

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY





BID NO. SCM/BID09/2023/24

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP
STATION PHASE 1**

BID DOCUMENT

CLOSING DATE: 07 DECEMBER 2023 AT 10H00

| | |
|---|---|
| <p>EMPLOYER:</p> <p>MALUTI-A-PHOFUNG MUNICIPALITY PRIVATE BAG X805 WITSIESHOEK 9870</p> <p>TEL: 058 718 3700</p>  <p>CONTACT PERSON: MR HW UNGERER</p> | <p>EMPLOYER'S AGENT:</p> <p>MPHATI & ASSOCIATES (PTY) LTD P O BOX 1631 BETHLEHEM 9700</p> <p>TEL: 058 303 4197</p>  <p>CONTACT PERSON: MR M MPHATI</p> |
|---|---|

NAME OF BIDDER:

BID AMOUNT (INCL. VAT):

CSD NUMBER:

**NOTE: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF
THE STATE**

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

BID No. SCM/BID09/2023/24

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

CONTENTS

| NUMBER | HEADING | PAGE |
|-----------------|--|--------|
| | THE BID | |
| Part T1: | Bidding procedures | |
| T1.1 | Bid Notice and Invitation to Bid | T1-1-3 |
| T1.2 | Bid Data | T1-2-1 |
| Part T2: | Returnable Documents | |
| T2.1 | List of Returnable Documents..... | T2-1-1 |
| T2.2 | Returnable Schedules..... | T2-2-1 |
| T2.3 | Checklist..... | T2-3-1 |
| | THE CONTRACT | |
| Part C1: | Agreement and Contract Data | |
| C1.1 | Form of Offer and Acceptance | C1-1-1 |
| C1.2 | Contract Data | C1-2-1 |
| C1.3 | Form of Guarantee | C1-3-1 |
| Part C2: | Pricing data | |
| C2.1 | Pricing Instructions..... | C2-1-1 |
| C2.2 | Bill of Quantities | C2-2-1 |
| Part C3: | Scope of Work | |
| C3 | Scope Works | C3-1 |
| Part C4: | Site Information | |
| C4 | Site Information | C4-1 |

MALUTI-A-PHOFUNG MUNICIPALITY



NOTICE NUMBER: 16/2023
BID NO. SCM/BID09/2023/24

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

Maluti-a-Phofung Municipality hereby invite bids for the Upgrading of Water Pump Station Phase 1.

Requirements:

- Bidders must submit Copy of Company Registration Certificate (CRC) Reflecting Active Members (Except for Sole Traders and Partnership).
- Bidders must be registered with Central Supplier Database (CSD), CSD number must be provided.
- Bidders are required submit their unique personal identification Number (pin) issued by SARS to enable the Municipality to view the taxpayer's profile and tax Status
- In Bids where consortia/ joint ventures/ sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) Certificate Pin/CSD Number
- company registration certificate reflecting active members (Except for some traders and partnerships) must be attached.
- All supplementary forms including municipal rates and taxes clearance certificate form contained in the bid documents must be completed in full or (submit a proof that the municipal rates and taxes are not in arrears for more than three months)
- CIDB Grading 7 CE or Alternatively 6 CE PE
- Copy of Company Profile must be attached
- In Bids where consortia/ joint ventures/ sub-contractors are involved; each party must submit a separate Tax Compliance Status (TCS) Certificate/Pin/CSD Number.
- Sealed Bids should clearly indicate. Description of the Project and Reference of the Bid number - **APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1**
SCM/BID09/2023/24

Closing date: **07 DECEMBER 2023**

Compulsory Site Inspection: 17th November 2023 @ 12H00.
Venue: Maluti-A-Phofung Municipality (Municipal Infrastructure Department)

Bid Box: Bid Box No. "A"
Maluti-a-Phofung Municipality
Seting Business Centre
c/o Moremoholo & Motloun streets
Phuthaditjhaba

Supply chain enquiries: (058) 718 3863/ (058) 718 3871 - thabisot@mapls.gov.za
Technical Enquiries: Mr HWUNGERER @ 076 538 1722- lebohangs@map.fs.gov.za
pjhcc@lantic.net

Please note:

1. **No bids will be accepted from persons in the service of the state.**
2. Bid documents will be obtainable as from Tuesday **07 November 2023** after **10h00 am** from the cashier's point, Phuthaditjhaba offices upon payment of a **R 2 000.00** non-refundable fee (cash or bank guaranteed in Favor of Maluti-a-Phofung Municipality) or can be downloaded on E-tender portal.
3. No telegraphic, telefaxes and late Bids will be accepted.
4. Municipality is not bound to accept the lowest Bid.
5. Municipality reserve the right not to award the bid.
6. Municipal Supply Chain Management Policy and Preferential Procurement Policy Framework Act No 5 of 2000 (80/20 preferential points allocation system in line with revised Procurement Regulations of 2023 by using the balance scorecard methodology) will be applied
7. Empowerment goals as per the Municipality Preferential Procurement Policy will be allocated as follows:
 - Empowerment goal as per the Municipal Preferential Procurement Policy will be allocate as follows:
 - ❖ Location based (Office Municipal Rates Statement, Lease Agreement and Affidavit for Rural Entities)

| | |
|--------------------------------------|-----------|
| • Within Maluti-A-Phofung | 04 points |
| • Within Thabo Mofutsanyane District | 03 points |
| • With Free State Province | 02 points |
| • Outside Free State Province | 01 points |
 - ❖ Gender (Woman owned Enterprises) Company Registration Documents and Identification **04 Points**
 - ❖ Historically Disadvantaged Persons (Any Person who had no Franchise in National elections Prior to the Introduction of the Constitution of Republic of South Africa and Discriminated on a Basis of Disability) Company Registration Documents, Identification and Doctors Report or a Complete EEA1 Form by Medical Doctors Confirmation Impairments **04 Points**
 - ❖ Rural Based Businesses (Enterprise Located and Operated by Persons from Rural Areas) Company Registration Documents and Proof of Location Provided by Municipality **04 Points**
 - ❖ Youth Enterprises (Enterprise Owned by Persons Younger than 35 years) Company Registration Documents and Identification Documents **04 Points**

8. Only one submission for this bid will be considered from the bidder.
9. Failure to comply with the above-mentioned conditions may invalidate your bid.
10. Should you not receive any correspondence from us within 120 days, regard your bid as unsuccessful.
11. Communication will be limited to the successful bidder.

H.A GOLIATH
ACTING MUNICIPAL MANAGER

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

T1.2 Bid Data

The conditions of Bid are the Standard Conditions of Bid as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement (see www.cidb.org.za) which are reproduced without amendments or alterations for the convenience of bidders as an annexure to the Bid Data.

The Standard Conditions of Bid makes several references to the Bid Data for details that apply specifically to this Bid. The Bid Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Bid. Each item of data provided below is cross-referenced to the clause in the Standard Conditions of Bid to which it mainly applies.

The additional Conditions of Bid are:

| Clause number | Bid Data |
|---------------|--|
| F.1.1 | The Employer is the Maluti-a-Phofung Local Municipality |
| F.1.2 | The Bid document issued by the employer comprises: <ul style="list-style-type: none">T1.1 Bid Notice and Invitation to BidT1.2 Bid DataT2.1 List of Returnable DocumentsT2.2 Returnable Schedules |

Part 1: Agreements and Contract Data

| | |
|------|------------------------------|
| C1.1 | Form of Offer and Acceptance |
| C1.2 | Contract Data |
| C1.3 | Form of Guarantee |
| C1.4 | Adjudicator's Appointment |

Part 2: Pricing Data

| | |
|------|---|
| C2.1 | Pricing instructions |
| C2.2 | Activity schedules / Schedule of Quantities |

**Clause
number**

Bid Data

Part 3: Scope of Work

C3 Scope of work

Part 4: Site information

C4 Site information

F.1.3 The Employer's Agent is:

Name : Mphati & Associates (Pty) Ltd
Address : 38 Gedenk Street, P O Box 1631, BETHLEHEM, 9700
Tel : 058 303 4197
Fax : 058 303 6465
e-mail : maseru@mphati.net

F.2.1 Only those bidders that have in their employment managerial and supervisory staff that meet the requirements of the Scope of Work for labour intensive competencies for supervisory and management staff, are eligible to submit bids.

F.2.2 Only those bidders who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a **7CE OR 6CE PE** class of construction work, and that are registered with the CIDB as having a track record, are eligible to submit a bid.

F.2.3 The compulsory clarification meeting is compulsory to this bid.

Refer to Tender Notice and Invitation to tender in Section T1.1 of the document.
(Section T1.1 of the document)

F.2.4 If a bidder wishes to submit an alternative bid, the only criteria permitted for such alternative bid offer is that it demonstrably satisfies the Employer's standards and requirements, the details of which may be obtained from the Employer's Agent.

Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative Bid offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal.

**Clause
number**

Bid Data

Acceptance of an alternative Bid Offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the Bidder, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements.

The modified Pricing Data must include an amount equal to 5% of the amount bid for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.

F.2.5 Parts of each bid offer communicated on paper shall be submitted as original, plus 0 copies.

F.2.6 The Employer's address for delivery of Bid offers and identification details to be shown on each Bid offer package are:

Location of bid box:

Bid Box "A", Maluti-a-Phofung Municipality, Phuthaditjhaba

Physical address:

Setsing Business Centre, c/o Moremoholo & Motlounj Str, Phuthaditjhaba

Identification details: Bid number, title of project, the closing date and time of the bid

Postal address: Private Bag X805, WITSIESHOEK, 9870

F.2.7 The closing time for submission of bid offers is as stated in the Bid Notice and Invitation to Bid.

F.2.8 No electronically mailed, telephonic, telegraphic or facsimile bids will not be accepted.

F.2.9 The bid offer validity period is 120 days.

F.2.10 The Bidder shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements.

F.2.11 The Bidder is required to submit with his Bid a Certificate of Contractor Registration issued by the Construction Industry Development Board and a copy of an **original valid** Tax Clearance Certificate issued by the South African Revenue Services.

Where a bidder adheres to the CIDB contractor class grading designation requirements through joint venture formation, such a bidder must submit the Certificates of Contractor Registration in respect of each partner of the joint venture.

| Clause number | Bid Data |
|----------------------|--|
| F.3.1 | Bids will be opened immediately after the closing time for bids at the Maluti-a-Phofung Municipality's offices in Phuthaditjhaba. |
| F.3.2 | <p>The procedure for the evaluation of responsive bids will be Method 2.</p> <p>The financial offer will be scored using Formula 2 (Option 1) where the value of W_1 is 80.</p> <p>Up to 100 minus W_1 bid evaluation points will be awarded to bidders who complete the preference schedule and who are found to be eligible for the preference claimed.</p> |
| F3.3 | <p>Bid offers will only be accepted if:</p> <ul style="list-style-type: none"> a) The bidder has in his or her possession an original valid Tax Clearance Certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations; b) The bidder is registered with the Construction Industry Development Board in an appropriate contractor grading designation; c) The bidder or any of its directors is not listed on the Register of Bid Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector; d) The bidder has not: <ul style="list-style-type: none"> i) abused the Employer's Supply Chain management system; or ii) failed to perform on any previous contract and has been given a written notice to this effect; and e) The bidder has completed the Compulsory Enterprise Questionnaire and there is no conflict of interest which may impact on the bidder's ability to perform the contract in the best interests of the Employer or potentially compromise the bid process. f) The bidder does not have arrears on municipal rates and levies exceeding 3 months. g) The bidder has completed all forms. |
| F.3.4 | The number of paper copies of the signed contract to be provided by the Employer is one. |

Annexure: Standard Conditions of Bid

(As contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement)

F.1 General

F.1.1 Actions

The Employer and each bidder submitting a Bid Offer shall comply with these Conditions of Bid. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Bid documents

The documents issued by the Employer for the purpose of a Bid Offer are listed in the Bid Data.

F.1.3 Interpretation

F.1.3.1 The Bid Data and additional requirements contained in the Bid Schedules that are included in the returnable documents are deemed to be part of these Conditions of Bid.

F.1.3.2 These Conditions of Bid, the Bid Data and Bid Schedules which are only required for bid evaluation purposes, shall not form part of any contract arising from the Invitation to Bid.

F.1.3.3 For the purposes of these conditions for the calling for expressions of interest, the following definitions apply:

- a) **Comparative offer** means the bidder's financial offer after the factors of non-firm prices, all unconditional discounts and any other bidden parameters that will affect the value of the financial offer have been taken into consideration.
- b) **Corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the Employer or his staff or agents in the bid process;
- c) **Fraudulent practice** means the misrepresentation of the facts in order to influence the bid process or the award of a contract arising from a Bid Offer to the detriment of the Employer, including collusive practices intended to establish prices at artificial levels. and
- d) **Quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs.

F.1.4 Communication and the Employer's Agent

Each communication between the Employer and a Bidder shall be to or from the Employer's agent only, and in a form that can be read, copied and recorded. Writing shall be in the English language. The Employer shall not take any responsibility for non-receipt of communications from or by a bidder. The name and contact details of the Employer's agent are stated in the Bid Data.

F.1.5 The Employer's right to accept or reject any Bid Offer

F.1.5.1 The Employer may accept or reject any variation, deviation, Bid Offer, or alternative Bid Offer, and may cancel the Bid Process and reject all Bid Offers at any time before the formation of a contract. The Employer shall not accept or incur any liability to a bidder for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The Employer may not subsequent to the cancellation or abandonment of a Bid Process or the rejection of all responsive Bid Offers re-issue a bid covering substantially the same scope of work within a period of 6 (six) months unless only one bid was received and such bid was returned unopened to the bidder.

F.2 Bidder's obligations

F.2.1 Eligibility

Submit a Bid Offer only if the bidder complies with the criteria stated in the Bid Data and the bidder, or any of his principals, is not under any restriction to do business with Employer.

F.2.2 Cost of bidding

Accept that the Employer will not compensate the bidder for any costs incurred in the preparation and submission of a Bid Offer, including the costs of any testing necessary to demonstrate that aspects of the offer satisfy requirements.

F.2.3 Check documents

Check the Bid Documents on receipt for completeness and notify the Employer of any discrepancy or omission.

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the Bid. Use and copy the documents issued by the Employer only for the purpose of preparing and submitting a Bid Offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a Bid Offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the Bid Documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the Bid Document, which the Employer may issue, and if necessary, apply for an extension to the closing time stated in the Bid Data, in order to take the addenda into account.

F.2.7 Clarification meeting

The clarification meeting is applicable to this bid.

Refer to Tender Notice and Invitation to tender in Section T1.1 of the document. (Section T1.1 of the document).

F.2.8 Seek clarification

Request clarification of the Bid Documents, if necessary, by notifying the Employer at least five working days before the closing time stated in the Bid Data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the Employer (if any) may not be for the full cover required in terms of the Conditions of Contract identified in the Bid Data. Bidders are advised to seek qualified advice regarding insurance.

F.2.10 Pricing the Bid Offer

F.2.10.1 Include in the rates, prices, and the bid total of the prices (if any) all duties, taxes, except Value Added Tax (VAT), and other levies payable by the successful bidder, such duties, taxes and levies being those applicable 14 days before the closing time stated in the Bid Data.

F2.10.2 Show VAT payable by the Employer separately as an addition to the bid total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the Bid Data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F.2.11 Alterations to documents

Not make any alterations or additions to the Bid Documents, except to comply with instructions issued by the Employer, or necessary to correct errors made by the bidder. All signatories to the Bid Offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative Bid Offers

F.2.12.1 Submit alternative Bid Offers only if a main Bid Offer, strictly in accordance with all the requirements of the Bid Documents, is also submitted. The alternative Bid Offer is to be submitted with the main Bid Offer together with a schedule that compares the requirements of the Bid Documents with the alternative requirements the bidder proposes.

F.2.12.2 Accept that an alternative Bid offer may be based only on the criteria stated in the Bid data or criteria otherwise acceptable to the employer.

F.2.13 Submitting a Bid Offer

F.2.13.1 Submit a Bid Offer to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the Bid Data.

F.2.13.2 Return all returnable documents to the Employer after completing them in their entirety, in **black ink**.

F.2.13.3 Submit the parts of the Bid Offer communicated on paper as an original plus the number of copies stated in the Bid Data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the Employer.

F.2.13.4 Sign the original and all copies of the Bid Offer where required in terms of the Bid Data. The Employer will hold all authorized signatories liable on behalf of the bidder. Signatories for bidders proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the Employer shall hold liable for the purpose of the Bid Offer.

F.2.13.5 Seal the original and each copy of the Bid Offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the Bid Data, as well as the bidder's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the Bid Data, place and seal the returnable documents listed in the Bid Data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the Employer's address and identification details stated in the Bid Data, as well as the bidder's name and contact address.

F.2.13.7 Seal the original Bid offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the Bid data.

F.2.13.8 Accept that the employer shall not assume any responsibility for the misplacement or premature opening of the Bid offer if the outer package is not sealed and marked as stated.

F.2.14 Information and data to be completed in all respects

Accept that Bid Offers, which do not provide all the data or information requested completely and, in the form, required, may be regarded by the Employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the Employer receives the Bid Offer at the address specified in the Bid Data not later than the closing time stated in the Bid Data. Proof of posting shall not be accepted as proof of delivery. The Employer shall not accept Bid Offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the Bid Data. It is the responsibility of the bidder to ensure that the bid is placed in the correct bid box.

F.2.15.2 Accept that, if the Employer extends the closing time stated in the Bid Data for any reason, the requirements of these Conditions of Bid apply equally to the extended deadline.

F.2.16 Bid Offer validity

F.2.16.1 Hold the Bid Offer(s) valid for acceptance by the Employer at any time during the validity period stated in the Bid Data after the closing time stated in the Bid Data.

F.2.16.2 If requested by the Employer, consider extending the validity period stated in the Bid Data for an agreed additional period.

F.2.17 Clarification of Bid offer after submission

Provide clarification of a Bid Offer in response to a request to do so from the Employer during the evaluation of Bid offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the total of the prices or substance of the Bid offer is sought, offered, or permitted. The total of the prices stated by the bidder shall be binding upon the bidder.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred bidder following a competitive selection process, should the Employer elect to do so.

F.2.18 Provide other material

F.2.18.1 Provide, on request by the Employer, any other material that has a bearing on the Bid Offer, the bidder's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the bidder not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the Employer may regard the Bid Offer as non-responsive.

- F.2.18.2** Dispose of samples of materials provided for evaluation by the Employer, where required.
- F.2.19** **Inspections, tests and analysis**
- Provide access during working hours to premises for inspections, tests and analysis as provided for in the Bid Data.
- F.2.20** **Submit securities, bonds, policies, etc.**
- If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.
- F.2.21** **Check final draft**
- Check the final draft of the contract provided by the Employer within the time available for the employer to issue the contract.
- F.2.22** **Return of other Bid Documents**
- If so, instructed by the Employer, return all retained Bid Documents within 28 days after the expiry of the validity period stated in the Bid Data.
- F.2.23** **Certificates**
- Include in the bid submission or provide the employer with any certificates as stated in the Bid Data.
- F.3** **The Employer's undertakings**
- F.3.1** **Respond to clarification**
- Respond to a request for clarification received up to five working days prior to the bid closing time stated in the Bid Data and notify all bidders who drew procurement documents.
- F.3.2** **Issue addenda**
- If necessary, issue addenda that may amend or amplify the Bid Documents to each bidder during the period from the date of the Bid Notice until seven days before the bid closing time stated in the Bid Data. If, as a result a bidder applies for an extension to the closing time stated in the Bid Data, the Employer may grant such extension and, will then notify it to all bidders who drew documents. However, due to the emergency nature of this project, extension of the closing time will only be granted under exceptional circumstances.
- F.3.3** **Return late Bid Offers**
- Return Bid offers received after the closing time stated in the Bid Data, unopened, (unless it is necessary to open a bid submission to obtain a forwarding address), to the bidder concerned.

F.3.4 Opening of bid submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid bid submissions in the presence of bidders' agents who choose to attend at the time and place stated in the Bid Data. Bid submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the opening held immediately after the opening of bid submissions, at a venue indicated in the Bid Data, the name of each bidder whose Bid Offer is opened, the total of his prices, preferences claimed and time for completion, if any, for the main Bid Offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 Two-envelope system

F.3.5.1 Were stated in the Bid Data that a two-envelope system is to be followed, open only the technical proposal of valid bids in the presence of bidders' agents who choose to attend at the time and place stated in the Bid Data and announce the name of each bidder whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by bidders, then advise bidders who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of bidders, who score in the quality evaluation above the minimum number of points for quality stated in the Bid Data, and announce the score obtained for the technical proposals and the total price and any preferences claimed.

Return unopened financial proposals to bidders whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

Not disclose to bidders, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of Bid Offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful bidder.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a bidder to influence the processing of Bid Offers and instantly disqualify a bidder (and his Bid Offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

Determine, on opening and before detailed evaluation, whether each Bid Offer properly received:

- a) meets the requirements of these Conditions of Bid;
- b) has been properly and fully completed and signed; and
- c) is responsive to the other requirements of the Bid Documents.

A responsive Bid is one that conforms to all the terms, conditions, and specifications of the Bid documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work
- change the Employer's or the bidder's risks and responsibilities under the contract, or
- affect the competitive position of other bidders presenting responsive bids, if it were to be rectified.

Reject a non-responsive Bid Offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors

Check responsive Bid Offers for arithmetical errors, correcting them in the following manner:

- Where there is a discrepancy between the amounts in figures and in words, the amount in words shall govern.
- If a Schedules of Quantities (or schedule of rates) apply and there is an error in the line-item total resulting from the product of the unit rate and the quantity, the line-item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line-item total as quoted shall govern, and the unit rate will be corrected.
- Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the bidder's addition of prices, the total of the prices shall govern and the bidder will be asked to revise selected item prices (and their rates if a schedule of quantities applies) to achieve the bid total of the prices.

Consider the rejection of a Bid Offer if the bidder does not correct or accept the correction of his arithmetical errors in the manner described above.

F.3.10 Clarification of a Bid Offer

Obtain clarification from a bidder on any matter that could give rise to ambiguity in a contract arising from the Bid Offer.

F.3.11 Evaluation of Bid Offers

F3.11.1 General

Use Bid Evaluation Committee established in terms of the Municipal Finance Management Act. Reduce each responsive Bid Offer to a comparative offer and evaluate it using the bid evaluation method that is indicated in the Bid Data and described below:

| | |
|--|--|
| Method 2: Financial offer and preferences | <ol style="list-style-type: none">1) Score bid evaluation points for financial offer.2) Confirm that bidders are eligible for the preferences claimed and if so, score bid evaluation points for preferencing.3) Calculate total bid evaluation points.4) Rank Bid Offers from the highest number of bid evaluation points to the lowest.5) Recommend bidder with the highest number of bid evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so. |
|--|--|

Score financial offers, preferences and quality, as relevant, to two decimal places.

A bidder will be evaluated for technical functionality based on the following Criteria:

| Criteria | Evaluation indicators | Point allocated | Weight |
|---|--|---|--------|
| <u>Key Performance Experience</u> CV's and certified qualification for each team members: <ul style="list-style-type: none">• Contract Manager• Site Agent• Foreman | <ul style="list-style-type: none">• Contract Manager – NQF 7 qualification (BSC / B Tech civil engineering) with minimum 5 years' experience registered with Voluntary organization• Site Agent - NQF 5 qualification (S4) with minimum 5 years' experience | Contract Manager CV = 10 points Contract Manager Experience = 5 points Site Agent CV = 10 points Site Agent Experience = 5 points Qualifications less the NQF 7 = Zero points Experience less than 5 years = Zero points | 30 |
| <u>Company Experience</u> Experience of the company in completing similar projects in the past 10 years | Water pump station projects: 0 - 2 project = 10 points 3 - 4 projects = 20 points 5 and more = 30 points | Related to water pump station projects = 30 points | 30 |

| Criteria | Evaluation indicators | Point allocated | Weight |
|---|--|---|--------|
| <p><u>Methodology</u></p> <p>The method statement should explain how your company will complete the upgrading of water pump station.</p> | <p>The methodology should outline how the system will be implemented and service will be provided. Furthermore, it should explain the quality management process that will be put place to ensure a quality job</p> | <p>Methodology related to water pump station projects = 10 Points</p> <p>No methodology = Zero points</p> | 10 |
| <p><u>Financial Capability</u></p> <p>Bank Coding and Construction Guarantee</p> | <p>Bidders must provide a current bank rating certificate from their banking institution and attach it to the applicable returnable schedule and should not be older than three (3) months.</p> <p>Alternatively, the Bidder may submit a construction guarantee to the value of R 5 million or more, (Letter of intent from Accredited Service Providers)</p> | <p>Bank rating</p> <p>D Bank rating = 2 points C Bank rating = 5 points B Bank rating = 7 points A bank rating = 10 points</p> <p>Construction guarantee = 10 Points</p> <p>No rating = Zero points</p> | 10 |
| <p><u>The Skill Transfer Plan</u></p> <p>The skills transfer plan should identify particular skills required to install, operate and maintain the water pump stations.</p> | <p>The Skills Transfer plans should outline how the Bidder will capacitate the Municipality Officials as well as local sub-contractor</p> | <p>Relating to water pump station projects = 5 points</p> <p>No plan = Zero points</p> | 5 |
| <p><u>Office facility</u></p> <p>Fully operational offices (attach proof of address)</p> | <p>Bidder to provide the lease agreement and/ or rates and taxes that are not in arrears for more than three months</p> | <p>No proof = Zero points</p> | 15 |

Only tenders scoring 60% or more for functionality will be evaluated further on the 80/20-point system for price and preference.

F.3.11.2 Scoring financial offers

Score the financial offers of remaining responsive Bid offers using the following formula:

N_{FO} = $W_1 \times A$ where:
 N_{FO} = the number of bid evaluation points awarded for the financial offer.
 W_1 = the maximum possible number of bid evaluation points awarded for the financial offer as stated in the Bid Data.
 A = a number calculated using either formulas 1 or 2 below as stated in the Bid Data.

| Formula | Basis for comparison | Option 1 | Option 2 |
|---------|---|-------------------------------|----------|
| 1 | Highest price or discount | $(1 + \frac{(P - P_m)}{P_m})$ | P/P_m |
| 2 | Lowest price or percentage commission/fee | $(1 - \frac{(P - P_m)}{P_m})$ | P_m/P |

Where:

P_m = the comparative offer of the most favourable Bid Offer.
 P = the comparative offer of Bid Offer under consideration.

F.3.11.3 Scoring quality (functionality)

Score quality in each of the categories stated in the Bid Data and calculate total score for quality.

F.3.12 Insurance provided by the Employer

If requested by the proposed successful bidder, submit for the bidder's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the Employer to provide.

F.3.13 Acceptance of Bid Offer

F.3.13.1 Accept Bid Offer only if the bidder satisfies the legal requirements stated in the Bid Data.

F.3.13.2 Notify the successful bidder of the Employer's acceptance of his Bid offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the Bid Data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the Employer and the successful bidder as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful Bidders

After the successful bidder has acknowledged the employer's notice of acceptance, notify other bidders that their Bid Offers have not been accepted. This will only be done upon receipt of a written request.

F.3.15. Prepare contract documents

If necessary, revise documents that shall form part of the contract and that were issued by the Employer as part of the Bid Documents to take account of:

- a) addenda issued during the bid period,
- b) inclusion of some of the returnable documents,
- c) other revisions agreed between the Employer and the successful Bidder, and
- d) the schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of contract documents to the successful bidder for acceptance as soon as possible after the date of the Employer's signing of the form of offer and acceptance (including the schedule of deviations, if any). Only those documents that the conditions of bid require the bidder to submit, after acceptance by the Employer, shall be included.

(a) F.3.17 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.18 Provide copies of the contracts

Provide to the successful bidder the number of copies stated in the Bid Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

T2.1 List of Returnable Documents

The Bidder must complete the following returnable documents:

1. Returnable schedules required only for bid evaluation purposes

- Record of Addenda to Bid Document
- Compulsory Enterprise Questionnaire
- Certificate of authority for joint ventures (where applicable)
- Schedule of Subcontractors
- Schedule of Plant and Equipment
- Schedule of the Bidder's Experience
- Proposed Amendments and Qualifications
- MBD 1 – Invitation to BID
- MBD 2 - Tax Clearance Requirements
- MBD 4 - Declaration of Interest
- MBD 5 - Declaration for procurement above R10,0m (excluding VAT)
- MBD 6.1 - Preference Points Claim form in terms of the Preferential Procurement Regulations, 2022
- MBD 8 - Declaration of Bidder's past Supply Chain Management Practices
- MBD 9 – Certificate of independent BID determination
- Certified copy of Municipal Rates & Taxes clearance certificate

2. Other documents required only for bid evaluation purposes

- Certificate of Contractor Registration issued by the Construction Industry Development Board (CIDB).
- An original valid Tax Clearance Certificate issued by the South African Revenue Services (the standard tax clearance certificate requirements and application form are available from the consultants).
- Certified copy of Company Registration Certificate.
- Proof of registration on the Central Supplier Database (CSD).
- BBBEE Certificate.
- Copy of company profile.
- Bank Rating Certificate.

3. Returnable schedules that will be incorporated into the Contract

- Preferencing Schedule (Municipal Bidding Document forms)

4. Other documents that will be incorporated into the contract

- Bidder's Occupational Health and Safety Plan
- Method Statement
- Skills Transfer Plan

5. The offer portion of the C1.1 Offer and Acceptance
6. C1.2 Contract Data (Part 2)
7. C2.2 Bill of Quantities

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

T2.2 Returnable Schedules

RECORD OF ADDENDA TO BID DOCUMENT

We confirm that the following communications received from the Employer before the submission of this Bid Offer, amending the Bid Documents, have been taken into account in this Bid Offer:

| | Date | Title or Details |
|----|-------------|-------------------------|
| 1. | | |
| 2. | | |
| 3. | | |
| 4. | | |
| 5. | | |
| 6. | | |

Attach additional pages if more space is required.

Signed

Date

Name

Position

Bidder

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:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

| Name* | Identity number* | Personal income tax number* |
|-------|------------------|-----------------------------|
| | | |
| | | |
| | | |

* 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

Close corporation number

Tax reference number

Section 6: Record of service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

If any of the above boxes are marked, disclose the following:

| Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder | Name of institution, public office, board or organ of state and position held | Status of service (tick appropriate column) | |
|---|---|---|-----------------------|
| | | Current | Within last 12 months |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months been in the service of any of the following:

- | | |
|--|---|
| <input type="checkbox"/> a member of any municipal council | <input type="checkbox"/> an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999) |
| <input type="checkbox"/> a member of any provincial legislature | <input type="checkbox"/> a member of an accounting authority of any national or provincial public entity |
| <input type="checkbox"/> a member of the National Assembly or the National Council of Province | <input type="checkbox"/> an employee of Parliament or a provincial legislature |
| <input type="checkbox"/> a member of the board of directors of any municipal entity | |
| <input type="checkbox"/> an official of any municipality or municipal entity | |

| Name of spouse, child or parent | Name of institution, public office, board or organ of state and position held | Status of service (tick appropriate column) | |
|---------------------------------|---|---|-----------------------|
| | | Current | Within last 12 months |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

*insert separate page if necessary

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

- authorizes the Employer to verify the tax clearance certificate from the South African Revenue Services that my/our tax matters are in order;
- confirms that 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 Bid Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- 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;
- confirms that I/we are not associated, linked or involved with any other Bidding entities submitting Bid offers and have no other relationship with any of the Bidders or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest;
- 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 **Date**

Name **Position**

Bidder

CERTIFICATE OF AUTHORITY FOR JOINT VENTURES

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this Bid offer in Joint Venture and hereby authorise

Mr/Me

authorised signatory of the company

acting in the capacity of lead partner, to sign all documents in connection with the Bid offer and any contract resulting from it on our behalf.

| NAME OF FIRM | ADDRESS | DULY AUTHORISED SIGNATORY |
|--------------|---------|---|
| Lead partner | | Signature: Name Designation |
| | | Signature: Name Designation |
| | | Signature: Name Designation |
| | | Signature: Name Designation |

SCHEDULE OF PROPOSED SUB-CONTRACTORS

We notify you that it is our intention to employ the following sub-contractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the names of proposed sub-contractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

We confirm that all sub-contractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

| | Name and address of proposed sub-contractor | Nature and extent of work | Previous experience with sub-contractor |
|-----------|--|----------------------------------|--|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |

Signed **Date**

Name **Position**

Bidder

SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I/we presently own or lease and will have available for this contract or will acquire or hire for this contract if my/our Bid is accepted.

- (a) Details of major equipment that is owned by and immediately available for this contract.

| Quantity | Description, size, capacity, etc. |
|----------|-----------------------------------|
| | |

Attach additional pages if more space is required.

- (b) Details of major equipment that will be hired, or acquired for this contract if my/our Bid is acceptable.

| Quantity | Description, size, capacity, etc. |
|----------|-----------------------------------|
| | |

Attach additional pages if more space is required.

Signed _____ **Date** _____

Name _____ **Position** _____

Bidder _____

SCHEDULE OF THE BIDDER'S EXPERIENCE

The following is a statement of similar work successfully executed by myself/ourselves:

| Employer, contact person and telephone number. | Description of contract | Value of work incl. VAT (R) | Date completed |
|--|-------------------------|-----------------------------|----------------|
| | | | |

Note: Completion Certificated to be attached

Signed **Date**

Name **Position**

Bidder

PROPOSED AMENDMENTS AND QUALIFICATIONS

The Bidder should record any deviations or qualifications he may wish to make to the Bid documents in this Returnable Schedule. Alternatively, a Bidder may state such deviations and qualifications in a covering letter to his Bid and reference such letter in this schedule.

The Bidder's attention is drawn to clause F.3.8 of the Standard Conditions of Bid referenced in the Bid Data regarding the Employer's handling of material deviations and qualifications.

| Page | Clause or item | Proposal |
|------|----------------|----------|
| | | |

Signed _____ **Date** _____

Name _____ **Position** _____

Bidder _____

PART A
INVITATION TO BID

| | | | | | |
|--|--|---------------|---|------------------|--|
| YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE MALUTI-A-PHOFUNG LOCAL MUNICIPALITY | | | | | |
| BID NUMBER: | SCM/BID09/2023/2024 | CLOSING DATE: | 07 DECEMBER 2023 | CLOSING TIME: | 10:00 |
| DESCRIPTION | APPOINTMENT OF SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1 | | | | |
| BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS) | | | | | |
| MALUTI-A-PHOFUNG MUNICIPALITY | | | | | |
| C / O MOREMOHOLO AND MOTLOUNG STREETS | | | | | |
| SETSING BUSINESS CENTRE | | | | | |
| PHUTHADITJHABA | | | | | |
| 9870 | | | | | |
| BID BOX "A" | | | | | |
| SUPPLIER INFORMATION | | | | | |
| NAME OF BIDDER | | | | | |
| POSTAL ADDRESS | | | | | |
| STREET ADDRESS | | | | | |
| TELEPHONE NUMBER | CODE | | NUMBER | | |
| CELLPHONE NUMBER | | | | | |
| FACSIMILE NUMBER | CODE | | NUMBER | | |
| E-MAIL ADDRESS | | | | | |
| VAT REGISTRATION NUMBER | | | | | |
| TAX COMPLIANCE STATUS | TCS PIN: | | OR | CSD No: | MAAA |
| ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED? | <input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES ENCLOSE PROOF] | | ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED? | | <input type="checkbox"/> Yes <input type="checkbox"/> No [IF YES, ANSWER THE QUESTIONNAIRE BELOW] |
| BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO | | | TECHNICAL ENQUIRIES MAY BE DIRECTED TO: | | |
| DEPARTMENT | SCM | | CONTACT PERSON | Mr B Ungerer | |
| CONTACT PERSON | MR T.M THOABALA | | TELEPHONE NUMBER | 076 538 1722 | |
| TELEPHONE NUMBER | 058 718 3863 | | FACSIMILE NUMBER | N/A | |
| FACSIMILE NUMBER | N/A | | E-MAIL ADDRESS | pjhcc@lantic.net | |
| E-MAIL ADDRESS | thabiso@map.fs.gov.za | | | | |

PART B
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

- 1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
- 1.2. **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED–(NOT TO BE RE-TYPED) OR ONLINE**
- 1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

- 2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
- 2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
- 2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
- 2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PART B.3.
- 2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
- 2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
- 2.7 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

- IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO
- DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO
- DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO
- DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO
- IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO
- IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.**

**NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICES OF THE STATE.**

SIGNATURE OF BIDDER:

CAPACITY UNDER WHICH THIS BID IS SIGNED:

DATE:

TAX CLEARANCE REQUIREMENTS

IT IS A CONDITION OF BIDDING THAT:

1. The taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with the Receiver of Revenue to meet his/her tax obligations.
2. The attached form "Application for Tax Clearance Certificate (in respect of bidders)", must be completed in all respects and submitted to the Receiver of Revenue where the bidder is registered for tax purposes. The Receiver of Revenue will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of twelve (12) months from date of issue. This Tax Clearance Certificate must be submitted in the original together with the bid. Failure to submit the original and valid Tax Clearance Certificate may invalidate the bid.
3. In bids where consortia/joint ventures/sub-contractors are involved each party must submit a separate Tax Clearance Certificate. Copies of the Application for Tax Clearance Certificates are available at any Receiver's Office.

**APPLICATION FOR TAX CLEARANCE CERTIFICATE
(IN RESPECT OF BIDDERS)**

1. Name of taxpayer / bidder:

2. Trade name:

3. Identification number:

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

4. Company / Close Corporation registration number:

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

5. Income tax reference number:

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

6. VAT registration number (if applicable):

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

7. PAYE employer's registration number (if applicable):

| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| | | | | | | | | | | | | | | |
|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

Signature of contact person requiring Tax Clearance Certificate:

Name:

Telephone number: Code:..... Number:

Address:

.....

.....

DATE: 20____ / ____ / ____

Please note that the Commissioner for the South African Revenue Service (SARS) will not exercise his discretionary powers in favour of any person with regard to any interest, penalties and / or additional tax leviable due to the late- or underpayment of taxes, duties or levies or the rendition returns by any person as a result of any system not being year 2000 compliant.

[MBD 2]

DECLARATION OF INTEREST

1. No bid will be accepted from persons in the service of the state*.
2. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest.
- 3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full name:

3.2 Identity number:

3.3 Company registration number:

3.4 Tax reference number:

3.5 VAT registration number:

3.6 Are you presently in the service of the State* YES / NO

3.6.1 If so, furnish particulars.

.....

3.7 Have you been in the service of the State for the past twelve months? YES / NO

3.7.1 If so, furnish particulars

.....

* MSCM Regulations: "in the service of the state" means to be –

(a) a member of –

(i) any municipal council;

(ii) any provincial legislature; or

(iii) the national Assembly or the National Council of Provinces;

(b) a member of the board of directors of any municipal entity;

(c) an official of any municipality or municipal entity;

(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);

(e) a member of the accounting authority of any national or provincial public entity; or

(f) an employee of Parliament or a provincial legislature.

3.8 Do you, have any relationship (family, friend, other) with persons in the service of the State and who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.8.1 If so, furnish particulars.

.....
.....

3.9 Are you, aware of any relationship (family, friend, other) between a bidder and any persons in the service of the State who may be involved with the evaluation and or adjudication of this bid? **YES / NO**

3.9.1 If so, furnish particulars

.....
.....

3.10 Are any of the company's directors, managers, principle shareholders or stakeholders in service of the State? **YES / NO**

3.10.1 If so, furnish particulars.

.....
.....

3.11 Are any spouse, child or parent of the company's directors, managers, principle shareholders or stakeholders in service of the State? **YES / NO**

3.11.1 If so, furnish particulars.

.....
.....

CERTIFICATION

I, THE UNDERSIGNED
(NAME).....

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

**DECLARATION FOR PROCUREMENT ABOVE R10 MILLION
(VAT INCLUDED)**

For all procurement expected to exceed R10 million (VAT included), bidders must complete the following questionnaire:

1. Are you by law required to prepare annual financial statements for auditing? **YES / NO**

1.1 If yes, submit audited annual financial statements for the past three years or since the date of establishment if established during the past three years.

.....
.....

2 Do you have any outstanding undisputed commitments for municipal services towards a municipality or any other service provider in respect of which payment is overdue for more than 30 days? **YES / NO**

2.1 If no, this serves to certify that the bidder has no undisputed commitments for municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days.

2.2 If yes provide particulars

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

3. Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract? **YES / NO**

3.1 If yes, furnish particulars

.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic? **YES / NO**

4.1 If yes, furnish particulars

.....
.....

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)

**CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM
TRUE AND CORRECT.**

**I ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE
TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.**

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for specific goals.

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF THE TENDER AND PREFERENTIAL PROCUREMENT REGULATIONS, 2022.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2

a) The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the 80/20 preference point system shall be applicable; or

1.3 Points for this bid shall be awarded for:

- (a) Price; and
- (b) Specific goals

1.4 The maximum points for this bid are allocated as follows:

1.5

| | POINTS |
|--|------------|
| PRICE | 80 |
| SPECIFIC GOALS | 20 |
| Total points for Price and Specific Goals must not exceed | 100 |

1.6 Failure on the part of a bidder to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender will be interpreted to mean that preference points for specific goals are not claimed.

1.7 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

The words in this policy shall bear a meaning as prescribed and/or ascribed by applicable legislation, and in the event of a conflict, the meaning attached thereto by National Legislation shall prevail:

- (a) “Act” means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).
- (b) “Black people” as defined in the Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003), is a generic term which means Africans, Coloured and Indians.
- (c) “Tender” means a written offer or bid in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services or goods.
- (d) “price” means an amount of money tendered for good or services, and includes all applicable taxes less all unconditional discounts;
- (e) “rand value” means the total estimated value of a contract in rand, calculated at the time of bid tender invitation, and includes all applicable taxes and
- (f) “tender for income generating contracts” means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auction.

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 PREFERENCE POINT SYSTEMS

A maximum of 80 points is allocated for price on the following basis:

80/20

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

P_s = Points scored for price of bid under consideration
P_t = Price of bid under consideration
P_{min} = Price of lowest acceptable bid

4. POINTS AWARDED FOR SPECIFICATION GOALS

4.1 In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which

states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

Table 1: Specific goals for the tender and points claimed are indicated per the table below.

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such. Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

| The specific goals allocated points in terms of this tender | Number of points allocated (90/10 system) (To be completed by the organ of state) | Number of points allocated (80/20 system) (To be completed by the organ of state) | Number of points allocated (90/10 system) (To be completed by the tenderer) | Number of points allocated (80/20 system) (To be completed by the tenderer) |
|---|--|--|--|--|
| Historically disadvantaged personal | | 10 | | |
| Gender (Women owned enterprise) | | 10 | | |
| Total Points Allocated | | 20 | | |

DECLARATION WITH REGARD TO COMPANY/FIRM

4.1 Name of company/firm:.....

4.2 VAT registration number:.....

4.3 Company registration number:.....

4.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
 - ☐ One person business/sole propriety
 - ☐ Close corporation
 - ☐ Company
 - ☐ (Pty) Limited
- [TICK APPLICABLE BOX]

I, the undersigned, who is duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the specific goals as advised in the tender, qualifies the company/ firm for the preference(s) shown and I acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

Signature(s) of Tenderer(s):_____ Date: _____



MALUTI A PHOFUNG LOCAL MUNICIPALITY

Preferential Procurement Policy

2022/2023

Issued in terms of sections 152(1)(c) and 217 of the Constitution read with section 2 of the Preferential Procurement Policy Framework Act 5 of 2000 and Preferential Procurement regulations 2022

TABLE OF CONTENTS

| INDEX | |
|----------------|---|
| DEFINITIONS | |
| <u>PART 1</u> | INTRODUCTION |
| <u>PART 2</u> | PURPOSE AND OBJECTIVES |
| <u>PART 3</u> | LEGISLATIVE FRAMEWORK |
| <u>PART 4</u> | POLICY STATEMENTS |
| <u>PART 5</u> | APPLICABLE POINTS SYSTEM |
| <u>PART 6</u> | IDENTIFICATION AND APPLICATION OF POINTS SYSTEM |
| <u>PART 7</u> | PREFERENCE TARGETS AND EMPOWERMENT OBJECTIVES |
| <u>PART 8</u> | ALIGNMENT WITH THE PROCUREMENT PROCESS |
| <u>PART 9</u> | DEVIATIONS AND EXEMPTIONS |
| <u>PART 10</u> | ADMINISTRATION OF THE POLICY |
| <u>PART 11</u> | MAINTENANCE |
| <u>PART 12</u> | IMPLEMENTATION |
| <u>PART 13</u> | ANNEXURES |

DOCUMENT DEFINITION

| | |
|-------------------------|---|
| Version | 1 |
| Date | |
| Summary | This document is the Preferential Procurement Policy applicable to Maluti A Phoung Local Municipality |
| Signature | <div> <div></div> <div>Date:</div> </div> |
| Approved by the Council | <div> <div>MUNICIPAL MANAGER</div> <div>Date:</div> </div> |
| Effective date | Resolution |
| Next revision date | |

DEFINITIONS

The words in this policy shall bear a meaning as prescribed and/or ascribed by applicable legislation, and in the event of a conflict, the meaning attached thereto by National Legislation shall prevail:

- 1) "Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No.5 of 2000).
- 2) "Black people" as defined in the Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003), is a generic term which means Africans, Coloured and Indians.
- 3) "Broad-Based Black Economic Empowerment Act" means the Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003).
- 4) "Code of good practice" means a generic or sector-specific B-BBEE certificate.
- 5) "Collusion" means an intentional and unlawful agreement by two or more companies / firms which is intended or calculated to misrepresent facts or defraud with the sole purpose of influencing the procurement process thereby prejudicing the interests of the service provider.
- 6) "Companies and Shares" shall be read to include Close Corporations and members interest's mutatis mutandis.
- 7) "Comparative price" means the price after the factors of a non-firm price and all unconditional discounts that can be utilised have been taken into consideration.
- 8) "Conditions of Tender" means A document of the procedures, the manner in which those engaged in the procurement process are to behave, the obligations of the tenderer and the undertakings of the municipality. The Conditions of Tender are distinct from the General Conditions of Contract and the Special Conditions of Contract.
- 9) "Consortium or Joint Venture" means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.
- 10) "Contract" means the agreement that results from the acceptance of a tender by an organ of state.
- 11) "CFO" means Chief Financial Officer.
- 12) "Direct Sales" means sales directly to citizens and customers where a competitive bidding process was not followed. Direct sales include the income generated for municipal services; entrance tickets to municipal venues;
..... Direct sales also include sales for bulk services that are negotiated with a bulk customer.
- 13) "Disability" means, in respect of a person, a permanent impairment of a physical, intellectual, or sensory function, which results in restricted, or lack of, ability to perform an activity in the manner, or within the range, considered normal for a human being.

- 14) "Firm price" is the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, 'levy, or tax, which, in terms of a law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract.
- 15) "Income generating contract" means a legal agreement between the municipality and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions;
- 16) "Individual" an individual shall mean a natural person.
- 17) "Indigent" any person who appears on the Municipality's indigent register as of 1 July of the year under consideration.
- 18) "Local Labour" means South African residents who permanently resides in the Maluti A Phoung Municipal area.
- 19) "Local Business" means an enterprise which has an operational office located within the Maluti A Phoung Municipal area.
- 20) "Local economic development" means local and socio-economic development as contemplated in section 152 of the Constitution, 1998.
- 21) "Management" in relation to an enterprise or business, means an activity inclusive of control and performed daily, by any person who is a principal executive officer of the company, by whatever name that person may be designated, and whether or not that person is a director.
- 22) "Non-firm prices" means all prices other than "firm" prices.
- 23) "Person" includes reference to a juristic person.
- 24) "Public auction" means a traditional "open cry" auction where it is not practical to apply a system of preference.
Examples include events facilitated by an auctioneer during asset disposal auctions; auction of unwanted goods; staff auctions etc. Public auctions would NOT include "electronic auctions", "beauty contests", "sealed bid" auctions, and "Anglo-Dutch" auctions.
- 25) "Rand value" means the total estimated value of a contract in Rand denomination which is calculated at the time of tender invitations and includes all applicable taxes and excise duties.
- 26) "Sub-Contracting" means the primary contractor's assigning or leasing or making out work to or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

- 27) "Nominated Sub-contractor" means contractors accredited on the Municipal database for construction related work as contemplated in the CIDBA.
- 28) "Tender" means a written offer or bid in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services or goods.
- 29) "Tender format/strategy" means the special conditions describing the tender strategy approach in order to achieve identified targets.
- 30) "Trust" means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person.
- 31) "Trustee" means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

PART 1. INTRODUCTION

- 1.1. The Preferential Procurement Framework Act, section 2(1) prescribes that each government institution must determine its own preferential procurement policy, within a framework upon which the institution will specify how the preferential points will be allocated when awarding bids and how it intends to use procurement as one of its enablers for economic development. The National Treasury provided Preferential Procurement Regulations 2022, issued on 4 November 2022, to provide minimum guidance and requirements for all government Institutions, on the determination of their own preferential procurement policies.
- 1.2. This policy is aimed at assisting the municipal program of redressing the historical imbalances through the application of the preferential points system and other incentive programs aimed at economic local economic development.

PART 2. PURPOSE AND OBJECTIVES

- 2.1. The purpose of the policy is to assist municipality to implement and achieve the objectives of the PPPFA and the implementation of section 152 of the Constitution through the following:
- 2.1.1. Validate the Municipality's commitment to local-and socio-economic development and preferential procurement.
- 2.1.2. Ensure effective and efficient application of resources.
- 2.1.3. Promote accountability, transparency, and fairness.
- 2.1.4. Create opportunities for local small, medium, and micro enterprises [SMME].
- 2.1.5. Enhance quality of services
- 2.1.6. Stimulate local- and socio-economic development.
- 2.1.7. Eliminate and counter corruption.
- 2.1.8. Contribute towards reduction of unemployment, especially within the Municipal Area.
- 2.1.9. Broadening the tax base within the Municipal Area.

- 2.1.10. Encourage linkages between small and large enterprises.
- 2.1.11. Promote skills transfer and training of the historically disadvantaged.
- 2.1.12. Protect local industry against unfair competition.
- 2.1.13. Create new jobs or intensify labour absorption within the local area.
- 2.1.14. Promote enterprises located within the Municipal Area for work to be done or services to be rendered.

PART 3. LEGISLATIVE FRAMEWORK

Constitution, 1996 (Act 108 of 1996)

- 3.1. Sections 152(1)(c) and 152(2) of the Constitution provides that local government must promote social and economic development and that the municipality must strive within its financial and administrative capacity, to achieve the objects set out in subsection 152(1).
- 3.2. Section 217(1) of the Constitution, 1996 (Act 108 of 1996) provides that when contracting for goods and services, organs of state must do so in accordance with a system that is fair, equitable, transparent, competitive, and cost effective. Section 217(2) and (3) of the Constitution allows organs of state to grant preferences when procuring for goods and services within a Framework prescribed by National legislation.

Local Government Municipal Finance Management Act, 2003 (Act 56 of 2003) - [MFMA] and related SCM Treasury Regulations, 2005 [SCM TR]

- 3.3. The MFMA aims to regulate financial management and Supply Chain Management [SCM] of local government to ensure that all revenue, expenditure, assets, and liabilities are managed efficiently and effectively.
- 3.4. Sections 110 - 119 of the MFMA deals with SCM requirements and must be read together with the SCM TR's 1 - 52 issued in terms of section 168 of the MFMA through GG 27636 effective from 30 May 2005. Both these sets of prescripts support the application of the PPPFA.

Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000) - [PPPFA]

- 3.5. The PPPFA, 2000 took effect on 3 February 2000. The main thrust of the PPPFA, 2000 is that an organ of state must determine its preferential procurement policy and implement such within the preferential procurement framework, the latter which is commonly called the '80/20 or 90/10 principle'.
- 3.6. The other relevant legislation and prescripts are discussed in the Municipal SCM Policy and can be obtained from the Office of the CFO.

- a. Providing third-party management support to enterprises which are not capable of operating as prime contractors.
 - b. Providing training to new entrants.
 - c. Promoting learner-ships, internships, pupil-ships, etc.
 - d. Obligating main contractors or service providers to engage targeted enterprises in the performance of their contracts incorporating resource specifications.
 - e. Foster joint ventures that are formed between large businesses and targeted enterprises (termed as Structured Joint Ventures).
 - f. Encourage and involve funding institutions to assist small businesses with access to finance and negotiate for credit lines.
 - g. Encourage local manufacturing and procurement from small businesses within the Maluti A Phoung municipal area.
 - h. Unbundling of big projects and identifying opportunities and areas/scope of works that can be carried out by emerging contractors bar those from the main assignment shall be pursued vigorously.
- 4.4.3. Unbundling strategies do not include the breaking down of projects into smaller portions to remain below certain threshold values or more than one contract.

4.5. Targeting

- 4.5.1. Targeting will be regarded as a specific goal identified by Maluti A Phoung Municipality and will be reflected in Part 7 to this Policy.
- 4.5.2. These targets will be determined prior to the Invitation of tenders and reflected as special and/or pre-qualifying conditions.

PART 5. APPLICABLE POINTS SYSTEM

5.1. Application of preference point system

- 5.1.1. The Municipality will, in the tender documents, stipulate -
 - (a) the preference point system applicable; and
 - (b) any specific goal as envisaged in section 2(1)(d) and (e) of the Preferential Procurement Act.
- 5.1.2. If it is unclear whether the 80/20 or 90/10 preference point system applies-
 - (a) an Invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system.

5.2. 80/20 preference point system for acquisition of goods or services with Rand value equal to or below R50 million

- 5.2.1. The following formula must be used to calculate the points out of 80 for price in respect of a tender with a Rand value equal to or below R50 million, inclusive of all applicable taxes:

$$P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where-

P_s = Points scored for price of tender under consideration;

P_t = Price of tender under consideration; and

P_{min} = Price of lowest acceptable tender.

- 5.2.2. A maximum of 20 points may be awarded to a tenderer for the specified goals for the tender.

- 5.2.3. The points scored for the specific goal must be added to the points scored for the price and the total must be rounded off to the nearest two decimal places.

- 5.2.4. Subject to section 2(1) (n) of the Act, the contract must be awarded to the tendering scoring the highest points,

5.3. 90/10 preference point system for acquisition of goods or services with Rand value above R50 million

- 5.3.1. The following formula must be used to calculate the points out of 90 for price in respect of a tender with a Rand value above R50 million, inclusive of all applicable taxes:

$$P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

Where

P_s = Points scored for price of tender under consideration

P_t = Price of tender under consideration

P_{min} = Price of lowest acceptable tender

- 5.4. A maximum of 10 points may be awarded to a tenderer for the specified goals for the tender.
- 5.5. The points scored for the specific goal must be added to the points scored for price and the total must be rounded off to the nearest two decimal places.
- 5.6. Subject to section 2(1)(f) of the Act, the contract must be awarded to the tenderer scoring the highest points.
- 5.6. 80/20 preference points system for tenders to for income-generating contracts with Rand value equal to or. below R50 million
- 5.6.1. The following formula must be used to calculate the points for price in respect of an invitation for tender for income-generating contracts, with a Rand value equal to or below R50 million, inclusive of all applicable taxes:

$$P_s = 80 \left(1 - \frac{P_t - P_{max}}{P_{max}} \right)$$

Where-

P_s = Points scored for price of tender under consideration;

P_t = Price of tender under consideration; and

P_{max} = Price of Highest acceptable tender.

- 5.6.2. A maximum of 20 points may be awarded to a tenderer for the specific goal specified for the tender.
- 5.6.3. The points scored for the specific goal must be added to the points scored for price and the total must be rounded off to the nearest two decimal places.
- 5.6.4. Subject to section 2(1)(f) of the Act, the contract must be awarded to the tenderer scoring the highest points.
- 5.7. 90/10 preference point system for tenders for income-generating contracts with Rand value above R50 million
- 5.7.1. The following formula must be used to calculate the points for price in respect of a tender for income-generating contracts, with a Rand value above R50 million inclusive of all applicable taxes:

$$P_s = 90 \left(1 - \frac{P_t - P_{max}}{P_{max}} \right)$$

Where-

P_s = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

5.7.2. A maximum of 10 points may be awarded to a tenderer for the specific goal specified for the tender.

5.7.3. The points scored for the specific goal must be added to the points scored for price and the total must be rounded off to the nearest two decimal places.

5.7.4. Subject to section 2(1)(f) of the Act, the contract must be awarded to the tenderer scoring the highest points.

PART 6. IDENTIFICATION AND APPLICATION OF POINTS SYSTEM

6.1. The Municipality must in line with section 2 of PPPFA and Regulations 4,5,6 and 7 of the PPR 2022 determine the applicable preference points system applicable in the tender document for quotations, competitive bids and multiple limited bids for the procurement of goods, services and works; the disposal assets or goods no longer required; and for income-generating contracts:

6.2. The 80/20 preference point system for contracts with a Rand value between the threshold used for Petty Cash and less than or equal to R50,000,000 including all applicable taxes; or the 90/10 preference point system for contracts with a Rand value greater than R50,000,000 including all applicable taxes.

6.3. Where the municipality is uncertain of the rand value of the tender, it must indicate in the tender document that either 80/20 or 90/10 will apply, to avoid cancellation of tender thus delaying service delivery.

6.4. Invitation for procurement contracts, that the lowest acceptable tender will be used to determine the applicable preference point system; or for an invitation for disposal or income-generating contracts, that the highest acceptable tender will be used to determine the applicable preference point system.

