.2.3 above	Sum	-	-	67 570.00
		.4 for Item 3.2.4 above	Sum	-	-	139 800.00
		.5 for Item 3.2.5 above	Sum	-	-	26 213.00
		.6 for Item 3.2.6 above	Sum	-	-	34 950.00
		.7 for Item 3.2.7 above	Sum	-	-	50 095.00
		.8 for Item 3.2.8 above	Sum	-	-	43 688.00
		.9 for Item 3.2.9 above	Sum	-	-	17 475.00
		.10 for Item 3.2.10 above	Sum	-	-	131 063.00
		.11 for Item 3.2.11 above	Sum	-	-	122 325.50
		.12 for Item 3.2.12 above	Sum	-	-	56 794.00
3.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
		.1 for Item 3.2.1 above	Sum	-	-	7 981.00
		.2 for Item 3.2.2 above	Sum	-	-	47 882.00
		.3 for Item 3.2.3 above	Sum	-	-	31 921.00
		Carried Forward				43 246 054.43

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				43 246 054.43
		.4 for Item 3.2.4 above	Sum	-	-	52 425.00
		.5 for Item 3.2.5 above	Sum	-	-	7 981.00
		.6 for Item 3.2.6 above	Sum	-	-	8 737.50
		.7 for Item 3.2.7 above	Sum	-	-	7 981.00
		.8 for Item 3.2.8 above	Sum	-	-	8 737.50
		.9 for Item 3.2.9 above	Sum	-	-	7 981.00
		.10 for Item 3.2.10 above	Sum	-	-	15 961.00
		.11 for Item 3.2.11 above	Sum	-	-	24 698.50
		.12 for Item 3.2.12 above	Sum	-	-	16 718.50
3.5		**SPARE PARTS AND SERVICING**				
3.5.1		Provision of spare parts for:				
		.1 Mechanical front rake screens	Sum	-	-	815 500.00
		.2 Perforated plate conveyor screens	Sum	-	-	815 500.00
		.3 Ultra-fine screens	Sum	-	-	3 332 143.49
		.4 Screenings washer compactors	Sum	-	-	466 000.00
		.5 Hydro conveyors	Sum	-	-	34 601.00
		.6 Centreless screws	Sum	-	-	112 856.46
3.5.2		Servicing of equipment at the end of the defects and liability period: *The rate tendered shall include for the complete services of equipment installed under the Contract and shall include but not limited to labour, transport, tools, cleaning, servicing, replacement of consumables and handing over in operational condition to the Employer at the end of the defects notification period*				
		.1 Mechanical front rake screens	Sum	-	-	169 158.00
		Carried Forward				49 143 034.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M3 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				49 143 034.38
		.2 Perforated plate conveyor screens	Sum	-	-	0.00
		.3 Ultra-fine screens	Sum	-	-	166 012.50
		.4 Screenings washer compactors	Sum	-	-	93 200.00
		.5 Hydro conveyors	Sum	-	-	0.00
		.6 Centreless screws	Sum	-	-	11 650.00
3.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
3.6.1		Operational Lubrication	Sum			61 956.00
		SCHEDULE M3 **INLET WORKS & SCREENING EQUIPMENT** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				49 475 852.88

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M4		**SCHEDULE NO. M4** **PUMPS & PIPEWORK**				
4.1		**DESIGN AND DRAWINGS**				
4.1.1		Provision of designs, drawings and technical information for pump and pipework installation *New pumping installations*				
	Part 3.6.1 41	.1 Emergency overflow recycle pump station	Sum	-	-	48 494.00
	Part 3.6.1 16	.2 '24 Raw sewage pump station	Sum	-	-	18 700.00
	Part 3.6.1 35	.3 '08 Primary sludge recirculation pump station	Sum	-	-	48 494.00
	Part 3.6.1 35	.4 '24 Primary sludge recirculation pump station	Sum	-	-	48 494.00
	Part 3.6.1 35	.5 Primary sludge storage tank feed pump station and sludge screen	Sum	-	-	48 494.00
	Part 3.6.1 19	.6 '24 Biological reactor A-recycle pumps	Sum	-	-	36 115.00
	Part 3.6.1 19	.7 '24 Biological reactor R-recycle pumps	Sum	-	-	36 115.00
	Part 3.6.1 29	.8 '24 Scum pump stations	Sum	-	-	18 700.00
	Part 3.6.1 19	.9 '24 MBR tank feed pump station	Sum	-	-	18 700.00
	Part 3.6.1 25	.10 '24 MBR tank drainage pump station	Sum	-	-	52 425.00
	Part 3.6.1 30	.11 '24 WAS pump stations	Sum	-	-	48 494.00
	Part 3.6.1 25	.12 '24 MBR permeate pumping system	Sum	-	-	78 637.50
	Part 3.6.1 27	.13 '24 MBR service water supply pump station	Sum	-	-	68 735.00
	Part 3.6.1 27	.14 24 Dewatering wash water supply pump station	Sum	-	-	48 494.00
	Part 3.6.1 25	.15 '24 MBR permeate recycle pumps	Sum	-	-	78 637.50
	Part 3.6.1 46	.16 '24 MBR off-site reuse pump station	Sum	-	-	18 700.00
	Part 3.6.1 42	.17 Overflow dam recycle pump station	Sum	-	-	18 700.00
			Carried Forward			735 129.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				735 129.00
	Part 3.6.1 33	.18 '24 WAS recycle pump station	Sum	-	-	48 494.00
	Part 3.6.1 32	.19 WAS dewatering ring main pump station	Sum	-	-	48 494.00
	Part 3.6.1 37	.20 Primary sludge storage tank mixing pumps station	Sum	-	-	72 842.00
	Part 3.6.1 38	.21 Primary sludge dewatering ring main pump station	Sum	-	-	48 494.00
	Part 3.6.1 39	.22 WAS Dewatering feed pumps	Sum	-	-	72 842.00
	Part 3.6.1 39	.23 Primary sludge dewatering feed pumps	Sum	-	-	72 842.00
	Part 3.6.1 39	.24 Primary sludge cake pumps	Sum	-	-	72 842.00
	Part 3.6.1 39	.25 WAS cake pumps	Sum	-	-	72 842.00
	Part 3.6.1 39	.26 WAS poly dosing pumps complete as per specification	Sum	-	-	72 842.00
	Part 3.6.1 39	.27 Primary sludge poly dosing pumps complete as per specification	Sum	-	-	72 842.00
	Part 3.6.1 40	.28 WAS filtrate return pump station	Sum	-	-	48 494.00
	Part 3.6.1 40	.29 Primary filtrate return pump station	Sum	-	-	48 494.00
	Part 3.6.1 54.2	.30 '08 WAS pump station	Sum	-	-	48 494.00
	Part 3.6.1 41 & 42	.31 24 Groundwater drainage pump station	Sum	-	-	31 118.00
4.1.2		Factory testing/inspection of '24 Raw sewage pumps and control systems witnessed by the Engineer's Representative	Sum	-	-	144 467.40
4.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 4.1.2	Sum	-	-	132 411.40
4.1.4		Factory testing/inspection of MBR tank feed pumps and control systems witnessed by the Engineer's Representative	Sum	-	-	55 584.10
4.1.5		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 4.1.4	Sum	-	-	122 293.60
		Carried Forward				2 021 861.50

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				2 021 861.50
4.1.6		Factory testing/inspection of '24 MBR off site reuse pumps and control systems witnessed by the Engineer's Representative	Sum	-	-	48 647.50
4.1.7		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 4.1.6	Sum	-	-	38 060.00
4.1.8	Part 3.6.1 37	'24 Primary sludge holding tanks CFD analysis	Sum	-	-	243 612.00
4.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
4.2.1		Pump, coupling & motor set complete with base plate and monitoring devices				
	Part 3.6.1 41	.1 .a Emergency overflow recycle pumps	No	2	185 330.00	370 660.00
		.b Motors associated with pumps	No	2		Included above
	Part 3.6.1 16	.2 '24 Raw sewage pump station				
		.a Raw sewage pumps	No	4	975 348.00	3 901 392.00
		.b Drainage sump pump (complete unit)	No	1		20 124.50
		.c Motors associated with pumps	No	4	418 621.50	1 674 486.00
	Part 3.6.1 35	.3 .a 24 Strain press feed pumps	No	2	214 001.00	428 002.00
		.b Motors associated with pumps	No	2	42 487.00	84 974.00
	Part 3.6.1 35	.4 .a '24 Primary sludge recirculation pumps	No	2	220 176.00	440 352.00
		.b Motors associated with pumps	No	2	34 268.00	68 536.00
	Part 3.6.1 35	.5 '24 Primary sludge storage tank feed pump station				
		.a Primary sludge storage tank feed pumps	No	2	382 979.00	765 958.00
		.b Drainage sump pump (complete unit)	No	1		15 433.00
		.c Motors associated with pumps	No	2	36 313.00	72 626.00
		Carried Forward				10 194 724.50

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				10 194 724.50
	Part 3.6.19	1.6 .a '24 Biological reactor A-recycle pumps	No	16	204 376.97	3 270 031.52
		.b Motors associated with pumps	No	16		incl.
	Part 3.6.19	1.7 .a '24 Biological reactor R-recycle pumps	No	12	272 308.46	3 267 701.52
		.b Motors associated with pumps	No	12		incl.
	Part 3.6.29	1.8 .a '24 Scum and drainage pumps	No	6	49 192.00	295 152.00
		.b Motors associated with pumps	No	6		incl.
	Part 3.6.19	1.9 .a '24 MBR tank feed pumps	No	8	825 337.70	6 602 701.60
		.b Motors associated with pumps	No	8		incl.
	Part 3.6.25	1.10 .a '24 MBR tank drainage pumps	No	4	291 360.10	1 165 440.40
		.b Motors associated with pumps	No	4	39 420.11	157 680.44
	Part 3.6.28	1.11 .a '24 WAS pumps	No	4	280 339.00	1 121 356.00
		.b Motors associated with pumps	No	4	37 012.00	148 048.00
	Part 3.6.25	1.12 .a '24 MBR permeate pumps	No	16	700 601.88	11 209 630.08
		.b Motors associated with pumps	No	16		incl.
	Part 3.6.27	1.13 .a '24 MBR service water supply pumps	No	5	475 709.24	2 378 546.20
		.b Motors associated with pumps	No	5		Included
	Part 3.6.27	1.14 .a 24 Dewatering wash water supply pumps	No	4	482 795.00	1 931 180.00
		.b Motors associated with pumps	No	4		Included above
	Part 3.6.25	1.15 .a '24 MBR permeate recycle pumps	No	4	48 219.65	192 878.60
		.b Motors associated with pumps	No	4		Included
	Part 3.6.46	1.16 '24 MBR off-site reuse pump station				
		.a MBR off-site reuse pumps	No	6	401 135.90	2 406 815.40
		.b Drainage sump pump (complete unit)	No	1	20 124.50	20 124.50
		.c MV Motors associated with pumps	No	6	2 666 039.20	15 996 235.20
		Carried Forward				60 358 245.96

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				60 358 245.96
	Part 3.6.1 42	.17 .a Overflow dam recycle pumps	No	2	163 508.40	327 016.80
		.b Motors associated with pumps	No	2		Included
	Part 3.6.1 33	.18 .a '24 WAS recycle pumps	No	3	414 403.00	1 243 209.00
		.b Motors associated with pumps	No	3	32 274.00	96 822.00
	Part 3.6.1 32	.19 .a WAS ring main pumps	No	3	379 107.00	1 137 321.00
		.b Motors associated with pumps	No	3	48 359.00	145 077.00
	Part 3.6.1 37	.20 .a Primary sludge storage tank mixing pumps	No	4	383 569.00	1 534 276.00
		.b Motors associated with pumps	No	4	69 394.00	277 576.00
	Part 3.6.1 38	.21 .a Primary sludge dewatering ring main pumps	No	3	386 480.00	1 159 440.00
		.b Motors associated with pumps	No	3	48 359.00	145 077.00
	Part 3.6.1 39	.22 .a WAS dewatering feed pumps	No	8	603 785.00	4 830 280.00
		.b Motors associated with pumps	No	8		Included above
	Part 3.6.1 39	.23 .a Primary sludge dewatering feed pumps	No	8	304 199.00	2 433 592.00
		.b Motors associated with pumps	No	8		Included above
	Part 3.6.1 39	.24 .a Primary sludge cake pumps	No	4	2 510 283.00	10 041 132.00
		.b Motors associated with pumps	No	4		Included above
	Part 3.6.1 39	.25 .a WAS cake pumps	No	4	2 510 283.00	10 041 132.00
		.b Motors associated with pumps	No	4		Included above
	Part 3.6.1 39	.26 .a WAS poly dosing pumps complete as per specification	No	8	156 484.00	1 251 872.00
		.b Motors associated with pumps	No	8		Included above
	Part 3.6.1 39.1	.27 .a Primary sludge poly dosing pumps complete as per specification	No	8	156 484.00	1 251 872.00
		.b Motors associated with pumps	No	8		Included above
	Part 3.6.1 40	.28 .a WAS filtrate return pumps	No	2	381 554.00	763 108.00
		Carried Forward				97 037 048.76

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				97 037 048.76
		.b Motors associated with pumps	No	2	46 842.00	93 684.00
	Part 3.6.1 40	.29 .a Primary sludge filtrate return pumps	No	2	381 554.00	763 108.00
		.b Motors associated with pumps	No	2	32 274.00	64 548.00
	Part 3.6.1 54.2	.30 .a '08 WAS pumps as per specification	No	2	287 734.00	575 468.00
		.b Motors associated with pumps	No	2	17 899.00	35 798.00
	Part 3.6.1 16.4.7	.31 General drainage sump pumps as per specification (complete units)	No	14	34 810.64	487 349.00
		Similar to sump pump specified in Section 16.4.7 of Detailed Mechanical Specification, final position to be confirmed during detailed design				
	Part 3.6.1 41.7 &42.7	.32 Groundwater drainage pumps as per specification (complete units)	No	2	41 856.10	83 712.20
4.2.2		Pipework for pumping and other installation *(Supply and delivery to Site only)*				
	Part 3.6.1 41	.1 Emergency overflow recycle pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-		Included
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-		270 390.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-		205 565.00
		d) Pipe supports	Sum	-		28 921.00
	Part 3.6.1 16	.2 '24 Raw sewage pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-		3 402 106.40
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-		1 485 499.40
		c) Common manifold pipework complete common with fittings & specials (incl. pipe-work associated with flow meter chamber)	Sum	-		3 721 404.50
		Carried Forward				108 254 602.26

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				108 254 602.26
		d) Pipe supports	Sum	-	-	860 900.70
		e) Drainage sump pump 50 mm galvanised pipework	Sum	-	-	2 470.60
	Part 3.6.1 35, 36.1	.3 24 Strain press feed pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	123 396.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	72 405.00
		c) Common manifold pipework complete up to strain press inlet flange	Sum	-	-	110 265.00
		d) Strain press discharge pipework complete with fittings & specials				130 738.00
		e) Pipe supports	Sum	-	-	38 843.00
	Part 3.6.1 35	.4 '24 Primary sludge recirculation pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	169 421.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	118 064.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	123 290.00
		d) Pipe supports	Sum	-	-	39 729.00
	Part 3.6.1 36.1	.5 Sludge screen (Strain press) pipework				
		a) Strain press inlet pipework from Strain press Feed Pump manifold to inlet flange of screen units	Sum	-	-	140 957.00
		b) Discharge pipework from strain press units up to the discharge sump	Sum	-	-	126 766.00
	Part 3.6.1 36.2	.6 Hydro cyclone pipework				
		Carried Forward				110 311 847.56

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				110 311 847.56
		a) Hydro-cyclone inlet pipework from Sludge Feed Pump Station manifold to inlet flange of cyclone units	Sum	-	-	99 907.00
		b) Discharge pipework from cyclone units up to the discharge point in the storage tank	Sum	-	-	112 031.00
		c) Pipe supports	Sum	-	-	46 075.00
	Part 3.6.1.7 35	Primary sludge storage tank feed pump station				
		a) Inlet pipework in pump station sludge inlet chamber feeding into primary sludge channel grinder	Sum	-	-	195 490.00
		b) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	221 629.00
		c) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	117 364.00
		d) Common pump manifold pipework complete common with fittings & specials	Sum	-	-	145 589.00
		e) Pipe supports	Sum	-	-	39 753.00
		f) Drainage sump pump 50 mm galvanised pipework	Sum	-	-	39 931.00
	Part 3.6.1.8 18	'24 Biological reactor pipework				
		a) Inlet pipework from UF screen outlet to bioreactor inlet	Sum	-	-	240 421.05
		b) Anaerobic bypass pipework in bioreactor	Sum	-	-	1 221 446.58
	Part 3.6.1.9 29	'24 Scum and drainage pump stations				
		a) '24 Scum Pump Station				
		i) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	29 388.70
		ii) Common manifold pipework complete common with fittings & specials	Sum	-	-	21 881.20
		Carried Forward				112 842 754.09

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				112 842 754.09
		iii) Pipe supports	Sum	-	-	5 127.10
		b) '24 Scum Underflow Pump Station				
		i) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	62 823.20
		ii) Common manifold pipework complete common with fittings & specials	Sum	-	-	53 985.80
		iii) Pipe supports	Sum	-	-	11 680.90
		c) '24 Scum Underflow Pump Station				
		i) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	62 823.20
		ii) Common manifold pipework complete common with fittings & specials	Sum	-	-	53 985.80
		iii) Pipe supports	Sum	-	-	11 680.90
	Part 3.6.1 25.5	.10 '24 MBR tank drainage pump stations				
		a) 24 MBR tank drainage pump station No.1				
		i) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	858 854.31
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	160 415.84
		iii) Common manifold pipework complete with fittings & specials (complete to discharge point)	Sum	-	-	171 229.72
		iv) Pipe supports	Sum	-	-	117 930.62
		b) 24 MBR tank drainage pump station No.2				
		i) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	858 854.31
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	160 415.84
		Carried Forward				115 432 561.63

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				115 432 561.63
		iii) Common manifold pipework complete with fittings & specials (complete to discharge point)	Sum	-	-	171 229.72
		iv) Pipe supports	Sum	-	-	117 930.62
	Part 3.6.1.11 '24 WAS pump stations 28					
		a) '24 WAS pump station No.1				
		i) Suction pipework from channel to pump inlet complete with fittings & specials	Sum	-	-	72 196.00
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	59 882.00
		iii) Common manifold pipework complete common with fittings & specials	Sum	-	-	66 402.00
		iv) Pipe supports	Sum	-	-	38 896.00
		b) '24 WAS pump station No.2				
		i) Suction pipework from channel to pump inlet complete with fittings & specials	Sum	-	-	72 196.00
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	59 882.00
		iii) Common manifold pipework complete common with fittings & specials	Sum	-	-	66 402.00
		iv) Pipe supports	Sum	-	-	38 563.00
	Part 3.6.1.12 '24 MBR permeate pumping system 27					
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	1 208 509.49
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	2 306 092.34
		c) Common manifold pipework complete up to discharge point with fittings & specials	Sum	-	-	69 900.00
		d) Pipe supports	Sum	-	-	269 916.52
		Carried Forward				120 050 559.32

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				120 050 559.32
	Part 3.6.1.13 '24 MBR service water supply pump station 27					
		a) Suction manifold form from sump to pump pump inlet pipework complete with fittings & s	Sum	-	-	175 505.86
		b) Pump suction pipework from suction manifold to pump inlet complete with fittings &	Sum	-	-	39 318.75
		c) Pump discharge pipework from pump to discharge manifold complete with fittings &	Sum	-	-	39 318.75
		d) Common discharge manifold pipework complete with fittings & specials	Sum	-	-	223 815.49
		e) Pipe supports	Sum	-	-	91 813.65
	Part 3.6.1.14 24 Dewatering wash water supply pump station 27					
		a) Suction manifold form from sump to pump pump inlet pipework complete with fittings & s	Sum	-	-	166 976.00
		b) Pump suction pipework from suction manifold to pump inlet complete with fittings &	Sum	-	-	Included
		c) Pump discharge pipework from pump to discharge manifold complete with fittings &	Sum	-	-	Included
		d) Common discharge manifold pipework complete with fittings & specials	Sum	-	-	173 885.00
		e) Pipe supports	Sum	-	-	30 881.00
	Part 3.6.1.15 '24 MBR Permeate recycle pump stations (Module A & B) 25.7					
		a) '24 MBR Permeate recycle pump station No.1 (Module A)				
		i) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	230 311.88
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	188 516.81
		iii) Common manifold pipework to MBR tanks complete with fittings & specials	Sum	-	-	1 048 745.82
		Carried Forward				122 459 648.33

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				122 459 648.33
		iv) Pipe supports	Sum	-	-	118 489.82
		b) '24 MBR Permeate recycle pump station No.2 (Module B)				
		i) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	230 311.88
		ii) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	188 516.81
		iii) Common manifold pipework to MBR tanks complete with fittings & specials	Sum	-	-	1 048 745.82
		iv) Pipe supports	Sum	-	-	118 489.82
	Part 3.6.1.16 46	'24 MBR off-site reuse pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	1 968 788.80
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	640 940.30
		c) Common manifold pipework complete with fittings & specials & surge anticipating discharge pipework (incl. pipework associated with flow meter chamber)	Sum	-	-	1 300 464.00
		d) Pipe supports	Sum	-	-	391 019.20
		e) Drainage sump pump 50 mm galvanised pipework	Sum	-	-	2 470.60
	Part 3.6.1.17 42	Overflow dam recycle pump station				
		a) Sump inlet pipework (multi level draw-off)	Sum	-	-	504 973.70
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	111 744.60
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	101 871.00
		e) Pipe supports	Sum	-	-	71 858.60
		Carried Forward				129 258 333.28

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				129 258 333.28
		Part 3.6.1.18 '24 Emergency WAS storage tanks				
	31					
		a) Pipe work associated with WAS inlet system complete with fittings & specials	Sum	-	-	553 313.00
		b) Pipe supports	Sum	-	-	82 253.00
		Part 3.6.1.19 '24 WAS recycle pump station				
	33					
		a) Suction pipework from tanks to pump inlets complete with fittings & specials	Sum	-	-	356 550.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	261 260.00
		c) Common discharge manifold pipework complete with fittings & specials	Sum	-	-	235 217.00
		d) Pipe supports	Sum	-	-	74 330.00
		Part 3.6.1.20 '24 WAS holding tanks				
	30					
		a) Pipe work associated with Overflow dam inlet system complete with fittings & specials	Sum	-	-	423 338.00
		b) Pipe work associated with '08 WAS inlet system complete with fittings & specials	Sum	-	-	284 604.00
		c) Pipe work associated with '24 WAS inlet system complete with fittings & specials	Sum	-	-	342 908.00
		d) Pipe work associated with '24 WAS Recycle inlet system complete with fittings & s	Sum	-	-	321 938.00
		e) Pipe work associated with '24 WAS Ring Main inlet system complete with fittings & specials	Sum	-	-	255 071.00
		f) Pipe work associated with decant system complete with fittings & specials	Sum	-	-	70 328.00
		g) Pipe supports	Sum	-	-	5 504.00
		Part 3.6.1.21 WAS ring main pump station				
	32					
		a) Suction pipework from tanks to pump inlets complete with fittings & specials	Sum	-	-	532 986.00
		Carried Forward				133 057 933.28

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				133 057 933.28
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	346 739.00
		c) Ring main pipework complete to and from the dewatering building with all fittings & speci	Sum	-	-	948 488.00
		d) Pipe supports	Sum	-	-	75 456.00
	Part 3.6.1 37	.22 Primary sludge storage tanks				
		a) Pipe work associated with WAS inlet system complete with fittings & specials	Sum	-	-	119 806.00
		b) Pipe work associated with Primary Sludge Feed Pump Station inlet system complete with fittings & specials	Sum	-	-	138 515.00
		c) Pipe work associated with Ring Main inlet system complete with fittings & specials	Sum	-	-	942 666.00
		d) Pipe work associated with decant system complete with fittings & specials	Sum	-	-	71 753.00
		e) Pipe supports	Sum	-	-	9 791.00
		f) Blanked flange access hatches complete as per specifications.	No.	2	-	134 864.00
	Part 3.6.1 37	.23 Primary sludge storage tank mixing pumps station				
		a) Pipe work associated with Primary Sludge Storage Tanks complete with fittings & specia	Sum	-	-	482 018.00
		b) Suction pipework from tank to mixing pump inlet complete with fittings & specials	Sum	-	-	494 602.00
		c) Mixing pump discharge pipework including common manifold complete with fittings & spe	Sum	-	-	1 765 414.00
		d) Pipe supports	Sum	-	-	44 581.00
	Part 3.6.1 38	.24 Primary sludge dewatering ring main pump station				
		Carried Forward				138 632 626.28

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				138 632 626.28
		a) Suction pipework from tanks to pump inlets complete with fittings & specials	Sum	-	-	382 340.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	261 219.00
		c) Ring main pipework complete to and from the dewatering building with all fittings & speci	Sum	-	-	271 493.00
		d) Pipe supports	Sum	-	-	70 712.00
	Part 3.6.1 32	.25 WAS dewatering feed pumps				
		a) Suction pipework from 1m outside dewatering building up to pump inlet complete with fittings & specials	Sum	-	-	746 199.00
		b) Pump discharge pipework up to flange connection of dewatering unit	Sum	-	-	3 077 929.00
		c) Pipe supports	Sum	-	-	388 341.00
	Part 3.6.1 32	.26 Primary sludge dewatering feed pumps				
		a) Suction pipework from 1m outside dewatering building up to pump inlet complete with fittings & specials	Sum	-	-	429 569.00
		b) Pump discharge pipework up to flange connection of dewatering unit	Sum	-	-	1 988 136.00
		c) Pipe supports	Sum	-	-	362 746.00
	Part 3.6.1 39	.27 Primary sludge cake pump system				
		a) Pump discharge pipework up to discharge point in sludge cake silo complete with fittings & specials	Sum	-	-	2 803 992.00
		b) Pipe supports	Sum	-	-	136 859.00
	Part 3.6.1 39	.28 WAS cake pump system				
		a) Pump discharge pipework up to discharge point in sludge cake silo complete with fittings & specials	Sum	-	-	2 803 992.00
		Carried Forward				152 356 153.28

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				152 356 153.28
		b) Pipe supports	Sum	-	-	136 859.00
	Part 3.6.1.29 39	WAS poly dosing pump system				
		a) Suction pipework from tank to pump inlet complete with fittings & specials	Sum	-	-	Included in Section 12
		b) Discharge pipework from pump to poly dosing point complete with fittings & specials	Sum	-	-	Included in Section 12
		c) Pipe supports	Sum	-	-	Included in Section 12
	Part 3.6.1.30 39	Primary sludge poly dosing pump system				
		a) Suction pipework from tank to pump inlet complete with fittings & specials	Sum	-	-	Included in Section 12
		b) Discharge pipework from pump to poly dosing point complete with fittings & specials	Sum	-	-	Included in Section 12
		c) Pipe supports	Sum	-	-	Included in Section 12
	Part 3.6.1.31 40	WAS Filtrate return pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	303 441.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	132 867.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	307 790.00
		d) Pipe supports	Sum	-	-	51 936.00
	Part 3.6.1.32 40	Primary sludge filtrate return pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	178 990.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	98 067.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	194 361.00
		Carried Forward				153 760 464.28

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Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				153 760 464.28
		d) Pipe supports	Sum	-	-	46 464.00
	Part 3.6.10	1.33 24 Ultra fine screen station				
		a) Main inlet pipes form PSTs (Cast in, puddle flange pipes)	Sum	-	-	318 981.66
		b) Inlet pipework from channel to screen inlets complete with fittings & specials	Sum	-	-	745 625.63
		c) Overflow pipework complete with fittings & spe	Sum	-	-	619 223.13
		d) Screen station discharge pipework to bio-reactor complete with fittings & specials	Sum	-	-	1 590 917.01
		e) All pipe supports associated with this system	Sum	-	-	58 096.22
		f) Cast in steel pipes not measured above at the UF fine screen station	Sum	-	-	56 660.48
	Part 3.6.54.2	1.34 '08 WAS draw-off pump station				
		a) Diversion chamber pipework complete with fittings & specials, etc.	Sum	-	-	58 784.00
		b) '08 RAS flowmeter chamber connection pipework complete with fittings & specials, etc	Sum	-	-	343 144.00
		c) '08 WAS draw-off puddle pipes complete with fittings & specials, etc.	Sum	-	-	53 574.00
		d) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	144 005.00
		e) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	115 536.00
		f) Common manifold pipework complete common with fittings & specials	Sum	-	-	171 517.00
		g) Pipe supports	Sum	-	-	46 079.00
	Part 3.6.16.4.7	1.35 General drainage sump pumps as per specification *Similar to sump pump specified in Section 16.4.7 of Detailed Mechanical Specification, final position to be confirmed during detailed design*				
		Carried Forward				158 129 071.41

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				158 129 071.41
		a) Discharge pipework from station drainage sump from pump to stormwater collection pit (allow for 20 m pipe length per pump)	Sum	-	-	539 782.44
		b) Pipe supports	Sum	-	-	96 880.14
	Part 3.6.1 41.7&42.7	.36 Ground water drainage sump pumps as per specification				
		a) Discharge pipework from station drainage sump from pump to stormwater collection pit (allow for 20 m pipe length per pump)	Sum	-	-	87 319.10
		b) Pipe supports	Sum	-	-	16 267.50
4.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
4.3.1		Installation of pump station complete with pumps, motors, monitoring devices, etc.				
		.1 for Item 4.2.1.1 above	Sum	-	-	43 688.00
		.2 for Item 4.2.1.2 above	Sum	-	-	23 408.00
		.3 for Item 4.2.1.3 above	Sum	-	-	63 749.00
		.4 for Item 4.2.1.4 above	Sum	-	-	63 749.00
		.5 for Item 4.2.1.5 above	Sum	-	-	63 749.00
		.6 for Item 4.2.1.6 above	Sum	-	-	69 900.00
		.7 for Item 4.2.1.7 above	Sum	-	-	52 425.00
		.8 for Item 4.2.1.8 above	Sum	-	-	5 852.00
		.9 for Item 4.2.1.9 above	Sum	-	-	46 816.00
		.10 for Item 4.2.1.10 above	Sum	-	-	17 475.00
		.11 for Item 4.2.1.11 above	Sum	-	-	92 548.00
		Carried Forward				159 412 679.59

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				159 412 679.59
		.12 for Item 4.2.1.12 above	Sum	-	-	52 425.00
		.13 for Item 4.2.1.13 above	Sum	-	-	52 425.00
		.14 for Item 4.2.1.14 above	Sum	-	-	62 211.00
		.15 for Item 4.2.1.15 above	Sum	-	-	17 475.00
		.16 for Item 4.2.1.16 above	Sum	-	-	35 112.00
		.17 for Item 4.2.1.17 above	Sum	-	-	11 704.00
		.18 for Item 4.2.1.18 above	Sum	-	-	98 699.00
		.19 for Item 4.2.1.19 above	Sum	-	-	98 699.00
		.20 for Item 4.2.1.20 above	Sum	-	-	72 487.00
		.21 for Item 4.2.1.21 above	Sum	-	-	63 749.00
		.22 for Item 4.2.1.22 above	Sum	-	-	96 113.00
		.23 for Item 4.2.1.23 above	Sum	-	-	96 113.00
		.24 for Item 4.2.1.24 above	Sum	-	-	61 163.00
		.25 for Item 4.2.1.25 above	Sum	-	-	61 163.00
		.26 for Item 4.2.1.26 above	Sum	-	-	119 529.00
		.27 for Item 4.2.1.27 above	Sum	-	-	119 529.00
		.28 for Item 4.2.1.28 above	Sum	-	-	55 012.00
		.29 for Item 4.2.1.29 above	Sum	-	-	55 012.00
		.30 for Item 4.2.1.30 above	Sum	-	-	55 012.00
		.31 for Item 4.2.1.31 above	Sum	-	-	116 878.00
		.32 for Item 4.2.1.32 above	Sum	-	-	14 590.00
4.3.2		Installation of pipework and pipe supports complete				
		.1 for Item 4.2.2.1 above	Sum	-	-	Included
		Carried Forward				160 827 779.59

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				160 827 779.59
		.2 for Item 4.2.2.2 above	Sum	-	-	58 520.00
		.3 for Item 4.2.2.3 above	Sum	-	-	Included
		.4 for Item 4.2.2.4 above	Sum	-	-	Included
		.5 for Item 4.2.2.5 above	Sum	-	-	Included
		.6 for Item 4.2.2.6 above	Sum	-	-	0.00
		.7 for Item 4.2.2.7 above	Sum	-	-	0.00
		.8 for Item 4.2.2.8 above	Sum	-	-	34 950.00
		.9 for Item 4.2.2.9 above	Sum	-	-	28 820.00
		.10 for Item 4.2.2.10 above	Sum	-	-	104 850.00
		.11 for Item 4.2.2.11 above	Sum	-	-	Included
		.12 for Item 4.2.2.12 above	Sum	-	-	157 275.00
		.13 for Item 4.2.2.13 above	Sum	-	-	78 637.50
		.14 for Item 4.2.2.14 above	Sum	-	-	Included
		.15 for Item 4.2.2.15 above	Sum	-	-	104 850.00
		.16 for Item 4.2.2.16 above	Sum	-	-	58 520.00
		.17 for Item 4.2.2.17 above	Sum	-	-	5 852.00
		.18 for Item 4.2.2.18 above	Sum	-	-	Included
		.19 for Item 4.2.2.19 above	Sum	-	-	Included
		.20 for Item 4.2.2.20 above	Sum	-	-	Included
		.21 for Item 4.2.2.21 above	Sum	-	-	Included
		.22 for Item 4.2.2.22 above	Sum	-	-	Included
		.23 for Item 4.2.2.23 above	Sum	-	-	Included
		.24 for Item 4.2.2.24 above	Sum	-	-	Included
		Carried Forward				161 460 054.09

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				161 460 054.09
		.25 for Item 4.2.2.25 above	Sum	-	-	Included
		.26 for Item 4.2.2.26 above	Sum	-	-	Included
		.27 for Item 4.2.2.27 above	Sum	-	-	Included
		.28 for Item 4.2.2.28 above	Sum	-	-	Included
		.29 for Item 4.2.2.29 above	Sum	-	-	Included
		.30 for Item 4.2.2.30 above	Sum	-	-	Included
		.31 for Item 4.2.2.31 above	Sum	-	-	Included
		.32 for Item 4.2.2.32 above	Sum	-	-	Included
		.33 for Item 4.2.2.33 above	Sum	-	-	122 325.00
		.34 for Item 4.2.2.34 above	Sum	-	-	Included
		.35 for Item 4.2.2.35 above	Sum	-	-	81 928.00
		.36 for Item 4.2.2.36 above	Sum	-	-	5 852.00
4.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
4.4.1		Pumping stations complete				
		.1 for Item 4.2.1.1 above	Sum	-	-	20 469.00
		.2 for Item 4.2.1.2 above	Sum	-	-	0.00
		.3 for Item 4.2.1.3 above	Sum	-	-	12 769.00
		.4 for Item 4.2.1.4 above	Sum	-	-	12 769.00
		.5 for Item 4.2.1.5 above	Sum	-	-	12 769.00
		.6 for Item 4.2.1.6 above	Sum	-	-	44 852.50
		Carried Forward				161 773 787.59

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		161 773 787.59
		.7 for Item 4.2.1.7 above	Sum	-	-	27 377.50
		.8 for Item 4.2.1.8 above	Sum	-	-	7 700.00
		.9 for Item 4.2.1.9 above	Sum	-	-	7 700.00
		.10 for Item 4.2.1.10 above	Sum	-	-	53 590.00
		.11 for Item 4.2.1.11 above	Sum	-	-	25 537.00
		.12 for Item 4.2.1.12 above	Sum	-	-	159 605.00
		.13 for Item 4.2.1.13 above	Sum	-	-	54 755.00
		.14 for Item 4.2.1.14 above	Sum	-	-	22 345.00
		.15 for Item 4.2.1.15 above	Sum	-	-	54 755.00
		.16 for Item 4.2.1.16 above	Sum	-	-	7 700.00
		.17 for Item 4.2.1.17 above	Sum	-	-	7 700.00
		.18 for Item 4.2.1.18 above	Sum	-	-	25 537.00
		.19 for Item 4.2.1.19 above	Sum	-	-	25 537.00
		.20 for Item 4.2.1.20 above	Sum	-	-	25 537.00
		.21 for Item 4.2.1.21 above	Sum	-	-	25 537.00
		.22 for Item 4.2.1.22 above	Sum	-	-	31 921.00
		.23 for Item 4.2.1.23 above	Sum	-	-	31 921.00
		.24 for Item 4.2.1.24 above	Sum	-	-	19 153.00
		.25 for Item 4.2.1.25 above	Sum	-	-	19 153.00
		.26 for Item 4.2.1.26 above	Sum	-	-	31 921.00
		.27 for Item 4.2.1.27 above	Sum	-	-	31 921.00
		.28 for Item 4.2.1.28 above	Sum	-	-	12 769.00
		.29 for Item 4.2.1.29 above	Sum	-	-	12 769.00
		.30 for Item 4.2.1.30 above	Sum	-	-	12 769.00
				Carried Forward		162 508 997.09

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				162 508 997.09
		.31 for Item 4.2.1.31 above	Sum	-	-	42 040.00
		.32 for Item 4.2.1.32 above	Sum	-	-	14 085.00
4.4.2		Pipework and supports complete with fittings & specials, etc.				
		.1 for Item 4.2.2.1 above	Sum	-	-	Included
		.2 for Item 4.2.2.2 above	Sum	-	-	7 700.00
		.3 for Item 4.2.2.3 above	Sum	-	-	Included
		.4 for Item 4.2.2.4 above	Sum	-	-	Included
		.5 for Item 4.2.2.5 above	Sum	-	-	Included
		.6 for Item 4.2.2.6 above	Sum	-	-	0.00
		.7 for Item 4.2.2.7 above	Sum	-	-	0.00
		.8 for Item 4.2.2.8 above	Sum	-	-	27 377.50
		.9 for Item 4.2.2.9 above	Sum	-	-	7 700.00
		.10 for Item 4.2.2.10 above	Sum	-	-	incl.4.4.1.10
		.11 for Item 4.2.2.11 above	Sum	-	-	Included
		.12 for Item 4.2.2.12 above	Sum	-	-	incl.4.4.1.12
		.13 for Item 4.2.2.13 above	Sum	-	-	incl.4.4.1.13
		.14 for Item 4.2.2.14 above	Sum	-	-	Included
		.15 for Item 4.2.2.15 above	Sum	-	-	incl.4.4.1.15
		.16 for Item 4.2.2.16 above	Sum	-	-	7 700.00
		.17 for Item 4.2.2.17 above	Sum	-	-	7 700.00
		.18 for Item 4.2.2.18 above	Sum	-	-	Included
		.19 for Item 4.2.2.19 above	Sum	-	-	Included
		.20 for Item 4.2.2.20 above	Sum	-	-	Included
		.21 for Item 4.2.2.21 above	Sum	-	-	Included
		Carried Forward				162 623 299.59

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				162 623 299.59
		.22 for Item 4.2.2.22 above	Sum	-	-	Included
		.23 for Item 4.2.2.23 above	Sum	-	-	Included
		.24 for Item 4.2.2.24 above	Sum	-	-	Included
		.25 for Item 4.2.2.25 above	Sum	-	-	Included
		.26 for Item 4.2.2.26 above	Sum	-	-	Included
		.27 for Item 4.2.2.27 above	Sum	-	-	Included
		.28 for Item 4.2.2.28 above	Sum	-	-	Included
		.29 for Item 4.2.2.29 above	Sum	-	-	Included
		.30 for Item 4.2.2.30 above	Sum	-	-	Included
		.31 for Item 4.2.2.31 above	Sum	-	-	Included
		.32 for Item 4.2.2.32 above	Sum	-	-	Included
		.33 for Item 4.2.2.33 above	Sum	-	-	20 504.00
		.34 for Item 4.2.2.34 above	Sum	-	-	Included
		.35 for Item 4.2.2.35 above	Sum	-	-	7 700.00
		.36 for Item 4.2.2.36 above	Sum	-	-	7 700.00
4.5		**SERVICING OF PUMPING EQUIPMENT**				
4.5.1		Servicing of pumps at the end of the defects notification period, including replacement of consumables				
		.1 Emergency overflow recycle pump station	Sum	-	-	52 684.00
		.2 '24 Raw sewage pump station	Sum	-	-	5 852.00
		.3 '08 Primary sludge recirculation pump station	Sum	-	-	118 474.00
		.4 '24 Primary sludge recirculation pump station	Sum	-	-	118 474.00
		Carried Forward				162 954 687.59

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				162 954 687.59
		.5 Primary sludge storage tank feed pump station	Sum	-	-	108 455.00
		.6 '24 Biological reactor A-recycle pumps	Sum	-	-	37 280.00
		.7 '24 Biological reactor R-recycle pumps	Sum	-	-	37 280.00
		.8 '24 Scum pump station	Sum	-	-	13 794.00
		.9 '24 MBR tank feed pump station	Sum	-	-	27 588.00
		.10 '24 MBR tank drainage pump station	Sum	-	-	34 950.00
		.11 '24 WAS pump stations	Sum	-	-	47 956.00
		.12 '24 MBR permeate pumping system	Sum	-	-	52 425.00
		.13 '24 MBR service water supply pump station	Sum	-	-	87 264.33
		.14 24 Dewatering wash water supply pump station	Sum	-	-	82 942.00
		.15 '24 MBR permeate recycle pumps	Sum	-	-	23 300.00
		.16 '24 MBR off-site reuse pump station	Sum	-	-	11 495.00
		.17 Overflow dam recycle pump station	Sum	-	-	4 598.00
		.18 '24 WAS recycle pump station	Sum	-	-	148 819.00
		.19 WAS dewatering ring main pump station	Sum	-	-	73 866.00
		.20 Primary sludge storage tank mixing pumps station	Sum	-	-	73 866.00
		.21 Primary sludge dewatering ring main pump station	Sum	-	-	93 049.00
		.22 WAS Dewatering feed pumps	Sum	-	-	1 482 739.00
		.23 Primary sludge dewatering feed pumps	Sum	-	-	801 037.00
		.24 Primary sludge cake pumps	Sum	-	-	1 102 630.00
		.25 WAS cake pumps	Sum	-	-	1 102 630.00
		Carried Forward				168 402 650.92

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Section C2.2 Schedule of Quantities
Schedule M4 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				168 402 650.92
		.26 WAS poly dosing pumps complete as per specification	Sum	-	-	143 144.00
		.27 Primary sludge poly dosing pumps complete as per specification	Sum	-	-	236 518.00
		.28 WAS filtrate return pump station	Sum	-	-	36 139.00
		.29 Primary filtrate return pump station	Sum	-	-	289 108.00
		.30 '08 WAS draw-off pump station	Sum	-	-	68 511.00
4.6		**SPECIAL SERVICES** *(Rates to include for dismantling, handling, transport, servicing, modifications, reinstallation and testing as specified)*				
	Part 3.6.1 51	.1 Supply, manufacturing, installation and commissioning of forth pumping unit in the 08 Raw Sewage Pump Station, complete with:				
		.a) Pump with 185 kW 10 pole motor (as specified)	No	1		1 981 137.40
		.b) Pipework (as specified)	Sum	-	-	1 303 397.70
		.c) Valves (as specified)	Sum	-	-	1 821 678.10
		.d) Electrical and electronic work	Sum	-	-	220 327.80
4.7		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE M4** **PUMPS & PIPEWORK** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				174 502 611.92

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M5 - Primary Sedimentation Tanks

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M5	*Part 3.6.1 17*	**SCHEDULE NO. M5 PRIMARY SEDIMENTATION TANK**				
5.1		**DESIGN AND DRAWINGS**				
5.1.1		Provision of designs, drawings and technical information as Specified for New 29m diameter PSTs	Sum	-	-	148 537.50
5.1.2		Factory testing/inspection of '24 PST equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	incl
5.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 5.1.2	Sum	-	-	incl
5.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
5.2.1		PST annular deflector drum	No	4	2 406 018.65	9 624 074.60
5.2.2		Complete PST full-bridge and scraper unit	No	4	0.00	incl
5.2.3		PST serrated weir for 29m dia tanks	No	4	0.00	item 19.2.4 nr 4
5.2.4		PST scum baffle & supports for 29m dia tanks	No	4	0.00	incl
5.2.5		PST scum removal system, complete	No	4	0.00	incl
5.2.6		PST inlet pipework (Cast in steel pipe)	No	4	383 932.74	1 535 730.96
5.2.7		PST outlet pipework (Cast in steel pipe)	No	4	70 499.98	281 999.92
5.2.8		PST sludge & scum draw-off pipework (i.e. 4 of	Sum	-	-	629 685.49
5.2.9		High pressure air connection on sludge draw-off pipe	No	4	-	incl
5.2.10		PST division structure main inlet and PST bypass pipework (Cast in steel pipe)	Sum	-	-	966 871.95
5.2.11		PST division structure outlet pipework feeding PSTs (Cast-in steel pipes and interconnecting pipe to PST No. 2 & 3)	Sum	-	-	1 416 900.96
				Carried Forward		14 603 801.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M5 - Primary Sedimentation Tanks

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				14 603 801.38
5.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
5.3.1		Annular deflector drum	Sum	-	-	52 192.00
5.3.2		Complete full-bridge and scraper unit	Sum	-	-	287 988.00
5.3.3		Serrated weir for 4(No) 29m dia tanks	Sum	-	-	26 096.00
5.3.4		Scum baffle & supports for 4(No) 29m dia tanks	Sum	-	-	78 288.00
5.3.5		Scum removal system complete	Sum	-	-	39 144.00
5.3.6		Inlet pipework	Sum	-	-	129 548.00
5.3.7		Outlet pipework (Cast in steel pipe)	Sum	-	-	30 523.00
5.3.8		Sludge & scum draw-off pipework	Sum	-	-	89 472.00
5.3.9		High pressure air connection on sludge draw-off pipe	Sum	-	-	incl
5.3.10		PST division structure Inlet pipework (Cast in steel pipe)	Sum	-	-	48 697.00
5.3.11		PST division structure Outlet pipework (Cast in steel pipe)	Sum	-	-	136 072.00
5.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
5.4.1		Commissioning of 4(No) 29m diameter tanks	Sum	-	-	39 610.00
5.5		**SPARE PARTS AND SERVICING**				
5.5.1		Provision of spare parts for:				
		.1 Primary sedimentation system	Sum	-	-	97 860.00
		Carried Forward				15 659 291.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M5 - Primary Sedimentation Tanks

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				15 659 291.38
5.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Primary sedimentation system	Sum	-	-	39 610.00
5.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		SCHEDULE NO. M5 **PRIMARY SEDIMENTATION EQUIPMENT** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				15 698 901.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M5 - Mixing Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M6	*Part 3.6.1 18, 30*	**SCHEDULE NO. M6 MIXING EQUIPMENT**				
6.1		**DESIGN AND DRAWINGS**				
6.1.1		Provision of designs, drawings and technical information as Specified				
	Part 3.6.1 18	.1 '24 Anaerobic zone mixers	Sum	-	-	59 415.00
	Part 3.6.1 18	.2 '24 Anoxic zone mixers	Sum	-	-	59 415.00
	Part 3.6.1 18	.3 '24 Bioreactor CFD analysis	Sum	-	-	112 888.50
	Part 3.6.1 30	.4 '24 WAS storage tank mixers	Sum	-	-	56 270.00
	Part 3.6.1 30	.5 '24 WAS Storage tank CFD analysis	Sum	-	-	64 087.00
6.1.2		Factory testing/inspection of BNR mixing equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	19 805.00
6.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 6.1.2	Sum	-	-	incl
6.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
6.2.1		Vertical shaft mixers				
	Part 3.6.1 18	.1 '24 Anaerobic zone mixers complete with motor and gearbox assembly	No	24	232 860.20	5 588 644.80
	Part 3.6.1 18	.2 '24 Anoxic zone mixers complete with motor and gearbox assembly	No	24	186 341.75	4 472 202.00
6.2.2		Submersible mixers				
	Part 3.6.1 30	'24 WAS storage tank mixers complete with lifting davit and guiderails, etc.	No	6	0.00	1 496 815.30
				Carried Forward		11 929 542.60

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M5 - Mixing Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		11 929 542.60
6.3		**INSTALLATION WORK**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
6.3.1		Vertical shaft mixers				
		.1 '24 Anaerobic zone mixers complete with motor and gearbox assembly	No	24	7 999.67	191 992.08
		.2 '24 Anoxic zone mixers complete with motor and gearbox assembly	No	24	7 999.67	191 992.08
6.3.2		Submersible mixers				
		'24 WAS storage tank mixers complete with lifting davit and guiderails, etc.	No	6	0.00	35 100.00
6.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
6.4.1		Vertical shaft mixers				
		.1 '24 Anaerobic zone mixers complete with motor and gearbox assembly	Sum	-	-	43 687.50
		.2 '24 Anoxic zone mixers complete with motor and gearbox assembly	Sum	-	-	43 687.50
6.4.2		Submersible mixers				
		'24 WAS storage tank mixers complete with lifting davit and guiderails, etc.	Sum	-	-	51 074.00
6.5		**SPARE PARTS AND SERVICING**				
6.5.1		Provision of spare parts for:				
		.1 For item 6.2.1 above	Sum	-	-	nil
		.2 For item 6.2.2 above	Sum	-	-	11 709.00
				Carried Forward		12 498 784.76

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		12 498 784.76
6.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 6.2.1 above	Sum	-	-	217 249.20
		.2 For item 6.2.1 above	Sum	-	-	28 135.00
6.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		Drywell on mixers output shaft as specified	Sum	1		1 894 010.40
		SCHEDULE NO. M6 **MIXING EQUIPMENT** **CARRIED TO SUMMARY**				
					Carried Forward	14 638 179.36

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M7- Aeration Blower Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M7	Part 3.6.1 21, 30	**SCHEDULE NO. M7 AERATION BLOWER EQUIPMENT**				
7.1		**DESIGN, DRAWINGS AND GENERAL**				
7.1.1		Provision of designs, drawings and technical information of blower equipment for:				
	Part 3.6.1 21	.1 New fine bubble aeration system (blower arrangement in building only)	Sum	-	-	75 064.44
	Part 3.6.1 30	.2 New coarse bubble aeration system for sludge holding tank (blowers only)	Sum	-	-	14 068.00
7.1.2		Factory testing/inspection of FBDA blower equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	119 878.50
7.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 7.1.2	Sum	-	-	364 183.57
7.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
7.2.1	Part 3.6.1 21	'24 FBDA system				
		.1 Air blower complete as per specification	No	5	5 101 795.83	25 508 979.15
		.2 Blower fittings and specials associated with blower	Sum	-	-	6 580 377.48
		.3 Air pipework inside blower house	Sum	-	-	4 495 311.02
		.4 Master Control Panel (1 off)	Sum	-	-	388 178.00
		.5 Blower instrumentation	Sum	-	-	227 198.30
		.6 Pressure transmitter and air flow meter	Sum	-	-	81 550.00
		.7 Instrument reagents and consumables	Sum	-	-	Incl
		.8 Pipe supports	Sum	-	-	511 435.00
				Carried Forward		38 366 223.46

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M7- Aeration Blower Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				38 366 223.46
7.2.2	Part 3.6.1 30	'24 WAS holding tank aeration				
		.1 Air blower complete as per specification	No	4	246 234.00	984 936.00
		.2 Blower fittings and specials associated with blower	No	4	37 085.00	148 340.00
		.3 Air pipework inside blower house	Sum	-	-	267 531.00
		.4 Blower instrumentation	No	4	281 604.00	1 126 416.00
		.5 Pressure transmitters and air flow meters	Sum	-	-	104 962.00
		.6 Instrument reagents and consumables	Sum	-	-	0.00
		.7 Pipe supports	Sum	-	-	64 011.00
7.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
7.3.1		'24 FBDA system				
		.1 Air blower complete (main offer for FBDA)	No	5	34 740.30	173 701.50
		.2 Master Control panel and connections to all LCPs, instrumentation and controls	Sum	-		Included
		.3 Blower fittings and specials	No	5	23 300.00	116 500.00
		.4 Air pipework inside blower building with supports	Sum	-		203 875.00
		.5 Instrumentation, pressure transmitter and air flow meter	Sum	-		8 737.50
7.3.2		'24 WAS holding tank aeration				
		.1 Air blower at sludge holding tank	No	4	4 369.00	17 476.00
		.2 Blower fittings and specials	No	4	4 369.00	17 476.00
		.3 Air pipework inside blower building with supports	Sum	-		14 563.00
		Carried Forward				41 614 748.46

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M7- Aeration Blower Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				41 614 748.46
		.4 Instrumentation, pressure transmitter and air flow meter	Sum	-	-	2 330.00
7.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
7.4.1		'24 Air blower system complete (FBDA)	Sum	-	-	745 600.00
7.4.4		Air blower system complete (coarse bubble at sludge holding tank	Sum	-	-	6 385.00
7.5		**SPARE PARTS AND SERVICING**				
7.5.1		Provision of spare parts				
		.1 Blowers (FBDA)	Sum	-	-	648 548.40
		.2 Blowers (sludge holding tank)	Sum	-	-	103 352.00
7.5.2		Servicing of equipment at end of defects notification period				
		.1 Blowers (FBDA)	Sum	-	-	584 550.40
		.2 Blowers (sludge holding tank)	Sum	-	-	63 415.00
		.3 Electrical equipment (FBDA system)	Sum	-	-	157 554.60
		.4 Instrumentation, valves and actuators	Sum	-	-	27 494.00
7.5.3		Leak testing of air pipework	Sum	-	-	19 805.00
7.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		SCHEDULE NO. M7 AERATION BLOWER EQUIPMENT CARRIED TO SUMMARY				
		Total Carried forward to Summary of Schedules				43 973 782.86

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M8	*Part 3.6.1 20, 30.2*	**SCHEDULE NO. M8 AERATION EQUIPMENT**				
8.1		**DESIGN, DRAWINGS AND GENERAL**				
8.1.1		Provision of designs, drawings and design information as required:				
	Part 3.6.1 31	.1 Surface aeration system (complete)	Sum	-	-	56 270.00
	Part 3.6.1 20	.2 Fine bubble aeration system (excl blowers)	Sum	-	-	148 537.50
	Part 3.6.1 30	.3 Coarse bubble aeration (excl blowers)	Sum	-	-	168 676.00
8.1.2		Factory testing/inspection of FBDA diffuser equipment and control systems witnessed by the Engineer's Representative	Sum	-	-	510 057.97
8.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 8.1.2	Sum	-	-	419 973.18
8.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
	Part 3.6.1 31	**Surface aeration**				
8.2.1		WAS holding tank floating aerator (incl. all supports, mooring ropes, access platforms etc.)	No	2	R 1 015 302.00	2 030 604.00
		Diffused aeration				
8.2.2		**Aeration Grids** -including diffusers, membranes, diffuser connection to laterals, lateral fasteners, air distribution pipework between header and diffusers (only steel pipes priced here)				
	Part 3.6.1 20	.1 Fine bubble diffused aeration system				
		a) Aeration tank 1 (with 3 sub aeration zones)	Sum	-	-	1 548 907.11
		b) Aeration tank 2 (with 3 sub aeration zones)	Sum	-	-	1 548 907.11
				Carried Forward		6 431 932.87

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 431 932.87
		c) Aeration tank 3 (with 3 sub aeration zones)	Sum	-	-	1 548 907.11
		d) Aeration tank 4 (with 3 sub aeration zones)	Sum	-	-	1 548 907.11
		e) Retrievable diffuser grid	No	4	46 998.14	187 992.56
	Part 3.6.1.2 30	Coarse bubble aeration system for sludge holding tanks				
		a) Sludge holding tank (2 no.'s off)	Sum	-	-	166 435.00
8.2.3		**Aeration Grids** -Plastic pipes				
	Part 3.6.1.1 20	Fine bubble diffused aeration system				
		a) Aeration tank 1 (with 3 sub aeration zones)	Sum	-	-	721 153.64
		b) Aeration tank 2 (with 3 sub aeration zones)	Sum	-	-	721 153.64
		c) Aeration tank 3 (with 3 sub aeration zones)	Sum	-	-	721 153.64
		d) Aeration tank 4 (with 3 sub aeration zones)	Sum	-	-	721 153.64
		.2 Coarse bubble aeration system for sludge holding tanks				
		a) Sludge holding tank (2 no.'s off)	Sum	-	-	82 394.00
8.2.4		**Header Pipework**				
	Part 3.6.1.1 20	Fine bubble diffused aeration system				
		a) Fine bubble aeration system Header pipework as required, including connecting to diffuser grids and feeder pipework, measured as total per aeration tank	No	4	126 988.13	507 952.52
		b) Retrievable aeration system Header pipework as required, including connecting to diffusers and feeder pipework, measured as total per aeration tank	No	4	117 550.25	470 201.00
		c) All air pipeworks supports as required (structural steel)	Sum	-	-	Incl
		Carried Forward				13 829 336.73