6.5. The application of points system:

6.3.1. Where the tender includes evaluation criteria, the municipality should first determine the bids meeting the set criteria (important to note that the provision of this policy should not form part of the evaluation criteria, rather be included as a conditions of tender).

6.3.2. Determine the points scored using the price formula 80 or 90 points system

6.3.3. Determine the specific goals for 20 or 10 preference points system, as outline in section 2 (d) of the PPPFA. The allocation of the applicable preference points to be determined by each council for each tender and must be set out in the tender document.

6.6. The tendering conditions will stipulate the specific goals, as contemplated in section 2(1)(d)(ii) of the Preferential Procurement Act, be attained.

6.7. A maximum of 20 points (80/20 preference points system) or 10 (90/10) preference points system), will be allocated for specific goals. These goals are:

(a) contracting with persons, or categories of persons, historically disadvantaged by unfair discrimination on the basis of race, gender or disability;

(b) local labour and/ or promotion of enterprises located in the municipal area (phased in approach to be applied for other specific goals).

- 6.8. The policy should not include Pre-qualification goals.
- 6.9. Any specific goal for which a point may be awarded, must be clearly specified in the invitation to submit a tender.
- 6.10. A tenderer failing to submit proof of required evidence to claim preferences for other specified goals, which is in line with section 2 (1) (d) (ii) of the Act.
- (I) may only score in terms of the SO/90-point formula for price; and
 - (II) scores 0 points out of 10/5 of the relevant specific goals where the supplier or service provider did not stipulate.
 - (III)
- 6.11. The preference points scored by a tenderer must be added to the points scored for price.
- 6.12. The points scored must be rounded off to the nearest two decimal places.
- 6.13. The contract must be awarded to the tenderer scoring the highest procurement points

PART 7. PREFERENCE TARGETS AND EMPOWERMENT OBJECTIVES

7.1. Empowerment objectives

- 7.1.1. As part of the implementation of section 152 of the Constitution, the municipality has systematically institutionalised empowerment incentives for procurements exceeding the specified threshold values, which have formed part of the conditions of tenders, with the view of maximising the rand value benefit for the local community
- 7.1.2. The determination of the empowerment objectives per tender shall be prepared in collaboration between SCM unit, LED Unit and Line Departmental.
- 7.1.3. The data to be produced by the preferred service provider as evidence of meeting the empowerment objectives, shall be jointly determined between SCM unit, LED Unit and Line Departmental. The contract owner (Site manager) shall be responsible for active monitoring and approval of achievements of objectives, which will form part of the payment certificates invoices.
- 7.1.4. The threshold values and types of contracts which empowerment objectives will apply:

| TYPE | THRESHOLD VALUE. | DEFINITION |
|-----------------|--------------------------------------|---|
| Major Contracts | Contract Exceeding R 10 million rand | <ul style="list-style-type: none"> ➤ High contract value ➤ Large scale development ➤ Any bid category (CIDB or General goods and services) |

| TYPE | THRESHOLD VALUE | DEFINITION |
|---------------------|--|--|
| Long term contracts | Contract Exceeding one year | <ul style="list-style-type: none"> ➤ Risks are judged to be acceptable ➤ Medium to high complex works ➤ Any bid category (CIOB or General goods and services) |
| Micro | Contracts exceeding R 5 million but less than R10 million rand | <ul style="list-style-type: none"> ➤ Risks are judged to be limited or non-existent ➤ Low to medium complexity types of works ➤ Short term project ➤ Any bid category (CIOB or General goods and services) |

7.2. Empowerment programs

7.2.1. Through this policy the council can determine its own empowerment programs which will be aimed at community upliftment.

7.2.2. The types of empowerment programs to be determined by council can typically fall within the following areas:

7.2.2.1. CSI- Corporate Social Investment

- a. Corporate social investment (CSI) is defined as contributions (either employee time and/or resources) which bring benefits over and above those directly associated with the Municipal core business activities.
- b. Depending on the principles of fairness and cost-effectiveness, the relevant commodity required and the profile of the supply industry, the Municipality may require that specific CSI contributions be made in line with the Municipal Grant-in-Aid Policy.
- c. The suppliers shall be expected to indicate or provide an outline of socio-economic projects to be implemented through its Corporate Social Responsibility in the Municipal area. Proposed projects must be measurable with specific focus on vulnerable groups. Bidders can suggest or explore the following socio-economic project practices for consideration:
- d.
 1. On the job training and development of staff (Learnerships), particularly for the unemployed or young people including the recruitment of long-term job seekers and handicapped people.
 2. Young women / mother's upliftment / leadership programme.
 3. Skills development initiatives (technical and soft skills) must be accredited with recognised institutions.
 4. Youth leadership and empowerment projects.
 5. Early childhood development.
 6. Projects can be in collaboration with local CBO's, NGOs, and relevant institutions.

7. Business skills and enterprise support including mentoring of local enterprises.
 8. Development of Parks and open spaces.
- e. It is specifically recorded that NO CSI financial contributions will be required or accepted.
 - f. The Municipality will adopt a uniform standard in acknowledging, monitoring, and reporting on CSI contributions.

7.2.2.2.Skills transfer

- a. The council shall determine a system for skills transfer of knowledge and expertise to identified municipal staff members where the service provider shall train officials provide evidence.
- b. if the project is community based, the service provider shall train identified community members in operating, maintaining, and securing the asset.
- c. where feasible the municipality should make it a condition of contract that the service provider must train SMME's in business operations, financial aspects of business and compliance aspects of business.

7.2.2.3.Contractor development and Special purpose vehicle projects

- a. Where the municipality has an active contractor development programme, where SMME's are registered, the service provider shall be required to conduct a contractor development programme on behalf of the municipality.
- b. As part of the conditions, the service provider shall be required to give preference to the SMME's in the contractor development incubation programme in pre-determined areas of work.

7.3. Preference targets

7.3.1. The municipality's procurement policy should be a progressive policy which aims to continuously set aspirational targets to achieve in empowering the local community as follows:

| POLICY OBJECTIVE | TARGET |
|---|--|
| Improve market share of local SMME's | ➤ The municipality will continuously promote and implement targeted strategies and modalities, in order to improve the local SMME's competitiveness in the market, as guided by section 152 of the Constitution. |
| Improve the local economic market [local buying] | ➤ Bidders awarded bids by the must source the materials within the Municipal area, where possible. |
| Employment of local seem unskilled workers | ➤ In all projects implemented in the Municipal area, the main contractor will source unskilled in the area per Municipal ward and Semi-Skilled labourers within Municipal area |
| Ensure equitable work Central distribution in the Municipal area. | ➤ Develop a rotation mechanism to employ local businesses registered on the Supplier Database for projects below R 200 000, inclusive of, Inclusive of construction related services. |

| POLICY OBJECTIVE | TARGET |
|--|--|
| Address identified local socio-economic weakness areas i.e.: (i) Unemployed Youth | <ul style="list-style-type: none"> ➤ The municipality will continuously identify commodities in the demand management plans that will be marked as special purpose vehicles focusing on youth employment. ➤ LED unit will compile and keep a database of the demographics, of the youth and other groups employment status per ward level and Municipal level. |

7.3.2. The municipality shall determine a policy implementation strategy which shall detail the specific targets to ensure the above preference targets are met, and the strategy shall be reviewed annually in conjunction with the budget policies and ensuring that these programmes are budgeted for.

7.3.3. To determine which tender conditions will be applicable to a specific tender, the following considerations will apply:

- a) The Municipality must to apply the empowerment goals as per section 2 of PPPFA for allocating preference points within the preference point system applicable to the tender.
- b) The Municipality must determine and record its reasons whether the goods or services for which a tender is to be invited, will be evaluated based on functionality. Apply functionality as per case law best practice.
- c) The Municipality must determine targeting conditions for procurement within the thresholds as directed by Council in 8.1 above and apply such as conditions of tender and/or conditions of contract.
- d) The Municipality must determine whether and what additional objective criteria are applicable to the tender as envisaged in the PPPFA 2(1) (f)
 - i. Objective criteria (2(1)(f)) may be included in the invitation to quote or bid, but will not be limited to that which is published; and
 - ii. Objective criteria (2(1)(f)) must not include evaluation criteria used to determine an acceptable tender, and must not include the Specific Goals used to determine the 20 or 10 points.
- e) All attempts should be made to use the labour and materials from residents per ward for projects to the benefit of such specific wards.

7.3.4. The LED and SCM Unit must jointly determine which data to maintain to be able to monitor and report on matters such as local buying, alignment between municipal demographics vis-a-vis SCM spent, and related factors.

PART 8. ALIGNMENT WITH THE PROCUREMENT PROCESS

8.1. The Municipal SCM Policy will guide the relevant SCM activities required.

8.2. The 'tender format/strategy' as identified in the policy statements and the targets above will be considered and where feasible included in any tender specifications as 'special conditions to tender'

PART 9. DEVIATIONS AND EXEMPTIONS

- 9.1. Any exemption from compliance to this Policy shall be permitted only within the delegatory powers permitted by Council and as prescribed in terms of the MFMA and the PPPF A.

PART 10. ADMINISTRATION OF POLICY

10.1. Responsibility

- 10.1.1. Responsibility for the implementation and administration of the Policy is delegated to the Accounting Officer, who will use the support from the SCM and LED Managers.
- 10.1.2. The Accounting Officer must ensure that each budget holder assumes responsibility for the implementation of the Policy within his/her area of responsibility and that such responsibility is included in his/her Performance Indicators, if so required.

10.2. LED

- 10.2.1. The Accounting Officer must ensure that the organisational design of the LED Office is appropriately structured, resourced, and capacitated.
- 10.2.2. The data captured by the SCM Unit will be analysed and reported on by the Manager: LED.

10.3. SCMU

- 10.3.1. The SCMU must maintain a database of requests and transactions to develop a trend-analysis and through such a process identify areas for efficiency and cost-effective improvements, e.g., minimising smaller purchases and maximising term contracts as well as determining strategies for universal commodities.
- 10.3.2. The data relevant to this Policy will be maintained by the SCM Unit as part of its contract register.
- 10.4. Oversight by Council
- 10.4.1. The Accounting Officer must align its reporting requirements to the Council as per SCM TR6 to also report on progress with the implementation of the Policy.

PART 11. MAINTENANCE

11. Criteria for breaking deadlock in scoring
- 11.1. If two or more tenderers score an equal total number of points, the contract must be awarded to the tenderer that scored the highest points for specific goals.
- 11.2. If two or more tenderers score an equal total number of points, the objective criteria in addition to those contemplated in paragraphs (d) and (e) justify the award to the tenderer that scored the highest points in terms in accordance with section 2(1) (D) of the Act.
- 11.3. If two or more tenderers score equal total points in all respects, the award must be decided by the drawing of lots.

11.4. Award of contracts to tenderers not scoring highest points

- a) A contract may be awarded to a tenderer that did not score the highest points only in accordance with section 2(1)(f) of the Act.

11.5. Remedies

- i. If a Municipality is of the view that a tenderer submitted false information regarding a specific goal, it must-
 - a) inform the tenderer; accordingly, and
 - b) give the tenderer an opportunity to make representations within 14 days as to why the tender may not be disqualified or, if the tender has already been awarded to the tenderer, the contract should not be terminated in whole or in part-

11.6. After conceding the representations referred to in par 11 (1)(b), the Municipality may-

- a) if it concludes that such false Information was submitted by the tenderer-
 - (i) disqualify the tenderer or terminate the contract in whole or in part; and
 - (ii) if applicable, claim damages from the tenderer;

PART 12: IMPLEMENTATION

12.1.This Policy is effective from

12.2.To achieve the above, the following immediate implementation steps are required:

- a. Increased capacity in the Office of the SCM and LED Managers.
- b. Commence with the development of a Municipal Emerging Contractor and Service Provider Development Policy.
- c. Communication with the local community.
- d. Establishment and institutionalisation of the Demand Management Committee.
- e. Development and approval of procurement plans/tender strategies via relevant Demand Management Committee.

PART 13. ANNEXURES

Annexure A

Preference target matrix

| POLICY OBJECTIVE | TARGET |
|---|---|
| Improve market share of local SMME's | <ul style="list-style-type: none">➤ By year 2024 the market-share of local businesses to be at least 30% of all municipal procurement.➤ By year 2025 the market-share of SMME's to be at least 35% of all municipal procurement. |
| Improve the local economic market [local buying] | <ul style="list-style-type: none">➤ By year 2024 the market-share of local businesses to be at least 40% of all municipal procurement.➤ By year 2025 the market-share of local businesses to be at least 45% of all municipal procurement |
| Employment of local semi-& unskilled workers | <ul style="list-style-type: none">➤ By year 2024 at least 50% of construction and related sector wage and allowance costs must represent local labour.➤ By year 2025 at least 60% of construction and related sector wage and allowance costs must represent local labour. |
| Empowerment of local registered indigents | <ul style="list-style-type: none">➤ By year 2027 at least 5% of procurement must be from business that formed co- operatives with indigents.➤ By year 2028 at least 10% of procurement must be from business that formed co-operatives with indigents. |
| Ensure equitable work distribution in Maluti A Phoung Municipal area. | Develop a rotation mechanism to employ 100% local businesses registered on the Municipality Supplier Database for projects below R 200 ODD, inclusive of construction related services. |
| Address identified local scoot- economic weakness areas i.e.: 12. Unemployed Youth | <ul style="list-style-type: none">➤ By year 2024 municipal procurement spend to unemployed youth be improved by 10% calculated from data compiled since 2021. |

"Annexure B"

Typical points allocation for Specific Goals

The allocation of points for empowerment goals and offers will be done in accordance with section 2 of the PPPFA in the following manner.

a. First determine the empowerment goals allocation (of the 10 and 20 points) for each tender:

- Categories of historically disadvantaged persons such as Black persons (as defined)

- Gender (woman owned enterprises)
- Disability (enterprises owned by disabled persons - the disability must be defined and properly classified)
- Youth enterprises (enterprises owned by persons younger than 35 years)
- Rural based businesses (enterprises located and operated by persons from rural areas)
- Township based businesses (enterprises located and operated by persons in the municipal township)
- Location based (points for locality, etc.)
- Corporate social initiative in the municipal area (based on rand value)

b. Then, where applicable, apply the relevant B-BBEE scorecard or B-BBEE attribute (such as EME or QSE) to the empowerment goal.

For example:

- Enterprises that are at least 51% women-owned (maximum 5 points):
 - o with a valid B-BBEE level 1 EME affidavit: 5 points
 - o with a valid B-BBEE level 2 EME affidavit: 2 points
- Enterprises that are at least 51% owned by disabled persons (maximum 5 points):
 - o with a valid B-BBEE level 1 EME affidavit: 5 points
 - o with a valid B-BBEE level 2 EME affidavit: 2 points
- Enterprises with at least a 51% ownership by Youth (maximum 5 points):
 - o with a B-BBEE level 1 EME affidavit 5 points
 - o with a B-BBEE level 2 EME affidavit: 2 points
- Locality (maximum 5 points):
 - o Head office in the municipality: 5 points
 - o Operational office in the municipality: 2 points

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Municipal Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a. abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b. been convicted for fraud or corruption during the past five years;
 - c. wilfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d. been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

| Item | Question | Yes | No |
|-------|--|---------------------------------|--------------------------------|
| 4.1 | Is the bidder or any of its directors listed on the National Treasury's database as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied). | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4.1.1 | If so, furnish particulars: | | |
| 4.2 | Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? (To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445). | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

| | | | |
|-------|--|---------------------------------|--------------------------------|
| 4.2.1 | If so, furnish particulars: | | |
| 4.3 | Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4.3.1 | If so, furnish particulars: | | |
| 4.4 | Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4.4.1 | If so, furnish particulars: | | |
| 4.5 | Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4.7.1 | If so, furnish particulars: | | |

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM TRUE AND CORRECT.

ACCEPT THAT, IN ADDITION TO CANCELLATION OF A CONTRACT, ACTION MAY BE TAKEN AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

CERTIFICATE OF INDEPENDENT BID DETERMANATION

- 1 This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a pe se prohibition meaning that it cannot be justified under any grounds.
- 3 Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - a. take all reasonable steps to prevent such abuse;
 - b. reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - c. cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
- 4 This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

² Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

- 1 I have read and I understand the contents of this Certificate;
- 2 I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
- 3 I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
- 4 Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
- 5 For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - a. has been requested to submit a bid in response to this bid invitation;
 - b. could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - c. provides the same goods and services as the bidder and/or is in the same line of business as the bidder
- 6 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.

- 7 In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
- a. prices;
 - b. geographical area where product or service will be rendered (market allocation)
 - c. methods, factors or formulas used to calculate prices;
 - d. the intention or decision to submit or not to submit, a bid;
 - e. the submission of a bid which does not meet the specifications and conditions of the bid; or
 - f. bidding with the intention not to win the bid.
- 8 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 9 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 10 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

3 Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY



Setsing Business Centre
C/O Moremoholo & Motlounj Streets
Phuthaditjhaba
9866

Private Bag X805
Witsieshoek
9870
Tel: 058 718 3700
Fax: 058 713 0459

Enquiries: Supply Chain Management Unit

MUNICIPAL SERVICES, RATES AND TAXES CLEARANCE CERTIFICATE FOR SUPPLY CHAIN MANAGEMENT PURPOSE

The purpose of this form is to obtain prove that municipal services, rates and taxes of the service provider are not more than three months in arrears with the relevant municipality / landlord in the municipal area where the service provider conduct his / her business. **This form is to be completed only if the service provider's rates and taxes are not in arrears for more than three months.**

PART A – to be completed by the relevant municipality in the case where the service provider is the registered owner of the site / owner pays for municipal services / tenant pays for municipal services

OR

PART B – to be completed by the landlord in the case where the service provider is renting the premises / rental paid by tenant include municipal services.

| PART A (TO BE COMPLETED BY THE RELEVANT MUNICIPALITY) | |
|--|-------------------------|
| Name of the Municipality: | |
| Property Physical Address: | |
| Registered Name: | |
| Official's Name: _____ | Municipality Stamp Here |
| Signature: _____ | |

Date: _____

Please tick whether in arrears or up-to-date

Rates and taxes: Up-to-date / in arrears for more than 3 months

Water: Up-to-date / in arrears for more than 3 months

Electricity: Up-to-date / in arrears for more than 3 months

Refuse: Up-to-date / in arrears for more than 3 months

Other services: Up-to-date / in arrears for more than 3 months

NB: If the company address or operate in rural settlement the service provider should attach their electricity purchase pattern. Electricity purchase pattern can be validated once the company purchase electricity in three (03) consecutive months.

PART B (TO BE COMPLETED BY THE LANDLORD)

Name of the landlord:

Property physical address:

Landlord signature:

Date: _____

**Landlord's business stamp here
Or an Affidavit from SAPS and Lease
Agreement. (Compulsory)**

Please tick whether up-to-date or in arrears:

Rental: Up-to-date / in arrears for more than 3 months

Municipal services: Up-to-date / in arrears for more than 3 months

NB: In the event that company is operating on leased premises and the address is not the same as the Company registration both lease agreement and landlord statement of account (not in arrears for more than three months) must be attached.

: If the company address or operate in rural settlement the service provider should attach their electricity purchase pattern. Electricity purchase pattern can be validated once the company purchase electricity in three (03) consecutive months

: In the event the landlord does not have a business stamp an affidavit from SAPS and Lease Agreement must be attached

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

T2.3 CHECKLIST

The following information **MUST** be completed in full and/or attached to the tender document:

| Returnable schedules required only for bid evaluation purposes | Tenderer | Evaluator |
|--|-------------------|------------------|
| Record of Addenda to Bid Document | Tick if submitted | Tick if accepted |
| Compulsory Enterprise Questionnaire | Tick if submitted | Tick if accepted |
| Certificate of authority for joint ventures (where applicable) | Tick if submitted | Tick if accepted |
| Schedule of Subcontractors | Tick if submitted | Tick if accepted |
| Schedule of Plant and Equipment | Tick if submitted | Tick if accepted |
| Schedule of the Bidder's Experience | Tick if submitted | Tick if accepted |
| Proposed Amendments and Qualifications | Tick if submitted | Tick if accepted |
| MBD 1 – Invitation to BID | Tick if submitted | Tick if accepted |
| MBD 2 - Tax Clearance Requirements | Tick if submitted | Tick if accepted |
| MBD 4 - Declaration if Interest | Tick if submitted | Tick if accepted |
| MDB 5 - Declaration for procurement above R10,0m (excluding VAT) | Tick if submitted | Tick if accepted |
| MDB 6.1 - Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022 | Tick if submitted | Tick if accepted |
| MBD 8 - Declaration of Bidder's past Supply Chain Management Practices | Tick if submitted | Tick if accepted |
| MBD 9 – Certificate of independent BID determination | Tick if submitted | Tick if accepted |
| Certified copy of Municipal Rates & Taxes clearance certificate | Tick if submitted | Tick if accepted |

| Other documents required only for bid evaluation purposes | Tenderer | Evaluator |
|--|-------------------|------------------|
| Certificate of Contractor Registration issued by the Construction Industry Development Board (CIDB) | Tick if submitted | Tick if accepted |
| An original valid Tax Clearance Certificate issued by the South African Revenue Services (the standard tax clearance certificate requirements and application form are available from the consultants) | Tick if submitted | Tick if accepted |
| Certified copy of Company Registration Certificate | Tick if submitted | Tick if accepted |
| Proof of registration on the Central Supplier Database (CSD) | Tick if submitted | Tick if accepted |
| BBBEE Certificate | Tick if submitted | Tick if accepted |
| Copy of company profile | Tick if submitted | Tick if accepted |
| Bank Rating Certificate | Tick if submitted | Tick if accepted |

| Returnable schedules that will be incorporated into the Contract | Tenderer | Evaluator |
|--|-------------------|------------------|
| Preferencing Schedule (Municipal Bidding Document forms) | Tick if submitted | Tick if accepted |

| Other documents that will be incorporated into the contract | Tenderer | Evaluator |
|---|-------------------|------------------|
| Bidder's Occupational Health and Safety Plan | Tick if submitted | Tick if accepted |
| Method Statement | Tick if submitted | Tick if accepted |
| Skills Transfer Plan | Tick if submitted | Tick if accepted |

| Documents that will be incorporated into the contract | Tenderer | Evaluator |
|--|-------------------|------------------|
| The offer portion of the C1.1 Offer and Acceptance | Tick if submitted | Tick if accepted |
| C1.2 Contract Data (Part 2) | Tick if submitted | Tick if accepted |
| C2.2 Bill of Quantities | Tick if submitted | Tick if accepted |
| Documents that will be incorporated into the contract | Tenderer | Evaluator |
| C3.2.2 Mechanical Equipment – Alternative offers (Datasheets etc.) | Tick if submitted | Tick if accepted |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C1.1 Form of offer and acceptance

Offer

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

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

The Bidder, identified in the offer signature block, has examined the documents listed in the Bid Data and addenda thereto as listed in the Returnable Schedules, and by submitting this offer has accepted the Conditions of Bid.

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

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:

.....

.....Rand (in words)

R(in figures)

This offer may be accepted by the Employer by signing the acceptance part of this Form of Offer and Acceptance, and by returning one copy of this document to the Bidder before the end of the period of validity stated in the Bid Data, whereupon the Bidder becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature Date

Name

Capacity

for the Bidder (name and address of organization)

Name and signature of witness

.....

Acceptance

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the Bidder'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 Bidder's offer shall form an agreement between the Employer and the Bidder upon the terms and conditions contained in this agreement and in the Contract that is the subject of this agreement.

The terms of the Contract, are contained in:

Part C1 : Agreements and Contract Data, (which includes this agreement)

Part C2 : Pricing data

Part C3 : Scope of Work

Part C4 : Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

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

The Bidder shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer's Agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. 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 Bidder receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the Bidder (now the Contractor) within five working days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

Signature Date

Name

Capacity

for the Employer: Maluti-a-Phofung Local Municipality
Private Bag X805
WITSIESHOEK
9870

Name and signature of witness:

.....

Date:

Schedule of Deviations

1. Subject

Details

.....

.....

.....

2. Subject

Details

.....

.....

.....

3. Subject
Details
.....
.....
.....
4. Subject
Details
.....
.....
.....
5. Subject
Details
.....
.....
.....

By the duly authorised representatives signing this agreement, the Employer and the Bidder agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the Bid Data and addenda thereto as listed in the Bid Schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Bidder 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 bid documents and the receipt by the Bidder of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

C1.2 Contract data

The General Conditions of Contract for Construction Works (2015) as published by the South African Institution of Civil Engineering, is applicable to this contract and forms part of Volume 1 of the Contract Document. Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel. 011 805 5947). Volume 2 is the Contract Drawings.

The General Conditions of Contract for Construction Works make several references to the Contract Data for specific 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 Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

Each item of data given below is cross-referenced to the clause in the General Conditions of Contract for Construction Works to which it mainly applies.

The variations to the General Conditions of Contract are:

A Retention Guarantee must be furnished for the defects liability period.

The additional clauses to the General Conditions of Contract are:

- 5.12.5 A delay caused by inclement weather conditions will be regarded as a delay only if, in the opinion of the engineer, all progress on an item or items of work on the critical path of the working programme of the contractor has been brought to a halt. Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the contractor shall make provision in his programme of work for an expected delay of "n" working days per month caused by normal rainy weather, for which he will not receive any extension of time, where "n" equals 2 days per month.

Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of "n" working days as mentioned in the project specifications.

Part 1 : Contract Data completed by the Employer

Clause Contract Data

1.1.1.13 The Defects Liability Period is 12 months.

1.1.1.15 The name of the Employer is Maluti-a-Phofung Local Municipality

1.2.1.2 The address of the Employer is:

Telephone: 058 718 3871/3863
Facsimile: 058 713 0459
Address (physical): Maluti-a-Phofung Local Municipality's offices, Phuthaditjhaba
Address (postal): Private Bag X805, WITSIESHOEK 9870

1.1.1.16 The name of the Employer's Agent is Mphati & Associates (Pty) Ltd

1.2.1.2 The address of the Employer's Agent is:

Telephone: 058 303 4197
Facsimile: 058 303 6465
Address (physical): 38 Gedenk Street
BETHLEHEM
9701
Address (postal): P O Box 1631
BETHLEHEM
9700

1.1.1.26 The Pricing Strategy is Re-measurement Contract.

5.8 The special non-working days are public holidays, Saturdays, Sundays and the days on which the contractor grants the majority of his permanent workforce leave around the 16th December and the first Monday of the subsequent year.

3.2.3 The Engineer is required to obtain the specific approval of the Employer before executing any of the following functions or duties:

1. Nominating the Employer's Agent's Representative in terms of clause 3.3.1.
2. Delegation of Employer's Agent's Representative authority in terms of clause 3.3.2
3. Providing consent for the subcontracting part of the contract in terms of clause 4.4.
4. The issuing of further drawings or instructions in terms of clause 5.9.1.
5. The issuing of instructions for dealing with fossils and the like in terms of clause 4.7.
6. Authorizing the Contractor to repair and make good excepted risks in terms of clause 8.2.2.2.
7. The issuing of a variation order in terms of clause 6.3.2.
8. Issuing of instructions to carry out work on a daywork basis in terms of clause 6.4.1.4.
9. Granting permission to work during non-working times in terms of clause 5.8.
10. Suspend the progress of the works in terms of clause 5.11.2.
11. The issuing of an instruction to accelerate progress in terms of clause 5.7.1.
12. The reduction of a penalty for delay in terms of clause 5.13.2.

Clause Contract Data

13. The determination of additional or reduced costs arising from changes in legislation in terms of clause 6.8.4.
14. The giving of a ruling on a contractor's claim in terms of clause 10.1.5.
15. The agreeing of an extension to the 28 period in terms of clause 10.1.5.1.
16. The inclusion of credits in the next payment certificate in terms of clause 10.1.5.2.
17. The agreeing of the adjustment of the sums for general items in terms of clause 6.11.1.

4.4

The works shall be executed in accordance with the conditions described in the Preferential Procurement Policy Framework Act 5 of 2000 and Preferential Procurement Regulations, 2022.

- 5.3.1** The time to deliver the Form of Guarantee within 14 days of the Commencement Date.

The Form of Guarantee is to contain the wording of the document included in C1.3. The liability for the guarantee shall be for 10% of the Contract Price.

- 5.3.2** The time to submit the documentation required before commencement of the Works is 14 day. The Works are to be commenced within 14 days of the Commencement Date.

- 5.6.1** The Works programme is to be delivered within 14 days of the Commencement Date.

- 8.6.1.1.2** The value of the materials supplied by the Employer to be included in the insurance sum is R0-00.

- 8.6.1.1.3** The amount to cover professional fees for repair or reinstatement of damage to the Works to be included in the insurance sum is R0-00.

- 8.6.1.3** The limit of liability insurance is R5 000 000 per claim.

- 8.6.1.5** No additional insurance is required.

- 6.5.1.2.3** The maximum percentage allowance to cover overhead charges is 15%.

- 5.5.1** The Works shall be completed within 12 months.

- 5.13.1** The penalty for failing to complete the Works is R1 000-00 per calendar day.

- 6.8.2** Contract Price Adjustment Factor is not applicable.

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

- 6.10.3** The percentage retention on amounts due to the Contractor is 10%.

- 6.10.3** The limit on retention is 10% of the Contract Price.

| Clause | Contract Data |
|--------|---------------|
|--------|---------------|

| | |
|--------|--|
| 6.10.3 | A Retention Money Guarantee will be entertained. |
|--------|--|

| | |
|--------|--|
| 6.10.5 | The Defects Liability Period is 12 months. |
|--------|--|

| | |
|------|--|
| 10.7 | Disputes are to be referred for final settlement to arbitration. |
|------|--|

Part 2 : Contract Data provided by the Contractor

Clause Contract Data

1.1.1.9 The name of the Contractor is.

1.2.1.2 The address of the Contractor is:

Physical address:

.....

.....

Postal address:

.....

.....

Telephone: Facsimile:

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP
STATION PHASE 1**

C1.3 Form of Guarantee

Bid no. **SCM/BID09/2023/24** for **APPOINTMENT OF A SERVICE PROVIDER:
UPGRADING OF WATER PUMP STATION PHASE 1**

WHEREAS **Maluti-a-Phofung Local Municipality** (hereinafter referred to as the
“Employer”) entered into a Contract with:

.....
(hereinafter called “the Contactor”)

on the day of20.....

for the **UPGRADING OF WATER PUMP STATION PHASE 1**

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

AND WHEREAS has /
have at the request of the Contractor, agreed to give such guarantee;

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

1. The Employer shall, without reference and/or notice to us, have complete liberty of action
to act in any manner authorized and/or contemplated by the terms of the said Contract,
and/or to agree to any modifications, variations, alterations, directions or extensions of the
completion date of the works under the said Contract, and that its rights under this
guarantee shall in no way be prejudiced nor our liability hereunder be affected by reason
of any steps which the Employer may take under such Contract, or of any modification,
variation, alterations of the completion date which the Employer may make, give, concede
or agree to under the said Contract.
2. This guarantee shall be limited to the payment of a sum of money.
3. The Employer shall be entitled, without reference to us, to release any guarantee held by
it, and to give time to or compound or make any other arrangement with the Contractor.

4. This guarantee shall remain in full force and effect until the issue of the Certificate of Completion in terms of the Contract, unless we are advised in writing by the Employer before the issue of the said Certificate of his intention to institute claims, and the particulars thereof, in which event this guarantee shall remain in full force and effect until all such claims have been paid or liquidated.

5. Our total liability hereunder shall not exceed the guaranteed sum of

. Rand (in words)

R (in figures)

6. The Guarantor reserves the right to withdraw from this guarantee by depositing the Guaranteed Sum with the beneficiary, whereupon our liability hereunder shall cease.

7. We hereby choose our address for the serving of all notices for all purposes arising here from as

.
.
.

IN WITNESS WHEREOF this guarantee has been executed by us at

on this day of 20

Signature

Duly authorized to sign on behalf of

Address
.
.

As witnesses:

1

2

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

C2.1 Pricing Instructions

1. Measurement and payment shall be in accordance with the relevant provisions of Clause 8 of each of the SANS 1200 Standardised Specifications for Civil Engineering Construction referred to in the Scope of Work. The Preliminary and General items shall be measured in accordance with the provisions of SANS 1200-A: General.
2. The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in these Bill of Quantities are as follows:

| | | |
|----------------|---|-------------------|
| % | = | percent |
| h | = | hour |
| ha | = | hectare |
| kg | = | kilogram |
| kℓ | = | kilolitre |
| km | = | kilometre |
| kPa | = | kilo Pascal |
| kW | = | kilo Watt |
| ℓ | = | litre |
| m | = | metre |
| mm | = | millimetre |
| m ² | = | square metre |
| m ³ | = | cubic metre |
| MN | = | Mega Newton |
| MN.m | = | Mega Newton-metre |
| MPa | = | Mega Pascal |
| No. | = | number |
| Prov sum | = | Provisional sum |
| PC sum | = | Prime Cost sum |
| R/only | = | Rate only |
| sum | = | lump sum |
| t | = | ton (1 000kg) |
| W/day | = | Work Day |

3. Unless otherwise stated, items are measured net in accordance with the drawings, and no allowance is made for waste.

4. The prices and rates in this Bill of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
5. It will be assumed that prices included in these Bill of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for bids (refer to www.stanza.org.za or www.iso.org for information on standards)
6. Where the Scope of Work requires detailed drawings and designs or other information to be provided, all costs associated therewith are deemed to have been provided for and included in the unit rates and sum amount bid for such items
7. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes. Any rates found to be unbalanced, could affect the award of the Bid.
8. The quantities set out in these Bill of Quantities are approximate and do not necessarily represent the actual amount of work to be done. The quantities of work accepted and certified for payment will be used for determining payments due and not the quantities given in the Bill of Quantities.
9. Reasonable compensation will be received where no pay item appears in respect of work required in the Bill of Quantities in terms of the Contract and which is not covered in any other pay item.
10. The short descriptions of the items of payment given in the Bill of Quantities are only for the purposes of identifying the items. More details regarding the extent of the work entailed under each item appear in the Scope of Work.
11. Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the SANS 1200 Standardised Specifications.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP
STATION PHASE 1**

C2.2 Bill of Quantities

SCHEDULE A: PRELIMINARY AND GENERAL

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT, | RATE | AMOUNT |
|------------------------------|-------------------|--|----------|-----------|------------|------------|
| A1 | 8.3 | SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS | | | | |
| A1.1 | 8.3.1 | Contractual requirements | Sum | 1.00 | | |
| A1.2 | 8.3.2 | Establishment of facilities on the site | | | | |
| A2 | | PHUTHADITJHABA | | | | |
| | 8.3.2.1 | Facilities for Engineer: | | | | |
| A2.1 | | Nameboards | No. | 2.00 | | |
| A2.2 | | Engineer's office building | Sum | 1.00 | | |
| | 8.3.2.2 | Facilities for Contractor (Qwa-Qwa) | | | | |
| A2.3 | | Offices and storage sheds | Sum | 1.00 | | |
| A2.4 | | Living accommodation | Sum | 1.00 | | |
| A2.5 | | Ablution and latrine facilities | Sum | 1.00 | | |
| A2.6 | | Tools and equipment including survey equipment | Sum | 1.00 | | |
| A2.7 | | Water supplies, electrical power and communications | Sum | 1.00 | | |
| A2.8 | | Access | Sum | 1.00 | | |
| A2.9 | 8.3.3 | Other fixed-charge obligations | Sum | 1.00 | | |
| A2.10 | 8.3.4 | Removal of site establishment | Sum | 1.00 | | |
| A3 | | HARRISMITH | | | | |
| | 8.3.2.1 | Facilities for Engineer: | | | | |
| A3.1 | | Nameboards (Re-use existing nameboards) | No. | 2.00 | | |
| A3.2 | | Engineer's office building | Sum | 1.00 | | |
| | 8.3.2.2 | Facilities for Contractor | | | | |
| A3.3 | | Offices and storage sheds | Sum | 1.00 | | |
| A3.4 | | Living accommodation | Sum | 1.00 | | |
| A3.5 | | Ablution and latrine facilities | Sum | 1.00 | | |
| A3.6 | | Tools and equipment including survey equipment | Sum | 1.00 | | |
| A3.7 | | Water supplies, electrical power and communications | Sum | 1.00 | | |
| A3.8 | | Access | Sum | 1.00 | | |
| A3.9 | 8.3.3 | Other fixed-charge obligations | Sum | 1.00 | | |
| A3.10 | 8.3.4 | Removal of site establishment | Sum | 1.00 | | |
| A4 | 8.4 | SCHEDULED TIME-RELATED ITEMS: | | | | |
| A4.1 | 8.4.1 | Contractual requirements | Sum | 1.00 | | |
| A4.2 | 8.4.2 | Operate and maintain of facilities on site, for the duration of construction, except where otherwise stated: | | | | |
| | 8.4.2.1 | Facilities for Engineer: | | | | |
| A4.3 | | Operate and maintain office building | Sum | 1.00 | | |
| | 8.4.2.2 | Facilities for Contractor: | | | | |
| A4.4 | | Offices and storage sheds | Sum | 1 | | |
| A4.5 | | Living accommodation | Sum | 1 | | |
| A4.6 | | Ablution and latrine facilities | Sum | 1 | | |
| A4.7 | | Tools and equipment | Sum | 1 | | |
| A4.8 | | Water supplies, electrical power and communications | Sum | 1 | | |
| A4.9 | | Access | Sum | 1 | | |
| A4.10 | 8.4.3 | Supervision for the duration of construction | Sum | 1 | | |
| A4.11 | 8.4.4 | Company and head office overhead costs for the duration of the contract | Sum | 1 | | |
| A5 | 8.5 | SUMS STATED PROVISIONALLY BY THE ENGINEER | | | | |
| A5.1 | | Additional tests required by the Engineer | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| A5.2 | | Charge required by Contractor on subitem 5.1 above | % | 30 000.00 | | |
| A5.3 | | Accommodation of the Engineer's Representative | Prov Sum | 1 | 120 000.00 | 120 000.00 |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE A: PRELIMINARY AND GENERAL

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT, | RATE | AMOUNT |
|--|-------------------|---|----------|------------|------------|------------|
| TOTAL BROUGHT FORWARD | | | | | | |
| A5.4 | | Overheads, charges and profit on subitem 5.3 above | % | 120000 | | |
| A5.5 | | Costs encountered by the Engineer (site supervision) | Prov Sum | 1 | 720 000.00 | 720 000.00 |
| A5.6 | | Overheads, charges and profit on subitem 5.5 above | % | 720 000.00 | | |
| A5.7 | | Telephone and communication facilities for the Engineer's Representative | Prov Sum | 1 | 10 000.00 | 10 000.00 |
| A5.8 | | Overheads, charges and profit on subitem 5.7 above | % | 10 000.00 | | |
| A5.9 | | Photocopying machine for the Engineer's Office | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| A5.10 | | Overheads, charges and profit on subitem 5.9 above | % | 30000 | | |
| A5.11 | | Provisional sum for security at pump stations | Prov Sum | 1.00 | 500 000.00 | 500 000.00 |
| A5.12 | | Charge required by Contractor on subitem | % | 500 000.00 | | |
| A6 | 8.8 | TEMPORARY WORKS | | | | |
| A6.1 | 8.8.6 | Accommodation of Water | Sum | 1 | | |
| A6.2 | 8.5 | Allow for remuneration for Community Liaison Officer | Prov Sum | 1 | 100 000.00 | 100 000.00 |
| A6.3 | | Overheads, charges and profit and subitem 6.2 above | % | 100 000.00 | | |
| A7 | SPEC OHS | Health and Safety : | | | | |
| A7.1 | PSA 8.9 | Compliance with OHS Act and Regulations | Sum | 1 | | |
| A7.2 | PSA 8.5 | Health and Safety Agent (Engineer) | Prov Sum | 1 | 200 000.00 | 200 000.00 |
| A7.3 | | Overheads, charges and profit on subitem 7.2 above | % | 200 000.00 | | |
| A7.4 | OHS 5.2 | Penalty for non-compliance with the Occupational Health and Safety Specification: | | | | |
| A7.4.1 | | a) Fixed penalty per occurrence | No. | | 10 000.00 | Rate Only |
| A7.4.2 | | b) Time related penalty (per day) | Days | | 2 500.00 | Rate Only |
| A8 | SPEC EM | Environmental Management : | | | | |
| A8.1 | | Compliance with Environmental Management Specification | Sum | 1 | | |
| A8.2 | PSA 8.5 | Environmental Agent (Engineer) | Prov Sum | 1 | 20 000.00 | 20 000.00 |
| A8.3 | | Overheads, charges and profit on subitem 8.2 above | % | 20 000.00 | | |
| A8.4 | EM 6.2.3 | Penalty for non-compliance with the Environmental Management Specification: | | | | |
| A8.4.1 | | a) Fixed penalty per occurrence | No. | | 10 000.00 | Rate Only |
| A8.4.2 | | b) Time related penalty (per day) | Days | | 2 500.00 | Rate Only |
| TOTAL CARRIED FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 1: MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|----------------|--------|------|--------|
| PS1-A | | SECTION A: CIVIL REFURBISHMENT | | | | |
| PS1-A.1 | SANS 1200C | SITE CLEARANCE | | | | |
| PS1-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m ² | 600 | | |
| PS1-A2 | | Fencing: | | | | |
| PS1-A2.1 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 25 | | |
| PS1-A2.2 | | Supply and install flat wrap for entire pump station perimeter. | m | 150 | | |
| PS1-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS1-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m ² | 120 | | |
| PS1-A3.2 | | 150mm C4 Stabilised sub base layer compacted to 97% MOD-ASHTO | m ² | 120 | | |
| PS1-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m ² | 120 | | |
| PS1-A3.4 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 60 | | |
| PS1-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS1-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m ³ | 25 | | |
| PS1-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS1-A4.3 | | Depth up to 1,0m | m ³ | 10 | | |
| PS1-A4.4 | | Depth over 1,0m and up to 2,0m | m ³ | 10 | | |
| PS1-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS1-A5.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m ² | 40 | | |
| PS1-A5.2 | | Door and Window Frames a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m ² | 4 | | |
| PS1-A5.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m ² | 10 | | |
| PS1-A5.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m ² | 10 | | |
| PS1-A5.5 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m ² | 12 | | |
| PS1-A5.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m ² | 5 | | |
| PS1-A5.7 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m ² | 2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 1: MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

| TOTAL BROUGHT FORWARD | | | | | | |
|-----------------------|-------------|---|----------|-----------|-----------|-----------|
| PS1-A5.8 | PB 8.2.21 | Refurbishment of existing gaurdhouse | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS1-A5.9 | | Overheads, charges and profit on subitem A5.10 above | % | 20 000.00 | | |
| PS1-A6 | | General Electrical: | | | | |
| PS1-A6.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS1-A6.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| PS1-A6.3 | SANS 1200 H | Refurbishment of existing cable racks | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS1-A6.4 | | Overheads, charges and profit on subitem A6.3 above | % | 15 000.00 | | |
| PS1-A7 | | Structural steelwork: | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS1-A7.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS1-A7.2 | PS1-B | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS1-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS1-B1 | | PIPEWORK: | | | | |
| | | De-install of existing pipework for all diameters up to including: | | | | |
| PS1-B1.1 | | 50- 150mm | m | 12 | | |
| PS1-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS1-B1.2.1 | | 65mm | m | 3 | | |
| PS1-B1.2.2 | | 100mm | m | 10 | | |
| PS1-B1.2.3 | PS1-B1.3 | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS1-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS1-B1.3.1 | | 65mm | m | 3 | | |
| PS1-B1.3.2 | | 100mm | m | 10 | | |
| PS1-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS1-B1.4.1 | | 65mm | No | 6 | | |
| PS1-B1.4.2 | | 100mm | No | 50 | | |
| PS1-B1.5 | | Provisional items | | | | |
| PS1-B1.5.1 | PS1-B1.6 | Replacement of existing pipework | Prov Sum | 1.00 | 50 000.00 | 50 000.00 |
| PS1-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 50 000.00 | | |
| PS1-B1.6 | | Pipe brackets: | | | | |
| | | For 100mm pipes: | | | | |
| | | For heights between: | | | | |
| PS1-B1.6.1 | PS1-B2 | 0.75 - 1.2m | No | 4 | | |
| PS1-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| PS1-B2.1 | | De-install existing pump sets | No | 1 | | |
| PS1-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS1-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS1-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS1-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS1-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS1-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 1: MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

| TOTAL BROUGHT FORWARD | | | | | | |
|-----------------------|------------------|--|-----|---|--|--|
| PS1-B2.8 | SANS 1200 | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS1-B3 | | Valves | | | | |
| PS1-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS1-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS1-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS1-B3.2.2 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS1-B3.2.3 | | DN 100 PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS1-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS1-B3.2.5 | | DN 100mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS1-B3.2.6 | | DN100 Optiflux 2000 OIIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS1-B3.2.7 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Install | | | | |
| PS1-B3.2.8 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS1-B3.2.9 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS1-B3.2.10 | | Ball Check Valve | No | 2 | | |
| PS1-B3.2.11 | | Air-Valves | No | 1 | | |
| PS1-B3.2.12 | | Pressure Sustaining Valve | No | 1 | | |
| PS1-B3.2.13 | | Water meter/Flow meter: | No | 1 | | |
| PS1-B4 | | LIFTING EQUIPMENT | | | | |
| PS1-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS1-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | No | 1 | | |
| PS1-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS1-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS1-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS1-C1 | | Main Control Consol (MCC): | | | | |
| PS1-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS1-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS1-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS1-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS1-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS1-C2 | | Pressure Transmitter: | | | | |
| PS1-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS1-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS1-C2.3 | | Commissioning | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 1: MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

| TOTAL BROUGHT FORWARD | | | | | | |
|---------------------------------------|--|---|----------|-----------|-----------|-----------|
| PS1-C3 | | Existing cables: | | | | |
| PS1-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS1-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS1-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS1-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS1-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS1-C4 | | Level/Control Equipment: | | | | |
| PS1-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS1-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS1-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS1-C4.4 | | Commission of level probes | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 2: SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|----------|-----------|-----------|-----------|
| PS2-A | | SECTION A: CIVIL REFURBISHMENT | | | | |
| PS2-A1 | SANS 1200C | SITE CLEARANCE | | | | |
| PS2-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 600 | | |
| PS2-A2 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS2-A2.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 120 | | |
| PS2-A2.2 | | 150mm C4 Stabilised sub base layer compacted to 97% MOD-ASHTO | m² | 120 | | |
| PS2-A2.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 120 | | |
| PS2-A2.5 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 60 | | |
| PS2-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS2-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 35 | | |
| PS2-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS2-A3.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS2-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 15 | | |
| PS2-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS2-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 40 | | |
| PS2-A4.2 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Red Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS2-A4.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 12 | | |
| PS2-A4.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 12 | | |
| PS2-A4.5 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS2-A4.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 10 | | |
| PS2-A4.7 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 1.5 | | |
| PS2-A5 | PB 8.2.21 | General Electrical: | | | | |
| PS2-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS2-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 2: SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS2-A5.3 | SANS 1200 H | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS2-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS2-A6 | | Structural steelwork: | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS2-A6.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS2-A6.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS2-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS2-B1 | | PIPEWORK: | | | | |
| | | De-install of existing pipework for all diameters up to including: | | | | |
| PS2-B1.1 | | 50- 150mm | m | 8 | | |
| PS2-B1.2 | PS-2 | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS2-B1.2.1 | | 50mm | m | 10 | | |
| PS2-B1.2.2 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS2-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS2-B1.3.1 | | 50mm | m | 8 | | |
| PS2-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS2-B1.4.1 | | 50mm | No | 35 | | |
| PS2-B1.5 | SANS 1200 | Provisional items | | | | |
| PS2-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 30 000.00 | 30 000.00 |
| PS2-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 30 000.00 | | |
| PS2-B1.6 | | Pipe brackets: | | | | |
| | | For 50mm pipes: | | | | |
| | | For heights between: | | | | |
| PS2-B1.6.1 | | 0.4 - 0.85m | No | 6 | | |
| PS2-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS2-B2.1 | SANS 1200 | De-install existing pump sets | No | 2 | | |
| PS2-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS2-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS2-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS2-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS2-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS2-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS2-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS2-B3 | | Valves | | | | |
| PS2-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS2-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| TOTAL CARREID FORWARD | | | | | | |