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Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				13 829 336.73
	Part 3.6.1.2 30	Coarse bubble aeration system for sludge holding tanks				
		a) Coarse bubble aeration system Header pipework as required, including purging system and connection to feeder	No	2	64 042.00	128 084.00
		b) All air manifold supports as required (structural steel)	Sum	-	-	56 471.00
8.2.5		**Feeder Pipework - FBDA**				
	Part 3.6.1.1 20	Fine bubble aeration system				
		a) SS Feeder pipework -including connecting to header line, connecting to air main, provision of socket & plug for acid injection, nipple and stop cock for pressure gauge installation and couplings (Control valves and instrument measured elsewhere) (Note: feeder to be of adequate length to ensure suitable temperature dissipation prior to connection to PVC-U pipework)	No	12	162 331.88	1 947 982.56
		b) Retrievable diffuser set SS Feeder pipework -including connecting to Zone 1 header line	**Sum**	-	-	0.00
		c) All feeder pipework supports (structural steel)	Sum	-	-	215 534.32
	Part 3.6.1.2 30	Coarse bubble aeration system				
		a) SS Feeder pipework -including connecting to header line, connecting to air main, provision of socket & plug for acid injection, nipple and stop cock for pressure gauge installation and couplings	Sum	-	-	548 729.00
		b) All feeder pipework supports (structural steel)	Sum	-	-	100 779.00
		Carried Forward				16 826 916.61

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Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				16 826 916.61
8.2.6		**Air Manifold**				
	Part 3.6.20	1.1 Fine bubble aeration system				
		a) SS Pipe (main feeder pipework) from 1m outside blower building up to reactor tank wall incl. couplings as required	Sum	-	-	4 623 139.40
		b) SS Pipe (air supply manifold) from end of main feeder to up to last feeder connection point incl. couplings as required	Sum	-	-	1 094 629.34
		c) All main feeder and air manifold supports (structural steel)	Sum	-	-	3 780 599.75
	Part 3.6.30	1.2 Coarse bubble aeration system				
		a) SS Pipe (air manifold) from 1m outside blower building up to respective WAS holding tanks	Sum	-	-	669 642.00
		b) All air manifold supports as required (structural steel)	Sum	-	-	183 616.00
8.2.7	Part 3.6.20.4.1	Butterfly valves on air manifolds, complete as per specification	No	2	126 324.45	252 648.90
8.2.8	Part 3.6.20	V-port knife gate type control valves installed in feeder line, including suitable electrical actuator with modulating function for feeder line	No	12	86 268.64	1 035 223.68
8.2.9	Part 3.6.20	Butter fly type valves installed in retrievable diffuser set feeder line	No	4	5 825.00	23 300.00
8.2.10	Part 3.6.20	Air flow meters with integrated display suitable for feeder line (Note: Contractor's design shall allow suitable up and downstream straight pipe length on feeder lines for accurate measurements	No	12	17 748.78	212 985.36
8.2.11	Part 3.6.20	Pressure gauges installed in feeder pipework, including connector pipework & support stand	No	12	2 097.00	25 164.00
8.2.12	Part 3.6.20	Mobile acid injection system	No	1		100 408.61
8.2.13	Part 3.6.20	Condensate purging system, one per aeration zone complete as per specification	No	12	16 587.08	199 044.96
		Carried Forward				29 027 318.61

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				29 027 318.61
8.2.14	Part 3.6.1 20	Retrievable diffuser set condensate purging system, one per aeration zone complete as per specification	No	4	9 756.88	39 027.52
8.2.15	Part 3.6.1 20	Dissolved oxygen sensors & swivel-type fixing arrangement, including common controller with local display in suitable pedestal-mounted protective housing	No	12	73 227.24	878 726.88
8.2.16	Part 3.6.1 20	Electrical & signal cabling between instruments, controllers and blower room control system to complete installation	Sum	-	-	0.00
8.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following: **Surface aeration**				
8.3.1		WAS holding tank floating aerator (incl. all supports, mooring ropes, access platforms etc.)	No	2	29 708.00	59 416.00
8.3.2		Aeration Grids complete, including fixing into position of lateral pipework, air distribution pipework, diffusers and connection to header pipes				
		.1 Fine bubble aeration system				
		a) Aeration Tank 1	Sum	-	-	50 794.00
		b) Aeration Tank 2	Sum	-	-	50 794.00
		c) Aeration Tank 3	Sum	-	-	50 794.00
		d) Aeration Tank 4	Sum	-	-	50 794.00
		.2 Coarse bubble aeration system				
		a) Aeration grid at WAS holding tank 1	Sum	-	-	17 475.00
		b) Aeration grid at WAS holding tank 2	Sum	-	-	17 475.00
		Carried Forward				30 242 615.01

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				30 242 615.01
8.3.3		**Header Pipework**				
		.1 Fine bubble aeration system (total per tank)	No	4	47 998.00	191 992.00
		.2 Coarse bubble aeration system (total per tank)	No	2	52 425.00	104 850.00
8.3.4		**Feeder pipework**				
		.1 Fine bubble aeration system (total per tank)	No	4	47 998.00	191 992.00
		.2 Coarse bubble aeration system (total per tank)	No	2	26 213.00	52 426.00
8.3.5		Air manifold, including supports, up to 1m outside blower building, inclusive of connection to feeder lines and installation of 5 no.'s of BF valves	Sum	-	-	270 280.00
8.3.6		Condensate purging system complete with connection to header pipe and supports for FBDA system	No	12	2 174.67	26 096.04
8.3.7		Dissolved oxygen sensors installed with probe located 2m below top water level, incl swivel mechanism and support structure for cleaning	No	12	1 631.00	19 572.00
8.3.8		Instrumentation controller in suitable protective housing	No	1		0.00
8.3.9		Electrical and signal cabling between instruments, controllers and control system	Sum	-	-	0.00
8.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
8.4.1		WAS holding tank floating aerator	Sum	-	-	15 961.00
8.4.2		Diffuser Assemblies/Pipe Connection Load Tests				
		.1 Fine Bubble Aeration system complete	Sum	-	-	133 975.00
		.2 Coarse bubble aeration system	Sum	-	-	6 385.00
		Carried Forward				31 256 144.05

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				31 256 144.05
8.4.3		Leak Testing/Air Distribution testing				
		.1 Fine bubble aeration system	Sum	-	-	34 950.00
		.2 Coarse bubble aeration system	Sum	-	-	31 921.00
8.4.4		In-situ oxygenation efficiency determination				
		.1 Fine Bubble Aeration system complete	Sum	-	-	87 375.00
		.2 Coarse bubble aeration system	Sum	-	-	34 950.00
8.5		**SPARE PARTS AND SERVICING**				
8.5.1		Provision of spare parts for:				
		.1 For item 8.2.1 above	Sum	-	-	57 039.00
		.2 For item 8.2.2 above	Sum	-	-	205 531.71
		.3 For item 8.2.3 above	Sum	-	-	NIL
		.4 For item 8.2.4 above	Sum	-	-	NIL
		.5 For item 8.2.5 above	Sum	-	-	NIL
		.6 For item 8.2.6 above	Sum	-	-	NIL
		.7 For item 8.2.7 above	Sum	-	-	NIL
		.8 For item 8.2.8 above	Sum	-	-	NIL
		.9 For item 8.2.9 above	Sum	-	-	NIL
		.10 For item 8.2.10 above	Sum	-	-	NIL
		.11 For item 8.2.11 above	Sum	-	-	NIL
		.12 For item 8.2.12 above	Sum	-	-	NIL
		.13 For item 8.2.13 above	Sum	-	-	NIL
		.14 For item 8.2.14 above	Sum	-	-	NIL
		.15 For item 8.2.15 above	Sum	-	-	25 630.00
		.16 For item 8.2.16 above	Sum	-	-	NIL
		Carried Forward				31 733 540.76

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				31 733 540.76
8.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 8.2.1 above	Sum	-	-	12 303.00
		.2 For item 8.2.2 above	Sum	-	-	NIL
		.3 For item 8.2.3 above	Sum	-	-	NIL
		.4 For item 8.2.4 above	Sum	-	-	NIL
		.5 For item 8.2.5 above	Sum	-	-	NIL
		.6 For item 8.2.6 above	Sum	-	-	5 825.00
		.7 For item 8.2.7 above	Sum	-	-	13 980.00
		.8 For item 8.2.8 above	Sum	-	-	4 660.00
		.9 For item 8.2.9 above	Sum	-	-	11 650.00
		.10 For item 8.2.10 above	Sum	-	-	NIL
		.11 For item 8.2.11 above	Sum	-	-	11 650.00
		.12 For item 8.2.12 above	Sum	-	-	4 660.00
		.13 For item 8.2.13 above	Sum	-	-	4 660.00
		.14 For item 8.2.14 above	Sum	-	-	9 320.00
		.15 For item 8.2.15 above	Sum	-	-	4 660.00
		.16 For item 8.2.16 above	Sum	-	-	4 660.00
		Note: Servicing of instruments, valves and actuators measured under Schedule M7				
8.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		Extra over to comply with local content requirement	Sum	1		1 147 700.13
		Carried Forward				32 969 268.89

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M8- Diffused Aeration Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				32 969 268.89
		.....				
		.....				
		.....			

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M9 - Chemical Dosing Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M9	Part 3.6.1 23, 24	**SCHEDULE NO. M9 FERRIC CHLORIDE DOSING SYSTEM**				
9.1		**DESIGN, DRAWINGS AND GENERAL**				
9.1.1		Design and detailing of ferric chloride dosing system, including GA and P&ID drawings				
	Part 3.6.1 24	.1 '08 Biological reactor	Sum	-		47 299.00
	Part 3.6.1 23	.2 '24 Biological reactor	Sum	-		47 299.00
9.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
9.2.1	Part 3.6.1 24	'08 Biological Reactor				
		.1 Ferric chloride dosing pumps	No	3	55 125.86	165 377.58
		.2 Pipework from bulk tanks to dosing pumps	Sum	-		17 125.50
		.3 Pipework from dosing pumps to battery limit	Sum	-		4 077.50
		.4 Fittings, valves & dosing ports required for operational system	Sum	-		116 360.20
		.5 20,000 L bulk storage tank suitable to receive 43% ferric chloride solution	No	2	229 522.48	459 044.96
		.6 Emergency shower and eye wash	No	1	13 397.50	13 397.50
		.7 First charge for filling bulk storage tanks with ferric	Sum	-		738 610.00
9.2.2	Part 3.6.1 23	'24 Biological Reactor				
		.1 Ferric chloride dosing pumps	No	4	55 125.47	220 501.88
		.2 Pipework from bulk tanks to dosing pumps	Sum	-		23 474.75
		.3 Pipework from dosing pumps to battery limit	Sum	-		4 077.50
		.4 Fittings, valves & dosing ports required for operational system	Sum	-		188 573.89
				Carried Forward		2 045 219.26
				Brought Forward		2 045 219.26

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		.5 20,000 L bulk storage tank suitable to receive 43% ferric chloride solution	No	4	229 524.23	918 096.92
		.6 Emergency shower and eye wash	No	1	13 397.50	13 397.50
		.7 First charge for filling bulk storage tanks with ferric	Sum	-		1 477 220.00
9.2.3		Provision for service &/or potable water connection including all:				
		.1 Pipework				
		a) for Item 9.2.1 above	Sum	-		7 665.70
		b) for Item 9.2.2 above	Sum	-		7 665.70
		.2 Support members				
		a) for Item 9.2.1 above	Sum	-		11 253.90
		b) for Item 9.2.2 above	Sum	-		12 982.76
		.3 Control equipment, or any other component required for sufficient operation				
		a) for Item 9.2.1 above	Sum	-		171 771.10
		b) for Item 9.2.2 above	Sum	-		343 541.03
9.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
9.3.1		'08 ferric chloride dosing system	Sum	-		69 571.47
9.3.2		'24 ferric chloride dosing system	Sum	-		113 235.67
9.3.3		Provision of service &/or potable water for:				
		.1 for Item 9.2.1 above	Sum	-		7 863.75
		.2 for Item 9.2.2 above	Sum	-		7 863.75
				Carried Forward		5 207 348.51
				Brought Forward		5 207 348.51

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M9 - Chemical Dosing Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
9.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
9.4.1		'08 ferric chloride dosing system	Sum	-	-	14 679.00
9.4.2		'24 ferric chloride dosing system	Sum	-	-	14 679.00
9.5		**SPARE PARTS AND SERVICING**				
9.5.1		Provision of spare parts for:				
		.1 '08 ferric chloride dosing system	Sum	-	-	46 483.50
		.2 '24 ferric chloride dosing system	Sum	-	-	61 978.00
9.5.2		Servicing of ferric dosing system at the end of the defects and liability period:				
		.1 '08 ferric chloride dosing system	Sum	-	-	13 462.74
		.2 '24 ferric chloride dosing system	Sum	-	-	13 462.74
9.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		Transfer pump, dosing skid, instrumentaton	sum	1		337 887.28
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. M9 **FERRIC DOSING EQUIPMENT** **CARRIED TO SUMMARY**				
					Total Carried forward to Summary of Schedules	5 709 980.77

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M10	Part 3.6.1 25	**SCHEDULE NO. M10 SUBMERGED MEMBRANE FILTRATION SYSTEM**				
10.1		**DESIGN, DRAWINGS AND GENERAL**				
10.1.1		Provision of designs, drawings and technical information for Membrane Filtration System	Sum	-		6 229 250.34
10.1.2		Provision of the services of a process specialist to consult and commissioning the plant	Month	4	925 189.84	3 700 759.36
10.1.3		Factory testing/inspection of MBR equipment and control systems witnessed by the Engineer and/or Engineer's Representative	Sum	-		176 037.33
10.1.4		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 10.1.3	Sum	-		291 250.00
10.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
10.2.1		**Membrane filtration equipment** (Note: Feed, permeate & membrane tank drainage pumps measured elsewhere)				
		.1 Membrane tank filtration trains (complete with racks/cassettes PVDF modules, rack assembly, supports, mounting rack, connections, pipework, etc)	No	16	7 394 222.83	118 307 565.28
		.2 Membrane tank inlet baffle	No	16	49 977.70	799 643.20
		.3 Membrane integrity testing equipment (excluding turbidity analysers which are scheduled elsewhere)	Sum	-		80 779.24
		.4 On-line performance and process monitoring service and associated equipment	Sum	-		1 312 662.59
		.5 Membrane unit lifting bracket / cradle	No	1	50 968.75	50 968.75
			Carried Forward			130 948 916.09

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				130 948 916.09
		.6 Other membrane plant pipework and associated equipment (EN Grade 1.4401) not mentioned above, but are required for proper and safe operation of the membrane filtration system	Sum	-		0.00
10.2.2		**Air Scour Equipment**				
		.1 Air blower complete as per specification	No.	5	5 247 154.88	26 235 774.40
		.2 Blower fittings and specials associated with blower	No.	5	1 278 304.53	6 391 522.65
		.3 Blower instrumentation	No	5	1 040 632.53	5 203 162.65
		.4 Pressure transmitter and air flow meter	Sum	-		78 055.00
		.5 Master Control Panel (1 off)	Sum	-		396 100.00
		.6 Air scour distribution pipework to membrane cassettes	Sum	-		5 497 793.47
		.7 Air pipework from blowers to membrane tanks	Sum	-		4 615 749.81
		.8 Pipe supports	Sum	-		592 402.50
10.2.3	Part 3.6.1 25.8	**Process instrumentation air system**				
		.1 Compressors	No	4	436 164.35	1 744 657.40
		.2 Refrigerant driers complete	Sum	-	63 099.90	63 099.90
		.3 Air receiver (moisture trap)	No	4	4 549.33	18 197.32
		.4 Air receiver	No	4	76 037.22	304 148.88
		.5 Condensate management system	Sum	-		30 919.10
		.6 All connecting pipework	Sum	-		131 062.50
		.7 Separator units and filter sets	Sum	-		59 480.24
		.8 Pressure and air regulating equipment as per the design requirements (Contractor to determine)	Sum	-		39 027.50
		.9 All supports required for the process air installation	Sum	-		30 290.00
		Carried Forward				182 380 359.41

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				182 380 359.41
10.2.4		**GRP Covers**				
		.1 GRP covers for membrane tanks	m²	1400	3 330.62	4 662 868.00
		.2 GRP covers for channels	m²	1000	3 368.90	3 368 900.00
10.2.5		**CIP: Sodium Hypochlorite Dosing Equipment** *(Valves measured else where, refer to relevant P&ID)*				
		.1 Sodium hypochlorite dosing pumps	No	6	154 961.31	929 767.86
		.2 CIP: Sodium hypochlorite dosing system (bunded skids and cabinet etc) as specified	Sum	-		533 212.35
		.3 Chemical storage tanks complete with mixer assembly	Sum	-		583 385.40
		.4 All pipework associated with the chemical dosing system (i.e. feed and discharge)	Sum	-		69 900.00
		.5 Pipe supports	Sum	-		Included
		.6 Filling station pump and pipework	Sum	-		152 458.89
		.7 Sodium hypochlorite required during the entire performance period (commissioning) of the MBR plant	Sum	-		552 210.00
		.8 Sodium hypochlorite - one tank fill	Sum	-		184 070.00
		.9 Access platform and stairs	Sum	-		73 977.50
		.10 Emergency shower and eye wash	No	1	13 406.82	13 406.82
10.2.6		**CIP: Citric Acid Dosing Equipment**				
		.1 Citric dosing pumps	No	4	80 392.58	321 570.32
		.2 CIP: Citric acid dosing system (bunded skids and cabinet etc) as specified	Sum	-		250 674.22
		.3 Chemical storage tanks complete with mixer assembly	Sum	-		280 555.30
		.4 All pipework associated with the chemical dosing system (i.e. feed and discharge)	Sum	-		69 900.00
		Carried Forward				194 427 216.07

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				194 427 216.07
		.5 Pipe supports	Sum	-	-	Included
		.6 Filling station pump and pipework	Sum	-	-	152 458.89
		.7 Citric acid required during the entire performance period (commissioning) of the MBR plant	Sum	-	-	316 786.80
		.8 Citric acid - one tank fill	Sum	-	-	158 393.40
		.9 Citric acid batching equipment	Sum	-	-	522 793.75
		.10 Citric acid batching dust collection system	Sum	-	-	200 962.50
		.11 Access platform and stairs	Sum			71 065.00
		.12 Emergency shower and eye wash	No	1		13 406.82
10.2.7		Scum suppression equipment for Scum Pump Station Collection Sump (Pressurized pipe configuration with spray nozzles suited for sodium hypochlorite and wash water and scum baffle for pump station)	Sum	-	-	36 115.00 Included
10.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
10.3.1		Membrane filtration equipment	Sum	-	-	1 135 875.00
10.3.2		Air Scour Equipment	Sum	-	-	515 512.50
10.3.3		Process instrumentation air system	Sum	-	-	61 162.50
10.3.4		GRP Covers	Sum	-	-	227 175.00
10.3.5		CIP: Sodium Hypochlorite Dosing Equipment	Sum	-	-	105 013.10
10.3.6		CIP: Citric Acid Dosing Equipment	Sum	-	-	125 703.50
10.3.7		Scum suppression equipment	Sum	-	-	29 125.00
		Carried Forward				198 098 764.83

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				198 098 764.83
10.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
10.4.1		Membrane filtration equipment	Sum	-	-	873 750.00
10.4.2		Air Scour Equipment	Sum	-	-	1 048 500.00
10.4.3		Process instrumentation air system	Sum	-	-	17 475.00
10.4.4		GRP Covers	Sum	-	-	Included
10.4.5		CIP: Sodium Hypochlorite Dosing Equipment	Sum	-	-	25 140.70
10.4.6		CIP: Citric Acid Dosing Equipment	Sum	-	-	25 140.70
10.4.7		Scum suppression equipment	Sum	-	-	17 475.00
10.5		**SPARE PARTS AND SERVICING**				
10.5.1		Provision of spare parts for:				
		.1 For item 10.2.1 above	Sum	-	-	1 001 385.07
		.2 For item 10.2.2 above	Sum	-	-	661 784.08
		.3 For item 10.2.3 above	Sum	-	-	17 475.00
		.4 For item 10.2.4 above	Sum	-	-	Included
		.5 For item 10.2.5 above	Sum	-	-	202 031.97
		.6 For item 10.2.6 above	Sum	-	-	82 153.47
		.7 For item 10.2.7 above	Sum	-	-	Included
10.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 10.2.1 above	Sum	-	-	87 375.00
		.2 For item 10.2.2 above	Sum	-	-	757 250.00
		.3 For item 10.2.3 above	Sum	-	-	17 475.00
		Carried Forward				202 933 175.82

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M10 - Submerged Membrane Filtration System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				202 933 175.82
		.4 For item 10.2.4 above	Sum	-	-	Included
		.5 For item 10.2.5 above	Sum	-	-	12 383.95
		.6 For item 10.2.6 above	Sum	-	-	12 383.95
		.7 For item 10.2.7 above	Sum	-	-	8 737.50
10.6		**CONTRACTOR SPESIFIC REQUIREMENTS**				
		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 (Specify)	Item			
		Extraction fans	Sum	1		17 009.00
		.....				
		.....				
		.....			

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11A - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M11A	**DS3.6.1 26**	**SCHEDULE NO. M11A ULTRA VIOLET DISINFECTION (CLOSED VESSEL SYSTEM)**				
11A.1		**DESIGN, DRAWINGS AND GENERAL**				
11.1.1		Provision of designs, drawings and technical information for the '24 MBR UV disinfection system	Sum	-	-	174 750.00
11.1.2		Factory testing/inspection of MBR UV equipment and control systems witnessed by the Engineer and/or Engineer's Representative	Sum	-	-	Included
11.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 11.1.2	Sum	-	-	329 112.50
11A.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
11.2.1		**'24 MBR UV System** Note: Both Open and closed systems to be priced. Only **highest** sub-total to be carried forward to summary of schedules and used in subsequent summation and totals for calculating the Tender Offer amount.				
		.1 Closed vessel UV disinfection reactors (complete with lamps, cleaning devices, mounting, draining, valves, connections, etc.)	Sum	-	-	11 539 696.41
		.2 UV Panels complete with power distribution centre and system control centre	Sum	-	-	4 641 723.31
		.3 Equipment associated with closed vessel UV reactor	Sum	-	-	2 320 861.57
		.4 Automatic chemical / mechanical cleansing equipment	Sum	-	-	1 237 792.87
		.5 Online monitoring equipment required for dose adjustment (e.g. UVt, Temp, etc.)	Sum	-	-	1 547 241.05
		.6 Operator safety equipment as per manufactures recommendations	Sum	-	-	309 448.18
				Carried Forward		22 100 625.89

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				22 100 625.89
		.7 All pipework associated with UV system	Sum	-	-	2 928 103.32
		.8 All valves associated with UV system	Sum	-	-	2 578 671.58
		.9 All specific equipment associated closed vessel UV system not indicated above but required in terms of relevant specification	Sum	-	-	205 960.00
		.10 Access and maintenance platform	Sum	-	-	173 527.22
		Note: Use **highest** amount above in subsequent summation and totals and price supporting equipment accordingly				
11A.3		**INSTALLATION**				
		.1 For item 11.2.1 above	Sum	-	-	71 232.07
		.2 For item 11.2.2 above	Sum	-	-	62 720.34
		.3 For item 11.2.3 above	Sum	-	-	37 185.17
		.4 For item 11.2.4 above	Sum	-	-	25 268.80
		.5 For item 11.2.5 above	Sum	-	-	28 673.45
		.6 For item 11.2.6 above	Sum	-	-	15 054.66
		.7 For item 11.2.7 above	Sum	-	-	90 287.50
		.8 For item 11.2.8 above	Sum	-	-	incl
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	31 455.00
		.11 For item 11.2.11 above	Sum	-	-	0.00
11A.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		.1 For item 11.2.1 above	Sum	-	-	956 329.75
		.2 For item 11.2.2 above	Sum	-	-	221 899.88
		.3 For item 11.2.3 above	Sum	-	-	115 609.94
		.4 For item 11.2.4 above	Sum	-	-	66 008.03
		Carried Forward				29 708 612.60

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				29 708 612.60
		.5 For item 11.2.5 above	Sum	-	-	80 179.91
		.6 For item 11.2.6 above	Sum	-	-	23 492.06
		.7 For item 11.2.7 above	Sum	-	-	29 707.50
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
		.11 For item 11.2.11 above	Sum	-	-	0.00
11A.5		**SPARE PARTS AND SERVICING**				
11.5.1		Provision of spare parts for:				
		.1 For item 11.2.1 above	Sum	-	-	231 919.12
		.2 For item 11.2.2 above	Sum	-	-	198 787.92
		.3 For item 11.2.3 above	Sum	-	-	99 393.96
		.4 For item 11.2.4 above	Sum	-	-	53 010.07
		.5 For item 11.2.5 above	Sum	-	-	66 262.58
		.6 For item 11.2.6 above	Sum	-	-	13 252.52
		.7 For item 11.2.7 above	Sum	-	-	0.00
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
		.11 For item 11.2.11 above	Sum	-	-	0.00
11.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 11.2.1 above	Sum	-	-	2 951 840.60
		.2 For item 11.2.2 above	Sum	-	-	378 860.92
		.3 For item 11.2.3 above	Sum	-	-	231 277.55
		Carried Forward				34 066 597.31

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11A - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				34 066 597.31
		.4 For item 11.2.4 above	Sum	-	-	120 590.03
		.5 For item 11.2.5 above	Sum	-	-	231 277.55
		.6 For item 11.2.6 above	Sum	-	-	0.00
		.7 For item 11.2.7 above	Sum	-	-	0.00
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
		.11 For item 11.2.11 above	Sum	-	-	0.00
11A.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE NO. M11A** **ULTRA VIOLET DISINFECTION (CLOSED VESSEL SYSTEM)** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				34 418 464.89

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M11B	**DS3.6.1 26**	**SCHEDULE NO. M11B ULTRA VIOLET DISINFECTION (LOW PRESSURE, OPEN CHANNEL SYSTEM)**				
11B.1		**DESIGN, DRAWINGS AND GENERAL**				
11.1.1		Provision of designs, drawings and technical information for the '24 MBR UV disinfection system	Sum	-	-	174 750.00
11.1.2		Factory testing/inspection of UV equipment and control systems witnessed by the Engineer and/or Engineer's Representative	Sum	-	-	incl
11.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 11.1.2	Sum	-	-	329 112.50
11B.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
11.2.1		**'24 MBR UV System** Note: Both Low and Medium Pressure systems to be priced. Only **highest** sub-total to be carried forward to summary of schedules and used in subsequent summation and totals for calculating the Tender Offer amount.				
		.1 Open Channel UV disinfection reactors (complete with lamps, cleaning devices, mounting, connections, etc.)	Sum	-	-	9 855 316.98
		.2 UV Panels complete with power distribution centre and system control centre	Sum	-	-	3 911 167.65
		.3 Equipment associated with open channel UV reactor system	Sum	-	-	1 955 583.74
		.4 Automatic chemical / mechanical cleansing equipment	Sum	-	-	1 042 978.08
		.5 Online monitoring equipment required for dose adjustment (e.g. UVt, Temp, etc.)	Sum	-	-	1 303 722.38
		.6 Operator safety equipment as per manufactures recommendations	Sum	-	-	260 744.48
					Carried Forward	18 833 375.81

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				18 833 375.81
		.7 Wall or channel gates for UV system for isolation and flow control purposes	Sum	-	-	1 576 772.27
		.8 All specific equipment associated open channel UV system not indicated above but required in terms of relevant specification	Sum	-	-	652 905.00
		.9 Access and maintenance platform	Sum	-	-	173 527.22
11B.3		**INSTALLATION**				
		.1 For item 11.2.1 above	Sum	-	-	74 280.40
		.2 For item 11.2.2 above	Sum	-	-	65 333.20
		.3 For item 11.2.3 above	Sum	-	-	38 491.60
		.4 For item 11.2.4 above	Sum	-	-	25 965.52
		.5 For item 11.2.5 above	Sum	-	-	29 544.40
		.6 For item 11.2.6 above	Sum	-	-	15 228.88
		.7 For item 11.2.7 above	Sum	-	-	150 285.00
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	31 455.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
11B.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		.1 For item 11.2.1 above	Sum	-	-	921 957.41
		.2 For item 11.2.2 above	Sum	-	-	200 426.60
		.3 For item 11.2.3 above	Sum	-	-	104 873.13
		.4 For item 11.2.4 above	Sum	-	-	60 281.65
		.5 For item 11.2.5 above	Sum	-	-	73 022.15
		.6 For item 11.2.6 above	Sum	-	-	22 060.50
		Carried Forward				23 049 785.74

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				23 049 785.74
		.7 For item 11.2.7 above	Sum	-	-	29 707.50
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
11B.5		**SPARE PARTS AND SERVICING**				
11.5.1		Provision of spare parts for:				
		.1 For item 11.2.1 above	Sum	-	-	308 965.34
		.2 For item 11.2.2 above	Sum	-	-	264 827.34
		.3 For item 11.2.3 above	Sum	-	-	132 413.67
		.4 For item 11.2.4 above	Sum	-	-	70 620.67
		.5 For item 11.2.5 above	Sum	-	-	88 275.84
		.6 For item 11.2.6 above	Sum	-	-	17 655.17
		.7 For item 11.2.7 above	Sum	-	-	0.00
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
11.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 11.2.1 above	Sum	-	-	2 874 824.95
		.2 For item 11.2.2 above	Sum	-	-	368 592.26
		.3 For item 11.2.3 above	Sum	-	-	225 116.39
		.4 For item 11.2.4 above	Sum	-	-	117 509.36
		.5 For item 11.2.5 above	Sum	-	-	225 116.39
		.6 For item 11.2.6 above	Sum	-	-	0.00
		Carried Forward				27 773 410.62

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M11B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				27 773 410.62
		.7 For item 11.2.7 above	Sum	-	-	0.00
		.8 For item 11.2.8 above	Sum	-	-	0.00
		.9 For item 11.2.9 above	Sum	-	-	0.00
		.10 For item 11.2.10 above	Sum	-	-	0.00
11B.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE NO. M11B** **ULTRA VIOLET DISINFECTION (LOW PRESSURE, OPEN CHANNEL SYSTEM)** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				27 773 410.62

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M12	Part 3.6.1 39	**SCHEDULE NO. M12** **SLUDGE DEWATERING, STORAGE AND LOADING**				
12.1		**DESIGN, DRAWINGS AND GENERAL**				
		Provision of designs, drawings and technical information for dewatering installation	Sum	-		1 424 096.00
12.1.2		Factory testing of dewatering (GBT&BFP) equipment and control systems witnessed by the Engineer and/or Engineers Representatives	Sum	-		762 153.00
12.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 12.1.2	Sum	-		262 125.00
12.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
12.2.1	Part 3.6.1 39	Primary sludge dewatering trains				
		.1 Sludge feed in-line solids density meters	No	1	115 621.00	115 621.00
		.2 Filtrate solids density meters	No	1	98 146.00	98 146.00
		.3 Primary belt filter presses complete as per specification	No	8	**4 171 432.25**	**33 371 458.00**
		.4 Primary sludge filtrate and drainage pipework	Sum	-		Included in 12.2.1.3
		.5 Access platforms and stairs for all primary sludge belt presses (complete with hand railing, kick plates, etc.)	Sum	-		2 387 542.00
		.6 Horizontal centreless screw conveyor for receiving dewatered primary sludge from belt presses				
		a) Screw conveyors incl. covers, liners, drives, trip wires etc.)	No	4	508 721.00	2 034 884.00
		b) All supports associated with conveyor system	Sum	-		260 029.00
			Carried Forward			40 716 054.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				40 716 054.00
		.7 Diversion system to discharge sludge cake into active sludge cake pump hopper	No	2	173 580.00	347 160.00
		.8 Sludge cake receiving hopper complete with bridge breaking mechanism	No	4		Included 4.2.1.24a
		.9 Inline solids density meter (microwave meter-sludge cake discharge)	No	4	376 890.00	1 507 560.00
		.10 Additional supports and equipment to complete the primary sludge conveyor/pumping system	Sum	-		128 267.00
		.11 Live bottom for primary sludge cake silo complete as per specification	Sum	-		5 310 711.00
		.12 Access platforms and stairs for all primary sludge cake silos	Sum	-		623 310.00
12.2.2	Part 3.6.1 39	Waste Activated Sludge (WAS) dewatering trains				
		.1 Sludge feed in-line solids density meters	No	1	115 621.00	115 621.00
		.2 Filtrate solids density meters	No	1	98 146.00	98 146.00
		.3 Mechanical dewatering units for WAS system complete as per specification				
		a) Gravity belt thickener / linear screen	No	8	**1 759 793.50**	**14 078 348.00**
		b) Belt filter press	No	8	**5 469 455.50**	**43 755 644.00**
		.4 WAS filtrate and drainage pipework	Sum	-		36 325.00
		.5 Access platforms and stairs for all WAS gravity belt / belt press combinations	Sum	-		3 581 313.00
		.6 Horizontal centreless screw conveyor for receiving dewatered WAS from belt presses				
		a) Screw conveyors incl. covers, liners, drives, trip wires etc.)	No	4	508 721.00	2 034 884.00
		b) All supports associated with conveyor system	Sum	-		260 029.00
		.7 Diversion system to discharge sludge cake into active sludge cake hopper	No	2	170 085.00	340 170.00
		Carried Forward				112 933 542.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				112 933 542.00
		.8 Receiving hopper complete with bridge breaking mechanism	No	4		Included 4.2.1.25a
		.9 Inline solids density meter (microwave meter-sludge cake discharge)	No	4	376 890.00	1 507 560.00
		.10 Additional supports and equipment to complete complete the WAS conveyor/pumping system	Sum	-		128 267.00
		.11 Live bottom for primary sludge cake silo complete as per specification	Sum	-		5 310 711.00
		.12 Access platforms and stairs for all primary sludge cake silos	Sum	-		623 310.00
12.2.3	Part 3.6.1 39	Primary sludge poly make up and dosing system				
		.1 Poly make-up tank feeder hopper	No	2	23 883.00	47 766.00
		.2 Poly make-up tank feeder hopper support structure and access platform	No	2	168 727.00	337 454.00
		.3 Poly electrolyte make-up system complete with feeder, mixer, connections, control panel, instrumentation, etc.	No	2	1 038 421.00	2 076 842.00
		.4 .a Primary sludge poly dosing pumps complete as per specification	No	8		Included in 4.1.1.27
		.b Motors associated with pumps	No	8		Included in 4.1.1.27
		.5 Primary sludge poly dosing pumps suction pipework (including supports)	Sum	-		107 413.00
		.6 Primary sludge poly dosing pumps delivery pipework (including supports)	Sum	-		410 345.00
		.7 Primary sludge poly dosing injection units and static mixers	No	8		Included 12.2.1.3
		.8 .a Poly lubrication pumps	No	4	140 588.00	562 352.00
		.b Motors associated with pumps	No	4		Included above
		.9 Poly lubrication pump pipeworks (complete, valves measured elsewhere)	Sum	-		567 562.00
		Carried Forward				124 613 124.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				124 613 124.00
12.2.4	Part 3.6.1 39	WAS poly make up and dosing system				
		.1 Poly make-up tank feeder hopper	No	2	23 883.00	47 766.00
		.2 Poly make-up tank feeder hopper support structure and access platform	No	2	176 122.00	352 244.00
		.3 Poly electrolyte make-up system complete with feeder, mixer, connections, control panel, instrumentation, etc.	No	2	1 038 419.00	2 076 838.00
		.4 .a WAS poly dosing pumps complete as per specification	No	8		Included in 4.1.1.26
		.b Motors associated with pumps	No	8		Included in 4.1.1.26
		.5 WAS poly dosing pumps suction pipework (including supports)	Sum	-		107 413.00
		.6 WAS poly dosing pumps delivery pipework (including supports)	Sum	-		410 345.00
		.7 WAS poly dosing injection units and static mixers	No	8		Included 12.2.2.3
		.8 .a Poly lubrication pumps	No	4	131 026.00	524 104.00
		.b Motors associated with pumps	No	4		Included above
		.9 Poly lubrication pump pipeworks (complete, valves measured elsewhere)	Sum	-		567 562.00
12.2.5		Compressed air system / hydraulic system for dewatering units complete	Sum	-		415 003.00
12.2.6		Provision for service water connection, including all:				
		.1 Pipework				
		.a) Item 12.2.1 above	Sum	-		896 772.00
		.b) Item 12.2.2 above	Sum	-		910 108.00
		.c) Item 12.2.3 above	Sum	-		128 363.00
		.d) Item 12.2.4 above	Sum	-		166 691.00
		Carried Forward				131 216 333.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				131 216 333.00
		.e) Item 12.2.5 above	Sum	-	-	134 432.00
		.2 Support members				
		.a) Item 12.2.1 above	Sum	-	-	150 632.00
		.b) Item 12.2.2 above	Sum	-	-	145 946.00
		.c) Item 12.2.3 above	Sum	-	-	35 369.00
		.d) Item 12.2.4 above	Sum	-	-	35 369.00
		.e) Item 12.2.5 above	Sum	-	-	9 497.00
		.3 Control equipment, or any other component required for sufficient operation associated with:				
		.a) Item 12.2.1 above	Sum	-	-	0.00
		.b) Item 12.2.2 above	Sum	-	-	0.00
		.c) Item 12.2.3 above	Sum	-	-	0.00
		.d) Item 12.2.4 above	Sum	-	-	0.00
		.e) Item 12.2.5 above	Sum	-	-	0.00
12.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
12.3.1		Primary sludge dewatering train	Sum	-	-	571 316.00
12.3.2		WAS dewatering train	Sum	-	-	623 741.00
12.3.3		Primary sludge poly make-up and dosing system	Sum	-	-	332 025.00
12.3.4		WAS poly make-up and dosing system	Sum	-	-	332 025.00
12.3.5		Process air system	Sum	-	-	13 980.00
12.3.6		Wash water supply	Sum	-	-	209 700.00
		Carried Forward				133 810 365.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		133 810 365.00
12.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
12.4.1		Primary sludge dewatering train	Sum	-	-	127 684.00
12.4.2		WAS dewatering train	Sum	-	-	127 684.00
12.4.3		Primary sludge poly make-up and dosing system	Sum	-	-	63 842.00
12.4.4		WAS poly make-up and dosing system	Sum	-	-	63 842.00
12.4.5		Process air system	Sum	-	-	15 961.00
12.4.6		Wash water supply	Sum	-	-	63 842.00
12.5		**SPARE PARTS AND SERVICING**				
12.5.1		Provision of spare parts for:				
		.1 For item 12.2.1 above	Sum	-	-	4 046 546.00
		.2 For item 12.2.2 above	Sum	-	-	6 061 342.00
		.3 For item 12.2.3 above	Sum	-	-	36 656.00
		.4 For item 12.2.4 above	Sum	-	-	36 656.00
		.5 For item 12.2.5 above	Sum	-	-	7 748.00
		.6 For item 12.2.6 above	Sum	-	-	0.00
12.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 12.2.1 above	Sum	-	-	215 292.00
		.2 For item 12.2.2 above	Sum	-	-	284 493.00
		.3 For item 12.2.3 above	Sum	-	-	27 681.00
		.4 For item 12.2.4 above	Sum	-	-	27 681.00
		.5 For item 12.2.5 above	Sum	-	-	9 227.00
				Carried Forward		145 026 542.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M12 - Sludge Dewatering & Drying

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				145 026 542.00
		.6 For item 12.2.6 above	Sum	-	-	6 152.00
12.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) ....

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M13 - Sludge conditioning

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M13	Part 3.6.1 34 & 36	**SCHEDULE NO. M13 SLUDGE CONDITIONING EQUIPMENT**				
13.1		**DESIGN, DRAWINGS AND GENERAL**				
13.1.1		Provision of designs, drawings and technical information for:				
		.1 Primary sludge grinder system	Sum	-		52 484.00
		.2 Hydro cyclone system	Sum	-		80 618.00
		.3 Strain press system	Sum	-		103 918.00
13.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
13.2.1	Part 3.6.1 34	Primary sludge channel grinder (one unit to be placed in storage)	No	2	533 876.00	1 067 752.00
13.2.2	Part 3.6.1 36.2	Hydro cyclone	No	2	550 337.00	1 100 674.00
13.2.3	Part 3.6.1 36.2	Cyclone grit classifier	No	2	274 996.00	549 992.00
13.2.4	Part 3.6.1 15	Dolly and skip system for hydro cyclone system				
		a) Structural steel component of system	Sum	-		111 258.00
		b) Other items (i.e. motor, cable, wheels, etc.)	Sum	-		264 455.00
13.2.5	Part 3.6.1 36	All structural steel supports, stairs and walkways associated with the cyclone system as a whole.	Sum	-		113 303.00
13.2.6	Part 3.6.1 36.1	Strain press unit	No	2	2 633 457.00	5 266 914.00
13.2.7	Part 3.6.1 15	Dolly and skip system for strain press system				
		a) Structural steel component of system	Sum	-		111 258.00
		b) Other items (i.e. motor, cable, wheels, etc.)	Sum	-		264 455.00
13.2.8		Provision for service water connection, including all:				
		.1 Pipework (stainless steel pipe)				
				Carried Forward		9 087 081.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				9 087 081.00
		.a) Item 13.2.3 above	Sum	-	-	77 077.00
		.2 Support members				
		.a) Item 13.2.3 above	Sum	-	-	12 280.00
		.3 Control equipment, or any other component required for sufficient operation associated with:				
		.a) Item 13.2.3 above	Sum	-	-	0.00
13.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
13.3.1		Item 13.2.1 above	Sum	-	-	28 193.00
13.3.2		Item 13.2.2 above	Sum	-	-	13 048.00
13.3.3		Item 13.2.3 above	Sum	-	-	13 048.00
13.3.4		Item 13.2.4 above	Sum	-	-	39 144.00
13.3.5		Item 13.2.5 above	Sum	-	-	19 572.00
13.3.6		Item 13.2.6 above	Sum	-	-	28 193.00
13.3.7		Item 13.2.7 above	Sum	-	-	39 144.00
13.3.8		Item 13.2.8 above	Sum	-	-	26 096.00
13.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
13.4.1		Item 13.2.1 above	Sum	-	-	4 427.00
13.4.2		Item 13.2.2 above	Sum	-	-	12 769.00
13.4.3		Item 13.2.3 above	Sum	-	-	12 769.00
		Carried Forward				9 412 841.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M13 - Sludge conditioning

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				9 412 841.00
13.4.4		Item 13.2.4 above	Sum	-	-	1 597.00
13.4.5		Item 13.2.5 above	Sum	-	-	3 193.00
13.4.6		Item 13.2.6 above	Sum	-	-	12 769.00
13.4.7		Item 13.2.7 above	Sum	-	-	1 597.00
13.4.8		Item 13.2.8 above	Sum	-	-	3 193.00
13.5		**SPARE PARTS AND SERVICING**				
13.5.1		Provision of spare parts for:				
		.1 Item 13.2.1 above	Sum	-	-	113 393.00
		.2 Item 13.2.2 above	Sum	-	-	771 324.00
		.3 Item 13.2.3 above	Sum	-	-	119 646.00
		.4 Item 13.2.4 above	Sum	-	-	2 913.00
		.5 Item 13.2.5 above	Sum	-	-	0.00
		.6 Item 13.2.6 above	Sum	-	-	19 031.00
		.7 Item 13.2.7 above	Sum	-	-	0.00
		.8 Item 13.2.8 above	Sum	-	-	0.00
13.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 13.2.1 above	Sum	-	-	0.00
		.2 Item 13.2.2 above	Sum	-	-	30 756.00
		.3 Item 13.2.3 above	Sum	-	-	6 152.00
		.4 Item 13.2.4 above	Sum	-	-	3 076.00
		.5 Item 13.2.5 above	Sum	-	-	0.00
		.6 Item 13.2.6 above	Sum	-	-	6 152.00
		.7 Item 13.2.7 above	Sum	-	-	3 076.00
		Carried Forward				10 510 709.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				10 510 709.00
		.8 Item 13.2.8 above	Sum	-	-	0.00
13.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE NO. M13** **SLUDGE CONDITION EQUIPMENT** **CARRIED TO SUMMARY**	Item			0.00
		Total Carried forward to Summary of Schedules				10 510 709.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M14	*Part 3.6.1 22, 50*	**SCHEDULE NO. M14 HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT**				
14.1		**DESIGN, DRAWINGS AND GENERAL**				
14.1.1		Provision of designs, drawings and technical information for:				
		.1 Air conditioning systems	Sum	-	-	207 900.00
		.2 Forced ventilation systems	Sum	-	-	148 500.00
		.3 Dehumidification systems	Sum	-	-	137 500.00
14.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
14.2.1	Part 3.6.1 50	Air conditioning systems				
		.1 '24 MCC substation No.1	Sum	-	-	1 364 000.00
		.2 '24 MCC substation No.2	Sum	-	-	1 210 000.00
		.3 '24 MCC substation No.3	Sum	-	-	1 078 000.00
		.4 '24 MCC substation No.4	Sum	-	-	957 000.00
14.2.2	Part 3.6.1 50	Forced ventilation systems				
		.1 '24 MBR Blower room	Sum	-	-	1 595 000.00
		.2 '24 Raw sewage pump station mechanical room	Sum	-	-	1 012 000.00
		.3 '24 Primary sludge pump station	Sum	-	-	946 000.00
		.4 '24 MBR mechanical room(s)	Sum	-	-	961 400.00
		.5 '24 Dewatering building	Sum	-	-	1 364 000.00
		.6 '24 Poly dosing and storage room	Sum	-	-	95 150.00
		.7 '24 MBR Reuse pump station	Sum	-	-	1 452 000.00
		.8 '24 MBR control room	Sum	-	-	35 200.00
				Carried Forward		12 563 650.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M14 - HVAC

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				12 563 650.00
		.9 '24 Dewatering building control room	Sum	-	-	49 500.00
		.10 '24 MCC substation No.1	Sum	-	-	45 100.00
		.11 '24 MCC substation No.2	Sum	-	-	49 500.00
		.12 '24 MCC substation No.3	Sum	-	-	33 000.00
		.13 '24 MCC substation No.4	Sum	-	-	30 800.00
14.2.3		Dehumidification systems				
		.1 '24 MCC substation No.1	Sum	-	-	41 800.00
		.2 '24 MCC substation No.2	Sum	-	-	33 000.00
		.3 '24 MCC substation No.3	Sum	-	-	33 000.00
		.4 '24 MCC substation No.4	Sum	-	-	33 000.00
		.5 '24 Dewatering poly make up and dosing building	Sum	-	-	Included
14.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following				
14.3.1		Air conditioning systems				
		.1 '24 MCC substation No.1	Sum	-	-	96 800.00
		.2 '24 MCC substation No.2	Sum	-	-	55 000.00
		.3 '24 MCC substation No.3	Sum	-	-	55 000.00
		.4 '24 MCC substation No.4	Sum	-	-	55 000.00
14.3.2		Forced ventilation systems				
		.1 MBR Blower room	Sum	-	-	55 000.00
		.2 Raw sewage pump station mechanical room	Sum	-	-	55 000.00
		.3 Primary sludge pump station	Sum	-	-	55 000.00
		Carried Forward				13 339 150.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				13 339 150.00
		.4 MBR mechanical room(s)	Sum	-	-	27 500.00
		.5 '24 Dewatering building	Sum	-	-	27 500.00
		.6 '24 Poly dosing and storage room	Sum	-	-	27 500.00
		.7 '24 MBR Reuse pump station	Sum	-	-	27 500.00
		.8 '24 MBR control room	Sum	-	-	27 500.00
		.9 '24 Dewatering building control room	Sum	-	-	49 500.00
		.10 '24 MCC substation No.1	Sum	-	-	16 500.00
		.11 '24 MCC substation No.2	Sum	-	-	16 500.00
		.12 '24 MCC substation No.3	Sum	-	-	16 500.00
		.13 '24 MCC substation No.4	Sum	-	-	16 500.00
14.3.3	Part 3.6.1 50	Dehumidification systems				
		.1 '24 MCC substation No.1	Sum	-	-	11 000.00
		.2 '24 MCC substation No.2	Sum	-	-	11 000.00
		.3 '24 MCC substation No.3	Sum	-	-	11 000.00
		.4 '24 MCC substation No.4	Sum	-	-	11 000.00
		.5 '24 Dewatering poly make up and dosing building	Sum	-	-	11 000.00
14.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
14.4.1		Air conditioning systems				
		.1 '24 MCC substation No.1	Sum	-	-	20 790.00
		.2 '24 MCC substation No.2	Sum	-	-	20 790.00
		.3 '24 MCC substation No.3	Sum	-	-	20 790.00
		Carried Forward				13 709 520.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Schedule M14 - HVAC

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				13 709 520.00
		.4 '24 MCC substation No.4	Sum	-	-	20 790.00
14.4.2		Forced ventilation systems				
		.1 MBR Blower room	Sum	-	-	13 200.00
		.2 Raw sewage pump station mechanical room	Sum	-	-	13 200.00
		.3 Primary sludge pump station	Sum	-	-	13 200.00
		.4 MBR mechanical room(s)	Sum	-	-	13 200.00
		.5 '24 Dewatering building	Sum	-	-	13 200.00
		.6 '24 Poly dosing and storage room	Sum	-	-	13 200.00
		.7 '24 MBR Reuse pump station	Sum	-	-	13 200.00
		.8 '24 MBR control room	Sum	-	-	13 200.00
		.9 '24 Dewatering building control room	Sum	-	-	13 200.00
		.10 '24 MCC substation No.1	Sum	-	-	13 200.00
		.11 '24 MCC substation No.2	Sum	-	-	13 200.00
		.12 '24 MCC substation No.3	Sum	-	-	13 200.00
		.13 '24 MCC substation No.4	Sum	-	-	13 200.00
14.4.3		Dehumidification systems				
		.1 '24 MCC substation No.1	Sum	-	-	10 780.00
		.2 '24 MCC substation No.2	Sum	-	-	10 780.00
		.3 '24 MCC substation No.3	Sum	-	-	10 780.00
		.4 '24 MCC substation No.4	Sum	-	-	10 780.00
		.5 '24 Dewatering poly make up and dosing building	Sum	-	-	10 780.00
		Carried Forward				13 955 810.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M14 - HVAC

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				13 955 810.00
14.5		**SPARE PARTS AND SERVICING**				
14.5.1		Provision of spare parts for:				
		.1 Item 14.2.1 above	Sum	-	-	231 000.00
		.2 Item 14.2.2 above	Sum	-	-	207 900.00
		.3 Item 14.2.3 above	Sum	-	-	53 900.00
14.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 14.2.1 above	Sum	-	-	121 000.00
		.2 Item 14.2.2 above	Sum	-	-	96 800.00
		.3 Item 14.2.3 above	Sum	-	-	96 800.00
14.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item			0.00
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		.....				
		SCHEDULE NO. M14				
		HVAC				
		CARRIED TO SUMMARY				
		Total Carried forward to Summary of Schedules				14 763 210.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M15	*Part 3.6.1 48*	**SCHEDULE NO. M15 LIFTING EQUIPMENT**				
		Rate to include for design, supply of material, manufacturing, corrosion protection, erection, welding, fasteners, testing etc.				
		Workshop and layout drawings for all structural steel elements shall be compiled and submitted to the Engineer for approval prior to manufacturing.				
15.1		**DESIGN, DRAWINGS AND GENERAL**				
15.1.1		Provision of designs, drawings and technical information for lifting equipment	Sum	-	-	634 401.00
15.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
15.2.1		24 Stone trap lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	188 759.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	144 538.00
15.2.2		'24 Inlet works lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	531 310.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	1 271 376.00
15.2.3		'24 Raw sewage pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	594 047.48
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	incl
15.2.4		'24 Mixed liquor pump station lifting equipment				
		.1 A-recycle pumps				
		a) Structural steel component of lifting equipment	Sum	-	-	422 196.00
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	23 766.00
				Carried Forward		3 810 393.48

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				3 810 393.48
		.2 R-recycle pumps				
		a) Structural steel component of lifting equipment	Sum	-	-	439 438.00
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	35 649.00
		.3 Membrane feed pumps				
		a) Structural steel component of lifting equipment	Sum	-	-	226 126.50
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	23 766.00
15.2.5		'24 Bioreactor lifting equipment				
		.1 Mobile cranes				
		a) Structural steel component of lifting equipment	Sum	-	-	254 703.95
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	31 590.14
		.2 Push carts				
		a) Structural steel component of lifting equipment	Sum	-	-	85 210.43
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	5 242.50
		.3 Gantry cranes				
		a) Structural steel component of lifting equipment	Sum	-	-	194 231.13
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	142 675.22
15.2.6		'24 Membrane tanks lifting equipment				
		.1 Traveling beam				
		a) Structural steel component of lifting equipment	Sum	-	-	2 666 793.35
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	incl
		Carried Forward				7 915 819.70

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				7 915 819.70
		.2 Dolly system				
		a) Structural steel component of lifting equipment	Sum	-	-	95 668.64
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	107 707.75
		.3 Gantry crane (Permeate pumping installation)				
		a) Structural steel component of lifting equipment	Sum	-	-	435 571.37
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	202 891.74
15.2.7		'24 Membrane blower room lifting equipment				
		.1 Traveling beam				
		a) Structural steel component of lifting equipment	Sum	-	-	1 795 426.94
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	incl
		.2 Dolly system				
		a) Structural steel component of lifting equipment	Sum	-	-	95 668.64
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	107 707.75
		.3 Gantry crane (Permeate pumping installation)				
		a) Structural steel component of lifting equipment	Sum	-	-	refer 15.2.13
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	refer 15.2.13
15.2.8		'24 Membrane MCC lifting equipment				
		.1 Traveling beam				
		a) Structural steel component of lifting equipment	Sum	-	-	1 287 344.81
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	incl
		Carried Forward				12 043 807.34

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				12 043 807.34
15.2.9		'24 Membrane blower room lifting equipment				
		.1 Traveling beam				
		a) Structural steel component of lifting equipment	Sum	-	-	refer 15.2.7
		b) Other components (e.g. crawler, hoist, etc.)	Sum	-	-	refer 15.2.7
15.2.10		'24 Membrane citric acid make up solution lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-		429 908.30
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	incl
15.2.11		'24 Membrane sodium hypochlorite chemical room				
		.1 Structural steel component of lifting equipment	Sum	-	-	328 040.70
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	incl
15.2.12		'24 Membrane UV & service water system				
		.1 Structural steel component of lifting equipment	Sum	-	-	0.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	0.00
15.2.13		'24 Membrane permeate pump lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	228 340.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	0.00
15.2.14		'24 Membrane reuse pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	358 846.40
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	incl
15.2.15		'24 Dewatering building lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	1 071 108.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	1 791 906.00
		Carried Forward				16 251 956.74

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				16 251 956.74
15.2.16		'24 Dewatering poly loading lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	463 840.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	440 784.00
15.2.17		'24 Sludge cake silos lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	293 684.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	95 252.00
15.2.18		'24 Overflow dam recycle pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	83 986.10
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	0.00
15.2.19		'24 Emergency overflow recycle pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	50 656.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	52 739.00
15.2.20		'24 Primary sludge pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	110 390.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	85 412.00
15.2.21		'24 Sludge screen system lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	301 313.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	226 643.00
15.2.22		'24 WAS sludge ring main pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	Included
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	Included
15.2.23		'24 WAS sludge storage tank submersible mixer lifting equipment				
		Carried Forward				18 456 655.84