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS2-B3.2.1 | | Suction: Flanged RSV Gate Valve: DN 50mm PN16 (AVK or similar approved) | No | 2 | | |
| PS2-B3.2.3 | | Delivery: Flanged RSV Gate Valve: DN 50mm PN16 (AVK or similar approved) | No | 2 | | |
| PS2-B3.2.5 | | Ball Check Valve DN 50mm PN16 (AVK or similar approved) | No | 2 | | |
| PS2-B3.2.7 | | Air-Valves: DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| PS2-B3.2.8 | | Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. Level Control Valve: DN 80mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| PS2-B3.2.9 | | Water meter/Flow meter: DN65 Optiflux 2000 OI ML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| PS2-B3.2.10 | | Pressure Gauges Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| PS2-B3.2.11 | | Install Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS2-B3.2.12 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS2-B3.2.13 | | Ball Check Valve | No | 2 | | |
| PS2-B3.2.14 | | Air-Valves | No | 1 | | |
| PS2-B3.2.15 | | Level control valve | No | 1 | | |
| PS2-B3.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS2-B4 | | LIFTING EQUIPMENT | | | | |
| PS2-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS2-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS2-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS2-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS2-C1 | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS2-C1.1 | | Main Control Consol (MCC): De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS2-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS2-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS2-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS2-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS2-C2 | | Pressure Transmitter: | | | | |
| PS2-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS2-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS2-C2.3 | | Commissioning | Sum | 1 | | |
| PS2-C3 | | Existing cables: | | | | |
| PS2-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS2-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS2-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS2-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 2: SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS2-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS2-C4 | | Level/Control Equipment: | | | | |
| PS2-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS2-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS2-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS2-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS2-C5 | | Main power supply | | | | |
| PS2-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS2-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS2-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS2-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS2-C5.6 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 3: SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|------|--------|------|--------|
| PS3-A1 | SANS 1200C | SECTION A: CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS3-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 800 | | |
| PS3-A2 | | Fencing: | | | | |
| PS3-A2.1 | | Removal of existing concrete pallisade fencing and access gates and dispose of material at approved Municipal dumping site or store facility. | m | 165 | | |
| PS3-A2.2 | | Supply and install new high-security Clear-Vu fencing 2,4m high including all materials and fasteners (or similar approved) | m | 165 | | |
| PS3-A2.3 | | Supply and install shark tooth "anti climb spikes". (Material to be approved by the Engineer before procurement) | m | 165 | | |
| PS3-A2.4 | | Galvanised steel access gates (double leaf, 2,4m high x 3,6m wide) | No | 1 | | |
| PS3-A2.5 | | Additional padlocks | No | 1 | | |
| PS3-A2.6 | | 150 x 200mm hand excavated trench for concrete beam under fencing | m | 165 | | |
| PS3-A2.7 | | 150 x 200mm Concrete ground beam casted insitu with 15 MPa concrete. To include formwork, finishing, etc. | m³ | 6 | | |
| PS3-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS3-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 120 | | |
| PS3-A3.2 | | 150mm C4 Stabilised sub base layer compacted to 97% MOD-ASHTO | m² | 120 | | |
| PS3-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 120 | | |
| PS3-A3.4 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 60 | | |
| PS3-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS3-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 10 | | |
| PS3-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS3-A4.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS3-A4.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS3-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS3-A5.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 35 | | |
| PS3-A5.2 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS3-A5.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 12 | | |
| PS3-A5.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 12 | | |
| PS3-A5.5 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 7 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 3: SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS3-A5.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS3-A5.7 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2 | | |
| PS3-A6 | | General Electrical: | | | | |
| PS3-A6.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS3-A6.2 | PB 8.2.21 | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| PS3-A6.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS3-A6.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS3-A7 | | SANS 1200 H Structural steelwork: | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS3-A7.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS3-A7.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS3-B1 | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| | | PIPEWORK: | | | | |
| PS3-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS3-B1.1.1 | | 50- 150mm | m | 12 | | |
| PS3-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS3-B1.2.1 | | 80mm | m | 3 | | |
| PS3-B1.2.2 | | 100mm | m | 9 | | |
| PS3-B1.2.2 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS3-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS3-B1.3.1 | | 80mm | m | 3 | | |
| PS3-B1.3.2 | | 100mm | m | 9 | | |
| PS3-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS3-B1.4.1 | | 80mm | No | 6 | | |
| PS3-B1.4.2 | | 100mm | No | 29 | | |
| PS3-B1.5 | | Provisional items | | | | |
| PS3-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 50 000.00 | 50 000.00 |
| PS3-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 50 000.00 | | |
| PS3-B1.6 | | Pipe brackets: | | | | |
| | | For 100mm pipes: | | | | |
| | | For heights between: | | | | |
| PS3-B1.6.1 | | 0.5 - 1m | No | 2 | | |
| PS3-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 3: SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS3-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS3-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS3-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS3-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS3-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS3-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS3-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS3-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS3-B3 | SANS 1200 | Valves | | | | |
| PS3-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS3-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS3-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS3-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS3-B3.2.3 | | DN 80 PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS3-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS3-B3.2.5 | | DN 100mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Level Control Valve: | | | | |
| PS3-B3.2.6 | | DN 100mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS3-B3.2.7 | | DN100 Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS3-B3.2.8 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Install | | | | |
| PS3-B3.2.9 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS3-B3.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS3-B3.2.11 | | Ball Check Valve | No | 2 | | |
| PS3-B3.2.12 | | Air-Valves | No | 1 | | |
| PS3-B3.2.13 | | Pressure Sustaining Valve | No | 1 | | |
| PS3-B3.2.14 | | Level control valve | No | 1 | | |
| PS3-B3.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS3-B4 | | LIFTING EQUIPMENT | | | | |
| PS3-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS3-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS3-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS3-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 3: SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS3-C1 | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| | | Main Control Consol (MCC): | | | | |
| PS3-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS3-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS3-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS3-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS3-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS3-C2 | | Pressure Transmitter: | | | | |
| PS3-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS3-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS3-C2.3 | | Commissioning | Sum | 1 | | |
| PS3-C3 | | Existing cables: | | | | |
| PS3-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS3-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS3-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS3-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS3-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS3-C4 | | Level/Control Equipment: | | | | |
| PS3-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS3-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS3-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS3-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS3-C5 | | Main power supply | | | | |
| PS3-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS3-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS3-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS3-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS3-C5.6 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 4: HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|--|------|--------|------|--------|
| PS4-A1 | SANS 1200C | SECTION A: CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS4-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 500 | | |
| PS4-A2 | | Fencing: | | | | |
| PS4-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 30 | | |
| PS4-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 150 | | |
| PS4-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS4-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 40 | | |
| PS4-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS4-A3.3 | | Depth up to 1,0m | m³ | 5 | | |
| PS4-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS4-A4 | SANS 1200 G | Concrete works | | | | |
| PS4-A4.1 | | Demolish and remove existing concret plinths | No | 2 | | |
| | | Formwork: | | | | |
| | | Smooth formwork: | | | | |
| | 8.2.2 | Plane vertical | | | | |
| PS4-A4.2 | | To plinths | m² | 5 | | |
| | 8.3.1 | High Tensile Steel: | | | | |
| PS4-A4.3 | | Y12 | t | 0.2 | | |
| | | Mild Tensile Steel: | | | | |
| PS4-A4.4 | | R10 | t | 0.2 | | |
| | 8.4.3 | Concrete Class 35/19 to: | | | | |
| PS4-A4.5 | | Plinths | m³ | 2 | | |
| | 8.4.4 | Unformed surfaces: | | | | |
| | | Steel float finish: | | | | |
| PS4-A4.6 | | Plinth | m² | 5 | | |
| PS4-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS4-A5.1 | | Interior Walls | m² | 220 | | |
| | | a) Pressure wash interior walls before any refurbishment work commence; | | | | |
| | | b) Sand down interior walls; | | | | |
| | | c) Remove all loose paint from structure; | | | | |
| | | d) Apply interior paint primer (to be confirmed by supplier); | | | | |
| | | e) Apply 2 coats of white interior paint (Emulsion paint) | | | | |
| PS4-A5.2 | | Burgular Bars: | m² | 12 | | |
| | | a) Sand down door and window frames; | | | | |
| | | b) Remove loose paint; | | | | |
| | | c) Apply paint primer (to be confirmed by supplier); | | | | |
| | | d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | | | | |
| PS4-A5.3 | | Concrete Floors and 1m above floor level | m² | 75 | | |
| | | a) Pressure wash floors before any refurbishment work commence; | | | | |
| | | b) Sand down existing epoxy and material; | | | | |
| | | c) Remove loose particles; | | | | |
| | | d) Apply epoxy primer (to be confirmed by supplier) | | | | |
| | | e) Apply 3 layers of industrial epoxy paint (Sikagard) | | | | |
| PS4-A5.4 | | Roof Trusses, Purlins and Branderling (span of 6.2m trusses) | No | 7 | | |
| | | a) Sand down existing material; | | | | |
| | | b) Remove loose paint & particles; | | | | |
| | | c) Apply 2 coats of Duram Woodseal for roofs or similar approved | | | | |
| PS4-A5.5 | | Steel Doors (Double doors) | m² | 10 | | |
| | | a) Pressure wash steel doors before any refurbishment work commence; | | | | |
| | | b) Sand down existing doors; | | | | |
| | | c) Remove loose paint; | | | | |
| | | d) Apply paint primer (to be confirmed by supplier) | | | | |
| | | e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 4: HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS4-A5.6 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 40 | | |
| PS4-A6 | PB 8 | Roof and Structural Timber: | | | | |
| PS4-A6.1 | 8.2.12 | Refurbishment of Roofs a) Remove existing roof material and dispose at a verified site; b) Sand down rafts and purlins (on written instruction replace purlins and rafters); c) Apply exterior and interior wood varnish to rafters d) Install new roof material (chromadek galvanized steel sheets (Traffic Cone Green) or similar approved) | m² | 100 | | |
| PS4-A6.2 | 8.2.11 | Purlins 50 x 76 SAP | m | 65 | | |
| PS4-A6.3 | 8.2.11 | Branding 38 x 38 SAP | m² | 80 | | |
| | PB 8.2.13 | Facia Boards and Gutters: | | | | |
| PS4-A6.4 | | 225 x 12 mm F.C. fascia and barge boards | m | 95 | | |
| PS4-A6.5 | | 125 x 85 Colourbond aluminium gutters | m | 95 | | |
| PS4-A6.6 | | 80 x 55 Colourbond aluminium downpipes | m | 20 | | |
| | PB 8.2.15 | Ceilings: | | | | |
| PS4-A6.7 | | Gypsum ceiling board | m² | 100 | | |
| PS4-A6.8 | | Cornice 75 mm | m | 40 | | |
| PS4-A7 | PB 8.2.21 | General Electrical: | | | | |
| PS4-A7.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 30 000.00 | 30 000.00 |
| PS4-A7.2 | | Overheads, charges and profit on subitem A6.1 above | % | 30 000.00 | | |
| PS4-A7.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS4-A7.4 | | Overheads, charges and profit on subitem A6.3 above | % | 20 000.00 | | |
| PS4-A8 | SANS 1200 H | Structural steelwork: | | | | 0.00 |
| PS4-A8.1 | 8.3.2 | Remove existing safety handrails and install where ordered by Employer's Agent | m | 8 | | |
| PS4-A8.2 | | Remove existing steel grating | m² | 6 | | |
| | | Grating: | | | | |
| PS4-A8.3 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 6 | | |
| | | Safety Hand Rails: | | | | |
| PS4-A8.4 | | 1.2m high Fibreglass safety hand rails (Fibregrate or similar approved) | m | 8 | | |
| PS4-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS4-B1 | | PIPEWORK: | | | | |
| PS4-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS4-B1.1.1 | | 50- 150mm | m | 10 | | |
| PS4-B1.1.2 | | 155-300mm | m | 25 | | |
| PS4-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS4-B1.2.1 | | 100mm | m | 7 | | |
| PS4-B1.2.2 | | 150mm | m | 4 | | |
| PS4-B1.2.3 | | 200mm | m | 20 | | |
| PS4-B1.2.4 | | 300mm | m | 6 | | |
| PS4-B1.2.5 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS4-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS4-B1.3.1 | | 100mm | m | 7 | | |
| PS4-B1.3.2 | | 150mm | m | 4 | | |
| PS4-B1.3.3 | | 200mm | m | 20 | | |
| PS4-B1.3.4 | | 300mm | m | 6 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 4: HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|---|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS4-B1.4 | SANS 1200 | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS4-B1.4.1 | | 100mm | No | 8 | | |
| PS4-B1.4.2 | | 150mm | No | 8 | | |
| PS4-B1.4.3 | | 200mm | No | 20 | | |
| PS4-B1.4.4 | | 300mm | No | 5 | | |
| PS4-B1.5 | | Provisional items | | | | |
| PS4-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 60 000.00 | 60 000.00 |
| PS4-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 60 000.00 | | |
| PS4-B1.6 | | Pipe brackets: For 100mm pipes: | | | | |
| | | For heights between: | | | | |
| PS4-B1.6.1 | | 0.5 - 1m | No | 4 | | |
| PS4-B2 | | PUMPS AND MOTORS: Specifications Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS4-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS4-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS4-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS4-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS4-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS4-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS4-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS4-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS4-B3 | | Valves | | | | |
| PS4-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS4-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS4-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS4-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS4-B3.2.3 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS4-B3.2.4 | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | | |
| | Including: | | | | | |
| | a) Riser Flange b) Ball valve c) Bolts, nuts etc. | | | | | |
| | Level Control Valve: | | | | | |
| PS4-B3.2.5 | DN 80mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | | |
| | Water meter/Flow meter: | | | | | |
| PS4-B3.2.6 | DN100 Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | | |
| | Pressure Gauges | | | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 4: HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS4-B3.2.7 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS4-B3.2.8 | | DN 200mm PN10 (AVK or similar approved) | No | 2 | | |
| PS4-B3.2.9 | | DN 150mm PN10 (AVK or similar approved) | No | 4 | | |
| PS4-B3.2.10 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Install | | | | |
| PS4-B3.2.11 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS4-B3.2.12 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS4-B3.2.13 | | Ball Check Valve | No | 2 | | |
| PS4-B3.2.15 | | Air-Valves | No | 1 | | |
| PS4-B3.2.14 | | Level control valve | No | 1 | | |
| PS4-B3.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS4-B3.2.16 | | RSV Gate Valves | No | 8 | | |
| PS4-B4 | | LIFTING EQUIPMENT | | | | |
| PS4-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS4-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS4-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS4-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS4-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS4-C1 | | Main Control Consol (MCC): | | | | |
| PS4-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS4-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS4-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS4-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS4-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS4-C2 | | Pressure Transmitter: | | | | |
| PS4-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS4-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS4-C2.3 | | Commissioning | Sum | 1 | | |
| PS4-C3 | | Existing cables: | | | | |
| PS4-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS4-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS4-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS4-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS4-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS4-C4 | | Level/Control Equipment: | | | | |
| PS4-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS4-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS4-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS4-C4.4 | | Commission of level probes | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 4: HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS4-C5 | | Main power supply | | | | |
| PS4-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS4-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS4-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS4-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS4-C5.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 5: POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|---|----------|-----------|-----------|-----------|
| PS5-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS5-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 270 | | |
| PS5-A1.2 | | Apply weed killer to cleared area (Roundup or similar approved) | m² | 170 | | |
| PS5-A1.3 | | Clean existing paved areas | m² | 170 | | |
| PS5-A2 | | Fencing: | | | | |
| PS5-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 25 | | |
| PS5-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 100 | | |
| PS5-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS5-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 30 | | |
| PS5-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS5-A3.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS5-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS5-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS5-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 75 | | |
| PS5-A4.2 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 40 | | |
| PS5-A4.3 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS5-A4.4 | | Concrete plinths: a) Pressure wash plinth before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 8 | | |
| PS5-A4.5 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 30 | | |
| PS5-A5 | PB 8.2.21 | General Electrical: | | | | |
| PS5-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS5-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 20 000.00 | | |
| PS5-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS5-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 15 000.00 | | |
| PS5-A6 | SANS 1200 H | Structural steelwork: | | | | |
| PS5-A6.1 | | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | |
| PS5-A6.2 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 5 | | |
| PS5-A7 | PB 8 | Roof: | | | | |
| PS5-A7.1 | 8.2.12 | Refurbishment of Roofs a) Remove existing roof material and dispose at a verified site; b) Sand down rafts and purlins (on written instruction replace purlins and rafters); c) Apply exterior and interior wood varnish to rafts d) Install new roof material (chromadek galvanized steel sheets (Traffic Cone Green) or similar approved) | m² | 55 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 5: POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS5-B1 | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| | | PIPEWORK: | | | | |
| PS5-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS5-B1.1.1 | | 50- 150mm | m | 5 | | |
| PS5-B1.1.2 | | 175 - 250mm | m | 15 | | |
| PS5-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS5-B1.2.1 | | 100mm | m | 5 | | |
| PS5-B1.2.2 | | 200mm | m | 20 | | |
| PS5-B1.2.2 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS5-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS5-B1.3.1 | | 100mm | m | 5 | | |
| PS5-B1.3.2 | | 200mm | m | 20 | | |
| PS5-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS5-B1.4.1 | | 100mm | No | 20 | | |
| PS5-B1.4.2 | | 200mm | No | 30 | | |
| PS5-B1.5 | | Provisional items | | | | |
| PS5-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 50 000.00 | 50 000.00 |
| PS5-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 50 000.00 | | |
| PS5-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS5-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS5-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS5-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS5-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS5-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS5-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS5-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS5-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS5-B3 | SANS 1200 | Valves | | | | |
| PS5-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS5-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS5-B3.2.1 | | DN 200mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS5-B3.2.2 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS5-B3.2.3 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 5: POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS5-B3.2.4 | | Air-Valves: DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. | No | 1 | | |
| PS5-B3.2.5 | | Level Control Valve: DN 100mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| PS5-B3.2.6 | | Water meter/Flow meter: DN200mm Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| PS5-B3.2.7 | | Pressure Gauges Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| PS5-B3.2.8 | | Install Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS5-B3.2.9 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS5-B3.2.10 | | Ball Check Valve | No | 2 | | |
| PS5-B3.2.11 | | Air-Valves | No | 1 | | |
| PS5-B3.2.12 | | Level control valve | No | 1 | | |
| PS5-B3.2.13 | | Water meter/Flow meter: | No | 1 | | |
| PS5-B4 | | LIFTING EQUIPMENT | | | | |
| PS5-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS5-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS5-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS5-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS5-C1 | | Main Control Consol (MCC): | | | | |
| PS5-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS5-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS5-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS5-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS5-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS5-C2 | | Pressure Transmitter: | | | | |
| PS5-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS5-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS5-C2.3 | | Commissioning | Sum | 1 | | |
| PS5-C3 | | Existing cables: | | | | |
| PS5-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS5-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS5-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS5-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS5-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 6: BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|--|------|--------|------|--------|
| PS6-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS6-A1.1 | 8.3.1 | Apply weed killer to cleared area (Roundup or similar approved) | m² | 600 | | |
| PS6-A1.2 | | Clean existing paved areas | m² | 600 | | |
| PS6-A2 | SANS 1200D | EARTHWORKS | | | | |
| PS6-A2.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 20 | | |
| PS6-A2.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS6-A2.2 | | Depth up to 1,0m | m³ | 10 | | |
| PS6-A2.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS6-A3 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS6-A3.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 60 | | |
| PS6-A3.2 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS6-A3.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 35 | | |
| PS6-A3.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 35 | | |
| PS6-A3.5 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 40 | | |
| PS6-A3.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 5 | | |
| PS6-A3.7 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 20 | | |
| PS6-A4 | SANS 1200 G | Concrete works | | | | |
| PS6-A4.1 | | Demolish and remove existing concret plinths | No | 2 | | |
| | | Formwork: Smooth formwork: | | | | |
| PS6-A4.2 | 8.2.2 | Plane vertical To plinths | m² | 5 | | |
| PS6-A4.3 | 8.3.1 | High Tensile Steel: Y12 | t | 0.2 | | |
| PS6-A4.4 | | Mild Tensile Steel: R10 | t | 0.2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 6: BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS6-A4.5 | 8.4.3 | Concrete Class 35/19 to: Plinths | m³ | 2 | | |
| PS6-A4.6 | 8.4.4 | Unformed surfaces: Steel float finish: Plinth | m² | 5 | | |
| PS6-A5 | PB 8.2.21 | General Electrical: | | | | |
| PS6-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1 | 20 000.00 | 20 000.00 |
| PS6-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 20 000.00 | | |
| PS6-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS6-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 15 000.00 | | |
| SECTION B: MECHANICAL REFURBISHMENT | | | | | | |
| PS6-B1 | | PIPEWORK: | | | | |
| PS6-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS6-B1.1.1 | | 50- 150mm | m | 10 | | |
| PS6-B1.1.2 | | 175 - 250mm | m | 10 | | |
| PS6-B1.2 | | Confirm integrity of existing pipework: High pressure sand blasting of all existing pipework (including flanges) For the following diameters: | | | | |
| PS6-B1.2.2 | | 150mm | m | 10 | | |
| PS6-B1.2.3 | | 200mm | m | 10 | | |
| PS6-B1.2.4 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS6-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) For the following diameters: | | | | |
| PS6-B1.3.2 | | 150mm | m | 10 | | |
| PS6-B1.3.3 | | 200mm | m | 10 | | |
| PS6-B1.4 | | Replacement of all nuts, bolts and gaskets For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS6-B1.4.2 | | 150mm | No | 20 | | |
| PS6-B1.4.3 | | 200mm | No | 15 | | |
| PS6-B1.5 | | Provisional items | | | | |
| PS6-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS6-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 50 000.00 | | |
| PS6-B1.6 | | Pipe brackets: For 150mm pipes: For heights between: | | | | |
| PS6-B1.6.1 | | 0.9 - 1.2m | No | 4 | | |
| PS6-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS6-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS6-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS6-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS6-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS6-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS6-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 6: BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|------|--------|------|--------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS6-B2.7 | SANS 1200 | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS6-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS6-B3 | | Valves | | | | |
| PS6-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS6-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS6-B3.2.1 | | DN 200mm PN16 (AVK or similar approved) | No | 1 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS6-B3.2.2 | | DN 150mm PN16 (AVK or similar approved) | No | 3 | | |
| | | Ball Check Valve | | | | |
| PS6-B3.2.3 | | DN 150mm PN16 (AVK or similar approved) | No | 3 | | |
| | | Air-Valves: | | | | |
| PS6-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS6-B3.2.5 | | DN 150mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Level Control Valve: | | | | |
| PS6-B3.2.6 | | DN 150mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS6-B3.2.7 | | DN150mm Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS6-B3.2.9 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Install | | | | |
| PS6-B3.2.10 | | Flanged RSV Gate Valve - Suction | No | 1 | | |
| PS6-B3.2.11 | | Flanged RSV Gate Valve - Delivery | No | 3 | | |
| PS6-B3.2.12 | | Ball Check Valve | No | 2 | | |
| PS6-B3.2.13 | | Air-Valves | No | 1 | | |
| PS6-B3.2.14 | | Pressure Sustaining Valve | No | 1 | | |
| PS6-B3.2.15 | | Level control valve | No | 1 | | |
| PS6-B3.2.16 | | Water meter/Flow meter: | No | 1 | | |
| PS6-B4 | | LIFTING EQUIPMENT | | | | |
| PS6-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS6-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS6-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS6-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS6-C1 | | Main Control Consol (MCC): | | | | |
| PS6-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS6-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS6-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 6: BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS6-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS6-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS6-C2 | | Pressure Transmitter: | | | | |
| PS6-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS6-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS6-C2.3 | | Commissioning | Sum | 1 | | |
| PS6-C3 | | Existing cables: | | | | |
| PS6-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS6-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS6-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS6-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 15 000.00 | | |
| PS6-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 7: FIKA PATSO PUMP STATION (28°39'53.67"S, 28°50'36.02"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|------|--------|------|--------|
| PS7-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS7-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 850 | | |
| PS7-A2 | | Fencing: | | | | |
| PS7-A2.1 | | Removal of existing concrete pallisade fencing and access gates and dispose of material at approved Municipal dumping site or store facility. | m | 160 | | |
| PS7-A2.2 | | Supply and install new high-security Clear-Vu fencing 2,4m high including all materials and fasteners (or similar approved) | m | 160 | | |
| PS7-A2.3 | | Supply and install shark tooth "anti climb spikes". (Material to be approved by the Engineer before procurement) | m | 160 | | |
| PS7-A2.4 | | Galvanised steel access gates (double leaf, 2,4m high x 3,6m wide) | No | 1 | | |
| PS7-A2.5 | | Additional padlocks | No | 1 | | |
| PS7-A2.6 | | 150 x 200mm hand excavated trench for concrete beam under fencing | m | 160 | | |
| PS7-A2.7 | | 150 x 200mm Concrete ground beam casted insitu with 15 MPa concrete. To include formwork, finishing, etc. | m³ | 6 | | |
| PS7-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS7-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 20 | | |
| PS7-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS7-A3.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS7-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS7-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS7-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 85 | | |
| PS7-A4.2 | | Exterior Walls a) Pressure wash outside walls before any refurbishment work commence; b) Sand down all structure walls, including pillars & beams; c) Remove all loose paint from structure; d) Apply exterior paint primer (to be confirmed by supplier); e) Apply 2 coats of white exterior paint (Emulsion paint) | m² | 90 | | |
| PS7-A4.3 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 7.5 | | |
| PS7-A4.4 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 95 | | |
| PS7-A4.5 | | Roof Trusses, Purlins and Branderling (span of 7m trusses) a) Sand down existing material; b) Remove loose paint & particles; c) Apply 2 coats of Duram Woodseal for roofs or similar approved | No | 10 | | |
| PS7-A4.6 | | Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 100 | | |
| PS7-A4.7 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 15 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 7: FIKA PATSO PUMP STATION (28°39'53.67"S, 28°50'36.02"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT | |
|-------------------------------------|---|---|----------|-----------|-----------|-----------|--|
| TOTAL BROUGHT FORWARD | | | | | | | |
| PS7-A4.8 | PB 8.2.21 | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 15 | | | |
| PS7-A4.9 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 10 | | | |
| PS7-A5 | | General Electrical: | | | | | |
| PS7-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1 | 15 000.00 | 15 000.00 | |
| PS7-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | | |
| PS7-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1 | 10 000.00 | 10 000.00 | |
| PS7-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | | |
| PS7-A6 | | PB 8.2.17 | Doors: | | | | |
| PS7-A6.1 | | Removal of existing steel door (Break out of wall) | No | 1 | 2 500.00 | 2 500.00 | |
| PS7-A6.2 | | Supply and install new (Including all required fittings etc.) | | | | | |
| PS7-A6.3 | Transformer Door - Type CV (2134x1100mm) | No | 1 | | | | |
| PS7-A6.4 | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | | | |
| PS7-A7 | PB 8.2.15 | Ceilings: | | | | | |
| PS7-A7.1 | Gypsum ceiling board | m² | 100 | | | | |
| PS7-A7.2 | Cornice 75 mm | m | 90 | | | | |
| PS7-A8 | SANS 1200 H | Structural steelwork: | | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | | |
| PS7-A8.1 | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | | | |
| PS7-A8.2 | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | | | |
| PS7-A8.3 | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 8 | | | | |
| SECTION B: MECHANICAL REFURBISHMENT | | | | | | | |
| PS7-B1 | | PIPEWORK: | | | | | |
| PS7-B1.1 | De-install of existing pipework for all diameters up to including: | | | | | | |
| PS7-B1.1.1 | 50- 150mm | m | 25 | | | | |
| PS7-B1.1.2 | 250-350mm | m | 10 | | | | |
| PS7-B1.2 | Confirm integrity of existing pipework: | | | | | | |
| | High pressure sand blasting of all existing pipework (including flanges) | | | | | | |
| | For the following diameters: | | | | | | |
| PS7-B1.2.1 | 100mm | m | 5 | | | | |
| PS7-B1.2.2 | 150mm | m | 20 | | | | |
| PS7-B1.2.3 | 300mm | m | 10 | | | | |
| PS7-B1.2.2 | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | | | |
| PS7-B1.3 | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | | | |
| | For the following diameters: | | | | | | |
| PS7-B1.3.1 | 100mm | m | 5 | | | | |
| PS7-B1.3.2 | 150mm | m | 20 | | | | |
| PS7-B1.3.3 | 300mm | m | 10 | | | | |
| PS7-B1.4 | Replacement of all nuts, bolts and gaskets | | | | | | |
| | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | | | |
| TOTAL CARREID FORWARD | | | | | | | |

SCHEDULE PUMP STATION No 7: FIKA PATSO PUMP STATION (28°39'53.67"S, 28°50'36.02"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS7-B1.4.1 | | 100mm | No | 25 | | |
| PS7-B1.4.2 | | 150mm | No | 20 | | |
| | | 300mm | No | 7 | | |
| PS7-B1.5 | | Provisional items | | | | |
| PS7-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1 | 40 000.00 | 40 000.00 |
| PS7-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 40 000.00 | | |
| PS7-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS7-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS7-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS7-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS7-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS7-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS7-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS7-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS7-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS7-B3 | SANS 1200 | Valves | | | | |
| PS7-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS7-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS7-B3.2.1 | | DN 150mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS7-B3.2.2 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS7-B3.2.3 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS7-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS7-B3.2.5 | | DN 150mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Level Control Valve: | | | | |
| PS7-B3.2.6 | | DN 150mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS7-B3.2.7 | | DN150mm Optiflux 2000 OIIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS7-B3.2.8 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Install | | | | |
| PS7-B3.2.9 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 7: FIKA PATSO PUMP STATION (28°39'53.67"S, 28°50'36.02"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS7-B3.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS7-B3.2.11 | | Ball Check Valve | No | 2 | | |
| PS7-B3.2.12 | | Air-Valves | No | 1 | | |
| PS7-B3.2.13 | | Pressure Sustaining Valve | No | 1 | | |
| PS7-B3.2.15 | | Level control valve | No | 1 | | |
| PS7-B3.2.14 | | Water meter/Flow meter: | No | 1 | | |
| PS7-B4 | | LIFTING EQUIPMENT | | | | |
| PS7-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS7-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS7-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS7-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS7-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS7-C1 | | Main Control Consol (MCC): | | | | |
| PS7-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS7-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS7-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS7-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS7-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS7-C2 | | Pressure Transmitter: | | | | |
| PS7-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS7-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS7-C2.3 | | Commissioning | Sum | 1 | | |
| PS7-C3 | | Existing cables: | | | | |
| PS7-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS7-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS7-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS7-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS7-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 8: MASONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|---|------|--------|------|--------|
| PS8-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS8-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 400 | | |
| PS8-A2 | | Fencing: | | | | |
| PS8-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 25 | | |
| PS8-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 90 | | |
| PS8-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS8-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 15 | | |
| PS8-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS8-A3.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS8-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS8-A4 | SANS 1200 G | Concrete works | | | | |
| PS8-A4.1 | | Demolish and remove existing concret plinths | No | 3 | | |
| | | Formwork: | | | | |
| | | Smooth formwork: | | | | |
| | 8.2.2 | Plane vertical | | | | |
| PS8-A4.2 | | To plinths | m² | 5 | | |
| | 8.3.1 | High Tensile Steel: | | | | |
| PS8-A4.3 | | Y12 | t | 0.2 | | |
| | | Mild Tensile Steel: | | | | |
| PS8-A4.4 | | R10 | t | 0.2 | | |
| | 8.4.3 | Concrete Class 35/19 to: | | | | |
| PS8-A4.5 | | Plinths | m³ | 2 | | |
| | 8.4.4 | Unformed surfaces: | | | | |
| | | Steel float finish: | | | | |
| PS8-A4.6 | | Plinth | m² | 5 | | |
| PS8-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS8-A5.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 130 | | |
| PS8-A5.2 | | Exterior Walls a) Pressure wash outside walls before any refurbishment work commence; b) Sand down all structure walls, including pillars & beams; c) Remove all loose paint from structure; d) Apply exterior paint primer (to be confirmed by supplier); e) Apply 2 coats of white exterior paint (Emulsion paint) | m² | 140 | | |
| PS8-A5.3 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS8-A5.4 | | Roof Trusses, Purlins and Brandering (span of 6.2m trusses) a) Sand down existing material; b) Remove loose paint & particles; c) Apply 2 coats of Duram Woodseal for roofs or similar approved | No | 6 | | |
| PS8-A5.5 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 40 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 8: MASIONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS8-A5.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS8-A5.7 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| PS8-A5.8 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 15 | | |
| PS8-A5 | | PB 8.2.17 Doors: | | | | |
| PS8-A5.1 | | Removal of existing steel door (Break out of wall) | No | 1 | | |
| PS8-A5.2 | | Supply and install new (Including all required fittings etc.) | | | | |
| PS8-A5.3 | | Transformer Door - Type DV (2438 x 1829mm) | No | 1 | | |
| PS8-A5.4 | | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | |
| PS8-A6 | PB 8.2.21 | General Electrical: | | | | |
| PS8-A6.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 25 000.00 | 25 000.00 |
| PS8-A6.2 | | Overheads, charges and profit on subitem A6.1 above | % | 25 000.00 | | |
| PS8-A6.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS8-A6.4 | | Overheads, charges and profit on subitem A6.3 above | % | 20 000.00 | | |
| PS8-A7 | SANS 1200 H | Structural steelwork: | | | | |
| PS8-A7.1 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 15 | | |
| PS8-B1 | | PIPEWORK: | | | | |
| PS8-B1.1 | | Deinstall and remove existing pipework | Sum | 1 | | |
| PS8-B2 | | Pipework: | | | | |
| | | Material: a) Fabrication according to SANS 719: 1971 Grade B with 1600kPa working pressure (4.5mm thickness) b) Sand blasted according to SA055900 SIS 2 1/2 Finish c) Coating to be "Copon KSIR 88" or similar approved product to a thickness of 250 Micron | | | | |
| PS8-B2.1 | | 150mm | m | 12 | | |
| PS8-B2.2 | | 200mm | m | 12 | | |
| PS8-B2.3 | | 400mm | m | 8 | | |
| PS8-B3 | | Flanges: | | | | |
| | | Material: a) Thickness and drilling according to SANS 1123 Table 1600/3 | | | | |
| PS8-B3.1 | | 150mm | No | 10 | | |
| PS8-B3.2 | | 200mm | No | 5 | | |
| PS8-B3.3 | | 400mm | No | 6 | | |
| PS8-B4 | | Specials (Including all flanges) | | | | |
| | | Material specifications as per pipes and flanges above: | | | | |
| PS8-B4.1 | | 150mm - 90° bend | No | 6 | | |
| PS8-B4.2 | | 150mm - 22.5° bend | No | 4 | | |
| | | Reducers | | | | |
| PS8-B4.3 | | 80 - 150mm | No | 4 | | |
| PS8-B4.4 | | 200-400mm | No | 4 | | |
| TOTAL CARREID FORWARD | | | | | | |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY
 APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1
 Contract No.: SCM/BID09/2023/24
 SCHEDULE PUMP STATION No 8: MASIONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS8-B4.5 | SANS 1200 | T-Pieces (400-400mm) | No | 2 | | |
| PS8-B4.6 | | Install pipework (Grade 8.8 bolts, nuts, washers and Gaskets) | Sum | 1 | | |
| PS8-B4.7 | | Commission pipework | Sum | 1 | | |
| PS8-B5 | | Pipe brackets: For 150mm pipes: For heights between: | | | | |
| PS8-B5.1 | | 0.5 - 1m | No | 4 | | |
| PS8-B6 | | PUMPS AND MOTORS: Specifications Fluid: Potable Water: Pump No. 1 & 2: | | | | |
| PS8-B6.1 | | De-install existing pump sets | No | 2 | | |
| PS8-B6.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS8-B6.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS8-B6.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS8-B6.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS8-B6.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS8-B6.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS8-B6.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS8-B7 | | Valves | | | | |
| PS8-B7.1 | | De-install and remove existing valves Supply and deliver valves Suction: Flanged RSV Gate Valve: | Sum | 1 | | |
| PS8-B7.2 | | DN 200mm PN10 (AVK or similar approved) Delivery: Flanged RSV Gate Valve: | No | 2 | | |
| PS8-B7.3 | | DN 150mm PN16 (AVK or similar approved) Ball Check Valve | No | 2 | | |
| PS8-B7.4 | | DN 150mm PN16 (AVK or similar approved) Air-Valves: | No | 2 | | |
| PS8-B7.5 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. Pressure Sustaining Valve: | No | 1 | | |
| PS8-B7.6 | | DN 150mm PN16 (Bermad or similar approved) Level Control Valve: | No | 1 | | |
| PS8-B7.7 | | DN 150mm PN10 Level Control Valve (AVK or similar approved) Water meter/Flow meter: | No | 1 | | |
| PS8-B7.8 | | DN100 Optiflux 2000 OIIML R49 Class 1 9KROHNE or similar approved) Pressure Gauges | No | 1 | | |
| PS8-B7.9 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 8: MASIONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| | | Install | | | | |
| PS8-B7.10 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS8-B7.11 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS8-B7.12 | | Ball Check Valve | No | 2 | | |
| PS8-B7.13 | | Air-Valves | No | 2 | | |
| PS8-B7.14 | | Pressure Sustaining Valve | No | 1 | | |
| PS8-B7.15 | | Level control valve | No | 1 | | |
| PS8-B7.16 | | Water meter/Flow meter: | No | 1 | | |
| PS8-B8 | | LIFTING EQUIPMENT | | | | |
| PS8-B8.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS8-B8.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS8-B8.3 | | Install lifting equipment | Sum | 1 | | |
| PS8-B8.4 | | Commission lifting equipment | Sum | 1 | | |
| PS8-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS8-C1 | | Main Control Consol (MCC): | | | | |
| PS8-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS8-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS8-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS8-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS8-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS8-C2 | | Pressure Transmitter: | | | | |
| PS8-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS8-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS8-C2.3 | | Commissioning | Sum | 1 | | |
| PS8-C3 | | Existing cables: | | | | |
| PS8-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS8-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS8-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS8-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS8-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS8-C4 | | Level/Control Equipment: | | | | |
| PS8-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS8-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site | | | | |
| PS8-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS8-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS8-C5 | | Main power supply | | | | |
| PS8-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS8-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS8-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS8-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS8-C5.6 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 9: LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|------|--------|------|--------|
| PS9-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS9-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 700 | | |
| PS9-A2 | | Fencing: | | | | |
| PS9-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 30 | | |
| PS9-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 100 | | |
| PS9-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS9-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 120 | | |
| PS9-A3.2 | | 150mm C4 Stabalised sub base layer compacted to 97% MOD-ASHTO | m² | 120 | | |
| PS9-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 120 | | |
| PS9-A3.5 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 60 | | |
| PS9-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS9-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 15 | | |
| PS9-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS9-A4.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS9-A4.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS9-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS9-A5.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 90 | | |
| PS9-A5.2 | | Exterior Walls a) Pressure wash outside walls before any refurbishment work commence; b) Sand down all structure walls, including pillars & beams; c) Remove all loose paint from structure; d) Apply exterior paint primer (to be confirmed by supplier); e) Apply 2 coats of white exterior paint (Emulsion paint) | m² | 100 | | |
| PS9-A5.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 30 | | |
| PS9-A5.4 | | Roof Trusses, Purlins and Branderling (span of 6.2m trusses) a) Sand down existing material; b) Remove loose paint & particles; c) Apply 2 coats of Duram Woodseal for roofs or similar approved | No | 6 | | |
| PS9-A5.5 | | Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 40 | | |
| PS9-A5.6 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 5 | | |
| PS9-A5.7 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 30 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 9: LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|--------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS9-A6 | PB 8.2.17 | Doors: | | | | |
| PS9-A6.1 | | Removal of existing steel door (Break out of wall) | No | 1 | | |
| PS9-A6.2 | | Supply and install new (Including all required fittings etc.) | | | | |
| PS9-A6.3 | | Transformer Door - Type DV (2438 x 1829mm) | No | 1 | | |
| PS9-A6.4 | | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | |
| PS9-A7 | PB 8.2.21 | General Electrical: | | | | |
| PS9-A7.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS9-A7.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| PS9-A7.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS9-A7.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS9-A8 | SANS 1200 H | Structural steelwork: | | | | |
| PS9-A8.1 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 3 | | |
| SECTION B: MECHANICAL REFURBISHMENT | | | | | | |
| PS9-B1 | | PIPEWORK: | | | | |
| PS9-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS9-B1.1.1 | | 150-200mm | m | 15 | | |
| PS9-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS9-B1.2.1 | | 150mm | m | 15 | | |
| PS9-B1.2.2 | | 200mm | m | 5 | | |
| PS9-B1.2.2 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS9-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS9-B1.3.1 | | 150mm | m | 15 | | |
| PS9-B1.3.2 | | 200mm | m | 5 | | |
| PS9-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Grade 8.8 Bolts and Nuts): | | | | |
| PS9-B1.4.1 | | 150mm | No | 35 | | |
| PS9-B1.4.2 | | 200mm | No | 5 | | |
| PS9-B1.5 | | Provisional items | | | | |
| PS9-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 25 000.00 | 25 000.00 |
| PS9-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 25 000.00 | | |
| PS9-B1.6 | | Pipe brackets: | | | | |
| | | For 150mm pipes: | | | | |
| | | For heights between: | | | | |
| PS9-B1.6.1 | | 0.5 - 1m | No | 2 | | |
| PS9-B1.6.2 | | 1-1.3m | No | 1 | | |
| PS9-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS9-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS9-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment | Sum | 1 | | |
| PS9-B2.3 | | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 9: LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|------|-----------|------|--------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS9-B2.4 | SANS 1200 | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS9-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS9-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS9-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS9-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS9-B3 | | Valves | | | | |
| PS9-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS9-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): Suction: Flanged RSV Gate Valve: | | | | |
| PS9-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) Delivery: Flanged RSV Gate Valve: | No | 2 | | |
| PS9-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) Ball Check Valve | No | 2 | | |
| PS9-B3.2.3 | | DN 80mm PN16 (AVK or similar approved) Air-Valves: | No | 2 | | |
| PS9-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. Pressure Sustaining Valve: | No | 1 | | |
| PS9-B3.2.5 | | DN 80mm PN16 (Bermad or similar approved) Water meter/Flow meter: | No | 1 | | |
| PS9-B3.2.6 | | DN80mm Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) Pressure Gauges | No | 1 | | |
| PS9-B3.2.7 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) Install | No | 2 | | |
| PS9-B3.2.8 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS9-B3.2.9 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS9-B3.2.10 | | Ball Check Valve | No | 2 | | |
| PS9-B3.2.11 | | Air-Valves | No | 1 | | |
| PS9-B3.2.12 | | Pressure Sustaining Valve | No | 1 | | |
| PS9-B3.2.13 | | Water meter/Flow meter: | No | 1 | | |
| PS9-B4 | | LIFTING EQUIPMENT | | | | |
| PS9-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS9-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS9-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS9-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS9-C1 | | Main Control Consol (MCC): | | | | |
| PS9-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS9-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS9-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 9: LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS9-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS9-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS9-C2 | | Pressure Transmitter: | | | | |
| PS9-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS9-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS9-C2.3 | | Commissioning | Sum | 1 | | |
| PS9-C3 | | Existing cables: | | | | |
| PS9-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS9-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS9-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS9-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS9-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS9-C4 | | Main power supply | | | | |
| PS9-C4.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS9-C4.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS9-C4.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS9-C4.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS9-C4.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 10: THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|------|--------|------|--------|
| PS10-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS10-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 550 | | |
| PS10-A2 | | Fencing: | | | | |
| PS10-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 25 | | |
| PS10-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 100 | | |
| PS10-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS10-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 120 | | |
| PS10-A3.2 | | 150mm C4 Stabalised sub base layer compacted to 97% MOD-ASHTO | m² | 120 | | |
| PS10-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 120 | | |
| PS10-A3.5 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 60 | | |
| PS10-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS10-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 10 | | |
| PS10-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS10-A4.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS10-A4.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS10-A5 | SANS 1200 G | Concrete works | | | | |
| PS10-A5.1 | | Demolish and remove existing concret plinths | No | 2 | | |
| | | Formwork: | | | | |
| | | Smooth formwork: | | | | |
| | 8.2.2 | Plane vertical | | | | |
| PS10-A5.2 | | To plinths | m² | 5 | | |
| | 8.3.1 | High Tensile Steel: | | | | |
| PS10-A5.3 | | Y12 | t | 0.2 | | |
| | | Mild Tensile Steel: | | | | |
| PS10-A5.4 | | R10 | t | 0.2 | | |
| | 8.4.3 | Concrete Class 35/19 to: | | | | |
| PS10-A5.5 | | Plinths | m³ | 2 | | |
| | 8.4.4 | Unformed surfaces: | | | | |
| | | Steel float finish: | | | | |
| PS10-A5.6 | | Plinth | m² | 5 | | |
| PS10-A6 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS10-A6.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 120 | | |
| PS10-A6.2 | | Exterior Walls a) Pressure wash outside walls before any refurbishment work commence; b) Sand down all structure walls, including pillars & beams; c) Remove all loose paint from structure; d) Apply exterior paint primer (to be confirmed by supplier); e) Apply 2 coats of white exterior paint (Emulsion paint) | m² | 130 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 10: THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|--------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS10-A6.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 30 | | |
| PS10-A6.4 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 15 | | |
| PS10-A7 | PB 8 | Roof and Structural Timber: | | | | |
| PS10-A7.1 | 8.2.12 | Refurbishment of Roofs a) Remove existing roof material and dispose at a verified site; b) Sand down rafts and purlins (on written instruction replace purlins and rafters); c) Apply exterior and interior wood varnish to rafters d) Install new roof material (chromadek galvanized steel sheets (Traffic Cone Green) or similar approved) | m² | 45 | | |
| PS10-A7.2 | 8.2.11 | Purlins 50 x 76 SAP | m | 45 | | |
| PS10-A7.3 | 8.2.11 | Branding 38 x 38 SAP | m² | 42 | | |
| | PB 8.2.13 | Facia Boards and Gutters: | | | | |
| PS10-A7.4 | | 225 x 12 mm F.C. fascia and barge boards | m | 30 | | |
| PS10-A7.5 | | 125 x 85 Colourbond aluminium gutters | m | 30 | | |
| PS10-A7.6 | | 80 x 55 Colourbond aluminium downpipes | m | 10 | | |
| | PB 8.2.15 | Ceilings: | | | | |
| PS10-A7.7 | | Gypsum ceiling board | m² | 45 | | |
| PS10-A7.8 | | Cornice 75 mm | m | 25 | | |
| PS10-A8 | PB 8.2.17 | Doors: | | | | |
| PS10-A8.1 | | Removal of existing steel door (Break out of wall) | No | 1 | | |
| PS10-A8.2 | | Removal of existing burglar door | No | 1 | | |
| PS10-A8.3 | | Supply and install new (Including all required fittings etc.) | | | | |
| PS10-A8.4 | | Transformer Door - Type DV (2438 x 1829mm) | No | 1 | | |
| PS10-A8.5 | | Supply, deliver and Installation of Burglar bars for double doors | No | 1 | | |
| PS10-A9 | PB 8.2.21 | General Electrical: | | | | |
| PS10-A9.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 25 000.00 | 25 000.00 |
| PS10-A9.2 | | Overheads, charges and profit on subitem A9.1 above | % | 25 000.00 | | |
| PS10-A9.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS10-A9.4 | | Overheads, charges and profit on subitem A9.3 above | % | 20 000.00 | | |
| PS10-A10 | SANS 1200 H | Structural steelwork: | | | | |
| PS10-A10.1 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregrate or similar approved). | m² | 6 | | |
| | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS10-B1 | | PIPEWORK: | | | | |
| PS10-B1.1 | | Deinstall and remove existing pipework | | | | |
| PS10-B1.1.1 | | 50-200mm | m | 35 | | |
| PS10-B1.3 | | Manufacture, supply and store new pipework | | | | |
| PS10-B2 | | Pipework: | | | | |
| | | Material: a) Fabrication according to SANS 719: 1971 Grade B with 1600kPa working pressure (4.5mm thickness) b) Sand blasted according to SA055900 SIS 2 1/2 Finish c) Coating to be "Copon KSIR 88" or similar approved product to a thickness of 250 Micron | | | | |
| PS10-B2.1 | | 100mm | m | 5 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 10: THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS10-B2.2 | | 150mm | m | 12 | | |
| PS10-B2.3 | | 200mm | m | 12 | | |
| | | Flanges: | | | | |
| | | Material: | | | | |
| | | a) Thickness and drilling according to SANS 1123 Table 1600/3 | | | | |
| PS10-B2.4 | | 100mm | No | 5 | | |
| PS10-B2.5 | | 150mm | No | 25 | | |
| PS10-B2.6 | | 200mm | No | 30 | | |
| | | Specials (Including all flanges) | | | | |
| | | Material specifications as per pipes and flanges above: | | | | |
| PS10-B2.7 | | 150mm - 90° bend | No | 4 | | |
| PS10-B2.8 | | 150mm - 22.5° bend | No | 2 | | |
| | | Reducers | | | | |
| PS10-B2.9 | | 80 - 150mm | No | 4 | | |
| PS10-B2.10 | | 150-200mm | No | 4 | | |
| PS10-B2.11 | | T-Pieces (200-200mm) | No | 2 | | |
| PS10-B2.12 | | Install pipework (Grade 8.8 bolts, nuts, washers and Gaskets) | Sum | 1 | | |
| PS10-B2.13 | | Commission pipework | Sum | 1 | | |
| PS10-B3 | | Pipe brackets: | | | | |
| | | For 150mm pipes: | | | | |
| | | For heights between: | | | | |
| PS10-B3.1 | | 1-1.2m | No | 4 | | |
| PS10-B4 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS10-B4.1 | | De-install existing pump sets | No | 2 | | |
| PS10-B4.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS10-B4.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS10-B4.4 | | Overheads, charges and profit on subitem B4.3 above | % | 15 000.00 | | |
| PS10-B4.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS10-B4.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS10-B4.7 | | Supply and deliver new submersible drainage pump (Including cabling and accesorries) | No | 1 | | |
| PS10-B4.8 | | Install new pump sets (Pump, Motor and Baseplate) | No | 2 | | |
| PS10-B4.9 | | Install new submersible pump | No | 1 | | |
| PS10-B4.10 | | Commissioning of submersible pump | No | 1 | | |
| PS10-B4.11 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS10-B5 | SANS 1200 | Valves | | | | |
| PS10-B5.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS10-B5.2 | | Supply and deliver valves | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS10-B5.2.1 | | DN 200mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 10: THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS10-B5.2.2 | | Flanged RSV Gate Valve: DN 150mm PN16 (AVK or similar approved) | No | 2 | | |
| PS10-B5.2.3 | | Ball Check Valve DN 150mm PN16 (AVK or similar approved) | No | 2 | | |
| PS10-B5.2.4 | | Air-Valves: DN 50mm PN16 RPS - Vent-O-Mat Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. | No | 1 | | |
| PS10-B5.2.5 | | Pressure Sustaining Valve: DN 150mm PN16 (Bermad or similar approved) | No | 1 | | |
| PS10-B5.2.6 | | Water meter/Flow meter: DN100 Optiflux 2000 OIML R49 Class 1 KROHNE | No | 1 | | |
| PS10-B5.2.7 | | Pressure Gauges Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| PS10-B5.2.8 | | Install Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS10-B5.2.9 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS10-B5.2.10 | | Ball Check Valve | No | 2 | | |
| PS10-B5.2.11 | | Air-Valves | No | 1 | | |
| PS10-B5.2.12 | | Pressure Sustaining Valve | No | 1 | | |
| PS10-B5.2.13 | | Water meter/Flow meter: | No | 1 | | |
| PS10-B6 | | LIFTING EQUIPMENT | | | | |
| PS10-B6.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS10-B6.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS10-B6.3 | | Install lifting equipment | Sum | 1 | | |
| PS10-B6.4 | | Commission lifting equipment | Sum | 1 | | |
| PS10-C1 | | SECTION C: ELECTRICAL REFURBISHMENT Main Control Consol (MCC): | | | | |
| PS10-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS10-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS10-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS10-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS10-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS10-C2 | | Pressure Transmitter: | | | | |
| PS10-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS10-C2.2 | | Install Pressure Transmitter | Sum | 1 | | |
| PS10-C2.3 | | Commissioning | Sum | 1 | | |
| PS10-C3 | | Existing cables: | | | | |
| PS10-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS10-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS10-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS10-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS10-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 10: THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS10-C4 | | Level/Control Equipment: | | | | |
| PS10-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS10-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS10-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS10-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS10-C5 | | Main power supply | | | | |
| PS10-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS10-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS10-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS10-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS10-C5.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 11: MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|------|--------|------|--------|
| PS11-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS11-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 1500 | | |
| PS11-A2 | | Fencing: | | | | |
| PS11-A2.1 | | Removal of existing concrete pallisade fencing and access gates and dispose of material at approved Municipal dumping site. | m | 250 | | |
| PS11-A2.2 | | Supply and install new Clear-Vu fencing 2,4m high including all materials and fasteners (or similar approved) | m | 250 | | |
| PS11-A2.3 | | Supply and install shark tooth "anti climb spikes". (Material to be approved by the Engineer before procurement) | m | 250 | | |
| PS11-A2.4 | | Galvanised steel access gates (double leaf, 2,4m high x 3,6m wide) | No | 1 | | |
| PS11-A2.5 | | Additional padlocks | No | 1 | | |
| PS11-A2.6 | | 150 x 200mm hand excavated trench for concrete beam under fencing | m | 260 | | |
| PS11-A2.7 | | 150 x 200mm Concrete ground beam casted insitu with 15 MPa concrete. To include formwork, finishing, etc. | m³ | 10 | | |
| PS11-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS11-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 30 | | |
| PS11-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS11-A3.3 | | Depth up to 1,0m | m³ | 20 | | |
| PS11-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS11-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS11-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 150 | | |
| PS11-A4.2 | | Exterior Walls a) Pressure wash outside walls before any refurbishment work commence; b) Sand down all structure walls, including pillars & beams; c) Remove all loose paint from structure; d) Apply exterior paint primer (to be confirmed by supplier); e) Apply 2 coats of white exterior paint (Emulsion paint) | m² | 95 | | |
| PS11-A4.3 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS11-A4.4 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS11-A4.5 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 60 | | |
| PS11-A4.6 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 60 | | |
| PS11-A4.7 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 11: MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|--------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS11-A4.8 | PB 8.2.21 | Steel Gantry; a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 40 | | |
| PS11-A5 | | General Electrical: | | | | |
| PS11-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 30 000.00 | 30 000.00 |
| PS11-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 30 000.00 | | |
| PS11-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS11-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 15 000.00 | | |
| PS11-A6 | SANS 1200 H | Structural steelwork: | | | | |
| PS11-A6.1 | | 19x102x25mm deep Fibreglass moulded grating, complete with cast in EZ Embedment Angle to cover openings (Fibregate or similar approved). | m² | 10 | | |
| PS11-A6.2 | | 1.2m high Fibreglass safety hand rails (Fibregate or similar approved) | m | 15 | | |
| PS11-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS11-B1 | | PIPEWORK: | | | | |
| PS11-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS11-B1.1.1 | | 50- 150mm | m | 20 | | |
| PS11-B1.1.2 | | 150 - 200mm | m | 5 | | |
| PS11-B1.1.3 | | 200-250mm | m | 20 | | |
| PS11-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS11-B1.2.1 | | 80mm | m | 5 | | |
| PS11-B1.2.2 | | 100mm | m | 10 | | |
| PS11-B1.2.3 | | 150mm | m | 6 | | |
| PS11-B1.2.4 | | 200mm | m | 3 | | |
| PS11-B1.2.5 | | 250mm | m | 20 | | |
| PS11-B1.2.6 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS11-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS11-B1.3.1 | | 80mm | m | 7 | | |
| PS11-B1.3.2 | | 100mm | m | 13 | | |
| PS11-B1.3.3 | | 150mm | m | 7 | | |
| PS11-B1.3.4 | | 200mm | m | 3 | | |
| PS11-B1.3.5 | | 250mm | m | 25 | | |
| PS11-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Bolts and Nuts): | | | | |
| PS11-B1.4.1 | | 100mm | No | 15 | | |
| PS11-B1.4.2 | | 150mm | No | 6 | | |
| PS11-B1.4.3 | | 200mm | No | 4 | | |
| PS11-B1.4.4 | | 250mm | No | 20 | | |
| PS11-B1.5 | | Provisional items | | | | |
| PS11-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 75 000.00 | 75 000.00 |
| PS11-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 75 000.00 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 11: MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS11-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1, 2 & 3: | | | | |
| PS11-B2.1 | | De-install existing pump sets | No | 3 | | |
| PS11-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS11-B2.3 | | Refurbishment works required on pump sets for spare parts | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS11-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS11-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS11-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 3 | | |
| PS11-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 3 | | |
| PS11-B2.8 | | Commissioning of pump set and O&M Manuals | No | 3 | | |
| PS11-B3 | SANS 1200 | Valves | | | | |
| PS11-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS11-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS11-B3.2.1 | | 80mm RSV PN16 (AVK or similar approved) | No | 2 | | |
| PS11-B3.2.2 | | 100mm RSV PN16 (AVK or similar approved) | No | 2 | | |
| PS11-B3.2.3 | | 150mm RSV PN16 (AVK or similar approved) | No | 2 | | |
| PS11-B3.2.4 | | 200mm RSV PN16 (AVK or similar approved) | No | 2 | | |
| PS11-B3.2.5 | | 250mm RSV PN16 (AVK or similar approved) | No | 6 | | |
| | | Ball Check Valve | | | | |
| PS11-B3.2.6 | | 80mm PN16 (AVK or similar approved) | No | 3 | | |
| PS11-B3.2.7 | | 100mm PN16 (AVK or similar approved) | No | 3 | | |
| PS11-B3.2.8 | | 150mm PN16 (AVK or similar approved) | No | 3 | | |
| | | Silent Check Valve: | | | | |
| PS11-B3.2.9 | | 250mm PN16 (AVK or similar approved) | No | 1 | | |
| | | Air-Valves: | | | | |
| PS11-B3.2.10 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 2 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS11-B3.2.11 | | DN 150mm PN16 (Bermad or similar approved) | No | 2 | | |
| | | Level Control Valve: | | | | |
| PS11-B3.2.12 | | DN 150mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS11-B3.2.13 | | DN150 Optiflux 2000 OIIML R49 Class 1 (KROHNE or similar approved) | No | 2 | | |
| | | Pressure Gauges | | | | |
| PS11-B3.2.14 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 6 | | |
| | | Install | | | | |
| PS11-B3.2.15 | | Flanged RSV Gate Valve: | No | 14 | | |
| PS11-B3.2.16 | | Ball Check Valve | No | 9 | | |
| PS11-B3.2.17 | | Silent Check Valve: | No | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |
| TOTAL BROUGHT FORWARD | | | | | | |

SCHEDULE PUMP STATION No 11: MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|-------------------|---|----------|-----------|-----------|-----------|
| PS11-B3.2.18 | | Air-Valves: | No | 2 | | |
| PS11-B3.2.19 | | Pressure Sustaining Valve: | No | 2 | | |
| PS11-B3.2.20 | | Level Control Valve: | No | 1 | | |
| PS11-B3.2.21 | | Water meter/Flow meter: | No | 2 | | |
| PS11-B4 | | LIFTING EQUIPMENT | | | | |
| PS11-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS11-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment - 1 Ton chain block and roller | Sum | 1 | | |
| PS11-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS11-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS11-C1 | | Main Control Consol (MCC): | | | | |
| PS11-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS11-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS11-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS11-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS11-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS11-C2 | | Pressure Transmitter: | | | | |
| PS11-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 2 | | |
| PS11-C2.2 | | Install Pressure Transmitter | No | 2 | | |
| PS11-C2.3 | | Commissioning | No | 2 | | |
| PS11-C3 | | Existing cables: | | | | |
| PS11-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS11-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS11-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 45 000.00 | 45 000.00 |
| PS11-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 45 000.00 | | |
| PS11-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS11-C4 | | Level/Control Equipment: | | | | |
| PS11-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS11-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site | | | | |
| PS11-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS11-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS11-C5 | | Main power supply | | | | |
| PS11-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS11-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS11-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS11-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS11-C5.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 12: QOQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| PS12-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS12-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 500 | | |
| PS12-A2 | | Fencing: | | | | |
| PS12-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 25 | | |
| PS12-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 100 | | |
| PS12-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS12-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 10 | | |
| PS12-A3.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS12-A3.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS12-A3.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS12-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS12-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 40 | | |
| PS12-A4.2 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS12-A4.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 15 | | |
| PS12-A4.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS12-A4.5 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS12-A4.6 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS12-A4.7 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS12-A4.8 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| PS12-A5 | PB 8.2.21 | General Electrical: | | | | |
| PS12-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS12-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| PS12-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 12: QOQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|---|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS12-A5.4 | SANS 1200 H | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS12-A6 | | Structural steelwork: Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS12-A6.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS12-A6.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS12-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS12-B1 | | PIPEWORK: | | | | |
| PS12-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS12-B1.1.1 | | 50- 150mm | m | 20 | | |
| PS12-B1.3 | | Manufacture, supply and store new pipework Pipework: Material: a) Fabrication according to SANS 719: 1971 Grade B with 1600kPa working pressure (4.5mm thickness) b) Sand blasted according to SA055900 SIS 2 1/2 Finish c) Coating to be "Copon KSIR 88" or similar approved product to a thickness of 250 Micron | | | | |
| PS12-B1.3.1 | | 80mm | m | 10 | | |
| PS12-B1.3.2 | | 100mm Flanges: Material: a) Thickness and drilling according to SANS 1123 Table 1600/3 | m | 10 | | |
| PS12-B1.3.3 | | 80mm | No | 10 | | |
| PS12-B1.3.4 | | 100mm Specials (Including all flanges) Material specifications as per pipes and flanges above: | No | 10 | | |
| PS12-B1.3.5 | | 80mm - 90° bend | No | 4 | | |
| PS12-B1.3.6 | | 100mm - 22.5° bend Reducers | No | 2 | | |
| PS12-B1.3.7 | | 80 - 100mm | No | 6 | | |
| PS12-B1.3.8 | | T-Pieces (100-100mm) | No | 2 | | |
| PS12-B1.3.9 | | Install pipework (Grade 8.8 bolts, nuts, washers and Gaskets) | Sum | 1 | | |
| PS12-B1.3.10 | | Commission pipework | Sum | 1 | | |
| PS12-B1.4 | | Pipe brackets: For 100mm pipes: For heights between: | | | | |
| PS12-B1.4.1 | | 0.5 - 1m (Refer to drawing 131- | No | 2 | | |
| PS12-B2 | | PUMPS AND MOTORS: Specifications Fluid: Potable Water: Pump No. 1 & 2: | | | | |
| PS12-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS12-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment | Sum | 1 | | |
| PS12-B2.3 | | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS12-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS12-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS12-B2.6 | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | | |
| PS12-B2.7 | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 12: QOQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|--|------|--------|------|--------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS12-B2.8 | SANS 1200 | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS12-B3 | | Valves | | | | |
| PS12-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS12-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS12-B3.2.1 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS12-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS12-B3.2.3 | | DN 80 PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS12-B3.2.5 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS12-B3.2.6 | | DN 80mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS12-B3.2.7 | | DN100 Optiflux 2000 OIIM R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS12-B3.2.8 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 2 | | |
| | | Install | | | | |
| PS12-B3.2.9 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS12-B3.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS12-B3.2.11 | | Ball Check Valve | No | 2 | | |
| PS12-B3.2.12 | | Air-Valves | No | 1 | | |
| PS12-B3.2.13 | | Pressure Sustaining Valve: | No | 1 | | |
| PS12-B3.2.14 | | Water meter/Flow meter: | No | 1 | | |
| PS12-B4 | | LIFTING EQUIPMENT | | | | |
| PS12-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS12-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment | Sum | 1 | | |
| PS12-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS12-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS12-C1 | | Main Control Console (MCC): | | | | |
| PS12-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS12-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS12-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS12-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS12-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS12-C2 | | Pressure Transmitter: | | | | |
| PS12-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 12: QOQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS12-C2.2 | | Install Pressure Transmitter | No | 1 | | |
| PS12-C2.3 | | Commissioning | No | 1 | | |
| PS12-C3 | | Existing cables: | | | | |
| PS12-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS12-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS12-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 20 000.00 | 20 000.00 |
| PS12-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 20 000.00 | | |
| PS12-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS12-C4 | | Level/Control Equipment: | | | | |
| PS12-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS12-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: | | | | |
| | | a) APS - 3C or similar approved | | | | |
| | | b) 3 - Probes (Common, low and high) | | | | |
| | | c) Depths to be confirmed on site | | | | |
| PS12-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS12-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS12-C5 | | Main power supply | | | | |
| PS12-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS12-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS12-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS12-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS12-C5.6 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 13: PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|----------|-----------|-----------|-----------|
| PS13-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS13-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 300 | | |
| PS13-A2 | | Fencing: | | | | |
| PS13-A2.2 | | Supply and install concrete fencing from stockpile. Including all materials and fasteners. | m | 20 | | |
| PS13-A2.3 | | Supply and install flat wrap for entire pump station perimeter. | m | 75 | | |
| PS13-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS13-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 60 | | |
| PS13-A3.2 | | 150mm C4 Stabalised sub base layer compacted to 97% MOD-ASHTO | m² | 60 | | |
| PS13-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 60 | | |
| PS13-A3.5 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 30 | | |
| PS13-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS13-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 15 | | |
| PS13-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS13-A4.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS13-A4.4 | | Depth over 1,0m and up to 2,0m | m³ | 15 | | |
| PS13-A5 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS13-A5.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 110 | | |
| PS13-A5.2 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 20 | | |
| PS13-A5.3 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 20 | | |
| PS13-A5.4 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 15 | | |
| PS13-A5.5 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| PS13-A6 | PB 8.2.17 | Doors: | | | | |
| PS13-A6.1 | | Supply and install new (Including all required fittings etc.) | | | | |
| PS13-A6.2 | | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | |
| PS13-A7 | PB 8.2.21 | General Electrical: | | | | |
| PS13-A7.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS13-A7.2 | | Overheads, charges and profit on subitem A6.1 above | % | 15 000.00 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 13: PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|---|---|-----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS13-A7.3 | SANS 1200 H | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS13-A7.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS13-A8 | | Structural steelwork: | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS13-A8.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS13-A8.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS13-B1 | | PIPEWORK: | | | | |
| PS13-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS13-B1.1.1 | | 50- 150mm | m | 10 | | |
| PS13-B1.1.2 | | 150-200mm | m | 10 | | |
| PS13-B1.2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS13-B1.2.1 | | 80mm | m | 3 | | |
| PS13-B1.2.2 | | 100mm | m | 7 | | |
| PS13-B1.2.3 | | 200mm | m | 10 | | |
| PS13-B1.2.2 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS13-B1.3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS13-B1.3.1 | | 80mm | m | 3 | | |
| PS13-B1.3.2 | | 100mm | m | 7 | | |
| | | 200mm | m | 10 | | |
| PS13-B1.4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Bolts and Nuts): | | | | |
| PS13-B1.4.1 | | 80mm | No | 4 | | |
| PS13-B1.4.2 | | 100mm | No | 10 | | |
| | | 200mm | No | 10 | | |
| PS13-B1.5 | | Provisional items | | | | |
| PS13-B1.5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 30 000.00 | 30 000.00 |
| PS13-B1.5.2 | | Overheads, charges and profit on subitem B1.5.1 above | % | 30 000.00 | | |
| PS13-B1.6 | | Pipe brackets: | | | | |
| | | For 150mm pipes: | | | | |
| | For heights between: | | | | | |
| PS13-B1.6.1 | 0.5 - 1m (Refer to drawing 131- | No | 2 | | | |
| PS13-B2 | PUMPS AND MOTORS: | | | | | |
| | Specifications | | | | | |
| | Fluid: Potable Water: | | | | | |
| | Pump No. 1 & 2: | | | | | |
| PS13-B2.1 | De-install existing pump sets | No | 2 | | | |
| PS13-B2.2 | Transport to Agent/Manufactures workshop for conditional assessment | Sum | 1 | | | |
| PS13-B2.3 | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 | |
| PS13-B2.4 | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | | |
| PS13-B2.5 | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | | |
| PS13-B2.6 | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 13: PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|--|------|--------|------|--------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS13-B2.7 | SANS 1200 | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS13-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS13-B3 | | Valves | | | | |
| PS13-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS13-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS13-B3.2.1 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS13-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS13-B3.2.3 | | DN 80 PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS13-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) Including: | No | 1 | | |
| | | a) Riser Flange b) Ball valve c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS13-B3.2.5 | | DN 80mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Level Control Valve: | | | | |
| PS13-B3.2.6 | | DN 80mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS13-B3.2.7 | | DN80 Optiflux 2000 OIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS13-B3.2.8 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 2 | | |
| | | Install | | | | |
| PS13-B3.2.9 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS13-B3.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS13-B3.2.11 | | Ball Check Valve | No | 2 | | |
| PS13-B3.2.12 | | Air-Valves | No | 2 | | |
| PS13-B3.2.13 | | Pressure Sustaining Valve: | No | 1 | | |
| PS13-B3.2.14 | | Level Control Valve: | No | 1 | | |
| PS13-B3.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS13-B4 | | LIFTING EQUIPMENT | | | | |
| PS13-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS13-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment | Sum | 1 | | |
| PS13-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS13-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS13-C1 | | Main Control Consol (MCC): | | | | |
| PS13-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS13-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS13-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS13-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS13-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 13: PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS13-C2 | | Pressure Transmitter: | | | | |
| PS13-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS13-C2.2 | | Install Pressure Transmitter | No | 1 | | |
| PS13-C2.3 | | Commissioning | No | 1 | | |
| PS13-C3 | | Existing cables: | | | | |
| PS13-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS13-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS13-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS13-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS13-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS13-C4 | | Level/Control Equipment: | | | | |
| PS13-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS13-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site | | | | |
| PS13-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS13-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS13-C5 | | Main power supply | | | | |
| PS13-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS13-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS13-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 20 000.00 | 20 000.00 |
| PS13-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 20 000.00 | | |
| PS13-C5.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 14: PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|-------------------|--|----------|-----------|-----------|-----------|
| PS14-A1 | PB | SECTION A :CIVIL REFURBISHMENT | | | | |
| | PB 8.2.20 | BUILDING WORK REFURBISHMENT | | | | |
| | | Painting: | | | | |
| PS14-A1.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 40 | | |
| PS14-A1.2 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 12 | | |
| PS14-A1.3 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 12 | | |
| PS14-A1.4 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS14-A1.5 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| PS14-A1.6 | | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| PS14-A1.6 | | Steel Gantry: a) Pressure wash existing gantry before any refurbishment works commence; b) Sand down existing enamel paint; c) Remove loose particles; d) Apply primer (to be confirmed with Engineer before application) e) Apply industrial enamel paint (confirm with Engineer before application) | m² | 30 | | |
| PS14-A2 | PB 8.2.17 | Doors: | | | | |
| PS14-A2.1 | | Supply and install new (Including all required fittings etc.) | | | | |
| PS14-A2.2 | | Supply, deliver and Installation of Burgular bars for double doors | No | 1 | | |
| PS14-A3 | PB 8.2.21 | General Electrical: | | | | |
| PS14-A3.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS14-A3.2 | | Overheads, charges and profit on subitem A6.1 above | % | 10 000.00 | | |
| PS14-A3.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 5 000.00 | 5 000.00 |
| PS14-A3.4 | | Overheads, charges and profit on subitem A6.3 above | % | 5 000.00 | | |
| PS14-B1 | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| | | PIPEWORK: | | | | |
| PS14-B1.1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS14-B1.1.1 | | 50- 150mm | m | 10 | | |
| PS14-B1.3 | | Manufacture, supply and store new pipework | | | | |
| | | Pipework: | | | | |
| | | Material: a) Fabrication according to SANS 719: 1971 Grade B with 1600kPa working pressure (4.5mm thickness) b) Sand blasted according to SA055900 SIS 2 1/2 Finish c) Coating to be "Cupon KSIR 88"or similar approved product to a thickness of 250 Micron | | | | |
| PS14-B1.3.1 | | 80mm | m | 7 | | |
| PS14-B1.3.2 | | 100mm | m | 10 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 14: PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| | | Flanges: | | | | |
| | | Material: | | | | |
| | | a) Thickness and drilling according to SANS 1123 Table 1600/3 | | | | |
| PS14-B1.3.3 | | 80mm | No | 7 | | |
| PS14-B1.3.4 | | 100mm | No | 10 | | |
| | | Specials (Including all flanges) | | | | |
| | | Material specifications as per pipes and flanges above: | | | | |
| PS14-B1.3.5 | | 80mm - 90° bend | No | 4 | | |
| PS14-B1.3.6 | | 100mm - 22.5° bend | No | 2 | | |
| | | Reducers | | | | |
| PS14-B1.3.7 | | 80 - 100mm | No | 6 | | |
| PS14-B1.3.8 | | T-Pieces (100-100mm) | No | 2 | | |
| PS14-B1.3.9 | | Install pipework (Grade 8.8 bolts, nuts, washers and Gaskets) | Sum | 1 | | |
| PS14-B1.3.10 | | Commission pipework | Sum | 1 | | |
| PS14-B1.4 | | Pipe brackets: | | | | |
| | | For 100mm pipes: | | | | |
| | | For heights between: | | | | |
| PS14-B1.4.1 | | 0.5 - 1m | No | 2 | | |
| | | 1.5-1.9m | No | 2 | | |
| PS14-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS14-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS14-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS14-B2.3 | | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS14-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS14-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS14-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS14-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS14-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS14-B3 | SANS 1200 | Valves | | | | |
| PS14-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS14-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS14-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS14-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS14-B3.2.3 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS14-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved), Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. | No | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 14: PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|--|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS14-B3.2.5 | | Pressure Sustaining Valve: DN 80mm PN16 (Bermad or similar approved) | No | 1 | | |
| PS14-B3.2.6 | | Level Control Valve: DN 80mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| PS14-B3.2.7 | | Water meter/Flow meter: DN80mm Optiflux 2000 OI ML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| PS14-B3.2.8 | | Pressure Gauges Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 2 | | |
| PS14-B3.2.9 | | Install Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS14-B3.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS14-B3.2.11 | | Ball Check Valve | No | 2 | | |
| PS14-B3.2.12 | | Air-Valves | No | 1 | | |
| PS14-B3.2.13 | | Pressure Sustaining Valve: | No | 1 | | |
| PS14-B3.2.14 | | Level Control Valve: | No | 1 | | |
| PS14-B3.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS14-B4 | | LIFTING EQUIPMENT | | | | |
| PS14-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS14-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment | Sum | 1 | | |
| PS14-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS14-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS14-C1 | | SECTION C: ELECTRICAL REFURBISHMENT Main Control Consol (MCC): | | | | |
| PS14-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS14-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS14-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS14-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS14-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS14-C2 | | Pressure Transmitter: | | | | |
| PS14-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS14-C2.2 | | Install Pressure Transmitter | No | 1 | | |
| PS14-C2.3 | | Commissioning | No | 1 | | |
| PS14-C3 | | Existing cables: | | | | |
| PS14-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS14-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS14-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS14-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 15 000.00 | | |
| PS14-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS14-C4 | | Main power supply | | | | |
| PS14-C4.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS14-C4.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS14-C4.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS14-C4.4 | | Overheads, charges and profit on subitem C3.3 above | % | 15 000.00 | | |
| PS14-C4.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 15: INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|------------------------------|---|------|--------|------|--------|
| PS15-A | | SECTION A :CIVIL REFURBISHMENT | | | | |
| PS15-A1 | | Fencing: | | | | |
| PS15-A1.1 | | Removal of existing concrete pallisade fencing and access gates and dispose of material at approved Municipal dumping site or store facility. | m | 45 | | |
| PS15-A1.2 | | Supply and install new high-security Clear-Vu fencing 2,4m high including all materials and fasteners (or similar approved) | m | 45 | | |
| PS15-A1.3 | | Galvanised steel access gates (double leaf, 2,4m high x 3,6m wide) | No | 1 | | |
| PS15-A1.4 | | Additional padlocks | No | 1 | | |
| PS15-A1.5 | | 150 x 200mm hand excavated trench for concrete beam under fencing | m | 45 | | |
| PS15-A1.6 | | 150 x 200mm Concrete ground beam casted insitu with 15 Mpa concrete. | m³ | 5 | | |
| PS15-A2 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS15-A2.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 80 | | |
| PS15-A2.2 | | 150mm C4 Stabalised sub base layer compacted to 97% MOD-ASHTO | m² | 80 | | |
| PS15-A2.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 80 | | |
| PS15-A3.5 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 40 | | |
| PS15-A3 | SANS 1200D | EARTHWORKS | | | | |
| PS15-A3.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 10 | | |
| | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS15-A3.2 | | Depth up to 1,0m | m³ | 10 | | |
| PS15-A3.3 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS15-A4 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS15-A4.1 | | Interior Walls a) Pressure wash interior walls before any refurbishment work commence; b) Sand down interior walls; c) Remove all loose paint from structure; d) Apply interior paint primer (to be confirmed by supplier); e) Apply 2 coats of white interior paint (Emulsion paint) | m² | 50 | | |
| PS15-A4.2 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| PS15-A4.3 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 10 | | |
| PS15-A4.4 | | Interior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of interior roof paint (Dulux roof guard or similar approved) | m² | 10 | | |
| PS15-A4.5 | | Exterior Concrete Roofs a) Pressure wash roofs before any refurbishment work commence; b) Sand down existing roof material; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of exterior roof paint (Dulux roof guard or similar approved) | m² | 15 | | |
| PS15-A4.6 | | Steel Doors (Double doors) a) Pressure wash steel doors before any refurbishment work commence; b) Sand down existing doors; c) Remove loose paint; d) Apply paint primer (to be confirmed by supplier) e) Apply 2 coats of true black metal matt enamel (Dulux or similar approved) | m² | 12 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 15: INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|--|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS15-A4.7 | PB 8.2.21 | Concrete plinths: a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 2.5 | | |
| PS15-A5 | | General Electrical: | | | | |
| PS15-A5.1 | | Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS15-A5.2 | | Overheads, charges and profit on subitem A6.1 above | % | 20 000.00 | | |
| PS15-A5.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 10 000.00 | 10 000.00 |
| PS15-A5.4 | | Overheads, charges and profit on subitem A6.3 above | % | 10 000.00 | | |
| PS15-A6 | SANS 1200 H | Structural steelwork: | | | | |
| | | Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS15-A6.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS15-A6.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS15-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| | | PIPEWORK: | | | | |
| PS15-B1 | | De-install of existing pipework for all diameters up to including: | | | | |
| PS15-B1.1 | | 150-200mm | m | 15 | | |
| PS15-B2 | | Confirm integrity of existing pipework: | | | | |
| | | High pressure sand blasting of all existing pipework (including flanges) | | | | |
| | | For the following diameters: | | | | |
| PS15-B2.1 | | 150mm | m | 10 | | |
| PS15-B2.2 | | 200mm | m | 5 | | |
| PS15-B2.3 | | Complete Non-destructive testing (NDT) on all existing pipework | Sum | 1 | | |
| PS15-B3 | | Re-coating of pipework (COPON KSIR 88 - 250 MICRON or similar approved) | | | | |
| | | For the following diameters: | | | | |
| PS15-B3.1 | | 150mm | m | 10 | | |
| PS15-B3.2 | | 200mm | m | 5 | | |
| PS15-B4 | | Replacement of all nuts, bolts and gaskets | | | | |
| | | For following flanges (SANS 1123, Bolts and Nuts): | | | | |
| PS15-B4.1 | | 150mm | No | 35 | | |
| PS15-B4.2 | | 200mm | No | 5 | | |
| PS15-B5 | | Provisional items | | | | |
| PS15-B5.1 | | Replacement of existing pipework | Prov Sum | 1.00 | 30 000.00 | 30 000.00 |
| PS15-B5.2 | | Overheads, charges and profit on subitem B5.1 above | % | 30 000.00 | | |
| PS15-B6 | | Pipe brackets: | | | | |
| | | For 150mm pipes: | | | | |
| | | For heights between: | | | | |
| PS15-B6.1 | | 0.5 - 1m | No | 4 | | |
| PS15-B7 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS15-B7.1 | | De-install existing pump sets | No | 2 | | |
| PS15-B7.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS15-B7.3 | | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 15: INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|------|-----------|------|--------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS15-B7.4 | SANS 1200 | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS15-B7.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS15-B7.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS15-B7.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS15-B7.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS15-B8 | | Valves | | | | |
| PS15-B8.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS15-B8.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): Suction: Flanged RSV Gate Valve: | | | | |
| PS15-B8.2.1 | | DN 200mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Delivery: Flanged RSV Gate Valve: | | | | |
| PS15-B8.2.2 | | DN 100mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS15-B8.2.3 | | DN 100 PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS15-B8.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: a) Riser Flange b) Ball valve c) Bolts, nuts etc. | | | | |
| | | Pressure Sustaining Valve: | | | | |
| PS15-B8.2.5 | | DN 100mm PN16 (Bermad or similar approved) | No | 1 | | |
| | | Level Control Valve: | | | | |
| PS15-B8.2.6 | | DN 100mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS15-B8.2.7 | | DN100 Optiflux 2000 OIIML R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| | | Pressure Gauges | | | | |
| PS15-B8.2.8 | | Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 4 | | |
| | | Install | | | | |
| PS15-B8.2.9 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS15-B8.2.10 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS15-B8.2.11 | | Ball Check Valve | No | 2 | | |
| PS15-B8.2.12 | | Air-Valves | No | 1 | | |
| PS15-B8.2.13 | | Pressure Sustaining Valve: | No | 1 | | |
| PS15-B8.2.14 | | Level Control Valve: | No | 1 | | |
| PS15-B8.2.15 | | Water meter/Flow meter: | No | 1 | | |
| PS15-B9 | | LIFTING EQUIPMENT | | | | |
| PS15-B9.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS15-B9.2 | | Manufacture, supply, install and deliver PS lifting equipment | Sum | 1 | | |
| PS15-B9.3 | | Install lifting equipment | Sum | 1 | | |
| PS15-B9.4 | | Commission lifting equipment | Sum | 1 | | |
| PS15-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS15-C1 | | Main Control Consol (MCC): | | | | |
| PS15-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 15: INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS15-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS15-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS15-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS15-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS15-C2 | | Pressure Transmitter: | | | | |
| PS15-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS15-C2.2 | | Install Pressure Transmitter | No | 1 | | |
| PS15-C2.3 | | Commissioning | No | 1 | | |
| PS15-C3 | | Existing cables: | | | | |
| PS15-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS15-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS15-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS15-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS15-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS15-C4 | | Level/Control Equipment: | | | | |
| PS15-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS15-C4.2 | | Supply, deliver and store level probes | Sum | 1 | | |
| | | Specifications: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site | | | | |
| PS15-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS15-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS15-C5 | | Main power supply | | | | |
| PS15-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS15-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS15-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 50 000.00 | 50 000.00 |
| PS15-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 50 000.00 | | |
| PS15-C5.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

SCHEDULE PUMP STATION No 16: KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|------------------------------|----------------------|---|------|--------|------|--------|
| PS16-A1 | SANS 1200C | SECTION A :CIVIL REFURBISHMENT | | | | |
| | | SITE CLEARANCE | | | | |
| PS16-A1.1 | 8.3.1 | Clear and grub vegetation and trees of girth up to 1,0m | m² | 220 | | |
| PS16-A2 | | Fencing: | | | | |
| PS16-A2.1 | | Removal of existing concrete pallisade fencing and access gates and dispose of material at approved Municipal dumping site. | m | 65 | | |
| PS16-A2.2 | | Supply and install new Clear-Vu fencing 2,4m high including all materials and fasteners (or similar approved) | m | 65 | | |
| PS16-A2.3 | | Supply and install shark tooth "anti climb spikes". (Material to be approved by the Engineer before procurement) | m | 65 | | |
| PS16-A2.4 | | Galvanised steel access gates (double leaf, 2,4m high x 3,6m wide) | No | 1 | | |
| PS16-A2.5 | | Additional padlocks | No | 1 | | |
| PS16-A2.6 | | 150 x 200mm hand excavated trench for concrete beam under fencing | m | 65 | | |
| PS16-A2.7 | | 150 x 200mm Concrete ground beam casted insitu with 15 Mpa concrete. | m³ | 5 | | |
| PS16-A3 | SANS 1200MJ | SEGMENTED CONCRETE PAVING BLOCKS | | | | |
| | | Paving | | | | |
| PS16-A3.1 | | Cut to spoil 400mm deep excavation for paving and layerworks and compact base to 93% MOD-ASHTO | m² | 60 | | |
| PS16-A3.2 | | 150mm C4 Stabalised sub base layer compacted to 97% MOD-ASHTO | m² | 60 | | |
| PS16-A3.3 | | 80mm Paving blocks including 20mm bedding sand layer | m² | 60 | | |
| PS16-A3.4 | SANS 1200ME 8.2.1 | Supply and place pre-cast mountable concrete kerbing (Figure 8c pre-cast kerbing) | m | 30 | | |
| PS16-A4 | SANS 1200D | EARTHWORKS | | | | |
| PS16-A4.1 | | Locate, and excavate by hand in all material to expose existing services where ordered by the Engineer (provisional) | m³ | 15 | | |
| PS16-A4.2 | 8.3.3 | Restricted excavations: | | | | |
| | | Excavate in all materials, and use for backfilling or embankments, or dispose: | | | | |
| PS16-A4.3 | | Depth up to 1,0m | m³ | 10 | | |
| PS16-A4.4 | | Depth over 1,0m and up to 2,0m | m³ | 10 | | |
| PS16-A5 | SANS 1200 G | Concrete works | | | | |
| PS16-A5.1 | | Demolish and remove existing concret plinths | No | 2 | | |
| | | Formwork: | | | | |
| | | Smooth formwork: | | | | |
| | 8.2.2 | Plane vertical | | | | |
| PS16-A5.2 | | To plinths | m² | 5 | | |
| | 8.3.1 | High Tensile Steel: | | | | |
| PS16-A5.3 | | Y12 | t | 0.2 | | |
| | | Mild Tensile Steel: | | | | |
| PS16-A5.4 | | R10 | t | 0.2 | | |
| | 8.4.3 | Concrete Class 35/19 to: | | | | |
| PS16-A5.5 | | Plinths | m³ | 2 | | |
| | 8.4.4 | Unformed surfaces: | | | | |
| | | Steel float finish: | | | | |
| PS16-A5.6 | | Plinth | m² | 5 | | |
| PS16-A6 | PB | BUILDING WORK REFURBISHMENT | | | | |
| | PB 8.2.20 | Painting: | | | | |
| PS16-A6.1 | | Burgular Bars: a) Sand down door and window frames; b) Remove loose paint; c) Apply paint primer (to be confirmed by supplier); d) Apply 2 coats of Enamel Paint (Plascon Enamel or similar approved) | m² | 5 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 16: KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS16-A6.2 | | Concrete Floors and 1m above floor level a) Pressure wash floors before any refurbishment work commence; b) Sand down existing epoxy and material; c) Remove loose particles; d) Apply epoxy primer (to be confirmed by supplier) e) Apply 3 layers of industrial epoxy paint (Sikagard) | m² | 15 | | |
| PS16-A7 | PB 8 | Roof and Structural Timber: Remove existing clay roof tiles and dispose at verified disposal site | m² | 25 | | |
| PS16-A7.1 | 8.2.12 | Refurbishment of Roofs a) Remove existing roof material and dispose at a verified site; b) Sand down rafts and purlins (on written instruction replace purlins and rafters); c) Apply exterior and interior wood varnish to rafts d) Install new roof material (chromadek galvanized steel sheets (Traffic Cone Green) or similar approved) | m² | 25 | | |
| PS16-A7.2 | 8.2.11 | Purlins 50 x 76 SAP | m | 30 | | |
| PS16-A7.3 | 8.2.11 | Branding 38 x 38 SAP | m² | 15 | | |
| | PB 8.2.13 | Facia Boards and Gutters: 225 x 12 mm F.C. fascia and barge boards | m | 20 | | |
| PS16-A7.4 | | | | | | |
| PS16-A7.5 | | 125 x 85 Colourbond aluminium gutters | m | 10 | | |
| PS16-A7.6 | | 80 x 55 Colourbond aluminium downpipes | m | 7 | | |
| | PB 8.2.15 | Ceilings: Gypsum ceiling board | m² | 15 | | |
| PS16-A7.7 | | | | | | |
| PS16-A7.8 | | Cornice 75 mm | m | 20 | | |
| PS16-A8 | PB 8.2.21 | General Electrical: Refurbishment of general electrical items in existing building | Prov Sum | 1.00 | 20 000.00 | 20 000.00 |
| PS16-A8.1 | | | | | | |
| PS16-A8.2 | | Overheads, charges and profit on subitem A7.1 above | % | 20 000.00 | | |
| PS16-A8.3 | | Refurbishment of existing cable racks | Prov Sum | 1.00 | 15 000.00 | 15 000.00 |
| PS16-A8.4 | | Overheads, charges and profit on subitem A7.3 above | % | 15 000.00 | | |
| PS16-A9 | SANS 1200 H | Structural steelwork: Complete supply, manufacturing, corrosion protection (Hot-dipped galvanized) and installation of structural steel gantry: | | | | |
| PS16-A9.1 | | IPE 200 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS16-A9.2 | | IPEAA 160 I-section beam, including end/cleat plates & bolts | t | 0.4 | | |
| PS16-B | | SECTION B: MECHANICAL REFURBISHMENT | | | | |
| PS16-B1 | | PIPEWORK: De-install of existing pipework for all diameters up to including: | | | | |
| PS16-B1.1 | | | | | | |
| PS16-B1.1.1 | | 50- 150mm | m | 10 | | |
| PS16-B1.2 | | Manufacture, supply and store new pipework Pipework: Material: a) Fabrication according to SANS 719: 1971 Grade B with 1600kPa working pressure (4.5mm thickness) b) Sand blasted according to SA055900 SIS 2 1/2 Finish c) Coating to be "Copen KSIR 88" or similar approved product to a thickness of 250 Micron | | | | |
| PS16-B1.2.1 | | 80mm | m | 7 | | |
| PS16-B1.2.2 | | 100mm | m | 10 | | |
| | | Flanges: Material: a) Thickness and drilling according to SANS 1123 Table 1600/3 | | | | |
| PS16-B1.2.3 | | 80mm | No | 7 | | |
| PS16-B1.2.4 | | 100mm | No | 10 | | |
| | | Specials (Including all flanges) Material specifications as per pipes and flanges above: | | | | |
| TOTAL CARRIED FORWARD | | | | | | |

SCHEDULE PUMP STATION No 16: KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|-----------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS16-B1.2.5 | | 80mm - 90° bend | No | 4 | | |
| PS16-B1.2.6 | | 100mm - 22.5° bend | No | 2 | | |
| | | Reducers | | | | |
| PS16-B1.2.7 | | 80 - 100mm | No | 6 | | |
| PS16-B1.2.8 | | T-Pieces (100-100mm) | No | 2 | | |
| PS16-B1.2.9 | | Install pipework (Grade 8.8 bolts, nuts, washers and Gaskets) | Sum | 1 | | |
| PS16-B1.2.10 | | Commission pipework | Sum | 1 | | |
| | | Pipe brackets: | | | | |
| | | For 100mm pipes: | | | | |
| | | For heights between: | | | | |
| PS16-B1.2.11 | | 0.5 - 1m (Refer to drawing 131- | No | 4 | | |
| PS16-B2 | | PUMPS AND MOTORS: | | | | |
| | | Specifications | | | | |
| | | Fluid: Potable Water: | | | | |
| | | Pump No. 1 & 2: | | | | |
| PS16-B2.1 | | De-install existing pump sets | No | 2 | | |
| PS16-B2.2 | | Transport to Agent/Manufactures workshop for conditional assessment and back to storeroom of Municipality | Sum | 1 | | |
| PS16-B2.3 | | Refurbishment works required on pump sets | Prov Sum | 1 | 15 000.00 | 15 000.00 |
| PS16-B2.4 | | Overheads, charges and profit on subitem B2.3 above | % | 15 000.00 | | |
| PS16-B2.5 | | Prepare G.A Drawings for pump sets and pipework | Sum | 1 | | |
| PS16-B2.6 | | Supply and deliver new pump sets (including baseplates, anchor rods, bolts and all fittings required) | No | 2 | | |
| PS16-B2.7 | | Install new pump set (Pump, Motor and Baseplate) | No | 2 | | |
| PS16-B2.8 | | Commissioning of pump set and O&M Manuals | No | 2 | | |
| PS16-B3 | SANS 1200 | Valves | | | | |
| PS16-B3.1 | | De-install and remove existing valves | Sum | 1 | | |
| PS16-B3.2 | | Supply and deliver valves (Flangend drilling of valves to be confirmed on site): | | | | |
| | | Suction: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS16-B3.2.1 | | DN 100mm PN10 (AVK or similar approved) | No | 2 | | |
| | | Delivery: | | | | |
| | | Flanged RSV Gate Valve: | | | | |
| PS16-B3.2.2 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Ball Check Valve | | | | |
| PS16-B3.2.3 | | DN 80mm PN16 (AVK or similar approved) | No | 2 | | |
| | | Air-Valves: | | | | |
| PS16-B3.2.4 | | DN 50mm PN16 (RPS - Vent-O-Mat or similar approved) | No | 1 | | |
| | | Including: | | | | |
| | | a) Riser Flange | | | | |
| | | b) Ball valve | | | | |
| | | c) Bolts, nuts etc. | | | | |
| | | Level Control Valve: | | | | |
| PS16-B3.2.5 | | DN 80mm PN10 Level Control Valve (AVK or similar approved) | No | 1 | | |
| | | Water meter/Flow meter: | | | | |
| PS16-B3.2.6 | | DN100 Optiflux 2000 OIIM R49 Class 1 (KROHNE or similar approved) | No | 1 | | |
| TOTAL CARREID FORWARD | | | | | | |

SCHEDULE PUMP STATION No 16: KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

| ITEM | PAYMENT CLAUSE | DESCRIPTION | UNIT | QUANT. | RATE | AMOUNT |
|---------------------------------------|-------------------|---|----------|-----------|-----------|-----------|
| TOTAL BROUGHT FORWARD | | | | | | |
| PS16-B3.2.7 | | Pressure Gauges Supply, deliver and install 16 bar pressure gauges (2 x suction, 2 x delivery) | No | 2 | | |
| | | Install | | | | |
| PS16-B3.2.8 | | Flanged RSV Gate Valve - Suction | No | 2 | | |
| PS16-B3.2.9 | | Flanged RSV Gate Valve - Delivery | No | 2 | | |
| PS16-B3.2.10 | | Ball Check Valve | No | 2 | | |
| PS16-B3.2.11 | | Air-Valves | No | 1 | | |
| PS16-B8.2.12 | | Level Control Valve: | No | 1 | | |
| PS16-B3.2.13 | | Water meter/Flow meter: | No | 1 | | |
| PS16-B4 | | LIFTING EQUIPMENT | | | | |
| PS16-B4.1 | | Prepare G.A drawing(s) for pump station lifting equipment | Sum | 1 | | |
| PS16-B4.2 | | Manufacture, supply, install and deliver PS lifting equipment | Sum | 1 | | |
| PS16-B4.3 | | Install lifting equipment | Sum | 1 | | |
| PS16-B4.4 | | Commission lifting equipment | Sum | 1 | | |
| PS16-C | | SECTION C: ELECTRICAL REFURBISHMENT | | | | |
| PS16-C1 | | Main Control Consol (MCC): | | | | |
| PS16-C1.1 | | De-install, remove and store existing MCC panel | Sum | 1 | | |
| PS16-C1.2 | | Prepare the G.A Drawing (s), Schematic and single line diagrams, and load list for the MCC panel | Sum | 1 | | |
| PS16-C1.3 | | Manufacture, supply, store and deliver the MCC panel | Sum | 1 | | |
| PS16-C1.4 | | Install and terminate the MCC panel | Sum | 1 | | |
| PS16-C1.5 | | Commission the MCC panel | Sum | 1 | | |
| PS16-C2 | | Pressure Transmitter: | | | | |
| PS16-C2.1 | | Manufacture and Supply 0-16 bar Pressure Transmitter (4-20 mA 1/4" process connector). | No | 1 | | |
| PS16-C2.2 | | Install Pressure Transmitter | No | 1 | | |
| PS16-C2.3 | | Commissioning | No | 1 | | |
| PS16-C3 | | Existing cables: | | | | |
| PS16-C3.1 | | Fault finding on existing cables | Sum | 1 | | |
| PS16-C3.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS16-C3.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS16-C3.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS16-C3.5 | | Commissioning and providing COC for installation | Sum | 1 | | |
| PS16-C4 | | Level/Control Equipment: | | | | |
| PS16-C4.1 | | De-install, removal and discard of existing ball level indicators | Sum | 1 | | |
| PS16-C4.2 | | Supply, deliver and store level probes Specifications: a) APS - 3C or similar approved b) 3 - Probes (Common, low and high) c) Depths to be confirmed on site | Sum | 1 | | |
| PS16-C4.3 | | Installation of level probes | Sum | 1 | | |
| PS16-C4.4 | | Commission of level probes | Sum | 1 | | |
| PS16-C5 | | Main power supply | | | | |
| PS16-C5.1 | | Fault finding on existing supply cables | Sum | 1 | | |
| PS16-C5.2 | | Prepare assessment report and recommendation | Sum | 1 | | |
| PS16-C5.3 | | Provision for material and installation of defective cables | Prov Sum | 1 | 30 000.00 | 30 000.00 |
| PS16-C5.4 | | Overheads, charges and profit on subitem C3.3 above | % | 30 000.00 | | |
| PS16-C5.6 | | Commissioning and providing COC for installation | Sum | 1 | | |
| TOTAL CARREID FORWARD TO SUMMARY PAGE | | | | | | |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY
APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1
Contract No.: SCM/BID09/2023/24

| SUMMARY PAGE | | |
|--|--------------------------------|--------------|
| SCHEDULE | DESCRIPTION | TOTAL |
| A | PRELIMINARY AND GENERAL | |
| PS 1 | MABOLELA PUMP STATION | |
| PS 2 | SEHLAJANENG PUMP STATION NO. 2 | |
| PS 3 | SEHLAJANENG PUMP STATION NO. 1 | |
| PS 4 | HLATSENG PUMP STATION | |
| PS 5 | POELONG PUMP STATION | |
| PS 6 | BOLATA PUMP STATION | |
| PS 7 | FIKA PATSO PUMP STATION | |
| PS 8 | MASIONOKENG PUMP STATION | |
| PS 9 | LEJWANENG PUMP STATION | |
| PS 10 | THABANG PUMP STATION | |
| PS 11 | MANGAUNG PUMP STATION | |
| PS 12 | QOQOLOSING PUMP STATION | |
| PS 13 | PERENG B PUMP STATION | |
| PS 14 | PERENG A PUMP STATION | |
| PS 15 | INTABAZWE PUMP STATION | |
| PS 16 | KINGSHILL PUMP STATION | |
| SUB-TOTAL | | |
| PLUS 10% CONTINGENCIES | | |
| SUB-TOTAL | | |
| PLUS 15% VAT | | |
| TOTAL CARRIED FORWARD TO FRONT PAGE | | |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP
STATION PHASE 1**

C3 Scope of work

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|--------------------------------|-----------------|
| C3.1 | Description of the Works | C 3-1-1 |
| C3.2 | Variations to Specifications | C 3-2-1 |
| C3.3 | Drawings | C 3-3-1 |
| C3.4 | HIV/AIDS requirements | C 3-4-1 |
| C3.5 | Occupational Health and Safety | C 3-5-1 |
| C3.6 | Environmental | C 3-6-1 |
| C3.7 | Management of the Works | C 3-7-1 |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP
STATION PHASE 1**

C3.1 Description of the works

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|-----------------------|-----------------|
| C3.1.1 | Employer's objectives | C3-1-2 |
| C3.1.2 | Location of the Works | C3-1-2 |
| C3.1.3 | Extent of the Works | C3-1-2 |
| C3.1.4 | Procurement | C3-1-7 |

C3.1.1 Employer's objectives

The Employer's objective is to urgently upgrade water pump stations located within the Municipal area to ensure effective operation of the pump stations and subsequent water distribution to the reservoir areas dependant on these water pump stations.

C3.1.2 Location of the works

The proposed project is located in various towns within the Maluti-a-Phofung Local Municipality. The Municipality is situated in the Eastern Free State, with the Municipal offices located in Phuthaditjhaba. The urban areas in the Maluti-a-Phofung Local Municipality include Qwaqwa, Harrismith, Kestell and Tshiame.

Maluti-a-Phofung Local Municipality is an administrative area in the Thabo Mofutsanyana District Municipality of the Free State Province of South Africa.

C3.1.3 Extent of the works

The Project Specifications form an integral part of the contract documentation, and it supplements the Standard Specifications.

The Standard Specifications which form part of this Contract covers work associated with general infrastructure projects, and may therefore cover items not specifically applicable to this particular contract.

The description of the work contained in this section is merely an outline of the Scope of Works, but does not limit the work to be carried out under this Contract. Approximate quantities for each type of activity to be carried out under the Contract are listed in the Schedule of Quantities bound in this volume.

(a) General description of the Works

The Works entails the refurbishment and upgrading of water pump stations located within Maluti-a-Phofung Local Municipality

(b) Detailed description of the Works

- (i) Establishment of the Contractor on Site
- (ii) Upgrading of existing transformers;
- (iii) Upgrading of existing buildings, or construction of new buildings;
- (iv) Installation of new security fences and alternative security measures;
- (v) Supply and installation of new pumps, or repairing / upgrading of existing pumps;

- (vi) Supply and installation of new electrical motors, or repairing / upgrading of existing electrical motors;
- (vii) Supply and installation of new electric panels, or rewiring of existing panels;
- (viii) Installation of control valves at affected reservoirs;
- (ix) Installation of security lights or upgrading thereof;
- (x) General cleaning of the pump stations; and
- (xi) Implementation of operation and maintenance plans.

c) Programme

The Contractor's programme shall be submitted in a bar chart format (Microsoft Projects or similar), in electronic and hard copy formats.

The Contractor's programme shall include:

- (i) All construction activities with comprehensive and sufficient detail to assess construction progress and manage and control financial issues.
- (ii) It must indicate coherent planning to enable the Engineer to perform required and necessary actions, e.g. to issue notifications, to obtain permissions, etc.
- (iii) Indicate critical path activities and their dependencies
- (iv) Include key flags and dates in respect of work to be carried out by others
- (v) Indicate key dates in respect of information required from others, including the Engineer, local authorities, and other contractors and sub-contractors working in the area.

If any significant change to the critical path occurs, the Contractor shall, as soon as possible, notify the Engineer thereof in writing. If requested in writing by the Engineer a revised construction programme shall be submitted within 7 days.

(d) Water and power supply and other services

The Contractor shall make his own arrangement and pay all installation and consumption charges for the supply of water, electrical power and other services required.

(e) Camps and depot

The Contractor shall make his own arrangements with the local authority with regards to the location of a site for his temporary camp for offices, stores, workshops and for accommodation and housing of his personnel.

(f) Local labour

The Contractor shall endeavour to maximise the employment of local labour.

With the assistance of the Infrastructure Portfolio Committee of the Maluti-a-Phofung Local Municipality and local ward committees, and a Project Steering Committee (PSC) will be established. The PSC will appointment a Community Liaison Officer (CLO) that will be employed by the Contractor for the duration of the Contract.

The CLO will assist the Contractor with local labour issues, including employment conditions, remuneration, performance monitoring, etc.

(g) Labour-intensive construction

Preference must be given to labour-intensive construction methods. Items such as restricted excavations, trimming of excavations, trench excavations, excavations for pipeline structures, laying and connecting of pipes, backfilling and similar tasks shall be carried out by hand.

(h) Training of local labour

The Contractor shall provide in-service training for labourers recruited from the local community. The training shall cover semi-skilled labour activities such as erection of shuttering, placing of concrete, construction of gabion structures and stone pitching, laying of segmented paving blocks, etc.

The cost of such training will be regarded to have been included in the bid rates for the relevant type of work.

(i) Sanitary conditions

Adequate ablution facilities must be provided along the entire extent of the Site of the Works. This includes toilets, hand wash basins, toilet paper, soap, etc. The Contractor must ensure that his personnel and labour force are properly informed and (if necessary) educated about general personal hygiene and the use of ablution facilities. Unhygienic conditions, habits and behaviour that may cause contamination on any part of the Works or surrounding areas are strictly prohibited.

The Contractor shall ensure that sanitary conditions acceptable to the Engineer prevail on site through the contract period, and that all his workers are aware of, and comply with this condition.

(j) Liaison between contractors

The Contractor must liaise with other contractors that may be working in the vicinity or along the extent of the site, and ensure that there is communication and co-operation at all times to avoid any disputes.

This requirement includes issues such as sharing of access roads, borrow areas, storage space, water sources, waste or dumping areas, etc.

(k) Extension of time

For the purposes of calculating an extension of time due to climatic conditions in terms of clause 5.12.2 of the General Conditions of Contract, the number of days in excess of the number of working days anticipated to be lost due to climatic conditions shown in table below shall be taken into account:

ANTICIPATED DAYS LOST DUE TO INCLEMENT WEATHER CONDITIONS

| MONTH | Expected number of working days lost as result of inclement weather |
|--------------|--|
| January | 3 |
| February | 3 |
| March | 3 |
| April | 3 |
| May | 3 |
| June | 3 |
| July | 3 |
| August | 3 |
| September | 3 |
| October | 3 |
| November | 3 |
| December | 3 |
| TOTAL | 36 |

The following climatic conditions can be classified as inclement weather conditions:

- Cold weather conditions,
- Windy conditions,
- Misty conditions,
- Excessive dust storms, and
- Rainy conditions (more than 10 mm rain per day).

The Engineer will certify a day lost due to the above climatic conditions or inclement weather conditions only if:

- a. no work on the critical path (delay in critical path) according to the latest approved programme for completion of the works could be carried out during that specific working day; or if
- b. only 30% or less of the work force and plant planned for that specific day, could work.

The extension of time as a result of inclement weather and/or abnormal climatic conditions will be calculated monthly as being equal to the absolute value of the number of days certified by the Engineer as lost due to climatic conditions, less the number of days as indicated in above table. The total extension of time for the contract will be the sum of the monthly extensions. Extension of time for portions of a month shall be calculated pro-rata.

If approved extensions of time extend the completion date beyond the start of the Contractor's holiday in December, the holiday period shall not be considered as working days, as defined in the Contract Data. Any remaining extension of time at this date shall be calculated from the first statutory working day in January the following year, provided that the contractor has shown in his programme that he intends to close during the traditional Christmas / New Year break.

C3.1.4 Preferential Procurement Regulations

The works shall be executed in accordance with the conditions described in the Preferential Procurement Policy Framework Act 5 of 2000 and Preferential Procurement Regulations, 2022.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.2 Variations to specifications

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|---------------------------|-----------------|
| C3.2.1 | Project Specifications | C 3-1-1 |
| C3.2.2 | Particular Specifications | C 3-2-1 |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.2.1 Project Specifications

PS PROJECT SPECIFICATIONS

The Project Specification gives amendments and additions to the specifications that are listed in the List of Applicable Specifications. Clauses are lettered using alphabetical identification and numbering of the applicable specification, prefixed by the letters “PS”.

Should any requirement of the Project Specification conflict with any requirement of the specifications listed, the requirement of the Project Specification shall prevail.

PSA GENERAL (SANS 1200A)

PSA 3 MATERIALS

PSA 3.1 Quality

All materials to be used for the completion of the works must comply with the applicable standards and requirements of the South African Bureau of Standards or SANS, and bear the SABS/SANS quality mark.

The contractor must compile a full quality assurance plan and submit it to the Employer for approval before construction commences.

The plan must include the following:

- Construction programme
- Installation of mechanical works to specifications
- Installation of electrical works to specifications
- Quality of sand and stone for concrete
- Fixing of reinforcing and control over cover
- Curing of concrete
- Concrete cube test
- Quality and accuracy of shuttering within the specified tolerances
- Competencies of staff responsible for day-to-day quality assurance

The Contractor will be required to keep full records of the results of his quality assurance programme on site.

PSA 5 CONSTRUCTION

PSA 5.4 Protection of overhead and underground services

Replace the heading and contents of Sub-clause 5.4 with the following:

“PSC 5.4 Location and protection of existing services

PSA 5.4.1 Location of existing services

Before commencing with any work in an area, the Contractor shall contact and notify the following service providers:

1. Telkom – Mr S Rampeta (058 713 3550 / 081 401 5158)
2. Eskom – Mr L Mofokeng (079 584 5999)

Before commencing with any work in an area, the Contractor shall ascertain the presence and actual position of all services which can reasonably be expected by an experienced and competent contractor to be present on, under, over or within the Site.

Without in any way limiting his liability in terms of the Conditions of Contract in relation to damage to property and interference with services, the Contractor shall, in collaboration with the Engineer, obtain the most up-to-date plans as are available, showing the positions of services existing in the area where he intends to work. Neither the Employer nor the Engineer offers any warranty as to the accuracy or completeness of such plans and because services can often not be reliably located from plans, the Contractor shall ascertain the actual location of services depicted on such plans by means of careful inspection of the Site.

Thereafter, the Contractor shall, by the use of appropriate methodologies, carefully expose the services at such positions as are agreed to by the Engineer, for the purposes of verifying the exact location and position of the services. Where the exposure of existing services involves excavation to expose underground services, the further requirements of sub-clauses 4.4 and 5.1.2.2 of SABS 1200 D (as amended) shall apply.

The aforesaid procedure shall also be followed in respect of services not shown on the plans, but which may reasonably be anticipated by an experienced Contractor to be present or potentially present on the site.

All services, the positions of which have been determined as aforesaid at the critical points, shall henceforth be designated as 'known services' and their positions shall be indicated by the Contractor on a separate set of drawings, a copy of which shall be furnished to the Engineer without delay.

As soon as any service which has not been identified and located as described above is encountered on, under, over or within the site, it shall henceforth be deemed to be a known service and the aforesaid provisions pertaining to locating, verifying and recording its position on the balance of the site shall apply. The

Contractor shall notify the Engineer immediately when any such service is encountered or discovered on the Site.

Whilst he is in possession of the Site, the Contractor shall be liable for all loss of or damage as may occur to

- (a) known services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated, and
- (b) any other service which ought reasonably to have been a known service in accordance with the provisions of this clause.

The Contractor shall also be liable for consequential damage in regard to (a) and (b), whether caused directly by the Contractor's operations or by the lack of proper protection.

No separate payment will be made to the Contractor in respect of his costs of providing, holding available on the Site and utilising the said detecting and testing equipment, nor for any costs incurred in preparing and submitting to the Engineer the Drawings as aforesaid. These costs shall be deemed included in the Contractor's other BID rates and prices included in the Contract.

Payment to the Contractor in respect of exposing services at the positions agreed by the Engineer and as described above will be made under the payment items (if any) as may be provided for in the respective sections of the specifications pertaining to the type of work involved.

PSA 5.4.2 Protection during construction

The Contractor shall take all reasonable precautions and arrange its operations in such a manner as to prevent damage occurring to all known services during the period which the Contractor has occupation and/or possession of the Site.

Services left exposed shall be suitably protected from damage and in such a manner as will eliminate any danger arising therefrom to the public and/or workmen, all in accordance with the requirements of the prevailing legislation and related regulations.

Unless otherwise instructed by the Engineer, no services shall be left exposed after its exact position has been determined and all excavations carried out for the purpose of exposing underground services shall be promptly backfilled and compacted. In roadways, the requirements of sub-clause 5.9 of SABS 1200 DB should be observed. In other areas, compaction to 90% modified AASHTO density is required.

PSA 5.4.3 Alterations and repairs to existing services

Unless the contrary is clearly specified in the Contract or ordered by the Engineer, the Contractor shall not carry out alterations to existing services. When any such alterations become necessary, the Contractor shall promptly inform the Engineer, who will either make arrangements for such work to be executed by the owner of the service, or instruct the Contractor to make such arrangements himself.

Should damage occur to any existing services, the Contractor shall immediately inform the Engineer, or when this is not possible, the relevant authority, and obtain instructions as to who should carry out repairs. In urgent cases, the Contractor shall take appropriate steps to minimise damage to and interruption of the service. No repairs of telecommunication cables or electric power lines and cables shall be attempted by the Contractor.

Before the commencement of any excavation the Contractor shall confirm the name and telephone number of the relevant officials directly concerned with the known or suspected services, shall acquaint himself with the position of the control points of the services and shall have readily available the equipment necessary to shut-off and isolate any such service. The Contractor shall liaise with the relevant authorities or controlling bodies for the necessary temporary closure of any services during construction.

PSA 5.7 Safety

Replace the contents of Sub-clause 5.7 with the following:

"Pursuant to the provisions of the Conditions of Contract, and without in any way limiting the Contractor's obligations thereunder, the Contractor shall at his own expense (except only where specific provision (if any) is made in the Contract for the reimbursement to the Contractor in respect of particular items), provide the following:

- (a) Provide to its Employees on the site of the works, all safety materials, clothing and equipment necessary to ensure full compliance with the provisions of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as amended (hereinafter referred to as the Act) at all times, and shall institute appropriate and effective measures to ensure the proper usage of such safety materials, clothing and equipment at all times;
- (b) Provide, install and maintain all barricades, safety signage and other measures to ensure the safety of workmen and all persons in, on and around the site, as well as the general public;
- (c) Implement on the site of the works, such procedures and systems and keep all records as may be required to ensure compliance with the requirements of the Act at all times;

- (d) Implement all necessary measures so as to ensure compliance with the Act by all subcontractors engaged by the Contractor and their employees engaged on the works; and
- (e) Full compliance with all other requirements pertaining to safety as may be specified in the Contract.

The Employer and the Engineer shall be entitled, although not obliged, to make such inspections on the site as they shall deem appropriate, for the purpose of verifying the Contractor's compliance with the requirements of the Act. For this purpose, the Contractor shall grant full access to the site of all parts of the site and shall co-operate fully in such inspections and shall make available for inspection all such documents and records as the Employer's and/or Engineer's representative may reasonably require.

Where any such investigations reveal, or where it comes to the Engineer's attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Engineer shall, in accordance with the provisions of Clause 9.2 (GCC 2015) of the Conditions of Contract, be entitled to suspend progress on the works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Engineer, that such breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the works or any part thereof is suspended by the Engineer in terms of this clause, and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 9.2.1.3.6 (GCC 2015) of the Conditions of Contract should the Contractor fail to complete the Works on or before the specified due completion date in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this clause shall constitute grounds for the Engineer to act in terms of Clause 9.2.1.3.6 (GCC 2015) of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 9.2 (GCC 2015)."

PSA 7 TESTING

PSA 7.2 Approved laboratories

Replace the contents of Sub-clause 7.2 with the following:

"Unless otherwise specified in the relevant specification or elsewhere in the Project Specification, the following shall be deemed to be approved laboratories in which design work, or testing required in terms of a specification for the purposes of acceptance by the Engineer of the quality of materials used and/or workmanship achieved, may be carried out:

- (a) Any testing laboratory certified by the South African National Accreditation Systems (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contract;
- (b) Any testing laboratory owned, managed or operated by the Employer or the Engineer;
- (c) Any testing laboratory established and operated on the Site by or on behalf of the Employer or the Engineer;
- (d) Any other laboratory that the Engineer approves in his absolute discretion."

PSA 8 MESASUREMENT AND PAYMENT

PSA 8.1 Measurement

PSA 8.1.1 Method of measurement, all sections

In the second line of Sub-clause 8.1.1, after the words "standardized specification or in" add:

"the measurement and payment of the standard specification, particular specification or".

PSA 8.1.2 Preliminary and General item or section

PSA 8.1.2.2 Contents

Replace the contents of this sub-clause with the following:

"Except only where specific provision is made in the Specifications and/or the Schedule of Quantities for separate compensation for any of these items, the Contractor's Bid sums under items PSA 8.3 and PSA 8.4 shall collectively cover all charges for:

- risks, costs and obligations in terms of the Conditions of Contract and of this standardized specification;
- head-office and site overheads and supervision;
- profit and financing costs;
- expenses of a general nature not specifically related to any item or items of the permanent or temporary work;
- providing such facilities on site as may be required by the Contractor for the proper performance of the Contract and for its personnel, including, but without limitation, providing offices, storage facilities, workshops, ablutions, services such as water, electricity, sewage and rubbish disposal, access roads and all other facilities required, as well as for the maintenance;

- erection, maintenance and removal of temporary fencing and barricades;
- dealing with water (Sub-clause 5.5);
- access to works (Sub-clause 5.8); and
- providing and maintaining the fire-fighting equipment, as well as training the work teams in their use;
- any other items deemed necessary by the Contractor."

PSA 8.2 Payment

PSA 8.2.2 Time-related items

Replace the contents of Sub-clause 8.2.2 with the following:

"Subject to the provisions of Sub-clauses 8.2.3 and 8.2.4, payment under item 8.4.1 (time-related item) will be made monthly in equal amounts, calculated by dividing the sum for the item by the Contract period in months, provided always that the total of the monthly amounts so paid for the item is not out of proportion to the value of the progress of the Works as a whole."

Notwithstanding the stipulation of Sub-clause 8.2.2, an approved extension of time will only entitle the Contractor to payment in terms of Clause 5.12 of GCC 2015.

PSA 8.3 Scheduled fixed-charge and value-related items

PSA 8.3.1 Contractual requirements

Replace the contents of this sub-clause with the following:

PSA 8.3.1 Preliminary and general charges Unit: sum

The sums shall include full compensation for all preliminary and general charges as described in Sub-clause PSA 8.1.2.2.

Payment for "operation and maintenance of facilities for the Engineer", in accordance with Sub-clause 8.4.2.1 will not be authorized by the Engineer until the name board has been erected and approved.

PSA 8.3.2 Value-related preliminary and general charges Unit: sum

The sums tendered shall include full compensation for all value-related preliminary and general charges as described in Sub-clause PSA 8.1.2.2."

PSA 8.4 Schedule of time-related items

Replace the contents of Sub-clause 8.4 with the following:

PSA 8.4.1 Time-related preliminary and general charges Unit: sum

The sum tendered shall include full compensation for all time-related preliminary and general charges as described in sub-clause PSA 8.1.2.2. Payment will be made as described in sub-clause PSA 8.2.2."

PSA 8.5 Sums stated provisionally by the Engineer

Amend penultimate sentence of Sub-clause 8.5 to read:

"The percentage rate for (b)(2) above shall cover the Contractor's overheads, charges and profit on the work covered by the sums provisionally stated for (b)(1) above. Payment will be made on the basis of the sums actually paid for such work, exclusive of VAT."

PSA 8.7 Daywork

A provisional amount is included in the daywork schedule for materials, equipment and labour. Daywork will only be used upon specific instruction by the Engineer.

In addition to the abovementioned amounts, provision is made for a mark-up to be used during the execution of daywork. Payment shall be regarded as full compensation for overheads, charges and profit and transport of the materials to be used when executing daywork.

Where daywork have been instructed by the Engineer the returns must be submitted by fax or in person for signature of approval within 24 hours of the end of the working day on which the work was executed. Daywork returns shall be submitted on approved forms.

Add the following items:

**PSA 8.9 Compliance with OHS Act and Regulations
(including the construction regulations 2003)** Unit: sum

The bid sum shall include full compensation to the Contractor for compliance with all the requirements of the OHS Act and Regulations (including the Construction Regulations 2003) at all times for the full duration of the Contract, as described in C3.6.1 (for CIDB document format). The successful bidder shall provide the Engineer with a complete breakdown of this bid sum, including risk assessment, health and safety plan, etc. The bid sum shall include a permanent, competent Health and Safety Officer on site.

This sum will be paid to the Contractor in equal monthly amounts subject to proper/substantial compliance."

The Bidder shall hand over to the Engineer three copies of the Operation and Maintenance manuals for specific installations not later than one month after commissioning of such an installation. These manuals are a prerequisite for the final take-over of the Works and the tendered rates shall include for these manuals.

The manuals shall be printed on durable paper and be securely bound in A4 size hard backed ring binders with clear pockets on the spine and front cover for insertion of title slips providing contract numbers for the equipment supplied.

PSAB ENGINEER'S OFFICE (SANS 1200AB)

PSAB 1 NAME BOARDS (Clause 3.1)

Two contract notice boards conforming to the standard requirements of the SA Association of Consulting Engineers and indicated on drawing H876/404 must be supplied and erected at positions to be indicated by the Engineer for the duration of the Contract.

PSAB 2 OFFICE BUILDING (Clause 3.2)

Two offices shall be provided and furnished for the Engineer's Representatives and maintained for the duration of the Contract. The office facilities shall be furnished as per SABS 1200 AB, as amended below:

The offices shall consist of a room with a floor area of at least 20m² with ceiling height of at least 2,5m.

All offices and other facilities shall be weatherproof with wood board floors that are at least 150mm above the ground, with ceilings, a lockable door, and two opening windows of 3m² glazed.

Each office shall be well ventilated and insulated as to provide comfortable working conditions.

The internal finishing of the office shall include:

- (a) 1 x desk minimum size 1,5m x 0,9m and one lockable drawer;
- (b) 1 x high stool;
- (c) 2 x office chairs;
- (d) 1 x white board mounted to the wall and a set of white board markers;
- (e) 1 x lockable upright steel cabinet with three shelves;
- (f) 1 x steel filing cabinet with four drawers;
- (g) racks for hanging contract drawings;
- (h) louvre blinds for each window;
- (i) 2 x 15A plug points;
- (j) 1 x 1,2m double fluorescent lighting;
- (k) 1 x acceptable model air conditioner, capable of maintaining a room temperature between 16°C and 22°C;
- (l) 1 x hand wash basin with plug, soap dish and cold water tap;
- (m) Kitchenette in accordance with the standards specified for offices;
- (n) 1 x new digital camera; and
- (o) 1 x complete toilet assembly with toilet paper holder for the exclusive use of the Engineer as specified in the Project Specifications.

The internal finishing of the office shall include:

- (a) 1 x 12-seat conference table;
- (b) 12 x conference table chairs;
- (c) 1 x serving table with top size 1,5m x 0,9m;
- (d) louvre blinds for each window;
- (e) 2 x 15A plug points;
- (f) 1 x 1,2m double fluorescent lighting; and
- (g) 1 x acceptable model air conditioner, capable of maintaining a room temperature between 16°C and 22°C.

Upon completion of the Works ownership of all buildings, furnishings and equipment specified shall revert to the Contractor who shall remove it from Site.

PSAB 3 ACCOMODATION

A prime cost item has been allowed in the Schedule of Quantities to cover all costs associated with the provision of accommodation for the Engineer's Representative.

PSAB 4 TRANSPORTATION

A prime cost item has been allowed in the Schedule of Quantities to cover all costs associated with the provision of transportation for the Engineer's Representative.

PSAB 5 TELEPHONE AND COMMUNICATION

Two mobile telephones of an approved type, shall be provided for the exclusive use of the Engineer's Representatives for the duration of the Contract.

The Contractor shall make all arrangements necessary for the provision of the mobile phones, and shall pay all necessary deposits and applicable connection costs. A prime cost item has been allowed in the Schedule of Quantities to cover all call and rental costs associated with the provision of the facility for the Engineer's Representative.

PSAB 6 PHOTOCOPYING MACHINE

The Contractor shall, provide and maintain an A3-size photocopying machine in the Engineer's office, with an adequate supply of A3 and A4 size paper.

PSAB 7 TESTING

PSAB 7.1 General

No material testing facility or equipment is required for the Engineer. The Engineer will make arrangements with a local commercial laboratory to carry out all quality and acceptance control tests, except for density moisture content tests that will be done by the Engineer's site staff. It is the Contractor own responsibility to carry out process control tests as required in the Standardised, Particular and Project Specifications.

PSAB 7.2 Laboratory equipment

The Contractor shall supply the following testing equipment for the duration of the Contract:

- (a) 6 x steel concrete cube moulds, 150mm nominal size.

PSAB 8 SURVEY ASSISTANT (Clause 6.5)

One suitably experienced survey assistant shall be made available for the sole use of the Engineer's Representative for the duration of the Contract.

The survey assistant may also be required to do other administrative tasks for the Engineer's Representative.