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				18 456 655.84
		.1 Structural steel component of lifting equipment	Sum	-	-	Included
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	Included
15.2.24		'24 Emergency WAS recycle pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	135 811.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	53 143.00
15.2.25		'24 Primary sludge ring main pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	152 266.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	70 052.00
15.2.26		'24 Primary sludge mixing system lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	251 678.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	102 956.00
15.2.27		'24 Primary sludge filtrate return pump station lifting equipment	Sum	-	-	0.00
		.1 Structural steel component of lifting equipment	Sum	-	-	125 839.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	62 467.00
15.2.28		'24 WAS filtrate return pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	Included
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	Included
15.2.29		'08 WAS pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	50 656.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	52 866.00
		Carried Forward				19 514 389.84

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				19 514 389.84
15.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
15.3.1		Item 15.2.1 above	Sum	-	-	43 766.00
15.3.2		Item 15.2.2 above	Sum	-	-	118 196.00
15.3.3		Item 15.2.3 above	Sum	-	-	161 599.90
15.3.4		Item 15.2.4 above	Sum	-	-	297 075.00
15.3.5		Item 15.2.5 above	Sum	-	-	83 647.00
15.3.6		Item 15.2.6 above	Sum	-	-	86 676.00
15.3.7		Item 15.2.7 above	Sum	-	-	48 347.50
15.3.8		Item 15.2.8 above	Sum	-	-	37 280.00
15.3.9		Item 15.2.9 above	Sum	-	-	0.00
15.3.10		Item 15.2.10 above	Sum	-	-	37 280.00
15.3.11		Item 15.2.11 above	Sum	-	-	37 280.00
15.3.12		Item 15.2.12 above	Sum	-	-	0.00
15.3.13		Item 15.2.13 above	Sum	-	-	30 523.00
15.3.14		Item 15.2.14 above	Sum	-	-	161 599.90
15.3.15		Item 15.2.15 above	Sum	-	-	325 091.00
15.3.16		Item 15.2.16 above	Sum	-	-	124 336.00
15.3.17		Item 15.2.17 above	Sum	-	-	112 530.00
15.3.18		Item 15.2.18 above	Sum	-	-	5 852.00
15.3.19		Item 15.2.19 above	Sum	-	-	43 883.00
15.3.20		Item 15.2.20 above	Sum	-	-	63 070.00
		Carried Forward				21 332 422.14

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				21 332 422.14
15.3.21		Item 15.2.21 above	Sum	-	-	
15.3.22		Item 15.2.22 above	Sum	-	-	48 568.00
15.3.23		Item 15.2.23 above	Sum	-	-	Included
15.3.24		Item 15.2.24 above	Sum	-	-	Included
15.3.25		Item 15.2.25 above	Sum	-	-	52 485.00
15.3.26		Item 15.2.26 above	Sum	-	-	60 683.00
15.3.27		Item 15.2.27 above	Sum	-	-	87 533.00
15.3.28		Item 15.2.28 above	Sum	-	-	52 225.00
15.3.29		Item 15.2.29 above	Sum	-	-	Included
15.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following: *Rate to include for load testing certification*				52 225.00
15.4.1		Item 15.2.1 above	Sum	-	-	
15.4.2		Item 15.2.2 above	Sum	-	-	16 916.00
15.4.3		Item 15.2.3 above	Sum	-	-	16 916.00
15.4.4		Item 15.2.4 above	Sum	-	-	14 157.00
15.4.5		Item 15.2.5 above	Sum	-	-	26 212.50
15.4.6		Item 15.2.6 above	Sum	-	-	0.00
15.4.7		Item 15.2.7 above	Sum	-	-	0.00
15.4.8		Item 15.2.8 above	Sum	-	-	0.00
15.4.9		Item 15.2.9 above	Sum	-	-	0.00
15.4.10		Item 15.2.10 above	Sum	-	-	0.00
15.4.11		Item 15.2.11 above	Sum	-	-	0.00
15.4.12		Item 15.2.12 above	Sum	-	-	0.00
		Carried Forward				21 760 342.64

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				21 760 342.64
15.4.13		Item 15.2.13 above	Sum	-	-	0.00
15.4.14		Item 15.2.14 above	Sum	-	-	14 157.00
15.4.15		Item 15.2.15 above	Sum	-	-	16 916.00
15.4.16		Item 15.2.16 above	Sum	-	-	16 916.00
15.4.17		Item 15.2.17 above	Sum	-	-	16 916.00
15.4.18		Item 15.2.18 above	Sum	-	-	14 157.00
15.4.19		Item 15.2.19 above	Sum	-	-	16 916.00
15.4.20		Item 15.2.20 above	Sum	-	-	16 916.00
15.4.21		Item 15.2.21 above	Sum	-	-	16 916.00
15.4.22		Item 15.2.22 above	Sum	-	-	16 916.00
15.4.23		Item 15.2.23 above	Sum	-	-	16 916.00
15.4.24		Item 15.2.24 above	Sum	-	-	16 916.00
15.4.25		Item 15.2.25 above	Sum	-	-	16 916.00
15.4.26		Item 15.2.26 above	Sum	-	-	35 114.00
15.4.27		Item 15.2.27 above	Sum	-	-	16 916.00
15.4.28		Item 15.2.28 above	Sum	-	-	16 916.00
15.4.29		Item 15.2.29 above	Sum	-	-	16 916.00
15.5		**SPARE PARTS AND SERVICING**				
15.5.1		Provision of spare parts for:				
		.1 Item 15.2.1 above	Sum	-	-	0.00
		.2 Item 15.2.2 above	Sum	-	-	0.00
		.3 Item 15.2.3 above	Sum	-	-	14 993.55
		.4 Item 15.2.4 above	Sum	-	-	20 795.25
		.5 Item 15.2.5 above	Sum	-	-	14 993.55
		Carried Forward				22 094 460.99

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				22 094 460.99
		.6 Item 15.2.6 above	Sum	-	-	22 490.33
		.7 Item 15.2.7 above	Sum	-	-	22 490.33
		.8 Item 15.2.8 above	Sum	-	-	22 490.33
		.9 Item 15.2.9 above	Sum	-	-	0.00
		.10 Item 15.2.10 above	Sum	-	-	14 993.55
		.11 Item 15.2.11 above	Sum	-	-	14 993.55
		.12 Item 15.2.12 above	Sum	-	-	0.00
		.13 Item 15.2.13 above	Sum	-	-	14 993.55
		.14 Item 15.2.14 above	Sum	-	-	14 993.55
		.15 Item 15.2.15 above	Sum	-	-	0.00
		.16 Item 15.2.16 above	Sum	-	-	0.00
		.17 Item 15.2.17 above	Sum	-	-	0.00
		.18 Item 15.2.18 above	Sum	-	-	14 993.55
		.19 Item 15.2.19 above	Sum	-	-	0.00
		.20 Item 15.2.20 above	Sum	-	-	0.00
		.21 Item 15.2.21 above	Sum	-	-	0.00
		.22 Item 15.2.22 above	Sum	-	-	0.00
		.23 Item 15.2.23 above	Sum	-	-	0.00
		.24 Item 15.2.24 above	Sum	-	-	0.00
		.25 Item 15.2.25 above	Sum	-	-	0.00
		.26 Item 15.2.26 above	Sum	-	-	0.00
		.27 Item 15.2.27 above	Sum	-	-	0.00
		.28 Item 15.2.28 above	Sum	-	-	0.00
		.29 Item 15.2.29 above	Sum	-	-	0.00
		Carried Forward				22 236 899.73

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				22 236 899.73
15.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 15.2.1 above	Sum	-	-	0.00
		.2 Item 15.2.2 above	Sum	-	-	0.00
		.3 Item 15.2.3 above	Sum	-	-	14 993.55
		.4 Item 15.2.4 above	Sum	-	-	14 912.00
		.5 Item 15.2.5 above	Sum	-	-	11 184.00
		.6 Item 15.2.6 above	Sum	-	-	13 397.50
		.7 Item 15.2.7 above	Sum	-	-	17 475.00
		.8 Item 15.2.8 above	Sum	-	-	10 834.50
		.9 Item 15.2.9 above	Sum	-	-	0.00
		.10 Item 15.2.10 above	Sum	-	-	9 320.00
		.11 Item 15.2.11 above	Sum	-	-	9 320.00
		.12 Item 15.2.12 above	Sum	-	-	0.00
		.13 Item 15.2.13 above	Sum	-	-	9 320.00
		.14 Item 15.2.14 above	Sum	-	-	14 993.55
		.15 Item 15.2.15 above	Sum	-	-	0.00
		.16 Item 15.2.16 above	Sum	-	-	0.00
		.17 Item 15.2.17 above	Sum	-	-	0.00
		.18 Item 15.2.18 above	Sum	-	-	14 993.55
		.19 Item 15.2.19 above	Sum	-	-	0.00
		.20 Item 15.2.20 above	Sum	-	-	0.00
		.21 Item 15.2.21 above	Sum	-	-	0.00
		.22 Item 15.2.22 above	Sum	-	-	0.00
		Carried Forward				22 377 643.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M15 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				22 377 643.38
		.23 Item 15.2.23 above	Sum	-	-	0.00
		.24 Item 15.2.24 above	Sum	-	-	0.00
		.25 Item 15.2.25 above	Sum	-	-	0.00
		.26 Item 15.2.26 above	Sum	-	-	0.00
		.27 Item 15.2.27 above	Sum	-	-	0.00
		.28 Item 15.2.28 above	Sum	-	-	0.00
		.29 Item 15.2.29 above	Sum	-	-	0.00
15.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
		Annual Load testing as per OSH Act requirements	Sum	1	191 504.00	191 504.00
		Annual Servicing	Sum	1	201 228.00	201 228.00
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		SCHEDULE NO. M15 **LIFTING EQUIPMENT** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				22 770 375.38

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M16 - Weighbridge

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M16	Part 3.6.1 52	**SCHEDULE NO. M16 WEIGHBRIDGE**				
16.1		**DESIGN, DRAWINGS AND GENERAL**				
16.1.1		Provision of designs, drawings and technical information for the weighbridge	Sum	-	-	0.00
16.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
16.2.1		Civil, concrete and roadworks to accommodate weighbridge	Sum	-	-	288 456.78
16.2.2		Electrical and electronic equipment complete with panels and display units in a control room	Sum	-	-	42 350.00
16.2.3		Electrical cabling associated with electrical and electronic components of weighbridge	Sum	-	-	77 440.00
16.2.4		Weighbridge deck	Sum	-	-	755 150.00
16.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
16.3.1		Weighbridge system	Sum	-	-	40 700.00
16.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
16.4.1		Weighbridge system	Sum	-	-	40 700.00
16.5		**SPARE PARTS AND SERVICING**				
16.5.1		Provision of spare parts for:				
		.1 Weighbridge system	Sum	-	-	35 200.00
				Carried Forward		1 279 996.78

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M16 - Weighbridge

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				1 279 996.78
16.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Weighbridge system	Sum	-	-	28 600.00
16.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item			0.00
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		SCHEDULE NO. M16 **WEIGHBRIDGE** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				1 308 596.78

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M17 - Odour control systems

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M17	*Part 3.6.1 49*	**SCHEDULE NO. M17 ODOUR CONTROL SYSTEMS**				
17.1		**DESIGN, DRAWINGS AND GENERAL**				
17.1.1		Provision of designs, drawings and technical information for odour control installation	Sum	-	-	242 000.00
17.1.2		Conducting and reporting on the air dispersion modelling for pre-post odour control strategies	Sum	-	-	209 352.00
17.1.3		Factory testing of Odour control equipment and control systems witnessed by the Engineer and/ or the Engineers Representatives	Sum	-	-	Included
17.1.4		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 17.1.3	Sum	-	-	Included
17.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
17.2.1		Odour control Zone 3				
		.1 Equipment covers as specified	Sum	-	-	1 126 588.10
		.2 Extraction piping and supports				
		a) Air ducting	Sum	-	-	949 206.50
		b) Ducting supports	Sum	-	-	395 283.90
		.3 Concrete slab with reinforcement for odour control equipment	Sum	-	-	109 642.50
		.4 Brickwork and concrete slab for extraction pipe manifold and drain points chamber	Sum	-	-	20 872.50
		.5 Biological odour control system including media (if applicable)	Sum	-	-	**2 808 130.10**
		.6 Media / chemicals as required	Sum	-	-	Included
		.7 Extraction fans (incl. motor and supports)	Sum	-	-	200 822.60
				Carried Forward		6 061 898.20

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M17 - Odour control systems

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 061 898.20
		.8 Nutrient supply for one year continuous operation	Sum	-	-	37 552.90
17.2.2		Odour control Zone 4				
		.1 Equipment covers as specified	Sum	-	-	2 340 207.10
		.2 Extraction piping and supports				
		a) Air ducting	Sum	-	-	483 369.70
		b) Ducting supports	Sum	-	-	422 535.30
		.3 Concrete slab with reinforcement for odour control equipment	Sum	-	-	61 234.80
		.4 Brickwork and concrete slab for extraction pipe manifold and drain points chamber	Sum	-	-	20 872.50
		.5 Biological odour control system including media (if applicable)	Sum	-	-	**1 909 813.30**
		.6 Media / chemicals as required	Sum	-	-	Included
		.7 Extraction fans (incl. motor and supports)	Sum	-	-	165 822.80
		.8 Nutrient supply for one year continuous operatio	Sum	-	-	16 297.60
17.2.3		Odour control Zone 5				
		.1 Equipment covers as specified	Sum	-	-	1 279 245.00
		.2 Extraction piping and supports				
		a) Air ducting	Sum	-	-	1 379 466.00
		b) Ducting supports	Sum	-	-	661 026.30
		.3 Concrete slab with reinforcement for odour control equipment	Sum	-	-	112 046.00
		.4 Brickwork and concrete slab for extraction pipe manifold and drain points chamber	Sum	-	-	20 872.50
		.5 Biological odour control system including media (if applicable)	Sum	-	-	**10 134 291.80**
		Carried Forward				25 106 551.80

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M17 - Odour control systems

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				25 106 551.80
		.6 Media / chemicals as required	Sum	-	-	Included
		.7 Extraction fans (incl. motor and supports)	Sum	-	-	360 665.80
		.8 Nutrient supply for one year continuous operatio	Sum	-	-	78 702.80
17.2.4		Provision for service water connection, including all:				
		.1 Pipework				
		.a) **Item 17.2.1 above**	Sum	-	-	9 515.00
		.b) **Item 17.2.2 above**	Sum	-	-	9 515.00
		.c) **Item 17.2.3 above**	Sum	-	-	14 025.00
		.2 Support members				
		.a) **Item 17.2.1 above**	Sum	-	-	4 730.00
		.b) **Item 17.2.2 above**	Sum	-	-	4 730.00
		.c) **Item 17.2.3 above**	Sum	-	-	7 040.00
		.3 Control equipment, or any other component required for sufficient operation associated with:				
		.a) **Item 17.2.1 above**	Sum	-	-	2 695.00
		.b) **Item 17.2.2 above**	Sum	-	-	2 695.00
		.c) **Item 17.2.3 above**	Sum	-	-	2 695.00
17.2.5		Portable data loggers to measure and record H_2S (2 no. of)	Sum	-	-	87 250.90
17.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
17.3.1		Odour control system fro Zone 3 (complete)	Sum	-	-	1 747 508.40
17.3.2		Odour control system fro Zone 4 (complete)	Sum	-	-	928 061.20
		Carried Forward				28 366 380.90

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				28 366 380.90
17.3.3		Odour control system fro Zone 5 (complete)	Sum	-	-	2 072 305.40
17.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
17.4.1		Odour control system fro Zone 3 (complete)	Sum	-	-	8 250.00
17.4.2		Odour control system fro Zone 4 (complete)	Sum	-	-	8 250.00
17.4.3		Odour control system fro Zone 5 (complete)	Sum	-	-	13 750.00
17.5		**REFURBISHMENT OF EXISTING EQUIPMENT** *(Rates to include for dismantling, handling, transport, servicing, modifications, reinstallation and testing as specified)*				
17.5.1		Odour control system for Zone 1	Sum	-	-	190 573.90
17.5.2		Odour control system for Zone 2	Sum	-	-	509 117.40
17.6		**SPARE PARTS AND SERVICING**				
17.6.1		Provision of spare parts for:				
		.1 Odour control system for Zone 1	Sum	-	-	92 240.50
		.2 Odour control system for Zone 2	Sum	-	-	97 027.70
		.3 Odour control system for Zone 3	Sum	-	-	165 185.90
		.4 Odour control system for Zone 4	Sum	-	-	123 842.40
		.5 Odour control system for Zone 5	Sum	-	-	229 359.90
17.6.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Odour control system for Zone 1	Sum	-	-	13 750.00
		.2 Odour control system for Zone 2	Sum	-	-	13 750.00
		.3 Odour control system for Zone 3	Sum	-	-	13 750.00
		.4 Odour control system for Zone 4	Sum	-	-	13 750.00
		Carried Forward				31 931 284.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M17 - Odour control systems

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				31 931 284.00
		.5 Odour control system for Zone 5	Sum	-	-	17 050.00
17.7		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item			650 912.90
		....

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M20 - Fuel tank

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M18	*Part 3.6.1 53*	**SCHEDULE NO. M18 FUEL TANK**				
18.1		**DESIGN, DRAWINGS AND GENERAL**				
18.1.1		Provision of designs, drawings and technical information for the fuel tanks	Sum	-		4 290.00
18.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
18.2.1		Civil, concrete and roadworks to accommodate Standby Generator Fuel tank	Sum	-	1.10	1.10
18.2.2		Electrical and electronic equipment complete with panels and display units in a control room	Sum	-	66 000.00	66 000.00
18.2.3		Electrical cabling associated with electrical and electronic components of standby generator fuel tank	Sum	-	17 600.00	17 600.00
18.2.4		Fuel tank complete and fit for intended use	Sum	-	584 408.00	584 408.00
18.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
18.3.1		Fuel tank	Sum	-		26 180.00
18.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
		Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
18.4.1		Fuel tank	Sum	-		4 290.00
18.5		**SPARE PARTS AND SERVICING**				
18.5.1		Provision of spare parts for:				
		.1 Fuel tank	Sum	2	1 320.00	2 640.00
				Carried Forward		705 409.10

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M20 - Fuel tank

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				705 409.10
18.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Fuel tank	Sum	4	1 980.00	7 920.00
18.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M19 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M19	*Part 3.6.1 5, 6*	**SCHEDULE NO. M19 CHANNEL GATES, SLUICE GATES, VALVES & WEIRS**				
		Rate to include for design, supply of material, manufacturing, corrosion protection, erection, welding, fasteners, testing etc. Workshop and layout drawings for all structural steel elements shall be compiled and submitted to the Engineer for approval prior to manufacturing.				
19.1		**DESIGN, DRAWINGS AND GENERAL**				
19.1.1		Provision of designs, drawings and technical information for channel gates, sluice gates and valves	Sum	-		542 687.32
19.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
19.2.1	Part 3.6.1 5	Channel-Mounted Sluice Gate Summary				
		.1 Stone trap (outlet system)	No	2	144 691.00	289 382.00
		.2 '24 Inlet Works (Screen channels)	No	2	197 422.00	394 844.00
		.3 '24 Inlet Works (Screen channels)	No	24	234 805.00	5 635 320.00
		.4 '24 Inlet Works (Screen channels)	No	6	211 497.00	1 268 982.00
		.5 '24 Inlet Works (Degritters)	No	8	139 923.00	1 119 384.00
		.6 '24 Inlet Works (Flumes)	No	3	177 125.00	531 375.00
		.7 '24 PST Division Structure	No	4	88 540.56	354 162.24
		.8 '24 Long-pond bypass chamber	No	1	128 700.21	128 700.21
		.9 '24 Bioreactor:	No	8	102 202.35	817 618.80
		.10 Open close actuators (electric) for channel-mounted sluice gates	No	58	77 573.84	4 499 282.90
19.2.2	Part 3.6.1 5	Wall-Mounted Sluice Gate Summary				
		.1 Inlet chamber (Du Noon division chamber)	No.	2	83 911.03	167 822.06
			Carried Forward			15 749 560.53

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M19 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				15 749 560.53
		.2 '24 Raw Sewage Pump Station (sump inlet)	No.	4	92 600.30	370 401.20
		.3 '24 Raw Sewage Pump Station (outlet)	No.	1	236 088.35	236 088.35
		.4 '08 Raw Sewage Pump Station division structure	No.	2	117 772.66	235 545.32
		.5 '24 Ultra Fine Screen Station (screen inlet)	No.	6	69 705.14	418 230.84
		.6 '24 Ultra Fine Screen Station (Inlet sump)	No.	1	115 351.12	115 351.12
		.7 '24 Ultra Fine Screen Station (Screen outlet)	No.	6	72 371.62	434 229.72
		.8 '24 Ultra Fine Screen Station (Reactor feed)	No.	4	86 932.67	347 730.68
		.9 '24 Ultra Fine Screen Station (Discharge sump)	No.	1	115 351.12	115 351.12
		.10 '24 MBR Feed Pump Station (discharge)	No.	1	94 617.37	94 617.37
		.11 '24 MBR Feed Pump Station (scum under flow)	No.	1	116 487.76	116 487.76
		.12 '24 MBR Membrane Tanks (inlet)	No.	16	147 943.29	2 367 092.64
		.13 '24 MBR Permeate Sump	No.	1	116 487.76	116 487.76
		.14 '24 MBR Reuse Pump Station	No.	1	130 013.35	130 013.35
		.15 '24 Overflow Dam Division Box:	No.	2	116 094.76	232 189.52
		.16 Dewatering filtrate diversion chamber	No.	4	98 459.13	393 836.52
		.17 Open close actuators (electric) for channel-mounted sluice gates	No	53	71 458.27	3 787 288.31
		.18 Storm water pond diversion pipes	No.	5	70 304.72	351 523.60
19.2.3	Part 3.6.1 5	Overflow weir gates				
		.1 '24 Inlet bypass control (to '08 P/S)	No.	1	132 998.00	132 998.00
		.2 '24 PST Division Structure ('24 PST bypass)	No.	1	203 208.04	203 208.04
		.3 '24 PST Division Structure ('08 PST feed)	No.	1	203 208.04	203 208.04
		.4 '24 Bioreactor inlet channels	No.	12	104 868.54	1 258 422.48
		.5 '24 Bioreactor inlet channels (main inlet)	No.	4	80 904.10	323 616.40
		Carried Forward				27 733 478.67

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		Brought Forward				27 733 478.67
		.6 '24 Bioreactor inlet channels (An bypass)	No.	4	82 179.88	328 719.52
		.7 '24 MBR feed pump station (Scum draw off)	No.	2	230 313.94	460 627.88
		.8 Modulating actuators (electric) for overflow weir control	No	25	94 504.31	2 362 607.84
19.2.4	Part 3.6.15	Weir plates				
		.1 '24 inlet works emergency bypass	No	1	5 139.00	5 139.00
		.2 '24 Primary Sedimentation Tank Division Structure	No	4	1 606.63	6 426.52
		.3 '24 Primary Sedimentation Tank Division Structure	No	1	1 638.50	1 638.50
		.4 '24 Primary Sedimentation Tanks	No	4	102 565.13	410 260.52
		.5 '24 Ultra fine screens	No	2	1 431.75	2 863.50
		.6 '24 Bioreactor (A-recycle pump station)	No	16	1 412.72	22 603.52
		.7 '24 Bioreactor (R-recycle pump station)	No	12	947.50	11 370.00
		.8 '24 Membrane feed pump station	No	8	1 879.63	15 037.04
		.9 '24 Scum pump station inlet	No	1	1 544.50	1 544.50
		.10 '24 Membrane tank outlet weir	No	16	2 491.99	39 871.84
		.11 '24 WAS holding tank emergency overflow	No	2	3 959.00	7 918.00
		.12 '24 Primary sludge storage tank emergency overflow	No	2	3 959.00	7 918.00
		.13 '24 Filtrate return pump stations	No	2	3 654.00	7 308.00
		.14 '08 Raw sewage pump station emergency overflow	No	1	1 917.50	1 917.50
19.2.5		**Valves associated with inlet works system (3089.00.01.AAA.13.A001 and associated P&IDs)**				
	Part 3.6.12	.1 '24 Airlift pumping system				
		a) Isolation valves on air supply line	No	4	13 870.00	55 480.00
		Carried Forward				31 482 730.35

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				31 482 730.35
		b) Isolation valves on classifier supply lines	No	4	12 193.00	48 772.00
		c) Actuators (electric)	No	8	25 922.00	207 376.00
	Part 3.6.12	24 Inlet works wash water supply system				
		a) Sum of all wash water connection valves required for operation as per intended use.	Sum	-		37 483.00
		b) Sum of all wash water connection actuators and/or solenoids required for operation as per intended use.	Sum	-		103 737.00
	Part 3.6.13	'24 Emergency overflow tank recycle pump station				
		a) Isolation valves (discharge)	No	2	38 523.00	77 046.00
		b) Non return valve	No	2	91 242.00	182 484.00
19.2.6		**Valves associated with primary sedimentation and ultra fine screens (3089.00.00.AAA.A002 and associated P&IDs)**				
	Part 3.6.11	'24 Raw sewage pump station				
		a) Isolation valves for pump suction	No	4	523 041.20	2 092 164.80
		b) Isolation valves for pump discharge	No	4	380 727.60	1 522 910.40
		c) Isolation valve for manifold drainage	No	1	7 104.90	7 104.90
		d) Non return valves	No	4	636 875.80	2 547 503.20
		e) Air release valve	No	1	14 582.70	14 582.70
	Part 3.6.12	'24 Raw sewage drainage sump pump				
		a) Isolation valves for pump discharge	No	1	1 694.00	1 694.00
		b) Non return valve	No	1	1 173.70	1 173.70
	Part 3.6.13	'24 Raw sewage flow meter				
		a) Isolation valves	No	3	277 697.20	833 091.60
		b) Magnetic flow meter	No	1	105 996.00	105 996.00
		Carried Forward				39 265 849.65

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		Brought Forward				39 265 849.65
	Part 3.6.1.4 17, 35	'24 Primary sedimentation tanks				
		a) Isolation valves (Scum discharge)	No	4	35 397.36	141 589.44
		b) Isolation valves (Sludge discharge)	No	4	35 397.36	141 589.44
		c) Isolation valve for high pressure air connection (sludge draw off)	No	4	4 183.52	16 734.08
	Part 3.6.1.5 35	24 Primary sludge pump station				
		Inlet chamber				
		a) Isolation valves for '24 PST sludge draw off	No	8	35 397.36	283 178.88
		b) Modulating actuators (electric) for '24 PST sludge draw off	No	4	87 336.85	349 347.40
		c) Magnetic flow meter	No	4	48 536.23	194 144.92
		d) Isolation valves '08 PST sludge draw off	No	2	35 397.36	70 794.72
		e) Actuators (electric) for '08 PST sludge draw-off	No	2	58 503.97	117 007.94
		24 Strain press feed pump station				
		f) Isolation valves (pump suction)	No	2	25 971.00	51 942.00
		g) Isolation valves (pump discharge)	No	2	20 025.00	40 050.00
		h) Non return valve (pump discharge)	No	2	33 741.00	67 482.00
		i) Magnetic flow meter (discharge manifold)	No	1	53 968.00	53 968.00
		j) Flow meter isolation valves	No	3	15 705.00	47 115.00
		'24 primary sludge recycle pump station				
		k) Isolation valves (pump suction)	No	2	25 971.00	51 942.00
		l) Isolation valves (pump discharge)	No	2	20 025.00	40 050.00
		m) Non return valve (pump discharge)	No	2	33 741.00	67 482.00
		n) Magnetic flow meter (discharge manifold)	No	1	53 968.00	53 968.00
		Carried Forward				41 054 235.47

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				41 054 235.47
		o) Flow meter isolation valves	No	3	15 705.00	47 115.00
		'24 Primary sludge storage feed pump station				
		p) Isolation valves (pump suction)	No	2	35 499.00	70 998.00
		q) Isolation valves (pump discharge)	No	2	25 971.00	51 942.00
		r) Non return valve (pump discharge)	No	2	52 568.00	105 136.00
		s) Magnetic flow meter (discharge manifold)	No	1	73 588.00	73 588.00
		t) Flow meter isolation valves	No	3	15 705.00	47 115.00
	Part 3.6. 36.1	.6 '24 Primary sludge hydro cyclone system				
		a) Isolation valves (strain press inlet)	No	2	25 971.00	51 942.00
		b) Actuators (electric)	No	2	70 808.00	141 616.00
	Part 3.6. 36.2	.7 '24 Primary sludge hydro cyclone system				
		a) Isolation valves (Hydro cyclone)	No	5	25 785.00	128 925.00
		b) Isolation valves (slurry discharge)	No	2	25 799.00	51 598.00
		c) Sum of all wash water valves required for operation as per intended use	Sum	-		3 507.00
		d) Sum of all wash water actuators and/or solenoids required for operation as per intended use	Sum	-		51 537.00
	Part 3.6. 10	.8 24 Ultra fine screen system (with wash presses)				
		a) Sum of all wash water valves required for operation as per intended use	Sum	-		144 408.74
		b) Sum of all wash water actuators and/or solenoids required for operation as per intended use	Sum	-		Included
19.2.7		**Valves associated with '24 Bioreactor (3089.00.00.AAA.A003 and associated P&IDs)**				
	Part 3.6. 18	.1 '24 Biological reactor *(Aeration system valves measured elsewhere)*				
		Carried Forward				42 023 663.21

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				42 023 663.21
		a) Magnetic flow meter	No	4	91 394.25	365 577.00
19.2.8		**Valves associated with '24 MBR (3089.00.00.AAA.A004 and associated P&IDs)**				
	Part 3.6.29	.1 '24 Scum pump stations				
		a) Isolation valves (pump discharge)	No	6	20 147.60	120 885.60
		b) Isolation valves (flow meter)	No	9	20 147.60	181 328.40
		c) Non return valve	No	6	34 394.80	206 368.80
		d) Magnetic flow meter	No	3	48 536.23	145 608.69
		e) Sum of all valves associated with sodium hypochlorite scum suppression system as per intended use	Sum	-		19 800.00
	Part 3.6.25	.2 '24 Membrane air scour blowers				
		a) Isolation valves (per blower)	No	5	28 332.80	141 664.00
		b) Isolation valves (common manifold)	No	2	176 377.51	352 755.02
		c) Actuators for valves 19.2.8.2.a and 19.2.8.2.b	No	7	104 850.00	733 950.00
	Part 3.6.25	.3 '24 Membrane permeate pumps				
		a) Isolation valves (suction and discharge)	No	32	6 229.26	199 336.32
		b) Safety relief valves	No	32	38 907.80	1 245 049.60
		c) Magnetic flow meter	No	16	57 239.95	915 839.20
		d) Actuators (electric)	No	32	55 321.05	1 770 273.60
	Part 3.6.25	.4 '24 Membrane tank drainage pumps				
		a) Isolation valves (membrane tank drainage)	No	16	35 164.36	562 629.76
		b) Isolation valves (pump station)	No	8	35 164.36	281 314.88
		c) Isolation valves (flow meter)	No	6	35 164.36	210 986.16
		Carried Forward				49 477 030.24

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		Brought Forward				49 477 030.24
		d) Non return valve (pump station)	No	4	86 135.44	344 541.76
		e) Magnetic flow meter	No	2	57 239.95	114 479.90
		f) Actuators (electric)	No	16	61 535.96	984 575.36
	Part 3.6.1.25	.5 '24 Membrane tank permeate recycle inlet				
		a) Isolation valves (membrane tank inlet)	No	16	26 376.77	422 028.32
		b) Actuators (electric)	No	16	55 029.80	880 476.80
	Part 3.6.1.25	.6 24 Membrane Cassette Air Scour Isolation Valve				
		a) Isolation valves on main feeder line	No	16	15 570.81	249 132.96
		b) Actuators (electric)	No	16	17 973.62	287 577.92
		c) Sum of all valves associated with scour air supply required for operation as per intended use	Sum	-		689 512.24
		d) Sum of all actuators (pneumatic) and/or solenoids required for operation as per intended use	Sum	-		93 200.00
	Part 3.6.1.25	.7 '24 Membrane filtration process and/or integrity test air supply				
		a) Sum of all valves associated with process air supply required for operation as per intended use	Sum	-		848 949.48
		b) Sum of all actuators (pneumatic) and/or solenoids required for operation as per intended use	Sum	-		466 000.00
	Part 3.6.1.25	.8 24 MBR CIP Sodium hypochlorite dosing system (Refer to relevant P&ID)				
		a) Sum of all valves associated with sodium hypochlorite system required for operation as per intended use	Sum	-		162 004.90
		Carried Forward				55 019 509.88

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				55 019 509.88
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		93 200.00
	Part 3.6.1.9 25	'24 MBR CIP citric acid dosing system (Refer to relevant P&ID)				
		a) Sum of all valves associated with citric acid system required for operation as per intended use	Sum	-		162 004.90
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		93 200.00
	Part 3.6.1.10 23	'24 MBR CIP ferric dosing system (Refer to relevant P&ID)				
		a) Sum of all valves associated with ferric dosing system required for operation as per intended use	Sum	-		162 004.90
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		93 200.00
	Part 3.6.1.11 28	'24 MBR WAS pump station				
		a) Isolation valves (Pump suction)	No	4	19 870.00	79 480.00
		b) Isolation valves (Pump discharge)	No	4	19 870.00	79 480.00
		c) Isolation valves (flow meter)	No	6	19 819.00	118 914.00
		d) Non return valve (pump station)	No	4	33 587.00	134 348.00
		e) Magnetic flow meter	No	2	62 365.00	124 730.00
		f) Actuators (electric)	**No**	**4**	75 062.00	300 248.00
19.2.9		**Valves associated with '24 MBR UV & Reuse (3089.00.00.AAA.A005 and associated P&IDs)**				
	Part 3.6.1.1 27	24 MBR Site wash water pump station				
		a) Isolation valves (pump suction manifold)	No	1	7 174.07	7 174.07
		b) Isolation valves (pump suction and discharge)	No	10		incl under M4
		Carried Forward				56 467 493.75

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				56 467 493.75
		c) Isolation valves (flow meter)	No	3	4 183.52	12 550.56
		d) Isolation valve (potable water connection)	No	1	2 038.75	2 038.75
		e) Non return valve	No	5	0.00	incl under M4
		f) Magnetic flow meter	No	1	48 536.23	48 536.23
		g) Hydro-pneumatic tank	No	1	0.00	incl under M4
	Part 3.6.1.27	.2 24 Dewatering wash water pump station				
		a) Isolation valves (pump suction manifold)	No	1	29 422.00	29 422.00
		b) Isolation valves (pump suction and discharge)	No	8		Included in M4
		c) Isolation valves (flow meter)	No	3	24 226.00	72 678.00
		d) Isolation valve (potable water connection)	No	1	4 836.00	4 836.00
		e) Non return valve	No	4		Included in M4
		f) Magnetic flow meter	No	1	62 365.00	62 365.00
		g) Hydro-pneumatic tank	No	1		Included in M4
	Part 3.6.1.25	.3 '24 Permeate recycle pump station (Module A)				
		a) Isolation valves (pump suction and discharge)	No	4	7 174.07	28 696.28
		b) Non return valve	No	2	86 368.44	172 736.88
		c) Magnetic flow meter	No	1	57 239.95	57 239.95
	Part 3.6.1.25	.4 '24 Permeate recycle pump station (Module B)				
		a) Isolation valves (pump suction and discharge)	No	4	7 174.07	28 696.28
		b) Non return valve	No	2	86 368.44	172 736.88
		c) Magnetic flow meter	No	1	57 239.95	57 239.95
		Carried Forward				57 217 266.51

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				57 217 266.51
	Part 3.6.1.5 46	'24 MBR off-site reuse pump station				
		a) Isolation valves (pump suction)	No	6	251 782.30	1 510 693.80
		b) Isolation valves (pump discharge)	No	6	155 436.60	932 619.60
		c) Isolation valves (air valve)	No	1	5 446.10	5 446.10
		d) Isolation valves (flow meter)	No	3	288 508.00	865 524.00
		e) Non return valve	No	6	563 245.10	3 379 470.60
		f) Magnetic flow meter	No	1	169 104.10	169 104.10
		g) Air release valve	No	1	14 582.70	14 582.70
		h) Actuators (electric)	No	12	134 633.40	1 615 600.80
		i) Surge anticipating valves (200 mm diameter)	No.	2	138 430.60	276 861.20
		j) Surge anticipating valve isolation valves	No.	2	68 098.80	136 197.60
19.2.10		**Valves associated with '24 Maturation, tertiary treatment & disinfection (3089.00.00.AAA.A006 and associated P&IDs)**				
	Part 3.6.1.1 42	'24 Overflow dam recycle pump station				
		a) Isolation valves (discharge pipework)	No	2	26 324.10	52 648.20
		b) Isolation valves (flow meter)	No	3	26 324.10	78 972.30
		c) Isolation valves (sump inlet)	No	6	44 840.40	269 042.40
		d) Non return valve	No	2	53 948.40	107 896.80
		e) Magnetic flow meter	No	1	59 148.10	59 148.10
19.2.11		**Valves associated with sludge management facility (3089.00.00.AAA.01.A007 and associated P&IDs)**				
		Waste activated sludge system				
	Part 3.6.1.1 30.3	'24 WAS storage tanks				
		a) Overflow dam inlet isolation valves	No	2	10 591.00	21 182.00
		Carried Forward				66 712 256.81

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		Brought Forward				66 712 256.81
		b) '08 WAS inlet isolation valves	No	2	10 591.00	21 182.00
		c) '24 WAS inlet isolation valves	No	2	10 591.00	21 182.00
		d) WAS recycle inlet isolation valves	No	2	10 591.00	21 182.00
		e) WAS storage outlet isolation valves	No	2	25 816.00	51 632.00
		f) WAS ring main inlet isolation valves	No	3	26 924.00	80 772.00
		g) Decant draw off isolation valves	No	6	10 488.00	62 928.00
		h) Actuators (electric)	No	12	74 352.00	892 224.00
	Part 3.6.1.2 32	'24 WAS ring main pump station				
		a) Isolation valves (pump suction)	No	3	25 868.00	77 604.00
		b) Isolation valves (pump discharge)	No	3	25 868.00	77 604.00
		c) Isolation valves (flow meter)	No	3	19 922.00	59 766.00
		d) Non return valve	No	3	52 465.00	157 395.00
		e) Modulating actuators (electric)	No	1	101 156.00	101 156.00
		f) Actuator (electric)	No	2	75 234.00	150 468.00
		g) Magnetic flow meter	No	1	62 365.00	62 365.00
	Part 3.6.1.3 30	WAS Storage aeration system				
		a) Isolation valves	No	2	20 025.00	40 050.00
		b) Non-return valves	No	2	33 741.00	67 482.00
	Part 3.6.1.4 31	'24 Emergency WAS Storage tanks				
		a) Isolation valves (inlet)	No	2	27 027.00	54 054.00
		b) Isolation valves (sludge draw off from tanks)	No	2	25 971.00	51 942.00
		c) Actuator (electric)	No	4	75 234.00	300 936.00
		Carried Forward				69 064 180.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				69 064 180.81
	Part 3.6.1.5 33	'24 Emergency WAS recycle pump station				
		a) Isolation valves (pump suction)	No	3	25 868.00	77 604.00
		b) Isolation valves (pump discharge)	No	3	25 868.00	77 604.00
		c) Isolation valves (flow meter)	No	3	25 868.00	77 604.00
		d) Non return valves	No	3	52 465.00	157 395.00
		e) Magnetic flow meter	No	1	62 365.00	62 365.00
		f) Actuator (electric)	No	2	75 234.00	150 468.00
	Part 3.6.1.6 39	WAS Dewatering feed pump station				
		a) Isolation valves (suction and discharge)	No	16	11 122.00	177 952.00
		b) Pressure safety valve/burst disc	No	8	35 986.00	287 888.00
		c) Magnetic flow meter	No	8	46 383.00	371 064.00
	Part 3.6.1.7 39	'24 WAS Dewatering system				
		a) Sum of all valves associated with WAS dewatering system required for operation as per intended use	Sum	-		209 759.00
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		1 179 568.00
	Part 3.6.1.8 39	'24 WAS Poly make-up system				
		a) Sum of all valves associated with WAS poly make-up system required for operation as per intended use	Sum	-		Nil
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		985 167.00
	Part 3.6.1.9 39	'24 WAS Poly dosing system				
		a) Isolation valves (pump suction and discharge)	No	24		Nil
		b) Actuators (electric)	No	8	53 965.00	431 720.00
		Carried Forward				73 310 338.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				73 310 338.81
		c) Pressure safety valve	No	8	28 135.00	225 080.00
		d) Magnetic flow meter	No	8	43 755.00	350 040.00
	Part 3.6.1.10 '24 WAS Poly lubrication system 39					
		a) Sum of all valves associated with WAS poly lubrication system required for operation as per intended use	Sum	-		Nil
		b) Ring dosing lubrication fitting for sludge cake discharge pipe	No	3	57 837.00	173 511.00
		c) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		272 616.00
	Part 3.6.1.11 '24 WAS sludge cake pump station 39					
		a) Isolation valves (Silo bypass draw off)	No	4	53 274.00	213 096.00
		b) Isolation valves (Silo inlet)	No	4	53 274.00	213 096.00
		c) Actuators (electric)	No	8	75 298.00	602 384.00
		d) Isolation valves (Flushing port)	No	8	40 451.00	323 608.00
		e) Pressure safety valves	No	4	52 237.00	208 948.00
	Part 3.6.1.12 '24 WAS filtrate return pump station 40					
		a) Isolation valves (pump suction)	No	2	51 467.00	102 934.00
		b) Isolation valves (pump discharge)	No	2	35 499.00	70 998.00
		c) Isolation valves (flow meter)	No	3	35 396.00	106 188.00
		d) Non return valve	No	2	86 316.00	172 632.00
		e) Magnetic flow meter	No	1	84 778.00	84 778.00
		Primary sludge system				
	Part 3.6.1.13 24 Primary sludge storage tanks 37					
		a) Isolation valves ('08 and '24 WAS inlet)	No	2	25 971.00	51 942.00
		Carried Forward				76 482 189.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				76 482 189.81
		b) Isolation valves (Primary sludge pump station inlet)	No	2	27 027.00	54 054.00
		c) Isolation valves (Primary sludge ring main return inlet isolation valves)	No	2	35 499.00	70 998.00
		d) Isolation valves (Primary sludge storage outlet isolation valves)	No	2	25 971.00	51 942.00
		e) Isolation valves (Decant draw-off)	No	4	25 816.00	103 264.00
		f) Actuator (electric)	No	6	99 808.00	598 848.00
	Part 3.6.1 37	.14 '24 Primary sludge mixing pump station				
		a) Isolation valves (Suction side of pumps)	No	4	35 345.00	141 380.00
		b) Isolation valves (Pump discharge)	No	4	25 816.00	103 264.00
		c) Isolation valves (flow meter)	No	6	25 765.00	154 590.00
		d) Non return valve	No	4	52 259.00	209 036.00
		e) Magnetic flow meter	No	2	73 588.00	147 176.00
		f) Discharge mixing nozzles	Sum	-		1 175 382.00
	Part 3.6.1 38	.15 '24 Primary sludge ring main pump station				
		a) Isolation valves (pump suction)	No	3	19 922.00	59 766.00
		b) Isolation valves (pump discharge)	No	3	19 922.00	59 766.00
		c) Isolation valves (flow meter)	No	3	19 922.00	59 766.00
		d) Non return valve	No	3	33 638.00	100 914.00
		e) Modulating actuators (electric)	No	1	101 817.00	101 817.00
		f) Magnetic flow meter	No	1	62 365.00	62 365.00
	Part 3.6.1 38	.16 Primary sludge dewatering feed pump station				
		a) Isolation valves (suction and discharge)	No	16	11 180.00	178 880.00
		b) Pressure safety valve/burst disc	No	8	25 959.00	207 672.00
		Carried Forward				80 123 069.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				80 123 069.81
		c) Magnetic flow meter	No	8	47 191.00	377 528.00
	Part 3.6.1.17 '24 Primary sludge dewatering system 39					
		a) Sum of all valves associated with Primary sludge dewatering system required for operation as per intended use	Sum	-		298 556.00
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		1 234 461.00
	Part 3.6.1.18 '24 Primary sludge poly make-up system 39					
		a) Sum of all valves associated with primary sludge poly make-up system required for operation as per intended use	Sum	-		47 246.00
		b) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		1 178 781.00
	Part 3.6.1.19 '24 Primary sludge poly dosing system 39					
		a) Isolation valves (suction and discharge)	No	24		Nil
		b) Actuators (electric)	No	8	76 274.00	610 192.00
		c) Pressure safety valve	No	8	26 276.00	210 208.00
		d) Magnetic flow meter	No	8	42 947.00	343 576.00
	Part 3.6.1.20 '24 Primary sludge poly lubrication system 39					
		a) Sum of all valves associated with primary sludge poly lubrication system required for operation as per intended use	Sum	-		Nil
		b) Ring dosing lubrication fitting for sludge cake discharge pipe	No	3	61 062.00	183 186.00
		c) Sum of all actuators (electric) and/or solenoids required for operation as per intended use	Sum	-		462 983.00
		Carried Forward				85 069 786.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				85 069 786.81
	Part 3.6.1 39	.21 '24 Primary sludge cake pump station				
		a) Isolation valves (Silo bypass draw off)	No	4	53 274.00	213 096.00
		b) Isolation valves (Silo inlet)	No	4	53 274.00	213 096.00
		c) Actuators (electric)	No	8	88 933.00	711 464.00
		d) Isolation valves (Flushing port)	No	8	40 451.00	323 608.00
		e) Pressure safety valves	No	4	52 237.00	208 948.00
	Part 3.6.1 40	.22 '24 Primary sludge filtrate return pump station				
		a) Isolation valves (pump suction)	No	2	25 971.00	51 942.00
		b) Isolation valves (pump discharge)	No	2	20 025.00	40 050.00
		c) Isolation valves (flow meter)	No	3	19 922.00	59 766.00
		d) Non return valve	No	2	33 741.00	67 482.00
		e) Magnetic flow meter	No	1	62 365.00	62 365.00
19.2.12	Part 3.6.1 49	**Valves associated with odour control system**				
		.1 Sum of all valves associated with Zone 1 odour control system required for Sum of all valves associated with	Sum	-		0.00
		.2 Sum of all valves associated with Zone 2 odour control system required for Sum of all valves associated with	Sum	-		0.00
		.3 Sum of all valves associated with Zone 3 odour control system required for Sum of all valves associated with	Sum	-		2 585 000.00
		.4 Sum of all valves associated with Zone 4 odour control system required for Sum of all valves associated with	Sum	-		885 000.00
		.5 Sum of all valves associated with Zone 5 odour control system required for Sum of all valves associated with	Sum	-		3 145 500.00
		Carried Forward				93 637 103.81

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		93 637 103.81
19.2.13		**Valves associated with '08 refurbishment and amendments (3089.00.00.WLG.14.U001)**				
	Part 3.6.1 54.2	1.1 '08 WAS draw-off pump station				
		a) Isolation valves (new '08 WAS diversion cham	No	2	10 556.07	21 112.14
		b) Isolation valves (RAS flowmeter chamber)	No	2	10 556.07	21 112.14
		c) Isolation valves (pump discharge)	No	2	15 619.16	31 238.32
		d) Isolation valves (flow meter)	No	3	15 473.53	46 420.59
		e) Non return valve	No	2	19 929.66	39 859.32
		f) Magnetic flow meter	No	1	41 268.96	41 268.96
19.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
19.3.1		For item 19.2.1 above	Sum	-		359 635.50
19.3.2		For item 19.2.2 above	Sum	-		321 633.20
19.3.3		For item 19.2.3 above	Sum	-		80 196.35
19.3.4		For item 19.2.4 above	Sum	-		103 464.95
19.3.5		For item 19.2.5 above	Sum	-		58 716.00
19.3.6		For item 19.2.6 above	Sum	-		149 353.00
19.3.7		For item 19.2.7 above	Sum	-		26 212.50
19.3.8		For item 19.2.8 above	Sum	-		246 084.00
19.3.9		For item 19.2.9 above	Sum	-		106 318.50
19.3.10		For item 19.2.10 above	Sum	-		30 989.00
19.3.11		For item 19.2.11 above	Sum	-		338 433.00
19.3.12		For item 19.2.12 above	Sum	-		0.00
				Carried Forward		95 659 151.28

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				95 659 151.28
19.3.13		For item 19.2.13 above	Sum	-	-	37 513.00
19.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
19.4.1		For item 19.2.1 above	Sum	-	-	99 910.50
19.4.2		For item 19.2.2 above	Sum	-	-	11 090.80
19.4.3		For item 19.2.3 above	Sum	-	-	4 288.15
19.4.4		For item 19.2.4 above	Sum	-	-	3 343.55
19.4.5		For item 19.2.5 above	Sum	-	-	3 193.00
19.4.6		For item 19.2.6 above	Sum	-	-	67 570.00
19.4.7		For item 19.2.7 above	Sum	-	-	8 737.50
19.4.8		For item 19.2.8 above	Sum	-	-	121 871.50
19.4.9		For item 19.2.9 above	Sum	-	-	31 153.00
19.4.10		For item 19.2.10 above	Sum	-	-	8 155.00
19.4.11		For item 19.2.11 above	Sum	-	-	82 995.00
19.4.12		For item 19.2.12 above	Sum	-	-	Included
19.4.13		For item 19.2.13 above	Sum	-	-	1 631.00
19.5		**SPARE PARTS AND SERVICING**				
19.5.1		Provision of spare parts for:				
		.1 For item 19.2.1 above	Sum	-	-	2 454 422.00
		.2 For item 19.2.2 above	Sum	-	-	0.00
		.3 For item 19.2.3 above	Sum	-	-	4 917.00
		.4 For item 19.2.4 above	Sum	-	-	incl
		Carried Forward				98 599 942.28

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Schedule M19 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		98 599 942.28
		.5 For item 19.2.5 above	Sum	-	-	27 635.00
		.6 For item 19.2.6 above	Sum	-	-	9 110.30
		.7 For item 19.2.7 above	Sum	-	-	8 737.50
		.8 For item 19.2.8 above	Sum	-	-	152 337.80
		.9 For item 19.2.9 above	Sum	-	-	76 653.30
		.10 For item 19.2.10 above	Sum	-	-	6 197.80
		.11 For item 19.2.11 above	Sum	-	-	62 931.00
		.12 For item 19.2.12 above	Sum	-	-	Included
		.13 For item 19.2.13 above	Sum	-	-	Nil
19.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 19.2.1 above	Sum	-	-	355 785.18
		.2 For item 19.2.2 above	Sum	-	-	34 387.31
		.3 For item 19.2.3 above	Sum	-	-	45 490.92
		.4 For item 19.2.4 above	Sum	-	-	101 547.23
		.5 For item 19.2.5 above	Sum	-	-	47 066.00
		.6 For item 19.2.6 above	Sum	-	-	23 672.80
		.7 For item 19.2.7 above	Sum	-	-	1 133.55
		.8 For item 19.2.8 above	Sum	-	-	44 060.80
		.9 For item 19.2.9 above	Sum	-	-	35 905.80
		.10 For item 19.2.10 above	Sum	-	-	14 935.30
		.11 For item 19.2.11 above	Sum	-	-	135 257.00
		.12 For item 19.2.12 above	Sum	-	-	0.00
		.13 For item 19.2.13 above	Sum	-	-	5 668.89
				Carried Forward		99 788 455.76

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				99 788 455.76
		All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
		.....				
		Emergency overflow recycle pumps 250mm NB Electromagnetic flowmeter	Sum	1	68 292.00	68 292.00
		Ground water drainage sump pumps as per specification 100mm ND mechanical flowmeter	Sum	1	46 102.00	46 102.00
		.....				
		SCHEDULE NO. M19 **SLUICE GATES AND VALVES** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				99 902 849.76

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M20	*Part 3.6.1 22, 50*	**SCHEDULE NO. M20 HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT**				
20.1		**DESIGN, DRAWINGS AND GENERAL**				
20.1.1		Provision of designs, drawings and technical information for:				
		.1 Air conditioning systems	Sum	-	-	37 400.00
		.2 Forced ventilation systems	Sum	-	-	13 200.00
		.3 Dehumidification systems	Sum	-	-	Included
20.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
20.2.1		Air conditioning systems				
	Part 3.6.1 50	.1 24 Management Building	Sum	-	-	1 573 000.00
20.2.2		Forced ventilation systems				
	Part 3.6.1 50	.1 '24 Management Building	Sum	-	-	462 000.00
20.3		**INSTALLATION**				
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
20.3.1		Air conditioning systems				
		.1 24 Management Building	Sum	-	-	1 320 000.00
20.3.2		Forced ventilation systems				
		.1 24 Management Building	Sum	-	-	330 000.00
				Carried Forward		3 735 600.00

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Schedule M20 - HVAC

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		3 735 600.00
20.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
20.4.1		Air conditioning systems				
		.1 24 Management Building	Sum	-	-	16 500.00
20.4.2		Forced ventilation systems				
		.1 24 Management Building	Sum	-	-	13 200.00
20.5		**SPARE PARTS AND SERVICING**				
20.5.1		Provision of spare parts for:				
		.1 Item 20.2.1 above	Sum	-	-	7 150.00
		.2 Item 20.2.2 above	Sum	-	-	3 850.00
20.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 20.2.1 above	Sum	-	-	70 400.00
		.2 Item 20.2.2 above	Sum	-	-	24 200.00
20.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item			0.00
		…… …… …… …… …… …… …… ……				
		SCHEDULE NO. M20 **HVAC** **CARRIED TO SUMMARY**				
				Total Carried forward to Summary of Schedules		3 870 900.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M21	*Part 3.6.1 45*	**SCHEDULE NO. M21 PRESSURISED ULTRA FILTRATION**				
21.1		**DESIGN, DRAWINGS AND GENERAL**				
21.1.1		Provision of designs, drawings and technical information for pressurized ultra filtration system	Sum	-		1 009 139.00
21.1.2		Provision of the services of a process specialist to consult and commissioning the plant	Month	4	136 771.00	547 084.00
21.1.3		Factory testing of Pressurized UF equipment and control systems witnessed by the Engineer and/ or the Engineers Representative.	Sum	-		90 812.00
21.1.4		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 21.1.3	Sum	-		93 899.00
21.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
21.2.1		Membrane module filtration racks (complete with PVDF hollow fibre modules, rack assembly, supports, mounting rack, connections, etc)	No	8	7 256 804.00	58 054 432.00
21.2.2		UF Membrane module pipework				
		.1 Filter feed pipework (complete)	Sum	-		4 030 624.00
		.2 Filtrate pipework (complete)	Sum	-		3 411 115.00
		.3 Backwash pipework (complete)	Sum	-		3 181 904.00
		.4 Air scour pipework (Stainless steel, complete)	Sum	-		1 918 775.00
		.5 Clean in place pipework (complete)	Sum	-		2 223 042.00
		.6 Process air pipework (Stainless steel, complete)	Sum	-		1 917 115.00
		.7 Other pipework associated with the UF system not mentioned , but are required for proper and safe operation	Sum	-		0.00
				Carried Forward		76 477 941.00

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Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				76 477 941.00
21.2.3		Membrane integrity testing equipment (excluding turbidity analysers which are scheduled elsewhere)	Sum	-		33 532.00
21.2.4		On-line performance and process monitoring service and associated equipment	Sum	-		1 445 041.00
21.2.5		Membrane module lifting bracket / cradle	No	1	6 554.00	6 554.00
21.2.6		**Mobile service access platform for maintenance requirements**				
		.1 Structural steel component of lifting equipment	Sum	-		20 388.00
		.2 Other components (e.g. wheels, signage, etc.)	Sum	-		4 078.00
21.2.7		Other membrane plant pipework and associated equipment not mentioned above, but are required for proper and safe operation of the membrane filtration system	Sum	-	0.00	0.00
21.2.8		Air Scour Equipment				
		.1 Air blower complete as per specification	No	2	475 658.00	951 316.00
		.2 Blower fittings and specials associated with blower	No	2	12 002.00	24 004.00
		.3 Air pipework inside blower house	Sum	-		261 426.00
		.4 Master Control Panel (1 off)	Sum	-		0.00
		.5 Blower instrumentation	No	2	8 843.00	17 686.00
		.6 Pressure transmitter and air flow meter	Sum	-		77 967.00
		.7 Instrument reagents and consumables	Sum	-		41 940.00
		.8 Pipe supports	Sum	-		9 786.00
21.2.9		Process instrumentation air system				
		.1 Compressors	No	2	262 542.00	525 084.00
		.2 Refrigerant driers complete	Sum	-		69 745.00
		.3 Air receiver	No	2	145 302.00	290 604.00
		Carried Forward				80 257 092.00

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Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				80 257 092.00
		.4 Condensate management system	Sum	-		14 185.00
		.5 All connecting pipework	Sum	-		102 375.00
		.6 Separator units and filter sets	Sum	-		89 347.00
		.7 Pressure and air regulating equipment as per the design requirements (Contractor to determine)	Sum	-		86 640.00
21.2.10	Part 3.6.1 45.6	CIP: Citric Acid Dosing Equipment				
		.1 Citric dosing pumps	No	2	169 828.00	339 656.00
		.2 CIP: Citric dosing system (bunded skids and cabinet etc) as specified	Sum	-		11 534.00
		.3 Chemical storage tank (2 months storage equivalent)	Sum	-		66 988.00
		.4 All pipework (including fittings) associated with the chemical dosing system	Sum	-		98 350.00
		.5 Pipe supports	Sum	-		1 515.00
		.6 Filling station pump and pipework	Sum	-		4 544.00
		.7 Citric acid required during the entire performance period (commissioning) of the Ultra Filtration Plant	Sum	-		53 299.00
		.8 Citric acid - one tank fill	Sum	-		71 211.00
		.9 Citric acid batching equipment	Sum	-		327 598.00
		.10 Citric acid batching dust collection system	Sum	-		336 394.00
		.11 Access platform	Sum	-		12 582.00
		.12 Emergency shower and eye wash	No	1	14 507.00	14 507.00
21.2.11	Part 3.6.1 45.6	CIP: Sodium Hypochlorite Dosing Equipment				
		.1 Sodium hypochlorite dosing pumps	No	**6**	178 283.00	1 069 698.00
		.2 CIP: Sodium hypochlorite dosing system (bunded skids and cabinet etc) as specified	Sum	-		23 650.00
		Carried Forward				82 981 165.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				82 981 165.00
		.3 Chemical storage tank (2 months storage equivalent)	Sum	-		590 655.00
		.4 All pipework (including fittings) associated with the chemical dosing system	Sum	-		128 161.00
		.5 Pipe supports	Sum	-		4 544.00
		.6 Sodium hypochlorite required during the entire performance period (commissioning) of the Ultra Filtration Plant	Sum	-		133 975.00
		.7 Sodium hypochlorite - one tank fill	Sum	-		200 963.00
		.8 Access platform	Sum	-		11 650.00
		.9 Emergency shower and eye wash	No	1	14 507.00	14 507.00
21.2.12	Part 3.6.1 45.6	CIP: Sulphuric Acid Dosing Equipment				
		.1 Sulphuric Acid dosing pumps	No	2	143 509.00	287 018.00
		.2 CIP: Sulphuric Acid dosing system (bunded skids and cabinet etc) as specified	Sum	-		15 320.00
		.3 Chemical storage tank (2 months storage equivalent)	Sum	-		78 638.00
		.4 All pipework (including fittings) associated with the chemical dosing system	Sum	-		91 744.00
		.5 Pipe supports	Sum	-		4 544.00
		.6 Filling station pump and pipework	Sum	-		65 969.00
		.7 Sulphuric Acid required during the entire performance period (commissioning) of the Ultra Filtration Plant	Sum	-		9 320.00
		.8 Sulphuric Acid - one tank fill	Sum	-		26 213.00
		.9 Access platform	Sum	-		5 097.00
21.2.13	Part 3.6.1 45.6	CIP: Sodium Metabisulfite Dosing Equipment				
		.1 Sodium Metabisulfite dosing pumps	No	2	61 708.00	123 416.00
		Carried Forward				84 772 899.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				84 772 899.00
		.2 CIP: Sodium Metabisulfite dosing system (bunded skids and cabinet etc) as specified	Sum	-		15 320.00
		.3 Chemical storage tank (2 months storage equivalent)	Sum	-		128 150.00
		.4 All pipework (including fittings) associated with the chemical dosing system	Sum	-		58 456.00
		.5 Pipe supports	Sum	-		4 544.00
		.6 Filling station pump and pipework	Sum	-		21 844.00
		.7 Sodium Metabisulfite required during the entire performance period (commissioning) of the	Sum	-		14 563.00
		.8 Sodium Metabisulfite - one tank fill	Sum	-		43 688.00
		.9 Access platform	Sum	-		12 582.00
21.2.14	Part 3.6.1 45.6	CIP: Sodium hydroxide Dosing Equipment				
		.1 Sodium hydroxide dosing pumps	No	2	80 757.00	161 514.00
		.2 CIP: Sodium Hydroxide dosing system (bunded skids and cabinet etc) as specified	Sum	-		11 534.00
		.3 Chemical storage tank (2 months storage equivalent)	Sum	-		140 965.00
		.4 All pipework (including fittings) associated with the chemical dosing system	Sum	-		63 014.00
		.5 Pipe supports	Sum	-		4 544.00
		.6 Filling station pump and pipework	Sum	-		50 969.00
		.7 Sodium Hydroxide required during the entire performance period (commissioning) of the Ultra Filtration Plant	Sum	-		37 863.00
		.8 Sodium Hydroxide - one tank fill	Sum	-		56 794.00
		.9 Access platform	Sum	-		11 650.00
		Carried Forward				85 610 893.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		85 610 893.00
21.2.15		Provision for service water connection, including all:				
		.1 Pipework				
		.a) Item 21.2.10 above	Sum	-	-	11 650.00
		.b) Item 21.2.11 above	Sum	-	-	11 650.00
		.c) Item 21.2.12 above	Sum	-	-	11 650.00
		.d) Item 21.2.13 above	Sum	-	-	11 650.00
		.e) Item 21.2.14 above	Sum	-	-	11 650.00
		.2 Support members				
		.a) Item 21.2.10 above	Sum	-	-	4 078.00
		.b) Item 21.2.11 above	Sum	-	-	4 078.00
		.c) Item 21.2.12 above	Sum	-	-	4 078.00
		.d) Item 21.2.13 above	Sum	-	-	4 078.00
		.e) Item 21.2.14 above	Sum	-	-	4 078.00
		.3 Control equipment, or any other component required for sufficient operation associated with:				
		.a) Item 21.2.10 above	Sum	-	-	5 243.00
		.b) Item 21.2.11 above	Sum	-	-	5 243.00
		.c) Item 21.2.12 above	Sum	-	-	5 243.00
		.d) Item 21.2.13 above	Sum	-	-	5 243.00
		.e) Item 21.2.14 above	Sum	-	-	5 243.00
				Carried Forward		85 715 748.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		85 715 748.00
21.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
21.3.1		Item 21.2.1 above	Sum	-	-	343 547.00
21.3.2		Item 21.2.2 above	Sum	-	-	636 393.00
21.3.3		Item 21.2.3 above	Sum	-	-	5 126.00
21.3.4		Item 21.2.4 above	Sum	-	-	133 847.00
21.3.5		Item 21.2.5 above	Sum	-	-	0.00
21.3.6		Item 21.2.6 above	Sum	-	-	33 782.00
21.3.7		Item 21.2.7 above	Sum	-	-	0.00
21.3.8		Item 21.2.8 above	Sum	-	-	118 207.00
21.3.9		Item 21.2.9 above	Sum	-	-	112 213.00
21.3.10		Item 21.2.10 above	Sum	-	-	68 235.00
21.3.11		Item 21.2.11 above	Sum	-	-	68 235.00
21.3.12		Item 21.2.12 above	Sum	-	-	68 235.00
21.3.13		Item 21.2.13 above	Sum	-	-	68 235.00
21.3.14		Item 21.2.14 above	Sum	-	-	68 235.00
21.3.15		Item 21.2.15 above	Sum	-	-	66 312.00
21.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
21.4.1		Item 21.2.1 above	Sum	-	-	486 336.00
21.4.2		Item 21.2.2 above	Sum	-	-	119 652.00
				Carried Forward		88 112 338.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		88 112 338.00
21.4.3		Item 21.2.3 above	Sum	-	-	4 486.00
21.4.4		Item 21.2.4 above	Sum	-	-	193 047.00
21.4.5		Item 21.2.5 above	Sum	-	-	0.00
21.4.6		Item 21.2.6 above	Sum	-	-	0.00
21.4.7		Item 21.2.7 above	Sum	-	-	0.00
21.4.8		Item 21.2.8 above	Sum	-	-	125 040.00
21.4.9		Item 21.2.9 above	Sum	-	-	140 476.00
21.4.10		Item 21.2.10 above	Sum	-	-	140 476.00
21.4.11		Item 21.2.11 above	Sum	-	-	118 050.00
21.4.12		Item 21.2.12 above	Sum	-	-	140 476.00
21.4.13		Item 21.2.13 above	Sum	-	-	118 050.00
21.4.14		Item 21.2.14 above	Sum	-	-	118 050.00
21.4.15		Item 21.2.15 above	Sum	-	-	55 245.00
21.5		**SPARE PARTS AND SERVICING**				
21.5.1		Provision of spare parts for:				
		.1 Item 21.2.1 above	Sum	-	-	497 497.00
		.2 Item 21.2.2 above	Sum	-	-	69 959.00
		.3 Item 21.2.3 above	Sum	-	-	0.00
		.4 Item 21.2.4 above	Sum	-	-	106 365.00
		.5 Item 21.2.5 above	Sum	-	-	0.00
		.6 Item 21.2.6 above	Sum	-	-	0.00
		.7 Item 21.2.7 above	Sum	-	-	0.00
		.8 Item 21.2.8 above	Sum	-	-	82 811.00
		.9 Item 21.2.9 above	Sum	-	-	76 818.00
				Carried Forward		90 099 184.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				90 099 184.00
		.10 Item 21.2.10 above	Sum	-	-	15 984.00
		.11 Item 21.2.11 above	Sum	-	-	15 984.00
		.12 Item 21.2.12 above	Sum	-	-	19 407.00
		.13 Item 21.2.13 above	Sum	-	-	15 256.00
		.14 Item 21.2.14 above	Sum	-	-	15 256.00
		.15 Item 21.2.15 above	Sum	-	-	15 961.00
21.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 21.2.1 above	Sum	-	-	47 387.00
		.2 Item 21.2.2 above	Sum	-	-	70 308.00
		.3 Item 21.2.3 above	Sum	-	-	35 154.00
		.4 Item 21.2.4 above	Sum	-	-	35 154.00
		.5 Item 21.2.5 above	Sum	-	-	0.00
		.6 Item 21.2.6 above	Sum	-	-	0.00
		.7 Item 21.2.7 above	Sum	-	-	0.00
		.8 Item 21.2.8 above	Sum	-	-	35 154.00
		.9 Item 21.2.9 above	Sum	-	-	35 154.00
		.10 Item 21.2.10 above	Sum	-	-	19 500.00
		.11 Item 21.2.11 above	Sum	-	-	19 500.00
		.12 Item 21.2.12 above	Sum	-	-	19 500.00
		.13 Item 21.2.13 above	Sum	-	-	19 500.00
		.14 Item 21.2.14 above	Sum	-	-	19 500.00
		.15 Item 21.2.15 above	Sum	-	-	19 500.00
		Carried Forward				90 572 343.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M21 - Pressurized ultra filtration

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				90 572 343.00
21.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
21.6.1		Temporary works for Process start-up, testing & commissioning as per Section 45.10	Sum	1	585 529.00	585 529.00
21.6.2		Pneumatic panels	No	9	69 900.00	629 100.00
		SCHEDULE NO. M21 **PRESSURISED ULTRA FILTRATION** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				91 786 972.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M22 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M22	Part 3.6.1 7, 8, 9, 43	**SCHEDULE NO. M22** **SCREENING EQUIPMENT**				
22.1		**DESIGN, DRAWINGS AND GENERAL** Provision of designs, drawings and design information as required:				
22.1.1		Micro screening system complete with screens, pipework, etc.)	Sum	-		206 322.00
22.1.2		Factory testing of micro screening system and control systems witnessed by the Engineer and/or Engineers Representatives	Sum	-		23 300.00
22.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 22.1.2	Sum	-		294 046.00
22.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE** Disc Screens				
22.2.1	Part 3.6.1 43	New sintered wire mesh disc micro screens, including control panel and electrical connections	No	6	7 200 154.00	43 200 924.00
22.2.2	Part 3.6.1 43.7	Access platforms and walkways for '24 Micro Screening Station	Sum	-		48 833.00
22.2.3		Provision for service water connection, including all:				
		.1 Pipework				
		a) for Item 22.2.1 above	Sum	-		1 751 162.00
		.2 Support members				
		a) for Item 22.2.1 above	Sum	-		0.00
		.3 Control equipment, or any other component required for sufficient operation				
		a) for Item 22.2.1 above	Sum	-		0.00
				Carried Forward		45 524 587.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M22 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		45 524 587.00
22.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
		.1 for Item 22.2.1 above	Sum	-	-	127 218.00
		.2 for Item 22.2.2 above	Sum	-	-	30 756.00
		.3 for Item 22.2.3 above	Sum	-	-	153 780.00
22.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
		.1 for Item 22.2.1 above	Sum	-	-	97 721.00
		.2 for Item 22.2.2 above	Sum	-	-	0.00
		.3 for Item 22.2.3 above	Sum	-	-	0.00
22.5		**SPARE PARTS AND SERVICING**				
22.5.1		Provision of spare parts for:				
		.1 for Item 22.2.1 above	Sum	-	-	581 829.00
		.2 for Item 22.2.2 above	Sum	-	-	0.00
		.3 for Item 22.2.3 above	Sum	-	-	0.00
22.5.2		Servicing of equipment at the end of the defects and liability period: *The rate tendered shall include for the complete services of equipment installed under the Contract and shall include but not limited to labour, transport, tools, cleaning, servicing, replacement of consumables and handing over in operational condition to the Employer at the end of the defects notification period*				
		.1 for Item 22.2.1 above	Sum	-	-	55 920.00
				Carried Forward		46 571 811.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M22 - Screening Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				46 571 811.00
		.2 for Item 22.2.2 above	Sum	-	-	15 961.00
		.3 for Item 22.2.3 above	Sum	-	-	31 921.00
22.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) ....

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M23 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M23		**SCHEDULE NO. M23** **PUMPS & PIPEWORK**				
23.1		**DESIGN AND DRAWINGS**				
23.1.1		Provision of designs, drawings and technical information for pump and pipework installation				
		New pumping installations				
	Part 3.6.1 27	.1 '24 Tertiary treatment service water supply pump station	Sum	-		56 270.00
	Part 3.6.1 44	.2 '24 Pressurised UF feed pump station	Sum	-		56 270.00
	Part 3.6.1 45	.3 '24 Pressurised UF backwash pump station	Sum	-		56 270.00
	Part 3.6.1 45	.4 '24 Pressurised UF CIP pump station	Sum	-		56 270.00
	Part 3.6.1 47	.5 '24 Ultra filtration reuse pump station	Sum	-		140 674.00
	Part 3.6.1 45	.6 '24 Tertiary treatment reject return pump station	Sum	-		56 270.00
23.1.2		Factory testing/inspection of '24 UF off site reuse pumps and control systems witnessed by the Engineer and/or the Engineer's Representatives	Sum	-		605 171.00
23.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 23.1.2	Sum	-		26 329.00
23.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
23.2.1		Pump, coupling & motor set complete with base plate and monitoring devices				
	Part 3.6.1 27	.1 .a '24 Tertiary treatment service water supply pumps	No	5	454 671.00	2 273 355.00
		.b Motors associated with pumps	No	5		Included
	Part 3.6.1 44	.2 '24 Pressurised UF feed pump station				
		.a '24 Pressurised UF feed pumps	No	5	646 583.00	3 232 915.00
		.b Drainage sump pump (complete unit)	No	1	16 016.00	16 016.00
			Carried Forward			6 575 810.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 575 810.00
		.c Motors associated with pumps	No	5	227 997.00	1 139 985.00
	Part 3.6.1.3 45	.a '24 Pressurised UF backwash pumps	No	2	575 495.00	1 150 990.00
		.b Motors associated with pumps	No	2	402 655.00	805 310.00
	Part 3.6.1.4 45	.a '24 Pressurised UF CIP pumps	No	2	310 576.00	621 152.00
		.b Motors associated with pumps	No	2	133 249.00	266 498.00
	Part 3.6.1.5 47	'24 Ultra filtration reuse pump station				
		.a '24 Tertiary treatment reuse pumps	No	6	539 868.00	3 239 208.00
		.b Drainage sump pump	No	1	17 670.00	17 670.00
		.b Motors associated with pumps	No	6	393 033.00	2 358 198.00
	Part 3.6.1.6 45	.a '24 Reject Return pumps	No	3	329 820.00	989 460.00
		.b Motors associated with pumps	No	3	0.00	0.00
23.2.2		Pipework for pumping and other installation *(Supply and delivery to Site only)*				
	Part 3.6.1.1 27	'24 UF service water supply pump station				
		a) Suction manifold form from sump to pump pump inlet pipework complete with fittings & s	Sum	-		140 197.00
		b) Pump suction pipework from suction manifold to pump inlet complete with fittings &	Sum	-		71 211.00
		c) Pump discharge pipework from pump to discharge manifold complete with fittings &	Sum	-		71 211.00
		d) Common discharge manifold pipework complete with fittings & specials	Sum	-		138 647.00
		e) Pipe supports	Sum	-		101 341.00
	Part 3.6.1.2 43	'24 Tertiary treatment micro screen station				
		a) Inlet pipework from channel to screen inlets complete with fittings & specials	Sum	-		1 286 401.00
		Carried Forward				18 973 289.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M23 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				18 973 289.00
		b) Discharge pipework from screens to channel inlet complete with fittings & specials	Sum	-	-	1 283 022.00
		c) Pipe supports	Sum	-	-	34 347.00
	Part 3.6.1.3 44	'24 Pressurised UF feed pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	1 386 641.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	348 269.00
		c) Common manifold pipework complete common with fittings & specialism (incl. pipework for flow meter chamber)	Sum	-	-	2 881 905.00
		d) Pipe supports	Sum	-	-	235 506.00
		e) Drainage sump pump 50 mm galvanised pipework	Sum	-	-	11 099.00
	Part 3.6.1.4 45.4	'24 Pressurised UF backwash pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	425 646.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	273 741.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	748 563.00
		d) Pipe supports	Sum	-	-	28 410.00
	Part 3.6.1.5 45.5	'24 Pressurised UF CIP pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	442 716.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	283 923.00
		c) Common manifold pipework complete common with fittings & specials	Sum	-	-	714 738.00
		Carried Forward				28 071 815.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M23 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				28 071 815.00
		d) Pipe supports	Sum	-	-	75 771.00
	Part 3.6.1.6 47	'24 Ultra filtration reuse pump station				
		a) Suction pipework from sump to pump inlet complete with fittings & specials	Sum	-	-	6 639 544.00
		b) Pump discharge pipework to common manifold complete with fittings & specials	Sum	-	-	2 269 874.00
		c) Common manifold pipework complete with fittings & specials & surge anticipating dis pipework (including pipe specials associated with flow meter chamber)	Sum	-	-	5 050 786.00
		d) Pipe supports	Sum	-	-	349 038.00
		e) Drainage sump pump 50 mm galvanised pipework	Sum	-	-	38 207.00
		f) All pipe items complete with specials and fittings associated with the treated effluent reuse manifold chambers ref. under DWG:				
	47.4.9.a	i 3089.00.00.SQI.14.U001	Sum	-	-	3 540 370.00
	47.4.9.b	ii 3089.00.00.SQJ.14.U001	Sum	-	-	4 794 693.00
	47.4.9.c	iii 3089.00.00.SQK.14.U001	Sum	-	-	3 993 554.00
	47.4.9.d	iv 3089.00.00.SQL.14.U001	Sum	-	-	4 735 302.00
	47.4.9.e	v 3089.00.00.SQM.14.U001	Sum	-	-	2 599 906.00
	Part 3.6.1.7 45.9	24 Pressurised UF reject return pump station				
		a) Discharge pipework from '24 UF Reject Return Pump to manifold complete with fittings & specials, etc.	Sum	-	-	1 264 770.00
		b) Pipe supports	Sum	-	-	57 158.00
		c) Common manifold complete with fittings & specials	Sum	-	-	673 492.00
		Carried Forward				64 154 280.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M23 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		64 154 280.00
23.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
23.3.1		Installation of pump station complete with pumps, motors, monitoring devices, etc.				
		.1 for Item 23.2.1.1 above	Sum	-	-	85 191.00
		.2 for Item 23.2.1.2 above	Sum	-	-	98 128.00
		.3 for Item 23.2.1.3 above	Sum	-	-	52 257.00
		.4 for Item 23.2.1.4 above	Sum	-	-	91 406.00
		.5 for Item 23.2.1.5 above	Sum	-	-	104 513.00
		.6 for Item 23.2.1.6 above	Sum	-	-	58 979.00
23.3.2		Installation of pipework and pipe supports, complete				
		.1 for Item 23.2.2.1 above	Sum	-	-	Included
		.2 for Item 23.2.2.2 above	Sum	-	-	13 841.00
		.3 for Item 23.2.2.3 above	Sum	-	-	Included
		.4 for Item 23.2.2.4 above	Sum	-	-	Included
		.5 for Item 23.2.2.5 above	Sum	-	-	Included
		.6 for Item 23.2.2.6 above	Sum	-	-	241 627.00
		.7 for Item 23.2.2.7 above	Sum	-	-	Included
23.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
23.4.1		Pumping stations complete				
		.1 for Item 23.2.1.1 above	Sum	-	-	47 882.00
				Carried Forward		64 948 104.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		64 948 104.00
		.2 for Item 23.2.1.2 above	Sum	-	-	15 961.00
		.3 for Item 23.2.1.3 above	Sum	-	-	6 385.00
		.4 for Item 23.2.1.4 above	Sum	-	-	6 385.00
		.5 for Item 23.2.1.5 above	Sum	-	-	19 153.00
		.6 for Item 23.2.1.6 above	Sum	-	-	9 577.00
23.4.2		Pipework and supports complete with fittings & specials, etc.				
		.1 for Item 23.2.2.1 above	Sum	-	-	Included
		.2 for Item 23.2.2.2 above	Sum	-	-	9 577.00
		.3 for Item 23.2.2.3 above	Sum	-	-	Included
		.4 for Item 23.2.2.4 above	Sum	-	-	Included
		.5 for Item 23.2.2.5 above	Sum	-	-	Included
		.6 for Item 23.2.2.6 above	Sum	-	-	31 921.00
		.7 for Item 23.2.2.7 above	Sum	-	-	Included
23.5		**SERVICING OF PUMPING EQUIPMENT**				
23.5.1		Servicing of pumps at the end of the defects notification period, including replacement of consumables				
		.1 '24 Tertiary treatment service water supply pump station	Sum	-	-	114 819.00
		.2 '24 Pressurised UF feed pump station	Sum	-	-	973 793.00
		.3 '24 Pressurised UF backwash pump station	Sum	-	-	559 501.00
		.4 '24 Pressurised UF CIP pump station	Sum	-	-	625 179.00
		.5 '24 Tertiary treatment reuse pump station	Sum	-	-	1 309 102.00
		.6 '24 Pressurised UF reject return pump station	Sum	-	-	177 945.00
				Carried Forward		68 807 402.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M23 - Pumps & Pipework

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				68 807 402.00
23.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
23.6.1		Temporary works for comissioning requirements for the off-site reuse system as per 3.5.5.4 .... **SCHEDULE M23** **PUMPS & PIPEWORK** **CARRIED TO SUMMARY**	Sum	1	695 380.00	695 380.00
		Total Carried forward to Summary of Schedules				69 502 782.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24A - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M24A	**DS3.6.1 26**	**SCHEDULE NO. M24A ULTRA VIOLET DISINFECTION (CLOSSED VESSEL SYSTEM)**				
24A.1		**DESIGN, DRAWINGS AND GENERAL**				
24.1.1		Provision of designs, drawings and technical information for the '24 UF UV disinfection system	Sum	-	-	70 623.00
24.1.2		Factory testing/inspection of UV equipment and control systems witnessed by the Engineer and/ or the Engineers Representatives	Sum	-	-	Included
24.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 24.1.2	Sum	-	-	203 875.00
24A.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
24.2.1		**'24 UF UV System** Note: Both open and closed vessel systems to be priced. Only **highest** sub-total to be carried forward to summary of schedules and used in subsequent summation and totals for calculating the Tender Offer amount.				
		.1 Closed UV disinfection reactors (complete with lamps, cleaning devices, mounting, draining, valves, connections, etc.)	Sum	-	-	8 872 739.00
		.2 UV Panels complete with power distribution centre and system control centre	Sum	-	-	3 623 517.00
		.3 Equipment associated with closed vessel UV reactor	Sum	-	-	1 811 759.00
		.4 Automatic chemical / mechanical cleansing equipment	Sum	-	-	1 059 472.00
		.5 Online monitoring equipment required for dose adjustment (e.g. UVt, Temp, etc.)	Sum	-	-	1 370 423.00
		.6 Operator safety equipment as per manufactures recommendations	Sum	-	-	241 568.00
				Carried Forward		17 253 976.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24A - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				17 253 976.00
		.7 All pipework associated with UV system	Sum	-	-	5 018 606.00
		.8 All valves associated with UV system	Sum	-	-	1 420 450.00
		.9 All specific equipment associated closed vessel UV system not indicated above but required in terms of relevant specification	Sum	-	-	205 080.00
		.10 Access and maintenance platform	Sum	-	-	181 956.00
		.11 Drainage sump pump system complete with float switch & pipework	Sum	-	-	39 456.00
		Note: Use **highest** amount above in subsequent summation and totals and price supporting equipment accordingly				
24A.3		**INSTALLATION**				
24.3.1		.1 For item 24.2.1.1 above	Sum	-	-	90 188.00
		.2 For item 24.2.1.2 above	Sum	-	-	63 245.00
		.3 For item 24.2.1.3 above	Sum	-	-	31 622.00
		.4 For item 24.2.1.4 above	Sum	-	-	19 736.00
		.5 For item 24.2.1.5 above	Sum	-	-	23 132.00
		.6 For item 24.2.1.6 above	Sum	-	-	9 548.00
		.7 For item 24.2.1.7 above	Sum	-	-	6 152.00
		.8 For item 24.2.1.8 above	Sum	-	-	12 303.00
		.9 For item 24.2.1.9 above	Sum	-	-	12 303.00
		.10 For item 24.2.1.10 above	Sum	-	-	12 303.00
		.11 For item 24.2.1.11 above	Sum	-	-	12 303.00
24A.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
24.4.1		.1 For item 24.2.1.1 above	Sum	-	-	472 938.00
		.2 For item 24.2.1.2 above	Sum	-	-	214 429.00
		Carried Forward				25 099 726.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24A - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				25 099 726.00
		.3 For item 24.2.1.3 above	Sum	-	-	113 599.00
		.4 For item 24.2.1.4 above	Sum	-	-	60 161.00
		.5 For item 24.2.1.5 above	Sum	-	-	73 605.00
		.6 For item 24.2.1.6 above	Sum	-	-	19 829.00
		.7 For item 24.2.1.7 above	Sum	-	-	6 385.00
		.8 For item 24.2.1.8 above	Sum	-	-	6 385.00
		.9 For item 24.2.1.9 above	Sum	-	-	6 385.00
		.10 For item 24.2.1.10 above	Sum	-	-	6 385.00
		.11 For item 24.2.1.11 above	Sum	-	-	6 385.00
24A.5		**SPARE PARTS AND SERVICING**				
24.5.1		Provision of spare parts for:				
		.1 For item 24.2.1.1 above	Sum	-	-	2 097 767.00
		.2 For item 24.2.1.2 above	Sum	-	-	339 593.00
		.3 For item 24.2.1.3 above	Sum	-	-	193 284.00
		.4 For item 24.2.1.4 above	Sum	-	-	98 388.00
		.5 For item 24.2.1.5 above	Sum	-	-	175 832.00
		.6 For item 24.2.1.6 above	Sum	-	-	6 982.00
		.7 For item 24.2.1.7 above	Sum	-	-	31 921.00
		.8 For item 24.2.1.8 above	Sum	-	-	15 961.00
		.9 For item 24.2.1.9 above	Sum	-	-	0.00
		.10 For item 24.2.1.10 above	Sum	-	-	0.00
		.11 For item 24.2.1.11 above	Sum	-	-	3 991.00
24.5.2		Servicing of equipment at the end of the defects and liability period:				
		Carried Forward				28 362 564.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				28 362 564.00
		.1 For item 24.2.1.1 above	Sum	-	-	20 970.00
		.2 For item 24.2.1.2 above	Sum	-	-	0.00
		.3 For item 24.2.1.3 above	Sum	-	-	0.00
		.4 For item 24.2.1.4 above	Sum	-	-	0.00
		.5 For item 24.2.1.5 above	Sum	-	-	0.00
		.6 For item 24.2.1.6 above	Sum	-	-	0.00
		.7 For item 24.2.1.7 above	Sum	-	-	6 385.00
		.8 For item 24.2.1.8 above	Sum	-	-	3 193.00
		.9 For item 24.2.1.9 above	Sum	-	-	0.00
		.10 For item 24.2.1.10 above	Sum	-	-	0.00
		.11 For item 24.2.1.11 above	Sum	-	-	799.00
24A.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
24A.6.1		In situ chemical cleaning requirements as per DMS 26.4.5.1 (from TOP to 12 months after the DLP)	Sum	1	171 619.00	171 619.00
24A.6.2		UV disinfection performance testing as er NWRI EPA guidelines (tests & calibrations) as per DMS 26.5.3 .... **SCHEDULE NO. M24A** **ULTRA VIOLET DISINFECTION (CLOSSED VESSEL SYSTEM)** **CARRIED TO SUMMARY**	Sum	1	900 545.00	900 545.00
		Total Carried forward to Summary of Schedules				29 466 075.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M24B	**DS3.6.1 26**	**SCHEDULE NO. M24B ULTRA VIOLET DISINFECTION (OPEN CHANNEL SYSTEM)**				
24B.1		**DESIGN, DRAWINGS AND GENERAL**				
24.1.1		Provision of designs, drawings and technical information for the '24 UF UV disinfection system	Sum	-	-	70 623.00
24.1.2		Factory testing/inspection of UV equipment and control systems witnessed by the Engineer and/ or the Engineer's Representatives	Sum	-	-	0.00
24.1.3		Allowance for 4 (four) representatives subsistence, travel, accommodation and disbursements related to 24.1.2	Sum	-	-	203 875.00
24B.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
24.2.1		**'24 UF UV System** Note: Both open and closed vessel systems to be priced. Only **highest** sub-total to be carried forward to summary of schedules and used in subsequent summation and totals for calculating the Tender Offer amount.				
		.1 Open Channel UV disinfection reactors (complete with lamps, cleaning devices, mounting, connections, etc.)	Sum	-	-	8 071 446.00
		.2 UV Panels complete with power distribution centre and system control centre	Sum	-	-	2 881 362.00
		.3 Equipment associated with open channel UV reactor system	Sum	-	-	2 314 431.00
		.4 Automatic chemical / mechanical cleansing equipment	Sum	-	-	768 364.00
		.5 Online monitoring equipment required for dose adjustment (e.g. UVt, Temp, etc.)	Sum	-	-	1 111 578.00
		.6 Operator safety equipment as per manufactures recommendations	Sum	-	-	192 091.00
					Carried Forward	15 613 770.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				15 613 770.00
		.7 Wall or channel gates for UV system for isolation and flow control purposes	Sum	-	-	736 304.00
		.8 All specific equipment associated open channel UV system not indicated above but required in terms of relevant specification	Sum	-	-	650 115.00
		.9 Access and maintenance platform	Sum	-	-	205 722.00
		.10 Drainage sump pump system complete with float switch & pipework	Sum	-	-	39 392.00
24B.3		**INSTALLATION**				
24.3.1		.1 For item 24.2.1.1 above	Sum	-	-	93 607.00
		.2 For item 24.2.1.2 above	Sum	-	-	66 175.00
		.3 For item 24.2.1.3 above	Sum	-	-	30 012.00
		.4 For item 24.2.1.4 above	Sum	-	-	20 518.00
		.5 For item 24.2.1.5 above	Sum	-	-	24 109.00
		.6 For item 24.2.1.6 above	Sum	-	-	6 668.00
		.7 For item 24.2.1.7 above	Sum	-	-	18 454.00
		.8 For item 24.2.1.8 above	Sum	-	-	3 076.00
		.9 For item 24.2.1.9 above	Sum	-	-	3 076.00
		.10 For item 24.2.1.10 above	Sum	-	-	6 152.00
24B.4	Part 3.6.1 55	**TESTING AND COMMISSIONING**				
24.4.1		.1 For item 24.2.1.1 above	Sum	-	-	420 161.00
		.2 For item 24.2.1.2 above	Sum	-	-	169 192.00
		.3 For item 24.2.1.3 above	Sum	-	-	90 980.00
		.4 For item 24.2.1.4 above	Sum	-	-	54 482.00
		.5 For item 24.2.1.5 above	Sum	-	-	61 718.00
		.6 For item 24.2.1.6 above	Sum	-	-	13 621.00
		Carried Forward				18 327 304.00

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				18 327 304.00
		.7 For item 24.2.1.7 above	Sum	-	-	6 385.00
		.8 For item 24.2.1.8 above	Sum	-	-	6 385.00
		.9 For item 24.2.1.9 above	Sum	-	-	6 385.00
		.10 For item 24.2.1.10 above	Sum	-	-	6 385.00
24B.5		**SPARE PARTS AND SERVICING**				
24.5.1		Provision of spare parts for:				
		.1 For item 24.2.1.1 above	Sum	-	-	1 944 320.00
		.2 For item 24.2.1.2 above	Sum	-	-	429 028.00
		.3 For item 24.2.1.3 above	Sum	-	-	233 932.00
		.4 For item 24.2.1.4 above	Sum	-	-	120 880.00
		.5 For item 24.2.1.5 above	Sum	-	-	194 789.00
		.6 For item 24.2.1.6 above	Sum	-	-	15 657.00
		.7 For item 24.2.1.7 above	Sum	-	-	20 271.00
		.8 For item 24.2.1.8 above	Sum	-	-	15 961.00
		.9 For item 24.2.1.9 above	Sum	-	-	0.00
		.10 For item 24.2.1.10 above	Sum	-	-	3 991.00
24.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 24.2.1.1 above	Sum	-	-	34 950.00
		.2 For item 24.2.1.2 above	Sum	-	-	0.00
		.3 For item 24.2.1.3 above	Sum	-	-	0.00
		.4 For item 24.2.1.4 above	Sum	-	-	0.00
		.5 For item 24.2.1.5 above	Sum	-	-	0.00
		.6 For item 24.2.1.6 above	Sum	-	-	0.00
		Carried Forward				21 366 623.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M24B - UV Disinfection Equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				21 366 623.00
		.7 For item 24.2.1.7 above	Sum	-	-	4 078.00
		.8 For item 24.2.1.8 above	Sum	-	-	3 193.00
		.9 For item 24.2.1.9 above	Sum	-	-	0.00
		.10 For item 24.2.1.10 above	Sum	-	-	0.00
24B.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)				
24B.6.1		UV disinfection performance testing as er NWRI EPA guidelines (tests & calibrations) as per DMS 26.5.3	Sum	1	900 545.00	900 545.00
		SCHEDULE NO. M24B ULTRA VIOLET DISINFECTION (OPEN CHANNEL SYSTEM) CARRIED TO SUMMARY				
		Total Carried forward to Summary of Schedules				22 274 439.00

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M25	*Part 3.6.1 22, 50*	**SCHEDULE NO. M25 HEATING, VENTILATION AND AIR CONDITIONING EQUIPMENT**				
25.1		**DESIGN, DRAWINGS AND GENERAL**				
25.1.1		Provision of designs, drawings and technical information for:				
		.1 Air conditioning systems	Sum	-	-	37 950.00
		.2 Forced ventilation systems	Sum	-	-	42 350.00
25.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
25.2.1	Part 3.6.1 50	Air conditioning systems				
		.1 '24 MCC substation No.5	Sum	-	-	748 000.00
25.2.2	Part 3.6.1 50	Forced ventilation systems				
		.1 '24 Tertiary treatment ultra-filtration feed pump station	Sum	-	-	198 000.00
		.2 '24 Tertiary treatment ultra-filtration building	Sum	-	-	231 000.00
		.3 '24 Tertiary treatment UF Air scour blower room	Sum	-	-	704 000.00
		.4 '24 Tertiary treatment reuse pump station	Sum	-	-	242 000.00
		.5 '24 MCC substation No.5	Sum	-	-	49 500.00
25.2.3		Dehumidification systems				
		.1 '24 MCC substation No.5	Sum	-	-	Included
				Carried Forward		2 252 800.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M25 - HVAC

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				2 252 800.00
25.3		**INSTALLATION** Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
25.3.1		Air conditioning systems				
		.1 '24 MCC substation No.5	Sum	-	-	Included
25.3.2		Forced ventilation systems				
		.1 '24 Tertiary treatment ultra-filtration feed pump station	Sum	-	-	93 500.00
		.2 '24 Tertiary treatment ultra-filtration building	Sum	-	-	121 000.00
		.3 '24 Tertiary treatment UF Air scour blower room	Sum	-	-	242 000.00
		.4 '24 Tertiary treatment reuse pump station	Sum	-	-	88 000.00
		.5 '24 MCC substation No.5	Sum	-	-	26 950.00
25.3.3	Part 3.6.1 50	Dehumidification systems				
		.1 '24 MCC substation No.5	Sum	-	-	Included
25.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
25.4.1		Air conditioning systems				
		.1 '24 MCC substation No.5	Sum	-	-	13 750.00
25.4.2		Forced ventilation systems				
		.1 '24 Tertiary treatment ultra-filtration feed pump station	Sum	-	-	9 350.00
		.2 '24 Tertiary treatment ultra-filtration building	Sum	-	-	15 950.00
		.3 '24 Tertiary treatment UF Air scour blower room	Sum	-	-	18 150.00
		Carried Forward				2 881 450.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				2 881 450.00
		.4 '24 Tertiary treatment reuse pump station	Sum	-	-	13 750.00
		.5 '24 MCC substation No.5	Sum	-	-	15 400.00
25.4.3		Dehumidification systems				
		.1 '24 MCC substation No.5	Sum	-	-	Included
25.5		**SPARE PARTS AND SERVICING**				
25.5.1		Provision of spare parts for:				
		.1 Item 25.2.1 above	Sum	-	-	13 200.00
		.2 Item 25.2.2 above	Sum	-	-	11 000.00
		.3 Item 25.2.3 above	Sum	-	-	11 000.00
25.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 25.2.1 above	Sum	-	-	13 750.00
		.2 Item 25.2.2 above	Sum	-	-	13 750.00
		.3 Item 25.2.3 above	Sum	-	-	13 750.00
25.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify) .... **SCHEDULE NO. M25** **HVAC** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				2 987 050.00

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M26 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M26	*Part 3.6.1 48*	**SCHEDULE NO. M26** **LIFTING EQUIPMENT** *Rate to include for design, supply of material, manufacturing, corrosion protection, erection, welding, fasteners, testing etc.* *Workshop and layout drawings for all structural steel elements shall be compiled and submitted to the Engineer for approval prior to manufacturing.*				
26.1		**DESIGN, DRAWINGS AND GENERAL**				
26.1.1		Provision of designs, drawings and technical information for lifting equipment	Sum	-	-	258 922.00
26.2		**MANUFACTURE, FACTORY ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
26.2.1		'24 Micro screen facility lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	538 903.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	588 427.00
26.2.2		'24 Pressurised Ultra filtration feed pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	471 114.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	465 716.00
26.2.3		'24 Tertiary treatment reject return pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	103 345.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	68 717.00
26.2.4		'24 Pressurised UF system lifting equipment				
		.1 Traveling beam				
		a) Structural steel component of lifting equipment	Sum	-	-	708 969.00
		b) Other components (e.g. crawler, hoist, etc)	Sum	-	-	605 109.00
				Carried Forward		3 809 222.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule M26 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				3 809 222.00
		.2 Mobile lifting unit				
		a) Structural steel component of lifting equipment	Sum	-	-	72 708.00
		b) Other components (e.g. crawler, hoist, etc)	Sum	-	-	37 052.00
26.2.5		'24 Pressurised UF chemical dosing facility lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	40 368.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	51 443.00
26.2.6		'24 Pressurised ultra-filtration CIP pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	28 022.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	39 859.00
26.2.7		'24 Pressurised UF Air Scour Blower room lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	36 886.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	39 859.00
26.2.8		'24 Pressurised UF Ultra-Violet system lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	36 886.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	38 049.00
26.2.9		'24 Tertiary treatment reuse pump station lifting equipment				
		.1 Structural steel component of lifting equipment	Sum	-	-	555 255.00
		.2 Other components (e.g. crawler, hoist, etc)	Sum	-	-	486 191.00
26.3		**INSTALLATION**				
		Carried Forward				5 271 800.00

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Schedule M26 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		5 271 800.00
		Allow for all cost and expenses in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
26.3.1		Item 26.2.1 above	Sum	-	-	124 979.00
26.3.2		Item 26.2.2 above	Sum	-	-	119 165.00
26.3.3		Item 26.2.3 above	Sum	-	-	44 026.00
26.3.4		Item 26.2.4 above	Sum	-	-	147 611.00
26.3.5		Item 26.2.5 above	Sum	-	-	44 732.00
26.3.6		Item 26.2.6 above	Sum	-	-	44 732.00
26.3.7		Item 26.2.7 above	Sum	-	-	44 732.00
26.3.8		Item 26.2.8 above	Sum	-	-	44 732.00
26.3.9		Item 26.2.9 above	Sum	-	-	150 869.00
26.4	Part 3.6.1 55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following: *Rate to include for load testing certification*				
26.4.1		Item 26.2.1 above	Sum	-	-	16 916.00
26.4.2		Item 26.2.2 above	Sum	-	-	16 916.00
26.4.3		Item 26.2.3 above	Sum	-	-	16 916.00
26.4.4		Item 26.2.4 above	Sum	-	-	16 916.00
26.4.5		Item 26.2.5 above	Sum	-	-	16 916.00
26.4.6		Item 26.2.6 above	Sum	-	-	16 916.00
26.4.7		Item 26.2.7 above	Sum	-	-	16 916.00
26.4.8		Item 26.2.8 above	Sum	-	-	16 916.00
26.4.9		Item 26.2.9 above	Sum	-	-	16 916.00
				Carried Forward		6 189 622.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		6 189 622.00
26.5		**SPARE PARTS AND SERVICING**				
26.5.1		Provision of spare parts for:				
		.1 Item 26.2.1 above	Sum	-	-	0.00
		.2 Item 26.2.2 above	Sum	-	-	0.00
		.3 Item 26.2.3 above	Sum	-	-	0.00
		.4 Item 26.2.4 above	Sum	-	-	0.00
		.5 Item 26.2.5 above	Sum	-	-	0.00
		.6 Item 26.2.6 above	Sum	-	-	0.00
		.7 Item 26.2.7 above	Sum	-	-	0.00
		.8 Item 26.2.8 above	Sum	-	-	0.00
		.9 Item 26.2.9 above	Sum	-	-	0.00
26.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 Item 26.2.1 above	Sum	-	-	0.00
		.2 Item 26.2.2 above	Sum	-	-	0.00
		.3 Item 26.2.3 above	Sum	-	-	0.00
		.4 Item 26.2.4 above	Sum	-	-	0.00
		.5 Item 26.2.5 above	Sum	-	-	0.00
		.6 Item 26.2.6 above	Sum	-	-	0.00
		.7 Item 26.2.7 above	Sum	-	-	0.00
		.8 Item 26.2.8 above	Sum	-	-	0.00
		.9 Item 26.2.9 above	Sum	-	-	0.00
				Carried Forward		6 189 622.00

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Schedule M26 - Lifting equipment

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 189 622.00
26.6		**Other:** All other items not included above but which are nevertheless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Specify)	Item		0.00	0.00
26.6.1		Annual Load testing as per OSH Act requirements	Sum	1	90 713.00	90 713.00
26.6.2		Annual Servicing	Sum	1	95 319.00	95 319.00
		.....				
		.....				
		.....			

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
M27	Part 3.6.1 5, 6	**SCHEDULE NO. M27 CHANNEL GATES, SLUICE GATES, VALVES & WEIRS** *Rate to include for design, supply of material, manufacturing, corrosion protection, erection, welding, fasteners, testing etc. Workshop and layout drawings for all structural steel elements shall be compiled and submitted to the Engineer for approval prior to manufacturing.*				
27.1		**DESIGN, DRAWINGS AND GENERAL**				
27.1.1		Provision of designs, drawings and technical information for channel gates, sluice gates and valves	Sum	-		140 674.00
27.2		**MANUFACTURE, FACTOR ACCEPTANCE TEST, TRANSPORT AND DELIVERY TO SITE**				
27.2.1	Part 3.6.1 5	Wall-Mounted Sluice Gate Summary				
		.1 '24 UF Micro Screening Station:	No.	1	120 756.00	120 756.00
		.2 '24 UF UV discharge sump	No.	1	120 756.00	120 756.00
		.3 Open close actuators (electric) for channel-mounted sluice gates	No	2	119 574.00	239 148.00
27.2.2	Part 3.6.1 5	Weir plates				
		.1 '24 Micro screen inlet channel emergency overflow	No	1	5 574.00	5 574.00
		.2 '24 Micro screen outlet channel emergency overflow	No	1	5 265.00	5 265.00
		.3 '24 Pressurised UF CIP pump station sump overflow	No	1	4 834.00	4 834.00
		.4 '24 Tertiary treatment off site reuse sump	No	1	7 350.00	7 350.00
		.5 '24 Tertiary treatment off site reuse sump	No	1	5 574.00	5 574.00
27.2.3		**Valves associated with '24 Maturation, tertiary treatment & disinfection (3089.00.00.AAA.A007 and associated P&IDs)**				
				Carried Forward		649 931.00

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				649 931.00
	Part 3.6.1.1 43	'24 UF micro screening station				
		a) Sum of all valves associated with washwater supply required for operation as per intended use	Sum	-		118 050.00
		b) Isolation valves (in and outet of screens)	No	12	134 161.00	1 609 932.00
		c) Actuators (electric)	No	12	146 304.00	1 755 648.00
	Part 3.6.1.2 44	'24 Pressurised UF feed pump station				
		a) Isolation valves (pump suction pipework)	No	5	116 441.00	582 205.00
		b) Isolation valves (pump discharge pipework)	No	5	92 875.00	464 375.00
		c) Isolation valves (flowmeter installation)	No	3	87 889.00	263 667.00
		d) Non return valve	No	5	377 166.00	1 885 830.00
		e) Magnetic flow meter	No	1	143 372.00	143 372.00
		f) Actuators (electric)	No	10	137 019.00	1 370 190.00
	Part 3.6.1.3 45	'24 Pressurised UF backwash pump station				
		a) Isolation valves (pump suction pipework)	No	2	116 626.00	233 252.00
		b) Isolation valves (pump discharge pipework)	No	2	69 048.00	138 096.00
		c) Isolation valves (flowmeter installation)	No	3	64 289.00	192 867.00
		d) Non return valve	No	2	167 568.00	335 136.00
		e) Magnetic flow meter	No	1	133 350.00	133 350.00
	Part 3.6.1.4 45	'24 Pressurized UF module air scour system				
		a) Isolation valves	No	8	18 559.00	148 472.00
		b) Sum of all other valves associated with air scour system required for operation as per intended use	Sum	-		Included in M21
		Carried Forward				10 024 373.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				10 024 373.00
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		287 189.00
	Part 3.6.1.5 45	'24 Pressurized UF process air supply				
		a) Isolation valves	No	8	18 559.00	148 472.00
		b) Sum of all other valves associated with process air supply required for operation as per intended use	Sum	-		Included in M21
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		287 189.00
	Part 3.6.1.6 45	'24 Pressurized UF filter feed pipework				
		a) Isolation valves	No	8	65 982.00	527 856.00
		b) Sum of all other valves associated with filter feed required for operation as per intended use	Sum	-		Included in M21
		c) Sum of all actuators (pneumatic) and/or solinoids required for operation as per intended use	Sum	-		452 936.00
	Part 3.6.1.7 45	'24 Pressurized UF filtrate pipework				
		a) Isolation valves	No	8	42 624.00	340 992.00
		b) Sum of all other valves associated with filtrate required for operation as per intended use	Sum	-		Included in M21
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		287 189.00
	Part 3.6.1.8 45	'24 Pressurized UF backwash feed pipework				
		a) Isolation valves	No	8	82 574.00	660 592.00
		b) Sum of all other valves associated with backwsh feed required for operation as per intended use	Sum	-		Included in M21
		Carried Forward				13 016 788.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				13 016 788.00
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		452 936.00
	Part 3.6.1.9 45	'24 Pressurized UF backwash discharge pipework				
		a) Isolation valves (to conditioning tank)	No	8	82 419.00	659 352.00
		b) Isolation valves (to reject return sump)	No	8	82 419.00	659 352.00
		c) Sum of all other valves associated with backwash discharge supply required for operation as per intended use	Sum	-		Included in M21
		d) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		1 055 044.00
	Part 3.6.1.10 45	'24 Pressurized UF CIP pipework (feed and discharge)				
		a) Isolation valves	No	16	37 213.00	595 408.00
		b) Sum of all other valves associated with CIP system required for operation as per intended use	Sum	-		Included in M21
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		573 954.00
	Part 3.6.1.11 45	'24 Pressurized UF filtrate exhuast pipework				
		a) Isolation valves	No	8	18 559.00	148 472.00
		b) Sum of all other valves associated with filtrate exhaust required for operation as per intended use	Sum	-		Included in M21
		c) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		287 189.00
	Part 3.6.1.12 45	'24 Pressurized UF filtrate sampling and maintenance pipework				
		Carried Forward				17 448 495.00

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				17 448 495.00
		a) Sum of all valves associated with sampling and maintenance required for operation as per intended use	Sum	-		Included in M21
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		Included in M21
	Part 3.6.1.13 '24 45	Pressurised UF CIP pump station				
		a) Isolation valves (pump suction pipework)	No	2	283 489.00	566 978.00
		b) Isolation valves (pump discharge and sump inlet pipework)	No	4	96 249.00	384 996.00
		c) Isolation valves (flowmeter installation)	No	3	68 945.00	206 835.00
		d) Non return valve	No	2	167 414.00	334 828.00
		e) Pressure safety valve	No	1	26 653.00	26 653.00
		f) Magnetic flow meter	No	1	133 350.00	133 350.00
	Part 3.6.1.14 '24 45	Pressurized UF CIP citric acid dosing system				
		a) Sum of all valves associated with citric acid system required for operation as per intended use	Sum	-		31 975.00
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		Included in M21
	Part 3.6.1.15 '24 45	Pressurized UF CIP Sodium hypochlorite dosing system				
		a) Sum of all valves associated with sodium hypochlorite system required for operation as per intended use	Sum	-		66 464.00
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		176 065.00
	Part 3.6.1.16 '24 45	Pressurized UF CIP sulfuric acid dosing system				
		Carried Forward				19 376 639.00

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				19 376 639.00
		a) Sum of all valves associated with sulfuric acid system required for operation as per intended use	Sum	-		50 857.00
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		176 065.00
	Part 3.6.1.17 '24 Pressurized UF CIP sodium metabisulfite dosing system 45					
		a) Sum of all valves associated with sodium metabisulfite system required for operation as per intended use	Sum	-		27 522.00
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		Included in M21
	Part 3.6.1.18 '24 Pressurized UF CIP sodium hydroxide dosing system 45					
		a) Sum of all valves associated with sodium hydroxide system required for operation as per intended use	Sum	-		38 545.00
		b) Sum of all actuators and/or solinoids required for operation as per intended use	Sum	-		176 065.00
	Part 3.6.1.19 '24 Ultra filtration UV system 26					
		a) Isolation valves (UV bypass)	No	1	306 598.00	306 598.00
	Part 3.6.1.20 '24 Ultra filtration reuse pump station 47					
		a) Isolation valves (pump suction)	No	6	89 943.00	539 658.00
		b) Isolation valves (pump discharge)	No	6	73 274.00	439 644.00
		c) Isolation valves (air valve)	No	1	17 342.00	17 342.00
		d) Isolation valves (flow meter)	No	3	165 149.00	495 447.00
		e) Non return valve	No	6	321 976.00	1 931 856.00
		f) Magnetic flow meter	No	1	201 087.00	201 087.00
		Carried Forward				23 777 325.00

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				23 777 325.00
		g) Air release valve	No	1	36 247.00	36 247.00
		h) Actuators (electric)	No	12	77 182.00	926 184.00
		i) Surge anticipating valves (200 mm diameter)	No.	2	199 891.00	399 782.00
		j) Surge anticipating valve isolation valves	No.	2	17 342.00	34 684.00
		k) Treated effluent manifold chambers				
	47.4.9.a	(Refer to DWG. 3089.00.00.SQI.14.U001) i Isolation valves (800mm dia buttefly)	No.	2	347 494.00	694 988.00
		ii Isolation valves (1000mm dia buttefly)	No.	1	476 560.00	476 560.00
		iii Isolation valves (450mm dia buttefly)	No.	1	93 774.00	93 774.00
	47.4.9.b	(Refer to DWG. 3089.00.00.SQJ.14.U001) iv Isolation valves (800mm dia buttefly)	No.	4	347 339.00	1 389 356.00
		v Isolation valves (600mm dia buttefly)	No.	1	165 663.00	165 663.00
	47.4.9.c	(Refer to DWG. 3089.00.00.SQK.14.U001) vi Isolation valves (800mm dia buttefly)	No.	5	347 308.00	1 736 540.00
	47.4.9.d	(Refer to DWG. 3089.00.00.SQL.14.U001) vii Isolation valves (800mm dia buttefly)	No.	2	347 494.00	694 988.00
		viii Isolation valves (150mm dia RSV)	No.	1	11 161.00	11 161.00
		ix Isolation valves (300mm dia buttefly)	No.	1	59 711.00	59 711.00
		x Isolation valves (350mm dia buttefly)	No.	1	69 276.00	69 276.00
	47.4.9.e	(Refer to DWG. 3089.00.00.SQM.14.U001) xi Isolating valves (150mm dia RSV)	No.	3	10 750.00	32 250.00
		xii Air release valve	No.	3	26 919.00	80 757.00
	Part 3.6.1.21 '24 UF Service water pump station 27	station				
		a) Isolation valves (pump suction manifold)	No	1	29 529.00	29 529.00
		b) Isolation valves (pump suction and discharge)	No	10		Included in M23
		Carried Forward				30 708 775.00

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Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				30 708 775.00
		c) Isolation valves (flow meter)	No	3	24 333.00	72 999.00
		d) Non return valve	No	5		Included in M23
		e) Magnetic flow meter	No	1	81 965.00	81 965.00
		f) Hydro-pneumatic tank	No	1		Included in M23
	Part 3.6.1.27	.22 '24 Pressurised UF reject return pump station				
		a) Isolation valves (pump discharge)	No	3	110 565.00	331 695.00
		b) Isolation valves (flow meter)	No	3	51 471.00	154 413.00
		c) Non return valve	No	5	86 392.00	431 960.00
		d) Magnetic flow meter	No	1	87 766.00	87 766.00
27.3		**INSTALLATION** Allow for all cost and expences in connection with the Site Installation in terms of the FIDIC and Part C3: Scope of Work (excluding pre commissioning) for the following:				
27.3.1		For item 27.2.1 above	Sum	-		13 107.00
27.3.2		For item 27.2.2 above	Sum	-		13 107.00
27.3.3		For item 27.2.3 above	Sum	-		92 268.00
27.4	Part 3.6.1.55	**TESTING AND COMMISSIONING** Allow for all cost and expenses in connection with testing and commissioning in terms of FIDIC and Part C3: Scope of Work for the following:				
27.4.1		For item 27.2.1 above	Sum	-		6 385.00
27.4.2		For item 27.2.2 above	Sum	-		1 597.00
27.4.3		For item 27.2.3 above	Sum	-		25 537.00
27.5		**SPARE PARTS AND SERVICING**				
27.5.1		Provision of spare parts for:				
		.1 For item 27.2.1 above	Sum	-		27 576.00
		Carried Forward				32 049 150.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule M27 - Channel gates, Sluice gates and Valves