The Contractor shall be responsible for transport costs of the survey assistant and the Community Liaison Officer for the duration of the Contract.

PSAB 9 SURVEY EQUIPMENT

The survey equipment listed below shall be made available and be maintained in good working condition for the exclusive use of the Engineer's Representative for the duration of the Contract. Payment will be made as provided for the Time Related Items included Schedule 1.

- (a) 1 x automatic level with tripod and leather carry case (Zeiss N1-2 or equivalent)
- (b) 1 x nylon-coated steel tape 100m long and 10mm wide
- (c) 1 x 5m long steel tape
- (d) 1 x 5m long 3-piece telescopic survey staves (double-faced metric) complete with angle bracket level
- (e) 1 x "Rabone" type steel tape 50m long and 13mm wide
- (f) 1 x 100m long 50kg breaking strength fish line
- (g) 1 x 1,0m long spirit level

- (h) 1 x 3,0m aluminium straight level
- (i) 5 x red and white ranging rods
- (j) 2 x tripod holders for ranging rods.

PSAB 10 CARPORTS

The Contractor shall provide and maintain two carports with waterproof roofing for the exclusive use of the Engineer's Representative for the duration of the Contract. The full extent of the area under the carport shall be covered with a 100mm layer of 19mm crushed stone aggregate.

PSAB 11 FEATURES REQUIRING SPECIAL ATTENTION

PSAB 11.1 Surveying

The Contractor must employ or appoint a competent engineering surveyor to set out the Works, and he must ensure that the specified surveying details and tolerances are adhered to.

The control points available for the setting out of the Works are indicated on the drawings. These control points can be used in conjunction with any other trigonometric beacon registered with the Surveyor General to fix positions. Only the control points provided by the Engineer may be used for the setting out of levels.

The Works must be set out in accordance with the tolerances in SABS 1200 LD, with the exception that the slopes on pipe inverts may not be less than 95% of the specified slopes.

No beacons, reference pegs, corner pegs, etc. may be disturbed or removed without prior consent from the Engineer.

A provisional sum has been provided in Item 1.3.1.15 in the Schedule of Quantities to cover reimbursement to the Contractor for payments made to an engineering surveyor for setting out and other surveying work.

PSAB 11.2 Existing services

The Contractor must take all precautions against damaging existing services along the pipeline route or adjacent properties.

The locations of all known existing services are shown on the Drawings. The Contractor will be held responsible for any damage to these services during the execution of the Works. Damaged services must immediately be reported to the relevant authorities, and repaired to the satisfaction of the authority and the Engineer. The repair work must be executed immediately.

All information pertaining to existing services is provided in good faith but with no guarantees.

PSAB 11.3 Contractor's representative

The Contractor must appoint a designated and competent person as his representative for the duration of the contract at the official site handover, in terms of LAW 6 (1983): Law on Machinery and Occupational Safety Act.

PSG CONCRETE (Structural) (SANS 1200G)

PSG 3 CONCRETE MIX DESIGN

The Contractor must commission a reputable registered material laboratory to carry out a concrete mix design on every grade and type of concrete.

A sample of the aggregates to be used must be submitted to both the laboratory and the Employer while one sample of each type of aggregate is kept in the site office in a sealed plastic bag.

After the laboratory has determined that the aggregates are suitable in terms of the mix design and SANS 1083, the Contractor must place an order for immediate delivery of all the aggregates for the whole project to ensure consistency.

The concrete mix design must include for drying shrinkage test in accordance with SANS method 1085.

PSL: MEDIUM PRESSURE PIPELINES (SANS 1200L)

PSL 3 MATERIAL

Add the following sub-clauses after Sub-clause 3.11:

PSL 3.12 Marking of items

All items delivered on Site shall be clearly marked showing the following:

- (a) Nominal diameter,
- (b) Class of pipe,
- (c) Date of manufacture, and
- (d) Reference number as shown in the Schedule of Quantities."

PSL 5 CONSTRUCTION

Add the following sub-clauses after Sub-clause 5.10:

PSL 5.11 Connection into existing main

Before commencing the excavation of pipe trenches in the vicinity of a proposed connection, the contractor shall excavate for, expose, survey and record the position and level of the connection point on the existing water main and shall determine all specials required.

The Contractor shall be responsible, through the Engineer, for liaison with the Municipality to arrange for turning off the water in order to carry out the connection.

The Contractor may cut into the existing water main (where applicable) only after he has received a written instruction from the Engineer to do so. No connection will be allowed on a Friday or after 12h00 on any day.

Before the connection is made, the new pipes must be laid to within 2m of the connecting point, and must be temporarily blanked off, anchored, sterilized and tested. All specials required must be available on site.

The connection to existing pipes shall include the breaking out of anchor blocks (if necessary), and removal of existing pipe fittings and couplings.

PSL 5.12 Replacement of existing valves and pipes

Before commencing with excavation of pipe trenches in the vicinity of the proposed replacement, the contractor shall excavate for, expose, survey and record the position and level of the existing water main and shall confirm all specials required.

The Contractor shall be responsible, through the Engineer, for liaison with the Municipality to arrange for turning off the water in order to carry out the connection.

The Contractor may cut into the existing water main (where applicable) only after he has received a written instruction from the Engineer to do so. No connection will be allowed on a Friday or after 12h00 on any day.

All specials required must be available on site.

The replacement of the existing valve and pipe shall include the breaking out of anchor blocks (if necessary), and removal of existing pipe fittings and couplings.

PSL 5.13 Protection of buried joints

The Contractor shall protect all joints with nuts and bolts against corrosion by wrapping them with "Denso" tape or equal approved, in accordance with the manufacturer's instructions.

PSL 5.14 Pipeline route markers

Route markers for the various water pipelines shall be erected in the positions and shall be manufactured according to the details shown on the Drawings."

PSL 7 TESTING

Replace the contents of Sub-clause 7.3.1.3 with the following:

PSL 7.3.1.3 Over and above other tests specified, all pipelines shall be hydraulically tested. The pipelines shall be fitted with all valves, fittings and couplings required to complete the section before testing will be permitted. The Contractor shall construct temporary thrust blocks or provide plugs and blank flanges where required for testing at no extra cost to the Employer. The Contractor will not be allowed to test the pipeline using inline isolating valves. The field test pressure shall be 1,5 times the working pressure measured at the lowest point on the section to be tested but not less than 30m or 1,25 times the working pressure, whichever is the most, at any other point on the section tested. Before any tests are carried out the test pressures and test points shall be confirmed with the Engineer. The Contractor shall provide all equipment and fittings or specials required for the pressure testing of the pipeline.

The Contractor is required to keep all couplings exposed for inspection by the Engineer until the pipeline has passed the hydraulic test to the satisfaction of the Engineer.

An additional item will be allowed for in the Schedule of Quantities for an additional hydraulic test of the complete pipeline installation. The Contractor shall provide all equipment and fittings or specials required for the pressure testing of the pipeline.

The Employer will supply water to conduct the hydraulic tests to a maximum of the capacity of the pipeline. Any additional water required by the Contractor to perform hydraulic tests will be for the account of the Contractor. The Contractor is required to meter the water usage for testing purposes.

The Contractors method statement must include details of the proposed test section, programme, procedures and arrangements with water services authority, contingencies and requirements for a successful test. No testing shall commence until the method statement was approved by the Engineer."

PSL 8 MEASUREMENT AND PAYMENT

PSL 8.2.1 Supply, Lay, and bed pipes complete with couplings

Add the following after Sub-clause 8.2.1:

"The Contractor will be allowed to claim the following percentages for interim payment purposes as the various activities are completed:

| Stage of Completion | Percentage Applicable |
|--|------------------------------|
| Pipes laid and bedded in trench | 80% |
| Pipes tested successfully, cleaned and disinfected | 100% |

Note that the percentage applicable is given in the above table as a cumulative figure.

PSL 8.2.11 Anchor/Thrust blocks and pedestals

Add the following sub-clauses after Sub-clause 8.2.11 (a) :

"The rates for the thrust blocks shall cover the cost of excavation and backfill, concrete, formwork, and steel reinforcement (including 120 kg high tensile steel per cubic meter of concrete where the amount of steel is not indicated on the drawings) as well as labour, etc., to complete the thrust block as shown on the drawings in addition to the operations and materials specified in this sub-clause."

PSL 8.2.13 Valves and Hydrant Chambers, etc.

Add the following to Sub-clause 8.2.13:

"The rates for valve chambers and other pipeline structures shall cover the cost specified for thrust blocks and for all other necessary excavations and materials,

such as air vents, access covers and access ladders / step irons to complete the chamber as detailed on the drawings (including 100 kg high tensile steel per cubic metre of concrete where the amount of steel is not indicated on the drawings). The rates shall include 110mm diameter drainage pipes, 20m long. The rates shall also cover the costs of providing padlocks to all chambers, opened by the same master key.

Minimum dimensions for step irons 50mm (insert) x 185mm x 150mm."

Add the following sub-clauses after Sub-clause 8.2.15:

PSL 8.2.16 Extra-over 8.2.13 for depths exceeding standard depth of chamber (chamber type and drawing reference) Unit: Number

Additional depth of chambers in excess of the standard depth indicated on the drawings will be measured in increments of 300mm depth for each chamber type. The rate shall cover the cost of complete construction of each extra 300mm additional depth.

PSL 8.2.17 Pipeline markers Unit: Number

Marker posts (refer to drawing H846-400) shall be measured as complete units. The rates for marker posts shall cover the complete cost of supply and installation of the marker post as well as all material and labour to complete marker posts as shown on the drawings, and including the benchmark (refer to drawing H876-400)."

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.2.2 Particular specifications

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|---|-----------------|
| 1 | PLK: Manufacture and supply of valves | C 3-2-2-2 |
| 2 | PLN: Manufacture, supply and testing of steel pipes | C 3-2-2-12 |
| 3 | PLQ: Corrosion protection of steel pipes and fittings | C 3-2-2-21 |
| 4 | MECH: Mechanical Specifications | C 3-2-2-12 |
| 5 | ELEC: Electrical Specifications | C 3-2-2-12 |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART 1:

PLK: Manufacture and supply of valves

CONTENTS

| ITEM | HEADING | PAGE NO. |
|-------------|----------------|-----------------|
| PLK 1 | Scope | C 3-2-2-3 |
| PLK 2 | Standards | C 3-2-2-3 |
| PLK 3 | Materials | C 3-2-2-3 |

PART 1:

PLK Manufacture and supply of valves

PLK 1 Scope (PLK –1)

This section of the Specification includes the manufacture, testing and supply of valves for the conveyance of raw or potable water at ambient temperatures in pipes under pressure.

PLK 2 Standards

The most recent issues of the following standard specifications will apply for the purposes of this Specification.

| | | |
|-------------|---|---|
| SABS 144 | : | Cast-iron single door reflux valves |
| SABS 191 | : | Cast steel gate valves |
| SABS 192 | : | Cast steel single door reflux valves |
| SABS 664 | : | Cast iron gate valves for waterworks |
| SABS 665 | : | Cast iron gate valves for general purposes |
| BS 5155 | : | Cast iron and carbon steel Butterfly valves |
| ISO 2441 | : | Pipeline flanges for general use - shapes and dimensions of pressure tight surfaces |
| SABS 1123 | : | Steel pipe flanges |
| SIS 05 5900 | : | Pictorial surface preparation standard for painting steel surfaces |

PLK 3 Materials

PLK 3.1 Sluice valves

PLK 3.1.1 The valve body, bonnet, thrust dome, gate and glands shall be of cast iron or cast steel as specified and depending on the required test pressures.

PLK 3.1.2 Body and gate sealing rings shall be of bronze, gunmetal or stainless steel. RSV gate shall be nitrile rubber covered, and fully encapsulated. The rubber shall not be removed from the guides of the gate.

- PLK 3.1.3** Spindles shall be of high grade stainless steel.
- PLK 3.1.4** An isolating valve must be able to check the specified water pressure from both sides.
- PLK 3.2** **Butterfly valves**
- PLK 3.2.1** Valve bodies and discs shall be of high-grade cast-iron or cast steel as specified and depending on the required test pressures.
- PLK 3.2.2** The disc shaft or stub-shafts shall be of stainless steel located in self-lubricating bearings.
- PLK 3.2.3** Sealing rings, seal-retaining rings, body seat-rings and associated screws shall be of stainless steel.
- PLK 3.2.4** A butterfly valve must be able to check the specified water pressure from both sides.
- PLK 3.3** **Reflux valves**
- PLK 3.3.1** Valve bodies shall be of cast iron or cast steel depending on the specification or test pressures.
- PLK 3.3.2** Valve doors shall be of cast iron or cast steel.
- PLK 3.3.3** The valve body and doors or disc shall be fitted with replaceable stainless steel body and door seat rings.
- PLK 3.4** **Air valves**
- PLK 3.4.1** Valve bodies, covers and shield plates (large orifice) shall be of cast iron.
- PLK 3.4.2** The balls shall be of stainless steel.
- PLK 3.5** **Manufacture**
- PLK 3.5.1** **General**
- PLK 3.5.1.1** The design pressure of the valves shall not be less than the pressure specified subject to a minimum of 1 000 kPa.
- PLK 3.5.1.2** All valves shall be double-flanged with bolt holes drilled off-centre all in accordance with the requirements of SABS 1123 or as otherwise specified.

- PLK 3.5.1.3** The Tenderer shall give as a function of the downstream pressure the maximum acceptable discharge of water through the valves without risks of vibration and cavitation. The Tenderer shall also submit the head-loss characteristics of the valves.
- PLK 3.5.1.4** The design pressure will be hand stamped on the top edge of the flanges of valves in kPa.
- PLK 3.5.1.5** If specified, valves shall be supplied with by-passes to be bolted on to the body of the valve and not to the adjoining pipe work.
- PLK 3.5.1.6** Valves shall be fitted with position indicators if specified. Fully closed, fully open and intermediate positions shall be indicated in corrosive proof and robust design indicators.
- PLK 3.5.1.7** Arrows shall be cast on all handwheels together with the wording "TO OPEN" or "TO CLOSE". The closing direction shall be clockwise unless otherwise specified.

In the case of cap top valves, an aluminium disc of at least 100 mm diameter and with the same wording and arrows shall be slipped over the spindle and retained by the cap.

- PLK 3.5.1.8** All valves shall be supplied complete including bolts, nuts, washers and gaskets in accordance with the class of valve. Bolts shall be of sufficient length to allow not more than three screw threads to protrude outside units after complete tightening of the assembly. Gaskets for flanged joints shall be of compressed asbestos fibre to BS 2815 Grade A and full faced with a minimum thickness of 3 mm for pressures up to and including 1 600 kPa cloth-inserted rubber may be used.

- PLK 3.5.1.9** The following information shall accompany the tender:

- Description
- Flange Drilling
- Maximum working pressure
- Maximum unbalanced pressure
- Test pressure
- Manufacturers number
- Material of components
- Gearing
- Accessories

PLK 3.5.2 Sluice valves

PLK 3.5.2.1 Double-flanged, wedge-gate, internal (non-rising) spindle sluice valves of the waterworks pattern are required to comply fully with SABS 191 or SABS 664 where applicable.

PLK 3.5.2.2 Only full-way valves will be accepted (i.e. the gate must be clear of the waterway in the fully open position).

PLK 3.5.2.3 The maximum force required to turn the hand wheel at the maximum torque shall not be greater than 100 N per hand at the hand wheel run (Total effort = 200 N) when operating at an unbalanced pressure equal to the rated working pressure of the valve. This may be achieved with the aid of gearing of a suitable ratio.

Where gears are used replaceable shear pins shall be provided to prevent damage to the valve if excessive pressure is used.

PLK 3.5.3 Butterfly valves

PLK 3.5.3.1 Horizontal spindle type butterfly valves complete with gearing, hand wheels and flanged at both ends with separate bolting for joining to the adjacent pipe work is required.

PLK 3.5.3.2 Wafer valves or valves fitted with studs for attachment to the adjacent flanges are not permitted.

PLK 3.5.3.3 Valves shall be drop-tight when closed and metal to metal sealing is not acceptable.

PLK 3.5.3.4 All resilient seals shall be removable and readily replaceable on Site with the valve in position.

PLK 3.5.3.5 Resilient seals shall be retained by corrosion resistant securing elements to prevent corroding in position (e.g. bolts, set screws, etc.)

PLK 3.5.3.6 The valve-water seal shall be of the following types:

- a resilient seal fixed to the edge of the disc by corrosion resistant securing elements sealing on a stainless steel or bronze insert fixed in the body.
- a resilient seal fixed to the body of the valve by corrosion resistant securing elements sealing on a stainless steel or bronze insert fixed in the edge of the discs.

PLK 3.5.4 Reflux valves

PLK 3.5.4.1 Reflux valves shall be double-flanged and comply with SABS 144.

PLK 3.5.4.2 Valve bodies and seals shall be free of pockets that will allow dirt accumulation and prevent the doors from closing fully.

PLK 3.5.4.3 Stops or an approved resilient material shall be fitted into the body to prevent the doors from fluttering under full flow conditions.

PLK 3.5.4.4 Valves shall be designed to allow for rapid but non-slamming closing characteristics.

PLK 3.5.5 Air valves

PLK 3.5.5.1 Air valves shall be supplied with double flanged, wedge gate internal (no rising) spindle sluice valves for isolation, which unless otherwise specified shall conform in all respects to this specification.

PSLK 3.5.5.2 The air valve shall be of a double orifice design, HFNS (high flow non-slam), with 4 functions:

- (1) The large orifice for exhausting large volumes of air while filling a pipeline
- (2) Intake of large volumes of air while draining the pipeline
- (3) External automatic orifice with the purpose to vent air in solution under pressure
- (4) A rolling seal activating the small large orifice for surge-damping whilst filling the pipeline.
- (5) Quick and easy maintenance on the small orifice without the need for any special tools.
- (6) The small orifice must have a flow area of 12 square mm, any flow areas less than this will not be permitted.
- (7) Air flow capacities will not be acceptable if not supported by third party testing authorities, As the South African Bureau of Standards do not have any such test facilities, their certificates will not be acceptable.
- (8) Low head sealing valves that requires more than 2 meters, is not acceptable.
- (9) Surges generated by non-slam discs (albeit being smaller than that generated by Kinetic valves) are present in pipelines, and no non-slam discs shall be allowed. The supplier must note this specification as a very specific requirement, as the consequences of switch points do have serious implications by damage caused to pipelines.
- (10) Adjustable or variable non-slam devices are not acceptable as it will leave the system subject to tampering.

The design of the small orifice is based on a rolling seal principle and has a self-cleaning effect due to the "Venturi" action on the slotted orifice. The small orifice has a built-in strainer to keep out large particles. The valve is to have an integral diaphragm actuated hydraulic operated slow closing device, which does not have a switching point of a non-slam disc.

PSLK 3.5.5.5 Air valve analysis and design is based on "ARI" Air Valves. The Bidder will be responsible to submit a manufacturer-specific air valve analysis, should the Bidder specify alternative air valves.

PLK 3.5.6 Electric actuators

PLK 3.5.6.1 When specified, the valves shall be fitted with electric, motor-driven flood-proof IP 67 actuators of robust design, capable of closing the valves under all unbalanced pressures.

PLK 3.5.6.2 The Tenderer shall state the maximum torque required to operate the valve in his Tender. In determining this maximum torque an allowance shall be made for any deterioration that could be expected to occur in the bearings during the life of the valve. The actuator shall be capable of transmitting twice this maximum torque without any of its components suffering permanent damage. This shall be proven to the Engineer's satisfaction by workshop tests.

PLK 3.5.6.3 The actuators shall be capable of restraining the valve in any position under all possible conditions of operation, and shall not, in any circumstances, be capable of becoming self-motorised as a result of the dynamic torque loading on the disc or plunger.

PLK 3.5.6.4 All gearing shall be manufactured in accordance with BS 436 Class C and shall be machine cut. All components requiring lubrication shall be adequately lubricated and totally enclosed flood-proof casing fabricated in cast iron and/or die cast aluminium to suit the service weather proof casing whether the valve is to be installed in the open or under cover. Actuators shall also be fitted with mechanical stops to prevent excessive turning and shall be provided with replaceable shear pins.

PLK 3.5.6.5 Hand wheels shall be fitted to all actuators. The direction of rotation to close the valve shall be clockwise when viewed from above the end of the input shaft and from the position of operation. In addition, they shall be clearly and indelibly marked with an arrow showing the direction of closing and the words "Close" and "Toe".

PLK 3.5.6.6 Whether the valve is actuator driven or manually operated, the maximum force required to turn the hand wheel at the maximum torque defined above shall not be greater than 100N per hand at the hand wheel rim (total effort = 200N). For

large valves the minimum of complete revolutions of the hand wheel to move the valve gate from fully open to fully closed shall not be less than 100.

PLK 3.5.6.7 All electric actuators shall be provided with reversing contactors: local and remote control shall be provided; a device making the local control non-operative shall also be provided on the relevant remote control panel.

PLK 3.5.6.8 After factory tests, the actuators shall be removed from the valve and delivered to site in separate boxes to safeguard against damage.

PLK 3.5.7 Protection

All materials and workmanship must comply with relevant SABS specifications.

PLK 3.5.7.1 Internal Protection

Internal surfaces of valve bodies and discs shall be grit blasted to a Sa 2½ of SIS 05 50 00 finish. Successive coats of approved non-toxic epoxy resin paint suitable for spray application (Copon EP 2300 or similar) shall then be applied to give a final dry film thickness of 250 µm. Drying times between successive layers shall be strictly in accordance with the requirements of the paint manufacturer.

As an alternative to the protection as specified above, the Contractor may be required to use either a solvent less epoxy paint system or a fusion bonded epoxy powder coating as specified in the Project Specification.

PLK 3.5.7.2 External protection

External surfaces of valve bodies shall be wire brushed to A 3 of SIS 05 59 00 standard and painted with one layer zinc chromate primer to SABS 679 Type I (dried film thickness 50 µm). This will be followed by two alkyd-based undercoats (each coat 25 µm thick) and one alkyd-based enamel finishing coat to SABS 630 Grade I (dried film thickness 25 µm). Final colour will be as specified by the Engineer.

Machined flanges will be painted with a protective coating of "shellac" or similar.

PLK 3.6 Tolerances

Tolerances as specified in the appropriate SABS or BS standards shall apply to this Contract.

PLK 3.7 Testing and inspection

PLK 3.7.1 Testing by manufacturer

The manufacturer shall carry out all tests to ensure that valve materials conform to the requirements of the relevant SABS or BS Specification. These tests will not necessarily be attended by the Engineer but records must be kept and all test results shall be made available to the Engineer.

PLK 3.7.2 Testing by independent body

The Engineer may appoint an independent recognised body to conduct control tests. Samples required for such tests will be provided by the Manufacturer free of charge and sampling will be done by this body in accordance with the relevant SABS or BS Specification.

The cost of such control tests will be borne by the Employer.

PLK 3.7.3 Inspection

PLK 3.7.3.1 Visual, operational and dimensional inspection of valves as well as inspection of protective coatings will be carried out by the Engineer and/or the Manufacturer in the Manufacturers workshops prior to the despatch of valves to site.

PLK 3.7.3.2 Inspection by the Engineer shall in no way relieve the Manufacturer of any of his obligations to design, manufacture and supply valves strictly in accordance with the Specification.

PLK 3.7.4 Hydrostatic testing

PLK 3.7.4.1 All hydrostatic tests will be witnessed by the Engineer and the Manufacturer will give at least one week prior notification to the Engineer of the proposed dates for such tests.

PLK 3.7.4.2 Valve bodies will be close end tested to at least 1,5 x the working pressure. Test pressures will be maintained for at least 5 minutes and valve bodies will be water tight in all respects at the test pressure.

PLK 3.7.4.3 Assembled valves will be open-end tested to 1,5 x working pressure for materials strength and soundness. Valves will be drop tight from both directions over the complete range of pressures from 0 to 1,5 x working pressure.

PLK 3.7.4.4 Each valve will be supplied with a test certificate certifying that it complies in all respects with the requirements of this Specification.

PLK 3.8 Measurement and payment

PLK 3.8.1 General

Tendered prices shall include for the following unless otherwise specified in the Project Specification.

- Protective coatings as specified.
- Couplings and/or jointing material for each type of valve.
- Packing and temporary protection against damage during transport and delivery.
- Temporary storage and maintenance if required.
- Delivery and storage of material on site or in a store as specified.
- Testing and inspections at Manufacturer's works.

PLK 3.8.2 Measurement

Valves will be measured per unit of each type.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART 2

PLN: Manufacture, supply and testing of steel pipes

CONTENTS

| ITEM | HEADING | PAGE NO. |
|-------------|--|-----------------|
| PLN 1 | Scope | C 3-2-2-13 |
| PLN 2 | Standards | C 3-2-2-13 |
| PLN 3 | Stresses | C 3-2-2-14 |
| PLN 4 | Process of manufacture for pipes | C 3-2-2-14 |
| PLN 5 | Dimensional requirements | C 3-2-2-15 |
| PLN 6 | Testing and inspection at manufacturer's works and at site | C 3-2-2-15 |
| PLN 7 | Flanges | C 3-2-2-18 |
| PLN 8 | Flexible couplings | C 3-2-2-19 |
| PLN 9 | Marking of pipes | C 3-2-2-19 |

PART 2:

PLN Manufacture, supply and testing of steel pipes

PLN 1 Scope

This specification covers the manufacture and supply of bare, electric welded low carbon steel pipes and steel pipe special items for the conveyance of water at ambient temperatures and at medium pressures.

PLN 2 Standards

Pipes and specials shall be manufactured, tested and inspected in accordance with the latest issues of the following standard specifications unless amended in subsequent clauses in this specification.

a) Pipes

SABS 719 : Steel Grades A, B and C

SABS 1431 : Steel Grades 300 WA

API 5L : Steel Grades x46, x56 and x60

b) Specials

Specials, of 150 mm nominal diameter and smaller, are to be manufactured from piping conforming to ASTM Schedule 40.

Specials larger than 150 mm nominal diameter shall be manufactured from piping complying with this specification.

The radiographic technique, adjudication of radiographs and repair of defects shall be in accordance with API 1104.

c) Qualifications of Welders

All manual or semi-automatic welds and repair welds shall only be undertaken by welders qualified under the tests laid down in accordance with API 1104.

d) Non-destructive Tests and Adjudication

- Radiographic inspection: API 1104
- Ultrasonic inspection: API 5L

- e) In this Specification reference is made to the latest issues of the following specifications:

- SABS 719
- API 5L
- API 1104
- ASME Section V
- BS 2971
- BS 2633

PLN 3 Stresses

- a) All pipes shall be hydrostatically tested as described in PLN 6.5 to a pressure such as to produce a circumferential tensile stress in the steel of not less than 90% of the minimum yield stress.
- b) The design stress for pipes subjected to the specified design pressures shall be 60% of the minimum yield stress of the steel.

PLN 4 Process of manufacture for pipes

PLN 4.1 Manufacture for pipes

Pipes shall be manufactured by an approved semi automatic submerged-arc welding process or shall be electric resistance welded. Where semi automatic submerged-arc welding is employed, at least one pass shall be made on the inside and at least one pass on the outside. The number of longitudinal weld seams shall not exceed:

- a) one seam for pipes up to 1 000 mm nominal diameter
- b) two seams for pipes larger than 1 000 mm and up to 2 000 mm nominal diameter

Circumferential welds by semi automatic submerged-arc welding method for factory double-jointed pipes shall have at least one pass on the inside and at least one pass on the outside.

PLN 4.2 Welds

SABS 719, BS 2971 and BS 2633 shall generally apply.

For fusion-welded pipes and specials, the internal weld bead shall not protrude more than 1 mm into the bore of the pipe or special.

For electric resistance welded pipes, the height of upset metal and flash on the inner surface shall not exceed 1,0 mm.

For pipes to be jointed by butt-welding, the internal weld bead shall be ground flush with the pipe body for a length of 200 mm from ends to be jointed.

For pipes to be coupled by flexible couplings, external weld reinforcement or upset metal and flash shall be ground flush with the pipe body for a length of 200 mm from the end to be coupled.

PLN 5 Dimensional requirements

PLN 5.1 Pipes

All dimensions will be in accordance with SABS 719 clause 4.

PLN 5.2 Specials

The tolerances on specials will be in accordance with BS 534, Section 4.

PLN 6 Testing and inspection at manufacturer's works and at site

PLN 6.1 General

Factory and site inspection, supervision of tests and adjudication of test records shall be carried out by an independent Inspectorate.

Tests and inspections shall be carried out at the manufacturer's works at the expense of the Contractor who shall provide all necessary testing facilities, labour, instruments, equipment and samples that might be required, free of charge. The inspectorate shall be afforded every facility during the course of manufacture and testing to enable the inspection to be carried out effectively.

All test samples shall be selected by the appointed Inspectors and all instruments used for testing purposes shall be approved by the Inspectors and if in the opinion of the Inspectors any instrument should require calibration, such instruments shall be calibrated at the expense of the Contractor by the SABS or such other body as may be approved by the Inspectorate.

PLN 6.2 No mechanical working or straining of pipes and specials shall be allowed after testing and inspection.

PLN 6.3 Visual inspection

All finished pipes and specials shall be visually examined and shall be free of injurious defects as defined in API 5L Section 10.7.

PLN 6.4 Non-destructive inspection

PLN 6.4.1 Ultrasonic inspection

Pipes shall be made by an approved welding process and 100% of all longitudinal or spiral welds on straight pipes shall be checked with an approved ultrasonic method capable of continuous and uninterrupted inspection of the weld seam in accordance with API 5L Section 9.10, 9.11 and 9.12 except that the equipment shall be checked with an applicable reference standard at least twice every working turn.

PLN 6.4.2 Radiographic Inspection

a) Longitudinal weld pipe

All electric fusion welded pipes, shall be inspected by radiological methods for a distance of 200mm from each pipe end.

b) Spiral weld pipe

All electric fusion welded pipes shall be inspected by radiological methods for a distance of 100mm from each end of each length of pipe and of the complete "H" at all scalp and welds including 150mm of the spiral welds in both directions away from the intersection points with the scalp and welds.

c) Circumferential butt welds

100% of the length of circumferential butt welds shall be examined provided, when consistently acceptable results are obtained, the number of welds to be so tested may be reduced by mutual agreement between the Engineer, the Inspectorate and the Contractor.

d) Specials

100% of all manual or semi-automatic welds in specials shall be examined radiographically provided, when consistently acceptable results are obtained, the number of welds to be so tested may be reduced.

Where specials cannot be hydrostatically tested, all welds shall be liquid penetrate tested as per ASME Section V.

e) Repairs

Straight piping:

100% of the total length of all repairs shall be examined radiographically provided, that where repairs are made before ultrasonic inspection and such repairs pass ultrasonic inspection, no further radiographic inspection of same is required.

Pipes for rail, road and river crossings 100% of the total length of all welds shall be examined radiographically.

PLN 6.5 Hydrostatic testing

- a) Each individual straight pipe shall be subjected to a hydrostatic test in accordance with the methods described in API 5L, Section 5. Test pressures shall be such as to produce tensile fibre stresses in the pipe wall of not less than 90% of the minimum specified yield strength of the steel or shall be 9MPa whichever is the lesser. Leaks or sweats shall be considered injurious defects.
- b) Should it not be possible to hydrostatically test straight piping and/or specials the through liquid penetrate test as per ASME Section V shall be done on all welds over and above the non-destructive tests specified above. This shall only be applicable with the prior written approval of the Engineer.

PLN 6.6 Repair of injurious defects

Injurious defects found by non-destructive testing of welds, visual examination, hydrostatic testing or determined by any other means to exceed the limitations in API 5L, Section 10.7 shall be repaired in accordance with API 5L Section 10.8 and 10.9 but subject always to the requirements of this specification.

PLN 6.7 Destructive testing

PLN 6.7.1 The following destructive tests shall be performed in accordance with SABS 719 clause 7.2 on the first pipe and thereafter on one pipe every 500 subsequent pipes.

- a) Transverse Tensile Test
- b) Root Bent Test (Electric Fusion Welds)
- c) Flattening Test (Electric Resistance Welds)

PLN 6.7.2 Sampling for destructive tests

a) First sample

A section long enough to provide all of the test specimens and material shall be cut from the selected pipe.

b) Second sample

If the test specimens and material from the first selected pipe fail to pass any of the tests, a section long enough to provide the appropriate specimens for the tests failed by the first sample shall be cut from two further pipes.

c) Third sample.

If the test specimen from the second sample fails to pass the test(s) a similar section shall be cut from each of a further ten pipes.

d) Compliance.

The piping shall be considered as complying with the specification if after testing of the first or the second or the third sample no defect is found.

PLN 7 Flanges

a) Material - shall be steel plates to conform to the requirements of SABS 1123.

b) Dimensions - shall be in accordance with SABS 1123 unless otherwise specified in the Schedule H of Quantities or on the drawings.

c) Type - all flanges shall be of the steel-plate for welding type and shall have flat joint faces unless otherwise specified in the Schedule or Quantities or on the drawings.

d) Finish - joint surfaces shall be in accordance with SABS 1123 clause 4.5.

e) All flanges shall be supplied complete with bolts, nuts and washers of a material to conform to the requirements of SABS 1123 where applicable, otherwise to the requirements of the Engineer.

Gaskets for flanged joints shall be of compressed asbestos fibre to BS 2815 Grade A and full faced, unless otherwise specified in the Project Specification, with a minimum thickness of 3 mm.

PLN 8 Flexible couplings

Flexible couplings shall be of the “Viking Johnson” or “Klamflex” type with centre register except where specified to the contrary in the Schedule of Quantities or on the drawings. Couplings must be able to withstand hydrostatic test pressures of 1.5 times the specified design pressures and coupling flanges must be designed to withstand all stresses due to tightening of the bolts. Rubber rings shall generally comply to SABS 974 Class F.

The internal face of the sleeve section of each coupling shall be grit blasted to SIS 055900 Grade Sa3 finish with an anchor pattern profile not exceeding 75 micrometers in depth as determined by micrometer gauge or portable microscope fitted with a calibrated focusing knob. Within four hours of grit blasting provided surfaces are kept dry and clean, one coat of an approved epoxy resin, Copon or similar shall be spray applied, followed by further coats to a dry film thickness of not less than 300 micrometers over the average profile peak.

All other surfaces of coupling components shall be grit-blasted to the same minimum finish and shall receive one coat of an approved protective paint which shall be compatible with materials to be used for the exterior moulding of the coupling in the field. Flexible couplings shall be supplied complete with all necessary bolts, nuts and rubber jointing rings.

PLN 9 Marking of pipes

PLN 9.1 All pipes and specials shall be clearly hand stamped alongside a longitudinal or spiral weld on one end of the pipe with the following.

- a) Grade and thickness of steel
- b) Serial number of the pipe or specials
- c) Nominal diameter
- d) Hydraulic test pressure

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART 3

PLQ: Corrosion protection of steel pipes and fittings

CONTENTS

| ITEM | HEADING | PAGE NO. |
|-------------|---|-----------------|
| PLQ 1 | Scope | C 3-2-2-21 |
| PLQ 2 | Corrosion protection systems | C 3-2-2-21 |
| PLQ 3 | Surface preparation | C 3-2-2-24 |
| PLQ 4 | Hot-dipped galvanising | C 3-2-2-25 |
| PLQ 5 | Epoxy Paints | C 3-2-2-25 |
| LQ 6 | UV-Resistant multi-purpose epoxy paint | C 3-2-2-27 |
| PLQ 7 | Re-coatable polyurethane | C 3-2-2-27 |
| PLQ 8 | Fusion bonded, medium density, polyethylene coatings (MDPE) | C 3-2-2-27 |
| PLQ 9 | Polyethylene shrink sleeve joint coating system for MDPE Coatings | C 3-2-2-28 |
| PLQ 10 | Denso HT Petrolatum tape wrapping system | C 3-2-2-28 |
| PLQ 11 | Measurement and Payment | C 3-2-2-30 |

PART 3:

PLQ Corrosion protection of pipes and fittings

PLQ 1 Scope

This specification covers various corrosion protection systems for cast iron, steel and stainless steel pipes and fittings for the conveyance of water at ambient temperatures.

PLQ 2 Corrosion protection systems

Materials for pipes and fittings and the applicable corrosion protection systems are specified on the drawings. The following corrosion protection systems have been used:

PLQ 2.1 Buried steel pipelines

a) Pipe diameter up to 150mm

Pipes shall be hot-dipped galvanized, unless otherwise specified.

After installation the pipe shall be protected with a tape wrapping system as specified in this specification.

b) Flanged and plain ended pipes diameter larger than 150mm and fittings.

Short pipes, fittings and couplings and smaller diameter pipelines shall be lined and coated with epoxy paint.

After installation the pipes and fittings shall be protected with the pipe wrapping system as specified in this specification.

c) Welded pipes

Welded pipes shall be epoxy or cement-mortar lined as specified on the drawings.

Welded pipes shall be fusion bonded, medium density polyethylene (MDPE) coated as specified in this specification.

PLQ 2.2 Pipework inside chambers

- a) Pipe diameter up to 150 mm

Pipes and fittings shall be hot-dipped galvanized.

The outside end of fittings cast into the walls of the chamber shall be protected with a tape wrapping system.

- b) Flanged and plain ended pipes with diameter larger than 150mm

Fittings, specials and couplings shall be coated and lined with epoxy paint.

The outside end of the fitting cast into the wall as well as couplings outside the chamber shall be protected with a tape wrapping system.

- c) Chambers in welded pipelines

Pipe fittings and specials cast into the walls of the chamber shall be cement-mortar lined as specified in Particular Specification PLQ2.

Pipes fittings and specials cast into the walls shall be MDPE coated on the section outside the chamber up to the puddle flange or the centre of the wall where a puddle flange is not specified.

The section of the pipe inside the chamber shall be coated with epoxy paint from the puddle flange on the centre of wall as the cast may be and shall be extended around the inside end of the special for 10mm so that the cement-mortar lining overlaps the epoxy coating with 10mm. Puddle flanges shall also be coated with epoxy paint.

Fittings and specials inside the chambers shall be lined and coated with epoxy paint.

PLQ 2.3 Pipe work exposed to sunlight

- a) Pipe diameter up to 150mm

Pipes shall be hot-dipped galvanized.

Pipe surface shall be prepared for re-coatable polyurethane site application.

After installation the pipe shall be painted with re-coatable polyurethane to the Employers colour coding specification.

- b) Flanged and plain ended pipes with diameter larger than 150mm.

Pipes shall be lined with epoxy paint.

Pipes shall be coated in the factory with UV-resistant, multi-purpose epoxy paint.

After installation the pipe shall be painted with re-coatable polyurethane to the Employers colour coding specification.

c) Welded pipes and fittings

Pipes shall have a cement-mortar or epoxy lining as specified on the drawings.

Pipes shall be coated in the factory with UV-resistant, multi-purpose epoxy paint.

After installation all damaged paint at the welding joints shall be removed and the joints re-painted with UV-resistant multi-purpose epoxy paint. After the joints have been repaired, the pipe shall be repainted with re-coatable polyurethane to the Employers colour coding specification.

PLQ 2.4 Exposed pipe work inside buildings

a) Pipe diameter up to 150mm

Pipes shall be hot-dipped galvanized.

Pipe surface shall be prepared for re-coatable polyurethane site application.

After installation the pipe shall be painted with re-coatable polyurethane to the Employers colour coding specification.

b) Flanged and plain ended pipes with diameter larger than 150mm

Pipes, fittings and couplings shall be lined and coated with epoxy paints.

After installation the pipework shall be painted with re-coatable polyurethane to the Employers colour coding specification.

PLQ 2.5 Pipe work inside water retaining structures

All stainless steel pipe work inside water retaining structures and cast into the walls of water retaining structures shall be lined and coated with epoxy paint.

Steel pipes to be cast into concrete inside the reservoir and below the reservoir floor shall be lined with epoxy paint. The paint shall be continued around the

edges up to 100 mm into the concrete encasing. The remainder of the surface to be cast into the concrete shall be left uncoated.

Uncoated portions of pipes must be protected with a primer, which complies with SABS 926. The primer must be applied so that it has a dry thickness of 50µm.

PLQ 3 Surface preparation

Contractors must submit information on the cleaning methods to be used in meeting the specified requirements. Contractors must further provide the Engineer with the manufacturer's guarantee that the requirements have been met.

PLQ 3.1 Surface preparation of steel surfaces

All projections, sharp edges, layers that have formed and tool marks must be removed from the surface so that the surface is smooth, and it must be cleaned in accordance with sections 2, 3 and 4 of SABS Code of Practice 064 so that it meets the following requirements:

- (a) A grade of cleanliness of at least Sa 2½ when tested by SABS test method 767.
- (b) A surface profile between 50mm and 90mm when tested by SABS test method 772.
- (c) Free from dust and debris to at least 0,2% when tested by SABS test method 769.

PLQ 3.2 Surface preparation of galvanized surfaces

Surfaces to be coated shall not be passivated.

Galvanized steel surfaces shall be degreased prior to coating, using either a water soluble solvent degreaser in accordance with SABS 1344 and the manufacturer's instructions, or a mild acid-detergent degreasing solution to be approved by the Engineer.

Large areas shall be prepared by sweep-blasting with non-metallic abrasive. Cracking, flaking or any form of de-lamination of the zinc coating due to excessive blast-cleaning shall not be permitted. Removal of zinc by blast-cleaning shall not exceed 10 µm.

Surfaces that cannot be sweep-blasted shall be abraded manually or mechanically with abrasive paper grade 220 or by using non-metallic abrasive pads.

Finally, all dust and debris shall be removed by vacuum-cleaning.

Epoxy primer for galvanised surfaces shall be applied immediately after surface preparation to a minimum dry thickness of 50 µm.

PLQ 3.3 Surface preparation of stainless steel surfaces

Oil and grease contamination shall be removed by:

- steam-cleaning
- an emulsifiable or aqueous detergent, or
- an alkaline cleaning solution.

Stainless steel surfaces shall be blast-cleaned with stainless steel grit or non-metallic abrasive. The use of steel shot and steel or cast iron grit is strictly prohibited.

The grade of cleanliness shall be at least Sa 2½.
Surface profile shall be in the range of 30 to 50µm.

Where blasting is impractical, the surface shall be roughened manually with abrasive paper Grade 220, disc grinders or flapper wheel abrasive pads. In all instances, clean, uncontaminated equipment must be used.

Dust and debris shall be removed by vacuum-cleaning.

PLQ 4 Hot dip galvanizing

Unless otherwise specified, steel pipes up to 150mm dia. shall be hot dip galvanized.

Hot dip galvanizing to be in accordance with SABS 763 – 1988 except that minimum thickness shall be 55micron. Cut ends and small damaged areas shall be repaired by the application of a zinc-rich epoxy (single pack) to SABS 763 (ZINC GALV 1 – Dulux or POLY GALV – Plascon).

Only heavy duty galvanising will be approved and all items to be provided with a SABS approval certificate.

PLQ 5 Epoxy paints

Epoxy paint shall comply to SABS 1217.

The following will be applicable where epoxy paint is specified:

Lining of pipes with nominal diameter larger than 500mm and standard pipe lengths of 9,144 m, 12,192 m and 18,288 m:

Solvent-free epoxy such as “Dulux SF23” and “Carboline 165”, with a minimum dry film thickness of 300 micron and a maximum dry film thickness of 500 micron to be used.

Lining and coating if all other pipes, specials and fittings, except where multi-purpose epoxy coating is specified:

Solvent base epoxy such as “Copon KSIR 88”, “Carboline 891” and “Sigmaguard EHB”, with a minimum dry film thickness of 300 micron.

Epoxy paint and the repair kit for the repair of epoxy shall be from the same manufacturer.

Edges with epoxy paint shall have a radius of 3mm or 50% of the pipe wall thickness (smaller of two).

Where another type of coating is specified, epoxy paint lining shall continue around pipe edge for each of the following:

- Flanged end

Onto both flange faces, extending for 50mm (min) onto pipe outer wall beyond flange.

- Ends suitable for straight or stepped couplings or flange adapters

Onto pipe outer wall for 250mm (min) from pipe end.

- Ends suitable for flange adapters, incorporating a restraining flange

Onto pipe outer wall from pipe end, up to and including both faces of the restraining flange as well as 50mm (min) beyond the restraining flange.

At joints between epoxy paint and cement mortar lining, the epoxy paint shall continue to 25mm underneath the cement mortar.

The following specification shall be applicable to pipes, specials and fittings to be welded on site:

- In the factory:

Abrasive blast cleaning of complete steel surface to SA 2,5 of ISO 8501-1.
Apply epoxy paint to 100 mm from pipe end.

- On site after welding of joint:

Prepare surface with sand paper or wire brush to St 3 of ISO 8501-1 to produce a white metal surface.

Apply epoxy repair kit from to same manufacturer as the factory applied epoxy.

The area applied on site shall be tested for pinholes and thickness.

PLQ 6 UV-resistant multi-purpose epoxy paint

Multi-purpose epoxy shall be of the high build, modified aluminium epoxy mastic type, containing at least 90% solids.

PLQ 7 Re-coatable Polyurethane

The area to be over-coated shall be abraded with abrasive paper Grade 220 to a uniform matt finish.

The surface shall be vacuum-cleaned to remove dust and debris.

Over-coat with a 40 µm minimum layer of re-coatable Polyurethane in accordance with the Employer's colour code.

PLQ 8 Fusion bonded, medium density, Polyethylene coating (MDPE)

An uniform MDPE coating must be obtained by dipping the already prepared and heated pipe into a fluidified bed of MDPE powder which then fuses directly on to the heated surface.

A coating thickness of between 1,8mm to 2,3mm depending on the outside diameter (OD) of the pipe and the service for which it is required must be obtained with the coating extending around the ends of the pipe to underlap the concrete lining for Sinta Joint pipes by a minimum of 25mm.

- $D < 508\text{mm}$: coating thickness = 1,8mm
- $508\text{mm} \leq OD \leq 762\text{ mm}$: coating thickness = 2,0mm
- $OD > 762\text{mm}$: coating thickness = 2,3mm

Fusion bonded MDPE coatings shall comply to AS 4321 and must meet the applicable SABS requirements for this type of pipe protection.

PLQ 9 Polyethylene shrink sleeve joint coating system for MDPE coatings

Only shrink sleeves approved by the manufacturer of the MDPE coating shall be allowed for the coating of welded joints in MDPE coated pipes. The cutback of the MDPE coating shall be 100 mm from the pipe ends.

Chip off weld scale and remove grease, then wire brush to remove all loose rust, burnt coating material and dirt to a Standard St 2 of ISO 8501.

Chamfer any raised edges or steps in the existing coating and slightly roughen the coating for 100mm.

Preheat joint area until hot to the hand, approximately 60°C minimum. Remove the protective release plastic from the coated sleeve. Place shrink sleeve over the joint with an overlap of 50mm onto adjacent pipe coating and an overlap of 50 mm at the sleeve ends. Press closure seal in position, centering over the exposed sheet end. Using the heating torch, adjust flame length to approximately 50 cm to produce a yellow flame. Using the yellow portion of the flame, heat the closure evenly until the pattern of the fabric reinforcement is visible. With gloved hand, pat down the closure and smooth any wrinkles by gently working them outward from the centre of the closure.

Using the heating torch, begin at the centre of the sleeve and heat circumferentially around the pipe, using a constant paintbrush motion. Continue heating toward one end of the sleeve, followed by the other. During shrink down, occasionally check adhesive flow with finger. Wrinkles should disappear automatically.

Sleeve is fully shrunk when all the following have occurred.

- There are no cold spots or dimples on the sleeve surface
- Weld bead profile can be seen through the sleeve
- After sleeve is cool, mastic flow is evident on both edges
- The sleeve has fully conformed to the pipe and adjacent coating.

PLQ 10 Denso HT Petrolatum tape-wrapping system

Only “Denso HT Petrolatum” tape-wrapping system shall be used for the wrapping of buried flange and flexible joints and buried galvanized and epoxy paint coated pipes. Measurement for payment shall be per metre of the pipe length.

PLQ 10.1 General

Chip off weld scale and remove grease, then wire brush to remove all loose rust, burnt bitumen/coal tar enamel and dirt to a Standard St 2 of SIS 055900 (Swedish Standard).

Chamfer any raised edges or steps in the existing coating.

Apply "Denso Priming Solution".

Apply "Denso HT Tape" of appropriate width uniformly in a spiral fashion to give a 55% overlap on the pipe and for not less than 200 mm along the length of the intact factory coating.

Apply uniform tension to ensure the tape is smooth and free from wrinkles. Do not apply excessive tension that will stretch the tape nor insufficient or uneven tension that will give rise to air bubbles and wrinkles.

PLQ 10.2 Flexible couplings and flanges

Apply "Denso Mastic" so as to create a smooth profile suitable for over-wrapping. Wrap a suitable width of "Denso HT Tape" over the coupling. Ensure that there are not air voids under the tape. Apply a double layer of "Denso Layflat" polyethylene sheeting over the whole length of the repair and for 100mm beyond each end of the repair. Tape the ends of the "Layflat" with two complete turns of 100mm wide adhesive "Denso PVC" tape to seal the end.

"Denso" fabric backed mastic blanket can be used as an alternative for "Denso HT Tape". After priming, pack potential air void areas such as under the bolts with Denso Mastic. Place the mastic Blanket in position and press it into all air voids. Start under the pipe and work upwards. Over wrap the Mastic Blanket with two layers of "Denso Layflat" sheeting and secure the ends with 100mm wide adhesive "Denso" PVC tape.

If the pipe runs through very wet soils it is recommended that "Denso S105 Paste" be used in preference to "Denso Priming Solution", and the couplings be wrapped with "Denso PVC Self Adhesive Tape" using a 55% overlap in place of the Layflat Sheeting.

PLQ 10.3 Welded joints and straight pipe lengths

After completion of "Denso HT Tape" wrapping and approval by the Engineer, apply 0,3 mm adhesive PVC outer wrap with 55% overlap over the whole length of the wrapping and for 100mm beyond each end.