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				32 049 150.00
		.2 For item 27.2.2 above	Sum	-		0.00
		.3 For item 27.2.3 above	Sum	-		0.00
27.5.2		Servicing of equipment at the end of the defects and liability period:				
		.1 For item 27.2.1 above	Sum	-		8 155.00
		.2 For item 27.2.2 above	Sum	-		0.00
		.3 For item 27.2.3 above	Sum	-		31 921.00
27.6		**Other:** All other items not included above but which are nevertherless necessary to meet the Scope of Works and/or are required for the proper, safe and effective operation of the plant (Spesify)	Item		0.00	0.00
		.....				
27.6.1		08 SST settled sewage splitting chamber wall mounted isolation sluice gates (1.2m x 1.2m)	No	2	130 426.00	260 852.00
27.6.2		Actuators for '08 SST settled sewage splitting chamber wall mounted sluice gates	No	2	76 867.00	153 734.00
27.6.4		Actuators for UF Plant Final Effluent Chamber 4 mounted sluice gates	No	2	76 867.00	153 734.00
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		SCHEDULE NO. M27 **SLUICE GATES AND VALVES** **CARRIED TO SUMMARY**				
		Total Carried forward to Summary of Schedules				32 657 546.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule E.1 - Eskom Bulk Supply Works

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.1		**SCHEDULE NO. E.1** **ESKOM BULK SUPPLY WORKS**				
E.1.1		**SCHEDULE E.1.1 - DESIGN, DRAWINGS AND GENERAL**				
		All Eskom works to be designed by Eskom approved consultant. Volume 2 Design to be presented and approved at Eskom DRT. Contractor to be Eskom WCOU authorised.				
.1		Design, Liaison with Eskom planners and supply drawings for installing 1 additional 11kV Feeder Breaker at Ascot North Substation.	Sum	-	-	0.00
.2		Design, Liaison with Eskom Planners and supply drawings for installing 300mm^2 3 core 11kV CU PILC cable to Potsdam WWTW. All wayleaves for design purposes to be obtained.	Sum	-	-	0.00
.3		Design, Liaison with Eskom and supply drawings for the modifications to the existing substation protection schemes inclusive of substation automation and telemetry.	Sum	-	-	0.00
E.1.2		**SCHEDULE E.1.2 - SUPPLY AND DELIVERY TO SITE** **Medium Voltage Switchgear** Circuit breaker panels to integrate with existing Siemens switchgear, including the CT's, VT's relays, tools and all equipment specified, all material needed to complete the panel installation .				
.1		11kV Feeder Panel similar to the existing panels as per Eskom requirements.	Prov Sum	-	-	260 000.00
.2		Overheads, charges and profit on the above	%		260 000.00	
		Protection Schemes Protection Schemes to integrate with existing scheme, inclusive of all IED's, Relays, HMI's, Pilot Lights, Switches, Wiring, complete as per Eskom requirements.				
.3		11kV Feeder/Incomer Protection Schemes - 4CF3100 (with Diff Protection)	Prov Sum	-	-	260 000.00
.4		Overheads, charges and profit on the above	%		260 000.00	
					Carried Forward	520 000.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule E.1 - Eskom Bulk Supply Works

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	520 000.00
.5		Set, confirm all protection and metering relays settings of all effected panels.	Sum	-	0.00	0.00
		Eskom Metering Schemes Metering Schemes, complete, inclusive of all IED's, Relays, Meters, Switches, Wiring, Etc. All suitable arranged per existing panel, complete as per Eskom requirements.				
.6		Statistical Metering Panel for the 11kV Feeders, inclusive of Voltage selection modules, metering modules and Meters (four quadrant, class 0.2).	Prov Sum	-	-	37 000.00
.7		Overheads, charges and profit on the above	%		37 000.00	
.8		Engraved labelling for protection, metering panel and JB names, Feeder Names etc. as per Eskom requirements.	Each	14	600.00	8 400.00
.9		Provision of complete Shop Drawings for Protection, Metering and Telecontrol Schemes for approval by the Engineer.	Sum	1	0.00	0.00
		Control Plant Cables 1000V PVC/SWA/PVC Multicore Cables				
.10		4-Core, 2.5mm2 (No. 1) Armoured	m	25	65.00	1 625.00
.11		4-Core, 4mm2 (No. 1) Armoured	m	30	90.00	2 700.00
.12		12-Core, 2.5mm2 (No. 2) Armoured	m	30	160.00	4 800.00
.13		4-Core, 2.5mm^2 termination	Each	6	80.00	480.00
.14		4-Core, 4mm^2 termination	Each	6	80.00	480.00
.15		24-Core, 2.5mm^2 termination	Each	8	140.00	1 120.00
.16		400mm Galvanized Wire Mesh Channel complete with P2000, hangers, bracket, comers, bends and all equipment needed to complete the installation	m	9	800.00	7 200.00
					Carried forward	583 805.00

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Schedule E.1 - Eskom Bulk Supply Works

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought forward	583 805.00
.17		**Telecontrol Equipment** Provision for Telecontrol equipment, Media interface card, internal Interconnection cable, Ethernet Memory Card, Expansion kit, Cable Assy and Fibre Optic transceiver with IDF Frame, RJ45 Plugs/Boots, RJ45 to DB9M converter complete as per Eskom requirements.	Prov Sum	-	-	32 000.00
.18		Overheads, charges and profit on the above	%		32 000.00	
.19		CAT5E FTP Solid Core	m	50	85.00	4 250.00
.20		Fibre cable pr-SM-09/125 uM-SC-SCAPC-5m, Duplex, Ruggedised	Each	2	2 860.00	5 720.00
	EMCA 21.1	**MV-Cable** Supply and deliver 6,35/11kV PILC DSTA PVC screened cable to SABS 97 Table 19, as specified in D-DT-8000				
.21		300mm^2 11kV Copper PILC Cable (SAP:0171311)	m	1900	3 400.00	6 460 000.00
.22		CU 300/3c cable joint (heat shrink) with all materials and equipment to complete the installation	Each	7	8 180.00	57 260.00
.23		Cu 300/3c indoor termination (heat shrink) with all materials and equipment to complete the installation	Each	4	10 135.00	40 540.00
.24		Cut and reroute (10m) existing CU 300/3c PILC cable complete with joint (heat shrink) with all materials and equipment to complete the installation	Each	2	46 620.00	93 240.00
.25		**Fibre Optic Cable Network (Eskom)** 24-Core Fibre Optic Single Mode – 24-C/125 µm/1310nm wavelength, installed in 32mmØ sleeve as per Eskom requirements	m	1900	80.00	152 000.00
.26		Fibre enclosure with 24 way patch panel, complete with patch leads, including splicing, and wall mounted brackets	Each	2	4 850.00	9 700.00
.27		Fibre Joint Box (Splice Closure), 24 core, Installed in Manhole IP65, Termination Box Complete with Organiser, Protection Sleeve and Splicing	Each	4	520.00	2 080.00
.28		Preform 380mm x 600mm deep manhole, complete with Frame and Covers	Each	8	8 600.00	68 800.00
					Carried forward	7 509 395.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought forward	7 509 395.00
.29		Nextube Kabelflex 110mm dia complete with couplings	m	12	30.00	360.00
.30		32mmØ High Density Polyethylene sleeve sleeve complete with Couplings	m	1900	25.00	47 500.00
E.1.3		**SCHEDULE E.1.3 - INSTALLATION**				
.1		MV Switchgear Panel as per Eskom requirements	Each	1	85 000.00	85 000.00
.2		11kV Feeder/Incomer Protection Schemes	Each	1	85 000.00	85 000.00
.3		Statistical Metering Panel for the 11kV Feeders,	Each	1	65 000.00	65 000.00
.4		Engraved labelling for protection, metering panel and JB names, Feeder Names etc.	Each	14	250.00	3 500.00
.5		4-Core, 2.5mm2 (No. 1) Armoured	m	25	10.00	250.00
.6		4-Core, 4mm2 (No. 1) Armoured	m	30	15.00	450.00
.7		12-Core, 2.5mm2 (No. 2) Armoured	m	30	18.00	540.00
.8		4-Core, 2.5mm^2 termination	Each	6	20.00	120.00
.9		4-Core, 4mm^2 termination	Each	6	20.00	120.00
.10		24-Core, 2.5mm^2 termination	Each	8	40.00	320.00
.11		400mm Galvanized Wire Mesh Channel complete	m	9	100.00	900.00
.12		Telecontrol equipment, Complete	Sum	-	0.00	0.00
.13		CAT5E FTP Solid Core	m	50	85.00	4 250.00
.14		Fibre cable pr-SM-09/125 uM-SC-SCAPC-5m,	Each	2	520.00	1 040.00
.15		300mm^2 11kV Copper PILC Cable (SAP:0171311)	m	1900	35.00	66 500.00
.16		CU 300/3c cable joint (heat shrink)	Each	9	7 920.00	71 280.00
.17		Cu 300/3c indoor termination (heat shrink)	Each	4	6 750.00	27 000.00
.18		24-Core Fibre Optic Single Mode – 24-C/125	m	1900	80.00	152 000.00
.19		Fibre enclosure with 24 way patch panel, complete	Each	2	520.00	1 040.00
					Carried forward	8 121 565.00

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Schedule E.1 - Eskom Bulk Supply Works

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought forward	8 121 565.00
.20		Fibre Joint Box, 24 core, and splicing	Each	4	520.00	2 080.00
.21		Preform 380mm x 600mm deep manhole, complete	Each	8	3 500.00	28 000.00
.22	EMCA 18.2 (g)	Nextube Kabelflex 110mm dia	m	12	10.00	120.00
.23		32mmØ High Density Polyethylene sleeve	m	1900	10.00	19 000.00
	EMCA 20.3 (e)	**Excavations for MV Cable** Excavations to be 1m deep x 0.6m wide x running meter all backfill material to be sifted soil and compacted in layers to 90% MOD for trenches and 97% MOD for road crossings, test certificates to be provided each 50m and remove surplus material.				
.24		a) Pickable soil, by hand and machine. Excavate, backfill and compact	m³	893	135.00	120 555.00
.25		b) Soft rock, machine and pneumatic equipment. Excavate, backfill and compact and removal of all redundant and surplus material	m³	105	185.00	19 425.00
.26		c) Hard rock, blasting only. Blast, excavate, backfill, compact includes permits, site establishment, notices and covers and/or rocks greater than 0.75m3 in the trenches, including the removal all redundant and surplus material	m³	53	385.00	20 405.00
.27		d) Compaction Test (Troxler) every 50m of trench, test certificates be provided.	Each	35	3 500.00	122 500.00
.28		e) Supply and install Import sand bedding. All backfill material to be sifted soil and compacted to 90% MOD	m³	315	560.00	176 400.00
.29		f) Supply and lay 300mm wide marker tape 300mm below NGL, above LV cable	m	1750	2.00	3 500.00
.30		g) Supply and install Cable protection slabs, where crossing other services	Each	36	9 650.00	347 400.00
.31		h) Obtain Way-leaves from all relevant parties	sum	-	-	0.00
.32		Provide task method statement for complete installation for approval before work commence.	sum	-	-	0.00
					Carried forward	8 980 950.00

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Schedule E.1 - Eskom Bulk Supply Works

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought forward	8 980 950.00
.33		Drilling for sleeves under road surfaces, water channels or paving (include sleeve, site establishment and excavations for drill hole)				
.34		a) Drill 110mmØ (Soft)	m	145	1 600.00	232 000.00
.35		b) Drill 110mmØ (Intermediate)	m	20	1 850.00	37 000.00
.36		Provision to barricade open trenches while cable installation excavations progress	m	1900	50.00	95 000.00
.37		Cut and reroute two existing MV-Cable into new Substation 25m each (termination provided else ware	Sum	-	0.00	0.00
.38		Reinstate: Lift, Pack and Reinstall Paving by Paving Specialist	m^3	50	90.00	4 500.00
.39		Reinstate: Cut, Break and Reinstall Concrete (25 MP	m^3	150	3 850.00	577 500.00
.40		Reinstate: Cut, Break Pre-mix Sidewalk and Reinstall Pre-mix Sidewalk	m^3	25	2 860.00	71 500.00
E.1.4	EMCA 21.3	**SCHEDULE E.1.4 - COMISSIONING AND TESTING**				
.1		Modification of existing Eskom protection schemes to accommodate extra substation 11kV Breaker and integrated with Eskom system.	Sum	-	0.00	0.00
.2		Commission and do a full functionality and induction tests on MV Switchgear with Eskom to witness.	Sum	-	0.00	0.00
.3		Pressure test 300mm^2 11kV Copper PILC Cable and do phasing between CoCT Incomer SS and Eskom Ascot North SS	Sum	-	0.00	0.00
.4		Measure & Record of Soil resistivity and earth resistance	Sum	-	0.00	0.00
.5		Check and confirm phasing and rotation at all rotated Switch points to supply authority standard.	Sum	-	0.00	0.00
.6		Certificate of compliance (COC's) for LV section	Sum	-	0.00	0.00
.7		Provide completed signed off Inspection Test Plan (ITP) document and FAT test certificates.	Sum	-	0.00	0.00
.8		Testing of complete fibre installation in coordination with Eskom.	Sum	-	0.00	0.00
					Carried forward	9 998 450.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought forward	9 998 450.00
.9		Handover of full Eskom installation works to Eskom and supply as-built file	Sum	-	0.00	0.00
.10		Liaise with Eskom personnel for shut-downs, switching inspection and testing for duration of contract.	Sum	-	0.00	0.00
		Danger Signs and Notices				
.11		Provision of materials (e.g. notice signs, demarcation material) for full compliance of hazardous location	Sum	-	0.00	0.00
E.1.5		**SCHEDULE E.1.5 - CONTRACTOR SPECIFIC REQUIREMENTS**				
		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 (Specify) .... **SCHEDULE NO. E.1** **ESKOM BULK SUPPLY WORKS** **CARRIED TO SUMMARY**	Item		0.00	0.00
		Carried forward to Summary of Schedules			**Total**	9 998 450.00

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Section C2.2 Schedule of Quantities
Schedule E.2 - MV Switchgear Incomer Substation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.2	*EMVS*	**SCHEDULE NO. E.2** **MV SWITCHGEAR INCOMER SUBSTATION**				
E.2.1	EMVS 35.1	**SCHEDULE E.2.1 - DESIGN, DRAWINGS AND GENERAL** *All Switchgear to be ABB Unigear ZACB as per CoCT current maintenance tender* No. 129Q/2018/19 (also refer to project specification PSEMVS)				
.1	PSEGEN B & E.1	Provide design drawings and design information for medium voltage switchgear	Sum	-	-	0.00
.2	EMVS 35.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified	Sum	-	-	0.00
.3	EMVS 35.1 (c)	Protection short circuit analysis and coordination study and protection setting calculations for protection relays	Sum	-	-	0.00
E.2.2	EMVS 35.2	**SCHEDULE E.2.2 - SUPPLY AND DELIVERY TO SITE** *All switchgear to be according to CoCT specification*				
.1		AIS DISTRIBUTION FEEDER PANEL (Items A1.1 (SAP 200010692), B1.1)(1250A Bus/630A ISO) complete with SEL 751A 2-pole OC/1-pole EF relay & CT's 400/5, 10 VA, Class 5P10 (6 + 2 spare)	Each	8		3 776 942.00
.2		AIS MAIN SUBSTATION 1250 A INCOMER PANEL (Items A1.7 (SAP 200015074)(1250A Bus/1250A ISO) Complete with SEL 751A 2-pole OC/1-pole EF relay, SEL-734 kWhr & Solecore N relay for diff relay & CT's 1250/1, Class PX & 1250/1, 10 VA, Class 5P10 & 1250/1,10 VA, Class 0,2S	Each	3		1 999 476.00
.3		AIS DISTRIBUTION BUS-SECTION PANEL (Items A1.3 (SAP Mat No 200010698), B1.3 (1250A Bus/1250A ISO). Complete with SEL 751A 2-pole OC/1-pole EF relay & CT's 1250/5, 10 VA, Class 5P10	Each	3		1 319 128.00
.4		AIS 1250 A BUSBAR RISER PANEL (Items A1.4 (SAP Mat No 200010700), B1.4	Each	3		635 596.00
.5		AIS 1250 A BUSBAR EARTHING PANEL (Items A1.5 (SAP Mat No 200010701), B1.5 Complete with Castell Key interlocked	Each	1		229 876.00
					Carried Forward	7 961 018.00

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Schedule E.2 - MV Switchgear Incomer Substation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	7 961 018.00
.6		AIS DISTRIBUTION FEEDER PANEL FOR GENERATOR INCOMER (Unigear ZS1 with VD4G-25 circuit breaker)(1250A Bus/630A ISO) Complete with SEL 751A 2-pole OC/1-pole EF relay & CT's 1250/5, 10 VA, Class 5P10, 400/300/5 Class PX	Each	4		2 168 346.00
.7		AIS DISTRIBUTION FEEDER PANEL FOR HARMONIC COMPENSATION (Items A1.1 (SAP 200010692), B1.1)(1250A Bus/630A ISO) Complete with SEL 735 relay, & SEL 751A 2-pole OC/1-pole EF relay & CT's 400/5, 10 VA, Class 0,2S & 400/200/1, 10 VA, Class 0,5S	Each	2		1 097 201.00
.8		VOLTAGE TRANSFORMERS FOR AIS SWITCHGEAR. 11000/√3//110/√3 V, 15 VA, Class 0,2 voltage transformers as specified for use with Main Substation Incomer panels. (SAP Mat No 200019591)(1250A Bus/630A ISO)	Set	3		240 992.00
.9		CIRCUIT BREAKER TROLLEYS FOR AIS SWITCHGEAR, Circuit breaker trolley for 630A/1250A circuit breaker as detailed in the specification (Item A1.20 (SAP Mat No 200010685); Item B1.14	Each	1		16 145.00
.10		Racking tools, interlocking keys and test lead.	Sum	-	-	17 486.00
E.2.3	**EMVS 35.3**	**SCHEDULE E.2.3 - INSTALLATION** Install switchgear and all material and equipment needed to complete the installation				
.1		AIS DISTRIBUTION FEEDER PANEL (Items A1.1 (SAP 200010692), B1.1 (6 + 2 spare)	Each	8		520 000.00
.2		AIS MAIN SUBSTATION 1250 A INCOMER PANEL (Items A1.7 (SAP 200015074)	Each	3		195 000.00
.3		AIS DISTRIBUTION BUS-SECTION PANEL (Items A1.3 (SAP Mat No 200010698), B1.3	Each	3		195 000.00
.4		AIS 1250 A BUSBAR RISER PANEL (Items A1.4 (SAP Mat No 200010700), B1.4	Each	3		195 000.00
.5		AIS 1250 A BUSBAR EARTHING PANEL (Items A1.5 (SAP Mat No 200010701), B1.5	Each	1		65 000.00
					Carried Forward	12 671 188.00

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Schedule E.2 - MV Switchgear Incomer Substation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	12 671 188.00
.6		AIS DISTRIBUTION FEEDER PANEL FOR GENERATOR INCOMER (Unigear ZS1 with VD4G-25 circuit breaker)	Each	4		2 168 346.00
.7		AIS DISTRIBUTION FEEDER PANEL FOR HARMONIC COMPENSATION (Items A1.1 (SAP 200010692), B1.1	Each	2		1 097 201.00
.8		VOLTAGE TRANSFORMERS FOR AIS SWITCHGEAR. 11000/√3//110/√3 V, 15 VA, Class 0,2 voltage transformers as specified for use with Main Substation Incomer panels. (SAP Mat No 200019591)	Set	3		240 992.00
.9		CIRCUIT BREAKER TROLLEYS FOR AIS SWITCHGEAR, Circuit breaker trolley for 630A/1250A circuit breaker as detailed in the specification (Item A1.20 (SAP Mat No 200010685); Item B1.14	Each	1		16 145.00
.10		Disconnect, cut and remove all existing switch gear and equipment from redundant substation and deliver to CoCT stores	Sum	-	-	0.00
E.2.4	**EMVS 35.4**	**SCHEDULE E.2.4 - COMISSIONING AND TESTING**				
.1		Commissioning and onsite test of complete medium voltage switchgear (refer to project specification PSEMVS)	Sum	-	-	0.00
.2		Factory Acceptance Test (obtain approval from CoCT when FAT is carried out). Include all expenses for Client, Engineer & Contractor. If FAT fails the contractor will be responsible for all cost when additional FAT needs to be carried out.	Sum	-	-	0.00
.3		Provide complete approved three hard copies & one electronic set of Manuals of the entire MV Switching panel, complete with As-Built Drawings, Test Certificates and Reports, Operational & Maintenance information etc.	Sum	-	-	0.00
					Carried Forward	16 193 872.00

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Schedule E.2 - MV Switchgear Incomer Substation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	16 193 872.00
		Danger Signs and Notices				
.4		Provision of materials (e.g. notice signs, demarcation material) for full compliance of hazardous location	Sum	-	-	0.00
E.2.5	EMVS	**SCHEDULE E.2.5 - CONTRACTOR SPECIFIC REQUIREMENTS**				
		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 (Specify)				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.2				
		MV SWITCHGEAR INCOMER SUBSTATION				
		CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules			**Total**	16 193 872.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule E.3 - Battery Tripping Units and Batteries

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.3	PSEMVS 25	**SCHEDULE NO. E.3 BATTERY TRIPPING UNITS AND BATTERIES**				
E.3.1		**SCHEDULE E.3.1 - DESIGN, DRAWINGS AND GENERAL**				
.1		Provide design information for the sizing of the BTU Unit with suppliers specifications	Sum	-	0.00	0.00
.2		Provide all operating maintenance manuals and "as-built" drawings as specified (refer to project specification PSEMVS)	Sum	-	0.00	0.00
E.3.2		**SCHEDULE E.3.2 - SUPPLY AND DELIVERY TO SITE**				
.1		Supply and Deliver to site BTU unit BTU to be 30V 20A fitted with NiCd batteries (29Ah/ 39Ah/ 49Ah as calculated)	Each	1	620 740.00	620 740.00
.2		Supply and Deliver to site NiCd Batteries	Set	1	0.00	0.00
.3		Supply and deliver to site power supply units Unit to be 48V 10A	Each	1	0.00	0.00
17.2.4		Supply and delivery to site of battery charger	Each	1	0.00	0.00
E.3.3		**SCHEDULE E.3.3 - INSTALLATION**				
.1		Supply and Deliver to site BTU unit BTU to be 30V 20A fitted with NiCd batteries (29Ah/ 39Ah/ 49Ah as calculated)	Each	1	27 500.00	27 500.00
.2		Supply and Deliver to site NiCd Batteries	Set	1	0.00	0.00
.3		Supply and deliver to site power supply units Unit to be 48V 10A	Each	1	0.00	0.00
.4		Supply and delivery to site of battery charger	Each	1	0.00	0.00
E.3.4		**SCHEDULE E.3.4 - COMISSIONING AND TESTING**				
.1	EMVS 35.3 (b)	Testing and Commissioning of BTU system	Sum	-	0.00	0.00
.2		Provide complete approved three hard copies, and one electronic set of Manuals of the BTU	Sum	-	0.00	0.00
				Carried forward		648 240.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought forward		648 240.00
E.3.5		**SCHEDULE E.3.5 - CONTRACTOR SPECIFIC REQUIREMENTS** 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 (Specify) .... **SCHEDULE NO. E.3** **BATTERY TRIPPING UNITS AND BATTERIES** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			Total	648 240.00

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Section C2.2 Schedule of Quantities
Schedule E.4 - Substation Earthing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.4	PSGEN B	**SCHEDULE NO. E.4 SUBSTATION EARTHING**				
E.4.1		**SCHEDULE E.4.1 - DESIGN, DRAWINGS AND GENERAL**				
1	EELS 20.2	Allowance for specialist to visit site and determine earth readings and do soil resistivity survey and earth resistance report, prior to designing earth mat. Include for design of earth mat as per recommendations.	Sum	-	-	0.00
.2		Provide Test earth resistence values in accordance to CoCT specifications	Sum	-	-	0.00
E.4.2	EELS 20.2	**SCHEDULE E.4.2 - SUPPLY AND DELIVERY TO SITE**				
.1		Earth rods - 1500mm long driven into ground with top ends up to 500mm below ground level.	No.	4	420.00	1 680.00
.2		Supply 70mm² Kwena earth conductor arround building 1.5m from foundatiion, at 1000m deep	m	200	340.00	68 000.00
.3		Earth bar mounted on two insulators against wall at 300mm above cable trench floor level (800 x 50 x 5mm copper), complete with 10mm holes.	No.	1	2 250.00	2 250.00
.4		Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	No.	10	40.00	400.00
.8	EELS 20.2	Marcionite conductive slurry for covering earth conductor as required	m³	25	8 280.00	207 000.00
E.4.3	EELS 20.2	**SCHEDULE E.4.3 - INSTALLATION**				
.1		Earth rods - 1500mm long driven into ground with top ends up to 500mm below ground level.	No.	4	120.00	480.00
.2		Install 70mm² Kwena earth conductor around building 1.5m from foundation, at 1000m deep	Sum	-	0.00	0.00
.3		Earth bar mounted on two insulators against wall at 300mm above cable trench floor level (800 x 50 x 5mm copper), complete with 10mm holes.	No.	1	300.00	300.00
				Carried forward		280 110.00

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Section C2.2 Schedule of Quantities
Schedule E.4 - Substation Earthing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
			Brought forward			280 110.00
.4		Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	No.	10	20.00	200.00
.5	EMCA 20.3 (e)	Trenching and Backfilling of earth mat trenches as per CoCT Specifications				
.6	EMCA 20.3 (e)	Excavating, back filling, consolidation, importation of soil and dumping of all rock and stone removed during excavations including cleaning of cable routes all according to particular specifications				
		a) Pickable soil	m³	100	135.00	13 500.00
		b) Soft rock	m³	8	185.00	1 480.00
.7		Importation of additional soil for the bedding of cables and the backfilling of trenches and drilling complete as per particular specification.	m³	2	560.00	1 120.00
.8	EELS 20.2	Install Marcionite conductive slurry into trench covering earth conductor with 250mm layer as required	m³	25	120.00	3 000.00
E.4.4	**EELS 20.4**	**SCHEDULE E.24.4 - COMMISSIONING**				
.1		Test an Commision earthing system, provice test certificate	Sum	-	0.00	0.00
E.4.5		**SCHEDULE E.4.5 - CONTRACTOR SPECIFIC REQUIREMENTS**				
		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 (Specify)				
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.4 SUBSTATION EARTHING CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules			**Total**	299 410.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.5 - Protection Schemes

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.5		**SCHEDULE NO. E.5** **PROTECTION SCHEMES**				
E.5.1		**SCHEDULE E.5.1 - DESIGN, DRAWINGS AND GENERAL**				
.1		Provide design drawings and design information for the substation protection schemes as listed below (refer to project specification PSEMVS)	Sum	-	-	0.00
.2		Provide all operating maintenance manuals and "as-built" drawings as specified (refer to project specification PSEMVS)	Sum	-	-	0.00
.3		Protection short circuit analysis and coordination study and protection setting calculations for protection relays (refer to project specification PSEMVS)	Sum	-	-	0.00
E.5.2		**SCHEDULE E.5.2 - SUPPLY AND DELIVERY TO SITE**				
.1		11kV Incomer Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use Solecore N relay for diff protection to match Eskom 4CF-3100 scheme at supply.	Each	3		465 000.00
.2		11kV Feeder Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use SEL 751A relay for OC/EF protection.	Each	8		1 240 000.00
.3		11kV Bus Section Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use SEL 751A relay for bus zone scheme	Each	3		465 000.00
		Control Plant Cables 1000V PVC/SWA/PVC Multicore Cables				
.4		4-Core, 2.5mm^2 (No. 1) Armoured	m	250	65.00	16 250.00
.5		4-Core, 4mm^2 (No. 1) Armoured	m	100	90.00	9 000.00
.6		24-Core, 2.5mm^2 (No. 2) Armoured	m	150	240.00	36 000.00
					Carried Forward	2 231 250.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.5 - Protection Schemes

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	2 231 250.00
.7		400mm Galvanized Wire Mesh Channel complete with P2000, hangers, bracket, comers, bends and all equipment needed to complete the installation	m	9	800.00	7 200.00
.8		4-Core, 2.5mm^2 termination	Each	6	80.00	480.00
.9		4-Core, 4mm^2 termination	Each	6	80.00	480.00
.10		24-Core, 2.5mm^2 termination	Each	8	160.00	1 280.00
.11		CAT5E FTP Solid Core	m	250	85.00	21 250.00
E.5.3		**SCHEDULE E.5.3 - INSTALLATION**				
.1		11kV Incomer Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use Solecore N relay for diff protection to match Eskom 4CF-3100 scheme at supply.	Each	3		60 000.00
.2		11kV Feeder Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use SEL 751A relay for OC/EF protection.	Each	8		160 000.00
.3		11kV Bus Section Protection Scheme. Supply Protection Schemes complete according to CoCT Specifications and handover to CoCT (Prices to include crating for the specific scheme) Use SEL 751A relay for bus zone scheme	Each	3		60 000.00
E.5.4	**PSEMVS 33**	**SCHEDULE E.5.4 - PROTECTION SETTINGS**				
.1		Provide protection setting calculation, allows for all the necessary coordination between supply authorities, setting of all switchgear to be done by the specialist, complete with secondary injection test	Sum	-	-	230 650.00
E.5.5		**SCHEDULE E.5.5 - COMISSIONING AND TESTING**				
.1		Commissioning and Testing of Complete Protection Schemes	Sum	-	-	385 000.00
					Carried Forward	3 157 590.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.5 - Protection Schemes

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	3 157 590.00
E.5.6		**SCHEDULE E.5.5 - CONTRACTOR SPECIFIC REQUIREMENTS** 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 (Specify) .... **SCHEDULE NO.E.5** **PROTECTION SCHEMES** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	3 157 590.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.6	EBSW	**SCHEDULE NO. E.6** **GENERATOR INSTALLATION**				
E.6.1		**SCHEDULE E.6.1 - DESIGN, DRAWINGS AND GENERAL**				
.1		Provide design drawings and design information for the Generator installation which will comprise of 2 new 2MV/400 generators with 2 existing generators, Step up transformers 2 x 400/11kV and all cable work	Sum	-	-	0.00
.2		Provide all operating maintenance manuals and "as-built" drawings as specified	Sum	-	-	0.00
E.6.2		**SCHEDULE E.6.2 - SUPPLY AND DELIVERY TO SITE**				
.1		Supply and delivery to site of complete Standby 2 MVA/400V/230V Generator complete frame with control panel, complete with 24 volt electric starter, batteries and diesel fuel motor complete unit 10000 litre Bulk fuel tank to be provided. **[Refer to Project Specification PSESGS & Drawings]** **3089 10 20 EAA 20 D002-T.0** **3089.10.20.EAA.20.D001-T.0** **3089.10.20.AAA.23.U002-T.0** **3089.10.20.AAA.23.A001-T.0**	**Sum**	**2**	**6 200 830.00**	12 401 660.00
.2		Stainless steel exhaust systems complete	Each	2	384 000.00	768 000.00
.3	EMCC 21.2 (a)	**Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.O)**	**Each**	**1**	820000	820 000.00
.4	EPLC 26.2 (a)	**Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.M]**	**Each**	**1**	1175000	1 175 000.00
.5	EPLC 26.2 (b)	**Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.M]**	**Each**	**1**	450000	450 000.00
.6	EPLC 26.2 (c)	**Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.M]**	**Each**	**1**	375 000.00	375 000.00
.7		Supply and delivery to site Coastal spec Step-up 2MVA/400 Transformer, complete with extended LV-flags to connect 3 cables per phase, with buchholz sensor and relay, MV and LV termination boxes with gland plates/blocks , as per CoCT spec.	Each	2	2 274 000.00	4 548 000.00
.8		Supply and delivery to site of complete Sound **attenuation (70 dBA at 7 meters) container** (12 x 2.4 x 2.68 m) with pad-lockable doors	Sum	-	200 000.00	200 000.00
					Carried Forward	20 737 660.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	20 737 660.00
.9		Shut-down valve in bulk fuel-line activated by fire, weight operated.	Each	2	0.00	0.00
		Control Cables PVC/SWA/PVC Multicore Cables				
.10		4-Core, 2.5mm^2 (No. 1) Armoured	m	60	65.00	3 900.00
.11		4-Core, 4mm^2 (No. 1) Armoured	m	30	90.00	2 700.00
.12		24-Core, 2.5mm^2 (No. 2) Armoured	m	600	240.00	144 000.00
.13		4-Core, 2.5mm^2 termination	Each	6	80.00	480.00
.14		4-Core, 4mm^2 termination	Each	6	80.00	480.00
.15		24-Core, 2.5mm^2 termination	Each	8	120.00	960.00
.16		400mm Galvanized H/D Cable ladder complete with P2000, hangers, bracket, coners, bends and all equipment needed to complete the installation	m	9	800.00	7 200.00
		MV-Cable Supply and deliver 11kV XLPE PVC screened cable to SABS 1339 Table A, as specified				
.17		120mm^2 11kV Alu, XLPE, PVC, SWA	m	600	320.00	192 000.00
.18		120mm^2 11kV Alu, XLPE outdoor termination complete with lugs and all material to complete the installation.	Each	4	8 600.00	34 400.00
		LV-Cables Supply and offload to site 1000V grade XLPE/PVC Copper cable as specified SANS 1507-4				
.19		1-Core, 630mm^2 unarmoured cable, (3 per phase)	m	450	280.00	126 000.00
.20		1-Core, 630mm^2 unarmoured cable, termination complete with lugs and all material to complete the installation.	Each	16	800.00	12 800.00
		Plinth Plinths to be cast on site with armouring and entry 160Ø PVC sleeves				
.21		Generator plinth. - To manufacturer's specifications	Each	2	45 800.00	91 600.00
					Carried Forward	21 354 180.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	21 354 180.00
.22		Transformer plinth. - To manufacturer's specifications	Each	2	36 500.00	73 000.00
.23		Complete Generator and Tx earthing with "linear earth" 40m x 70mm^2 BCEW length and 1.5m earth spikes terminated to the earth bar complete with clamps and all equipment needed to complete the installation.	Each	2	12 610.00	25 220.00
		Fire extinguisher				
.24		Fire extinguisher 9kg, dry power, for flame bare fuels, complete with bracket mounted on inside of doors	Each	8	1 350.00	10 800.00
		Danger Signs and Notices				
.25		Provision of materials (e.g. notice signs, demarcation material) for full compliance of hazardous location	Sum	2	35 000.00	70 000.00
E.6.3		**SCHEDULE E.6.3 - INSTALLATION**				
.1		Site Installation to site of a complete Standby 2 MVA/400V/230V Generator complete frame with control panel, complete with 24 volt electric starter, batteries and diesel fuel motor complete unit 10000 litre Bulk fuel tank to be provided. **[Refer to Project Specification PSESGS & Drawings] 3089 10 20 EAA 20 D002-T.0 3089.10.20.EAA.20.D001-T.0 3089.10.20.AAA.23.U002-T.0 3089.10.20.AAA.23.A001-T.0**	**Sum**	**2**	185 000.00	370 000.00
.2		Stainless steel exhaust systems complete	Each	2	47 250.00	94 500.00
.3	**EMCC 21.3 (a)**	**Site Installation to site of a complete MCC (refer to project specification PSEMCC-6.O)**	**Each**	**1**	85000	85 000.00
.4	**EPLC 26.3 (a)**	**Site Installation to site of a PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.M]**	**Each**	**1**	115000	115 000.00
.5	**EPLC 26.3 (b)**	**Site Installation to site of a complete UPS as specified [refer to PSEPLC-6.M]**	**Each**	**1**	25000	25 000.00
.6	**EPLC 26.3 (c)**	**Site Installation to site of a complete HMI as specified [refer to PSEPLC-6.M]**	**Each**	**1**	65 000.00	65 000.00
					Carried Forward	22 287 700.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	22 287 700.00
.7		Site Installation to site of a complete Coastal spec Step-up 2MVA/400 Transformer, complete with extended LV-flags to connect 3 cables per phase, with buchholz sensor and relay, MV and LV termination boxes with gland plates/blocks , as per CoCT spec.	Each	2	360 000.00	720 000.00
.8		Site Installation to site of a complete Sound **attenuation (70 dBA at 7 meters) container** (12 x 2.4 x 2.68 m) with pad-lockable doors	Sum	-	25 000.00	25 000.00
.9		Site Installation to site of a complete Shut-down valve in bulk fuel-line activated by fire, weight operated.	Each	2	0.00	0.00
.10		4-Core, 2.5mm^2 (No. 1) Armoured	m	60	10.00	600.00
.11		4-Core, 4mm^2 (No. 1) Armoured	m	30	15.00	450.00
.12		24-Core, 2.5mm^2 (No. 2) Armoured	m	600	18.00	10 800.00
.13		4-Core, 2.5mm^2 termination	Each	6	20.00	120.00
.14		4-Core, 4mm^2 termination	Each	6	20.00	120.00
.15		24-Core, 2.5mm^2 termination	Each	8	40.00	320.00
.16		400mm Galvanized H/D Cable ladder complete	m	9	100.00	900.00
.17		120mm^2 11kV Alu, XLPE, PVC, SWA	m	600	35.00	21 000.00
.18		120mm ^{2} 11kV Alu, XLPE outdoor termination	Each	4	6 800.00	27 200.00
.19		1-Core, 630mm^2 unarmoured cable, (3 per phase)	m	450	200.00	90 000.00
.20		1-Core, 630mm^2 unarmoured cable, termination complete with lugs and all material to complete the installation.	Each	16	350.00	5 600.00
.21		Generator plinth. - To manufacturer's specifications	Each	2	INCLUDED	
.22		Transformer plinth. - To manufacturer's specifications	Each	2	INCLUDED	
.23		Complete Generator and Tx earthing	Each	2	INCLUDED	
.24		Fire extinguisher 9kg, dry power, for flame bare fuels, complete with bracket mounted on inside of doors	Each	8	1 350.00	10 800.00
.25		Danger sign, notice signs and demarcation	Sum	-	0.00	0.00
					Carried Forward	23 200 610.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	23 200 610.00
		Excavations for MV & LV Cable MV Excavations to be 1m deep x 0.6m, LV -Cable 0.8m deep x 0.45m wide x running meter all sifted backfill material to be sifted soil and compacted in layers to 90% MOD for trenches and 97% MOD for road crossings, test certificates to be provided each 50m and remove surplus material.				
.26		a) Pickable soil, by hand and machine. Excavate, backfill and compact	m^3	203	135.00	27 405.00
		b) Soft rock, machine and pneumatic equipment. Excavate, backfill and compact and removal of all redundant and surplus material	m^3	5	185.00	925.00
		c) Hard rock, blasting only. Blast, excavate, backfill, compact includes permits, site establishment, notices and covers and/or rocks greater than $0.75m^3$ in the trenches, including the removal all redundant and surplus material	m^3	1	385.00	385.00
		d) Compaction Test (Troxler) every 50m of trench, test certificates be provided.	Each	6	3 500.00	21 000.00
		e) Supply and install Import sand bedding. All backfill material to be sifted soil and compacted to 90% MOD	m^3	20	560.00	11 200.00
		f) Supply and lay 300mm wide marker tape 300mm below NGL, above LV cable	m	206	2.00	412.00
		g) Supply and install Cable protection slabs, where crossing other services	Each	25	9 650.00	241 250.00
		Provision to barricade open trenches while cable installation excavations progress	m	350	50.00	17 500.00
E.6.4		**SCHEDULE E.6.4 - COMISSIONING AND TESTING**				
		Test and Commissioning Generator, MV & LV -network, issue test certificates with maintenance manuals complete:				
.1		Commissioning of complete Standby generator set as specified	Sum	-	-	0.00
					Carried Forward	23 520 687.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.6 - Generator Installation

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	23 520 687.00
.2		Commissioning of complete automatic mains failure Start-up system as specified	Sum	-	-	0.00
.3		Commissioning of complete automatic change over system as specified	Sum	-	-	0.00
.4		Commissioning of complete Sound attenuation enclosure as specified	Sum	-	-	0.00
.5		Commissioning of complete fuel tank complete with mounting frame	Sum	-	-	0.00
.6		Generator to be tested at factory at full load before delivery to site.	Each	2	25 000.00	50 000.00
.7		Measure & Record of Soil resistivity and earth resista resistance	Sum	-	-	0.00
.8		Pressure test MV installation prior handover	Sum	-	-	0.00
.9		Check and confirm phasing and rotation at all rotated Switch points to supply authority standard.	Sum	-	-	0.00
.10		Certificate of compliance (COC's) for LV section	Sum	-	-	0.00
.11		Provide completed signed off Inspection Test Plan (ITP) document and FAT test certificates.	Sum	-	-	0.00
E.6.5		**SCHEDULE E.6.5 - CONTRACTOR SPECIFIC REQUIREMENTS** 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 (Specify) .... **SCHEDULE NO. E.6** **GENERATOR INSTALLATION** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	23 570 687.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.7	***EMVS***	**SCHEDULE E.7: MEDIUM VOLTAGE SWITCHGEAR**				
E.7.1	**EMVS 35.1**	**SCHEDULE E.7.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EMVS 35.1 (a)	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings and particular specification)	Sum	-	-	Included in our panel pricing
.2	EMVS 35.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to project specification COT and PSEMVS)	Sum	-	-	Included in our panel pricing
.3	EMVS 35.1 (c)	Protection short circuit analysis and coordination study and protection setting calculations for protection relays (refer to project specification COT, PSEMVS and particular specification)	Sum	-	-	288 312.00
E.7.2	**EMVS 35.2**	**SCHEDULE E.7.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EMVS 35.2 (a)	Supply and delivery to site of medium voltage instrument transformers for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	29 590.00
.2	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Busbars for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	included in item 4
.3	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Housing for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	2 876 410.00
.4	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Switching Devices for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	included in item 4
.5	EMVS 35.2 (b)	Supply and delivery to site of charger and battery unit for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	230 520.00
.6	EMVS 35.2 (b)	Supply and delivery to site of charger and battery units (refer to project specification COT and PSEMVS)	Sum	-	-	included in item 4
					Carried Forward	3 424 832.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.7: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	3 424 832.00
E.7.3	**EMVS 35.3**	**SCHEDULE E.7.3 - INSTALL**				
.1	EMVS 35.3 (a)	Site installation of medium voltage instrument transformers for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.2	EMVS 35.3 (a)	Site installation of medium voltage Busbars for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.3	EMVS 35.3 (a)	Site installation of medium voltage Housing for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	82 500.00
.4	EMVS 35.3 (a)	Site installation of medium voltage Switching Devices for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	360 000.00
.5	EMVS 35.3 (b)	Site installation of charger and battery unit for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
.6	EMVS 35.3 (d)	Programming of protection settings (refer to project specification PSEMVS)	Sum	-	-	82 500.00
E.7.4	**EMVS 35.4**	**SCHEDULE E.7.4 - COMMISSIONING**				
.1	EMVS 35.3 (a)	Commissioning of complete medium voltage instrument transformers for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	1 120 000.00
.2	EMVS 35.3 (a)	Commissioning of complete medium voltage Busbars for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.3	EMVS 35.3 (a)	Commissioning of complete medium voltage Housing for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
					Carried Forward	5 199 832.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	5 199 832.00
.4	EMVS 35.3 (a)	Commissioning of complete medium voltage Switching Devices for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	150 000.00
.5	EMVS 35.3 (b)	Commissioning of complete charger and battery unit for Substation No.5 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
.6	EMVS 35.3 (d)	Commissioning of complete protection settings (refer to project specification PSEMVS)	Sum	-	-	included
E.7.5	**EMVS**	**SCHEDULE E.7.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1		All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.7** **MEDIUM VOLTAGE SWITCHGEAR** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	5 379 832.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule No.E.8: Power Transformers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.8	***EPPT***	**SCHEDULE E.8: POWER TRANSFORMERS**				
E.8.1	***GEN***	**SCHEDULE E.8.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	0.00
.2	ERMU 3.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to project specification PSERMU)	Sum	-	-	0.00
E.8.2	**EPPT 11.1**	**SCHEDULE E.8.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EPPT 11.1 (a)	Supply and deliver of all Substation No.5 transformers accessories (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	2 750 000.00
.2	EPPT 11.1 (a)	Supply and deliver of Substation No.5 transformer tank and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.3	EPPT 11.1 (a)	Supply and deliver of Substation No.5 transformer core and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.4	EPPT 11.1 (b)	Supply and delivery to site of Substation No.5 earthing system as specified under PSPPT-11	Sum	-	-	450 000.00
E.8.8	**EPPT 11.2**	**SCHEDULE E.8.3 - INSTALLATION**				
.1	EPPT 11.2 (a)	Site Installation of all Substation No.5 transformers accessories (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	250 000.00
.2	EPPT 11.2 (a)	Site Installation of Substation No.5 transformer tank and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.3	EPPT 11.2 (a)	Site Installation of Substation No.5 transformer core and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.4	EPPT 11.3 (b)	Installation of substation earthing system system as specified under PSPPT-11	Sum	-	-	250 000.00
					Carried Forward	3 700 000.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule No.E.8: Power Transformers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	3 700 000.00
E.8.4	**EPPT 11.3**	**SCHEDULE E.8.4 - COMMISSIONING**				
.1	EPPT 11.3 (a)	Commissioning of all Substation No.5 transformers accessories (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	85 000.00
.2	EPPT 11.3 (a)	Commissioning of Substation No.5 transformer tank and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.3	EPPT 11.3 (a)	Commissioning of Substation No.5 transformer core and parts (refer to project specification PSEPPT & PSEPPT-7)	Sum	-	-	Included
.4	EPPT 11.3 (b)	Commissioning of substation earthing system system as specified under PSPPT-11	Sum	-	-	Included
E.8.5	**EPPT**	**SCHEDULE E.8.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EPPT	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E8** **POWER TRANSFORMERS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	3 785 000.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.9: Motor Control Centres and Distribution Boards

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.9	EMCC	**SCHEDULE E.9: MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS**				
E.9.1	EMCC 21.1	**SCHEDULE E.9.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	21 898.01
.2	EMCC 21.1 (a)	Provide motor control centre design drawings and wiring diagrams (refer to particular specifications PMS)	Sum	-	-	364 966.88
.3	EMCC 21.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to particular specification PMS)	Sum	-	-	18 248.34
E.9.2	EMCC 21.2	**SCHEDULE E.9.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.K)	Each	1	**12 347 321.23**	**12 347 321.23**
.2	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.L)	No.	6	**690 304.12**	**4 141 824.70**
.3	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.M)	No.	5	**297 907.61**	**1 489 538.03**
E.9.3	EMCC 21.3	**SCHEDULE E.9.3 - INSTALLATION**				
.1	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.K)	Each	1	181520.7967	181 520.80
.2	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.L)	No.	6	16 717.00	100 302.01
.3	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.M)	No.	5	10 290.15	51 450.75
E.9.4	EMCC 12.4	**SCHEDULE E.9.4 - COMMISSIONING**				
.1	EMCC 21.3 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.K)	Each	1	153675.3613	153 675.36
					Carried Forward	18 870 746.11

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.9: Motor Control Centres and Distribution Boards

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	18 870 746.11
.2	EMCC 21.3 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.L)	No.	6	11 231.97	67 391.81
.3	EMCC 21.3 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.M)	No.	5	1 452.82	7 264.11
E.9.5	**EMCC**	**SCHEDULE E.9.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EMCC	All other items or equipment 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 (Specify)				
		.....				
		Certificate of Compliance (PSEMCC-6.K)	Sum	-	-	13 590.00
		.....				
		Certificate of Compliance (PSEMCC-6.L)	Sum	-	-	2 000.00
		.....				
		Certificate of Compliance (PSEMCC-6.M)	Sum	-	-	1 810.00
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.9 **MOTOR CONTROL CENTRE & DISTRIBUTION BOARDS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	**18 962 802.03**

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.10: Programmable Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.10	**EPLC**	**SCHEDULE E.10: PROGRAMMABLE LOGIC CONTROLLERS**				
E.10.1	**EPLC 26.1**	**SCHEDULE E.10.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EPLC 26.1 (a)	The Contractor will provide the following design calculations, Drawings and wiring diagrams for approval by the Engineer: a) Fibre loss design calculations in excel format which will include but limited to From, To, Distance losses and Tag numbers and total losses through the fibre network [fibre losses] b) Electrical Load lists in excel format of all PLC equipment c) Engineer design drawings of network layout which contains all IP addresses, equipment and drawings d) Report which will include antennae radio paths, drawings which have line of sight of all locations in AutoCad Format, Connection speeds with the radio or wireless communication, details of all Radio & Wireless Radio losses e) Input and Output schedules in excel format which contains all tag numbers, names, commands, and description of all I/O f) Loop diagrams in AutoCAD format g) Cable schedules in excel format which will include but limited to From, To, Distance and Tag numbers h) AutoCAD drawing of all equipment positions, equipment layouts, cable layouts, rack layouts, router / modems, switches connections and layouts. i) P&ID drawings of the entire system which is implemented and equipment in AutoCAD format which shall strictly accordance to ANSI/ISA-5.1 [American national Standard] j) Functional design specification which will include but not limited to all mimic diagrams, control procedures compared to control philosophy and a detail description how the PLC will control the entire system [broken down into each component]. (Refer to particular specifications)	Sum	-	-	122 797.35
					Carried Forward	122 797.35

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.10: Programmable Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	122 797.35
.2	EPLC 26.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to particular specification EMCC)	Sum	-	-	18 248.34
E.10.2	**EPLC 26.2**	**SCHEDULE E.10.2- SUPPLY AND DELIVERY TO SITE**				
.1	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.I]	Each	1	1925841.376	1 925 841.38
.2	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.I]	Each	1	40919.25	40 919.25
.3	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.I]	Each	1	75356	75 356.00
.4	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.J]	Each	4	324 434.60	1 297 738.41
.5	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.J]	Each	4	28 626.15	114 504.60
.6	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.J]	Each	4	62 224.00	248 896.00
E.10.3	**EPLC 26.3**	**SCHEDULE E.10.3 - INSTALLATION**				
.1	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.I]	Each	1	164809.8	164 809.80
.2	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.I]	Each	1	4859.97084	4 859.97
.3	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.I]	Each	1	750	750.00
.4	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.J]	Each	4	8 351.85	33 407.40
.5	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.J]	Each	4	4 373.97	17 495.90
					Carried Forward	4 065 624.40

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.10: Programmable Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	4 065 624.40
.6	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.J]	Each	4	750.00	3 000.00
.7	EPLC 26.3 (d)	Site cable connections and programming of SCADA, PLC's & HMI's and peripheral equipment	Sum	-	-	2 514 534.75
E.10.4	**EPLC 26.4**	**SCHEDULE E.10.4 - COMMISSIONING**				
.1	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.I]	Each	1	704489.892	704 489.89
.2	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.I]	Each	1	3239.98056	3 239.98
.3	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.I]	Each	1	2250	2 250.00
.4	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.J]	Each	4	92 029.07	368 116.30
.5	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.J]	Each	4	2 915.98	11 663.93
.6	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.J]	Each	4	2 250.00	9 000.00
.7	EPLC 26.4 (d)	Commissioning of a of SCADA, PLC's & HMI's and peripheral equipment as per particular specification	Sum	-	-	39 825.95
E.10.5	**EPLC**	**SCHEDULE E.10.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EPLC	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.10** **PROGRAMMABLE & LOGIC CONTROLLERS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	7 721 745.19

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.11: Control Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.11	***ECIS***	**SCHEDULE E.11: CONTROL INSTRUMENTATION SYSTEM**				
E.11.1	***ECIS* 13.1**	**SCHEDULE E.11.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	ECIS 13.1 (a)	Provide general layout drawings and wiring diagrams of the enclosure and instrumentation for approval [Refer to particular specification]	Sum	-	-	118 990.37
.2	ECIS 13.1 (a)	Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings	Sum	-	-	6 573.33
E.11.2	**ECIS 13.2**	**SCHEDULE E.11.2 - SUPPLY AND DELIVERY TO SITE**				
.1	ECIS 13.2 (a)	Supply and delivery to site a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	104	32 519.59	3 382 037.42
.2	ECIS 13.2 (c)	Supply and delivery to site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	1	22 734.14	22 734.14
.2	ECIS 13.2 (c)	Supply and delivery to site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	8	24 952.11	199 616.90
.3	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	19	44 877.67	852 675.66
.4	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	19	40 066.41	761 261.85
.5	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	2	46 276.74	92 553.47
.6	ECIS 13.2 (a)	Supply and delivery to site a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	25	21 644.87	541 121.68
.7	ECIS 13.2 (b)	Supply and delivery to site a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	9	63 600.07	572 400.62
.8	ECIS 13.2 (b)	Supply and delivery to site a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	23	97 978.74	2 253 510.91
					Carried Forward	8 803 476.34

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.11: Control Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	8 803 476.34
.9	ECIS 13.2 (b)	Supply and delivery to site a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	2	1 213 300.82	2 426 601.63
.10	ECIS 13.2 (b)	Supply and delivery to site a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	12	34 090.69	409 088.33
.11	ECIS 13.2 (b)	Supply and delivery to site a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	70 894.69	567 157.55
E.11.3	**ECIS 13.3**	**SCHEDULE E.11.3 - INSTALLATION**				
.1	ECIS 13.3 (a)	Installation on site of a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	104	1 026.50	106 756.00
.2	ECIS 13.3 (c)	Installation on site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	1	253.50	253.50
.2	ECIS 13.3 (c)	Installation on site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	8	253.50	2 028.00
.3	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	19	1 412.50	26 837.50
.4	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	19	1 412.50	26 837.50
.5	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	2	1 412.50	2 825.00
.6	ECIS 13.3 (a)	Installation on site of a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	25	1 026.50	25 662.50
.7	ECIS 13.3 (b)	Installation on site of a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	9	1 798.50	16 186.50
					Carried Forward	12 413 710.36

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.11: Control Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	12 413 710.36
.8	ECIS 13.3 (b)	Installation on site of a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	23	1 798.50	41 365.50
.9	ECIS 13.3 (b)	Installation on site of a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	2	9 520.50	19 041.00
.10	ECIS 13.3 (b)	Installation on site of a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	12	1 798.50	21 582.00
.11	ECIS 13.3 (b)	Installation on site of a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	1 798.50	14 388.00
E.11.4	**ECIS 13.4**	**SCHEDULE E.11.4 - COMMISSIONING**				
.1	ECIS 13.4 (a)	Commissioning of a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	104	1 227.00	127 608.00
.2	ECIS 13.4 (c)	Commissioning of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	1	425.00	425.00
.2	ECIS 13.4 (c)	Commissioning of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	8	425.00	3 400.00
.3	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	19	1 227.00	23 313.00
.4	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	19	1 227.00	23 313.00
.5	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	2	1 227.00	2 454.00
.6	ECIS 13.4 (a)	Commissioning of a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	25	1 227.00	30 675.00
					Carried Forward	12 721 274.86

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.11: Control Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	12 721 274.86
.7	ECIS 13.4 (b)	Commissioning of a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	9	1 227.00	11 043.00
.8	ECIS 13.4 (b)	Commissioning of a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	23	1 227.00	28 221.00
.9	ECIS 13.4 (b)	Commissioning of a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	2	1 227.00	2 454.00
.10	ECIS 13.4 (b)	Commissioning of a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	12	1 227.00	14 724.00
.11	ECIS 13.4 (b)	Commissioning of a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	1 227.00	9 816.00
E.11.5	**ECIS**	**SCHEDULE E.11.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	ECIS	All other items or equipment 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 (Specify)				
		Labour Travel Time	Sum	1	9 582.75	9 582.75
		Commission Travel Time	Sum	1	4 527.08	4 527.08
		Equipment Transport, Crating & Travelling	Sum	1	7 410.46	7 410.46
		H&S Time Related	Sum	1	2 306.35	2 306.35
		Equipment Rental	Sum	1	9 408.72	9 408.72
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.11 CONTROL INSTRUMENTATION SYSTEM CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules			**Total**	12 820 768.23

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.12: General and Miscellaneous

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.12	***EG&M***	**SCHEDULE E.12: GENERAL AND MISCELLANEOUS**				
E.12.1	**EG&M 13.1**	**SCHEDULE E.12.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EG&M 13.1 (a)	Provide general layouts drawings, notice drawings and wiring diagrams for approval.	Sum	-	-	12 000.00
.2	EG&M 13.1 (b)	Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings	Sum	-	-	2 500.00
E.12.2	**EG&M 13.2**	**SCHEDULE E.12.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EG&M 13.2 (a)	Supply and delivery to site of emergency stop stations (refer to particular specification and project specification)	Each	115	4 329.99	497 949.40
.2	EG&M 13.2 (b)	Supply and delivery to site of emergency stop stations with built in motor cable termination box (refer to particular specification and project specification)	Each	50	6 685.75	334 287.65
.3	EG&M 13.2 (c)	Supply and delivery to site of complete fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	35	5 118.58	179 150.33
.4	EG&M 13.2 (d)	Supply and delivery to site of complete all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	41527.2	41 527.20
E.12.3	**EG&M 13.3**	**SCHEDULE E.12.3 - INSTALLATION**				
.1	EG&M 13.3 (a)	Installation on site of emergency stop stations (refer to particular specification and project specification)	Each	115	253.50	29 152.50
.2	EG&M 13.3 (b)	Installation on site of emergency stop stations with built in motor cable termination box (refer to particular specification and project specification)	Each	50	253.50	12 675.00
.3	EG&M 13.3 (c)	Installation on site of fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	35	316.88	11 090.63
					Carried Forward	1 120 332.71

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.12: General and Miscellaneous

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	1 120 332.71
.4	EG&M 13.3 (d)	Installation on site of all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	-	8 305.44
E.12.4	**EG&M 13.4**	**SCHEDULE E.12.4 - COMMISSIONING**				
.1	EG&M 13.4 (a)	Commissioning of a complete of emergency stop stations (refer to particular specification and project specification)	Each	115	110.50	12 707.50
.2	EG&M 13.4 (b)	Commissioning of a complete of emergency stop stations with built in motor cable termination box (refer to particular specification and project specification)	Each	50	110.50	5 525.00
.3	EG&M 13.4 (c)	Commissioning of a complete of fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	35	110.50	3 867.50
.4	EG&M 13.4 (d)	Commissioning of a complete of all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	2491.632	2 491.63
E.12.5	**EG&M**	**SCHEDULE E.12.5 - DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	EG&M	All other items or equipment 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 (Specify)				
		Labour Travel Time	Sum	1	9 975.69	9 975.69
		Commission Travel Time	Sum	1	4 712.71	4 712.71
		Equipment Transport, Crating & Travelling	Sum	1	7 714.32	7 714.32
		H&S Time Related	Sum	1	2 400.92	2 400.92
		Equipment Rental	Sum	1	9 794.52	9 794.52
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.12 **GENERAL AND MISCELLANEOUS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	1 187 827.95

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.13: Earthing and Lightning Protection System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.13	***EELP***	**SCHEDULE E.13: EARTHING & LIGHTNING PROTECTION**				
E.13.1	**EELP 22.1**	**SCHEDULE E.13.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	7 925.85
.2	EELP 22.1 (a)	Provide design drawings and design information for Earthing and Lightning Protection System	Sum	-	-	3 823.88
.3	EELP 22.1 (b)	Provide operating and maintenance manuals and "as built" drawings as specified	Sum	-	-	3 823.88
.4	EELP 22.1 (c)	Provide risk management calculations and IEC Program as specified	Sum	-	-	3 476.25
E.13.2	**EELP 22.2**	**SCHEDULE E.13.2- SUPPLY AND DELIVERY TO SITE**				
1		Allowance for specialist to visit site and determine earth readings and do soil resistivity survey and earth resistance report, prior to designing earth mat. Include for design of earth mat as per recommendations.	Sum	-	-	6 535.35
2	EELP 22.2	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	No.	20	577.06	11 541.15
3	EELP 22.2	Earth rods - 6000mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	No.	20	771.73	15 434.55
4	EELP 22.2	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	No.	20	1 542.06	30 841.29
5	EELP 22.2	Drill 12500mm holes for earth rods in hard soil conditions as for 12500mm holes	No.	20	Included	
6	EELP 22.2	Drill 6000mm holes for earth rods in hard soil conditions as for 6000mm holes	No.	20	Included	
7	EELP 22.2	Drill 4500mm holes for earth rods in hard soil conditions as for 4500mm holes	No.	20	Included	
8	EELP 22.2	Marcionite conductive slurry including installing slurry into drilled holes as required	m^3	13	3 504.06	46 954.40
					Carried Forward	130 356.59

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.13: Earthing and Lightning Protection System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	130 356.59
9	EELP 22.2	Earth wells or test points against building for future earth readings and continuity tests. Include for all concrete work and manhole covers. 300x300mm min.	No.	10	849.60	8 495.96
10	EELP 22.2	Supply 70mm² insulated green earth conductor tails between earth mat test well and control room earth bar. Supply same size conductor between communication mast earth mat and connect in ground at earth well test point.	m	1500	253.07	379 606.50
11	EELP 22.2	Supply 70mm² Kwena earth 1mx1mx1m conductor earth mat	No.	5	3 545.78	17 728.88
12	EELP 22.2	Supply and install 70mm2 insulated green earth conductor terminations.	No.	30	95.94	2 878.34
13	EELP 22.2	Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	No.	50	141.83	7 091.55
14	EELP 22.2	Earth bar mounted on two insulators against wall at 300mm above floor level and over floor penetration or duct below room DB. Bar to be made of 50x5mm copper.	No.	2	2 774.05	5 548.10
15	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the UF & Re-Use Pump Station [18m(W), 18m(L) and 10m(H)]	Sum	-	50 452.90	50 452.90
16	EELP 22.2 (d)	Supply and delivery all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components all for above specified location	Sum	-	70 000.00	70 000.00
17	EMCA 18.2 (l)	Supply and delivery to site of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m³	40		Included
					Carried Forward	672 158.81

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.13: Earthing and Lightning Protection System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	672 158.81
E.13.3	EELP 22.3	**SCHEDULE E.13.3 - INSTALLATION**				
1		Allowance for specialist to visit the site and measure the earth readings, record and complete a detail soil resistivity survey. Earth resistance report shall be sent for approval to the Engineer	Sum	-	-	6 345.00
2	EELP 22.3	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	No.	20	241.65	4 833.00
3	EELP 22.3	Earth rods - 6000mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	No.	20	319.95	6 399.00
4	EELP 22.3	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	No.	20	641.25	12 825.00
5	EELP 22.3	Drill 12500mm holes for earth rods in hard soil conditions as for 12500mm holes	No.	20	7 270.00	145 400.00
6	EELP 22.3	Drill 6000mm holes for earth rods in hard soil conditions as for 6000mm holes	No.	20	3 490.00	69 800.00
7	EELP 22.3	Drill 4500mm holes for earth rods in hard soil conditions as for 4500mm holes	No.	20	2 615.00	52 300.00
8	EELP 22.3	Marcionite conductive slurry including installing slurry into drilled holes as required	m^3	13	1 458.00	19 537.20
9	EELP 22.3	Earth wells or test points against building for future earth readings and continuity tests. Include for all concrete work and manhole covers. 300x300mm min.	No.	10	352.35	3 523.50
10	EELP 22.3	install 70mm² insulated green earth conductor tails between earth mat test well and control room earth bar. Supply same size conductor between communication mast earth mat and connect in ground at earth well test point.	m	1500	105.30	157 950.00
11	EELP 22.3	install 70mm² Kwena earth conductor earth mat	m	5	1 032.75	5 163.75
12	EELP 22.3	install 70mm2 insulated green earth conductor terminations.	No.	30	93.15	2 794.50
					Carried Forward	1 159 029.76

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.13: Earthing and Lightning Protection System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	1 159 029.76
13	EELP 22.3	Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	No.	50	58.05	2 902.50
14	EELP 22.3	Earth bar mounted on two insulators against wall at 300mm above floor level and over floor penetration or duct below room DB. Bar to be made of 50x5mm copper.	No.	2	1 154.25	2 308.50
15	EELP 22.3	Installation all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components	Sum	-	30 000.00	30 000.00
16	EMCA 18.3 (l)	Installation of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m³	60	550.00	33 000.00
17	EMCA 18.3 (m	Excavating, back filling, consolidation, importation of soil and dumping of all rock and stone removed during excavations including cleaning of cable routes all according to particular specifications (including hand excavations where necessary along existing cable routes)				
		a) Pickable soil	m³	200	297.00	59 400.00
		b) Soft rock	m³	20	500.50	10 010.00
		c) Hard rock	m³	20	806.00	16 120.00
		Dumping and removing of all rock and stone removed during excavations including cleaning of cable routes complete as per particular specification. Dumping will at a registered dumping site within the border of Municipal Area. Contractor to allow dumping within a vacinity of 30km the site Contractor to allow all labour, truck hire and dumping site payments	m³	40	280.80	11 232.00
		Sifting soil through a 4mm mesh size for the bedding of cables and the backfilling of trenches complete as per particular specification.	m³	200	221.00	44 200.00
		Nett amount for core drilling 100mm diameter holes through 250mm concrete	Each	10	5 737.50	57 375.00
					Carried Forward	1 425 577.76

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.13: Earthing and Lightning Protection System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	1 425 577.76
37	EELP 22.4 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the UF & Re-Use Pump Station [18m(W), 18m(L) and 10m(H)]	Sum	-	-	42 492.60
38	EELP 22.4 (d)	Site Installation all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components	Sum	-	-	50 000.00
E.13.4	**EELP 20.4**	**SCHEDULE E.13.4 - COMMISSIONING**				
1	EELP 22.4 (a)	Commissioning of complete lightning protection system (refer to protection system PSEELS-10)	Sum	-	-	3 375.00
2	EELP 22.4 (e)	Certificate of compliance of earthing system as specified under SANS 10313	Each	6	337.50	2 025.00
E.13.5	**EELP**	**SCHEDULE E.13.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EELP	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.13** **EARTHING & LIGHTNING PROTECTION** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	1 523 470.36

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.14	***EMCA***	**SCHEDULE E.14: MULTICORE CABLES & EARTH WIRES**				
E.14.1	**EMCA 18.1**	**SCHEDULE E.14.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EMCA 18.1 (a)	The Contractor will provide the following design calculations, drawings, method statements, cable routes, cable schedules in excel format which will include but limited to From, To, Distance and Tag numbers all to the approval of the Engineer [Refer to particular specification EMCA 3.3.2, 8.7 & 17]	Sum	-	-	Included
.2	EMCA 18.1 (b)	Provide operating and maintenance manuals, all data sheets [a) cables, b) joint kits, c) ladders, d) glands, conduit, fasteners and all that are used and etc] and furthermore the Contractor to supply as built" drawings	Sum	-	-	0.00
E.14.2	**EMCA 18.2**	**SCHEDULE E.14.2 - SUPPLY AND DELIVERY TO SITE**				
1	EMCA 18.2 (a)	Supply and delivery to site of multicore cables and earthwires and cable name tags for the following cables as per the particular:				
1.1		**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**m**	**200**	R 22 800.00	4 560 000.00
1.2		240mm² 4C PVC SWA PVC Cu Cable	m	2300	R 2 520.00	5 796 000.00
1.3		185mm² 4C PVC SWA PVC Cu Cable	m	260	R 2 220.00	577 200.00
1.4		120mm² 4C PVC SWA PVC Cu Cable	m	250	R 1 475.00	368 750.00
1.5		35mm² 4C PVC SWA PVC Cu Cable	m	1260	R 450.00	567 000.00
1.6		25mm² 4C PVC SWA PVC Cu Cable	m	400	R 320.00	128 000.00
1.7		10mm² 4C PVC SWA PVC Cu Cable	m	260	R 150.00	39 000.00
1.8		6mm² 4C PVC SWA PVC Cu Cable	m	8100	R 100.00	810 000.00
					Carried Forward	12 845 950.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	12 845 950.00
1.9		4mm² 4C PVC SWA PVC Cu Cable	m	1780	R 75.00	133 500.00
1.10		2.5mm² 4C PVC SWA PVC Cu Cable	m	4550	R 55.00	250 250.00
1.11		2.5mm² 3C PVC SWA PVC Cu Cable	m	26000	R 46.00	1 196 000.00
1.12		1.5mm² 3C PVC SWA PVC Cu Cable	m	4550	R 35.00	159 250.00
1.13		70mm² Kwena Earth Cable	m	2810	R 340.00	955 400.00
1.14		10mm² Kwena Earth Cable	m	18100	R 80.00	1 448 000.00
1.15		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	m	42580	R 115.00	4 896 700.00
1.16		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	m	350	R 80.00	28 000.00
1.17		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	m	1360	R 310.00	421 600.00
1.18		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	600	R 20.00	12 000.00
1.19		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	600	R 35.00	21 000.00
2	EMCA 18.2 (b)	Supply and delivery to site of all multicore cables and earthwires termination materials [equal or similar to Enviro Glands, neoprene shrouds, lugs, insulating, materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc] to terminate the following cables as per the particular specification				
2.1		**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**Each**	**4**	31 400.00	125 600.00
2.2		240mm² 4C PVC SWA PVC Cu Cable	Each	58	990.00	57 420.00
2.3		185mm² 4C PVC SWA PVC Cu Cable	Each	4	990.00	3 960.00
2.4		120mm² 4C PVC SWA PVC Cu Cable	Each	10	625.00	6 250.00
					Carried Forward	22 560 880.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	22 560 880.00
2.5		35mm² 4C PVC SWA PVC Cu Cable	Each	24	265.00	6 360.00
2.6		25mm² 4C PVC SWA PVC Cu Cable	Each	10	165.00	1 650.00
2.7		10mm² 4C PVC SWA PVC Cu Cable	Each	4	105.00	420.00
2.8		6mm² 4C PVC SWA PVC Cu Cable	Each	84	100.00	8 400.00
2.9		4mm² 4C PVC SWA PVC Cu Cable	Each	68	70.00	4 760.00
2.10		2.5mm² 4C PVC SWA PVC Cu Cable	Each	260	110.00	28 600.00
2.11		2.5mm² 3C PVC SWA PVC Cu Cable	Each	86	55.00	4 730.00
2.12		1.5mm² 3C PVC SWA PVC Cu Cable	Each	86	50.00	4 300.00
2.13		70mm² Kwena Earth Cable	Each	72	225.00	16 200.00
2.14		10mm² Kwena Earth Cable	Each	184	90.00	16 560.00
2.15		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	Each	510	75.00	38 250.00
2.16		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	Each	70	55.00	3 850.00
2.17		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	Each	26	1 070.00	27 820.00
2.18		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	50	50.00	2 500.00
2.19		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	50	110.00	5 500.00
2.37		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved . Cast Resin**	**Each**	**16**	225.00 28 000.00	448 000.00
2.38		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/ Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.**	**Each**	**4**	28 000.00	112 000.00
2.39		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**34**	28 000.00	952 000.00
					Carried Forward	24 242 780.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	24 242 780.00
3	EMCA 18.2 (c)	Supply and delivery to site of cable route markers	Each	50	225.00	11 250.00
4	EMCA 18.2 (d)	Supply and delivery to site of concrete cable slabs	Each	38	550.00	20 900.00
5	EMCA 18.2 (e)	Supply, delivery to site of **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
5.1		150mm Wide cable ladder	m	290	870.00	252 300.00
5.2		300mm Wide cable ladder	m	180	980.00	176 400.00
5.3		400mm Wide cable ladder	m	80	1 055.00	84 400.00
5.4		600mm Wide cable ladder	m	60	1 210.00	72 600.00
5.5		800mm Wide cable ladder	m	80	1 370.00	109 600.00
5.6		1000mm Wide cable ladder	m	66	1 520.00	100 320.00
5.7		150mm Wide cable ladder flat covers	m	145	2 750.00	398 750.00
5.8		300mm Wide cable ladder flat covers	m	90	4 535.00	408 150.00
5.9		400mm Wide cable ladder flat covers	m	40	5 730.00	229 200.00
5.10		600mm Wide cable ladder flat covers	m	30	8 120.00	243 600.00
5.11		800mm Wide cable ladder flat covers	m	40	10 505.00	420 200.00
5.12		1000mm Wide cable ladder flat covers	m	33	12 890.00	425 370.00
6	EMCA 18.2 (f)	Supply, delivery to site of **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
6.1		150mm wide 90° Horizontal Bend	Each	20	1 055.00	21 100.00
6.2		150mm wide 90° Internal elbow (Riser)	Each	20	1 060.00	21 200.00
					Carried Forward	27 238 120.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	27 238 120.00
6.3		150mm wide 90° External elbow (Dropper)	Each	20	1 060.00	21 200.00
6.4		150mm wide Tee	Each	20	2 170.00	43 400.00
6.5		150mm wide 4 Way Cross-over	Each	20	3 120.00	62 400.00
6.6		300mm wide 90° Horizontal Bend	Each	10	1 290.00	12 900.00
6.7		300mm wide 90° Internal elbow (Riser)	Each	10	1 170.00	11 700.00
6.8		300mm wide 90° External elbow (Dropper)	Each	10	1 170.00	11 700.00
6.9		300mm wide Tee	Each	10	2 490.00	24 900.00
6.10		300mm wide 4 Way Cross-over	Each	10	3 530.00	35 300.00
6.11		400mm wide 90° Horizontal Bend	Each	16	1 445.00	23 120.00
6.12		400mm wide 90° Internal elbow (Riser)	Each	16	1 245.00	19 920.00
6.13		400mm wide 90° External elbow (Dropper)	Each	16	1 245.00	19 920.00
6.14		400mm wide Tee	Each	16	2 705.00	43 280.00
6.15		400mm wide 4 Way Cross-over	Each	16	3 785.00	60 560.00
6.16		600mm wide 90° Horizontal Bend	Each	20	1 930.00	38 600.00
6.17		600mm wide 90° Internal elbow (Riser)	Each	20	1 390.00	27 800.00
6.18		600mmwide 90° External elbow (Dropper)	Each	20	1 390.00	27 800.00
6.19		600mm wide Tee	Each	20	3 310.00	66 200.00
6.20		600mm wide 4 Way Cross-over	Each	20	4 490.00	89 800.00
6.21		800mm wide 90° Horizontal Bend	Each	18	2 505.00	45 090.00
6.22		800mm wide 90° Internal elbow (Riser)	Each	18	1 550.00	27 900.00
6.23		800mmwide 90° External elbow (Dropper)	Each	18	1 550.00	27 900.00
6.24		800mm wide Tee	Each	18	3 790.00	68 220.00
6.25		800mm wide 4 Way Cross-over	Each	18	5 065.00	91 170.00
6.26		1000mm wide 90° Horizontal Bend	Each	5	2 915.00	14 575.00
6.27		1000mm wide 90° Internal elbow (Riser)	Each	5	1 695.00	8 475.00
					Carried Forward	28 161 950.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	28 161 950.00
6.28		1000mmwide 90° External elbow (Dropper)	Each	5	1 695.00	8 475.00
6.29		1000mm wide Tee	Each	5	4 790.00	23 950.00
6.30		1000mm wide 4 Way Cross-over	Each	5	5 910.00	29 550.00
6	EMCA 18.2 (g)	Supply, delivery to site of all 316 stainless steel heavy-duty cable ladder supports, bolts, holders and etc that is required as per the particular specification	Sum	-	259 505.00	259 505.00
7	EMCA 18.2 (h)	Supply and delivery to site of pump set sensor termination cubicles	Each	10	450.00	4 500.00
8	EMCA 18.2 (i)	Supply and delivery to site of HPDE heavy-duty cable sleeves, joints, sealing rings, couplings, end plugs, spacer modules, bell mounth, manderel, duct brush flexibend, stainless steel draw wire long bend as per the particular specification				
		110mm² HDPE Sleeves equal or similar to kabelflex	m	100	25.00	2 500.00
		160mm² HDPE Sleeves equal or similar to kabelflex	m	200	45.00	9 000.00
		50mm² HDPE Sleeves equal or similar to Optex	m	300	8.00	2 400.00
9	EMCA 18.2 (j)	Equal or similar Pratley EZEE-Fit with solid cover IP68 including non sparking connectors, insulating sleeves,identification tag, mounting screws, locknuts , lockout device with lock, lid securing chain and all accessories				
9.1		**Box 0**	Each	80	1 245.00	99 600.00
		Compression Kits (Small)	Each	80	25.00	2 000.00
		Compression Kits (large)	Each	80	25.00	2 000.00
		Blanking Plugs	Each	40	13.00	520.00
9.2		**Box 1**	Each	80	950.00	76 000.00
		Reducing Glands [25-20]	Each	80	110.00	8 800.00
		Compression Kits (Small)	Each	80	30.00	2 400.00
		Compression Kits (large)	Each	40	30.00	1 200.00
		Blanking Plugs	Each	160	15.00	2 400.00
9.3		**Box 2**	Each	80	2 175.00	174 000.00
		Reducing Glands [32-20]	Each	80	155.00	12 400.00
		Reducing Glands [32-25]	Each	80	185.00	14 800.00
		Compression Kits	Each	40	40.00	1 600.00
		Blanking Plugs	Each	160	18.00	2 880.00
					Carried Forward	28 902 430.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	28 902 430.00
9.4		**Box 3**	Each	80	3 530.00	282 400.00
		Reducing Glands [40-20]	Each	80	205.00	16 400.00
		Reducing Glands [40-25]	Each	80	245.00	19 600.00
		Reducing Glands [40-32]	Each	40	280.00	11 200.00
		Compression Kits	Each	80	65.00	5 200.00
		Blanking Plugs	Each	160	30.00	4 800.00
9.5		**Box 4**	Each	80	4 960.00	396 800.00
		Reducing Glands [50-20]	Each	80	300.00	24 000.00
		Reducing Glands [50-25]	Each	80	345.00	27 600.00
		Reducing Glands [50-32]	Each	40	400.00	16 000.00
		Reducing Glands [50-40]	Each	160	465.00	74 400.00
		Compression Kits	Each	80	65.00	5 200.00
		Blanking Plugs	Each	160	40.00	6 400.00
10	EMCA 18.2 (k)	316 Stainless Steel Conduit with saddles, fasteners,surface mounted against brick or concrete every 500mm and all accessories				
		20mm Conduit	m	1500	680.00	1 020 000.00
		20mm conduit saddles	Each	750	7.00	5 250.00
		Solid Coupling Female Threaded Adaptor	Each	350	125.00	43 750.00
		Round Conduit box plus cover	Each	350	1 865.00	652 750.00
11	EMCA 18.2 (l)	Supply and delivery to site of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m^3	200	385	77 000.00
E.14.3	**EMCA 18.3**	**SCHEDULE E.14.3 - INSTALLATION**				
1	EMCA 18.3 (a)	Installation of all multicore cables and earthwires and cable name tags for the following cables as per the particular:				
1.1		**4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin**	**m**	**200**	R 2 865.00	573 000.00
					Carried Forward	32 164 180.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	32 164 180.00
1.2		240mm² 4C PVC SWA PVC Cu Cable	m	2300	R 125.00	287 500.00
1.3		185mm² 4C PVC SWA PVC Cu Cable	m	260	R 100.00	26 000.00
1.4		120mm² 4C PVC SWA PVC Cu Cable	m	250	R 70.00	17 500.00
1.5		35mm² 4C PVC SWA PVC Cu Cable	m	1260	R 15.00	18 900.00
1.6		25mm² 4C PVC SWA PVC Cu Cable	m	400	R 15.00	6 000.00
1.7		10mm² 4C PVC SWA PVC Cu Cable	m	260	R 13.00	3 380.00
1.8		6mm² 4C PVC SWA PVC Cu Cable	m	8100	R 13.00	105 300.00
1.9		4mm² 4C PVC SWA PVC Cu Cable	m	1780	R 13.00	23 140.00
1.10		2.5mm² 4C PVC SWA PVC Cu Cable	m	4550	R 10.00	45 500.00
1.11		2.5mm² 3C PVC SWA PVC Cu Cable	m	26000	R 10.00	260 000.00
1.12		1.5mm² 3C PVC SWA PVC Cu Cable	m	4550	R 10.00	45 500.00
1.13		70mm² Kwena Earth Cable	m	2810	R 13.00	36 530.00
1.14		10mm² Kwena Earth Cable	m	18100	R 10.00	181 000.00
1.15		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	m	42580	R 10.00	425 800.00
1.16		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	m	350	R 10.00	3 500.00
1.17		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	m	1360	R 13.00	17 680.00
1.18		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	600	R 10.00	6 000.00
1.19		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	600	R 10.00	6 000.00
2	EMCA 18.3 (b)	Installation of all multicore cables and earthwires termination materials [equal or similar to Enviro Glands, neoprene shrouds, lugs, insulating, materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc] to terminate the following cables as per the particular specification				
					Carried Forward	33 679 410.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	33 679 410.00
2.1		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.	Each	4	4 995.00	19 980.00
2.2		240mm² 4C PVC SWA PVC Cu Cable	Each	58	910.00	52 780.00
2.3		185mm² 4C PVC SWA PVC Cu Cable	Each	4	730.00	2 920.00
2.4		120mm² 4C PVC SWA PVC Cu Cable	Each	10	545.00	5 450.00
2.5		35mm² 4C PVC SWA PVC Cu Cable	Each	24	245.00	5 880.00
2.6		25mm² 4C PVC SWA PVC Cu Cable	Each	10	210.00	2 100.00
2.7		10mm² 4C PVC SWA PVC Cu Cable	Each	4	182.00	728.00
2.8		6mm² 4C PVC SWA PVC Cu Cable	Each	84	150.00	12 600.00
2.9		4mm² 4C PVC SWA PVC Cu Cable	Each	68	150.00	10 200.00
2.10		2.5mm² 4C PVC SWA PVC Cu Cable	Each	260	91.00	23 660.00
2.11		2.5mm² 3C PVC SWA PVC Cu Cable	Each	86	91.00	7 826.00
2.12		1.5mm² 3C PVC SWA PVC Cu Cable	Each	86	91.00	7 826.00
2.13		70mm² Kwena Earth Cable	Each	72	75.00	5 400.00
2.14		10mm² Kwena Earth Cable	Each	184	50.00	9 200.00
2.15		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	Each	510	125.00	63 750.00
2.16		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	Each	70	125.00	8 750.00
2.17		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	Each	26	125.00	3 250.00
2.18		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	50	91.00	4 550.00
2.19		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	50	91.00	4 550.00
					Carried Forward	33 930 810.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	33 930 810.00
2.37		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.**	**Each**	**16**	8 750.00	140 000.00
2.38		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.**	**Each**	**4**	8750	35 000.00
2.39		**3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.**	**Each**	**34**	8 750.00	297 500.00
3	EMCA 18.3 (c)	Installation of all cable route markers	Each	50	210.00	10 500.00
4	EMCA 18.3 (d)	Installation of all concrete cable slabs	Each	38	210.00	7 980.00
5	EMCA 18.3 (e)	Installation of all **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
5.1		150mm Wide cable ladder	m	290	150.00	43 500.00
5.2		300mm Wide cable ladder	m	180	150.00	27 000.00
5.3		400mm Wide cable ladder	m	80	185.00	14 800.00
5.4		600mm Wide cable ladder	m	60	185.00	11 100.00
5.5		800mm Wide cable ladder	m	80	185.00	14 800.00
5.6		1000mm Wide cable ladder	m	66	220.00	14 520.00
5.7		150mm Wide cable ladder flat covers	m	145	150.00	21 750.00
5.8		300mm Wide cable ladder flat covers	m	90	150.00	13 500.00
5.9		400mm Wide cable ladder flat covers	m	40	185.00	7 400.00
					Carried Forward	34 590 160.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	34 590 160.00
5.10		600mm Wide cable ladder flat covers	m	30	185.00	5 550.00
5.11		800mm Wide cable ladder flat covers	m	40	185.00	7 400.00
5.12		1000mm Wide cable ladder flat covers	m	33	220.00	7 260.00
6	EMCA 18.3 (f)	Installation of all **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
6.1		150mm wide 90° Horizontal Bend	Each	20	150.00	3 000.00
6.2		150mm wide 90° Internal elbow (Riser)	Each	20	150.00	3 000.00
6.3		150mm wide 90° External elbow (Dropper)	Each	20	150.00	3 000.00
6.4		150mm wide Tee	Each	20	150.00	3 000.00
6.5		150mm wide 4 Way Cross-over	Each	20	150.00	3 000.00
6.6		300mm wide 90° Horizontal Bend	Each	10	150.00	1 500.00
6.7		300mm wide 90° Internal elbow (Riser)	Each	10	150.00	1 500.00
6.8		300mm wide 90° External elbow (Dropper)	Each	10	150.00	1 500.00
6.9		300mm wide Tee	Each	10	150.00	1 500.00
6.10		300mm wide 4 Way Cross-over	Each	10	150.00	1 500.00
6.11		400mm wide 90° Horizontal Bend	Each	16	185.00	2 960.00
6.12		400mm wide 90° Internal elbow (Riser)	Each	16	185.00	2 960.00
6.13		400mm wide 90° External elbow (Dropper)	Each	16	185.00	2 960.00
6.14		400mm wide Tee	Each	16	185.00	2 960.00
6.15		400mm wide 4 Way Cross-over	Each	16	185.00	2 960.00
6.16		600mm wide 90° Horizontal Bend	Each	20	185.00	3 700.00
6.17		600mm wide 90° Internal elbow (Riser)	Each	20	185.00	3 700.00
6.18		600mmwide 90° External elbow (Dropper)	Each	20	185.00	3 700.00
					Carried Forward	34 658 770.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	34 658 770.00
6.19		600mm wide Tee	Each	20	185.00	3 700.00
6.20		600mm wide 4 Way Cross-over	Each	20	185.00	3 700.00
6.21		800mm wide 90° Horizontal Bend	Each	18	185.00	3 330.00
6.22		800mm wide 90° Internal elbow (Riser)	Each	18	185.00	3 330.00
6.23		800mmwide 90° External elbow (Dropper)	Each	18	185.00	3 330.00
6.24		800mm wide Tee	Each	18	185.00	3 330.00
6.25		800mm wide 4 Way Cross-over	Each	18	185.00	3 330.00
6.26		1000mm wide 90° Horizontal Bend	Each	5	220.00	1 100.00
6.27		1000mm wide 90° Internal elbow (Riser)	Each	5	220.00	1 100.00
6.28		1000mmwide 90° External elbow (Dropper)	Each	5	220.00	1 100.00
6.29		1000mm wide Tee	Each	5	220.00	1 100.00
6.30		1000mm wide 4 Way Cross-over	Each	5	220.00	1 100.00
6	EMCA 18.3 (g)	Installation of all 316 stainless steel heavy-duty cable ladder supports, bolts, holders and etc that is required as per the particular specification	Sum	-	166 780.00	166 780.00
7	EMCA 18.3 (h)	Installation of all pump set sensor termination cubicles	Each	10	250.00	2 500.00
8	EMCA 18.3 (i)	Installation of all HPDE heavy-duty cable sleeves, joints, sealing rings, couplings, end plugs, spacer modules, bell mounth, manderel, duct brush flexibend, stainless steel draw wire long bend as per the particular specification				
		110mm² HDPE Sleeves equal or similar to kabelflex	m	100	35.00	3 500.00
		160mm² HDPE Sleeves equal or similar to kabelflex	m	200	45.00	9 000.00
		50mm² HDPE Sleeves equal or similar to Optex	m	300	25.00	7 500.00
9	EMCA 18.3 (j)	Installation of all Equal or similar Pratley EZEE-Fit with solid coverIP68 including non sparking connectors, insulating sleeves,identification tag, mounting screws, locknuts , lockout device with lock, lid securing chain and all accessories				
					Carried Forward	34 877 600.00

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Schedule No.E.14: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	34 877 600.00
9.1		**Box 0**	Each	80	170.00	13 600.00
		Compression Kits (Small)	Each	80	60.00	4 800.00
		Compression Kits (large)	Each	80	90.00	7 200.00
		Blanking Plugs	Each	40	6.00	240.00
9.2		**Box 1**	Each	80	205.00	16 400.00
		Reducing Glands [25-20]	Each	80	2.00	160.00
		Compression Kits (Small)	Each	80	2.00	160.00
		Compression Kits (large)	Each	40	90.00	3 600.00
		Blanking Plugs	Each	160	5.00	800.00
9.3		**Box 2**	Each	80	230.00	18 400.00
		Reducing Glands [32-20]	Each	80	4.00	320.00
		Reducing Glands [32-25]	Each	80	4.00	320.00
		Compression Kits	Each	40	100.00	4 000.00
		Blanking Plugs	Each	160	5.00	800.00
9.4		**Box 3**	Each	80	250.00	20 000.00
		Reducing Glands [40-20]	Each	80	6.00	480.00
		Reducing Glands [40-25]	Each	80	6.00	480.00
		Reducing Glands [40-32]	Each	40	6.00	240.00
		Compression Kits	Each	80	105.00	8 400.00
		Blanking Plugs	Each	160	6.00	960.00
9.5		**Box 4**	Each	80	275.00	22 000.00
		Reducing Glands [50-20]	Each	80	8.00	640.00
		Reducing Glands [50-25]	Each	80	8.00	640.00
		Reducing Glands [50-32]	Each	40	10.00	400.00
		Reducing Glands [50-40]	Each	160	10.00	1 600.00
		Compression Kits	Each	80	110.00	8 800.00
		Blanking Plugs	Each	160	6.00	960.00
10	EMCA 18.3 (k)	Installation of all 316 Stainless Steel Conduit with saddles, fasteners,surface mounted against brick or concrete every 500mm and all accessories				
		20mm Conduit	m	1500	60.00	90 000.00
		20mm conduit saddles	Each	750	8.00	6 000.00
		Solid Coupling Female Threaded Adaptor	Each	350	4.00	1 400.00
		Round Conduit box plus cover	Each	350	40.00	14 000.00
11	EMCA 18.3 (l)	Installation of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m^3	200	268	53 600.00
					Carried Forward	35 179 000.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	35 179 000.00
12	EMCA 18.3 (m)	Excavating, back filling, consolidation, importation of soil and dumping of all rock and stone removed during excavations including cleaning of cable routes all according to particular specifications (including hand excavations where necessary along existing cable routes)				
		a) Pickable soil	m^3	300	243.00	72 900.00
		b) Soft rock	m^3	120	810.00	97 200.00
		c) Hard rock	m^3	50	1 080.00	54 000.00
13		Dumping and removing of all rock and stone removed during excavations including cleaning of cable routes complete as per particular specification. Dumping will at a registered dumping site within the border of Municipal Area. Contractor to allow dumping within a vacinity of 30km the site Contractor to allow all labour, truck hire and dumping site payments	m^3	170	215.00	36 550.00
14		The restoration of road and paving to the original condition complete	m	250	567.00	141 750.00
15		The restoration of concrete paving [1.5m (wdth) x 150mm (height)] to the original condition complete	m	1500	567.00	850 500.00
16		Sifting soil through a 4mm mesh size for the bedding of cables and the backfilling of trenches complete as per particular specification.	m^3	170	162.00	27 540.00
17		Nett amount for core drilling 100mm diameter holes through 250mm concrete	Each	30	810.00	24 300.00
18	PSEMCA 9	Detail surveying and plotting of all existing structures within 3m of the propose route proposed by Contractor (Refer to project specification PSEMCA-9)	m	6000	7.00	42 000.00
19	PSEMCA 9	All new cable routes shall first be planned with information obtained from surveyor and submitted for approval to the Engineer and City of Cape Town. All shall be completed in AutoCad format and Report for approval from the Engineer (Refer to project specification PSEMCA-9)	Sum	-	1 880.00	1 880.00
					Carried Forward	36 527 620.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	36 527 620.00
20	PSEMCA 9	Time related matters for arranging, coordinating, shut down procedure, approval from City of City of Cape Town (Refer to project specification PSEMCA-9)				
		a) Enginneer rate per hour	hr	200	790.00	158 000.00
		b) Electrician rate per hour	hr	500	410.00	205 000.00
		c) Artisan rate per hour	hr	800	530.00	424 000.00
		d) Labourer rate per hour	hr	800	90.00	72 000.00
		e) Rate per kilometer	km	1500	10.00	15 000.00
		f) Report printing A4 Black and white	Pages	2000	5.00	10 000.00
		g) Medium Voltage testing and confimation	No.	10	780.00	7 800.00
		h) Low Voltage testing and confimation	No.	100	35.00	3 500.00
		h) Low Voltage testing and confimation	No.	100	35.00	3 500.00
		All of the above time related item shall be submitted weekly to the Engineer for approval.				
E.14.4	**EMCA 21.4**	**SCHEDULE E.14.4 - COMMISSIONING**				
1	EMCA 21.4 (a)	Testing and commissioning of all cables as above mentioned	Sum	-	Included	
2	EMCA 21.4 (b)	Updating, verifying and submission of Electronic Cable schedules with Tag numbers and final agreed lengths	Sum	-	Included	
3	EMCA 21.4 (c)	Surveyor to mark-up as-built cable route plans and all mark-up must be on made on the AutoCAD format	Sum	-	Included	
E.14.5	**EMCA**	**SCHEDULE E.14.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EMCA	All other items or equipment 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 (Specify)				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.14 MULTICORE CABLES & EARTH WIRES CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules			**Total**	37 426 420.00

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Section C2.2 Schedule of Quantities
Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.15	***EMVS***	**SCHEDULE E.15: MEDIUM VOLTAGE SWITCHGEAR**				
E.15.1	**EMVS 35.1**	**SCHEDULE E.15.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EMVS 35.1 (a)	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings and particular specification)	Sum	-	-	Included in our panel pricing
.2	EMVS 35.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to project specification COT and PSEMVS)	Sum	-	-	Included in our panel pricing
.3	EMVS 35.1 (c)	Protection short circuit analysis and coordination study and protection setting calculations for protection relays (refer to project specification COT and PSEMVS)	Sum	-	-	288 312.00
E.15.2	**EMVS 35.2**	**SCHEDULE E.15.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EMVS 35.2 (a)	Supply and delivery to site of medium voltage accessories (refer to project specification PSEMVS)	Sum	-	-	included in item 4
.2	EMVS 35.2 (a)	Supply and delivery to site of medium voltage instrument transformers for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	29 590.00
.3	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Busbars for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	included in item 4
.4	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Housing for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	2 876 410.00
.5	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Switching Devices for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	included in item 4
.6	EMVS 35.2 (b)	Supply and delivery to site of charger and battery unit for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	230 520.00
.7	EMVS 35.2 (a)	Supply and delivery to site of medium voltage instrument transformers for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	29 590.00
.8	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Busbars for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	Included in item 4
					Carried Forward	3 454 422.00

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Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	3 454 422.00
.9	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Housing for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	2 876 410.00
.10	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Switching Devices for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	included in item 9
.11	EMVS 35.2 (b)	Supply and delivery to site of charger and battery unit for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	230 520.00
.12	EMVS 35.2 (a)	Supply and delivery to site of medium voltage instrument transformers for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	29 590.00
.13	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Busbars for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	included in item14
.14	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Housing for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	3 240 065.00
.15	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Switching Devices for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	included in item14
.16	EMVS 35.2 (b)	Supply and delivery to site of charger and battery unit for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	230 520.00
.17	EMVS 35.2 (a)	Supply and delivery to site of medium voltage instrument transformers for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	29 590.00
.18	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Busbars for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	included in item 19
.19	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Housing for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	7 638 570.00
.20	EMVS 35.2 (a)	Supply and delivery to site of medium voltage Switching Devices for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	included in item 19
					Carried Forward	17 729 687.00

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Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	17 729 687.00
.21	EMVS 35.2 (b)	Supply and delivery to site of charger and battery unit for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	417 302.00
.2	EMVS 35.2 (b)	Supply and delivery to site of charger and battery units (refer to project specification COT and PSEMVS)	Sum	-	-	INCLUDED
.3	EVFD	Supply and delivery to site of a VFD unit (refer to project specification COT and PSEVFD)	Sum	-	-	15 000 000.00
E.15.3	**EMVS 35.3**	**SCHEDULE E.15.3 - INSTALL**				
.1	EMVS 35.3 (a)	Site installation of medium voltage accessories (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.2	EMVS 35.3 (a)	Site installation of medium voltage instrument transformers for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.3	EMVS 35.3 (a)	Site installation of medium voltage Busbars for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.4	EMVS 35.3 (a)	Site installation of medium voltage Housing for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	82 500.00
.5	EMVS 35.3 (a)	Site installation of medium voltage Switching Devices for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	360 000.00
.6	EMVS 35.3 (b)	Site installation of charger and battery unit for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
.7	EMVS 35.3 (a)	Site installation of medium voltage instrument transformers for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.8	EMVS 35.3 (a)	Site installation of medium voltage Busbars for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.9	EMVS 35.3 (a)	Site installation of medium voltage Housing for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	82 500.00
					Carried Forward	33 951 989.00

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Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	33 951 989.00
.10	EMVS 35.3 (a)	Site installation of medium voltage Switching Devices for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	40 000.00
.11	EMVS 35.3 (b)	Site installation of charger and battery unit for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
.12	EMVS 35.3 (a)	Site installation of medium voltage instrument transformers for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.13	EMVS 35.3 (a)	Site installation of medium voltage Busbars for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	500 000.00
.14	EMVS 35.3 (a)	Site installation of medium voltage Housing for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	82 500.00
.15	EMVS 35.3 (a)	Site installation of medium voltage Switching Devices for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	360 000.00
.16	EMVS 35.3 (b)	Site installation of charger and battery unit for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
.17	EMVS 35.3 (a)	Site installation of medium voltage instrument transformers for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	72 500.00
.18	EMVS 35.3 (a)	Site installation of medium voltage Busbars for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	50 000.00
.19	EMVS 35.3 (a)	Site installation of medium voltage Housing for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	150 000.00
.20	EMVS 35.3 (a)	Site installation of medium voltage Switching Devices for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	825 000.00
.21	EMVS 35.3 (b)	Site installation of charger and battery unit for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	30 000.00
					Carried Forward	36 171 989.00

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Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	36 171 989.00
.3	EMVS 35.3 (d)	Programming of protection settings (refer to project specification PSEMVS)	Sum	-	-	425 000.00
.4	EVFD	Supply and delivery to site of a VFD unit (refer to project specification PSEVFD)	Sum	-	-	1 250 100.00
E.15.4	**EMVS 35.4**	**SCHEDULE E.15.4 - COMMISSIONING**				
.1	EMVS 35.3 (a)	Commissioning of complete medium voltage accessories (refer to project specification PSEMVS)	Sum	-	-	1 120 000.00
.2	EMVS 35.3 (a)	Commissioning of complete medium voltage instrument transformers for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.3	EMVS 35.3 (a)	Commissioning of complete medium voltage Busbars for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.4	EMVS 35.3 (a)	Commissioning of complete medium voltage Housing for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.5	EMVS 35.3 (a)	Commissioning of complete medium voltage Switching Devices for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.6	EMVS 35.3 (b)	Commissioning of complete charger and battery unit for Substation No.1 (refer to project specification PSEMVS)	Sum	-	-	Included in item 1
.7	EMVS 35.3 (a)	Commissioning of complete medium voltage instrument transformers for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	1 120 000.00
.8	EMVS 35.3 (a)	Commissioning of complete medium voltage Busbars for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	Included in item 7
.9	EMVS 35.3 (a)	Commissioning of complete medium voltage Housing for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	Included in item 7
.10	EMVS 35.3 (a)	Commissioning of complete medium voltage Switching Devices for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	Included in item 7
					Carried Forward	40 087 089.00

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Section C2.2 Schedule of Quantities
Schedule E.15: Medium Voltage Switchgear

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	40 087 089.00
.11	EMVS 35.3 (b)	Commissioning of complete charger and battery unit for Substation No.2 (refer to project specification PSEMVS)	Sum	-	-	Included in item 7
.12	EMVS 35.3 (a)	Commissioning of complete medium voltage instrument transformers for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	1 120 000.00
.13	EMVS 35.3 (a)	Commissioning of complete medium voltage Busbars for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	Included in item 12
.14	EMVS 35.3 (a)	Commissioning of complete medium voltage Housing for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	Included in item 12
.15	EMVS 35.3 (a)	Commissioning of complete medium voltage Switching Devices for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	Included in item 12
.16	EMVS 35.3 (b)	Commissioning of complete charger and battery unit for Substation No.3 (refer to project specification PSEMVS)	Sum	-	-	Included in item 12
.17	EMVS 35.3 (a)	Commissioning of complete medium voltage instrument transformers for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	1 460 000.00
.18	EMVS 35.3 (a)	Commissioning of complete medium voltage Busbars for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	Included in item 17
.19	EMVS 35.3 (a)	Commissioning of complete medium voltage Housing for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	Included in item 17
.20	EMVS 35.3 (a)	Commissioning of complete medium voltage Switching Devices for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	Included in item 17
.21	EMVS 35.3 (b)	Commissioning of complete charger and battery unit for Substation No.4 (refer to project specification PSEMVS)	Sum	-	-	Included in item 17
					Carried Forward	42 667 089.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	42 667 089.00
.27	EMVS 35.3 (d)	Commissioning of complete protection settings (refer to project specification PSEMVS)	Sum	-	-	Included
.28	EVFD	Commissioning of complete VFD unit (refer to project specification PSEVFD)	Sum	-	-	Included
E.15.5	**EMVS**	**SCHEDULE E.15.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1		All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.15** **MEDIUM VOLTAGE SWITCHGEAR** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	42 667 089.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule E.16: Ring Main Units

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.16	***ERMU***	**SCHEDULE E.16 RING MAIN UNITS**				
E.16.1	**ERMU 3.1**	**SCHEDULE E.16.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	ERMU 3.1 (a)	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings and particular specification)	Sum	-	-	0.00
.2	ERMU 3.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to project specification COT and PSEMVS)	Sum	-	-	0.00
.3	ERMU 3.1 (c)	Protection short circuit analysis and coordination study and protection setting calculations for protection relays (refer to project specification COT and PSEMVS)	Sum	-	-	0.00
E.16.2	**ERMU 3.2**	**SCHEDULE E.16.2 - SUPPLY AND DELIVERY TO SITE**				
.1	ERMU 3.2 (a)	Supply and delivery to site of medium voltage accessories (refer to project specification PSERMU)	Sum	-	-	555 060.00
.2	ERMU 3.2 (b)	Supply and delivery to site of medium voltage instrument transformers for ring main units (refer to project specification PSERMU)	Sum	-	-	251 995.00
.3	ERMU 3.2 (c)	Supply and delivery to site of medium voltage busbars for ring main units (refer to project specification PSERMU)	Sum	-	-	336 900.00
.4	ERMU 3.2 (d)	Supply and delivery to site of medium voltage housing for ring main units (refer to project specification PSERMU)	Sum	-	-	336 900.00
.5	ERMU 3.2 (e)	Supply and delivery to site of medium voltage Switching Devices for ring main units (refer to project specification PSERMU)	Sum	-	-	490 405.00
E.16.3	**ERMU 3.3**	**SCHEDULE E.16.3 - INSTALL**				
.1	ERMU 3.3 (a)	Site installation of medium voltage ring main unit accessories (refer to project specification PSERMU)	Sum	-	-	125 000.00
.2	ERMU 3.2 (b)	Site installation of medium voltage ring main unit instrument transformers for ring main units (refer to project specification PSERMU)	Sum	-	-	125 000.00
.3	ERMU 3.2 (c)	Site installation of medium voltage Busbars for ring main units (refer to project specification PSERMU)	Sum	-	-	125 000.00
					Carried Forward	2 346 260.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule E.16: Ring Main Units

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	2 346 260.00
.4	ERMU 3.2 (d)	Site installation of medium voltage Housing for ring main units (refer to project specification PSERMU)	Sum	-	-	125 000.00
.5	ERMU 3.2 (e)	Site installation of medium voltage Switching Devices for ring main units (refer to project specification PSERMU)	Sum	-	-	0.00
.6	ERMU 3.3 (f)	Programming of protection settings (refer to project specification COT and PSERMU)	Sum	-	-	0.00
E.16.4	**ERMU 3.4**	**SCHEDULE E.16.4 - COMMISSIONING**				
.1	ERMU 3.3 (a)	Commissioning of medium voltage ring main unit accessories (refer to project specification PSERMU)	Sum	-	-	150 000.00
.2	ERMU 3.2 (b)	Commissioning of medium voltage ring main unit instrument transformers for ring main units (refer to project specification PSERMU)	Sum	-	-	0.00
.3	ERMU 3.2 (c)	Commissioning of medium voltage Busbars for ring main units (refer to project specification PSERMU)	Sum	-	-	0.00
.4	ERMU 3.2 (d)	Commissioning of medium voltage Housing for ring main units (refer to project specification PSERMU)	Sum	-	-	0.00
.5	ERMU 3.2 (e)	Commissioning of medium voltage Switching Devices for ring main units (refer to project specification PSERMU)	Sum	-	-	0.00
.6	ERMU 3.3 (f)	Commissioning of Programming of protection settings (refer to project specification COT and PSERMU)	Sum	-	-	0.00
.1	**ERMU**	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.16 RING MAIN UNITS CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	2 621 260.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2 Schedule of Quantities
Schedule No.E.17: Power Transformers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.17	***EPPT***	**SCHEDULE E.17: POWER TRANSFORMERS**				
E.17.1	***GEN***	**SCHEDULE E.17.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	0.00
.2	ERMU 3.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to project specification PSERMU)	Sum	-	-	0.00
E.17.2	**EPPT 11.1**	**SCHEDULE E.17.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EPPT 11.1 (a)	Supply and deliver of all Substation No.1 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	1 794 960.00
.2	EPPT 11.1 (a)	Supply and deliver of Substation No.1 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.3	EPPT 11.1 (a)	Supply and deliver of Substation No.1 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.4	EPPT 11.1 (a)	Supply and deliver of all Substation No.2 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	1 794 960.00
.5	EPPT 11.1 (a)	Supply and deliver of Substation No.2 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.6	EPPT 11.1 (a)	Supply and deliver of Substation No.2 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.7	EPPT 11.1 (a)	Supply and deliver of all Substation No.3 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	1 794 960.00
.8	EPPT 11.1 (a)	Supply and deliver of Substation No.3 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.9	EPPT 11.1 (a)	Supply and deliver of Substation No.3 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
					Carried Forward	5 384 880.00

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Section C2.2 Schedule of Quantities
Schedule No.E.17: Power Transformers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	5 384 880.00
.10	EPPT 11.1 (a)	Supply and deliver of all Substation No.4 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	6 656 000.00
.11	EPPT 11.1 (a)	Supply and deliver of Substation No.4 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.12	EPPT 11.1 (a)	Supply and deliver of Substation No.4 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.16	EPPT 11.1 (b)	Supply and delivery to site of substation earthing system as specified under PSPPT-11	Sum	-	-	450 000.00
E.17.3	**EPPT 11.2**	**SCHEDULE E.17.3 - INSTALLATION**				
.1	EPPT 11.2 (a)	Site Installation of all Substation No.1 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	170 000.00
.2	EPPT 11.2 (a)	Site Installation of Substation No.1 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.3	EPPT 11.2 (a)	Site Installation of Substation No.1 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.4	EPPT 11.2 (a)	Site Installation of all Substation No.2 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	170 000.00
.5	EPPT 11.2 (a)	Site Installation of Substation No.2 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.6	EPPT 11.2 (a)	Site Installation of Substation No.2 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.7	EPPT 11.2 (a)	Site Installation of all Substation No.3 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	170 000.00
					Carried Forward	13 000 880.00

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Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule No.E.17: Power Transformers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	13 000 880.00
.8	EPPT 11.2 (a)	Site Installation of Substation No.3 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.9	EPPT 11.2 (a)	Site Installation of Substation No.3 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.10	EPPT 11.2 (a)	Site Installation of all Substation No.4 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	510 000.00
.11	EPPT 11.2 (a)	Site Installation of Substation No.4 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.12	EPPT 11.2 (a)	Site Installation of Substation No.4 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.16	EPPT 11.3 (b)	Installation of substation earthing system system as specified under PSPPT-11	Sum	-	-	250 000.00
E.17.4	**EPPT 11.3**	**SCHEDULE E.17.4 - COMMISSIONING**				
.1	EPPT 11.3 (a)	Commissioning of all Substation No.1 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	85 000.00
.2	EPPT 11.3 (a)	Commissioning of Substation No.1 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.3	EPPT 11.3 (a)	Commissioning of Substation No.1 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.4	EPPT 11.3 (a)	Commissioning of all Substation No.2 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	85 000.00
.5	EPPT 11.3 (a)	Commissioning of Substation No.2 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
					Carried Forward	13 930 880.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	13 930 880.00
.6	EPPT 11.3 (a)	Commissioning of Substation No.2 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.7	EPPT 11.3 (a)	Commissioning of all Substation No.3 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	85 000.00
.8	EPPT 11.3 (a)	Commissioning of Substation No.3 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.9	EPPT 11.3 (a)	Commissioning of Substation No.3 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.10	EPPT 11.3 (a)	Commissioning of all Substation No.4 transformers accessories (refer to project specification PSEPPT)	Sum	-	-	85 000.00
.11	EPPT 11.3 (a)	Commissioning of Substation No.4 transformer tank and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.12	EPPT 11.3 (a)	Commissioning of Substation No.4 transformer core and parts (refer to project specification PSEPPT)	Sum	-	-	0.00
.16	EPPT 11.3 (b)	Commissioning of substation earthing system system as specified under PSPPT-11	Sum	-	-	0.00
E.17.5	**EPPT**	**SCHEDULE E.17.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EPPT	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E17** **POWER TRANSFORMERS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	14 100 880.00

[redacted]

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule No.E.18: Miniature Substations

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.18	**EMSS**	**SCHEDULE E.18: MINIATURE SUBSTATIONS**				
E.18.1	**EMSS 15.1**	**SCHEDULE E.18.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EMSS 15.1 (a)	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings and particular specification)	Sum	-	-	0.00
2	EMSS 15.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to particular specification EMVS)	Sum	-	-	0.00
3	EMSS 15.1 (c)	Protection short circuit analysis and coordination study and protection setting calculations for protection relays (refer to particular specification EMVS)	Sum	-	-	0.00
E.18.2	**EMSS 15.2**	**SCHEDULE E.18.2 - SUPPLY AND DELIVERY TO SITE**				
1	EMSS 15.2 (a)	Supply and delivery to site of miniature substation concrete plinth (refer to project specification PSEMSS	Sum	-	-	1 007 470.00
2	EMSS 15.2 (a)	Supply and delivery to site of miniature substation accessories (refer to project specification PSEMSS)	Sum	-	-	1 085 360.00
3	EMSS 15.2 (a)	Supply and delivery to site of miniature substation instrument transformers (refer to project specification PSEMSS)	Sum	-	-	1 020 740.00
4	EMSS 15.2 (a)	Supply and delivery to site of miniature substation Busbars (refer to project specification PSEMSS)	Sum	-	-	1 098 385.00
5	EMSS 15.2 (a)	Supply and delivery to site of miniature substation Housing (refer to project specification PSEMSS)	Sum	-	-	0.00
6	EMSS 15.2 (a)	Supply and delivery to site of miniature substation Switching Devices (refer to project specification PSEMSS)	Sum	-	-	0.00
E.18.3	**EMSS 15.3**	**SCHEDULE E.18.3 - INSTALL**				
1	EMSS 15.3 (a)	Site installation of miniature substation concrete plinth (refer to project specification PSEMSS	Sum	-	-	28 000.00
2	EMSS 15.3 (a)	Site installation of miniature substation accessories (refer to project specification PSEMSS)	Sum	-	-	28 000.00
					Carried Forward	4 267 955.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2 Schedule of Quantities
Schedule No.E.18: Miniature Substations

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	4 267 955.00
3	EMSS 15.3 (a)	Site installation of miniature substation instrument transformers (refer to project specification PSEMSS)	Sum	-	-	28 000.00
4	EMSS 15.3 (a)	Site installation of miniature substation Busbars (refer to project specification PSEMSS)	Sum	-	-	28 000.00
5	EMSS 15.3 (a)	Site installation of miniature substation Housing (refer to project specification PSEMSS)	Sum	-	-	0.00
6	EMSS 15.3 (a)	Site installation of miniature substation Switching Devices (refer to project specification				
7	EMSS 15.3 (b)	Earthing resistance survey	Sum	-	-	0.00
7	EMSS 15.3 (c)	Installation of protection settings (refer to particular specification)	Sum	-	-	0.00
E.18.4	**EMSS 15.4**	**SCHEDULE E.18.4 - COMMISSIONING**				
1	EMSS 15.4 (a)	Commissioning of miniature substation (refer to particular specification)	Sum	-	-	0.00
2	EMSS 15.4 (b)	Commissioning protection setting calculations and setting of protection relays	Sum	-	-	0.00
E.18.5	**EMSS**	**SCHEDULE E.18.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EMSS	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.18** **MINIATURE SUBSTATIONS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	4 323 955.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.19: Motor Control Centres and Distribution Boards