PLQ 11 Measurement and payment

Corrosion protection and painting shall not be measured separately. The price for corrosion protection and painting shall be deemed to be included in the price for the pipe, fitting or special.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART 4:

MECH: Mechanical Specifications

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name MABOLELA PUMP STATION
1.2 GPS (28°30'48.45"S, 28°47'23.26"E)

2 Function:

- 2.1 Pumping to : Into community water network

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--------------------------|---------------------------|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | ETA 40-250 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | To be confirmed | |
| 4.7 | Pump type | Centrifugal, End suction | Centrifugal, End suction | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller washer material | - | Ductile iron | |
| 4.13 | Impeller screw material | - | SS 304 | |
| 4.14 | Bearing frame | - | Ductile iron | |
| 4.15 | Shaft material | - | To be confirmed | |
| 4.16 | Shaft sleeve material | - | SS 304 | |
| 4.17 | Fastener material | - | Grade 5 Steel | |
| 4.18 | Mechanical seal material | - | To be confirmed | |
| 4.19 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|---------------|-----------|---------|
| 5.1 | Motor manufacturer | BMG | WEG | |
| 5.2 | Motor model | Y3-160M1-2/B3 | - | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 11 | 11 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 2930 | 2930 | |
| 5.6 | Motor type | 3 Phase | 3 Phase | |
| 5.7 | Motor efficiency class (IE) | S1 | S1 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | - | |
| 5.11 | Motor thermal protection | Yes | Yes | |
| 5.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name MABOLELA PUMP STATION
1.2 GPS (28°30'48.45"S, 28°47'23.26"E)

2 Function:

- 2.1 Pumping to : Into community water network

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 165 (163)mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|--------------------------|---------|
| 7.1 | Motor manufacturer | No information | WEG | |
| 7.2 | Motor model | No information | - | |
| 7.3 | Motor Quantity | No information | 1 | |
| 7.4 | Motor Size (kW) | No information | 15 | |
| 7.5 | Motor rotation speed (rpm/r/min) | No information | 2940 | |
| 7.6 | Motor type | No information | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | No information | B3 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | No information | 55 | |
| 7.10 | Motor load factor at duty point (%) | No information | - | |
| 7.11 | Motor thermal protection | No information | Yes | |
| 7.12 | Motor heater | No information | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name SEHLAJANENG PUMP STATION NO. 2
1.2 GPS 28°34'9.09"S, 28°43'13.98"E

2 Function:

- 2.1 Pumping to : Pumping to Reservoir at border post

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 32/7 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | 9 | 9 | |
| 4.5 | Duty point, 1x pump (h) | 168 | 168 | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller size | 140mm | 140mm | |
| 4.13 | Impeller washer material | - | Ductile iron | |
| 4.14 | Impeller screw material | - | SS 304 | |
| 4.15 | Bearing frame | - | Ductile iron | |
| 4.16 | Shaft material | - | To be confirmed | |
| 4.17 | Shaft sleeve material | - | SS 304 | |
| 4.18 | Fastener material | - | Grade 5 Steel | |
| 4.19 | Mechanical seal material | - | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 5.1 | Motor manufactuer | SIEMENS | WEG | |
| 5.2 | Motor model | 1LA3163-2YA40 | - | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 11 | 11 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 2935 | 2935 | |
| 5.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | B3 | B3 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | - | |
| 5.11 | Motor thermal protection | Yes | Yes | |
| 5.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name SEHLAJANENG PUMP STATION NO. 2
 1.2 GPS 28°34'9.09"S, 28°43'13.98"E

2 Function:

- 2.1 Pumping to : Pumping to Reservoir at border post

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 165 (163)mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufactuer | ALSTOM | WEG | |
| 7.2 | Motor model | NV1164-2AH | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 15 | 15 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 2940 | 2940 | |
| 7.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | B3 | B3 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | Yes | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name SEHLAJANENG PUMP STATION NO. 1
1.2 GPS 28°33'32.36"S, 28°43'26.64"E

2 Function:

- 2.1 Pumping to :
• Pumps to Sehlajaneng PS 2
• Pumps into system

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|---|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 50/6 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | stage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller size | 165 (163)mm | 165 (163)mm | |
| 4.13 | Impeller washer material | - | Ductile iron | |
| 4.14 | Impeller screw material | - | SS 304 | |
| 4.15 | Bearing frame | - | Ductile iron | |
| 4.16 | Shaft material | - | To be confirmed | |
| 4.17 | Shaft sleeve material | - | SS 304 | |
| 4.18 | Fastener material | - | Grade 5 Steel | |
| 4.19 | Mechanical seal material | - | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 5.1 | Motor manufactuer | ACTOM | WEG | |
| 5.2 | Motor model | NV113-4AH | - | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1440 | 1440 | |
| 5.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | B3 | B3 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | - | |
| 5.11 | Motor thermal protection | Yes | Yes | |
| 5.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|--------------------------------|
| 1.1 | Name | SEHLAJANENG PUMP STATION NO. 1 |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Pumps to Sehlajaneng PS 2 • Pumps into system |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.1 - No plate on pump

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 165 (163)mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufactuer | SIEMENS | WEG | |
| 7.2 | Motor model | 1LA6130-4AA60-ZN00 | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 5.5 | 7.5 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1455 | 1440 | |
| 7.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | B3 | B3 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | Yes | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name HLATSENG PUMP STATION
1.2 GPS 28°33'38.46"S, 28°43'56.05"E

2 Function:

- 2.1 Pumping to : Pumps to Sehlajaneng PS 1

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 80/8 Na | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | 63 | 63 | |
| 4.5 | Duty point, 1x pump (h) | 103.9 | 103.9 | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller size | 220 (216) mm | 220 (216)mm | |
| 4.13 | Impeller washer material | - | Ductile iron | |
| 4.14 | Impeller screw material | - | SS 304 | |
| 4.15 | Bearing frame | - | Ductile iron | |
| 4.16 | Shaft material | - | To be confirmed | |
| 4.17 | Shaft sleeve material | - | SS 304 | |
| 4.18 | Fastener material | - | Grade 5 Steel | |
| 4.19 | Mechanical seal material | - | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1 - No motor

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|--------------------------|---------|
| 5.1 | Motor manufacturer | No information | WEG | |
| 5.2 | Motor model | No information | - | |
| 5.3 | Motor Quantity | No information | 1 | |
| 5.4 | Motor Size (kW) | No information | 37 | |
| 5.5 | Motor rotation speed (rpm/r/min) | No information | 1470 | |
| 5.6 | Motor type | No information | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | No information | 1 | |
| 5.8 | Motor insulation class | No information | F | |
| 5.9 | Motor ingress rating (IP) | No information | 66 | |
| 5.10 | Motor load factor at duty point (%) | No information | - | |
| 5.11 | Motor thermal protection | No information | Yes | |
| 5.12 | Motor heater | No information | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name HLATSENG PUMP STATION
1.2 GPS 28°33'38.46"S, 28°43'56.05"E

2 Function:

- 2.1 Pumping to : Pumps to Sehlaneng PS 1

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | WKLn 80/8 Na | To be confirmed | |
| 6.3 | Quantity | 1 | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | 63 | 63 | |
| 6.5 | Duty point, 1x pump (h) | 103.9 | 103.9 | |
| 6.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 6.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | - | | |
| 6.11 | Impeller material | - | Ductile iron | |
| 6.12 | Impeller size | 220 (216) mm | 220 (216)mm | |
| 6.13 | Impeller washer material | - | Ductile iron | |
| 6.14 | Impeller screw material | - | SS 304 | |
| 6.15 | Bearing frame | - | Ductile iron | |
| 6.16 | Shaft material | - | To be confirmed | |
| 6.17 | Shaft sleeve material | - | SS 304 | |
| 6.18 | Fastener material | - | Grade 5 Steel | |
| 6.19 | Mechanical seal material | - | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufacturer | ELECTROMATE | WEG | |
| 7.2 | Motor model | HM1T 225SM-4 B3 | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 37 | 37 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1470 | 1470 | |
| 7.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | 1 | 1 | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 66 | 66 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | Yes | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name POELONG PUMP STATION
1.2 GPS 28°34'17.71"S, 28°46'7.02"E

2 Function:

- 2.1 Pumping to : Pumps to Hlatseng PS

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | ETA 100-50/2 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | 155 | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | 72 | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller size | 165 (163)mm | 165 (163)mm | |
| 4.13 | Impeller washer material | - | Ductile iron | |
| 4.14 | Impeller screw material | - | SS 304 | |
| 4.15 | Bearing frame | - | Ductile iron | |
| 4.16 | Shaft material | - | To be confirmed | |
| 4.17 | Shaft sleeve material | - | SS 304 | |
| 4.18 | Fastener material | - | Grade 5 Steel | |
| 4.19 | Mechanical seal material | - | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 5.1 | Motor manufacturer | ACTOM | WEG | |
| 5.2 | Motor model | NV113-4AH | - | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1440 | 1440 | |
| 5.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | B3 | B3 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | - | |
| 5.11 | Motor thermal protection | Yes | Yes | |
| 5.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|-----------------------------|
| 1.1 | Name | POELONG PUMP STATION |
| 1.2 | GPS | 28°34'17.71"S, 28°46'7.02"E |

2 Function:

| | | |
|-----|--------------|----------------------|
| 2.1 | Pumping to : | Pumps to Hlatseng PS |
|-----|--------------|----------------------|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2 - No plate on pump

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 165 (163)mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufacturer | SIEMENS | WEG | |
| 7.2 | Motor model | 1LA6130-4AA60-ZN00 | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 5.5 | 7.5 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1455 | 1440 | |
| 7.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | B3 | B3 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | Yes | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | BOLATA PUMP STATION |
| 1.2 | GPS | 28°34'31.19"S, 28°34'31.19"S |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Pumps to Masaleng Reservoir • Pumps into system |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 100/7 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | - | | |
| 4.11 | Impeller material | - | Ductile iron | |
| 4.12 | Impeller size | F/S | To be confirmed | |
| 4.13 | Impeller washer material | - | Ductile iron | |
| 4.14 | Impeller screw material | - | SS 304 | |
| 4.15 | Bearing frame | - | Ductile iron | |
| 4.16 | Shaft material | - | To be confirmed | |
| 4.17 | Shaft sleeve material | - | SS 304 | |
| 4.18 | Fastener material | - | Grade 5 Steel | |
| 4.19 | Mechanical seal material | - | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | MS-Coated | MS, hot dipped galvanized | |

5 Motor No.1 - No Motor

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-----------------|---------|
| 5.1 | Motor manufacturer | No information | WEG | |
| 5.2 | Motor model | No information | To be confirmed | |
| 5.3 | Motor Quantity | No information | To be confirmed | |
| 5.4 | Motor Size (kW) | No information | To be confirmed | |
| 5.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 5.6 | Motor type | No information | To be confirmed | |
| 5.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 5.8 | Motor insulation class | No information | To be confirmed | |
| 5.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | To be confirmed | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | BOLATA PUMP STATION |
| 1.2 | GPS | 28°34'31.19"S, 28°34'31.19"S |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Pumps to Masaleng Reservoir • Pumps into system |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | WKLn 100/7 | To be confirmed | |
| 6.3 | Quantity | 1 | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 6.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | 265mm | 265mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufacturer | MARATHON | WEG | |
| 7.2 | Motor model | MAR1 280SM-4 | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 90 | 90 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1480 | 1480 | |
| 7.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | 1 | 1 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | Yes | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name FIKA PATSO PUMP STATION
1.2 GPS 28°37'37.64"S, 28°51'25.75"E

2 Function:

- 2.1 Pumping to :
• Pumps to Fika Patso Resort
• Pumps into system
• Pumps to WTW

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 4.1 | Manufacturer | No information | KSB | |
| 4.2 | Model | No information | To be confirmed | |
| 4.3 | Quantity | No information | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | No information | Duty-Standby | |
| 4.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | No information | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|-------------------|---------|
| 5.1 | Motor manufactuer | HAWKER SIDDELEY MACHINES | WEG | |
| 5.2 | Motor model | 7-D132M | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1415 | 1415 | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | | To be confirmed | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | To be confirmed | |
| 5.11 | Motor thermal protection | - | Yes | |
| 5.12 | Motor heater | - | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | FIKA PATSO PUMP STATION |
| 1.2 | GPS | 28°37'37.64"S, 28°51'25.75"E |

2 Function:

| | | |
|-----|--------------|---|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Pumps to Fika Patso Resort • Pumps into system • Pumps to WTW |
|-----|--------------|---|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 265mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufactuer | HAWKER SIDDELEY MACHINES | WEG | |
| 7.2 | Motor model | 7-D132M | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1415 | 1415 | |
| 7.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | | 1 | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | - | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | MASIONOKENG PUMP STATION |
| 1.2 | GPS | 28°37'37.64"S, 28°51'25.75"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | Pumping to Reservoir & Communities at Momeding Pumping to Reservoir & Communities at Rietpan Pumping to Reservoir & Communities at Thibella Pumping to Reservoir & Communities at Matswakeng Pumping to Reservoir & Communities at Phomolong |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

4 Pump No.1 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 4.1 | Manufacturer | No information | KSB | |
| 4.2 | Model | No information | To be confirmed | |
| 4.3 | Quantity | No information | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | No information | Duty-Standby | |
| 4.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | No information | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|-------------------|---------|
| 5.1 | Motor manufacturer | HAWKER SIDDELEY MACHINES | WEG | |
| 5.2 | Motor model | 7-D132M | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1415 | 1415 | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | | To be confirmed | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | To be confirmed | |
| 5.11 | Motor thermal protection | - | Yes | |
| 5.12 | Motor heater | - | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | MASIONOKENG PUMP STATION |
| 1.2 | GPS | 28°37'37.64"S, 28°51'25.75"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | Pumping to Reservoir & Communities at Momeding Pumping to Reservoir & Communities at Rietpan Pumping to Reservoir & Communities at Thibella Pumping to Reservoir & Communities at Matswakeng Pumping to Reservoir & Communities at Phomolong |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 265mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 7.1 | Motor manufacturer | HAWKER SIDDELEY MACHINES | WEG | |
| 7.2 | Motor model | 7-D132M | - | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 7.5 | 7.5 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1415 | 1415 | |
| 7.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, Induction Motor | |
| 7.7 | Motor efficiency class (IE) | | 1 | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | - | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name LEJWANENG PUMP STATION
1.2 GPS 28°33'32.36"S, 28°43'26.64"E

2 Function:

- 2.1 Pumping to : Pumps to Fika Patso Resort Reservoir

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 100/4 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | stage Horizontal High pressure centrifugal p | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | 250 (244)mm | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-------------------|---------|
| 5.1 | Motor manufactuer | WEG | WEG | |
| 5.2 | Motor model | 225S/M | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 37 | 37 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1470 | To be confirmed | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | | To be confirmed | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | To be confirmed | |
| 5.11 | Motor thermal protection | - | Yes | |
| 5.12 | Motor heater | - | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name LEJWANENG PUMP STATION
1.2 GPS 28°33'32.36"S, 28°43'26.64"E

2 Function:

- 2.1 Pumping to : Pumps to Fika Patso Resort Reservoir

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | 265mm | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-------------------|---------|
| 7.1 | Motor manufactuer | WEG | WEG | |
| 7.2 | Motor model | 225S/M | 225S/M | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 37 | 37 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1470 | 1470 | |
| 7.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 7.7 | Motor efficiency class (IE) | IE1 | IE1 | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | - | - | |
| 7.11 | Motor thermal protection | - | Yes | |
| 7.12 | Motor heater | - | - | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | THABANG PUMP STATION |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|-----------------|
| 2.1 | Pumping to : | To be confirmed |
|-----|--------------|-----------------|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 100/7 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | F/S | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-------------------|---------|
| 5.1 | Motor manufactuer | MARATHON | WEG | |
| 5.2 | Motor model | MAR1 280SM-4 | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 90 | 90 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1480 | 1480 | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | IE 1 | IE 1 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | To be confirmed | |
| 5.11 | Motor thermal protection | - | Yes | |
| 5.12 | Motor heater | - | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | THABANG PUMP STATION |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|-----------------|
| 2.1 | Pumping to : | To be confirmed |
|-----|--------------|-----------------|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2 - No pump

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2 - no motor

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-----------------|---------|
| 7.1 | Motor manufactuer | No information | WEG | |
| 7.2 | Motor model | No information | To be confirmed | |
| 7.3 | Motor Quantity | No information | To be confirmed | |
| 7.4 | Motor Size (kW) | No information | To be confirmed | |
| 7.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 7.6 | Motor type | No information | To be confirmed | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | No information | To be confirmed | |
| 7.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | To be confirmed | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | MANGAUNG PUMP STATION |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Tha-Nch Reservoir & Community • Stadium |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

4 Pump No.1 - no pump

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 4.1 | Manufacturer | No information | KSB | |
| 4.2 | Model | No information | To be confirmed | |
| 4.3 | Quantity | No information | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | No information | Duty-Standby | |
| 4.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | No information | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-------------------|---------|
| 5.1 | Motor manufacturer | No information | WEG | |
| 5.2 | Motor model | No information | To be confirmed | |
| 5.3 | Motor Quantity | No information | To be confirmed | |
| 5.4 | Motor Size (kW) | No information | To be confirmed | |
| 5.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 5.6 | Motor type | No information | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 5.8 | Motor insulation class | No information | To be confirmed | |
| 5.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | Yes | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | MANGAUNG PUMP STATION |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Tha-Nch Reservoir & Community • Stadium |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|------------------------------|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | ETANORM 080-065-250 GG 1A PO | To be confirmed | |
| 6.3 | Quantity | 1 | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-----------------|---------|
| 7.1 | Motor manufactuer | ALSTOM | WEG | |
| 7.2 | Motor model | No information | To be confirmed | |
| 7.3 | Motor Quantity | 1 | To be confirmed | |
| 7.4 | Motor Size (kW) | 37 | To be confirmed | |
| 7.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 7.6 | Motor type | No information | To be confirmed | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | No information | To be confirmed | |
| 7.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | To be confirmed | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|------------------------------|
| 1.1 | Name | MANGAUNG PUMP STATION |
| 1.2 | GPS | 28°33'32.36"S, 28°43'26.64"E |

2 Function:

| | | |
|-----|--------------|--|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • Tha-Nch Reservoir & Community • Stadium |
|-----|--------------|--|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

8 Pump No.3

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|------------------------------|--|---------|
| 8.1 | Manufacturer | KSB | KSB | |
| 8.2 | Model | ETANORM 080-065-250 GG 1A PO | To be confirmed | |
| 8.3 | Quantity | 1 | 1 | |
| 8.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 8.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 8.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 8.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 8.8 | Seal type | No information | Mechanical | |
| 8.9 | Shaft seal | No information | Replacable | |
| 8.10 | Volute casing material | No information | | |
| 8.11 | Impeller material | No information | Ductile iron | |
| 8.12 | Impeller size | No information | To be confirmed | |
| 8.13 | Impeller washer material | No information | Ductile iron | |
| 8.14 | Impeller screw material | No information | SS 304 | |
| 8.15 | Bearing frame | No information | Ductile iron | |
| 8.16 | Shaft material | No information | To be confirmed | |
| 8.17 | Shaft sleeve material | No information | SS 304 | |
| 8.18 | Fastener material | No information | Grade 5 Steel | |
| 8.19 | Mechanical seal material | No information | To be confirmed | |
| 8.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

9 Motor No.3

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|-----------------|---------|
| 9.1 | Motor manufactuer | BMH | WEG | |
| 9.2 | Motor model | DZ1 60M | To be confirmed | |
| 9.3 | Motor Quantity | 1 | To be confirmed | |
| 9.4 | Motor Size (kW) | No information | To be confirmed | |
| 9.5 | Motor rotation speed (rpm/r/min) | 2900 | To be confirmed | |
| 9.6 | Motor type | 3 Phase, Induction Motor | To be confirmed | |
| 9.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 9.8 | Motor insulation class | F | To be confirmed | |
| 9.9 | Motor ingress rating (IP) | 44 | To be confirmed | |
| 9.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 9.11 | Motor thermal protection | No information | To be confirmed | |
| 9.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name QUQOLOSING PUMP STATION
1.2 GPS 28°36'1.26"S, 28°53'32.03"E

2 Function:

- 2.1 Pumping to : Pumping into a nearby community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1 - No Plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 100/7 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | stage Horizontal High pressure centrifugal p | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | F/S | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-------------------|---------|
| 5.1 | Motor manufactuer | ELECTROMATE | WEG | |
| 5.2 | Motor model | IE1-160L-4 B3 | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 15 | 15 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1460 | 1460 | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | IE 1 | IE 1 | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | - | To be confirmed | |
| 5.11 | Motor thermal protection | - | Yes | |
| 5.12 | Motor heater | - | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name QUQOLOSING PUMP STATION
1.2 GPS 28°36'1.26"S, 28°53'32.03"E

2 Function:

- 2.1 Pumping to : Pumping into a nearby community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2 - No Plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|--|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | No information | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------|-------------------|---------|
| 7.1 | Motor manufactuer | BMG | WEG | |
| 7.2 | Motor model | No information | To be confirmed | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 18.5 | 15 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 2915 | 1460 | |
| 7.6 | Motor type | 3 Phase - AC motor | 3 Phase, AC MOTOR | |
| 7.7 | Motor efficiency class (IE) | No information | IE 1 | |
| 7.8 | Motor insulation class | No information | F | |
| 7.9 | Motor ingress rating (IP) | No information | 55 | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | Yes | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name PERENG B PUMP STATION
1.2 GPS 28°31'16.39"S,28°52'24.28"E

2 Function:

- 2.1 Pumping to : Pumping to Thabong Reservoir and Community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|---|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | ETA 65-250 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m ³ /h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | 259mm | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-------------------|---------|
| 5.1 | Motor manufacturer | WEG | WEG | |
| 5.2 | Motor model | MOT 250S/M | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 55 | 15 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 2960 | 1460 | |
| 5.6 | Motor type | 3 Phase, AC MOTOR | 3 Phase, AC MOTOR | |
| 5.7 | Motor efficiency class (IE) | No information | IE 1 | |
| 5.8 | Motor insulation class | No information | F | |
| 5.9 | Motor ingress rating (IP) | No information | 55 | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | Yes | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name PERENG B PUMP STATION
1.2 GPS 28°31'16.39"S,28°52'24.28"E

2 Function:

- 2.1 Pumping to : Pumping to Thabong Reservoir and Community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | ETA 65-250 | To be confirmed | |
| 6.3 | Quantity | 1 | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | 254mm | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------|-------------------|---------|
| 7.1 | Motor manufacturer | WEG | WEG | |
| 7.2 | Motor model | 250S/M | To be confirmed | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 55 | 55 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 2960 | 2960 | |
| 7.6 | Motor type | 3 Phase - AC motor | 3 Phase, AC MOTOR | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | Yes | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name PERENG A PUMP STATION
1.2 GPS 28°31'16.13"S,28°52'24.11"E

2 Function:

- 2.1 Pumping to : Pumping to Thabong Reservoir and Community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | WKLn 32/4 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | 140mm | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|-------------------|-----------------|---------|
| 5.1 | Motor manufacturer | SIEMENS | WEG | |
| 5.2 | Motor model | 1LAO - 130 -24X40 | To be confirmed | |
| 5.3 | Motor Quantity | No information | To be confirmed | |
| 5.4 | Motor Size (kW) | No information | To be confirmed | |
| 5.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 5.6 | Motor type | No information | To be confirmed | |
| 5.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 5.8 | Motor insulation class | No information | To be confirmed | |
| 5.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | To be confirmed | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name PERENG A PUMP STATION
1.2 GPS 28°31'16.13"S,28°52'24.11"E

2 Function:

- 2.1 Pumping to : Pumping to Thabong Reservoir and Community

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2 - No plate

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2 - No Motor

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-----------------|---------|
| 7.1 | Motor manufactuer | No information | WEG | |
| 7.2 | Motor model | No information | To be confirmed | |
| 7.3 | Motor Quantity | No information | To be confirmed | |
| 7.4 | Motor Size (kW) | No information | To be confirmed | |
| 7.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 7.6 | Motor type | No information | To be confirmed | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | No information | To be confirmed | |
| 7.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | To be confirmed | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|-----------------------------|
| 1.1 | Name | INTABAZWE PUMP STATION |
| 1.2 | GPS | 28°15'11.82"S,29° 6'27.39"E |

2 Function:

| | | |
|-----|--------------|---|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> To elevated tank Community |
|-----|--------------|---|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | ETA 125-250 | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | 162 | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | 20 | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | 252mm | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 5.1 | Motor manufacturer | ELECTROMATE | WEG | |
| 5.2 | Motor model | IE1-160L-4 B3 | To be confirmed | |
| 5.3 | Motor Quantity | 1 | To be confirmed | |
| 5.4 | Motor Size (kW) | 15 | 15 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 1460 | 1460 | |
| 5.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | IE 1 | IE 1 | |
| 5.8 | Motor insulation class | No information | To be confirmed | |
| 5.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | Yes | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

| | | |
|-----|------|-----------------------------|
| 1.1 | Name | INTABAZWE PUMP STATION |
| 1.2 | GPS | 28°15'11.82"S,29° 6'27.39"E |

2 Function:

| | | |
|-----|--------------|---|
| 2.1 | Pumping to : | <ul style="list-style-type: none"> • To elevated tank • Community |
|-----|--------------|---|

3 General Information

| | | |
|-----|---------------|---------------|
| 3.1 | Medium Type : | Potable Water |
|-----|---------------|---------------|

Featuring Equipment

6 Pump No.2

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 6.1 | Manufacturer | KSB | KSB | |
| 6.2 | Model | ETANORM 150-125-250 | To be confirmed | |
| 6.3 | Quantity | No information | 1 | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | Duty-Standby | |
| 6.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 6.8 | Seal type | No information | Mechanical | |
| 6.9 | Shaft seal | No information | Replacable | |
| 6.10 | Volute casing material | No information | | |
| 6.11 | Impeller material | No information | Ductile iron | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | Ductile iron | |
| 6.14 | Impeller screw material | No information | SS 304 | |
| 6.15 | Bearing frame | No information | Ductile iron | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | SS 304 | |
| 6.18 | Fastener material | No information | Grade 5 Steel | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

7 Motor No.2

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|------------------|-----------------|---------|
| 7.1 | Motor manufactuer | MOTERELLI | WEG | |
| 7.2 | Motor model | Y3 160L-4 B3 PTC | To be confirmed | |
| 7.3 | Motor Quantity | 1 | 1 | |
| 7.4 | Motor Size (kW) | 15 | 15 | |
| 7.5 | Motor rotation speed (rpm/r/min) | 1460 | 1460 | |
| 7.6 | Motor type | 3 Phase | 3 Phase | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | F | F | |
| 7.9 | Motor ingress rating (IP) | 55 | 55 | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | Yes | |
| 7.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name BERSIG PUMP STATION
1.2 GPS 28°16'39.77"S,29° 8'45.07"E

2 Function:

- 2.1 Pumping to : To Kingshill Reservoir

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

4 Pump No.1

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|--|--|---------|
| 4.1 | Manufacturer | KSB | KSB | |
| 4.2 | Model | ATENORM 065-040-200GG 1A | To be confirmed | |
| 4.3 | Quantity | 1 | 1 | |
| 4.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 4.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 4.6 | Pump Configuration | Duty-Standby | Duty-Standby | |
| 4.7 | Pump type | Multistage Horizontal High pressure centrifugal pump | Multistage Horizontal High pressure centrifugal pump | |
| 4.8 | Seal type | No information | Mechanical | |
| 4.9 | Shaft seal | No information | Replacable | |
| 4.10 | Volute casing material | No information | | |
| 4.11 | Impeller material | No information | Ductile iron | |
| 4.12 | Impeller size | 187mm | To be confirmed | |
| 4.13 | Impeller washer material | No information | Ductile iron | |
| 4.14 | Impeller screw material | No information | SS 304 | |
| 4.15 | Bearing frame | No information | Ductile iron | |
| 4.16 | Shaft material | No information | To be confirmed | |
| 4.17 | Shaft sleeve material | No information | SS 304 | |
| 4.18 | Fastener material | No information | Grade 5 Steel | |
| 4.19 | Mechanical seal material | No information | To be confirmed | |
| 4.20 | Pump & Motor Base-plate material | No information | MS, hot dipped galvanized | |

5 Motor No.1

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|--------------------------|--------------------------|---------|
| 5.1 | Motor manufacturer | BAUER | WEG | |
| 5.2 | Motor model | DMZA 160M2 | To be confirmed | |
| 5.3 | Motor Quantity | 1 | 1 | |
| 5.4 | Motor Size (kW) | 11 | 11 | |
| 5.5 | Motor rotation speed (rpm/r/min) | 2940 | 2940 | |
| 5.6 | Motor type | 3 Phase, Induction Motor | 3 Phase, Induction Motor | |
| 5.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 5.8 | Motor insulation class | F | F | |
| 5.9 | Motor ingress rating (IP) | 55 | 55 | |
| 5.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 5.11 | Motor thermal protection | No information | Yes | |
| 5.12 | Motor heater | No information | To be confirmed | |

MECHANICAL EQUIPMENT SPECIFICATIONS

1 Location

- 1.1 Name BERSIG PUMP STATION
1.2 GPS 28°16'39.77"S,29° 8'45.07"E

2 Function:

- 2.1 Pumping to : To Kingshill Reservoir

3 General Information

- 3.1 Medium Type : Potable Water

Featuring Equipment

6 Pump No.2 - No Pump

| No | Description | Existing | Specified | Offered |
|------|----------------------------------|----------------|-----------------|---------|
| 6.1 | Manufacturer | No information | KSB | |
| 6.2 | Model | No information | To be confirmed | |
| 6.3 | Quantity | No information | To be confirmed | |
| 6.4 | Duty point, 1x pump (m³/h) | No information | To be confirmed | |
| 6.5 | Duty point, 1x pump (h) | No information | To be confirmed | |
| 6.6 | Pump Configuration | No information | To be confirmed | |
| 6.7 | Pump type | No information | To be confirmed | |
| 6.8 | Seal type | No information | To be confirmed | |
| 6.9 | Shaft seal | No information | To be confirmed | |
| 6.10 | Volute casing material | No information | To be confirmed | |
| 6.11 | Impeller material | No information | To be confirmed | |
| 6.12 | Impeller size | No information | To be confirmed | |
| 6.13 | Impeller washer material | No information | To be confirmed | |
| 6.14 | Impeller screw material | No information | To be confirmed | |
| 6.15 | Bearing frame | No information | To be confirmed | |
| 6.16 | Shaft material | No information | To be confirmed | |
| 6.17 | Shaft sleeve material | No information | To be confirmed | |
| 6.18 | Fastener material | No information | To be confirmed | |
| 6.19 | Mechanical seal material | No information | To be confirmed | |
| 6.20 | Pump & Motor Base-plate material | No information | To be confirmed | |

7 Motor No.2 - No Motor

| No | Description | Existing | Specified | Offered |
|------|-------------------------------------|----------------|-----------------|---------|
| 7.1 | Motor manufactuer | No information | WEG | |
| 7.2 | Motor model | No information | To be confirmed | |
| 7.3 | Motor Quantity | No information | To be confirmed | |
| 7.4 | Motor Size (kW) | No information | To be confirmed | |
| 7.5 | Motor rotation speed (rpm/r/min) | No information | To be confirmed | |
| 7.6 | Motor type | No information | To be confirmed | |
| 7.7 | Motor efficiency class (IE) | No information | To be confirmed | |
| 7.8 | Motor insulation class | No information | To be confirmed | |
| 7.9 | Motor ingress rating (IP) | No information | To be confirmed | |
| 7.10 | Motor load factor at duty point (%) | No information | To be confirmed | |
| 7.11 | Motor thermal protection | No information | To be confirmed | |
| 7.12 | Motor heater | No information | To be confirmed | |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART 5:

ELEC: Electrical Specifications

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | VSD | VSD | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (probes) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | FIKA PATSO PUMP STATION (28°39'53.67"S, 28°50'36.02"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | VSD | VSD | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (probes) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | MASIONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | VSD | VSD | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (probes) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | VSD | VSD | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (probes) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | QUOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

BOOSTER PUMP STATION MCC's**1. Panel Requirements:**

- | | | |
|------|----------------------|---|
| 1. 1 | Type | Free standing, indoor, front, bottom & back access with hinged doors. |
| 1. 2 | kA Rating | 25kA, 400V. |
| 1. 3 | Busbar Type | Horizontal and vertical flat busbars. |
| 1. 4 | Cable terminations | Crimped connection lugs. |
| 1. 5 | Material & Finishing | mild steel, electrical orange, fusion bonded epoxy coated. |
| 1. 6 | Panel designation | BERSIG PUMP STATION (28°16'39.77"S, 29° 8'45.07"E) |
| 1. 7 | Panel placement | Inside Pump Station |
| 1. 8 | Earthing | Yes, earth-mat. |

2. Material Requirements:

- | | | |
|-------|-------------------------------|---|
| 2. 1 | Push Buttons | Siemens, Schneider or similar in performance. |
| 2. 2 | Indicating Lights | Siemens, Schneider or similar in performance. |
| 2. 3 | Amp meter | Instantaneous 90° movement , 100% over scale, 100mm face, max. Amp indication device. |
| 2. 4 | Voltmeter | 100mm face. |
| 2. 5 | Circuit Breaker | Motor starting suitable (motor curve). |
| 2. 6 | Motor Control Components | Telemechanique, Siemens, Schneider or similar in performance. |
| 2. 7 | MCC Steel Works | Frame work: 3.5mm thick MS sections, Cladding: 2.5mm thick MS Sheeting. |
| 2. 8 | Electrical Motor Type: | All electrical motors, Squirrel Cage, 380V/415V, 3 Phase 50Hz, IE3. |
| 2. 9 | Cable Trenching: | N/A |
| 2. 10 | Cable support: | Unistrut and cable tray equipment and accessories, strap at 300mm intervals. |
| 2. 11 | Specifications: | SANS 10142, 1473-1:2003, 1765:2003 & 60439-12004 |
| 2. 12 | Instrumentation: | Separate enclosure mounted. |

3. Incomer Cubicle:

- | | | |
|------|--------------------|---|
| 3. 1 | Main switch | Instant, overload protection. |
| 3. 2 | 400V volt meter | 3 Phases. |
| 3. 3 | Ampere meter | 3 Phases. |
| 3. 4 | Surge protection | 3 Phases + Neutral to earth, (Typical SURGETEK/DEHN). |
| 3. 5 | kWh meter | 3 Phase, Max. demand and kWh meter. |
| 3. 6 | Voltage protection | Over & Under |
| 3. 7 | Phase protection | Failure & Reversal |

ELECTRICAL EQUIPMENT SPECIFICATION

BOOSTER PUMP STATION MCC's

4. Feeder Controls Cubicles:

| ITEM NO. | EQUIPMENT | BOOSTER PUMP 1 | BOOSTER PUMP 2 | BOOSTER PUMP 3 | DRAIN PUMP 220V 1 | WATER FLOW METER | ULTRA/S LEV. MET. 1 | LOCAL DB 220V | WELDING PLUG 220V | PLUG 220V | Lights 220V | SPARE 2 220V | VENT FAN 1 | PRESSURE TRANSMITTER |
|----------|--------------------------------------|----------------|----------------|----------------|-------------------|------------------|---------------------|---------------|-------------------|-----------|-------------|--------------|------------|----------------------|
| | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 4. 1 | Motor Size (kW) | 11 | 11 | | | | | | | | | | 4 | |
| 4. 2 | Motor FLC (A) | | | | | TBC | 5 | 60 | 35 | 20 | 10 | 20 | | 5 |
| | <u>Main</u> | | | | | | | | | | | | | |
| 4. 3 | Circuit Breaker (CB) | | | | | | | | | | | | | |
| 4. 4 | CB, Door Operated | ü | ü | | | ü | ü | ü | ü | ü | ü | ü | ü | ü |
| 4. 5 | O/L protection | ü | ü | | | | | | | | | | | |
| 4. 6 | CT protect/meter | ü | ü | | | | | | | | | | | |
| 4. 7 | Motor Starter | Soft Starter | Soft Starter | | | | | | | | | | | |
| 4. 8 | Motor Reverse | | | | | | | | | | | | | |
| | <u>Door Mounted</u> | | | | | | | | | | | | | |
| 4. 9 | Voltmeter | | | | | | | | | | | | | |
| 4. 10 | Amp meter | ü | ü | | | | | | | | | | | |
| 4. 11 | Man/OFF/Auto select | ü | ü | | | | | | | | | | | |
| 4. 12 | On/OFF select | | | | | | | | | | | | | |
| 4. 13 | START button | ü | ü | | | | | | | | | | | |
| 4. 14 | STOP button | ü | ü | | | | | | | | | | | |
| 4. 15 | Alarm Reset button | ü | ü | | | | | | | | | | | |
| 4. 16 | Reverse button | | | | | | | | | | | | | |
| 4. 17 | Lamp Test button | ü | ü | | | | | | | | | | | |
| 4. 18 | RUN light | ü | ü | | | | | | | | | | | |
| 4. 19 | STOP light | ü | ü | | | | | | | | | | | |
| 4. 20 | TRIP light | ü | ü | | | | | | | | | | | |
| 4. 21 | Reverse light | | | | | | | | | | | | | |
| 4. 22 | Run-hr Meter | ü | ü | | | | | | | | | | | |
| 4. 23 | Extraction Fan | ü | ü | | | | | | | | | | | |
| | <u>Auto-Control & Protection</u> | | | | | | | | | | | | | |
| 4. 24 | Timer | | | | | | | | | | ü | | | |
| 4. 25 | Alternate | ü | ü | | | | | | | | | | | |
| 4. 26 | Float Switch | | | | | | | | | | | | | |
| 4. 27 | Level Switches (<i>probes</i>) | ü | ü | | | | | | | | | | | |
| 4. 28 | Ultrasonic Level Element | ü | ü | | | | | | | | | | | |
| 4. 29 | Start level no.1 | ü | ü | | | | | | | | | | | |
| 4. 30 | Start level no.2 | ü | ü | | | | | | | | | | | |
| 4. 31 | Start level no.3 | ü | ü | | | | | | | | | | | |
| 4. 32 | Stop level | ü | ü | | | | | | | | | | | |
| 4. 33 | Emg Low | ü | ü | | | | | | | | | | | |
| 4. 34 | Emg High | ü | ü | | | | | | | | | | | |
| 4. 35 | Proportional Flow | | | | | | | | | | | | | |
| 4. 36 | Day/Night | | | | | | | | | | | | | |
| 4. 37 | Pressure | ü | ü | | | | | | | | | | | |
| 4. 38 | Solenoid Valve | | | | | | | | | | | | | |
| 4. 39 | Motor heater | ü | ü | | | | | | | | | | | |
| 4. 40 | Motor therm. | ü | ü | | | | | | | | | | | |
| 4. 41 | Torque | | | | | | | | | | | | | |
| 4. 42 | No flow | ü | ü | | | | ü | | | | | | | |
| 4. 43 | Power Surge | | | | | ü | ü | | | | | | | |
| 4. 44 | PLC Control | ü | ü | | | ü | | | | | | | | ü |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.3 Drawings

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|--|-----------------|
| C3.3.1 | General Information pertaining to the Drawings | C 3-3-2 |
| C3.3.2 | Drawing Register | C 3-3-2 |

C3.3 DRAWINGS

C3.3.1 GENERAL INFORMATION PERTAINING TO THE DRAWINGS

The design drawings that are to be found bound into the project document, are based on preliminary information and are to be used for tender purposes only.

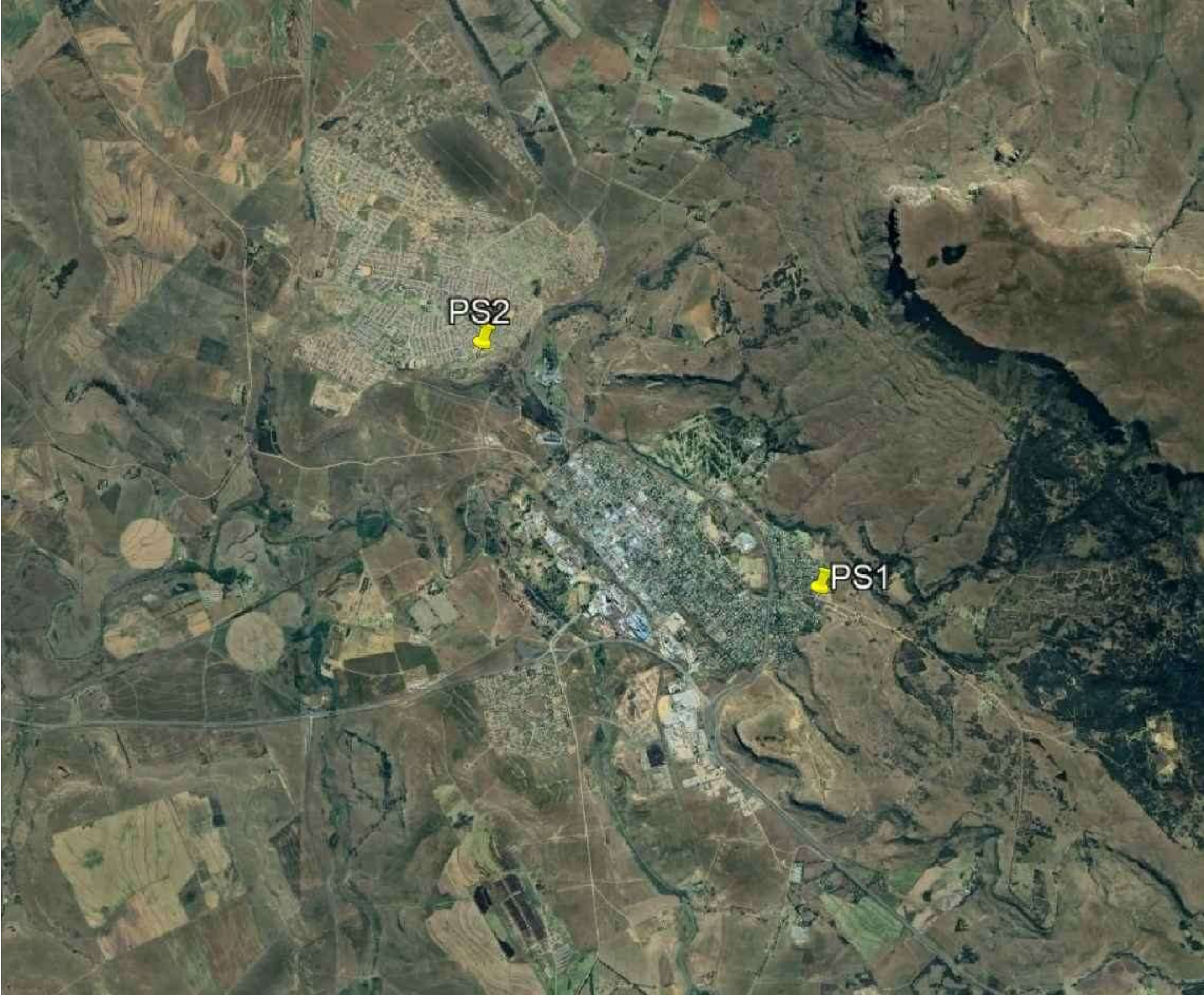
Any information in the possession of the contractor that is required by the resident engineer to complete as-built drawings, must be supplied to the resident engineer before a certificate of completion will be issued.

Only figured dimensions must be used and drawings must not be scaled unless required by the engineer. The engineer will supply any figured dimensions that may have been omitted from the drawings.

C3.3.2 DRAWING REGISTER

The following drawings bound in this document are applicable for this contract:

| Drawing number | Drawing description |
|-----------------------|------------------------------------|
| 131/100 | LOCALITY PLAN - HARRISMITH |
| 131/101 | LOCALITY PLAN - QWAQWA |
| 131/102 | CONTRACT BOARD |
| 131/300 | GENERAL PLINTH DETAIL |
| 131/301 | GENERAL ACCESS ROAD DETAIL |
| 131/302 | TYPICAL SECURITY FENCE DETAILS - 1 |
| 131/303 | TYPICAL SECURITY FENCE DETAILS - 2 |
| 131/304 | TYPICAL DOUBLE LEAF GATE DETAILS |



NOTES

| No. | Pump Station Name | Coordinates | | Elevation |
|-----|-------------------|--------------|--------------|-----------|
| 1 | Kingshill | 28°16'40.0"S | 29°08'45.0"E | 1686m |
| 2 | Intabazwe Tower | 28°15'12.1"S | 29°06'27.3"E | 1725m |

REVISIONS

| NO. | DATE | DESCRIPTION | APPROVED |
|-----|------------|-------------------|--------------|
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

DRAWN : HJ DE WET

DESIGNED : HJ DE WET

DATE : 22-08-2023

SCALE : AS SHOWN

CONSULTING ENGINEER
TW BARTLEMAN
Pr. Eng : 20170117

DATE

CLIENT

CONTRACT ENGINEER

PROJECT

UPGRADING OF WATER PUMP STATION PHASE 1

TITLE

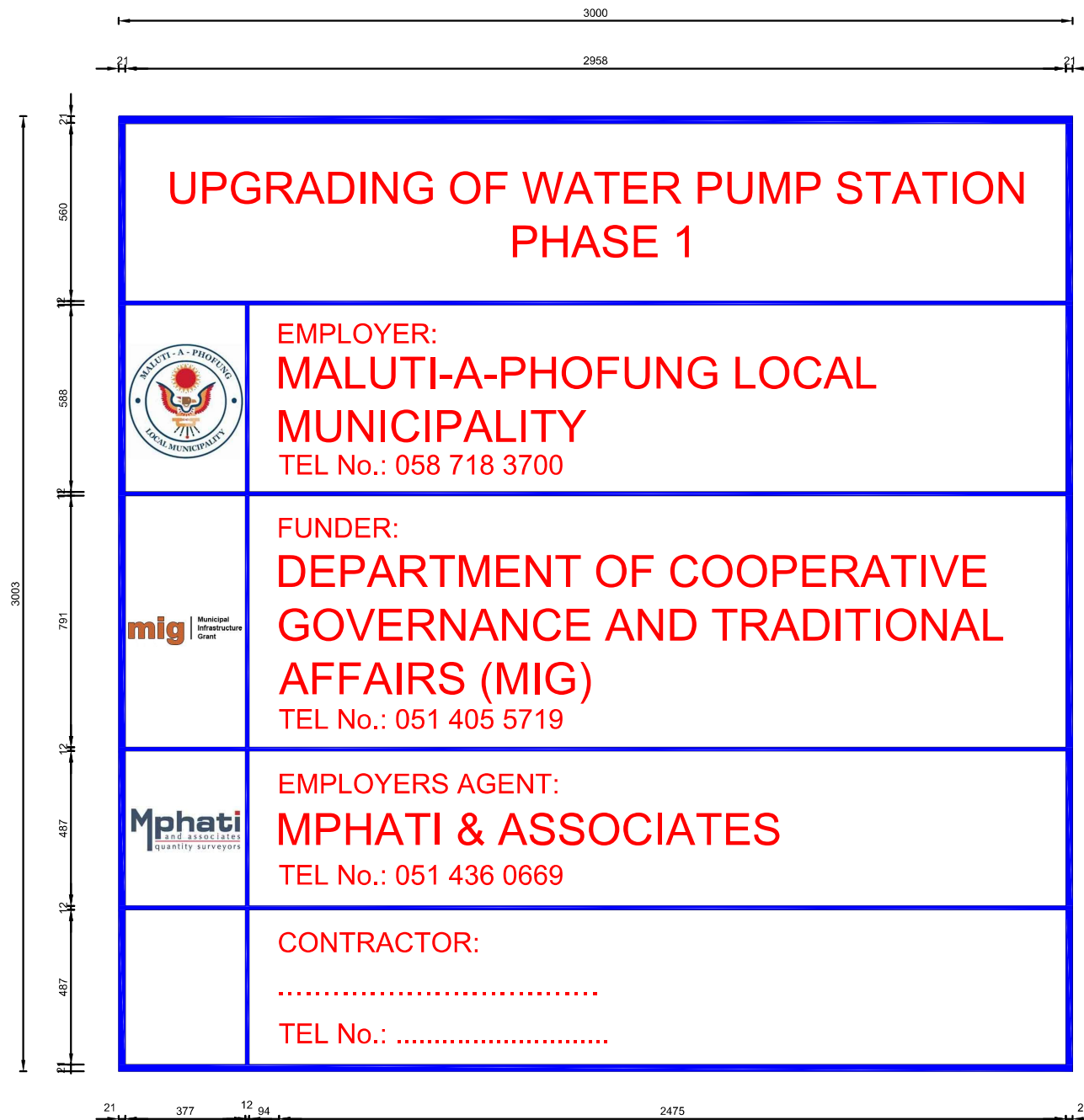
LAYOUT PLAN - HARRISMITH

PLAN NO.

131/100

REVISION

T



CONTRACT BOARD
DETAIL
SCALE 1:10

NOTES

- 1.) LETTER TYPE : HELVETICA MEDIUM.
- 2.) COLOUR OF LETTERS : RED
- 3.) LOGO POSITIONS AS SHOWN ON BOARD.
- 4.) BACKGROUND TO BE WHITE.
- 5.) ALL FRAMES AND LINES TO BE MID BLUE.
- 6.) ALL PAINT TO BE ACCORDING TO REF. 290 ACRYLIC ROAD SIGN PAINT.

| REVISIONS | | | |
|---|------------|----------------------|--------------|
| O. | DATE | DESCRIPTION | APPROVED |
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| DRAWN : HJ DE WET | | DESIGNED : HJ DE WET | |
| DATE : 22-08-2023 | | SCALE : AS SHOWN | |
| | | | |
| CONSULTING ENGINEER TW BARTLEMAN Pr. Eng : 20170117 | | DATE | |
| CLIENT | | | |
|  | | | |
| CONTRACT ENGINEER | | | |
|  | | | |
| PROJECT | | | |
| UPGRADING OF WATER PUMP STATION PHASE 1 | | | |
| TITLE | | | |
| CONTRACT BOARD DETAIL | | | |
| PLAN NO. | 131/101 | REVISION | T |

NOTES

- CONCRETE:
- ALL STRUCTURAL CONCRETE TO BE CLASS 35/19
 - ALL TOP CORNERS OF PLINTH TO BE FINISHED WITH 25 X 25mm CHAMFER

- REINFORCEMENT :
- DOWELS:
 - DOWELS TO BE DRILLED 150mm INTO EXISTING CONCRETE FLOOR
 - ANCHOR EPOXY TO BE SIKKA ANCHORFIX S OR SIMILAR APPROVED
 - COVER OF CONCRETE TO BE 35-50mm
 - ALL LOOSE CORROSION TO BE REMOVED FROM REINFORCEMENT PRIOR FIXING
 - ENSURE THAT ALL REINFORCEMENT AND COVER BLOCKS ARE CORRECTLY AND ACCURATELY FIXED, AND REMAIN IN PLACE DURING POUR
 - NO HEAT TREATMENT, FLAME CUTTING OR CUTTING OF STEEL WITHOUT THE WRITTEN APPROVAL OF EMPLOYER'S AGENT REPRESENTATIVE SHALL BE ALLOWED

- PUMP BASE PLATE:
- M24 CHEMICAL ANCHOR RODS WITH A TOTAL LENGTH OF 190mm TO BE INSTALLED
 - DRILLING:
 - 28mm Ø HOLE TO BE DRILLED INTO CONCRETE PLINTH AFTER 14 DAYS OF CURING
 - DEPTH OF HOLE TO BE 150mm
 - ANCHORING OF BASE PLATE:
 - ENSURE HOLE IS CLEAN AND WITHOUT SAND, DUST OR DEBRIS
 - INJECT HILTI-HY 200 INJECTION MORTAR

| REVISIONS | | | |
|-----------|------------|-------------------|----------|
| NO. | DATE | DESCRIPTION | APPROVED |
| 1 | 17-08-2023 | ISSUED FOR TENDER | H DE WET |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---------|-------------|-----------|----------|
| DRAWN : | W STOFFBERG | CHECKED : | H DE WET |
| DATE : | 17-08-2023 | SCALE : | AS SHOWN |

CONSULTING ENGINEER
T.W BARTLEMAN
Pr. Eng : 20170117

DATE

CLIENT



CONTRACT ENGINEER



PROJECT

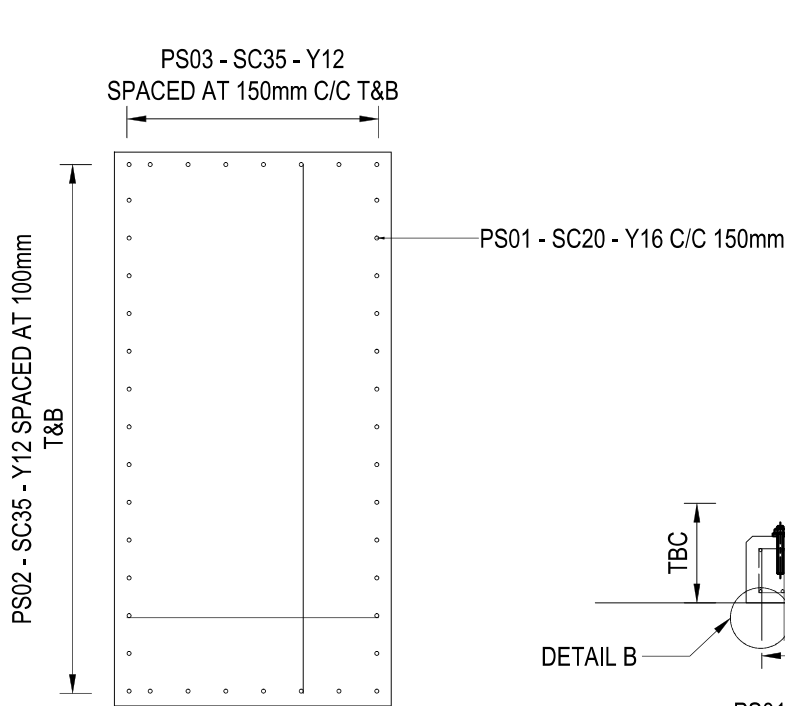
UPGRADING OF WATER PUMP
STATION PHASE 1

TITLE

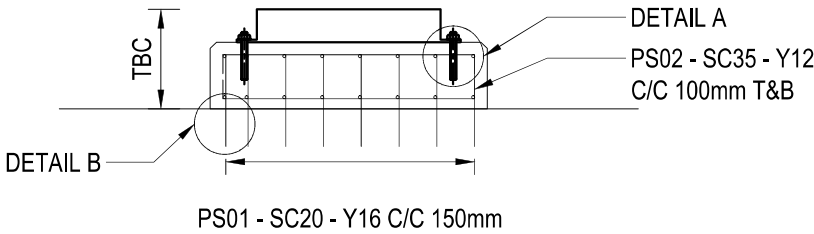
GENERAL PLINTH DETAIL

PLAN NO. 131/210

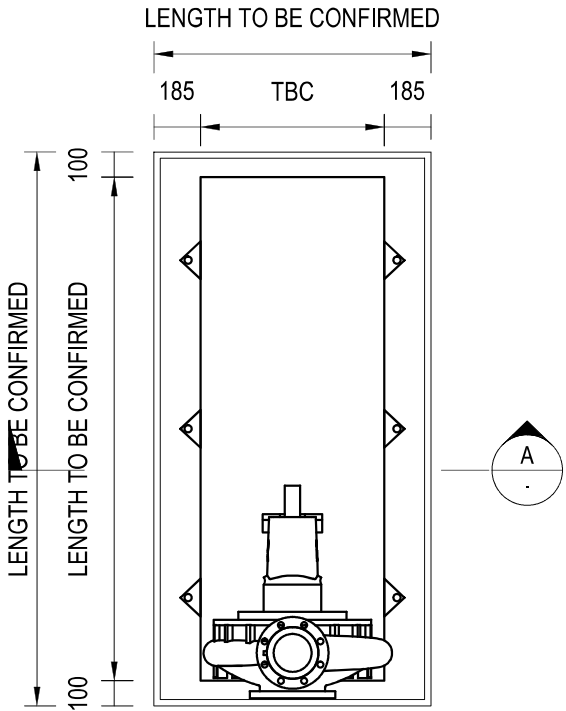
REVISION T



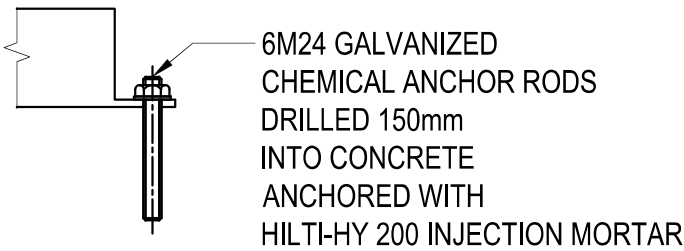
REINFORCING LAYOUT
1:25



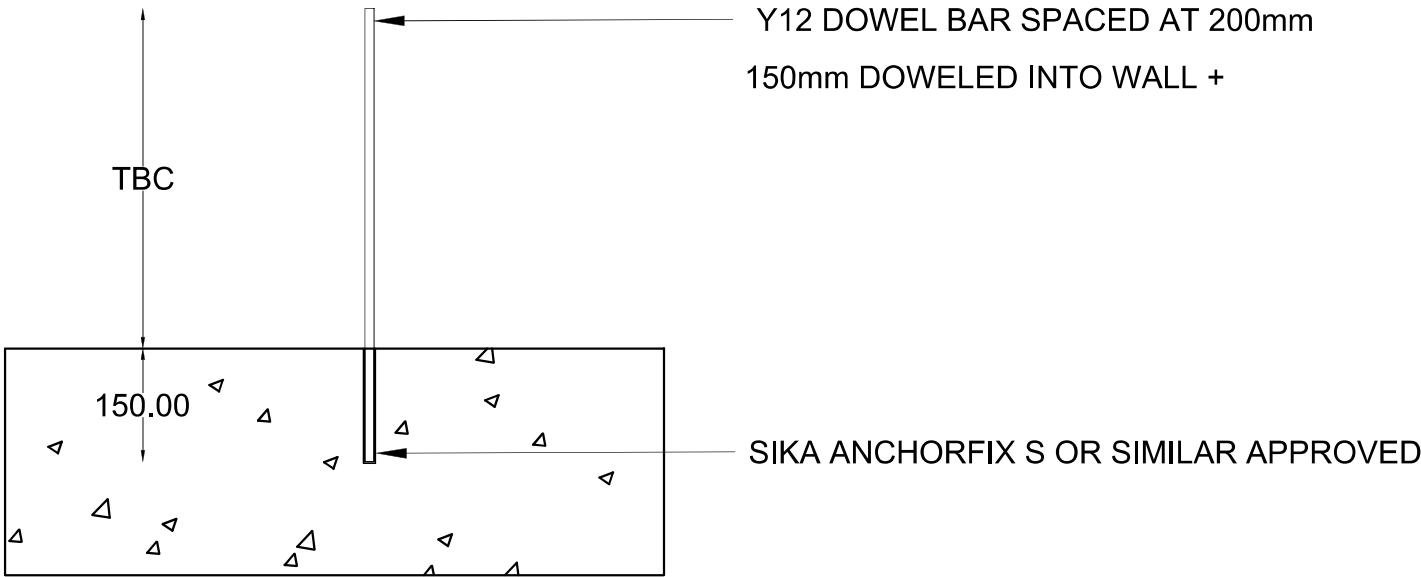
SECTION A
1:25



PLINTH LAYOUT
1:25

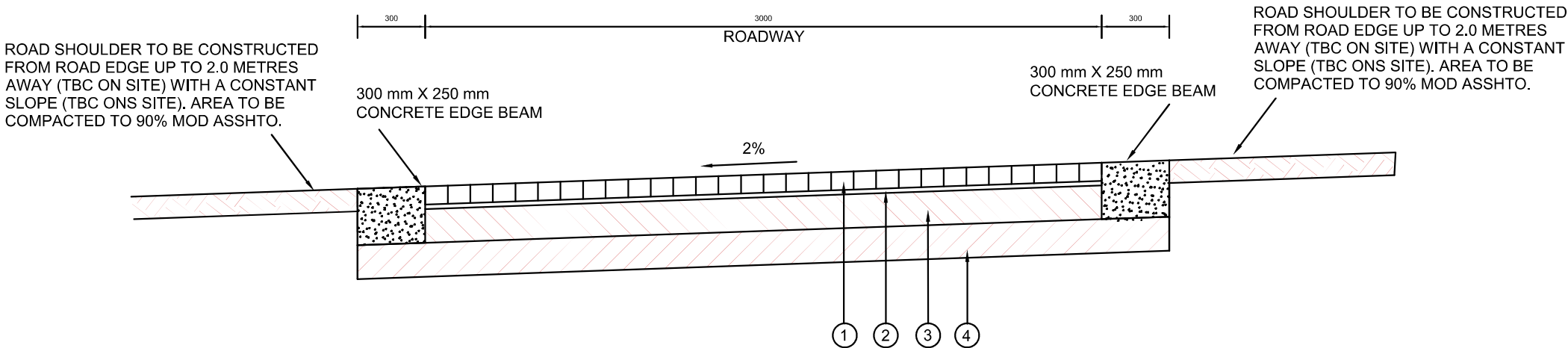


DETAIL A
1:5



DETAIL B
1:5

NOTES



TYICAL CROSS SECTION
SCALE 1: 10

| MATERIAL STANDARDS (GUIDELINES OF COLTO) | | | | | | | | |
|--|-----------|------------------------------|--------------|--------|----------|-------------------------|------------------|-----------|
| LAYER No. | THICKNESS | DESCRIPTION | % COMPACTION | MAX PI | GM (MIN) | MIN CBR AT % MOD AASHTO | UCS (MPa) | TRH CLASS |
| 1 | 80 | BLOCK PAVING 25MPa | - | - | - | - | - | - |
| 2 | 20 | BEDDING SAND | - | - | - | - | - | - |
| 3 | 150 | C4 STABILIZED SUB BASE LAYER | 97% | - | - | - | 0.75-1.5 AT 100% | C4 |
| 5 | 150 | ROADBED (RIP AND RE-COMPACT) | 93% | - | - | - | - | - |

| REVISIONS | | | |
|-----------|------------|-------------------|--------------|
| NO. | DATE | DESCRIPTION | APPROVED |
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---------|------------|------------|-----------|
| DRAWN : | DS MOHOLO | DESIGNED : | HJ DE WET |
| DATE : | 22-08-2023 | SCALE : | AS SHOWN |

| | |
|---|------|
| CONSULTING ENGINEER TW BARTLEMAN Pr. Eng : 20170117 | DATE |
|---|------|



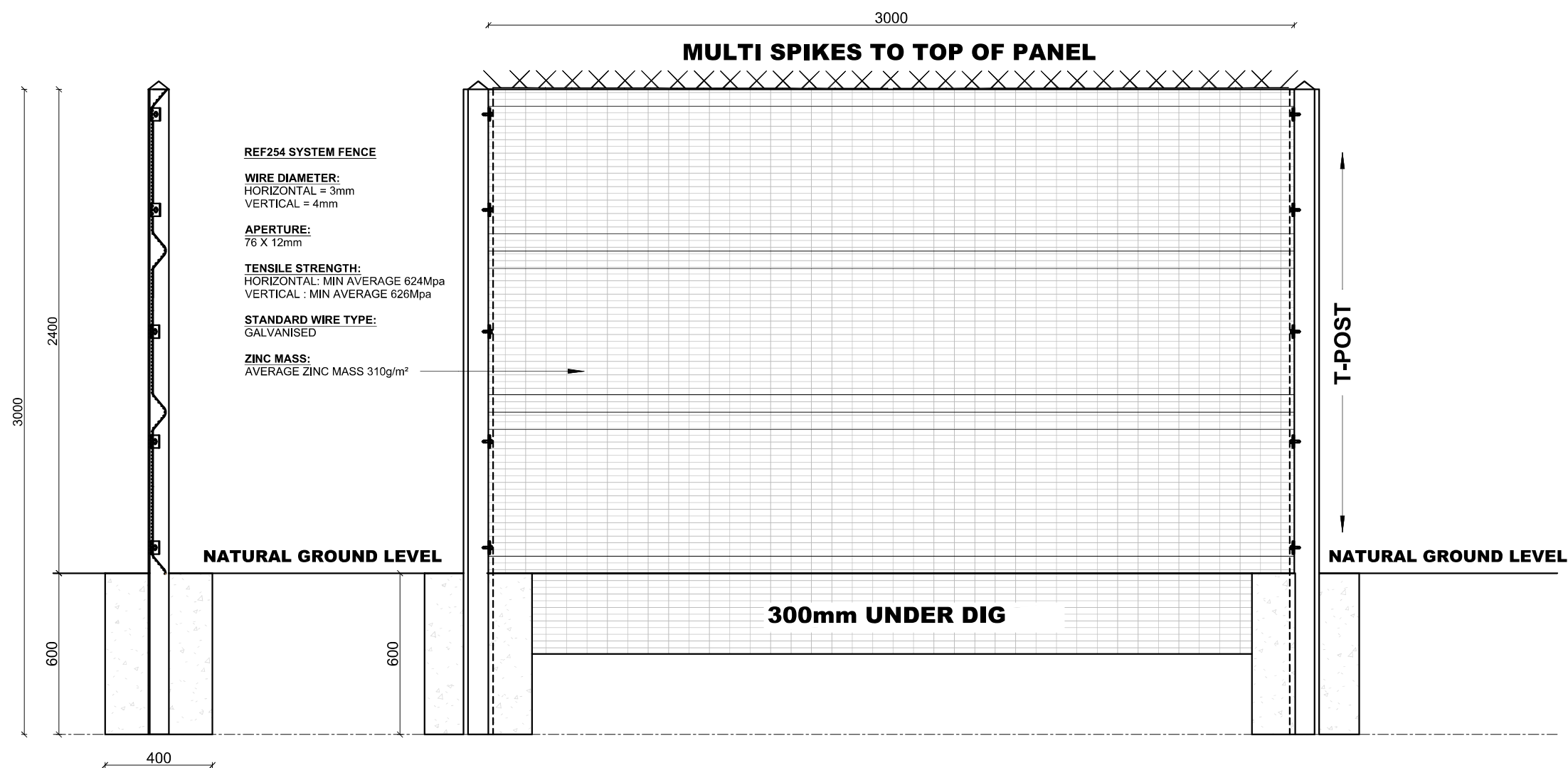
PROJECT

UPGRADING OF WATER PUMP
STATION PHASE 1

TITLE

TYPICAL ACCESS ROADS DETAILS

| | | | |
|----------|---------|----------|---|
| PLAN NO. | 131/211 | REVISION | T |
|----------|---------|----------|---|



REF254 SYSTEM FENCE

WIRE DIAMETER:
HORIZONTAL = 3mm
VERTICAL = 4mm

APERTURE:
76 X 12mm

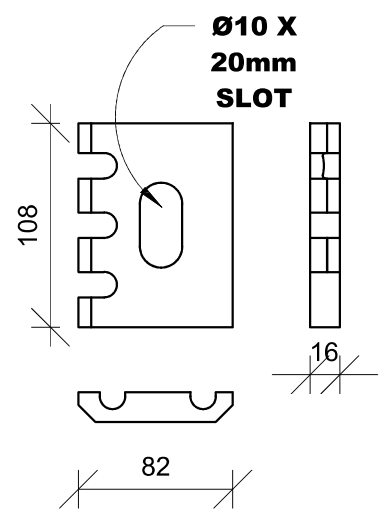
TENSILE STRENGTH:
HORIZONTAL: MIN AVERAGE 624Mpa
VERTICAL : MIN AVERAGE 626Mpa

STANDARD WIRE TYPE:
GALVANISED

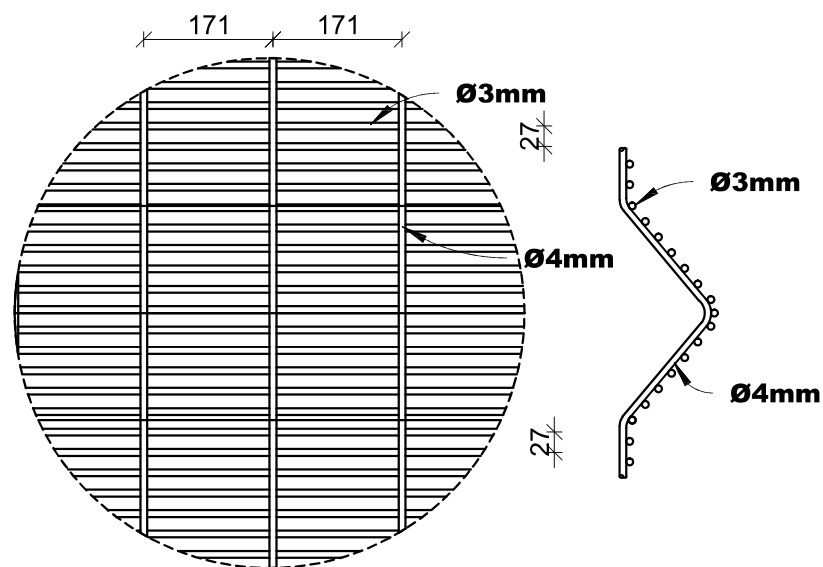
ZINC MASS:
AVERAGE ZINC MASS 310g/m²



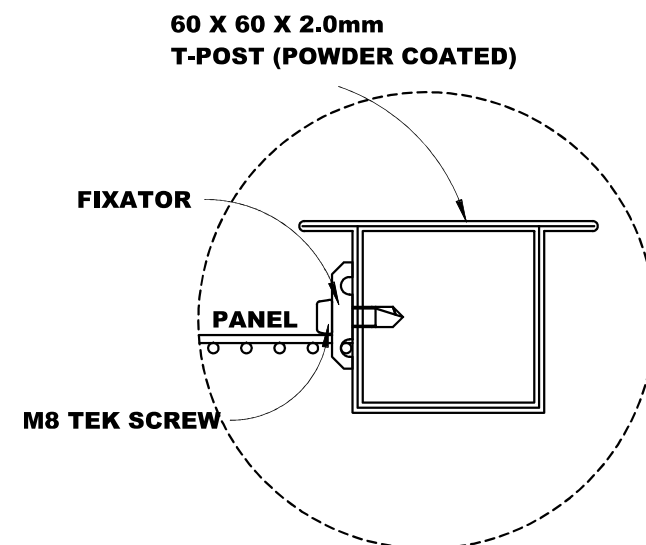
**PLAN VIEW
SCALE 1:10**



**SLOT DETAILS
SCALE 1:2**



**FENCE DETAILS
SCALE 1:5**



**T-POST FIXING DETAILS
SCALE 1:5**

NOTES

Fence Specifications:
Aperture 76.2mm x 12.7mm
Wire Dia 4mm x 3mm
Height 2.4
Width 3m
T Post 2.4h x 60mm x 60mm x 2mm
Underdig 300mm high x 3m wide.