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.19	**EMCC**	**SCHEDULE E.19: MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS**				
E.19.1	**EMCC 21.1**	**SCHEDULE E.19.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	120 147.30
.2	EMCC 21.1 (a)	Provide motor control center design drawings and wiring diagrams (refer to particular specifications EMCC)	Sum	-	-	2 002 455.00
.3	EMCC 21.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to particular specification EMCC)	Sum	-	-	100 122.75
.4		Contractor to measure and record full diagnostics using Power analyser for a duration of two weeks [measured under '.4 under MCC section in schedule of quantities]. The analyser shall record for 24hrs / day over a period of 14 days after commissioning of the entire plant. This measurement shall be used to determine the amount of active harmonic filtering, harmonic and power factor required for each substation. The Power Analyzer shall be capable of testing, displaying trends and capturing historic logs of the following information: 1) Harmonics, 2) Apparent Power, 3) Power, 4) Reactive Power 5) Line and Phase Voltages and Currents 6) Power Factor. Contractor to note that the Harmonic and power factor correction shall only be installed at the end of the project and it will be programmed and planned to complete the work after commissioning. Six [x6] tests will be required and will be recorded simultaneously on main substation, Substation No.1–No.5. After the tests has confirmed the amount of additional harmonic and power factor requirement the Contractor will supply, install and commission the required equipment. After the installation and commissioning, it will furthermore be required to record Six [x6] more tests to prove the equipment is operational and working as intended. Twelve tests are allowed for under the schedule of quantities.	Each	12	33 785.00	405 420.00
					Carried Forward	2 628 145.05

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.19: Motor Control Centres and Distribution Boards

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	2 628 145.05
E.19.2	**EMCC 21.2**	**SCHEDULE E.19.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.A)	Each	1	**6 863 706.34**	**6 863 706.34**
.2	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.B)	Each	4	**426 415.66**	**1 705 662.63**
.3	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.C)	Each	1	**15 405 926.02**	**15 405 926.02**
.4	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.D)	Each	1	**15 001 609.41**	**15 001 609.41**
.5	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.E)	Each	1	**15 745 359.97**	**15 745 359.97**
.6	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.F)	Each	8	**308376.5802**	**2 467 012.64**
.7	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.G)	Each	5	**637480.1296**	**3 187 400.65**
.8	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.H)	Each	5	792 823.13	3 964 115.67
.9	EMCC 21.2 (a)	Supply and delivery to site complete VFD Panel (refer to project specification PSEMCC-6.I)	Each	16	**283 928.42**	**4 542 854.70**
.10	EMCC 21.2 (a)	Supply and delivery to site complete MCC (refer to project specification PSEMCC-6.J)	Each	1	**4 932 393.19**	**4 932 393.19**
.11	EMCC 21.2 (a)	Supply and delivery to site complete Combined Active Harmonic Filtering and Reactive Current Compensation Tier (refer to project specification PSEMCC-6.N)	Each	35	**886 388.00**	**31 023 579.91**
E.19.3	**EMCC 21.3**	**SCHEDULE E.19.3 - INSTALLATION**				
.1	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.A)	Each	1	68720.62333	68 720.62
.2	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.B)	Each	4	9 627.45	38 509.81
					Carried Forward	107 574 996.61

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	107 574 996.61
.3	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.C)	Each	1	358716.3956	358 716.40
.4	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.D)	Each	1	347404.5933	347 404.59
.5	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.E)	Each	1	165474.2578	165 474.26
.6	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.F)	Each	8	10 439.81	83 518.50
.7	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.G)	Each	5	11 692.59	58 462.95
.8	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.H)	Each	5	15 033.33	75 166.65
.9	EMCC 21.3 (a)	Site installation to site complete VFD Panel (refer to project specification PSEMCC-6.I)	Each	16	10 439.81	167 037.00
.10	EMCC 21.3 (a)	Site installation to site complete MCC (refer to project specification PSEMCC-6.J)	Each	1	35386.28333	35 386.28
.11	EMCC 21.3 (a)	Site installation to site complete Combined Active Harmonic Filtering and Reactive Current Compensation Tier (refer to project specification PSEMCC-6.N)	Each	35	16 703.70	584 629.50
E.19.4	**EMCC 21.4**	**SCHEDULE E.19.4 - COMMISSIONING**				
.1	EMCC 21.4 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.A)	Each	1	115420.6485	115 420.65
.2	EMCC 21.4 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.B)	Each	4	5 497.75	21 990.99
.3	EMCC 21.4 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.C)	Each	1	296288.5512	296 288.55
.4	EMCC 21.4 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.D)	Each	1	285408.3798	285 408.38
.5	EMCC 21.4 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.E)	Each	1	131287.9768	131 287.98
					Carried Forward	110 301 189.29

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.19: Motor Control Centres and Distribution Boards

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	110 301 189.29
.6	EMCC 21.4 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.F)	Each	8	3 771.55	30 172.41
.7	EMCC 21.4 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.G)	Each	5	4 508.70	22 543.52
.8	EMCC 21.4 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.H)	Each	5	4 720.33	23 601.67
.9	EMCC 21.4 (a)	Commissioning to site complete VFD Panel (refer to project specification PSEMCC-6.I)	Each	16	13 286.34	212 581.48
.10	EMCC 21.4 (a)	Commissioning to site complete MCC (refer to project specification PSEMCC-6.J)	Each	1	31508.68663	31 508.69
.11	EMCC 21.4 (a)	Commissioning to site complete Combined Active Harmonic Filtering and Reactive Current Compensation Tier (refer to project specification PSEMCC-6.N)	Each	35	11 219.81	392 693.51
E.19.5	**EMCC**	**SCHEDULE E.19.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EMCC	All other items or equipment 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 (Specify)				
		Certificate of Compliance (PSEMCC-6.A)	Sum	1	10 550.00	10 550.00
		Certificate of Compliance (PSEMCC-6.B)	Sum	1	1 620.00	1 620.00
		Certificate of Compliance (PSEMCC-6.C)	Sum	1	22 900.00	22 900.00
		Certificate of Compliance (PSEMCC-6.D)	Sum	1	25 560.00	25 560.00
		Certificate of Compliance (PSEMCC-6.E)	Sum	1	18 720.00	18 720.00
		Certificate of Compliance (PSEMCC-6.F)	Sum	1	2 380.00	2 380.00
		Certificate of Compliance (PSEMCC-6.G)	Sum	1	1 810.00	1 810.00
		Certificate of Compliance (PSEMCC-6.H)	Sum	1	2 450.00	2 450.00
		Certificate of Compliance (PSEMCC-6.I)	Sum	1	3 900.00	3 900.00
		Certificate of Compliance (PSEMCC-6.J)	Sum	1	3 330.00	3 330.00
		Certificate of Compliance (PSEMCC-6.N)	Sum	1	1 240.00	1 240.00
		.....				
		Warranty extension of switchgear, VSD and control System for Entire Project Duration	Sum	1	6 540 009.05	6 540 009.05
		SCHEDULE NO. E.19 MOTOR CONTROL CENTRE & DISTRIBUTION BOARDS CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules			**Total**	**117 648 759.61**

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.20	**EPLC**	**SCHEDULE E.20: PROGRAMMABLE & LOGIC CONTROLLERS**				
E.20.1	**EPLC 26.1**	**SCHEDULE E.20.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EPLC 26.1 (a	The Contractor will provide the following design calculations, Drawings and wiring diagrams for approval by the Engineer: a) Fibre loss design calculations in excel format which will include but limited to From, To, Distance losses and Tag numbers and total losses through the fibre network [fibre losses] b) Electrical Load lists in excel format of all PLC equipment c) Engineer design drawings of network layout which contains all IP addresses, equipment and drawings d) Report which will include antennae radio paths, drawings which have line of sight of all locations in AutoCad Format, Connection speeds with the radio or wireless communication, details of all Radio & Wireless Radio losses e) Input and Output schedules in excel format which contains all tag numbers, names, commands, and description of all I/O f) Loop diagrams in AutoCAD format g) Cable schedules in excel format which will include but limited to From, To, Distance and Tag numbers h) AutoCAD drawing of all equipment positions, equipment layouts, cable layouts, rack layouts, rooter / modems, switches connections and layouts. i) P&ID drawings of the entire system which is implemented and equipment in AutoCAD format which shall strictly accordance to ANSI/ISA-5.1 [American national Standard] j) Functional design specification which will include but not limited to all mimic diagrams, control procedures compared to control philosophy and a detail description how the PLC will control the entire system [broken down into each component]. (Refer to particular specifications)	Sum	-	-	558 230.40
.2	EPLC 26.1 (b)	Provide operating all maintenance manuals and "as-built" drawings as specified (refer to particular specification EMCC)	Sum	-	-	100 122.75
					Carried Forward	658 353.15

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	658 353.15
E.20.2	**EPLC 26.2**	**SCHEDULE E.20.2- SUPPLY AND DELIVERY TO SITE**				
.1	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.A]	Each	1	932451.2908	932 451.29
.2	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.A]	Each	1	90822	90 822.00
.3	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.A]	Each	1	75356	75 356.00
.4	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.B]	Each	4	171 866.09	687 464.37
.5	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.B]	Each	4	19 439.40	77 757.60
.6	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.B]	Each	4	62 224.00	248 896.00
.7	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.C]	Each	1	2259845.987	2 259 845.99
.8	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.C]	Each	1	90822	90 822.00
.9	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.C]	Each	1	75356	75 356.00
.10	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.D]	Each	1	2325554.489	2 325 554.49
.11	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.D]	Each	1	90822	90 822.00
.12	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.D]	Each	1	75356	75 356.00
.13	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.E]	Each	1	2110656.652	2 110 656.65
					Carried Forward	9 799 513.54

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	9 799 513.54
.14	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.E]	Each	1	90822	90 822.00
.15	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.E]	Each	1	75356	75 356.00
.16	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.F]	Each	16	249 177.85	3 986 845.67
.17	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.F]	Each	16	19 439.40	311 030.40
.18	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.F]	Each	16	62 224.00	995 584.00
.19	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.G]	Each	1	1835987.249	1 835 987.25
.20	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.G]	Each	1	90822	90 822.00
.21	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.G]	Each	1	75356	75 356.00
.22	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.H]	Each	6	217 813.73	1 306 882.39
.23	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.H]	Each	6	28 626.15	171 756.90
.24	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.H]	Each	6	62 224.00	373 344.00
.31	EPLC 26.2 (a)	Supply and delivery to site complete Wireless Enclosure and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.K]	Each	100	61 440.80	6 144 079.93
.32	EPLC 26.2 (a)	Supply and delivery to site complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.L]	**Each**	**1**	454 392.52	454 392.52
.33	EPLC 26.2 (b)	Supply and delivery to site complete UPS as specified [refer to PSEPLC-6.L]	**Each**	**1**	40 919.25	40 919.25
					Carried Forward	25 752 691.85

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	25 752 691.85
.34	EPLC 26.2 (c)	Supply and delivery to site complete HMI as specified [refer to PSEPLC-6.L]	**Each**	**1**	63 204.00	63 204.00
E.20.3	**EPLC 26.3**	**SCHEDULE E.20.3 - INSTALLATION**				
.1	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.A]	Each	1	16703.7	16 703.70
.2	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.A]	Each	1	5399.9676	5 399.97
.3	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.A]	Each	1	750	750.00
.4	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.B]	Each	4	8 351.85	33 407.40
.5	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.B]	Each	4	3 936.58	15 746.31
.6	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.B]	Each	4	750.00	3 000.00
.7	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.C]	Each	1	16703.7	16 703.70
.8	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.C]	Each	1	5399.9676	5 399.97
.9	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.C]	Each	1	750	750.00
.10	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.D]	Each	1	16703.7	16 703.70
.11	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.D]	Each	1	5399.9676	5 399.97
.12	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.D]	Each	1	750	750.00
					Carried Forward	25 936 610.56

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	25 936 610.56
.13	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.E]	Each	1	16703.7	16 703.70
.14	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.E]	Each	1	5399.9676	5 399.97
.15	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.E]	Each	1	750	750.00
.16	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.F]	Each	16	8 351.85	133 629.60
.17	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.F]	Each	16	3 936.58	62 985.22
.18	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.F]	Each	16	750.00	12 000.00
.19	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.G]	Each	1	8351.85	8 351.85
.20	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.G]	Each	1	5399.9676	5 399.97
.21	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.G]	Each	1	750	750.00
.22	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.H]	Each	6	8 351.85	50 111.10
.23	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.H]	Each	6	4 373.97	26 243.84
.24	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.H]	Each	6	750.00	4 500.00
.31	EPLC 26.3 (a)	Site installation of a complete Wireless Enclosure and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.K]	Each	100	8 351.85	835 185.00
.32	EPLC 26.3 (a)	Site installation of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.L]	**Each**	**1**	16 703.70	16 703.70
					Carried Forward	27 115 324.51

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	27 115 324.51
.33	EPLC 26.3 (b)	Site installation of a complete UPS as specified [refer to PSEPLC-6.L]	**Each**	**1**	4 859.97	4 859.97
.34	EPLC 26.3 (c)	Site installation of a complete HMI as specified [refer to PSEPLC-6.L]	**Each**	**1**	8 775.00	8 775.00
.35	EPLC 26.3 (d)	Site cable connections and programming of SCADA, PLC's & HMI's and peripheral equipment	Sum	-		14 827 410.00
E.20.4	**EPLC 26.4**	**SCHEDULE E.20.4 - COMMISSIONING**				
.1	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.A]	Each	1	457995.648	457 995.65
.2	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.A]	Each	1	3599.9784	3 599.98
.3	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.A]	Each	1	2250	2 250.00
.4	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.B]	Each	4	35 029.07	140 116.30
.5	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.B]	Each	4	2 624.38	10 497.54
.6	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.B]	Each	4	2 250.00	9 000.00
.7	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.C]	Each	1	1267620.648	1 267 620.65
.8	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.C]	Each	1	3599.9784	3 599.98
.9	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.C]	Each	1	2250	2 250.00
.10	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.D]	Each	1	1392683.148	1 392 683.15
					Carried Forward	45 245 982.71

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	45 245 982.71
.11	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.D]	Each	1	3599.9784	3 599.98
.12	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.D]	Each	1	2250	2 250.00
.13	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.E]	Each	1	1734232.5	1 734 232.50
.14	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.E]	Each	1	3599.9784	3 599.98
.15	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.E]	Each	1	2250	2 250.00
.16	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.F]	Each	16	78716.574	1 259 465.18
.17	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.F]	Each	16	2624.384254	41 990.15
.18	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.F]	Each	16	2 250.00	36 000.00
.19	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.G]	Each	1	68404.074	68 404.07
.20	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.G]	Each	1	3599.9784	3 599.98
.21	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.G]	Each	1	2250	2 250.00
.22	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.H]	Each	6	33 716.57	202 299.44
.23	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.H]	Each	6	2 915.98	17 495.90
.24	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.H]	Each	6	2 250.00	13 500.00
					Carried Forward	48 636 919.90

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.20: Programmable & Logic Controllers

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	48 636 919.90
.31	EPLC 26.4 (a)	Commissioning of a complete Wireless Enclosure and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.**K**]	Each	100	3 375.00	337 500.00
.32	EPLC 26.4 (a)	Commissioning of a complete PLC and peripheral equipment installed in or other specified enclosures, all as specified [refer to PSEPLC-6.**L**]	**Each**	**1**	106 995.65	106 995.65
.33	EPLC 26.4 (b)	Commissioning of a complete UPS as specified [refer to PSEPLC-6.**L**]	**Each**	**1**	3 239.98	3 239.98
.34	EPLC 26.4 (c)	Commissioning of a complete HMI as specified [refer to PSEPLC-6.**L**]	**Each**	**1**	2 250.00	2 250.00
.35	EPLC 26.4 (d)	Commissioning of a PLC system programming and operation of plant in automatic and manual mode [Refer to particular specifica	Sum	-		189 315.54
E.20.5	**EPLC**	**DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	EPLC	All other items or equipment 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 (Specify)				
		Engineering Licenses	Sum	1	187 526.22	187 526.22
		.....				
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		.....				
		.....				
		SCHEDULE NO. E.20 **PROGRAMMABLE & LOGIC CONTROLLERS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	49 463 747.28

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.21 Scada System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.21	***ESCA***	**SCHEDULE E.21: SCADA SYSTEM**				
E.21.1	***GEN***	**SCHEDULE E.21.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	118 371.09
.2	PSGEN B	Provide operating all maintenance manuals and "as-built" drawings	Sum	-	-	5 918.55
E.21.2	**ESCA 12.1**	**SCHEDULE E.21.2 - SUPPLY AND DELIVERY TO SITE**				
.1	ESCA 12.1 (a)	Supply and delivery to site of all SCADA hardware as specified. [refer to PSESCA]	Sum	-	-	397 370.29
.2	ESCA 12.1 (b)	Supply and delivery to site of all SCADA supplementary soft ware as specified. [refer to PSESCA]	Sum	-	-	973 405.11
.4	ESCA 12.1 (d)	Supply and delivery to site of all for SCADA UPS's. [refer to PSESCA]	Sum	-	-	90 822.00
E.21.3	**ESCA 12.2**	**SCHEDULE E.21.3 - INSTALLATION**				
.1	ESCA 12.2 (a)	Site installation of complete SCADA soft ware as specified. [refer to PSESCA]	Sum	-	-	12 750.00
.2	ESCA 12.2 (b)	Site installation of complete SCADA supplementary soft ware as specified. [refer to PSESCA]	Sum	-	-	12 750.00
.4	ESCA 12.4 (d)	Site installation of complete SCADA UPS. [refer to PSESCA]	Sum	-	-	5 399.97
E.21.4	**ESCA 12.3**	**SCHEDULE E.21.4 - COMMISSIONING**				
.1	ESCA 12.2 (a)	Commissioning of complete SCADA soft ware as specified. [refer to PSESCA]	Sum	-	-	31 875.00
.2	ESCA 12.2 (b)	Commissioning of complete SCADA supplementary soft ware as specified. [refer to PSESCA]	Sum	-	-	31 875.00
.4	ESCA 12.4 (d)	Commissioning of complete SCADA UPS. [refer to PSESCA]	Sum	-	-	3 599.98
.5	PSESCA 1	New Tag no./code allocation [refer to PSESCA]	Sum	-	-	124 312.50
					Carried Forward	1 808 449.50

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.21 Scada System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	1 808 449.50
E.21.5	**ESCA**	**SCHEDULE E.21.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	ESCA	All other items or equipment 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 (Specify)				
		Labour Travel Time	Sum	1	5 034.80	5 034.80
		Commission Travel Time	Sum	1	2 378.54	2 378.54
		Equipment Transport, Crating & Travelling	Sum	1	3 893.47	3 893.47
		H&S Time Related	Sum	1	1 211.76	1 211.76
		Equipment Rental	Sum	1	4 943.37	4 943.37
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		.....				
		.....				
		SCHEDULE NO. E.21 **SCADA SYSTEM** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	1 825 911.44

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.22	***ECIS***	**SCHEDULE E.22: CONTROL AND INSTRUMENTATION SYSTEM**				
E.22.1	***ECIS* 13.1**	**SCHEDULE E.22.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	ECIS 13.1 (a)	Provide general layout drawings and wiring diagrams of the enclosure and instrumentation for approval [Refer to particular specification]	Sum	-	-	797 576.91
.2	ECIS 13.1 (b)	Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings	Sum	-	-	64 888.33
E.22.2	**ECIS 13.2**	**SCHEDULE E22.2 - SUPPLY AND DELIVERY TO SITE**				
1	ECIS 13.2 (a)	Supply and delivery to site a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	280	32 447.81	9 085 386.95
2	ECIS 13.2 (c)	Supply and delivery to site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	25	22 734.14	568 353.51
3	ECIS 13.2 (c)	Supply and delivery to site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	115	24 952.11	2 869 492.88
4	ECIS 13.2 (c)	Supply and delivery to site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.C)	Each	50	23 387.60	1 169 379.99
5	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.A)	Each	26	50 038.18	1 300 992.57
6	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	48	42 355.48	2 033 062.86
7	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	130	20 632.29	2 682 198.10
8	ECIS 13.2 (b)	Supply and delivery to site a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	115	46 186.82	5 311 483.76
9	ECIS 13.2 (a)	Supply and delivery to site a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	70	21 617.51	1 513 225.51
					Carried Forward	27 396 041.37

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.22: Control and Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	27 396 041.37
10	ECIS 13.2 (b)	Supply and delivery to site a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	36	66 415.98	2 390 975.23
11	ECIS 13.2 (b)	Supply and delivery to site a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	46	97 668.19	4 492 736.52
12	ECIS 13.2 (b)	Supply and delivery to site a complete Chlorine transducer and controller complete with mounting bracket (refer to project specification PS ECIS-10.A)	Each	25	84 098.63	2 102 465.79
13	ECIS 13.2 (b)	Supply and delivery to site a complete Dissolved oxygen meter and controller complete with mounting bracket (refer to project specification PSECIS-12)	Each	40	76 096.99	3 043 879.76
14	ECIS 13.2 (b)	Supply and delivery to site a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-13)	Each	36	144 484.14	5 201 428.89
15	ECIS 13.2 (b)	Supply and delivery to site a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-14)	Each	26	128 286.16	3 335 440.26
16	ECIS 13.2 (b)	Supply and delivery to site a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	4	1 013 721.54	4 054 886.15
17	ECIS 13.2 (b)	Supply and delivery to site a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	80	31 621.55	2 529 724.35
18	ECIS 13.2 (b)	Supply and delivery to site a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	70 678.18	565 425.47
19	ECIS 13.2 (b)	Supply and delivery to site a complete Thermal Mass Flow meter and controller complete with mounting bracket and kiosk (refer to project specification PSECIS-19)	Each	20	83 311.41	1 666 228.25
E.22.3	**ECIS 13.3**	**SCHEDULE E.22.3 - INSTALLATION**				
1	ECIS 13.3 (a)	Installation on site of a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	280	1 010.75	283 010.00
					Carried Forward	57 062 242.04

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.22: Control and Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	57 062 242.04
2	ECIS 13.3 (c)	Installation on site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	25	253.50	6 337.50
3	ECIS 13.3 (c)	Installation on site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	115	253.50	29 152.50
4	ECIS 13.3 (c)	Installation on site of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.C)	Each	50	253.50	12 675.00
5	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.A)	Each	26	2 059.25	53 540.50
6	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	48	2 059.25	98 844.00
7	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	130	2 059.25	267 702.50
8	ECIS 13.3 (b)	Installation on site of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	115	2 059.25	236 813.75
9	ECIS 13.3 (a)	Installation on site of a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	70	2 059.25	144 147.50
10	ECIS 13.3 (b)	Installation on site of a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	36	2 059.25	74 133.00
11	ECIS 13.3 (b)	Installation on site of a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	46	2 059.25	94 725.50
12	ECIS 13.3 (b)	Installation on site of a complete Chlorine transducer and controller complete with mounting bracket (refer to project specification PS ECIS-10.A)	Each	25	2 059.25	51 481.25
13	ECIS 13.3 (b)	Installation on site of a complete Dissolved oxygen meter and controller complete with mounting bracket (refer to project specification PSECIS-12)	Each	40	894.25	35 770.00
					Carried Forward	58 167 565.04

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Section C2.2: Schedule of Quantities
Schedule No E.22: Control and Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	58 167 565.04
14	ECIS 13.3 (b)	Installation on site of a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-13)	Each	36	2 059.25	74 133.00
15	ECIS 13.3 (b)	Installation on site of a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-14)	Each	26	2 059.25	53 540.50
16	ECIS 13.3 (b)	Installation on site of a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	4	2 059.25	8 237.00
17	ECIS 13.3 (b)	Installation on site of a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	80	2 059.25	164 740.00
18	ECIS 13.3 (b)	Installation on site of a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	2 059.25	16 474.00
19	ECIS 13.3 (b)	Installation on site of a complete Thermal Mass Flow meter and controller complete with mounting bracket and kiosk (refer to project specification PSECIS-19)	Each	20	2 059.25	41 185.00
E.22.4	**ECIS 13.4**	**SCHEDULE E.22.4 - COMMISSIONING**				
1	ECIS 13.4 (a)	Commissioning of a complete pressure transducer (refer to project specification PSECIS-2.A)	Each	280	1 007.50	282 100.00
2	ECIS 13.4 (c)	Commissioning of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.A)	Each	25	1 007.50	25 187.50
3	ECIS 13.4 (c)	Commissioning of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.B)	Each	115	1 007.50	115 862.50
4	ECIS 13.4 (c)	Commissioning of electrical installation equipment at and in flow meter manholes (refer to project specification PSECIS-3.C)	Each	50	1 007.50	50 375.00
5	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.A)	Each	26	1 007.50	26 195.00
					Carried Forward	59 025 594.54

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.22: Control and Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	59 025 594.54
6	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.B)	Each	48	1 007.50	48 360.00
7	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.C)	Each	130	1 007.50	130 975.00
8	ECIS 13.4 (b)	Commissioning of a complete level transducer and controller complete with mounting bracket (refer to project specification PS ECIS-4.D)	Each	115	1 007.50	115 862.50
9	ECIS 13.4 (a)	Commissioning of a complete no-flow sensor transducer (refer to project specification PS ECIS-5)	Each	70	1 007.50	70 525.00
10	ECIS 13.4 (b)	Commissioning of a complete pH transducer and controller complete with mounting bracket (refer to project specification PS ECIS-7.A)	Each	36	1 007.50	36 270.00
11	ECIS 13.4 (b)	Commissioning of a complete turbidity transducer and controller complete with mounting bracket (refer to project specification PS ECIS-8.A)	Each	46	1 007.50	46 345.00
12	ECIS 13.4 (b)	Commissioning of a complete Chlorine transducer and controller complete with mounting bracket (refer to project specification PS ECIS-10.A)	Each	25	1 007.50	25 187.50
13	ECIS 13.4 (b)	Commissioning of a complete Dissolved oxygen meter and controller complete with mounting bracket (refer to project specification PSECIS-12)	Each	40	1 007.50	40 300.00
14	ECIS 13.4 (b)	Commissioning of a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-13)	Each	36	1 007.50	36 270.00
15	ECIS 13.4 (b)	Commissioning of a complete Sludge Density Analyzer meter and controller complete with mounting bracket (refer to project specification PSECIS-14)	Each	26	1 007.50	26 195.00
16	ECIS 13.4 (b)	Commissioning of a complete multi parameter analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-16)	Each	4	1 007.50	4 030.00
17	ECIS 13.4 (b)	Commissioning of a complete Temperature analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-17)	Each	80	1 007.50	80 600.00
					Carried Forward	59 686 514.54

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No E.22: Control and Instrumentation system

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	59 686 514.54
18	ECIS 13.4 (b)	Commissioning of a complete Differential analyser meter and controller complete with mounting bracket (refer to project specification PSECIS-18)	Each	8	1 007.50	8 060.00
19	ECIS 13.4 (b)	Commissioning of a complete Thermal Mass Flow meter and controller complete with mounting bracket and kiosk (refer to project specification PSECIS-19)	Each	20	1 007.50	20 150.00
E.22.5	**ECIS**	**SCHEDULE E.22.5 - DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	ECIS	All other items or equipment 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 (Specify)				
		Labour Travel Time	Sum	1	48 739.85	48 739.85
		Commission Travel Time	Sum	1	23 025.64	23 025.64
		Equipment Transport, Crating & Travelling	Sum	1	37 691.13	37 691.13
		H&S Time Related	Sum	1	11 730.59	11 730.59
		Equipment Rental	Sum	1	47 854.71	47 854.71
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.22 **CONTROL INSTRUMENTATION SYSTEM** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	59 883 766.47

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.23: General and Miscellaneous

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.23	***EG&M***	**SCHEDULE E.23: GENERAL AND MISCELLANEOUS**				
E.23.1	**EG&M 13.1**	**SCHEDULE E.23.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EG&M 13.1 (a)	Provide general layouts drawings, notice drawings and wiring diagrams for approval.	Sum	-	-	12 000.00
.2	EG&M 13.2 (a)	Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings	Sum	-	-	2 500.00
E.23.2	**EG&M 13.2**	**SCHEDULE E.23.2 - SUPPLY AND DELIVERY TO SITE**				
.1	EG&M 13.2 (a)	Supply and delivery to site of emergency stop stations [Refer to particular specification specification EG&M 10]	Each	400	4 329.99	1 731 997.91
.2	EG&M 13.2 (b)	Supply and delivery to site of emergency stop stations with built in motor cable termination box [refer to particular specification EG&M 10]	Each	250	6 685.75	1 671 438.26
.3	EG&M 13.2 (c)	Supply and delivery to site of complete fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	100	5 118.58	511 858.09
.4	EG&M 13.2 (d)	Supply and delivery to site of complete all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	272 052.00	272 052.00
E.23.3	**EG&M 13.3**	**SCHEDULE E.23.3 - INSTALLATION**				
.1	EG&M 13.3 (a)	Installation on site of emergency stop stations [refer to particular specification EG&M 10]	Each	400	253.50	101 400.00
.2	EG&M 13.3 (b)	Installation on site of emergency stop stations with built in motor cable termination box [refer to particular specification EG&M 10]	Each	250	253.50	63 375.00
.3	EG&M 13.3 (c)	Installation on site of fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	100	316.88	31 687.50
.4	EG&M 13.3 (d)	Installation on site of all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	-	54 410.40
					Carried Forward	4 452 719.16

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.23: General and Miscellaneous

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	4 452 719.16
E.23.4	**EG&M 13.4**	**SCHEDULE E.23.4 - COMMISSIONING**				
.1	EG&M 13.4 (a)	Commissioning of a complete of emergency stop stations [refer to particular specification EG&M 10]	Each	400	110.50	44 200.00
.2	EG&M 13.4 (b)	Commissioning of a complete of emergency stop stations with built in motor cable termination box [refer to particular specification EG&M 10]	Each	250	110.50	27 625.00
.3	EG&M 13.4 (c)	Commissioning of a complete of fire extinguishers with outdoor bracket, enclosure and fire signage (refer to project specifications PS EG&M-9)	Each	100	110.50	11 050.00
.4	EG&M 13.4 (d)	Commissioning of a complete of all notices and all danger plates as may be required (refer to project specifications PS EG&M-8)	Sum	-	16 323.12	16 323.12
E.9.5	**EG&M**	**DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	EG&M	All other items or equipment 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 (Specify)				
		.....				
		Labour Travel Time	Sum	1	40 876.91	40 876.91
		Commission Travel Time	Sum	1	19 311.04	19 311.04
		Equipment Transport, Crating & Travelling	Sum	1	31 610.61	31 610.61
		H&S Time Related	Sum	1	9 838.15	9 838.15
		Equipment Rental	Sum	1	40 134.56	40 134.56
		.....				
		.....				
		.....				
		.....				
		.....				
		.....				
		SCHEDULE NO. E.23 **GENERAL AND MISCELLANEOUS** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	4 693 688.55

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.24	***EELP***	**SCHEDULE E.24: EARTHING & LIGHTNING PROTECTION**				
E.24.1	**EELP 22.1**	**SCHEDULE E.24.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	6 535.35
.2	EELP 22.1 (a)	Provide design drawings and design information for Earthing and Lightning Protection System	Sum	-	-	3 823.88
.3	EELP 22.2 (b)	Provide operating and maintenance manuals and "as built" drawings as specified	Sum	-	-	3 823.88
.4	EELP 22.2 (c)	Provide risk management calculations and IEC Program as specified	Sum	-	-	3 476.25
E.24.2	**EELP 22.2**	**SCHEDULE E.24.2- SUPPLY AND DELIVERY TO SITE**				
1		Allowance for specialist to visit the site and measure the earth readings, record and complete a detail soil resistivity survey. Earth resistance report shall be sent for approval to the Engineer	Sum	-	-	6 535.35
2	EELP 22.2	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	Each	**826**	577.06	476 649.50
3	EELP 22.2	Earth rods - 6000mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	146	771.73	112 672.22
4	EELP 22.2	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	**50**	1 542.06	77 103.23
5	EELP 22.2	Drill 12500mm holes for earth rods in hard soil conditions as for 12500mm holes	Each	50	Included	
6	EELP 22.2	Drill 6000mm holes for earth rods in hard soil conditions as for 6000mm holes	Each	146	Included	
7	EELP 22.2	Drill 4500mm holes for earth rods in hard soil conditions as for 4500mm holes	Each	826	Included	
8	EELP 22.2	Marcionite conductive slurry including installing slurry into drilled holes as required	m^3	160	3 504.06	561 981.14
					Carried Forward	1 252 600.78

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	1 252 600.78
9	EELP 22.2	Earth wells or test points against building for future earth readings and continuity tests. Include for all concrete work and manhole covers. 300x300mm min.	Each	60	849.60	50 975.73
10	EELP 22.2	Supply 70mm² insulated green earth conductor tails between earth mat test well and control room earth bar. Supply same size conductor between communication mast earth mat and connect in ground at earth well test point.	m	20000	253.07	5 061 420.00
11	EELP 22.2	Supply 70mm² Kwena earth 1mx1mx1m conductor earth mat	Each	60	2 482.04	148 922.55
12	EELP 22.2	Supply and install 70mm2 insulated green earth conductor terminations.	Each	2500	95.94	239 861.25
13	EELP 22.2	Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	Each	2500	141.83	354 577.50
14	EELP 22.2	Earth bar mounted on two insulators against wall at 300mm above floor level and over floor penetration or duct below room DB. Bar to be made of 50x5mm copper.	Each	60	2 774.05	166 442.85
15	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the '24 Head of Works [21m(W), 80m(L) and 10m(H)]	Each	1	77 856.88	77 856.88
16	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the '24 Primary Settling Tank Feed Pump Station [17m(W), 21m(L) and 6m(H)]	Each	1	30 143.26	30 143.26
17	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Primary Sedimentation Tank No.1 - No.4 (17m(R) and 6m(H)]	Each	4	49 686.74	198 746.95
18	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Substation No.1 - No.5 [15m(W), 50m(L) and 6m(H)]	Each	5	47 242.24	236 211.19
					Carried Forward	7 817 758.93

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	7 817 758.93
19	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the MBR PST Division Chamber [9m(W), 9m(L) and 7m(H)]	Each	1	15 334.43	15 334.43
20	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the '24 Sludge & Primary Sludge Pump Station [20m(W), 30m(L) and 6m(H)]	Each	1	37 960.65	37 960.65
21	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Rotating Drum Screen Building [20m(W), 18m(L) and 5m(H)]	Each	1	29 275.59	29 275.59
22	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the BNR Reactor [95m(W), 90m(L) and 5m(H)]	Each	1	130 330.17	130 330.17
23	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the MBR [95m(W), 50m(L) and 13m(H)]	Each	1	132 713.49	132 713.49
24	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Primary Sludge Storage Tanks No.1 - No.2 (10m(R) and 9m(H)]	Each	2	33 401.20	66 802.40
25	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Emergency WAS Storage Tanks No.1 - No.2 (15m(R) and 5m(H)]	Each	2	42 841.31	85 682.61
26	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the WAS Storage Tanks No.1 - No.2 [23m(W), 19m(L) and 5m(H)]	Each	2	25 425.29	50 850.59
27	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Sludge Management Building [68m(W), 85m(L) and 12m(H)]	Each	1	128 236.08	128 236.08
					Carried Forward	8 494 944.94

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	8 494 944.94
28	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Emergency overflow Pond [60m(W), 75m(L) and 4m(H)]	Each	1	93 437.43	93 437.43
29	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Overflow Dam No.1 - No.2 [81m(W), 85m(L) and 5m(H)]	Each	1	119 922.28	119 922.28
30	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the MBR Re-Use Pump Station [12m(W), 25m(L) and 8m(H)]	Each	1	31 661.69	31 661.69
31	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the Main Substation Building [45m(W), 40m(L) and 10m(H)]	Each	3	68 566.95	205 700.84
32	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the MF Screens Building [15m(W), 20m(L) and 10m(H)]	Each	1	30 581.27	30 581.27
33	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the UF Feed Pump Station Building [18m(W), 18m(L) and 10m(H)]	Each	1	43 767.38	43 767.38
34	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the UF Modules Building [50m(W), 18m(L) and 10m(H)]	Each	1	58 367.63	58 367.63
35	EELP 22.2 (a)	Supply and delivery to site of a complete surface mounted Class 1 lightning protection system for the UF & Re-Use Pump Station [18m(W), 35m(L) and 10m(H)]	Each	1	46 649.88	46 649.88
36	EELP 22.2 (b)	Supply and delivery suitable earth-termination system, earthing and earth mat as specified for all of the above specified locations	Sum	-	-	347 625.00
					Carried Forward	9 472 658.33

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	9 472 658.33
37	EELP 22.2 (d)	Supply and delivery all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components all for above specified location	Sum	-	-	150 000.00
E.24.3	**EELP 22.3**	**SCHEDULE E.24.3 - INSTALLATION**				
1		Allowance for specialist to visit the site and measure the earth readings, record and complete a detail soil resistivity survey. Earth resistance report shall be sent for approval to the Engineer	Sum	-	-	0.00
2	EELP 22.3	Earth rods - 4500mm long driven into ground with top ends up to 500mm below ground level.	Each	826	241.65	199 602.90
3	EELP 22.3	Earth rods - 6000mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	146	319.95	46 712.70
4	EELP 22.3	Earth rods - 12500mm long driven into ground with top ends up to 500mm below ground level. Holes predrilled as mentioned below.	Each	50	641.25	32 062.50
5	EELP 22.3	Drill 12500mm holes for earth rods in hard soil conditions as for 12500mm holes	Each	50	7 270.00	363 500.00
6	EELP 22.3	Drill 6000mm holes for earth rods in hard soil conditions as for 6000mm holes	Each	146	3 490.00	509 540.00
7	EELP 22.3	Drill 4500mm holes for earth rods in hard soil conditions as for 4500mm holes	Each	826	2 615.00	2 159 990.00
8	EELP 22.3	Marcionite conductive slurry including installing slurry into drilled holes as required	m^3	160	1 458.00	233 834.04
9	EELP 22.3	Earth wells or test points against building for future earth readings and continuity tests. Include for all concrete work and manhole covers. 300x300mm min.	Each	60	352.35	21 141.00
10	EELP 22.3	install 70mm² insulated green earth conductor tails between earth mat test well and control room earth bar. Supply same size conductor between communication mast earth mat and connect in ground at earth well test point.	m	20000	105.30	2 106 000.00
					Carried Forward	15 295 041.47

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	15 295 041.47
11	EELP 22.3	install 70mm² Kwena earth conductor earth mat	m	60	1 032.75	61 965.00
12	EELP 22.3	install 70mm2 insulated green earth conductor terminations.	Each	2500	40.50	101 250.00
13	EELP 22.3	Exothermic weld or clamps/bolts at each rod and e earth wire connection plus seal termination as per specification (avoid galvanic corrosion).	Each	2500	58.05	145 125.00
14	EELP 22.3	Earth bar mounted on two insulators against wall at 300mm above floor level and over floor penetration or duct below room DB. Bar to be made of 50x5mm copper.	Each	60	1 154.25	69 255.00
15	EELP 22.3	Installation all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components	Sum	-	35 000.00	35 000.00
16	EELP 18.3 (g)	Excavating, back filling, consolidation, importation of soil and dumping of all rock and stone removed during excavations including cleaning of cable routes all according to particular specifications				
		a) Pickable soil	m³	2600	297.00	772 200.00
		b) Soft rock	m³	500	500.50	250 250.00
		c) Hard rock	m³	180	806.00	145 080.00
		Importation of additional soil for the bedding of cables and the backfilling of trenches and drilling complete as per particular specification.	m³	700	550.00	385 000.00
		Dumping and removing of all rock and stone removed during excavations including cleaning of cable routes complete as per particular specification.	m³	680	280.80	190 944.00
		Nett amount for core drilling 100mm diameter holes through 250mm concrete	Each	60	5 737.50	344 250.00
17	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the '24 Head of Works [21m(W), 80m(L) and 10m(H)]	Sum	-	83 911.95	83 911.95
					Carried Forward	17 879 272.42

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	17 879 272.42
18	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the '24 Primary Settling Tank Feed Pump Station [17m(W), 21m(L) and 6m(H)]	Sum	-	-	29 265.30
19	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Primary Sedimentation Tank No.1 - No.4 (17m(R) and 6m(H)]	No.	4	47 923.65	191 694.60
20	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Substation No.1 - No.5 [9m(W), 80m(L) and 5m(H)]	No.	5	62 410.50	312 052.50
21	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the MBR PST Division Chamber [9m(W), 9m(L) and 7m(H)]	Sum	-	-	16 362.00
22	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the '24 Sludge & Primary Sludge Pump Station [20m(W), 30m(L) and 6m(H)]	Sum	-	-	36 855.00
23	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Rotating Drum Screen Building [20m(W), 18m(L) and 5m(H)]	Sum	-	-	21 784.95
24	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the BNR Reactor [95m(W), 90m(L) and 5m(H)]	Sum	-	-	127 336.05
25	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the MBR [95m(W), 50m(L) and 13m(H)]	Sum	-	-	126 971.55
26	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Primary Sludge Storage Tanks No.1 - No.2 (10m(R) and 9m(H)]	No.	2	32 428.35	64 856.70
					Carried Forward	18 806 451.07

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	18 806 451.07
27	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Emergency WAS Storage Tanks No.1 - No.2 (15m(R) and 5m(H)]	No.	2	41 593.50	83 187.00
28	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the WAS Storage Tanks No.1 - No.2 [23m(W), 19m(L) and 5m(H)]	No.	2	26 896.05	53 792.10
29	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Sludge Management Building [68m(W), 85m(L) and 12m(H)]	Sum	-	-	130 916.25
30	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Emergency overflow Pond [60m(W), 75m(L) and 4m(H)]	Sum	-	-	87 662.25
31	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Overflow Dam No.1 - No.2 [81m(W), 85m(L) and 5m(H)]	Sum	-	-	114 666.30
32	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the MBR Re-Use Pump Station [45m(W), 25m(L) and 10m(H)]	Sum	-	-	57 844.80
33	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the Main Substation Buildings [45m(W), 10m(L) and 10m(H)]	No.	3	45 712.35	137 137.05
34	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the MF Screens Building [15m(W), 20m(L) and 10m(H)]	Sum	-	-	29 690.55
35	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the UF Feed Pump Station Building [18m(W), 18m(L) and 10m(H)]	Sum	-	-	30 950.10
					Carried Forward	19 532 297.47

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.24: Earthing and Lightning Protection

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	19 532 297.47
36	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the UF Modules Building [50m(W), 18m(L) and 10m(H)]	Sum	-	-	57 423.60
37	EELP 22.3 (a)	Site Installation of a complete surface mounted Class 1 lightning protection system for the UF & Re-Use Pump Station [18m(W), 18m(L) and 10m(H)]	Sum	-	-	32 213.70
38	EELP 22.3 (d)	Site Installation all connection points, terminals, interconnections, bonding points and test joints for the entire system including for "natural" components	Sum	-	-	35 000.00
E.24.4	**EELP 22.4**	**SCHEDULE E.24.4 - COMMISSIONING**				
1	EELP 22.2 (a)	Commissioning of complete lightning protection system (refer to protection system PSEELS-10)	Sum	-	-	3 375.00
2	EELP 22.4 (e)	Certificate of compliance of earthing system as specified under SANS 10313	Each	45	877.50	39 487.50
E.24.5	**EELP**	**SCHEDULE E.24.5 - DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	EELP	All other items or equipment 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 (Specify) .... **SCHEDULE NO. E.24** **EARTHING & LIGHTNING PROTECTION** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	19 699 797.27

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.25: Site Lighting

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.25	***ESLS***	**SCHEDULE E.25: SITE LIGHTING**				
E.25.1	***GEN***	**SCHEDULE E.25.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	PSGEN B	Provide designs, calculations as stipulated in the contract (refer to PSGEN.B Design and Drawings)	Sum	-	-	0.00
.2	PSGEN B	Provide operating all maintenance manuals and "as-built" drawings	Sum	-	-	0.00
E.25.2	***ESLS 5.1***	**SCHEDULE E.25.2 - SUPPLY AND DELIVERY TO SITE**				
1	PSL 5.1 (a)	Supply and delivery to site of complete mast as specified (refer to project specification PSESLS-2)	No.	30		3 072 000.00
2	PSL 5.1 (b)	Supply and delivery to site of complete streetlight pole as specified (refer to particular spec.)	No.	50		3 855 250.00
E.25.3	***ESLS 5.2***	**SCHEDULE E.25.3 - INSTALLATION**				
	PSL 5.2 (a)	Installation of complete mast as specified (refer to project specification PSESLS-2)	No.	30		260 400.00
	PSL 5.2 (b)	Installation of complete streetlight pole as specified (refer to particular spec.)	No.	50		381 000.00
E.25.4	**EPSL 5.3**	**SCHEDULE E.25.4 - COMMISSIONING**				
	PSL 5.3 (a)	Commissioning of complete mast as specified (refer to project specification PSESLS-2)	No.	30		INCLUDED
	PSL 5.3 (b)	Commissioning of complete streetlight pole as specified (refer to particular spec.)	No.	50		INCLUDED
E.25.5	***ESLS***	**SCHEDULE E.25.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	***ESLS***	All other items or equipment 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 (Specify) .... **SCHEDULE E.25 SITE LIGHTING CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	7 568 650.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.26	***EMCA***	**SCHEDULE E.26: MULTICORE CABLES & EARTH WIRES**				
E.26.1	**EMCA 18.1**	**SCHEDULE E.26.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EMCA 18.1 (a)	The Contractor will provide the following design calculations, drawings, method statements, cable routes, cable schedules in excel format which will include but limited to From, To, Distance and Tag numbers all to the approval of the Engineer [Refer to particular specification EMCA 3.3.2, 8.7 & 17]	Sum	-	-	0.00
.2	EMCA 18.1 (b)	Provide operating and maintenance manuals, all data sheets [a) cables, b) joint kits, c) ladders, d) glands, conduit, fasteners and all that are used and etc] and furthermore the Contractor to supply as built" drawings	Sum	-	-	4 500.00
E.26.2	**EMCA 18.2**	**SCHEDULE E.26.2 - SUPPLY AND DELIVERY TO SITE**				
1	EMCA 18.2 (a)	Supply and delivery to site of multicore cables and earthwires and cable name tags for the following cables as per the particular:				
1.1		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	**m**	**420**	R 22 800.00	9 576 000.00
1.2		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	**m**	**560**	R 20 660.00	11 569 600.00
1.3		185mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	12200	R 1 860.00	22 692 000.00
					Carried Forward	43 842 100.00

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Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	43 842 100.00
1.4		120mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	600	R 1 640.00	984 000.00
1.5		70mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	2200	R 1 410.00	3 102 000.00
1.6		240mm² 4C PVC SWA PVC Cu Cable	m	1500	R 2 520.00	3 780 000.00
1.7		185mm² 4C PVC SWA PVC Cu Cable	m	1760	R 1 915.00	3 370 400.00
1.8		150mm² 4C PVC SWA PVC Cu Cable	m	4150	R 1 500.00	6 225 000.00
1.9		120mm² 4C PVC SWA PVC Cu Cable	m	0	R 1 255.00	0.00
1.10		95mm² 4C PVC SWA PVC Cu Cable	m	9000	R 1 000.00	9 000 000.00
1.11		70mm² 4C PVC SWA PVC Cu Cable	m	4740	R 745.00	3 531 300.00
1.12		50mm² 4C PVC SWA PVC Cu Cable	m	17680	R 525.00	9 282 000.00
1.13		35mm² 4C PVC SWA PVC Cu Cable	m	3560	R 390.00	1 388 400.00
1.14		25mm² 4C PVC SWA PVC Cu Cable	m	5930	R 320.00	1 897 600.00
1.15		25mm² 3C PVC SWA PVC Cu Cable	m	500	R 260.00	130 000.00
1.16		16mm² 4C PVC SWA PVC Cu Cable	m	5000	R 200.00	1 000 000.00
1.17		10mm² 4C PVC SWA PVC Cu Cable	m	16080	R 135.00	2 170 800.00
1.18		10mm² 3C PVC SWA PVC Cu Cable	m	15250	R 140.00	2 135 000.00
1.19		6mm² 4C PVC SWA PVC Cu Cable	m	154300	R 92.00	14 195 600.00
1.20		6mm² 3C PVC SWA PVC Cu Cable	m	900	R 85.00	76 500.00
1.21		4mm² 4C PVC SWA PVC Cu Cable	m	1560	R 75.00	117 000.00
1.22		2.5mm² 7C PVC SWA PVC Cu Cable	m	900	R 90.00	81 000.00
1.23		2.5mm² 4C PVC SWA PVC Cu Cable	m	61030	R 55.00	3 356 650.00
1.24		2.5mm² 3C PVC SWA PVC Cu Cable	m	367410	R 34.00	12 491 940.00
1.25		1.5mm² 3C PVC SWA PVC Cu Cable	m	56850	R 30.00	1 705 500.00
1.26		70mm² Kwena Earth Cable	m	44850	R 340.00	15 249 000.00
					Carried Forward	139 111 790.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	139 111 790.00
1.27		16mm² Kwena Earth Cable	m	3090	R 80.00	247 200.00
1.28		10mm² Kwena Earth Cable	m	321110	R 78.00	25 046 580.00
1.29		12C PVC CST PVC Heavy Duty Fibre Optic Cable Multimode	m	82650	R 36.00	2 975 400.00
1.30		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	m	466140	R 115.00	53 606 100.00
1.31		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	m	10000	R 80.00	800 000.00
1.32		1.5mm² x 6pr twisted PVC SWA PVC (individually and overall screened)	m	300	R 370.00	111 000.00
1.33		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	m	20060	R 282.00	5 656 920.00
1.34		4pr twisted PVC, Non-Woven Tape + alu Foil (Industrial CAT6)	m	86500	R 25.00	2 162 500.00
1.35		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	2500	R 20.00	50 000.00
1.36		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	2500	R 35.00	87 500.00
2	**EMCA 18.2 (b)**	Supply and delivery to site of all multicore cables and earthwires termination materials [equal or similar to Enviro Glands, neoprene shrouds, lugs, insulating, materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc] to terminate the following cables as per the particular specification				
2.1		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	Each	8	31 130.00	249 040.00
					Carried Forward	230 104 030.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	230 104 030.00
2.2		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	Each	16	27 080.00	433 280.00
2.3		185mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	96	900.00	86 400.00
2.4		120mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	12	570.00	6 840.00
2.5		70mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	44	290.00	12 760.00
2.6		240mm² 4C PVC SWA PVC Cu Cable	Each	40	990.00	39 600.00
2.7		185mm² 4C PVC SWA PVC Cu Cable	Each	44	990.00	43 560.00
2.8		150mm² 4C PVC SWA PVC Cu Cable	Each	134	885.00	118 590.00
2.9		120mm² 4C PVC SWA PVC Cu Cable	Each	0		0.00
2.10		95mm² 4C PVC SWA PVC Cu Cable	Each	120	580.00	69 600.00
2.11		70mm² 4C PVC SWA PVC Cu Cable	Each	120	320.00	38 400.00
2.12		50mm² 4C PVC SWA PVC Cu Cable	Each	376	300.00	112 800.00
2.13		35mm² 4C PVC SWA PVC Cu Cable	Each	40	260.00	10 400.00
2.14		25mm² 4C PVC SWA PVC Cu Cable	Each	78	165.00	12 870.00
2.15		25mm² 3C PVC SWA PVC Cu Cable	Each	20	105.00	2 100.00
2.16		16mm² 4C PVC SWA PVC Cu Cable	Each	200	165.00	33 000.00
2.17		10mm² 4C PVC SWA PVC Cu Cable	Each	220	105.00	23 100.00
2.18		10mm² 3C PVC SWA PVC Cu Cable	Each	210	100.00	21 000.00
2.19		6mm² 4C PVC SWA PVC Cu Cable	Each	1546	165.00	255 090.00
2.20		6mm² 3C PVC SWA PVC Cu Cable	Each	20	70.00	1 400.00
					Carried Forward	231 424 820.00

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Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	231 424 820.00
2.21		4mm² 4C PVC SWA PVC Cu Cable	Each	24	70.00	1 680.00
2.22		2.5mm² 7C PVC SWA PVC Cu Cable	Each	8	75.00	600.00
2.23		2.5mm² 4C PVC SWA PVC Cu Cable	Each	844	110.00	92 840.00
2.24		2.5mm² 3C PVC SWA PVC Cu Cable	Each	3228	55.00	177 540.00
2.25		1.5mm² 3C PVC SWA PVC Cu Cable	Each	760	50.00	38 000.00
2.26		70mm² Kwena Earth Cable	Each	902	225.00	202 950.00
2.27		16mm² Kwena Earth Cable	Each	42	90.00	3 780.00
2.28		10mm² Kwena Earth Cable	Each	3596	90.00	323 640.00
2.29		12C PVC CST PVC Heavy Duty Fibre Optic Cable Multimode	Each	1500	105.00	157 500.00
2.30		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	Each	4762	1 065.00	5 071 530.00
2.31		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	Each	300	1 065.00	319 500.00
2.32		1.5mm² x 6pr twisted PVC SWA PVC (individually and overall screened)	Each	12	145.00	1 740.00
2.33		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	Each	340	1 070.00	363 800.00
2.34		4pr twisted PVC, Non-Woven Tape + alu Foil (Industrial CAT6)	Each	1858	70.00	130 060.00
2.35		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	200	55.00	11 000.00
2.36		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	200	110.00	22 000.00
2.37		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.	Each	30	35 000.00	1 050 000.00
2.38		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.	Each	16	35 000.00	560 000.00
					Carried Forward	239 952 980.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2: Schedule of Quantities
Schedule No.E.26: Multicore Cables & Earth Wires