REVISIONS

| NO. | DATE | DESCRIPTION | APPROVED |
|-----|------------|-------------------|--------------|
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---------|------------|------------|-----------|
| DRAWN : | DS MOHOLO | DESIGNED : | HJ DE WET |
| DATE : | 22-08-2023 | SCALE : | AS SHOWN |

CONSULTING ENGINEER
TW BARTLEMAN
Pr. Eng : 20170117

DATE

CLIENT



CONTRACT ENGINEER

Mphati
and associates
quantity surveyors

PROJECT

**UPGRADING OF WATER PUMP
STATION PHASE 1**

TITLE

**TYPICAL SECURITY FENCE
DETAILS**

| | | | |
|----------|---------|----------|---|
| PLAN NO. | 131/212 | REVISION | T |
|----------|---------|----------|---|

NOTES

NOTES:

MATERIAL SPECIFICATION:

1. CONCRETE:

| CONCRETE IN: | CLASS | 28 DAYS CHARACTERISTIC STRENGTH (MPa) |
|----------------------|--------|---------------------------------------|
| PRESTRESSED ELEMENTS | 40/9.5 | 40 |
| IN-SITU BASES | 25/26 | 25 |
| PRECAST SLABS | 25/13 | 25 |

2. PRESTRESSING STEEL TO BS 5896:

| DESCRIPTION | CHARACTERISTIC STRENGTH (MPa) |
|-----------------------------|-------------------------------|
| PRESTRESSED WIRES (CRIMPED) | 1770 |

3. NUTS, BOLTS AND WASHERS MUST COMPLY WITH THE REQUIREMENTS OF SABS 136 AND HOT DIP GALVANISED IN ACCORDANCE WITH THE REQUIREMENTS OF SABS 736 FOR TYPE C1 AND C2 ARTICLE.

MANUFACTURING:

- PRESTRESSED WIRES MUST BE STRESSED TO 75% U.T.S. EXPOSED ENDS ARE TO BE CUT AND GRINDED LEVEL WITH CONCRETE AND COVERED BY AN APPROVED EPOXY RESIN (PROSTRUCT 625 OR SIMILAR).
- MINIMUM COVER TO PRESTRESSED WIRES IS 20mm.
- NOMINAL CHANGES TO DETAILS WILL BE CONSIDERED BUT MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

ERECTION:

- EXCAVATION OF BASES MUST BE IN FIRM NATURAL MATERIAL AND MUST BE APPROVED BY THE ENGINEER.
- UNSUITABLE MATERIAL MUST BE REMOVED AND OF BACKFILLED WITH GRAVEL MATERIAL COMPACTED TO 90% MOD AASHTO DENSITY BEFORE EXCAVATION OF BASES.

REVISIONS

| NO. | DATE | DESCRIPTION | APPROVED |
|-----|------------|-------------------|--------------|
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---------|------------|------------|-----------|
| DRAWN : | DS MOHOLO | DESIGNED : | HJ DE WET |
| DATE : | 22-08-2023 | SCALE : | AS SHOWN |

CONSULTING ENGINEER
TW BARTLEMAN
Pr. Eng : 20170117

CLIENT



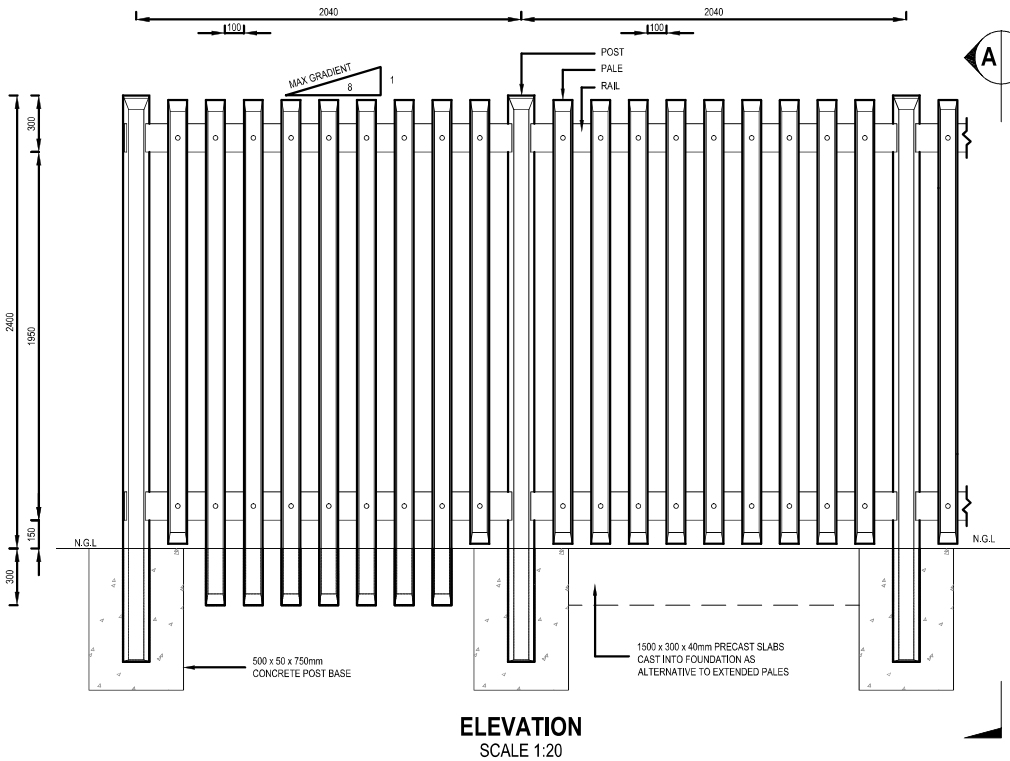
CONTRACT ENGINEER



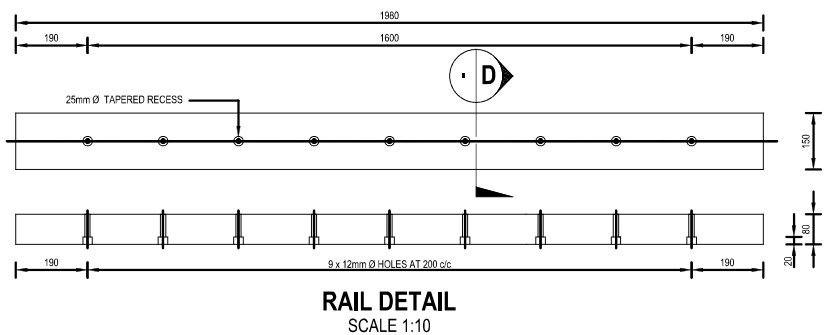
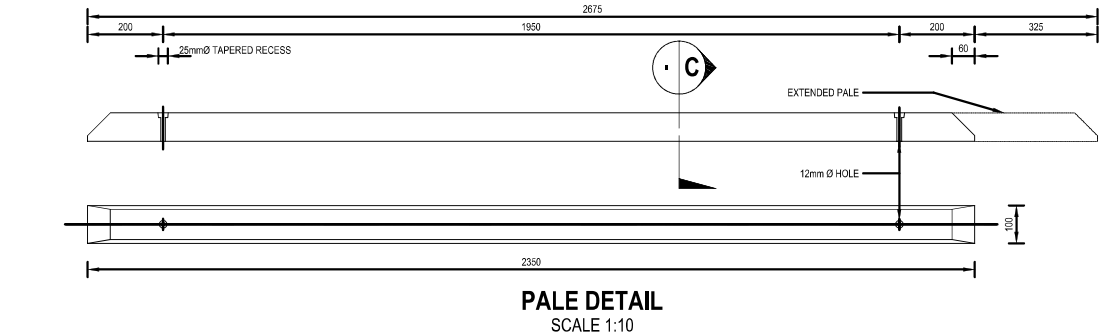
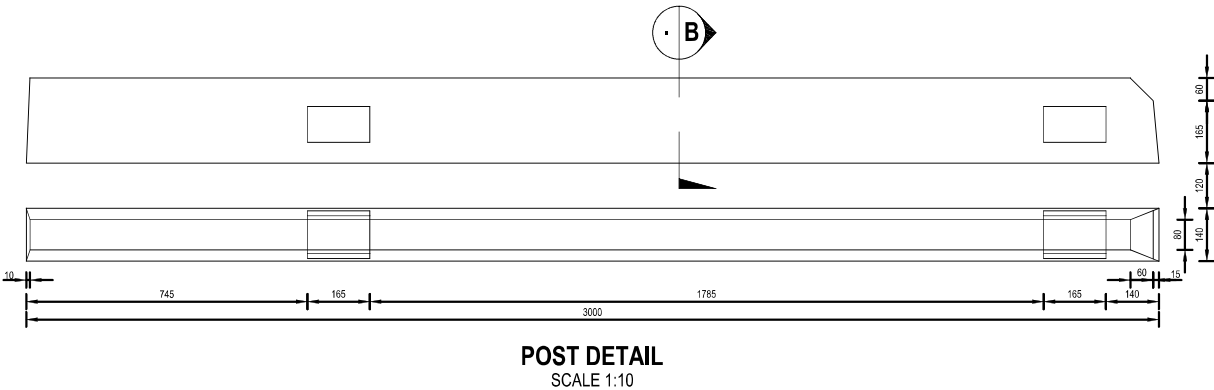
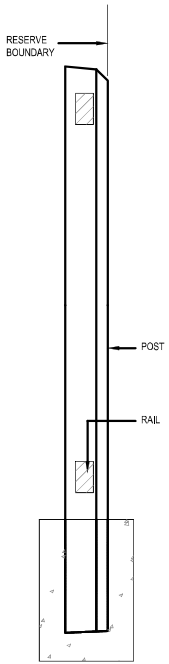
PROJECT
UPGRADING OF WATER PUMP
STATION PHASE 1

TITLE
TYPICAL SECURITY FENCE
DETAILS - 2

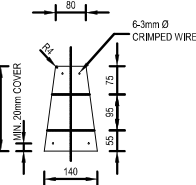
PLAN NO. 131/213 REVISION T



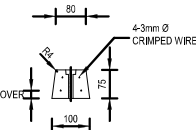
SECTION A
1:20



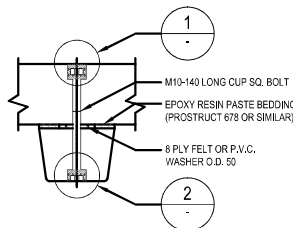
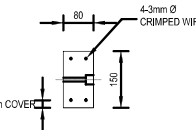
SECTION B
1:10



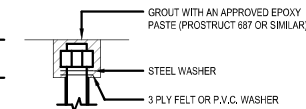
SECTION C
1:10



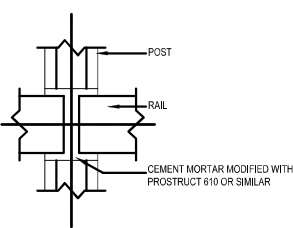
SECTION D
1:10



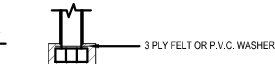
PALE TO RAIL
N.T.S.



DETAIL 1
1:2

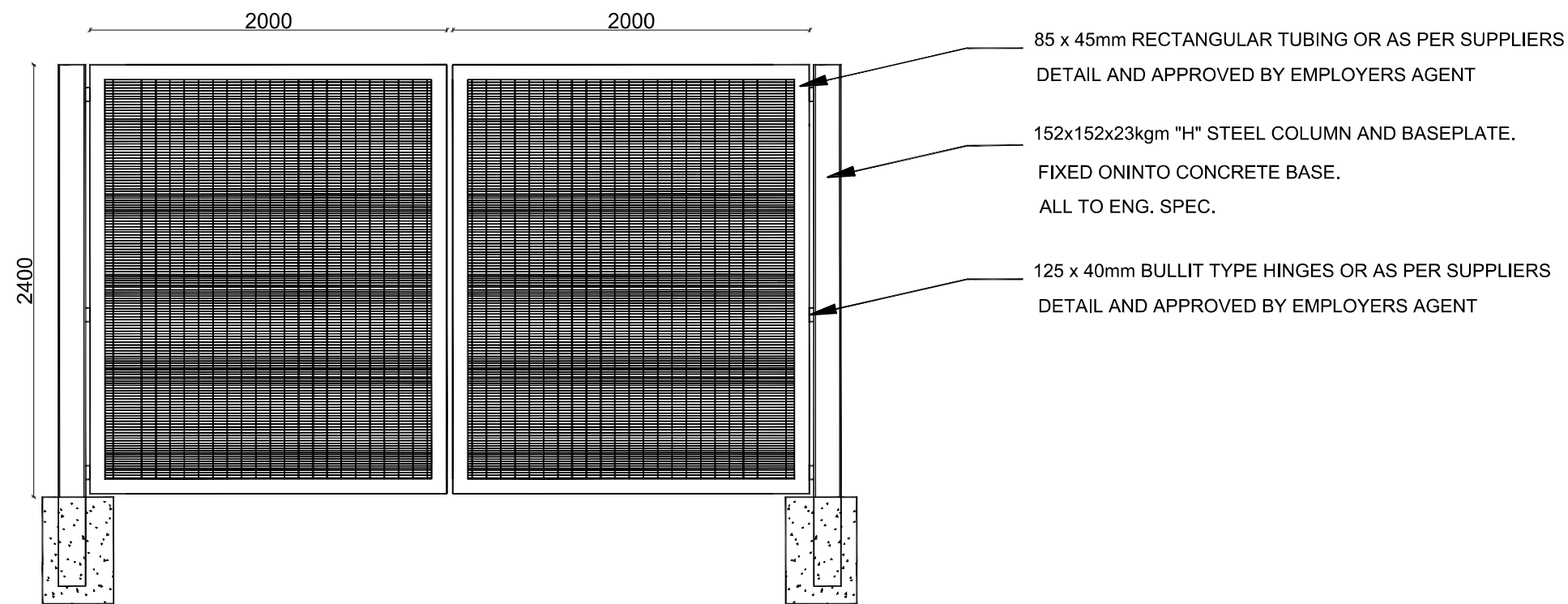


RAIL TO POST
N.T.S.

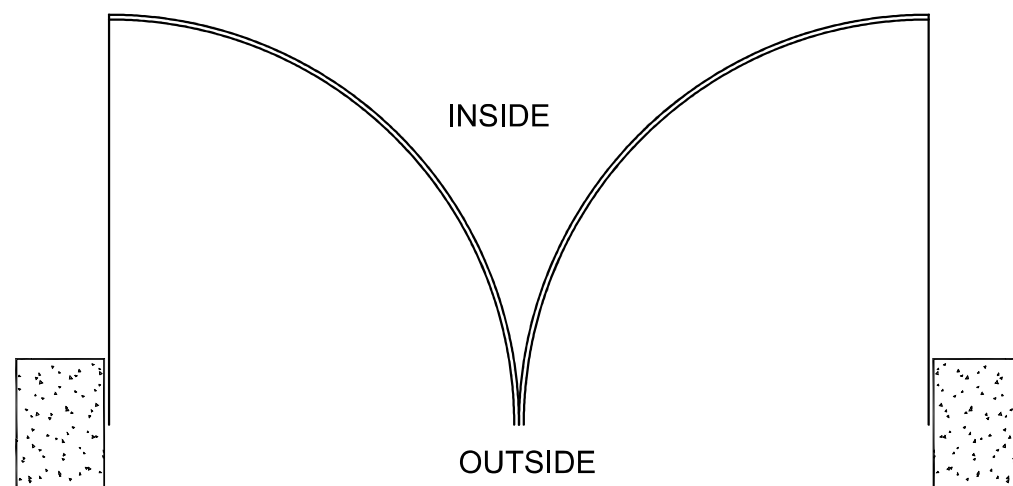


DETAIL 2
1:2

CONNECTION DETAILS



TYPICAL DOUBLE SWING GATE: ELEVATION
SCALE 1:50



TYPICAL DOUBLE SWING GATE: PLAN
SCALE 1:50

NOTES

| REVISIONS | | | |
|-----------|------------|-------------------|--------------|
| NO. | DATE | DESCRIPTION | APPROVED |
| T | 22-08-2022 | ISSUED FOR TENDER | TW BARTLEMAN |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | |
|---------|------------|------------|-----------|
| DRAWN : | DS MOHOLO | DESIGNED : | HJ DE WET |
| DATE : | 22-08-2023 | SCALE : | AS SHOWN |

CONSULTING ENGINEER
TW BARTLEMAN
Pr. Eng : 20170117

DATE



PROJECT

UPGRADING OF WATER PUMP STATION PHASE 1

TITLE

TYPICAL DOUBLE LEAF GATE DETAILS

| | | | |
|----------|---------|----------|---|
| PLAN NO. | 131/214 | REVISION | T |
|----------|---------|----------|---|

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

C3.4 HIV/AIDS requirements

CONTENTS

| PART | HEADING | PAGE NO. |
|------------------|---|-----------------|
| C3.4.1 | Scope | C 3-4-2 |
| C3.4.2 | Definitions and Abbreviations | C 3-4-2 |
| C3.4.3 | Basic Method Requirement | C 3-4-2 |
| C3.4.4 | HIV/ AIDS Awareness Education and Training | C 3-4-4 |
| C3.4.5 | Providing workers with access to condoms | C 3-4-6 |
| C3.4.6 | Ensuring access to HIV / AIDS testing and Counselling facilities and treatment of sexually Transmitted infections (STI) | C 3-4-6 |
| C3.4.7 | Appointment of an HIV/AIDS Awareness Champion | C 3-4-7 |
| C3.4.8 | Monitoring | C 3-4-7 |
| SCHEDULES | | |
| Schedule A | HIV / AIDS programme: site checklist | C 3-4-8 |
| Schedule B | HIV / AIDS awareness programme: service provider report | C 3-4-10 |
| Schedule C | Contractor HIV / AIDS programme report | C 3-4-13 |

3.4 HIV/AIDS requirements

C3.4.1 Scope

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers.
- Informing Workers of their rights with regard to HIV/AIDS in the workplace.
- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices

C3.4.2 Definitions and abbreviations

a) Definitions

| | |
|--------------------------------|--|
| Service Provider | The natural or juristic person recognised and approved by the Department of Public Works as a specialist in conducting HIV/AIDS awareness programmes. |
| Service Provider Workshop Plan | A plan outlining the content, process and schedule of the training and education workshops, presented by a Service Provider which has been approved by the Representative/Agent |
| Worker | Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in total. |

b) Abbreviations

| | | |
|------|---|-------------------------------------|
| HIV | : | Human Immunodeficiency Virus |
| AIDS | : | Acquired Immune Deficiency Syndrome |
| STI | : | Sexually Transmitted Infection |

C3.4.3 Basic method requirement

The Contractor shall, through a Service Provider, conduct onsite workshops with the Workers.

The Service Provider shall develop and compile a Service Provider Workshop Plan to be presented at the workshops and which will be best suited for this project to achieve the specified objectives with regard to HIV/AIDS awareness.

The Service Provider Workshop Plan shall be based on the following information provided by the Contractor:

- Number of Workers and Sub-contractors on site
- When new Workers or Sub-contractors will join the construction project
- Duration of Workers and Sub-contractors on site
- How the maximum number of Workers can be targeted with workshops
- How the Contractor prefers workshops to be scheduled, e.g. three hourly sessions per Worker, or one 2.5 hour workshop per Worker
- Profile of Workers, including educational level, age and gender (if available)
- Preferred time of day or month to conduct workshops
- A Gantt chart reflecting the construction programme, for scheduling of workshops
- Suitable venues for workshops

The Contractor shall submit the Service Provider Workshop Plan for approval within 21 days after the tender acceptance date. After approval by the Representative/Agent, the Contractor shall make available a suitable venue that will be conducive to education and training

The Service Provider Workshop Plan shall address, but will not be limited to the following:

- The nature of the disease;
- How it is transmitted;
- Safe sexual behaviour

- Post exposure services such as voluntary counselling and testing (VCT) and nutritional plans for people living with HIV/AIDS;
- Attitudes towards other people with HIV/AIDS;
- Rights of the Worker in the workplace;
- How the Awareness Champion will be equipped prior to commencement of the HIV/AIDS awareness programme with basic HIV/AIDS information and the necessary skills to handle questions regarding the HIV/AIDS awareness programme on site sensitively and confidentially;
- How the Service Provider will support the Awareness Champion;
- Location and contact numbers of the closest clinics, VCT facilities, counselling services and referral systems;
- How the workshops will be presented, including frequency and duration;
- How the workshops will fit in with the construction programme;
- How the Service Provider will assess the knowledge and attitude levels of attendees to structure workshops accordingly;
- How the video will be used;
- How the Service Provider will elicit maximum participation from the Workers;
- A questions and answers slot (interactive session)

The Service Provider Workshop Plan shall encompass the Specific Learning Outcomes (SLO) as stipulated

C3.4.4 HIV/ AIDS awareness education and training

a) Workshops

The Contractor shall ensure that all Workers attend the workshops. The workshops shall adequately deal with all the aspects contained in the Service Provider Workshop Plan. A video of HIV/AIDS in the construction industry, which can be obtained from all Regional Offices of the Department of Public Works, is to be screened to Workers at workshops. In order to enhance the learning experience, groups of not exceeding 25 people shall attend the interactive sessions of the workshops

b) Recommended practice

b.1) Workshop Schedule

Presenting information contained in the Service Provider Workshop Plan can be divided in as many workshop sessions as deemed practicable by the Contractor, provided that all Workers are exposed to all aspects of the workshops as outlined in the Service Provider Workshop Plan

Breaking down the content of information to be presented to Workers into more than one workshop session however, has the added advantage that messages are reinforced over time while providing opportunity between workshop sessions for Workers to reflect and test information. Workers will also have an opportunity to ask questions at a following session

b.2) Service Providers

A database of recommended Service Providers is available from all Regional Offices of the Department of Public Works

c) HIV/AIDS specific learning outcomes and assessment criteria

Workers shall be exposed to workshops for a minimum duration of two-and-a-half hours. In order to set a minimum standard requirement, the following specific learning outcomes and assessment criteria shall be met:

c.1) Unit 1: The nature of HIV/AIDS

After studying and understanding this unit, the Worker will be able to differentiate between HIV and AIDS and comprehend whether or not it is curable. The Worker will also be able to explain how the HI virus operates once a person is infected and identify the symptoms associated with the progression of HIV/AIDS

Assessment Criteria:

1. Define and describe HIV and AIDS
2. List and describe the progression of HIV/AIDS

c.2) Unit 2: Transmission of the HI virus

After studying and understanding this unit, the Worker will be able to identify bodily fluids that carry the HI virus. The Worker will be able to recognize how HIV/AIDS is transmitted and how it is not transmitted

Assessment Criteria:

1. Record in what bodily fluids the HI virus can be found
2. Describe how HIV/AIDS can be transmitted
3. Demonstrate the ability to distinguish between how HIV/AIDS is transmitted and misconceptions around transmittance of HIV/AIDS.

c.3) Unit 3: HIV/AIDS preventative measures

After studying and understanding this unit, the Worker will comprehend how to act in a way that would minimise the risk of HIV/AIDS infection and to use measures to prevent the HI virus from entering the bloodstream:

Assessment Criteria:

1. Report on how to minimise the risk of HIV/AIDS infection
2. Report on precautions that can be taken to prevent HIV/AIDS infection
3. Explain or demonstrate how to use a male and female condom
4. List the factors that could jeopardize the safety of condoms provided against HIV/AIDS transmission

c.4) Unit 4: Voluntary HIV/AIDS counselling and testing

After studying and understanding this unit, the Worker will be able to recognise methods of testing for HIV/AIDS infection. The Worker will be able to understand the purpose of voluntary HIV/AIDS testing and pre- and post-test counselling

Assessment Criteria:

1. Describe methods of testing for HIV/AIDS infection
2. Report on why voluntary testing is important
3. Report on why pre- and post-test counselling is important

c.5) Unit 5: Living with HIV/AIDS

After studying and understanding this unit, the Worker will be able to recognize the importance of caring for people living with HIV/AIDS and be able to manage HIV/AIDS

Assessment Criteria:

1. List and describe ways to manage HIV/AIDS
2. Describe nutritional needs of people living with HIV/AIDS
3. Describe ways to embrace a healthy lifestyle as a person living with HIV/AIDS
4. Explain the need for counselling and support to people living with HIV/AIDS

c.6) Unit 6: Treatment options for people with HIV/AIDS

After studying and understanding this unit, the Worker will be familiar with the various treatments available to HIV/AIDS infected or potentially HIV/AIDS infected people

Assessment Criteria:

1. Discuss anti-retroviral therapy
2. List methods of treatment to prevent HIV/AIDS transmission from mother-to-child transfer
3. Describe the need for treatment of opportunistic diseases for people living with HIV/AIDS
4. Describe post exposure prophylactics

c.7) Unit 7: The rights and responsibilities of Workers in the workplace with regard to HIV/AIDS

After studying and understanding this unit, the Worker will be able to identify the rights and responsibilities of the Worker living with HIV/AIDS in the workplace. The Worker will recognise the importance of accepting colleagues living with HIV/AIDS and treating them in a non-discriminative way

Assessment Criteria:

1. Discuss the rights of a person living with HIV/AIDS in the workplace
2. Discuss the responsibilities of a person living with HIV/AIDS in the workplace
3. Report on why acceptance and non-discrimination of colleagues living with HIV/AIDS is important

d) Displaying of plastic laminated posters and distribution of information booklets

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Public Works

The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover

Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds

The posters on display must always be intact, clear, and readable

Information booklets must be distributed to all Workers as soon as possible, but not later than 14 days after site handover, or as soon as the Worker joins the site.

C3.4.5 Providing workers with access to condoms

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all workers at readily accessible points on site, for the duration of the contract. The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover

Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds

C3.4.6 Ensuring access to HIV/AIDS testing and counselling facilities and treatment of Sexually Transmitted Infections (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers.

C3.4.7 Appointment of an HIV/AIDS awareness champion

Within 14 days of site handover the Contractor shall appoint an Awareness Champion from amongst the Workers, who speaks, reads, and writes English, who speaks and understands all the local languages spoken by the Workers and who shall be on site during all stages of the construction period. The Contractor shall ensure that the Awareness Champion has been trained by the Service Provider on basic HIV/AIDS information, the support services available, and the necessary skills to handle questions regarding the HIV/AIDS programme in a sensitive and confidential manner.

The Awareness Champion shall be responsible for:

- a) Liaising with the Service Provider on organising awareness workshops;
- b) Filling condom dispensers and monitoring condom distribution;

- c) Handing out information booklets;
- d) Placing and maintaining posters

C3.4.8 Monitoring

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent. The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent

The attached SERVICE PROVIDER REPORT (SCHEDULE B) shall be completed and submitted on a monthly basis to the Department's Project Manager, through the Representative/Agent

The attached CONTRACTOR HIV/AIDS PROGRAMME REPORT (SCHEDULE C), a close out programme report, shall be completed by the Contractor at the end of the contract

SCHEDULE A

HIV/AIDS PROGRAMME: SITE CHECKLIST

When did construction commence

Name of Departmental Project Manager

Please refer to HIV/AIDS Programme activities during the reporting period

| DATE | PI | PI | PI | PI | PI | PI |
|---|----|----|----|----|----|----|
| Programme implemented within 14 days of site handover | | | | | | |
| Awareness champion on site | | | | | | |
| HIV/AIDS awareness service provider report | | | | | | |
| Male condom dispenser | | | | | | |
| Sufficient male condoms available | | | | | | |
| Male condom dispenser in a highly trafficked area | | | | | | |
| Female condom dispenser | | | | | | |
| Sufficient female condoms available | | | | | | |
| Female condom dispenser in a highly trafficked area | | | | | | |
| All four types of posters displayed | | | | | | |
| Posters in a good condition | | | | | | |
| Posters in a highly trafficked area | | | | | | |
| Posters displayed on local support services: clinic & VCT centre | | | | | | |
| Support service poster/s in highly trafficked area | | | | | | |
| Support service poster/s in a good condition | | | | | | |
| Workers on payroll (at PI) | | | | | | |
| Sub-Contractors who will be on site for longer than 30 days (at PI) | | | | | | |
| Workshop attendees | | | | | | |
| Number of workshops held | | | | | | |
| Scheduled workshops according to approved workshop plan | | | | | | |
| Booklets distributed | | | | | | |
| Male condoms distributed | | | | | | |
| Female condoms distributed | | | | | | |
| Representative/Agent | | | | | | |
| Contractor | | | | | | |

Date of progress inspection (dd/mm/yy)

.....

Reporting period: (dd/mm/yy)to (dd/mm/yy)
eviations from HIV/AIDS awareness programme plan:

Corrective actions

| |
|--|
| |
|--|

Corrective actions

| |
|--|
| |
|--|

.....
Representative/Agent

.....
Departmental Project Manager

.....
Date

.....
Date

SCHEDULE B

HIV/AIDS AWARENESS PROGRAMME: SERVICE PROVIDER REPORT

Reporting period: (dd/mm/yy) to (dd/mm/yy)

Number of workshops conducted in reporting period

Number of scheduled workshops according to approved workshop plan

Deviations from workshop plan:

State reasons for deviating from workshop plan:

Corrective actions:

.....
Representative/Agent

.....
Departmental Project Manager

.....
Date

.....
Date

HIV/AIDS AWARENESS PROGRAMME : WORKSHOP CONTENT ADDRESSED

| Fill in the applicable information with regard to each workshop conducted | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----|---|---|---|-----|---|---|---|-----|---|---|---|-----|---|---|---|-----|---|---|---|-----|---|---|---|---|---|---|---|
| DATE | W/S | | | | W/S | | | | W/S | | | | W/S | | | | W/S | | | | W/S | | | | | | | |
| | D | D | M | M | D | D | M | M | D | D | M | M | D | D | M | M | D | D | M | M | D | D | M | M | D | D | M | M |
| Content of work shop: (Mark the content included) | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SLO7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HIV/AIDS in construction video | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicate the duration of the workshop in hours | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total number of Workers | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Indicate workshop venue | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

HIV/AIDS AWARENESS PROGRAMME: ATTENDANCE REGISTER

Fill in your name and indicate attendance by ticking the appropriate date

[illegible]

SCHEDULE C

CONTRACTOR HIV/AIDS PROGRAMME REPORT

Project name

Project Location

Contract value of project (R)

Department of Public Works Project Manager

HIV/AIDS Programme duration: (dd/mm/yy)to (dd/mm/yy)

AWARENESS MATERIAL

Describe location of posters displayed during the programme

.....

.....

.....

Comments on posters

.....

.....

.....

Indicate total number of booklets distributed

Comments on booklets

.....

CONDOMS

Indicate total number of male condoms distributed

Indicate total number of female condoms distributed

Describe where male condom dispenser was placed

Describe where female condom dispenser was placed

HIV/AIDS WORKSHOPS

Indicate the total number of HIV/AIDS workshops conducted

Indicate the duration of workshops

Indicate the total number of Workers that participated in the HIV/AIDS workshops

Indicate the total number of Workers that were exposed to the video on HIV/AIDS in the Construction Industry

Comments on HIV/AIDS workshops on site

.....

.....

.....

GENERAL

Briefly describe programme activities and satisfaction with outcome

.....

.....

.....

Additional comments, suggestions, or needs with regard to the HIV/AIDS awareness programmes on site.....

.....

.....

.....

Please indicate if your company has a formal HIV/AIDS policy focussing on HIV/AIDS awareness raising and care and support of HIV/AIDS Workers

| | | |
|-----|----|--------------------------|
| Yes | No | Currently developing one |
|-----|----|--------------------------|

Please indicate if, to your knowledge, you have lost any workers during the duration of the project to HIV/AIDS related sicknesses. One or more of the following might indicate an HIV/AIDS related death:

Excessive weight loss
Reactive TB
Hair loss
Severe tiredness

Coughing or chest pain
Pain when swallowing
Persistent fever
Diarrhoea

Vomiting
Meningitis
Memory loss
Pneumonia

Number of HIV/AIDS-related deaths

.....
Contractor

.....
Date

.....
Departmental Project Manager

.....
Date

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.5 Occupational Health and Safety

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|---|-----------------|
| C3.5.1 | Construction Health and Safety Specifications | C 3-5-1-1 |
| C3.5.2 | Baseline Risk Assessment | C 3-5-2-1 |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

PART C3.5.1

Construction Health and Safety Specifications

Section 1: Introduction

1.1 Scope of Health and Safety Specification Document

The health and safety specifications pertaining to this project cover the subjects contained in the index and are intended to outline the normal as well as any special requirements of the client pertaining to the construction health and safety matters applicable to the project.

The stipulations in this specification, as well as those contained in all other documentation pertaining to the project, including contract documentation and technical specifications shall not be interpreted in any way whatsoever, to countermand or nullify any stipulation of the act, regulations and safety standards which are promulgated under, or incorporated into the OHS Act, 85/93.

1.2 Preamble

This “health and safety specifications” document is governed by the occupational health and safety act, 1993 (act no 85 of 1993), hereinafter referred to as the act, with specific reference to construction regulation 5(1) (a) and 5(1) (b). Notwithstanding this, cognizance should be taken of the fact that no single act or its set of regulations can be read in isolation.

Included in these specifications is set rules to assist the principal contractor, contractors (sub-contractors) and client of the project in controlling and managing construction health and safety issues on the construction site, as stipulated in the OHS Act

The specifications and rules do not relieve the principal contractor, contractors (sub-contractors) or their employees from any legal obligation under the requirements of the “basic conditions of employment act” or the “occupational health and safety act”.

The specifications and rules will apply for the duration of the project. Should the principal contractor or contractors (sub-contractors) not comply, it will be deemed as a breach of contract.

The principal contractor will carry full responsibility and accountability regarding the adherence to any health and safety issues when contractors (sub-contractors) are used to carry out any construction work on the project.

It must be noted that the client may stop any contractor from executing construction work, which is not in accordance with the client's health and safety specifications or rules for the project or which poses a threat to the health and safety of any person.

1.3 Purpose

The purpose of this specification is to brief the principal contractor and contractors on the significant safety aspects of the project. It provides information and requirements on inter alias:

- a) Safety considerations affecting the site and its environment.
- b) Health and safety aspects of the associated structures and equipment.
- c) Submissions on health and safety matters.
- d) The principal contractor's health and safety plan.

Section 2: General Requirements

2.1 Definitions

Important definitions in the act and regulations pertaining to this specification document are hereby extracted:

“purpose of the act” to provide for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

“agent” means competent person who acts as a representative for a client;

“angle of repose” means the steepest angle of a surface at which a mass of loose or fragmented material will remain stationary in a pile on the surface, rather than sliding or crumbling away

“bulk mixing plant” means machinery, appliances or other similar devices that are assembled in such a manner so as to be able to mix materials in bulk for the purposes of using the mixed product for construction work;

“client” means any person for whom construction work is being performed;

“competent person” means a person who-

a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: provided that where appropriate qualifications and training are registered in terms of the provisions of the national qualification framework act, 2000 (act no. 67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and

(b) is familiar with the act and with the applicable regulations made under the act;

“construction manager” means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

“construction site” means a work place where construction work is being performed;

construction supervisor” means a competent person responsible for supervising construction activities on a construction site;

“construction vehicle” means a vehicle use as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work.

“construction work permit” means a document issued in term of regulation 3 (Construction Regulation 2014)

“construction work” means any work in connection with:

(a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or

(b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

“contractor” means an employer who performs construction work;

“demolition work” means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives;

“excavation work” means the making of any man-made cavity, trench, pit or depression formed by cutting, digging or scooping;

“explosive actuated fastening device” means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing;

“fall arrest equipment” means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guardrails, screens, barricades, anchorages or similar equipment;

“fall protection plan” means a documented plan, which includes and provides for-

- (a) all risks relating to working from a fall risk position, considering the nature of work undertaken;
- (b) the procedures and methods to be applied in order to eliminate the risk of falling; and
- (c) a rescue plan and procedures;

“fall risk” means any potential exposure to falling either from, off or into;

“health and safety file” means a file, or other record containing the information in writing required by these regulations;

“health and safety plan” means a site, activity or project specific documented plan in accordance with the client’s health and safety specification;

“health and safety specification” means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work;

“material hoist” means a hoist used to lower or raise material and equipment, excluding passengers;

“medical certificate of fitness” means a certificate contemplated in construction regulation 7(8);

“mobile plant” means any machinery, appliance or other similar device that is able to move independently, and is used for the purpose of performing construction work on a construction site;

“national building regulations” means the national building regulations made under the national building regulations and building standards act, 1977 (act no. 103 of 1977), and promulgated by government notice no r. 2378 of 30 July 1990, as amended by government notices no’s r. 432 of 8 march 1991, r. 919 of 30 July 1999 and r. 547 of 30 may 2008;

“person day” means one normal working shift of carrying out construction work by a person on a construction site;

“principal contractor” means an employer appointed by the client to perform construction work;

“scaffold” means a temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both;

“shoring” means a system used to support the sides of an excavation and which is intended to and prevent the cave-in or the collapse of the sides of an excavation;

“structure” means-

- (a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, bulk mixing plant, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
- (b) any false work, scaffold or other structure designed or used to provide support or means of access during construction work, or
- (c) any fixed plant in respect of construction work which includes installation, commissioning, decommissioning or dismantling and where any construction work involves a risk of a person falling;

“suspended platform” means a working platform suspended from supports by means of one or more separate ropes from each support;

“temporary works” means any false work, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during constructing work;

“the act” means the occupational health and safety act, 1993 (act no. 85 of 1993)

2.2 Employer

- 2.2.1 The employer to appoint the contractor after the bid evaluation process has been concluded.
- 2.2.2 The employer will take reasonable steps to ensure that the contractor’s health and safety plan is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every 30 days.
- 2.2.3 The employer or his agent will stop the contractor from executing construction work should the contractor at any stage in the execution of the works:

- a) Fail to implement or maintain his health and safety plan;
- b) Execute construction work which is not in accordance with his health and safety plan or the Client's health and safety specifications; or
- c) Act in any way which may pose a threat to the health and safety of persons.

2.3 Principal contractor

- 2.3.1 The principal contractor shall accept the appointment under the terms and conditions of contract. The principal contractor shall sign and agree to those terms and conditions and shall, before commencing work, notify the department of labour of the intended construction work in terms of regulation 4 of the construction regulation. The principal contractor shall submit the notification in writing prior to commencement of work.
- 2.3.2 The principal contractor shall ensure that he is fully conversant with the requirements of the specification. The specification is not intended to supersede the act nor the construction regulations. Those sections of the act and the construction regulations which apply to the scope of work to be performed by the principal contractor in terms of this contract continue to be a legal requirement of the principal contractor.
- 2.3.3 The principal contractor shall provide and demonstrate to the employer a suitable and sufficiently documented health and safety plan based on this specification, the act and the construction regulations, which shall be applied from the date of commencement of and for the duration of or execution of the works.
- 2.3.4 The principal contractor shall provide proof of his registration and good standing with the compensation fund or with a licensed compensation insurer prior to commencement with the works.
- 2.3.5 The principal contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the act and construction regulations.
- 2.3.6 The principal contractor shall, in submitting his tender, demonstrate that he has made provision for the cost of compliance with the specified health and safety requirements, the act and construction regulations.
- 2.3.7 The principal contractor shall ensure that a copy of his health and safety plan is available on request to the employer, an inspector, employee or sub-contractor.
- 2.3.8 The principal contractor shall ensure that a health and safety file, which shall include all documentation required in terms of the provisions of this specification, the act and the construction regulations, is opened and kept on site and made available to the employer or inspector upon request. Upon completion of the works, the principal contractor shall hand over a consolidated health and safety file to the employer.

- 2.3.9 Ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner.

Section 3: Construction Health and Safety Plan

3.1 General

The principal contractor has to demonstrate to the client that it has developed a suitable and sufficiently documented construction health and safety plan for the specific project appointed, as well as the necessary competencies, experience and resources to perform the construction work safely.

3.2 Contents of the Construction Health and Safety Plan

The health and safety management program should at least provide a detailed overview of the following matters, not limited to:

- a) Structure and organization of OHS Act responsibilities and appointments
- b) Management of the project's construction health and safety hazards and risks.
- c) Communication of the health and safety management program.
- d) Program for construction health and safety internal audits and inspections.
- e) Program for construction health and safety investigations regarding incidents/accidents.
- f) Program for management of emergency situations.
- g) Program for management of day-to-day activities, including data capturing.

3.3 Structures and Organization of OHS Act Responsibilities and Appointment

3.3.1 Contractor's Construction Safety Officer

Before commencing work, the contractor shall designate a competent construction safety officer (CHSO) who shall be acceptable to the agent to represent and act for the contractor, registration with the SACPCMP is required.

The contractor shall inform the agent in writing of the name and address of the contractor's CHSO and of any subsequent changes in the name and address of the officer, together with the scope and limitations of the CHSO's authority to act for the contractor.

The contractor's CHSO shall make available to the employer a telephone number at which the CHSO can be contacted at any time in the event of an emergency involving any of the contractor's employees, or other persons at the works.

3.3.2 Overall Supervision and Responsibility for Construction Health and Safety

The client and/or its agent on its behalf to ensure that the principal contractor, appointed in terms of construction regulation 5(1) (k), implements and maintains the agreed and approved H&S Plan. Failure on the part of the client or agent to comply with this requirement will not relieve the principal contractor from any one or more of his/her duties under the act and regulations.

The Chief Executive Officer of the principal contractor in terms of section 16(1) of the Act to ensure that the employer (as defined in the act) complies with the act.

All OHS Act (85/1993), section 16 (2) appointee/s as detailed in his/her/their respective appointment forms to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal contractor to become part of site records (health & safety file).

The construction manager and assistant construction manager appointed in terms of construction regulation 8 to regularly, in writing, report to their principals on matters of health and safety per routine and ad hoc inspections and on any deviations as soon as observed, regardless of whether the observation was made during any routine or ad hoc inspection and to ensure that the reports are made available to the principal contractor to become part of site records (health & safety file).

All health and safety representatives (she-reps) shall act and report as per section 18 of the act.

3.3.3 Specific Supervision Responsibilities for Construction Health and Safety

Several appointments or designations of responsible and/or competent people in specific areas of construction work are required by the act and regulations. The appointments must be in writing and competency of appointees must be available on the health and safety file.

3.4 Communication of the Health and Safety Management Program

The communication principles to be applied should cover the following:

- a) Construction health and safety goals for the project and arrangements for monitoring and reviewing health and safety performance.
- b) Arrangements for:
 - Regular liaison between stake holders on site; and
 - Consultation with the workforce.
- c) selection and control of contractors (sub-contractors)

- d) The exchange of construction health and safety information between all stake holders (client, contractors, sub-contractors, designers, etc.). This will include the following;
- Site security;
 - Site induction, onsite training;
 - Site facilities, e.g. Sanitation
 - First-aid facilities;
 - Reporting and investigation of accidents and incidents;
 - The production and approval of risk assessments and method statements ;
 - Site rules; and
 - Fire and emergency procedures.
- e) Reporting to the client, i.e. results and action of construction health and safety inspection, incident investigations and minutes of safety committee meetings.
- f) Reporting of incidents to the department of labour and compensation insurer where appropriate.

3.5 Construction Health and Safety Internal Audits and Inspections

The client and/or its agent on the client's behalf will be conducting periodic audits at times agreed with the principal contractor. This audit will monitor and ensure that the principal contractor has implemented, adhering to and is maintain the agreed and approved health and safety plan. Non – conformances will be highlighted for ratification to endure that the client is not unduly exposed regarding the requirements as stipulated by the OHS Act.

A representative and/or the relevant health and safety representative(s) of the principal contractor must accompany the client and/or it's agent on its behalf on all audits and inspections.

The principal contractor shall conduct his/her own inspections/internal audits at regular intervals. Copies of these inspections/internal audits must be handed to the client and/or its agent.

Copies of health and safety committee meeting minutes must be available to the client and/or its agent, reflecting recommendations made by the committee to the principal contractor for reference purposes.

3.6 Construction Health and Safety Incident/Accident Investigations and Reporting

The principal contractor shall report all incidents where an employee is injured on duty to the extent that the incident caused the following conditions:

- a) Fatal
- b) Unconscious
- c) Loses a limb or part of
- d) Becomes ill
- e) Permanent physical defect

The principal contractor shall report all investigations regarding incidents, where:

- a) Major incident (safety, health or environmental) occurred
- b) Health or safety of any person was endangered.
- c) Hazardous/danger substance was spilled
- d) Uncontrolled release of any substance under pressure occurred
- e) Machinery or any part thereof fractured or failed resulting in flying, falling or uncontrolled moving objects.
- f) Uncontrolled running of machinery

3.7 Construction Health and Safety Training

The contents and syllabi of all training required by the act and regulations including any other related or relevant training as required must be made available to the client if so required.

3.7.1 Construction Health and Safety Induction Training

All employees of the principal and any other contractor (sub –contractor) must be in possession of proof of construction health and safety induction training. This training will include:

- Risk identification
- Safe work procedures (SWP)
- Personal protective equipment (PPE) the use and the maintenance thereof
- Health and safety outside the workplace
- Legal impact of health and safety matters
- Introduction to the” workmen’s compensation act” (COIDA).
- Site security
- Sanitation facilities
- First aid facilities
- Fire and emergency procedures
- Roll of health and safety representatives and the selection of them
- Working hours and general working conditions
- Incident reporting and procedures
- Incident investigation and procedures

3.7.2 Other Training

All employees in jobs requiring competency in terms of the act and regulations must be in possession of valid proof of training/experience to be accredited for competency.

Specific construction health and safety training requirements for this project includes:

- Construction health and safety representative
- First aider – level 1
- Risk assessor

3.8 Construction Health and Safety Budget (Cost Management)

To enable the client to comply with construction regulation 5(1) (g), the principal contractor has to demonstrate to the client that sufficient provision has been made to implement and managed the health and safety plan of the principle contractor.

A detailed schedule of costs therefore has to be included in the health and safety plan submitted. This includes the following subjects:

3.8.1 Administration

- Compile a health and safety plan
- Notification of construction work
- Proof of good standing with the compensation fund or with a licensed compensation insurer

3.8.2 Construction Health and Safety Management Program

- Appointment of a safety officer(s) (full-time or part-time) and a health and safety representative to assist in the day-today management of health and safety measures on site
- Appointment of a health and safety consultant if required
- Other cost relating to the implementation and managing of the health and safety management program

3.8.3 Personal Protective Equipment (PPE)

The principal contractor is required to identify the hazards in workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable, take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered.

Where it is not possible to create an absolutely safe and healthy workplace the principal contractor or his appointed sub-contractors is required to inform employees regarding

this and issue, free of charge, suitable equipment to protect them from any hazards being present to allow them to work safely and without risk to health in the hazardous environment.

It is a further requirement that the principal contractor maintains the said equipment, that he/she instructs and trains the employees in the use of the equipment and ensured that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition(s), for which the equipment was prescribed but an alternative solution has to be found, that may include relocating the employee.

The principal contractor may not charge any fee for protective equipment prescribed by him or her but may charge for equipment under the following conditions:

- Where the employee requests additional issue in excess of what is prescribed;
- Where the employee has patently abused or neglected the equipment leading to early failure; and
- Where the employee has lost the equipment

All employees shall, as a minimum, be required to wear the following personal protective equipment on the project:

- Head protection. E.g. Hardhats
- Eye protection, e.g. Goggles
- Hearing protection, e.g. Earplugs
- Footwear, e.g. Safety shoes
- Hand protection e.g. Gloves
- Clothing, e.g. Overalls
- Fall protection, e.g. Harnesses (no monkey chain type harness will be allowed on site)
- Inhalation protection, e.g. Dust masks

3.8.4

Employee Site Facilities

Adequate and sufficient facilities shall be provided for employees on site, i.e.

- Protected change room for each gender
- Toilets for each gender (1 toilet for each gender and for every 30 employees)
- Hand wash facility
- Drinking water
- Sanitation station

3.8.5 Health and Safety Signage

Access to the construction site must be controlled. Health and safety signage to inform visiting public, employees, client, etc. must be prominently displayed.

The following signage shall be displayed:

- No unauthorized entry
- Danger: construction work in progress
- Visitors to report to site office
- Site office location
- First-aid facility location and responsible person (include contact details)
- Fire equipment location
- Specific designated areas signage for storage and stacking
- Construction work permit must be displayed at the entrance of the construction site

3.8.6 Health and Safety Notice Board

A health and safety notice board (2000mm x 1000mm) shall be erected on site with the following information displayed:

- Safety notices
- Safety awareness poster
- Site rules

Information regarding emergency contact numbers/details of:

- Doctor
- Ambulance
- Hospital
- Fire brigade
- Safety officer
- Project manager
- First aider
- Site evacuation map and zones

3.8.7 Training

Provision must be made to train employees regarding competency as required by the act and regulations, this will include the following activities:

- Health and safety representative(s)
Every contractor on site with twenty or more employees at the workplace must have a health and safety representative available during normal working hours.

In the case where 50 or more employees are at the workplace, every contractor must have at least one health and safety representative representing every group of 50 employees, available during normal working hours.

- First aider
Every contractor with ten or more employees at the work place shall have a person with a valid certificate of training in first aid – level 1. The first aider shall permanently be available at the workplace.

In the case where 50 or more employees are at the workplace, every contractor must have at least one first aider for every group 50 employees, available permanently.

- Risk assessor
Every contractor performing construction work shall before commencement of any construction work and during construction work, cause a risk assessment to be performed by a competent person.

The training provision should be read in conjunction with the act, construction regulations or any other regulation and safety requirements which were or will be promulgated under the act or incorporated into the act and be in force or come into force during the effective duration of the project.

3.8.8 First Aid Station

Every contractor with five or more employees shall have a first aid box on site. The first aid box shall contain suitable first aid equipment which includes at least the equipment stipulated in the annexure of the general safety regulations.

3.9 Logbooks and Registers

The following logbooks and registers shall be implemented and managed in terms of the Act and Regulations:

3.9.1 Health and Safety Appointments

An organogram depicting the necessary health and safety appointments, as identified in the OHS Act, must be displayed at the site office and notice board, where employees general report for duty.

3.9.2 Logbooks and Registers

The following logging shall be carried out and recorded for the initial start of the project:

- Fire extinguishing
- First aid
- Incident/accident reporting
- Incident/accident investigation
- Portable electrical equipment

- Excavation
- Construction vehicles
- Information signage
- Health and safety inspections by health and safety representatives
- Monthly health and safety committee meeting minutes
- Attendance register
- Induction training
- Toolbox talks

Other logbooks/registers shall be implemented during duration of the project as stipulated by the Act and Regulations.

3.9.3 Record Keeping Responsibilities

Record keeping responsibilities by the principle contractor and contractors have to be implemented for reference and made available on request to an inspector, the client, the client's agent or any authorized person/s.

3.10 Construction Health and Safety File

The Construction health and Safety File must at least contain the following:

- 1) Company OHS Management
 - OHS Company policy statement
 - Contractor's Health and Safety Management Plan/s
 - Letter of Good Standing
 - Notification of Construction Work
- 2) Risk Management
 - Hazard Identification and Risk Assessments
 - Revised Risk Assessments
- 3) Personnel
 - Appointments
 - Competency Certificates
 - Medical Fitness Certificates
 - Identification Documents
- 4) Induction and Communication
 - SHE Induction (General & Individual)
 - Site Rules
 - Toolbox Talks

- 5) Incident and Accident Management
 - Incident Register
 - Incident Reporting Procedures
 - Recording and Investigation of Incidents (Annexure 1)
 - Employers Report of an Accident (W.Cl.2)
 - First/Progress/Final Medical Report/s
- 6) Emergency Preparedness
 - Organogram
 - Emergency telephone numbers
 - Emergency Evacuation Plan
 - Minimum Contents of a First Aid box
 - Dressing Record
- 7) Sub-Contractor
 - Mandatary Agreement and Appointment Letters or Service Level Agreement
 - Monthly Audit/s
- 8) Acts, Regulations and MSDS
 - Occupation Health and Safety Act
 - Construction Regulations
 - COID Act
 - MSDS
- 9) Client
 - Appointment Letter
 - Mandatary Agreement
 - Health and Safety Specifications
 - Baseline Risk Assessments
- 10) Monthly Audit/s
 - Client, external
 - Principal Contractor, internal.
- 11) Inspection Registers

Section 4: Site Specific Health and Safety Requirements

4.1 Designated Danger Areas on Site

All designated danger areas on site shall be demarcated by the contractor with appropriate material and hazard notices posted at strategic locations to prevent unauthorized persons entering the danger area.