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	239 952 980.00
2.39		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.	Each	200	35 000.00	7 000 000.00
2.40		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.	Each	38	28 000.00	1 064 000.00
2.41		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.	Each	16	28 000.00	448 000.00
2.42		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.	Each	250	28 000.00	7 000 000.00
3	EMCA 18.2 (c)	Supply and delivery to site of cable route markers	Each	1500	225.00	337 500.00
4	EMCA 18.2 (d)	Supply and delivery to site of concrete cable slabs	Each	15000	550.00	8 250 000.00
5	EMCA 18.2 (e)	Supply, delivery to site of **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
5.1		150mm Wide cable ladder	m	**2850**	520.00	1 482 000.00
5.2		300mm Wide cable ladder	m	**850**	880.00	748 000.00
5.3		400mm Wide cable ladder	m	**800**	1 000.00	800 000.00
5.4		600mm Wide cable ladder	m	**780**	1 120.00	873 600.00
5.5		800mm Wide cable ladder	m	**800**	1 300.00	1 040 000.00
5.6		1000mm Wide cable ladder	m	**860**	1 540.00	1 324 400.00
					Carried Forward	270 320 480.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	270 320 480.00
5.7		150mm Wide cable ladder flat covers	m	**855**	INCLUDED	
5.8		300mm Wide cable ladder flat covers	m	**255**	INCLUDED	
5.9		400mm Wide cable ladder flat covers	m	**240**	INCLUDED	
5.10		600mm Wide cable ladder flat covers	m	**234**	INCLUDED	
5.11		800mm Wide cable ladder flat covers	m	**240**	INCLUDED	
5.12		1000mm Wide cable ladder flat covers	m	**258**	INCLUDED	
6	EMCA 18.2 (f)	Supply, delivery to site of **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
6.1		150mm wide 90° Horizontal Bend	Each	**145**	1 055.00	152 975.00
6.2		150mm wide 90° Internal elbow (Riser)	Each	**145**	1 060.00	153 700.00
6.3		150mm wide 90° External elbow (Dropper)	Each	**145**	1 060.00	153 700.00
6.4		150mm wide Tee	Each	**145**	2 170.00	314 650.00
6.5		150mm wide 4 Way Cross-over	Each	**145**	3 120.00	452 400.00
6.6		300mm wide 90° Horizontal Bend	Each	**43**	1 290.00	55 470.00
6.7		300mm wide 90° Internal elbow (Riser)	Each	**43**	1 170.00	50 310.00
6.8		300mm wide 90° External elbow (Dropper)	Each	**43**	1 170.00	50 310.00
6.9		300mm wide Tee	Each	**43**	2 490.00	107 070.00
6.10		300mm wide 4 Way Cross-over	Each	**43**	3 530.00	151 790.00
6.11		400mm wide 90° Horizontal Bend	Each	**40**	1 445.00	57 800.00
6.12		400mm wide 90° Internal elbow (Riser)	Each	**40**	1 245.00	49 800.00
6.13		400mm wide 90° External elbow (Dropper)	Each	**40**	1 245.00	49 800.00
6.14		400mm wide Tee	Each	**40**	2 705.00	108 200.00
					Carried Forward	272 228 455.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	272 228 455.00
6.15		400mm wide 4 Way Cross-over	Each	40	8 785.00	351 400.00
6.16		600mm wide 90° Horizontal Bend	Each	39	1 930.00	75 270.00
6.17		600mm wide 90° Internal elbow (Riser)	Each	39	1 390.00	54 210.00
6.18		600mmwide 90° External elbow (Dropper)	Each	39	1 390.00	54 210.00
6.19		600mm wide Tee	Each	39	3 315.00	129 285.00
6.20		600mm wide 4 Way Cross-over	Each	39	4 490.00	175 110.00
6.21		800mm wide 90° Horizontal Bend	Each	40	2 505.00	100 200.00
6.22		800mm wide 90° Internal elbow (Riser)	Each	40	1 550.00	62 000.00
6.23		800mmwide 90° External elbow (Dropper)	Each	40	1 550.00	62 000.00
6.24		800mm wide Tee	Each	40	3 790.00	151 600.00
6.25		800mm wide 4 Way Cross-over	Each	40	5 065.00	202 600.00
6.26		1000mm wide 90° Horizontal Bend	Each	43	2 915.00	125 345.00
6.27		1000mm wide 90° Internal elbow (Riser)	Each	43	1 695.00	72 885.00
6.28		1000mmwide 90° External elbow (Dropper)	Each	43	1 695.00	72 885.00
6.29		1000mm wide Tee	Each	43	4 790.00	205 970.00
6.30		1000mm wide 4 Way Cross-over	Each	43	5 910.00	254 130.00
6	EMCA 18.2 (g)	Supply, delivery to site of all 316 stainless steel heavy-duty cable ladder supports, bolts, holders and etc that is required as per the particular specification	Sum	-		0.00
7	EMCA 18.2 (h)	Supply and delivery to site of pump set sensor termination cubicles	Each	50	450.00	22 500.00
8	EMCA 18.2 (i)	Supply and delivery to site of HPDE heavy-duty cable sleeves, joints, sealing rings, couplings, end plugs, spacer modules, bell mounth, manderel, duct brush flexibend, stainless steel draw wire long bend as per the particular specification				
		110mm² HDPE Sleeves equal or similar to kabelflex	m	5000	25.00	125 000.00
					Carried Forward	274 525 055.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	274 525 055.00
		160mm² HDPE Sleeves equal or similar to kabelflex	m	500	45.00	22 500.00
		50mm² HDPE Sleeves equal or similar to Optex	m	**8900**	10.00	89 000.00
9	EMCA 18.2 (j)	Equal or similar Pratley EZEE-Fit with solid cover IP68 including non sparking connectors, insulating sleeves,identification tag, mounting screws, locknuts , lockout device with lock, lid securing chain and all accessories				
9.1		**Box 0**	Each	600	1 245.00	747 000.00
		Compression Kits (Small)	Each	2400	25.00	60 000.00
		Compression Kits (large)	Each	2400	25.00	60 000.00
		Blanking Plugs	Each	1200	15.00	18 000.00
9.2		**Box 1**	Each	200	950.00	190 000.00
		Reducing Glands [25-20]	Each	400	110.00	44 000.00
		Compression Kits (Small)	Each	400	30.00	12 000.00
		Compression Kits (large)	Each	400	30.00	12 000.00
		Blanking Plugs	Each	400	15.00	6 000.00
9.3		**Box 2**	Each	200	2 175.00	435 000.00
		Reducing Glands [32-20]	Each	400	155.00	62 000.00
		Reducing Glands [32-25]	Each	400	185.00	74 000.00
		Compression Kits	Each	400	40.00	16 000.00
		Blanking Plugs	Each	400	20.00	8 000.00
9.4		**Box 3**	Each	100	3 530.00	353 000.00
		Reducing Glands [40-20]	Each	200	205.00	41 000.00
		Reducing Glands [40-25]	Each	200	245.00	49 000.00
		Reducing Glands [40-32]	Each	200	280.00	56 000.00
		Compression Kits	Each	200	65.00	13 000.00
		Blanking Plugs	Each	200	30.00	6 000.00
9.5		**Box 4**	Each	100	4 960.00	496 000.00
		Reducing Glands [50-20]	Each	200	300.00	60 000.00
		Reducing Glands [50-25]	Each	200	345.00	69 000.00
		Reducing Glands [50-32]	Each	200	400.00	80 000.00
		Reducing Glands [50-40]	Each	400	465.00	186 000.00
		Compression Kits	Each	200	65.00	13 000.00
		Blanking Plugs	Each	200	40.00	8 000.00
10	EMCA 18.2 (k)	316 Stainless Steel Conduit with saddles, fasteners,surface mounted against brick or concrete every 500mm and all accessories				
		20mm Conduit	m	10000	680.00	6 800 000.00
					Carried Forward	284 610 555.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	284 610 555.00
		20mm conduit saddles	Each	5000	7.00	35 000.00
		Solid Coupling Female Threaded Adaptor	Each	350	125.00	43 750.00
		Round Conduit box plus cover	Each	350	1 780.00	623 000.00
11	EMCA 18.2 (l)	Supply and delivery to site of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m^3	**2100**	340	714 000.00
E.26.3	**EMCA 18.3**	**SCHEDULE E.26.3 - INSTALLATION**				
1	**EMCA 18.3 (a)**	Installation of all multicore cables and earthwires and cable name tags for the following cables as per the particular:				
1.1		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	m	420	R 2 920.00	1 226 400.00
1.2		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. SABS Approved Cast Resin	m	560	R 2 920.00	1 635 200.00
1.3		185mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	12200	R 80.00	976 000.00
1.4		120mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	600	R 60.00	36 000.00
1.5		70mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	m	2200	R 20.00	44 000.00
1.6		240mm² 4C PVC SWA PVC Cu Cable	m	1500	R 125.00	187 500.00
1.7		185mm² 4C PVC SWA PVC Cu Cable	m	1760	R 100.00	176 000.00
1.8		150mm² 4C PVC SWA PVC Cu Cable	m	4150	R 85.00	352 750.00
1.9		120mm² 4C PVC SWA PVC Cu Cable	m	0		0.00
1.10		95mm² 4C PVC SWA PVC Cu Cable	m	9000	R 45.00	405 000.00
					Carried Forward	291 065 155.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	291 065 155.00
1.11		70mm² 4C PVC SWA PVC Cu Cable	m	4740	R 25.00	118 500.00
1.12		50mm² 4C PVC SWA PVC Cu Cable	m	17680	R 20.00	353 600.00
1.13		35mm² 4C PVC SWA PVC Cu Cable	m	3560	R 15.00	53 400.00
1.14		25mm² 4C PVC SWA PVC Cu Cable	m	5930	R 15.00	88 950.00
1.15		25mm² 3C PVC SWA PVC Cu Cable	m	500	R 15.00	7 500.00
1.16		16mm² 4C PVC SWA PVC Cu Cable	m	5000	R 15.00	75 000.00
1.17		10mm² 4C PVC SWA PVC Cu Cable	m	16080	R 15.00	241 200.00
1.18		10mm² 3C PVC SWA PVC Cu Cable	m	15250	R 15.00	228 750.00
1.19		6mm² 4C PVC SWA PVC Cu Cable	m	154300	R 12.00	1 851 600.00
1.20		6mm² 3C PVC SWA PVC Cu Cable	m	900	R 12.00	10 800.00
1.21		4mm² 4C PVC SWA PVC Cu Cable	m	1560	R 12.00	18 720.00
1.22		2.5mm² 7C PVC SWA PVC Cu Cable	m	900	R 12.00	10 800.00
1.23		2.5mm² 4C PVC SWA PVC Cu Cable	m	61030	R 9.00	549 270.00
1.24		2.5mm² 3C PVC SWA PVC Cu Cable	m	367410	R 9.00	3 306 690.00
1.25		1.5mm² 3C PVC SWA PVC Cu Cable	m	56850	R 9.00	511 650.00
1.26		70mm² Kwena Earth Cable	m	44850	R 13.00	583 050.00
1.27		16mm² Kwena Earth Cable	m	3090	R 9.00	27 810.00
1.28		10mm² Kwena Earth Cable	m	321110	R 9.00	2 889 990.00
1.29		12C PVC CST PVC Heavy Duty Fibre Optic Cable Multimode	m	82650	R 9.00	743 850.00
1.30		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	m	466140	R 9.00	4 195 260.00
1.31		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	m	10000	R 9.00	90 000.00
1.32		1.5mm² x 6pr twisted PVC SWA PVC (individually and overall screened)	m	300	R 9.00	2 700.00
					Carried Forward	307 024 245.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	307 024 245.00
1.33		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	m	20060	R 12.00	240 720.00
1.34		4pr twisted PVC, Non-Woven Tape + alu Foil (Industrial CAT6)	m	86500	R 12.00	1 038 000.00
1.35		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	2500	R 9.00	22 500.00
1.36		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	m	2500	R 9.00	22 500.00
2	**EMCA 18.3 (b)**	**Installation of all multicore cables and earthwires termination materials [equal or similar to Enviro Glands, neoprene shrouds, lugs, insulating, materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc] to terminate the following cables as per the particular specification**				
2.1		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.	Each	8	8 750.00	70 000.00
2.2		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP65 enclosed in non-ventilated copper Busbar Trunking from each transformer to each incomer. Busbars shall conform to the latest IEC 61439 (1&6) IS 8623 (1-2) and shall be certified. Thermoset blu-E-Coat epoxy insulation shall be used. One busbar for each transformer.	Each	16	8 750.00	140 000.00
2.3		185mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	96	730.00	70 080.00
2.4		120mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	12	485.00	5 820.00
2.5		70mm² 3C 11kV/11kV PILC SWA PVC (Table 18) Cable	Each	44	275.00	12 100.00
2.6		240mm² 4C PVC SWA PVC Cu Cable	Each	40	910.00	36 400.00
2.7		185mm² 4C PVC SWA PVC Cu Cable	Each	44	730.00	32 120.00
					Carried Forward	308 714 485.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	308 714 485.00
2.8		150mm² 4C PVC SWA PVC Cu Cable	Each	134	640.00	85 760.00
2.9		120mm² 4C PVC SWA PVC Cu Cable	Each	0		0.00
2.10		95mm² 4C PVC SWA PVC Cu Cable	Each	120	365.00	43 800.00
2.11		70mm² 4C PVC SWA PVC Cu Cable	Each	120	305.00	36 600.00
2.12		50mm² 4C PVC SWA PVC Cu Cable	Each	376	275.00	103 400.00
2.13		35mm² 4C PVC SWA PVC Cu Cable	Each	40	245.00	9 800.00
2.14		25mm² 4C PVC SWA PVC Cu Cable	Each	78	210.00	16 380.00
2.15		25mm² 3C PVC SWA PVC Cu Cable	Each	20	210.00	4 200.00
2.16		16mm² 4C PVC SWA PVC Cu Cable	Each	200	180.00	36 000.00
2.17		10mm² 4C PVC SWA PVC Cu Cable	Each	220	180.00	39 600.00
2.18		10mm² 3C PVC SWA PVC Cu Cable	Each	210	180.00	37 800.00
2.19		6mm² 4C PVC SWA PVC Cu Cable	Each	1546	150.00	231 900.00
2.20		6mm² 3C PVC SWA PVC Cu Cable	Each	20	150.00	3 000.00
2.21		4mm² 4C PVC SWA PVC Cu Cable	Each	24	150.00	3 600.00
2.22		2.5mm² 7C PVC SWA PVC Cu Cable	Each	8	120.00	960.00
2.23		2.5mm² 4C PVC SWA PVC Cu Cable	Each	844	90.00	75 960.00
2.24		2.5mm² 3C PVC SWA PVC Cu Cable	Each	3228	90.00	290 520.00
2.25		1.5mm² 3C PVC SWA PVC Cu Cable	Each	760	90.00	68 400.00
2.26		70mm² Kwena Earth Cable	Each	902	75.00	67 650.00
2.27		16mm² Kwena Earth Cable	Each	42	50.00	2 100.00
2.28		10mm² Kwena Earth Cable	Each	3596	50.00	179 800.00
2.29		12C PVC CST PVC Heavy Duty Fibre Optic Cable Multimode	Each	1500	125.00	187 500.00
2.30		1.5mm² x 4pr twisted PVC SWA PVC (individually and overall screened)	Each	4762	125.00	595 250.00
					Carried Forward	310 834 465.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	310 834 465.00
2.31		1.5mm² x 2pr twisted PVC SWA PVC (individually and overall screened)	Each	300	125.00	37 500.00
2.32		1.5mm² x 6pr twisted PVC SWA PVC (individually and overall screened)	Each	12	180.00	2 160.00
2.33		1.5mm² x 12pr twisted PVC SWA PVC (individually and overall screened)	Each	340	125.00	42 500.00
2.34		4pr twisted PVC, Non-Woven Tape + alu Foil (Industrial CAT6)	Each	1858	125.00	232 250.00
2.35		1.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	200	90.00	18 000.00
2.36		2.5mm² 3C PVC ALU PVC [Round Surfix] Cu Cable	Each	200	90.00	18 000.00
2.37		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.	Each	30	8 750.00	262 500.00
2.38		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.	Each	16	8 750.00	140 000.00
2.39		4000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.	Each	200	8 750.00	1 750 000.00
2.40		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking Bends.SABS Approved Cast Resin.	Each	38	8 750.00	332 500.00
2.41		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking MCC Ends.SABS Approved Cast Resin.	Each	16	8 750.00	140 000.00
					Carried Forward	313 809 875.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	313 809 875.00
2.42		3000Amp [Red Phase, Blue Phase, White Phase, Black Phase] and 50% internal earth [Green/Yellow Phase] IP54 enclosed in non-ventilated copper Busbar Trunking joints.SABS Approved Cast Resin.	Each	250	8 750.00	2 187 500.00
3	EMCA 18.3 (c)	Installation of all cable route markers	Each	1500	210.00	315 000.00
4	EMCA 18.3 (d)	Installation of all concrete cable slabs	Each	15000	165.00	2 475 000.00
5	EMCA 18.3 (e)	Installation of all **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
5.1		150mm Wide cable ladder	m	**2850**	120.00	342 000.00
5.2		300mm Wide cable ladder	m	**850**	130.00	110 500.00
5.3		400mm Wide cable ladder	m	**800**	165.00	132 000.00
5.4		600mm Wide cable ladder	m	**780**	165.00	128 700.00
5.5		800mm Wide cable ladder	m	**800**	165.00	132 000.00
5.6		1000mm Wide cable ladder	m	**860**	195.00	167 700.00
5.7		150mm Wide cable ladder flat covers	m	**855**	130.00	111 150.00
5.8		300mm Wide cable ladder flat covers	m	**255**	130.00	33 150.00
5.9		400mm Wide cable ladder flat covers	m	**240**	165.00	39 600.00
5.10		600mm Wide cable ladder flat covers	m	**234**	165.00	38 610.00
5.11		800mm Wide cable ladder flat covers	m	**240**	165.00	39 600.00
5.12		1000mm Wide cable ladder flat covers	m	**258**	195.00	50 310.00
					Carried Forward	320 112 695.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	320 112 695.00
6	EMCA 18.3 (f)	Installation of all **316 Stainless Steel** heavy-duty cable ladder, trunking, welded wire mesh and accessories including all necessary supports, clamps strapping, brackets, reducer splice, hangers, threaded rods, trunking, bolts, nuts and anchor bolts etc as per the particular specification				
6.1		150mm wide 90° Horizontal Bend	Each	**145**	130.00	18 850.00
6.2		150mm wide 90° Internal elbow (Riser)	Each	**145**	130.00	18 850.00
6.3		150mm wide 90° External elbow (Dropper)	Each	**145**	130.00	18 850.00
6.4		150mm wide Tee	Each	**145**	130.00	18 850.00
6.5		150mm wide 4 Way Cross-over	Each	**145**	130.00	18 850.00
6.6		300mm wide 90° Horizontal Bend	Each	**43**	130.00	5 590.00
6.7		300mm wide 90° Internal elbow (Riser)	Each	**43**	130.00	5 590.00
6.8		300mm wide 90° External elbow (Dropper)	Each	**43**	130.00	5 590.00
6.9		300mm wide Tee	Each	**43**	130.00	5 590.00
6.10		300mm wide 4 Way Cross-over	Each	**43**	130.00	5 590.00
6.11		400mm wide 90° Horizontal Bend	Each	**40**	165.00	6 600.00
6.12		400mm wide 90° Internal elbow (Riser)	Each	**40**	165.00	6 600.00
6.13		400mm wide 90° External elbow (Dropper)	Each	**40**	165.00	6 600.00
6.14		400mm wide Tee	Each	**40**	165.00	6 600.00
6.15		400mm wide 4 Way Cross-over	Each	**40**	165.00	6 600.00
6.16		600mm wide 90° Horizontal Bend	Each	**39**	165.00	6 435.00
6.17		600mm wide 90° Internal elbow (Riser)	Each	**39**	165.00	6 435.00
6.18		600mmwide 90° External elbow (Dropper)	Each	**39**	165.00	6 435.00
6.19		600mm wide Tee	Each	**39**	165.00	6 435.00
6.20		600mm wide 4 Way Cross-over	Each	**39**	165.00	6 435.00
					Carried Forward	320 300 070.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	320 300 070.00
6.21		800mm wide 90° Horizontal Bend	Each	**40**	165.00	6 600.00
6.22		800mm wide 90° Internal elbow (Riser)	Each	**40**	165.00	6 600.00
6.23		800mmwide 90° External elbow (Dropper)	Each	**40**	165.00	6 600.00
6.24		800mm wide Tee	Each	**40**	165.00	6 600.00
6.25		800mm wide 4 Way Cross-over	Each	**40**	165.00	6 600.00
6.26		1000mm wide 90° Horizontal Bend	Each	**43**	195.00	8 385.00
6.27		1000mm wide 90° Internal elbow (Riser)	Each	**43**	195.00	8 385.00
6.28		1000mmwide 90° External elbow (Dropper)	Each	**43**	195.00	8 385.00
6.29		1000mm wide Tee	Each	**43**	195.00	8 385.00
6.30		1000mm wide 4 Way Cross-over	Each	**43**	195.00	8 385.00
6	EMCA 18.3 (g)	Installation of all 316 stainless steel heavy-duty cable ladder supports, bolts, holders and etc that is required as per the particular specification	Sum	-		0.00
7	EMCA 18.3 (h)	Installation of all pump set sensor termination cubicles	Each	50	250.00	12 500.00
8	EMCA 18.3 (i)	Installation of all HPDE heavy-duty cable sleeves, joints, sealing rings, couplings, end plugs, spacer modules, bell mounth, manderel, duct brush flexibend, stainless steel draw wire long bend as per the particular specification				
		110mm² HDPE Sleeves equal or similar to kabelflex	m	5000	35.00	175 000.00
		160mm² HDPE Sleeves equal or similar to kabelflex	m	500	45.00	22 500.00
		50mm² HDPE Sleeves equal or similar to Optex	m	**8900**	26.00	231 400.00
9	EMCA 18.3 (j)	Installation of all Equal or similar Pratley EZEE-Fit with solid coverIP68 including non sparking connectors, insulating sleeves,identification tag, mounting screws, locknuts , lockout device with lock, lid securing chain and all accessories				
					Carried Forward	320 816 395.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	320 816 395.00
9.1		**Box 0**	Each	600	205.00	123 000.00
		Compression Kits (Small)	Each	2400	60.00	144 000.00
		Compression Kits (large)	Each	2400	90.00	216 000.00
		Blanking Plugs	Each	1200	6.00	7 200.00
9.2		**Box 1**	Each	200	205.00	41 000.00
		Reducing Glands [25-20]	Each	400	2.00	800.00
		Compression Kits (Small)	Each	400	2.00	800.00
		Compression Kits (large)	Each	400	90.00	36 000.00
		Blanking Plugs	Each	400	5.00	2 000.00
9.3		**Box 2**	Each	200	230.00	46 000.00
		Reducing Glands [32-20]	Each	400	4.00	1 600.00
		Reducing Glands [32-25]	Each	400	4.00	1 600.00
		Compression Kits	Each	400	100.00	40 000.00
		Blanking Plugs	Each	400	6.00	2 400.00
9.4		**Box 3**	Each	100	255.00	25 500.00
		Reducing Glands [40-20]	Each	200	6.00	1 200.00
		Reducing Glands [40-25]	Each	200	6.00	1 200.00
		Reducing Glands [40-32]	Each	200	6.00	1 200.00
		Compression Kits	Each	200	105.00	21 000.00
		Blanking Plugs	Each	200	6.00	1 200.00
9.5		**Box 4**	Each	100	275.00	27 500.00
		Reducing Glands [50-20]	Each	200	8.00	1 600.00
		Reducing Glands [50-25]	Each	200	8.00	1 600.00
		Reducing Glands [50-32]	Each	200	10.00	2 000.00
		Reducing Glands [50-40]	Each	400	10.00	4 000.00
		Compression Kits	Each	200	110.00	22 000.00
		Blanking Plugs	Each	200	6.00	1 200.00
10	EMCA 18.3 (k)	Installation of all 316 Stainless Steel Conduit with saddles, fasteners,surface mounted against brick or concrete every 500mm and all accessories				
		20mm Conduit	m	10000	60.00	600 000.00
		20mm conduit saddles	Each	5000	8.00	40 000.00
		Solid Coupling Female Threaded Adaptor	Each	350	4.00	1 400.00
		Round Conduit box plus cover	Each	350	40.00	14 000.00
11	EMCA 18.3 (l)	Installation of all soil for the bedding of cables during excavations including cleaning of cable routes complete as per particular specification	m^3	**2100**	95	199 500.00
					Carried Forward	322 444 895.00

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					Brought Forward	322 444 895.00
12	EMCA 18.3 (m)	Excavating, back filling, consolidation, importation of soil and dumping of all rock and stone removed during excavations including cleaning of cable routes all according to particular specifications (including hand excavations where necessary along existing cable routes)				
		a) Pickable soil	m^3	**9800**	185.00	1 813 000.00
		b) Soft rock	m^3	**1250**	385.00	481 250.00
		c) Hard rock	m^3	**500**	620.00	310 000.00
13		Dumping and removing of all rock and stone removed during excavations including cleaning of cable routes complete as per particular specification. Dumping will at a registered dumping site within the border of Municipal Area. Contractor to allow dumping within a vacinity of 30km the site Contractor to allow all labour, truck hire and dumping site payments	m^3	**1750**	216.00	378 000.00
14		The restoration of road and paving to the original condition complete	m	400	570.00	228 000.00
15		The restoration of concrete paving [1.5m (wdth) x 150mm (height)] to the original condition complete	m	400	570.00	228 000.00
16		Sifting soil through a 4mm mesh size for the bedding of cables and the backfilling of trenches complete as per particular specification.	m^3	8400	170.00	1 428 000.00
17		Nett amount for core drilling 100mm diameter holes through 250mm concrete	Each	80	810.00	64 800.00
18	PSEMCA 9	Detail surveying and plotting of all existing structures within 3m of the propose route proposed by Contractor (Refer to project specification PSEMCA-9)	m	6000	7.00	42 000.00
19	PSEMCA 9	All new cable routes shall first be planned with information obtained from surveyor and submitted for approval to the Engineer and City of Cape Town. All shall be completed in AutoCad format and Report for approval from the Engineer (Refer to project specification PSEMCA-9)	Sum	-	-	0.00
					Carried Forward	327 417 945.00

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					Brought Forward	327 417 945.00
20	PSEMCA 9	Time related matters for arranging, coordinating, shut down procedure, approval from City of City of Cape Town (Refer to project specification PSEMCA-9)				
		a) Enginneer rate per hour	hr	480	790.00	379 200.00
		b) Electrician rate per hour	hr	1440	410.00	590 400.00
		c) Artisan rate per hour	hr	3840	530.00	2 035 200.00
		d) Labourer rate per hour	hr	5760	90.00	518 400.00
		e) Rate per kilometer	km	3000	8.00	24 000.00
		f) Report printing A4 Black and white	Pages	8000	3.00	24 000.00
		g) Medium Voltage testing and confimation	No.	50	780.00	39 000.00
		h) Low Voltage testing and confimation	No.	600	35.00	21 000.00
		h) Low Voltage testing and confimation	No.	600	35.00	21 000.00
		All of the above time related item shall be submitted weekly to the Engineer for approval.				
E.26.4	**EMCA 21.4**	**SCHEDULE E.26.4 - COMMISSIONING**				
1	EMCA 21.4 (a)	Testing and commissioning of all cables as above mentioned	Sum	-	included	
2	EMCA 21.4 (b)	Updating, verifying and submission of Electronic Cable schedules with Tag numbers and final agreed lengths	Sum	-	included	
3	EMCA 21.4 (c)	Surveyor to mark-up as-built cable route plans and all mark-up must be on made on the AutoCAD format	Sum	-	included	
					Carried Forward	331 070 145.00

[redacted]

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	331 070 145.00
E.26.5	EMCA	**SCHEDULE E.26.5 - DESIGNER / CONTRACTOR SPECIFIC REQUIREMENTS**				
.1	EMCA	All other items or equipment 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 (Specify)				
		SCHEDULE NO. E.26 **MULTICORE CABLES & EARTH WIRES** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules			**Total**	331 070 145.00

[redacted]

Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
27	***ESEC***	**SCHEDULE 27: SECURITY**				
27.1	***ESEC 13.1***	**DESIGN, DRAWINGS AND GENERAL**				
27.1.1	ESEC 13.1 (a)	The Contractor will provide the following design calculations, Drawings and wiring diagrams for approval by the Engineer [Refer to ESEC 12 and project specification PSESEC-1]	Sum	-		0.00
27.1.2	ESEC 13.1 (b)	Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings [Refer to ESEC 10 & 11 and project specification PSESEC-1]	Sum	-		0.00
27.2	**ESEC 27.2**	**SUPPLY AND DELIVERY TO SITE**				
27.2.1	ESEC 13.2 (c)	Supply and delivery to site of complete electric fence bolted against security fence, it shall be coordinated to predrill the holes (refer to particular specifications)	m	4000		3 840 000.00
27.2.2	ESEC 13.2 (d)	Supply and delivery to site of complete 10m electric fence gate with gate motor fence (refer to particular specifications)	No.	8		144 000.00
27.2.3	ESEC 13.2 (e)	Supply and delivery to site of a complete electric fence gate energisers, components, software, monitors and additional signals to be monitored on CCTV System	Sum	-		3 840 000.00
27.2.4	ESEC 13.2 (f)	Supply and delivery to site of a complete perimeter CCTV System (refer to particular specifications)	Sum	-		4 750 000.00
27.2.5	ESEC 13.2 (g)	Supply and delivery to site of a complete perimeter CCTV System Hardware [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		2 200 000.00
27.2.6	ESEC 13.2 (h)	Supply and delivery to site of a complete perimeter CCTV System Software [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		2 150 000.00
27.2.7	ESEC 13.2 (i)	Supply and delivery to site of a complete UPS as Specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		1 522 080.00
					Carried Forward	18 446 080.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	18 446 080.00
27.2.8	ESEC 13.2 (k)	Supply and delivery to site of a complete galvanised 10m scissor masts [Refer to Particular Specification	Sum	-		3 495 000.00
27.2.9	ESEC 13.2 (l)	Supply and delivery remote views & control system of the security system [Refer to Particular Specification ESEC and Project Specfication PSESE	Each	3		259 500.00
27.2.10	ESEC 13.2 (m	Supply and delivery to site of a complete Addressable Audio System [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		2 680 000.00
27.2.11	ESEC	Supply and delivery to site of all enclosures, plinths, Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		2 810 350.00
27.2.12	ESEC 13.2	Supply and delivery to site of complete Indoor Fixed Camera [Refer to Particular Specifications ESEC 3.3]	Each	180		3 789 000.00
27.2.13	ESEC 13.2	Supply and delivery to site of complete Indoor PTZ Camera [Refer to Particular Specifications ESEC 3.3]	Each	120		7 317 600.00
27.2.14	ESEC 13.2	Supply and delivery to site of complete Outdoor Fixed Camera [Refer to Particular Specifications ESEC 3.4]	Each	100		22 555.00
27.2.15	ESEC 13.2	Supply and delivery to site of complete Outdoor PTZ Camera [Refer to Particular Specifications ESEC 3.4]	Each	50		5 774 000.00
27.2.16	ESEC 13.2	Supply and delivery to site of complete enclosure & Plinth [Refer to Particular Specifications]	Each	50		72 000.00
27.2.17	ESEC 13.2	Supply and delivery to site of complete galvanised 10m scissor masts [Refer to Particular Specifications]	Each	50		954 500.00
27.3	**ESEC 27.3**	**INSTALLATION**				
27.3.1	ESEC 13.3 (c	Site installation of a complete electric fence bolted against security fence, it shall be coordinated to predrill the holes (refer to particular specifications)	m	4000		400 000.00
27.3.2	ESEC 13.3 (d	Site installation of a complete 10m electric fence gate with gate motor fence (refer to particular specifications)	No.	8		20 000.00
					Carried Forward	46 040 585.00

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Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	46 040 585.00
27.3.3	ESEC 13.3 (e)	Site installation of a complete electric fence gate energisers, components, software, monitors and additional signals to be monitored on CCTV System	Sum	-		225 000.00
27.3.4	ESEC 13.3 (f)	Site installation of a complete perimeter CCTV System (refer to particular specifications)	Sum	-		680 000.00
27.3.5	ESEC 13.3 (g)	Site installation of a complete perimeter CCTV System Hardware [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		35 000.00
27.3.6	ESEC 13.3 (h)	Site installation of a complete perimeter CCTV System Software [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		28 500.00
27.3.7	ESEC 13.3 (i)	Site installation of a complete UPS as Specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		150 000.00
27.3.8	ESEC 13.3 (k)	Site installation of a complete galvanised 10m scissor masts [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		534 600.00
27.3.9	ESEC 13.3 (l)	Site installation of remote views & control system of the security system [Refer to Particular Specification ESEC and Project Specfication PSESE	Each	3		48 000.00
27.3.10	ESEC 13.3 (m	Site installation of a complete Addressable Audio System [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		168 000.00
27.3.11	ESEC 13.3 (n)	Site installation of all enclosures, plinths, hardware and software as specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		180 000.00
27.3.12	ESEC 13.3	Site installation of a complete Indoor Fixed Camera [Refer to Particular Specifications ESEC 3.3]	Each	180		216 000.00
27.3.13	ESEC 13.3	Site installation of a complete Indoor PTZ Camera [Refer to Particular Specifications ESEC 3.3]	Each	120		540 000.00
					Carried Forward	48 845 685.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
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Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	48 845 685.00
27.3.14	ESEC 13.3	Site installation of a complete Outdoor Fixed Camera [Refer to Particular Specifications ESEC 3.4]	Each	100		120 000.00
27.3.15	ESEC 13.3	Site installation of a complete Outdoor PTZ Camera [Refer to Particular Specifications ESEC 3.4]	Each	50		225 000.00
27.3.16	ESEC 13.3	Site installation of a complete enclosure & Plinth [Refer to Particular Specifications]	Each	50		30 000.00
27.3.17	ESEC 13.3	Site installation of a complete galvanised 10m scissor masts [Refer to Particular Specifications]	Each	50		234 000.00
27.4	**ESEC 27.4**	**COMMISSIONING**				
27.4.1	ESEC 13.3 (c)	Commissioning of the complete electric fence bolted against security fence, it shall be coordinated to predrill the holes (refer to particular specifications)	m	4000		INCLUDED
27.4.2	ESEC 13.3 (d)	Commissioning of the complete 10m electric fence gate with gate motor fence (refer to particular specifications)	No.	8		INCLUDED
27.4.3	ESEC 13.3 (e)	Commissioning of the complete electric fence gate energisers, components, software, monitors and additional signals to be monitored on CCTV System	Sum	-		
27.4.4	ESEC 13.4 (f)	Commissioning of the complete perimeter CCTV System (refer to particular specifications)	Sum	-		
27.4.5	ESEC 13.4 (g)	Commissioning of the complete perimeter CCTV System Hardware [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		
27.4.6	ESEC 13.4 (h)	Commissioning of the complete perimeter CCTV System Software [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		
					Carried Forward	49 454 685.00

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Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	49 454 685.00
27.4.7	ESEC 13.4 (i)	Commissioning of the complete UPS as Specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		0.00
27.4.8	ESEC 13.4 (k)	Commissioning of the complete galvanised 10m scissor masts [Refer to Particular Specification ESEC and Project Specfication PSESEC]				
27.4.9	ESEC 13.4 (l)	Commissioning of remote views & control system of the security system [Refer to Particular Specification ESEC and Project Specfication PSESE	Each	3		INCLUDED
27.4.10	ESEC 13.4 (n)	Commissioning of the complete Addressable hardware and software as specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		
27.4.11	ESEC 13.4 (n)	Commissioning of the enclosures, plinths, hardware and software as specified [Refer to Particular Specification ESEC and Project Specfication PSESEC]	Sum	-		
27.4.12	ESEC 13.4	Commissioning of the complete Indoor Fixed Camera [Refer to Particular Specifications ESEC 3.3]	Each	180		INCLUDED
27.4.13	ESEC 13.4	Commissioning of the complete Indoor PTZ Camera [Refer to Particular Specifications ESEC 3.3]	Each	120		INCLUDED
27.4.14	ESEC 13.4	Commissioning of the complete Outdoor Fixed Camera [Refer to Particular Specifications ESEC 3.4]	Each	100		INCLUDED
27.4.15	ESEC 13.4	Commissioning of the complete Outdoor PTZ Camera [Refer to Particular Specifications ESEC 3.4]	Each	50		INCLUDED
27.4.16	ESEC 13.4	Commissioning of the complete enclosure & Plinth [Refer to Particular Specifications]	Each	50		INCLUDED
27.4.17	ESEC 13.4	Commissioning of the complete galvanised 10m scissor masts [Refer to Particular Specifications]	Each	50		INCLUDED
					Carried Forward	49 454 685.00

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Section C2.2: Schedule of Quantities
Schedule No.E.27: Security and Fencing

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	49 454 685.00
13.5	**ESEC**	**DESIGNER/ CONTRACTOR SPECIFIC REQUIREMENTS**				
13.5.1	ESEC	All other items or equipment 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 (Specify) .... **SCHEDULE No.27** **SECURITY** **CARRIED TO SUMMARY**				
					Carried forward to Summary of Schedules	49 454 685.00

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
E.28	***EACS***	**SCHEDULE E.28: ACCESS CONTROL SYSTEM**				
E.28.1	**EACS 16.1**	**SCHEDULE E.28.1 - DESIGN, DRAWINGS AND GENERAL**				
.1	EACS 16	Provide designs, calculations as stipulated in the contract (refer to particular specifications EACS-16)	Sum	-	-	0.00
.2	EACS 16	Provide operating all maintenance manuals and "as-built" drawings and all data sheets (refer to particular specifications EACS-16)	Sum	-	-	0.00
E.28.2	**EACS 16.2**	**SCHEDULE E.28.2 - SUPPLY AND DELIVERY TO SITE**				
1	EACS 6.3.1	Supply and delivery to site equal or similar to morpho access (refer to particular specifications)	No.	100	16 635.00	1 663 500.00
2	EACS	Supply and delivery to site 316 stainless steel enclosure to protect morphoaccess reader	No.	100	1 190.00	119 000.00
3	EACS 6.3.2	Supply and delivery to site Slim and Omega tags (refer to particular specifications)	No.	600	35.00	21 000.00
4		Supply and delivery to site 500kg 316 Stainless steel magnetic lock	No.	50	2 710.00	135 500.00
5	EMCC 12.2 (a)	Supply and delivery to site complete outdoor IP54 316 stainless steel power coated enclosure. The enclosure will house the industrial switch, power supply, battery access controller and [refer to MCC particular specification and City of Cape Town Standards EPMC)	No.	50	9 800.00	490 000.00
6	PLC 13.3 (b)	Supply and delivery to site Industrial 100/1000Mb managed switch module to suit the application, complete with at least 4 x fibre optic ports, switch shall be from the same manufacturer as the PLC switch [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	30 710.00	1 535 500.00
7	PLC 13.3 (b)	Supply and delivery to site Industrial 230V/24DC stabilized power supply for 24V DC for the industrial switch and controller. (Power supply shall have adequate capacity for the application) [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	9 800.00	490 000.00
				Carried Forward		**4 454 500.00**

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Upgrading & expansion of Potsdam WWTP - Mechanical & Electrical works
Contract number 146Q/2021/22
Section C2.2: Schedule of Quantities
Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				4 454 500.00
8	EACS	Supply and delivery to site complete hardware [for outdoor and indoor doors which will control magnetic door lock and two biometric card readers] which shall be plug-and-play system hardware ,with instant power and comms connection [without complex wiring]. Allow Antenna reader modules and digital I/O modules, coupled with the cluster controller. All inclusive of 7AH Lithium-ion battery and that shall include Access Portal Lite solution. With all internal wiring	No.	50	8 500.00	425 000.00
9	**EMCA 21.1 (a)**	**Supply and delivery to site of cables, jointing, terminating materials, all earth wires and cable names tags as per the particular specification**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	m	1500	30.00	45 000.00
		1.5mm² x 2pr twisted PVC (individually and overall screened)	m	1500	20.00	0.00 30 000.00
		1.5mm² x 6pr twisted PVC (individually and overall screened)	m	1250	40.00	50 000.00
10	**EMCA 21.1 (a)**	**Enviro Glands Termination material including glands, neoprene shrouds, lugs, insulating materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc to terminate the following 600/1000V PVC SWA PVC or 11kV electrical cables complete.**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	No.	400	60.00	24 000.00
		1.5mm² x 2pr twisted PVC (individually and overall screened)	No.	300	60.00	18 000.00
		1.5mm² x 6pr twisted PVC (individually and overall screened)	No.	200	80.00	16 000.00
11	EACS	Nett amount for Access Control soft ware as specified for three locations [refer to particular specification EACS and project specification PSACS]	Sum	-	-	0.00
12	EACS	Nett amount for Access Control supplementary soft ware [refer to particular specification EACS]	Sum	-	-	0.00
		Carried Forward				5 062 500.00

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Section C2.2: Schedule of Quantities
Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				**5 062 500.00**
13	EACS	Nett amount for Access Control PC hardware. [refer to particular specification EACS]	Sum	-	-	0.00
E.28.3	**EACS 16.3**	**SCHEDULE E.28.3 - INSTALLATION**				
1	EACS 6.3.1	Site installation of a complete equal or similar to morpho access (refer to particular specifications)	No.	100	1 800.00	180 000.00
2	EACS	Site installation of a complete 316 stainless steel enclosure to protect morpho access reader	No.	100	1 300.00	130 000.00
3	EACS 6.3.2	Site installation of a complete Slim and Omega tags (refer to particular specifications)	No.	600	5.00	3 000.00
4		Site installation of a complete 500kg 316 Stainless steel magnetic lock	No.	50	1 800.00	90 000.00
5	EMCC 12.2 (a)	Site installation of a complete outdoor IP54 316 stainless steel power coated enclosure. The enclosure will house the industrial switch, power supply, battery access controller and [refer to MCC particular specification and City of Cape Town Standards EPMC)	No.	50	1 800.00	90 000.00
6	PLC 13.3 (b)	Site installation of a complete Industrial 100/1000Mb managed switch module to suit the application, complete with at least 4 x fibre optic ports, switch shall be from the same manufacturer as the PLC switch [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	16 830.00	841 500.00
7	PLC 13.3 (b)	Site installation of a complete Industrial 230V/24DC stabilized power supply for 24V DC for the industrial switch and controller. (Power supply shall have adequate capacity for the application) [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	2 150.00	107 500.00
		Carried Forward				**6 504 500.00**

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Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 504 500.00
8	EACS	Site installation of a complete hardware [for outdoor and indoor doors which will control magnetic door lock and two biometric card readers] which shall be plug-and-play system hardware, with instant power and comms connection [without complex wiring]. Allow Antenna reader modules and digital I/O modules, coupled with the cluster controller. All inclusive of 7AH Lithium-ion battery and that shall include Access Portal Lite solution. With all internal wiring	No.	50	1 650.00	82 500.00
9	**EMCA 21.2 (a)**	**Installation of cables, jointing, terminating materials, all earth wires and cable name tags as per the particular specification**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	m	1500	15.00	22 500.00
		1.5mm² x 2pr twisted PVC (individually and overall screened)	m	1500	10.00	15 000.00
		1.5mm² x 6pr twisted PVC (individually and overall screened)	m	1250	16.00	20 000.00
10	**EMCA 21.2 (a)**	**Enviro Glands Termination material including glands, neoprene shrouds, lugs, insulating materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc to terminate the following 600/1000V PVC SWA PVC or 11kV electrical cables complete.**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	No.	400	20.00	8 000.00
		1.5mm² x 2pr twisted PVC (individually and overall screened)	No.	300	20.00	6 000.00
		1.5mm² x 6pr twisted PVC (individually and overall screened)	No.	200	20.00	4 000.00
11	EACS	Nett amount for Access Control soft ware as specified for three locations [refer to particular specification EACS and project specification PSACS]	Sum	-	-	0.00
		Carried Forward				6 662 500.00

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Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 662 500.00
12	EACS	Nett amount for Access Control supplementary soft ware [refer to particular specification EACS]	Sum	-	-	0.00
13	EACS	Nett amount for Access Control PC hardware. [refer to particular specification EACS]	Sum	-	-	0.00
E.28.4	**EACS 16.4**	**SCHEDULE E.28.4 - COMMISSIONING**				
1	EACS 6.3.1	Commissioning of a complete equal or similar to morpho access (refer to particular specifications)	No.	100	625.00	62 500.00
2	EACS	Commissioning of a complete 316 stainless steel enclosure to protect morpho access reader	No.	100	315.00	31 500.00
3	EACS 6.3.2	Commissioning of a complete Slim and Omega tags (refer to particular specifications)	No.	600	10.00	6 000.00
4		Commissioning of a complete 500kg 316 Stainless steel magnetic lock	No.	50	350.00	17 500.00
5	EMCC 12.2 (a)	Commissioning of a complete outdoor IP54 316 stainless steel power coated enclosure. The enclosure will house the industrial switch, power supply, battery access controller and [refer to MCC particular specification and City of Cape Town Standards EPMC)	No.	50	350.00	17 500.00
6	PLC 13.3 (b)	Commissioning of a complete Industrial 100/1000Mb managed switch module to suit the application, complete with at least 4 x fibre optic ports, switch shall be from the same manufacturer as the PLC switch [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	650.00	32 500.00
7	PLC 13.3 (b)	Commissioning of a complete Industrial 230V/24DC stabilized power supply for 24V DC for the industrial switch and controller. (Power supply shall have adequate capacity for the application) [Refer to the project specifications PSEPLC and particular specifications for PLC's]	No.	50	650.00	32 500.00
		Carried Forward				6 862 500.00

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Schedule No.E.28: Access Control System

Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 862 500.00
8	EACS	Commissioning of a complete hardware [for outdoor and indoor doors which will control magnetic door lock and two biometric card readers] which shall be plug-and-play system hardware ,with instant power and comms connection [without complex wiring]. Allow Antenna reader modules and digital I/O modules, coupled with the cluster controller. All inclusive of 7AH Lithium-ion battery and that shall include Access Portal Lite solution. With all internal wiring	No.	50	650.00	32 500.00
9	**EMCA 21.3 (a)**	**Commissioning of cables, jointing, terminating materials, all earth wires and cable names tags as per the particular specification**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	m	1500	0.00	
		1.5mm² x 2pr twisted PVC (individually and overall screened)	m	1500	0.00	
		1.5mm² x 6pr twisted PVC (individually and overall screened)	m	1250	0.00	
10	**EMCA 21.3 (a)**	**Enviro Glands Termination material including glands, neoprene shrouds, lugs, insulating materials, cable ties and corrosion proof bolts, washers, spring washers, nuts, etc to terminate the following 600/1000V PVC SWA PVC or 11kV electrical cables complete.**				
		1.5mm² x 4pr twisted PVC (individually and overall screened)	No.	400	0.00	
		1.5mm² x 2pr twisted PVC (individually and overall screened)	No.	300	0.00	
		1.5mm² x 6pr twisted PVC (individually and overall screened)	No.	200	0.00	
11	EACS	Nett amount for Access Control soft ware as specified for three locations [refer to particular specification EACS and project specification PSACS]	Sum	-	-	0.00
12	EACS	Nett amount for Access Control supplementary soft ware [refer to particular specification EACS]	Sum	-	-	0.00
		Carried Forward				6 895 000.00

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Item	Pay. Ref.	Description	Unit	Qty	Rate (R)	Amount (R)
		Brought Forward				6 895 000.00
13	EACS	Nett amount for Access Control PC hardware. [refer to particular specification EACS]	Sum	-	-	0.00
E.28.5	**EACS**	**SCHEDULE E.28.5 - DESIGNER / CONTRACTOR SPESIFIC REQUIREMENTS**				
.1	EACS	All other items or equipment 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 (Specify)				
		SCHEDULE E.28 ACCESS CONTROL SYSTEM CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules		**Total**		6 895 000.00

[redacted]

Summary of Schedules

Schedule No.	DESCRIPTION	Amount (ZAR)
Summary of Priced Schedules		
GENERAL ITEMS		
A	GENERAL REQUIREMENTS AND CONDITIONS	R381 455 476.84
B	PROVISIONAL SUMS AND ADDITIONAL SERVICES	R4 277 000.00
	Sub-Total for Schedules A&B(PG)	**R385 732 476.84**
MECHANICAL WORKS (SECTION C)		
M1	DISMANTLING, DECOMMISSIONING AND REFURBISHMENT	R4 497 482.98
M2	ACCESS PLATFORMS, WALKWAYS & HANDRAILS	R2 681 380.80
M3	INLET WORKS AND SCREENING EQUIPEMENT	R49 475 852.88
M4	PUMPS & PIPEWORK	R174 502 611.92
M5	PRIMARY SEDIMENTATION EQUIPMENT	R15 698 901.38
M6	MIXING EQUIPMENT	R14 638 179.36
M7	AERATION BLOWER EQUIPMENT	R43 973 782.86
M8	AERATION EQUIPMENT	R32 969 268.89
M9	FERRIC CHLORIDE DOSING SYSTEM	R5 709 980.77
M10	SUBMERGED MEMBRANE FILTRATION SYSTEM	R202 983 690.22
M11	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R34 418 464.89
M12	SLUDGE DEWATERING, STORAGE AND LOADING	R145 032 694.00
M13	SLUDGE CONDITION EQUIPMENT	R10 510 709.00
M14	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R14 763 210.00
M15	LIFTING EQUIPMENT	R22 770 375.38
M16	WEIGHBRIDGE	R1 308 596.78
M17	ODOUR CONTROL SYSTEM	R32 599 246.90
M18	DIESEL TANK	R713 329.10
M19	CHANNEL GATES, SLUICE GATES AND VALVES	R99 902 849.76
	Sub-Total for Schedules M1 to M19(C1)	**R909 150 607.87**
MECHANICAL WORKS (SECTION B)		
M20	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R3 870 900.00
	Sub-Total for Schedules M20(B1)	**R3 870 900.00**
MECHANICAL WORKS (SECTION A)		
M21	PRESSURISED ULTRA FILTRATION	R91 786 972.00
M22	SCREENING EQUIPMENT	R46 619 693.00
M23	PUMPS AND PIPEWORK	R69 502 782.00
M24	ULTRA VIOLET DISINFECTION (CLOSED VESSEL)	R29 466 075.00
M25	HEATING, VENTILATION & AIR CONDITIONING EQUIPMENT	R2 987 050.00
M26	LIFTING EQUIPMENT	R6 375 654.00
M27	CHANNEL GATES, SLUICE GATES AND VALVES	R32 657 546.00
	Sub-Total for Schedules M21 to M27 (A1)	**R279 395 772.00**
ELECTRICAL AND ELECTRONIC WORKS (SECTION A)		
E1	ESKOM BULK SUPPLY WORKS	R9 998 450.00
E2	MV SWITCHGEAR INCOMER SUBSTATION	R16 193 872.00
E3	BATTERY TRIPPING UNITS AND BATTERIES	R648 240.00
E4	SUBSTATION EARTHING	R299 410.00

[redacted]

Schedule No.	DESCRIPTION	Amount (ZAR)
E5	PROTECTION SCHEMES	R3 157 590.00
E6	GENERATOR INSTALLATION	R23 570 687.00
E7	MEDIUM VOLTAGE SWITCHGEAR	R5 379 832.00
E8	POWER TRANSFORMERS	R3 785 000.00
E9	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R18 962 802.03
E10	PROGRAMMABLE & LOGIC CONTROLLERS	R7 721 745.19
E11	CONTROL INSTRUMENTATION SYSTEM	R12 820 768.23
E12	GENERAL AND MISCELLANEOUS	R1 187 827.95
E13	EARTHING & LIGHTNING PROTECTION	R1 523 470.36
E14	MULTICORE CABLES & EARTH WIRES	R37 426 420.00
E15	MEDIUM VOLTAGE SWITCHGEAR	R42 667 089.00
	Sub-Total for Schedules E1 to E15 (A2)	**R185 343 203.75**
ELECTRICAL AND ELECTRONIC WORKS (SECTION C)		
E16	RING MAIN UNITS	R2 621 260.00
E17	POWER TRANSFORMERS	R14 100 880.00
E18	MINIATURE SUBSTATIONS	R4 323 955.00
E19	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	R117 648 759.61
E20	PROGRAMMABLE & LOGIC CONTROLLERS	R49 463 747.28
E21	SCADA SYSTEM	R1 825 911.44
E22	CONTROL INSTRUMENTATION SYSTEM	R59 883 766.47
E23	GENERAL AND MISCELLANEOUS	R4 693 688.55
E24	EARTHING & LIGHTNING PROTECTION	R19 699 797.27
E25	SITE LIGHTING	R7 568 650.00
E26	MULTICORE CABLES & EARTH WIRES	R331 070 145.00
E27	SECURITY	R49 454 685.00
E28	ACCESS CONTROL SYSTEM	R6 895 000.00
	Sub Total for Schedules E16 to E28 (C2)	**R669 250 245.62**
	SUB TOTAL FOR SECTION A (A1+A2)	**R464 738 975.75**
	SUB TOTAL FOR SECTION B (B1)	**R3 870 900.00**
	SUB TOTAL FOR SECTION C (C1+C2)	**R1 578 400 853.49**
	SUB TOTAL OF PRICED SCHEDULES (PG+A1+A2+B1+C1+C2=G1)	**R2 432 743 206.08**

CONTINGENCIES		UNIT	QTY	PRICE	AMOUNT
C1	**The following items will be deducted in part or whole if not required:-** Allow the sum of 15% (fifteen percent) of the above total (Sub-total G1) for contingencies to be spent as the Engineer may direct.	Sum			R364 911 480.91
CONTINGENCY TOTAL CARRIED FORWARD TO GRAND TOTAL (G2)					R364 911 480.91
	GRAND SUMMARY				
G1	**SUB-TOTAL OF PRICE SCHEDULES**				**R2 432 743 206.08**
G2	**CONTINGENCY TOTAL**				**R364 911 480.91**
	SUB-TOTAL OF PRICE SCHEDULE & CONT. (G1+G2)				**R2 797 654 686.99**
VALUE ADDED TAX (@15%)					**R419 648 203.05**
GROSS TOTAL OF TENDER					**R3 217 302 890.04**

[redacted]

DECLARATION (In respect of completeness of Tender)

City of Cape Town
Tower Block, Civic Centre
12 Hertzog Boulevard
CAPE TOWN

I/ we, the undersigned, do hereby declare that these are the properly priced Schedules of Quantities forming Part C2.2 of this Contract Document which contains 149 pages numbered i to v and 1 to 144 in consecutive order in Volume 2 and the number of pages in consecutive order in Volume 3A, 3B & 4 as stated on page i thereof, upon which my/our tender for **TENDER NO. 146Q/2021/22: DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF THE POTSDAM WASTEWATER TREATMENT PLANT** has been based. If I/we have submitted a printed version of the Schedules of Quantities, I/we warrant that no amendments have been made to it from the original, other than amendments issued in any addenda in terms of Clause C.3.2 in Part T1.2 Tender Data.

SIGNED ON BEHALF OF TENDERER: [redacted]

DATE: 25/04/2022

[redacted]

PART 5: RETURNABLE SCHEDULES SUBMITTED

PAGE

5.1: Certificate of Authority for Joint Ventures 545
Original reference: (Schedule 3, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.2: Details of Qualifications and Experience of Staff 568
Original reference: (Schedule 12, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.3: Schedule of Sub-contractors 570
Original reference: (Schedule 18, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.4: Declaration Certificate for Local Production and Content for Designated Sectors 572
Original reference: (Schedule 22, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.5: Price Basis for Imported Resources 640
Original reference: (Schedule 23, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.6: Preference Schedule (where preferences are granted in respect of B-BBEE contribution) 655
Original reference: (Schedule 25, Part T2.2 Returnable Schedules, Document B, Volume 2)

5.7: Technical Data Sheets 661
Original reference: (Schedule 28, Part T2.2 Returnable Schedules, Document B, Volume 2)

[redacted]

5.1 Certificate of Authority for Joint Ventures

[redacted]

CITY OF CAPE TOWN

WATER AND SANITATION

CONTRACT NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

SCHEDULE 3: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This returnable schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize

Mr/~~Ms~~ [redacted] authorised signatory of the company,

close corporation or partnership PCI - INENZO - RAUBEX - DEVCOTECH Consortium, acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTORISED SIGNATORY
Lead partner Inenzo Water (Pty) Ltd	[redacted]	Signatur[redacted] Name..[redacted] Designation.....
Peterson Candy International (Pty) Ltd	[redacted]	Signature[redacted] Name..G[redacted] Designati[redacted]
Raubex (Pty) Ltd	[redacted]	Signature..[redacted] Name.[redacted] Designation:[redacted]
Devcotech Electrical Engineering (Pty) Ltd	[redacted]	Signature[redacted] Name.[redacted] Designation.Director

Note :

A copy of the Joint Venture Agreement, showing clearly the **percentage contribution of each partner** to the joint venture, shall be appended to this schedule.

* Refer to tender file - divider 3 for JV agreement

[redacted]

Authority to sign documentation

By resolution of the board of directors at a meeting held on ***011/02/2022, Mr J.A.M. Cloete,*** whose, signature appears below, has been duly authorized to sign all documents on behalf of the **PCI-INENZO-RAUBX-DEVCOTECH Consortium** in connection with:

TENDER NO. 146Q/2021/22

DESIGN – BUILD OF MECHANICAL AND ELECTRICAL WORKS FOR THE UPGRADE AND EXPANSION OF POTSDAM WASTEWATER TREATMENT PLANT

Capacity of Signatory: ***Authorised Signatory***

Signature of Authorised Person: [redacted]

Authorised Signatories of Consortium Partners

[redacted] Date: ***11/02/2022***
Director
On behalf of INENZO PTY LTD

[redacted] Date: ***11/02/2022***
Director
On behalf of RAUBEX CONSTRUCTION PTY LTD

[redacted] Date: ***11/02/2022***
Director
On behalf of PATERSON CANDY INTERNATIONAL (PTY) LTD

[redacted] Date: ***11/02/2022***
Director
On behalf of DEVCOTECH ELECTRICAL ENGINEERING (PTY) LTD

Witness: [redacted] [redacted] Date: ***11/02/2022***
Signature Name (Print)

Witness: [redacted] [redacted] Date: ***11/02/2022***
Signature Name (Print)

[redacted]