Appropriate material to safeguard danger areas includes:

- Safety netting 1m in height
- Timber boards or similar material
- Corrugated sheeting
- Wire fencing

Danger tape will not be allowed to be used as a single demarcation notice. It can only be used as a support of hazard identification with various materials as identified above.

4.2 Road Traffic Ordinance/Transportation Act

The contractor shall ensure that drivers and operators of vehicles, mobile plant and machinery are in possession of valid driver's licenses and competency certificates.

The contractor shall not permit any driver or operator to be in control of a vehicle or mobile plant or machinery at the works while under the influence of alcohol or drugs.

All vehicles of the contractor shall display a name board bearing the Contractors name. Hired vehicles shall bear an identifying sticker.

4.3. Existing Services

Overhead Power Lines

Work on, near or under overhead power lines may only be done by authorized personnel whom possesses the necessary competency. Various precautionary health and safety measures must be in place before commencement of such duties. Risk assessment and hazard identification training must be done prior to such work activities.

Underground services

The Principal Contractor shall contact the representative of existing underground services such as Eskom, Telkom, Maluti-a-Phofung Electrical Department, etc. to assist with the identification of these services. Way-leave's to be obtained from the user or owner of such services before excavation work may commence.

Where instructed by the Client or the Client's Representative services may be relocated, realigned, protected, repaired and/or removed.

4.4 Machine guarding

All power tools and machinery driven by belts, gears, ropes, chains, couplings and similar drives shall be adequately guarded; the contractor shall prohibit the use of any equipment with a damaged, missing or inadequate guard.

4.5 Concrete Mixing Equipment

The Contractor shall use or cause to be using any plant for the storage, gauging and mixing of materials for concrete unless:

- The aggregates of different nominal size are separately stored in such a way that segregation,
- intermixing of different materials and contamination by foreign matter is prevented
- The storage area shall be protected from unauthorized entry by an adequate barrier
- A safe and tidy approach shall be maintained to the aggregate storage area.
- The Contractor shall appoint operators skilled in the operation of the plant.
- On a weekly basis, the plant shall be inspected by a competent person. The inspections shall include a check of the calibration of all the measuring devices and shall be recorded in a logbook, which shall be made available to the Agent on request.

4.6 Excavation/Shoring

The Contractor shall ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.

The face of an excavation shall not be undercut.

All excavations, irrespective of depth, shall be adequately screened off with barrier netting or some other suitable means of warning persons of a hazardous area. Where the depth of the excavation exceeds 2m, a wooden or steel barrier shall also be erected around the excavation, particularly at the end of the working shift and at the start of weekends and holidays to prevent persons from falling into the excavations.

Ensure excavations are inspected by the Excavation Supervisor and the findings documented:

- Daily, prior to the commencement of working activities;
- After blasting operations;
- After the unexpected fall of ground/material;
- After damage to the support/shoring/bracing; and
- After rain.

Adequate shoring, according to the recommendations of SABS 1200, Section D, 1988, shall be provided by the Contractor when necessary. The shoring shall be approved by a competent person before excavation work continues, and shall be done in writing.

A Contractor must ensure where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, steps are taken to ensure to ensure the stability of such building, structure or road and the safety of persons.

Where hard excavation work requires the use of an excavator equipped with a pecker a “happy letter” system shall be implemented:

- a) A survey, prior to commencement of work, of adjoining building and/or structures must be done in writing, with photographic evidence of any defects;
- b) The owner, lessor or user must sign off on the above mentioned survey;
- c) After work has been completed a follow-up inspection of such buildings and/or structures must be done noting any changes in defects recorded during the initial survey.

4.7 Prevention of Uncontrolled Collapse

The contractor shall ensure that:

- All reasonably practicable steps are taken to prevent the uncontrolled collapse of any new or existing structure or any part thereof, which may become unstable or is in a temporary state of weakness or instability due to the carrying of construction work
- No structure or part of a structure is loaded in a manner that would render it unsafe.

4.8 Electrical Equipment and Procedures Used by the Contractor

All electrical equipment shall be regularly inspected by a qualified electrician, who shall be appointed by the Contractor, and the inspections shall be logged. The frequency of inspections shall be determined by the Agent.

A record of the inspections shall be kept and shall be made available to the Agent on request.

The Contractor shall ensure that all his electrical equipment conforms to operational and safety requirements

All earth leakage units shall be tested at intervals of not more than one month and signed for by the qualified electrician.

4.9 Commissioning Safety Precautions

The Contractor shall ensure that wherever repairs, adjustments or any other work are undertaken on any plant or machinery, the power supply is switched off, disconnected or the plant/ machinery disengaged until the work or repairs have been completed.

4.10 Toxic Materials

The Contractor shall exercise all necessary care in the handling of toxic compounds and shall be able to identify the major chemical components in the event of medical treatment being required.

4.11 Hazardous Chemicals and Materials

The Contractor shall provide suitable adequate protective equipment when working in an area where hazardous chemicals and materials are being used.

The Contractor shall ensure that its employees have familiarized themselves with the hazardous material data sheets applicable to the specific site as well as the location of the firefighting equipment, safety showers/baths and other washing facilities, prior to the commencement of work.

4.12 Indemnity of the Employer and His Agents

The BOQ contains a “Mandatory Form of Authority and Agreement in terms of Section 37(1) of the Occupational Health and Safety Act, No. 85 of 1993” which agreement shall be entire into an duly signed by both the Employer and Contractor prior to commencement with work. A copy of the signed agreement shall be included in the Contractor's Health and Safety File.

Any acceptance, approval, check, certificate, consent, examination, inspection, instruction, notice, observation, proposal, request, test or similar act by either the Employer or any of his Agents including lack of disapproval shall not relieve the Contractor from any responsibility he has under the Act and the Construction Regulations, including responsibility for errors, omissions, discrepancies and non-compliance.

4.13 Construction Sanitation and Domestic Facilities

The Contractor shall, depending on the number of workers and the duration of the project, provide at the construction site the following clean and maintained facilities:

- at least one sanitary facility for every 30 workers (one facility for each gender)
- changing facility for each gender
- sheltered eating area
- Clean drinking water

4.14 HIV/Aids Awareness

The Contractor has to implement a HIV/Aids awareness programme for raising awareness' about HIV/Aids through education and information on the nature of the

disease, how it is transmitted, safe sexual behavior, attitudes towards people affected and people living with HIV/Aids, how to live a healthy lifestyle with HIV/Aids, the importance of voluntary testing and counseling, the diagnosis and treatment of Sexually Transmitted infections and the closest Health Service Providers.

Informing workers of their rights with regard to HIV/Aids in the workplace and providing workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices.

4.15 Fire Precaution/Protection

The Contractor shall ensure:

- That all appropriate measures have been taken to avoid the risk of fire on site.
- Sufficient and suitable storage is provided for flammable liquids, solids and gases.
- Smoking is prohibited and notices in this regard are prominently displayed at all places
- containing readily combustible or flammable materials.
- Combustible materials do not accumulate on the construction site.
- Suitable and sufficient fire-extinguishing equipment is placed at strategic locations and that such equipment is maintained in good working order.
- Employees are trained to use firefighting equipment on site.

4.16 Pollution of Environment

The Contractor shall:

- Put measures in place to minimize dust generation
- Prevent the accumulation or littering of empty cement pockets, plastic wrapping/bags, packing materials etc.
- Spillage/discarding of oil, chemicals and diesel into storm water and other drains or into existing or newly dug holes/cavities on site are expressly prohibited.

4.17 Noise mitigation

The Contractor shall:

- Identified tasks where noise levels exceed 85 Db at any one time. All reasonable steps taken to reduce noise levels at the source.
- Hearing protection used where noise levels could not be reduced to below 85 Db.

4.18 Housekeeping

The Contractor shall:

- Implement a waste management program to ensure the removal of all items of scrap/unusable off-cuts/rubble and redundant material at appropriate intervals.

- Ensure that the stacking of construction material is:
 - Stable, on a firm surface/base level
 - Prevent from leaning or collapsing
 - Stacked to make collecting accessible
- Ensure that adequate storage areas are provided and that these areas are free from weeds, litter, etc.

4.19 Electricity

The Contractor shall ensure that the following safety precautions have been implemented for electricity works during the project period:

- a) Electrical distribution boards and earth leakages, site office's;
 - Are color coded/numbered/symbolic sign displayed
 - Area in front is kept clear and unobstructed
 - Are fitted with inside cover plate/openings blanked off/no exposed "live"
 - conductors/terminals/door kept close
 - Switches/circuit breakers are identified
 - Earth leakage protection unit fitted and operating
 - Tested with an instrument. Test results are within 15-30 milliamps aperture/opening/s
 - provided for the plugging in and removal of extension leads without the need to open the door.
 - Apertures and openings used for extension leads to be protected against the elements and especially rain
- b) Electrical installation and wiring (permanent or temporary);
 - Temporary wiring/extension leads in good condition and no bare/exposed wires
 - Earthing continuity/polarity correct cables protected from mechanical damage and moisture
 - Correct loading observed e.g. No heating appliance used from lighting circuit etc.
 - Light fittings/lamp protected from mechanical damage/moisture
 - Cable arrestors in place and used inside plugs
- c) Physical condition of electrical appliances and tools;
 - Insulation/casing in good condition
 - Earth wire connected/intact where not of double insulated design
 - Double insulation mark indicates that no earth wire is to be connected
 - Cord in good condition/no bare wires/secured to machine & plug
 - Plug in good condition, connected correctly and correct polarity

4.20 Site Vehicles, Mobile Plant and Machinery

The Contractor shall ensure:

- That only competent operators will be allowed to operate vehicles plant or machinery that he/she have been allocated to
- That daily inspections are carried out prior to the use of vehicles, plant or machinery
- That record of daily inspections are kept on site
- That written proof of competency of operators is available on site
- That a site speed limit is posted and not exceeded

4.21 Hand Tools

The Contractor shall ensure that hand tools used during the construction period will be of good quality and maintained in good working order.

4.22 Ladders

Every ladder shall be:

- a) Of good construction, sound material and adequate strength and suitable to the purpose for which it is used (e.g. electricians shall use suitable insulated ladders)
- b) Fitted with non-skid devices at the bottom of the stiles or with hooks or similar devices at the tops of the stiles.
- c) Except for extension ladders, no ladder shall be used which is longer than 4.5m and no ladder shall have its reach extended by tying together two or more ladders.
- d) All ladders shall be inspected weekly and a log shall be kept of the inspections.

4.23 Scaffold Design, Erection and Inspection

Scaffold Design, Erection and Inspection to comply with the SANS 10085-1:2004 The Design, Erections, Use and Inspection of Access Scaffolding, i.e.:

4.23.1 Foundations for Scaffolding

The surface on which scaffolding is to be erected shall be approved by a Scaffolding Supervisor. Where doubt exists regarding the bearing capacity of the surface, a detailed investigation shall be carried out and, if necessary, the approval of a professional engineer obtained.

4.23.2 Sole Boards

A sole board shall:

- a) Be of timber that complies
- b) Be of width at least 225mm and suitable in length

- c) Be of thickness at least 32mm, if the scaffold height does not exceed 15m; and
- d) Be of thickness at least 45mm if the scaffold height exceeds 15m.

4.23.3 Base Jacks

- a) Steel base jacks of nominal diameter 38mm shall have:
 - a) A welded base plate as specified, but without the spigot
 - b) An unthreaded length of 150mm or more at the opposite end of the shaft to the base plate
 - c) A safe working load of at least 30kn for axial loading at full extension; and
 - d) If the jack is constructed from tube, a rolled thread

Some lateral loading is to be expected in addition to the axial load, and a safe working load of 1,3Kn for lateral loading at full extension shall be required.

b) Swivel Base Jacks

- a) Base jacks may also be fitted with swivel base plates. In this case the supplier shall provide information regarding safe working loads.

4.23.4 Base Plates

A steel base plate shall:

- a) be of steel that complies with the SANS code
- b) be square, having sides of at least 150mm
- c) be of thickness at least 6mm
- d) have a spigot of length at least 50mm and of diameter not less than 10mm and not more than 20mm fixed centrally on one face.

4.23.5 Standards

Examples of the usage for which each class of scaffolding is suitable are given below:

| Class | Example of usage | Maximum number of working platform levels | Maximum platform safe working load Kg/m ² | Maximum spacing of standards (m) | Platform width (excluding inside boards) | |
|-------------------------------------|--|---|--|----------------------------------|--|------|
| Very light (VL) | Inspection Painting Stone cleaning | 4 x VL | 80 | 3 | 675 | 1150 |
| Light (L) | Repointing Replacing windows Plastering Insulation | 3 x L | 160 | 2.5 | 900 | 1150 |
| Medium (M) (General purpose) | New building brickwork Block work | 2 x M 1 X VL | 240 | 2 | 1125 | 1150 |
| Heavy (H) | Masonry Heavy cladding | 1 x H 1 X L 1 X VL | 320 | 1,8 | 1125 | 1380 |

4.23.6 Ledgers

The requirements for the use of ledgers are:

- Ledgers shall be horizontal and secured at right angles to each standard, except the lowest ledgers shall be fixed to sloping ground.
- The lowest level of ledgers or foot ties shall be fixed not more than 300mm above the bottom of the standards.
- Joints in the ledgers shall be staggered by at least one bay in length and shall be located not more than 900mm from a standard.
- Ledgers shall be fixed at vertical spacing not exceeding 2.1m.
- The top ledger shall be fixed at least 1m below the top of a standard.

4.23.7 Ties

The ties used shall be either:

- Of the fixed type which is positively fixed to the structure
- Of the reveal type which relies on friction to provide the means of restraint.

4.23.8 Bracings

Bracing shall:

- Be provided to prevent distortion of scaffolding
- Be arranged in triangular-shaped patterns with connections at a distance not exceeding 300mm from the intersections of vertical and horizontal members.

4.23.9 Use of Couplers

A ledger shall be connected to a standard by means of a double coupler.

4.23.10 Working Platforms

Working platforms for scaffolding shall:

- a) Consist of boards that have minimal gaps between the edges, and that are of approximately equal thickness, and that are so arranged that the ends are in line across the width of the platform.
- b) have all boards tied down and secured
- c) Have guardrails so fixed that its center line is at a height of 900mm above the platform.

4.24 Ergonomic Risks

The Contractor shall ensure that the following ergonomic risks are considered during risk assessments of the project:

- Visual work place – fall from height and tripping over construction material and debris.
- Awkward posture – health complications from unnatural posture due to picking up heavy plant, machinery, construction material and debris.

4.25 Behavioral Risks

The contractor shall ensure that the following behavioral risks are considered during risk assessments of the project:

- a) Man and machine interaction – loose clothing caught in machinery and plant
- b) Workers not wearing issued PPE – disciplinary actions should be implemented if workers are not using their issued PPE.
- c) Using the right tool for the job- Home-made or damaged tools will not be allowed on site.
- d) Alcohol and other drugs – no use of alcohol or any other drug will be allowed on site.

4.26 Continuous Risk Assessment

The purpose of implementing continuous risk assessment as part of the required risk assessment program is to ensure that operational identified hazards and risks will be treated with due diligence.

The following activities must form the basis of continuous risk assessment:

- Safe work procedures
- Method statements
- Internal health and safety inspections

4.26.1 Safe Work Procedures (SWP)

The Contractor must ensure that SWP's for the project address the following elements:

- The work method to be followed to conduct work safely
- Mitigate/eliminate or control workplace risks and hazard
- Responsibilities of competent personnel to implement safety measures
- Identify PPE, if required
- Identify correct equipment/tools/machinery to be used
- Identify training needs
- Reference of relevant registers to be completed
- Set time-table to rectify any non-conformances

4.26.2 Method Statements

Method statements to rectify health and safety non-conformances shall be required from the Contractor during the project period.

Method statements shall be copied to the Client's Health and Safety Agent for evaluation and audit purposes.

4.26.3 Internal Health and Safety Inspections

The Contractor shall conduct internal health and safety inspections on a regular basis. These inspections shall be recorded and be available on the health and safety file.

Section 5: Site Specific Risk Assessment

5.1 Contractors Risk Assessment Requirements

5.1.1 Methodology

Prior to drafting the health and safety plan, and in consideration of the information contained here-in, the contractor shall set up a risk assessment program to identify and determine the scope and details of any risk associated with any hazard at the construction site, in order to identify the steps needed to be taken to remove, reduce or control such hazard. This risk assessment and the steps identified will be the basis or point of departure for the health and safety plan.

Due to the wide scope and definition of construction work, every construction activity and site will be different, and circumstances and conditions may change even on a daily/hourly basis. Therefore, due caution is to be taken by the principal contractor when dealing with the identification of hazards and risks.

The risk assessment to be conducted for this project shall be defined as workplace risk assessment. Workplace risk assessment is a set of ongoing management and engineering activities of the project, aimed at ensuring that the health, safety and environmental hazards/risks of the project are identified, understood and minimized to a reasonable, achievable and tolerable level.

The following guide can be helpful to conduct and manage risk assessments:

Step 1:

Identifying the current, as well as emerging hazard, risks and/or exposures.

Step 2:

Aim to identify major hazards, don't waste time on the minor and detail except if such hazard has the potential to repeat itself on a frequent basis.

Step 3:

Involve as many people as possible in the ongoing risk assessment process especially those at risk.

Step 4:

Gather all the information and analyze it.

Step 5:

Look at what actually could or has occurred including non-routine operations.

Step 6:

Use a systematic approach to ensure all hazards are adequately addressed.

Step 7:

Assess the risks identified or the risk that occurred by taking into account the effectiveness of current as well as controls under consideration.

Step 8:

Ensure the process is practical, realistic, cost and business effective.

Step 9:

Always record the assessment in writing including i.e. assumptions, date and why a particular decision has been made.

5.1.2 Contents of the Risk Assessment Program

All risk assessments shall be conducted in terms of an acceptable methodology, prior to commencement of work, according to the provisions of Construction Regulation 9 and should cover at least the following:

- Movement of construction vehicles
- Earth works

- All work near overhead power lines and underground cables
- Locating underground cables/existing services
- Hand excavation of trenches
- Mechanical excavation of trenches
- All work carried out inside trenches, including compacting, pipe laying, backfilling etc.
- Working at heights
- Temporary works (formwork and support work)
- Lifting operations using various cranes (mobile, free standing, etc.)
- Electrical installations
- Housekeeping
- Fire precaution
- Temporary stockpiling and removal of excavated material
- Transporting material
- Storage and stacking of construction material
- Waste management of construction debris and litter
- Demolition work
- Working with hand tools
- Working with portable electrical tools
- All health hazards that can be present during any of the above activities and should include individual dusts,
- Gases, fumes, vapors, noise, extreme temperatures, illumination, vibration and ergonomic hazards due to
- Any of the above activities

The above list is by no means exhaustive and should not be limited to these activities but must cover all activities that forms part of the said construction work. Each activity must be split down to individual tasks and all associated hazards identified and listed in the risk assessment. This ensures that critical tasks and subsequent critical hazards are not missed.

The risk assessment to be included in the health and safety plan must clearly indicate:
The methodology used to conduct the risk assessments.

Breakdown of processes and activities covered

Risk grading anticipated i.e. high, medium or low

Safe work procedures and the communication thereof

All risk assessments are to be conducted by a competent person as appointed. The plan must include a declaration in this regard or the risk assessment must contain the signature(s) of this appointed persons.

Risk assessments are to be communicated to the client's OHS agent prior to commencement of work.

The OHS agent reserves the right to stop any work if such work is not conducted in terms of the recommendations of the risk assessment.
Risk assessments are to cover safety as well as health hazards.

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

PART C3.5.2

Baseline Risk Assessment

1. Baseline Risk Assessment

1.1 Project Description

Employer: Maluti-A-Phofung
Private Bax X 805
Wistieshoek
9870

Employer's Agent: Mphati & Associates (Pty) Ltd
38 Gedenk Street
Hospitaal Heuwel
Bethlehem
9701

Purpose: The purpose of this project is to upgrade water pump stations located in various towns within the Maluti a- Phofung Local Municipality. This is to ensure effective operation and maintenance of the pump stations.

1.2 Risk Rating Process

| Severity | | Probability/Frequency (P) | | Expo | |
|-------------------------|--|---|--|------------------------|---|
| (5) Catastrophic | Multiple fatalities Total Damage to tools, equipment, plant and/or surrounding structures | (5) Frequent | Incident can occur daily: Policy Failure | (5) Extensive | 80% - 100% of work force Total Damage to tools, equipment, plant and/or surrounding structures |
| (4) Critical | Fatality or number of disabling injuries Major Damage to tools, equipment, plan and/or surrounding | (4) Regular | Incident can occur weekly: Management Failure | (4) Widespread | 60% - 80% of work force Serious Damage to tools, equipment, plant and/or surrounding structures. |
| (3) Serious | Permanent disability or loss of a limb Substantial Damage to tools, equipment, plant and/or surrounding | (3) Occasional | Incident can occur monthly Supervision Failure | (3) Significant | 40% - 60% of work force Damage to tools, equipment, plant and/or surrounding structures |
| (2) Marginal | Hospitalised for less than 14 days with no disability Medium Damage tools, equipment and/or plant | (2) Uncommon | Incident can occur within six months Procedural failure | (2) Restricted | 20% - 40% of work force Damage to tools, equipment and/or plant |
| (1) Negligible | First aid on site is sufficient Minor Damage to tools and/or equipment | (1) Rare | Incident occur very rarely Personal Failure | (1) Negligible | 1% - 20% of work force No Damage to tools and/or equipment |
| (SxP) E = | | | | | |
| Very Low | 1 – 6 | Employee | | | |
| Low | 8 – 15 | SHE Management, Employee | | | |
| Medium | 16 – 30 | Site Management, SHE Management, Employee | | | |
| High | 32 – 60 | Employer, Site Management, SHE Management, Employee | | | |
| Very High | 62 – 125 | Client, Employer, Site Management, SHE Management, Employee | | | |

1.3 Hazard Identification and Risk Assessment

| Building | | | | | | | |
|--|---|-------------|---|---|----|-------------|---|
| Discipline and Activity | Risk and Hazards | Calculation | | | | Risk Rating | Control Measure |
| 1. Foundation | | S | P | E | T | | |
| a) Excavation work, less than 1.5 meters | Collapse of trench walls | 4 | 3 | 3 | 36 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Existing service, water pipe burst: flooding excavation trench, saturated trench | 3 | 5 | 5 | 45 | High | Ascertain location of existing services (site plan) Expose existing services by hand first Protect existing services (concrete cast, identification markers, danger tape, etc.) |
| | Existing service, electrical cable: electrocution/short | 5 | 5 | 2 | 50 | High | |
| | Fall into open excavations – public safety | 3 | 3 | 2 | 18 | Medium | Barricade with danger netting or fence Post warning signs Illuminate at night |
| b) Excavation: Haul and Spoil material | Overfill tipper truck: materials loss | 3 | 2 | 2 | 12 | Low | Supervise loading |
| | Spoil in undesignated areas: fines or public liability | 3 | 2 | 5 | 30 | Medium | Designate spoil area Permission and/or authorisation Rehabilitation of spoil areas |
| c) Backfill and compact using a handheld compactor | Foot injury | 3 | 3 | 2 | 18 | Medium | Provide PPE (safety boots) |
| | Vibration cause collapse of trench | 4 | 3 | 2 | 24 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |

| | | | | | | | |
|---|---|----------|----------|----------|----------|--------------------|---|
| | Petrol spill when refilling (environmental hazard), causing fire | 3 | 2 | 2 | 12 | Low | Provide HAZCHEM spill kit Provide fire extinguisher Provide funnel for refilling |
| d) Soil insecticide: SANS | Health hazard | 4 | 1 | 1 | 4 | Very Low | Approved Contractor/User MDSD training |
| e) Concrete work: Concrete delivery | Bump/reverse into structures causing damage | 3 | 5 | 3 | 45 | High | Accommodate/supervise delivery |
| f) Concrete work: Formwork and support work | "Kick" effect causing structural damage Injury to personnel Time loss | 4 | 3 | 5 | 60 | High | Temporary designs to be approved Pre- and post-inspection of temporary works Limiting personnel |
| g) Concrete work: Steel | Hand injury | 2 | 2 | 1 | 4 | Very Low | Provide PPE Provide first aider and first aid box |
| h) Masonry: Brick stacks | Collapse of brick stacks: structural damage or injury of personnel | 2 | 2 | 2 | 8 | Low | Supervise stacking (3/1 base/height stacking) Designated stacking areas Remove top to bottom |
| 2. Concrete Formwork and Reinforcement | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Reinforcement: Steel delivery | Nuisance Tripp and fall hazard | 2 | 2 | 1 | 4 | Very Low | Designated stacking areas Supervise delivery |
| b) Reinforcement: Steel | Sharp edges: Cuts to hands | 2 | 5 | 2 | 20 | Medium | Designated stacking areas |
| d) Concrete delivery | Bump/reverse into structures causing damage | 3 | 3 | 3 | 27 | Medium | Accommodate delivery Supervise delivery |
| e) Concrete work: Finishing top of | Working at heights: fall risk | 4 | 4 | 2 | 32 | High | Provide scaffold as per SANS 10085-1 Supervise scaffold work |

| | | | | | | | |
|-----------------------------------|---|----------|----------|----------|----------|--------------------|---|
| beams etc. | dropping tools causing serious injury | | | | | | Prohibit/limit work under scaffold Provide hard hats |
| f) Concrete work: Surface beds | Power float: fire hazard. Risk of serious injury. Ergonomic discomfort | 4 | 3 | 2 | 24 | Medium | Maintain power float in good working order, daily inspections Provide fire extinguisher Provide funnel for refilling Provide training |
| g) Formwork: Materials | Protruding nails causing injury Fire hazards | 2 | 2 | 1 | 4 | Very Low | Procure, stack and store |
| h) Formwork at heights | Working at heights: fall risk dropping tools causing serious injury | 5 | 4 | 4 | 80 | Very High | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |
| i) Support work | Pre-mature removal Risk of collapse | 5 | 3 | 5 | 75 | Very High | Temporary designs to be approved Pre-and post-cast inspection of support work Written authorisation to cast Written authorisation to remove support work |
| 3. Masonry | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Brickworks | Working at heights: fall risk dropping tools causing serious injury | 2 | 3 | 4 | 24 | Medium | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |
| b) Brickworks: stacking | Risk of collapse | 3 | 3 | 3 | 27 | Medium | Supervise stacking (3/1 base/height stacking) Designated stacking areas Remove top to bottom |
| 4. Waterproofing | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Install: Damp- | Ergonomic discomfort | 2 | 2 | 2 | 8 | Low | Provide basic training on ergonomics |

| | | | | | | | |
|--|---|----------|----------|----------|----------|--------------------|--|
| proofing materials to walls and floors | | | | | | | |
| b) Waterproofing | Fire hazard (gas bottle) | 4 | 5 | 2 | 40 | High | Designated storage areas Provide fire extinguishers Ensure device is fitted with a regulator |
| c) Joint sealant | Health hazard (fumes) | 2 | 2 | 2 | 8 | Low | Well ventilated working areas MSDS training |
| 5. Roof Coverings | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Install: Sheetting etc. | Working at heights: fall risk dropping tools/materials causing serious injury | 5 | 5 | 4 | 100 | Very High | Provide scaffold as per SANS 10085-1 Provide safe access to working areas Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats Install life line/s Provide safety harnesses Provide accredited working at heights training Medical fitness certificates for employees working at heights |
| 6. Carpentry and Joinery | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Install: Doors, including frames | Defective tools causing hand injuries | 2 | 1 | 2 | 4 | Very Low | Maintain tools and equipment in good working order |
| 7. Ceilings, Partitions and | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Install: Ceilings, cornices | Working at heights: fall risk dropping tools causing serious injury | 3 | 3 | 3 | 27 | Medium | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |

| 8. Floor Coverings, Wall Linings, etc. | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
|---|---|---|---|---|-----|-------------|---|
| a) Install: Vinyl Sheeting (adhesive) | Health hazard (fumes) | 2 | 3 | 2 | 12 | Low | Well ventilated working areas MSDS training |
| b) Sealer: Apply | Health hazard (fumes) | 2 | 1 | 1 | 2 | Very Low | |
| c) Install: Carpets | Defective tools causing hand injuries | 2 | 2 | 2 | 8 | Low | Maintain tools and equipment in good working order Daily inspection of tools |
| 9. Ironmongery | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Materials | Nuisance Tripp and fall hazard | 2 | 1 | 1 | 2 | Very Low | Designated storage areas |
| b) Install: Hinges, bolts, locks, handles, door closers, bathroom fittings, rails, etc. | Defective tools causing hand injuries | 2 | 2 | 2 | 8 | Low | Maintain tools and equipment in good working order Daily inspection of tools |
| 10. Structural Steel Work | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Materials | Nuisance Tripp and fall hazard | 4 | 4 | 3 | 48 | High | Designated stacking and storage areas Supervise delivery |
| b) Install: Steel trusses, purlins, bracing, steel columns, cladding support, welding, etc. | Working at heights: fall risk dropping tools causing serious injury | 5 | 5 | 5 | 125 | Very High | Provide scaffold as per SANS 10085-1 Provide safe access to working areas Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats Install life line/s Provide safety harnesses Provide accredited working at heights training Medical fitness certificates for employees working at heights |

| | | | | | | | |
|---|---|----------|----------|----------|----------|--------------------|---|
| | Crane operations: collapse Uncontrolled release of load | 4 | 4 | 5 | 80 | Very high | Provide stable base Competent operator Competent riggers Load test certificates (annually for crane, 6 months for hooks, slings, ropes, etc.) Daily inspection of crane |
| 11. Metal Works | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Materials | Nuisance Tripp and fall hazard | 2 | 2 | 1 | 4 | Very Low | Designated stacking and storage areas Supervise delivery |
| b) Install: Door frames, steel roller shutters windows, doors, handrails, balustrades, etc. | Defective tools causing hand injuries | 2 | 2 | 2 | 8 | Low | Maintain tools and equipment in good working order Daily inspection of tools |
| c) Welding | Health hazard: permanent eye defect Fire risk Burn risk | 5 | 4 | 2 | 40 | High | Provide necessary eye protection(welding helmet) Provide welding screen Designated working areas Provide necessary PPE (welding apron and gloves) Provide fire extinguisher Competent welder |
| 12. Plastering | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Screed to concrete, granolithic, internal & external plaster, etc. | Working at heights: fall risk dropping tools causing serious injury | 5 | 4 | 2 | 40 | High | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |

| -13. Tiling | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
|----------------------------------|---|----------|----------|----------|----------|--------------------|---|
| a) Wall tiling and Floor Tiling | Working at heights: fall risk dropping tools causing serious injury | 3 | 2 | 2 | 12 | Low | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |
| 14. Plumbing and Drainage | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Excavation 2m | Collapse of trench walls | 4 | 3 | 3 | 36 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Existing service, water pipe burst: Flooding excavation trench, saturated trench walls may | 3 | 5 | 5 | 45 | High | Ascertain location of existing services (site plan) Expose existing services by hand first Protect existing services (concrete cast, identification markers, danger tape, etc.) |
| | Existing service, electrical cable: electrocution/short | 5 | 5 | 2 | 50 | High | |
| | Fall into open excavations – public safety | 3 | 3 | 2 | 18 | Medium | Barricade with danger netting or fence Post warning signs Illuminate at night |
| b) Bedding, laying, backfill | Foot injury | 3 | 3 | 2 | 18 | Medium | Provide PPE (safety boots) |
| | Vibration cause collapse of trench | 4 | 3 | 2 | 24 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Petrol spill when refilling (environmental hazard), causing fire | 3 | 2 | 2 | 12 | Low | Provide HAZCHEM spill kit Provide fire extinguisher Provide funnel for refilling |
| c) Rainwater disposal: | Working at heights: | 4 | 5 | 2 | 40 | Medium | Provide scaffold as per SANS 10085-1 |

| | | | | | | | |
|---|--|----------|----------|----------|----------|--------------------|--|
| vertical | fall risk dropping tools causing serious injury | | | | | | Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |
| d) Install: Sanitary fittings, waste unions, traps, valves, pipework, etc. and connecting to sewage | Defective tools causing hand injuries | 1 | 2 | 1 | 2 | Very Low | Maintain tools and equipment in good working order Daily inspection of tools |
| 15. Glazing | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Install: Panels, mirrors, etc. | Defective tools causing hand injuries | 1 | 1 | 2 | 2 | Very Low | Maintain tools and equipment in good working order |
| 16. Paintwork | Risk and Hazards | S | P | E | T | Risk Rating | Note/Ref. |
| a) Paint work | Working at heights: fall risk dropping tools causing serious injury | 4 | 3 | 2 | 24 | Medium | Provide scaffold as per SANS 10085-1 Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats |
| | | | | | | | |
| External | | | | | | | |
| 1. General Site Works | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Site clearing: Clearing and grubbing | Unauthorised operating of machinery causing structural damage or injury | 3 | 2 | 2 | 12 | Low | Appoint competent operators Supervise work |
| b) Excavation Work | Collapse of trench walls | 4 | 3 | 3 | 36 | Medium | Shoring or bracing Slope to the angle of repose |

| | | | | | | | |
|---|---|----------|----------|----------|----------|--------------------|---|
| | | | | | | | Supervising excavation work |
| | Existing service, water pipe burst: flooding excavation trench, saturated trench walls may | 3 | 5 | 5 | 45 | High | Ascertain location of existing services (site plan) Expose existing services by hand first Protect existing services (concrete cast, identification markers, danger tape, etc.) |
| | Existing service, electrical cable: electrocution/short | 5 | 5 | 2 | 50 | High | |
| | Fall into open excavations – public safety | 3 | 3 | 2 | 18 | Medium | Barricade with danger netting or fence Post warning signs Illuminate at night |
| c) Bulk Excavation: 2m (include hauling and spoiling) | Overfill tipper truck: materials loss | 3 | 2 | 2 | 12 | Low | Supervise loading |
| | Spoil in undesignated areas: fines or public liability claims, | 3 | 2 | 5 | 30 | Medium | Designate spoil area Permission and/or authorisation Rehabilitation of spoil areas |
| d) Filling: compacted using a roller | Vibration causing structural damage to existing building of structures | 3 | 2 | 2 | 12 | Low | Pre-inspections and documentation of existing buildings and structures |
| 2. Road, Parking, Paving, etc. | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Excavation: Not exceeding 2m | Collapse of trench walls | 4 | 3 | 3 | 36 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Existing service, water pipe burst: flooding excavation trench, | 3 | 5 | 5 | 45 | High | Ascertain location of existing services (site plan) Expose existing services by hand first Protect existing services (concrete cast, |

| | | | | | | | |
|--------------------------------------|--|----------|----------|----------|----------|--------------------|--|
| | collapse | | | | | | danger tape, etc.) |
| | Existing service, electrical cable: electrocution/short | 5 | 5 | 2 | 50 | High | |
| | Fall into open excavations – public safety | 3 | 3 | 2 | 18 | Medium | Barricade with danger netting or fence Post warning signs Illuminate at night |
| b) Filling: compacted using a roller | Vibration causing structural damage to existing building of structures | 3 | 2 | 2 | 12 | Low | Pre-inspections and documentation of existing buildings and structures |
| c) Block Paving and Kerbs | Collapse of stacks | 3 | 2 | 2 | 12 | Low | Designated stacking areas Supervise delivery |
| d) Block paving | Ergonomic discomfort | 2 | 1 | 5 | 10 | Low | Provide basic training of ergonomics |
| e) Kerbs | Heavy loads: back injury | 2 | 1 | 3 | 6 | Very Low | Engineering control measures (kerb clamp) |
| 3. Fencing | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Excavations, less than 1000mm | Tripp/fall hazard | 3 | 2 | 2 | 12 | Low | Identify open excavations using danger tape |
| b) Steel fencing | Defective tools causing hand injuries | 4 | 5 | 2 | 40 | High | Maintain tools and equipment in good working order |
| c) Concrete palisade fencing | Heavy loads: back injury | 3 | 4 | 2 | 24 | Medium | Use of TLB and chain to assist |
| d) Welding | Health hazard: permanent eye defect Fire risk Burn risk | 5 | 4 | 2 | 40 | High | Provide necessary eye protection(welding helmet) Provide welding screen Designated working areas Provide necessary PPE (welding apron and gloves) |

| | | | | | | | |
|--|--|----------|----------|----------|----------|--------------------|--|
| | | | | | | | Competent welder |
| 4. External Plumbing and Drainage | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Concrete delivery: Storm-water disposal, culverts, wing walls, etc. | Bump/reverse into structures causing damage | 3 | 3 | 3 | 27 | Medium | Accommodate delivery Supervise delivery |
| b) Concrete work: Steel binding | Hand injury | 2 | 2 | 1 | 4 | Very Low | Provide PPE Provide first aider and first aid box |
| c) Excavations, less than 1000mm | Tripp/fall hazard | 3 | 2 | 2 | 12 | Low | Identify open excavations using danger tape |
| d) Compacting (wacker) | Foot injury | 3 | 3 | 2 | 18 | Medium | Provide PPE (safety boots) |
| | Vibration cause collapse of trench | 4 | 3 | 2 | 24 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Petrol spill when refilling (environmental hazard), causing fire | 3 | 2 | 2 | 12 | Low | Provide HAZCHEM spill kit Provide fire extinguisher Provide funnel for refilling |
| e) Steel binding | Hand injury | 2 | 2 | 1 | 4 | Very Low | Provide PPE Provide first aider and first aid box |
| f) Materials: Brick stacks and precast concrete pipes | Collapse of stacks Pipes roll | 2 | 3 | 3 | 18 | Medium | Designated stacking areas Secure pipes Supervise delivery |

| | | | | | | | |
|--|---|----------|----------|----------|----------|--------------------|---|
| g) Install: Precast concrete pipes and/or prefabricated manhole | Use of TLB and chain: loss of load causing injury or damage | 5 | 5 | 3 | 75 | Very High | Load test certificate of chain Competent operator Supervise operation Engineering controls (concrete clamp) |
| Electrical | | | | | | | |
| 1. Nominated Contractor | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Sub-contractor | Not qualified | 5 | 5 | 5 | 125 | Very High | Pre-qualification before appointment Approve statutory documentation (LOG, Registration certificates, wireman's license, etc.) Appoint in writing Mandatory Agreement Approve H&S Plan Perform monthly Audits. |
| 2. General Specifications for | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Equipment, materials, cables, etc. | Security risk: Theft | 2 | 2 | 1 | 4 | Very Low | Provide security Designated storage areas |
| b) Install: Conduits, Wiring and trunking. Switches, socket outlets, switchgear and switchboards | Working at heights: fall risk dropping tools causing serious injury | 3 | 5 | 2 | 30 | Medium | Provide scaffold as per SANS 10085-1 Provide safe access to working areas Supervise scaffold work Prohibit/limit work under scaffold Provide hard hats Install life line/s Provide safety harnesses Provide accredited working at heights training |

| | | | | | | | |
|--|--|----------|----------|----------|----------|--------------------|--|
| | | | | | | | Medical fitness certificates for employees working at |
| 3. Cables, Termination, Joints and Installation | Risk and Hazards | S | P | E | T | Risk Rating | Control Measure |
| a) Cables: Excavation (1m) and laying | Tripp/fall hazard | 3 | 2 | 2 | 12 | Low | Identify open excavations using danger tape |
| b) Cables: Bedding and backfill | Foot injury | 3 | 3 | 2 | 18 | Medium | Provide PPE (safety boots) |
| | Vibration cause collapse of trench | 4 | 3 | 2 | 24 | Medium | Shoring or bracing Slope to the angle of repose Supervising excavation work |
| | Petrol spill when refilling (environmental hazard), causing fire | 3 | 2 | 2 | 12 | Low | Provide HAZCHEM spill kit Provide fire extinguisher Provide funnel for refilling |

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

C3.6 Environmental Specifications

Below is a list of items that should typically be in place during the construction phase. Note that not all these items are always applicable, and the list should be used as a general guide.

- Stormwater management plan
- Fire management plan
- Firefighting equipment
- Complaints register and procedure for reporting incidents and near misses
- Waste management plan
- General waste receptacles
- Hazardous waste storage
- Oil spill kit
- Drip trays to place underneath stationary vehicles, diesel bowzers, etc.
- Bund wall around large fuel tanks. The bund wall should contain 110% of the total fuel capacity
- Erosion management:
 - Soil nets
 - Reseeding with indigenous plant species
- Speed limit signs
- Signage for hazardous materials and dangerous equipment
- Construction netting to barricade trenches/excavations and or protected plant species
- Notice boards to display important information
 - Health and safety protocols
 - Important environmental protocols/conditions
 - Emergency contact details
- Sanitary facilities shower / wash room and chemical toilets
 - These facilities need to be serviced on a regular basis

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C3.7 Management of the Works

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|----------------|-----------------|
| C3.7.1 | Scope | C 3-7-2 |

C3.7 Management of the Works

C3.7.1 Scope

The management of the site shall be in accordance with the provisions of General Conditions of Contract (2015) and the SANS 1200 Standard Specification for Civil Engineering Construction (1981 edition).

MALUTI-A-PHOFUNG LOCAL MUNICIPALITY

**APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION
PHASE 1**

C4 Site Information

CONTENTS

| PART | HEADING | PAGE NO. |
|-------------|--------------------------------------|-----------------|
| C4.1 | Surveys/Beacons | C 4-1 |
| C4.2 | Site specific EIA requirements | C 4-2 |
| C4.3 | Accommodation, Water and Electricity | C 4-3 |
| C4-4 | Photographic Report | C 4-4 |

C4 SITE INFORMATION

C4.1 Surveys/Beacons

The Bidder is to note that all survey control and beacons are based on localized grid positions and levels.

The details for the relevant survey control will be issued to the successful contractor at the commencement of the contract.

C4.2 Site specific EIA requirements

The Bidder is to refer to Part C3.5 of this document for pertinent information regarding the environmental requirements relating to this contract.

C4.3 Accommodation, Water and Electricity

The Bidder is to refer to Part C3.1 of this document for pertinent information regarding the requirements for accommodation, water and electricity.

C4.4

Photographic Report



MALUTI-A-PHOFUNG LOCAL MUNICIPALITY



BID NO.: SCM/BID09/2023/24

APPOINTMENT OF A SERVICE PROVIDER: UPGRADING OF WATER PUMP STATION PHASE 1

PHOTOGRAPHIC REPORT FOR INFORMATION PURPOSES

| | |
|--|---|
| CLIENT: MALUTI-A-PHOFUNG LOCAL MUNICIPALITY PRIVATE BAG X805 WITSIESHOEK 9870 TEL: 058 718 3700  CONTACT PERSON: MR HW UNGERER | CONSULTANT: MPHATI & ASSOCIATES (PTY) LTD P O BOX 1631 BETHLEHEM 9700 TEL: 058 303 4197  CONTACT PERSON: MR M MPHATI |
|--|---|

Pump station: : MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish roof
Refurbishment of existing gantry
Removal of vegetation
Refurbish existing gaurdrails
Repairing cracked floors outside the pump station structure
Construction of new access road
Install new gantry

Pump station: : MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : MABOLELA PUMP STATION (28°30'48.45"S, 28°47'23.26"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir

Pump station: : SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish exterior concrete roofs
Refurbishing guardhouse
Removal of vegetation
Replace existing gaurdrails
Replace existing concrete palasade fencing with
high security clear-vu fencing
Construction of new access road
Installation of gantry

Pump station: : SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : SEHLAJANENG PUMP STATION NO. 2 (28°34'9.09"S, 28°43'13.98"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



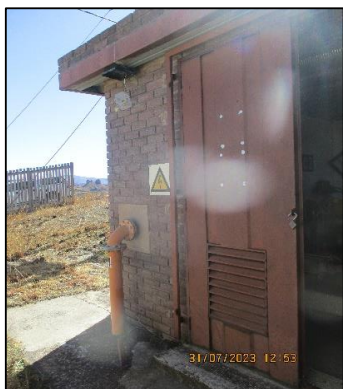
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
 Installing new pressure transmitters
 Fault finding and replacement of existing electrical cables
 General electrical refurbishment (lights & plugs)
 Installation of exterior flood lights
 Installation of security system, including:
 CCTV cameras
 Entrance prevention (Pepperspray)
 Installation of level control equipment at Reservoir
 Refurbishment of existing bulk electrical connection

Pump station: : SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : CIVIL WORKS

PHOTOS



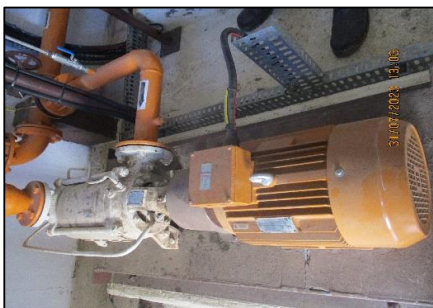
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
 Repaint of interior walls, ceilings and floors
 Repaint access doors
 Refurbish exterior concrete roofs
 Refurbishing guardhouse
 Removal of vegetation
 Replace existing gaurdrails
 Replace existing concrete palasade fencing with
 high security clear-vu fencing
 Construction of new access road
 Re-lay and connect existing feed pipework
 Installation of gantry

Pump station: : SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : SEHLAJANENG PUMP STATION NO. 1 (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir

Pump station: : HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:

Repaint of interior walls, ceilings and floors

Repaint access doors

Refurbish exterior concrete roofs

Refurbishing guardhouse

Refurbishment of existing gantry

Removal of vegetation

Replace existing gaurdrails

Replace existing concrete palasade fencing with
high security clear-vu fencing

Construction of new access road

Paving around existing structures

Reconstruct plinths

Pump station: : HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of three (3) new pump sets
Installation of lifting equipment

Pump station: : HLATSENG PUMP STATION (28°33'38.46"S, 28°43'56.05"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS




PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection

| | | |
|----------------------|---|---|
| Pump station: | : | POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E) |
|----------------------|---|---|

| | | |
|---------------------------|---|-------------|
| Schedule Reference | : | CIVIL WORKS |
|---------------------------|---|-------------|

| PHOTOS | PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO) |
|--|---|
|  | <div> <div>Refurbishment of existing Pump Station structure, include:</div> <div>Repainting and plastering of interior walls</div> <div>Refurbishing the transformer double doors and burglar doors</div> <div>Replacing roof sheeting with chromadek roofing</div> <div>Sand downing roof trusses and re-varnishing them</div> <div>Repairing and painting the cracked floor surface</div> <div>Refurbishing the Air - vent</div> <div>Replacing the fibre grating</div> <div>Repainting the gantry and lifting equipment</div> <div>Constructing a guardhouse</div> <div>Clearing and grubbing of overgrown vegetation</div> <div>Sand downing and repainting plinths and baseplates</div> </div> |
| | |

Pump station: : POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of pipework, pumps and motors
include:

Re-coating entire pipework

Replacing all valves

Refurbishing the existing two (2) pumps and motors

Repainting pipe brackets

Pump station: : POELONG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



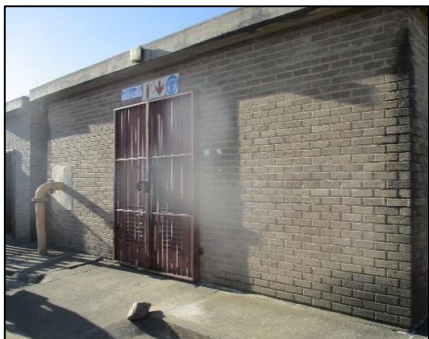
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)

Pump station: : BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:

Repaint of interior walls, ceilings and floors

Repaint access doors

Refurbish exterior concrete roofs

Refurbishing guardhouse

Constructing new plinths

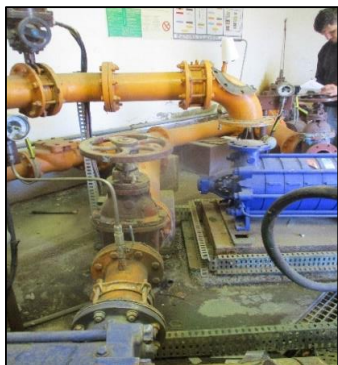
Refurbishment of existing gantry

Removal of vegetation

Pump station: : BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

Schedule Reference : MECHANICAL WORKS

PHOTOS



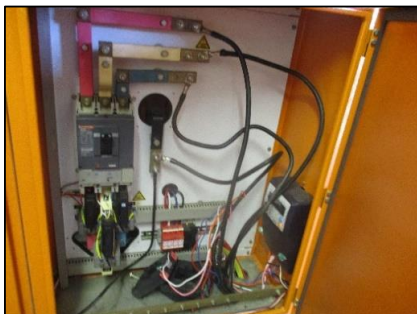
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : BOLATA PUMP STATION (28°34'31.19"S, 28°34'31.19"S)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



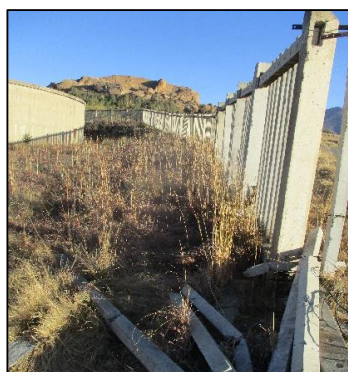
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station structure, include:
 Repainting and plastering of exterior and interior walls
 Refurbishing of the steel single door and burglar door
 Replacing roof sheeting with chromadek roofing
 Sand down roof trusses and re-varnishing them
 Repairing and painting the cracked floor surface
 Refurbishing the Air - vent
 Refurbishing the fibre grating
 Constructing a guardhouse
 Clearing and grubbing of overgrown vegetation
 Reconstructing two (2) plinths and baseplates
 Installing ceiling in the guardhouse
 Refurbishing toilet facilities
 Repainting of concrete pipe supports

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework

Manufacture and install new pipework

Installation of two (2) new pump sets

Installation of lifting equipment

Replace existing valves and control equipment

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir

Pump station: : MASONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

Schedule Reference : CIVIL WORKS

PHOTOS



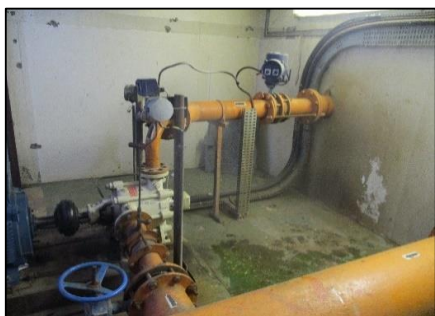
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
 Repaint of interior walls, ceilings and floors
 Repaint access doors
 Refurbish exterior concrete roofs
 Refurbishing guardhouse
 Refurbishment of existing gantry
 Removal of vegetation
 Replace existing concrete palasade fencing with
 Construction of new access road
 Reconstruct concrete plinths
 Install new transformer door and burgular door
 Replace exiting steel grating with fibre grating

Pump station: : MASONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS




PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework
Manufacture and install new pipework
Installation of two (2) new pump sets
Installation of lifting equipment
Replace existing valves and control equipment

Pump station: : MASIONOKENG PUMP STATION (28°37'37.64"S, 28°51'25.75"E)

Schedule Reference : ELECTRICAL WORKS

| PHOTOS | PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO) |
|--|---|
|  | <div> <div>Refurbishment of existing MCC Panel</div> <div>Installing new pressure transmitters</div> <div>Fault finding and replacement of existing electrical</div> <div>General electrical refurbishment (lights & plugs)</div> <div>Installation of exterior flood lights</div> <div>Installation of security system, including:</div> <div>CCTV cameras</div> <div>Entrance prevention (Pepperspray)</div> <div>Installation of level control equipment at Reservoir</div> <div>Refurbishment of existing bulk electrical connection</div> </div> |

Pump station: : LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish roof
Refurbishment of existing gantry
Removal of vegetation
Refurbish existing gaurdrails
Replace existing concrete palasade fencing with
high security clear-vu fencing
Construction of new access road
Paving around existing structures
Installation of Transformer door and burgular door
Replace steel grating with fibre grating

Pump station: : LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
 Refurbishment of existing pump sets
 Replace existing valves and control equipment
 Installation of two (2) new pump sets
 Installation of lifting equipment

Pump station: : LEJWANENG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



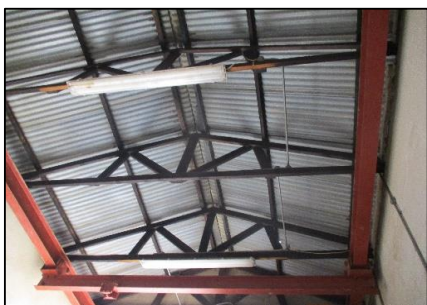
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical ca
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Refurbishment of existing bulk electrical connection

Pump station: : THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Refurbish exterior concrete roofs
Removal of vegetation
Replace existing concrete palasade fencing with
high security clear-vu fencing
Construction of new access road
Paving around existing structures
Reconstruct existing plinths
Installation of new burgular door (Security)
Refurbish existing roof structure
Remove existing steel doors
Installation of new transformer and burgular door

Pump station: : THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework
Manufacture and install new pipework
Installation of two (2) new pump sets
Installation of lifting equipment
Replace existing valves and control equipment

Pump station: : THABANG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS




PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : CIVIL WORKS

| PHOTOS | PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO) |
|--|--|
|  | <p>Refurbishment of existing Pump Station:</p> <p>Repaint of interior walls, ceilings and floors</p> <p>Repaint access doors</p> <p>Refurbish exterior concrete roofs</p> <p>Refurbishing guardhouse</p> <p>Refurbishment of existing gantry</p> <p>Removal of vegetation</p> <p>Replace existing gaurdrails</p> <p>Replace existing concrete palasade fencing with high security clear-vu fencing</p> <p>Construction of new access road</p> <p>Paving around existing structures</p> |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : MANGAUNG PUMP STATION (28°33'32.36"S, 28°43'26.64"E)

| | | |
|--------------------|---|------------------|
| Schedule Reference | : | ELECTRICAL WORKS |
|--------------------|---|------------------|

PHOTOS



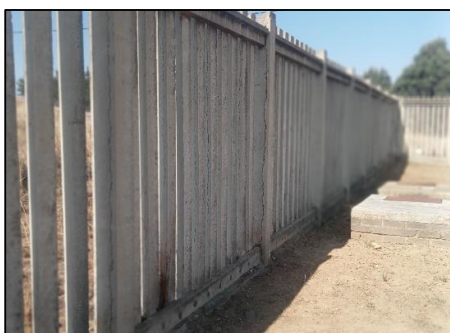
**PROPOSED SCOPE OF WORKS
(BUT NOT LIMITED TO)**

| |
|---|
| Refurbishment of existing MCC Panel |
| Installing new pressure transmitters |
| Fault finding and replacement of existing electrical ca |
| General electrical refurbishment (lights & plugs) |
| Installation of exterior flood lights |
| Installation of security system, including: |
| CCTV cameras |
| Entrance prevention (Pepperspray) |
| Installation of level control equipment at Reservoir |
| Refurbishment of existing bulk electrical connection |

Pump station: : QUQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish exterior concrete roofs
Refurbish existing concrete plinths
Removal of vegetation
Replace existing concrete palasade fencing with
high security clear-vu fencing
Construction of new access road
Installation of gantry

Pump station: : QUQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



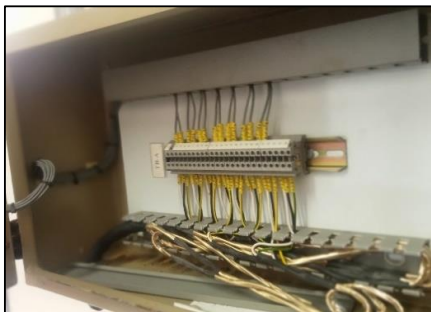
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework
Manufacture and install new pipework
Installation of two (2) new pump sets
Installation of lifting equipment
Replace existing valves and control equipment

Pump station: : QUQOLOSING PUMP STATION (28°36'1.26"S, 28°53'32.03"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection

Pump station: : PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish exterior concrete roofs
Refurbishing guardhouse
Removal of vegetation
Replace existing concrete palasade fencing with
high security clear-vu fencing
Construction of new access road
Paving around existing structures
Installation of gantry
Installation of new burgular door (Security)

Pump station: : PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



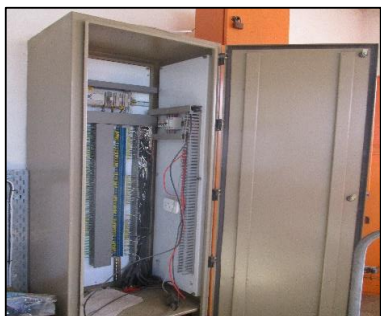
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : PERENG B PUMP STATION (28°31'16.39"S,28°52'24.28"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical ca
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Instalallation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection

Pump station: : PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish exterior concrete roofs
Installation of new burgular door (security door)

Pump station: : PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework
Manufacture and install new pipework
Installation of two (2) new pump sets
Installation of lifting equipment
Replace existing valves and control equipment

Pump station: : PERENG A PUMP STATION (28°31'16.13"S,28°52'24.11"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Refurbishment of existing bulk electrical connection

Pump station: : INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
 Repaint of interior walls, ceilings and floors
 Repaint access doors
 Refurbish exterior concrete roofs
 Construction of new gaurdhouse
 Removal of vegetation
 Installation of high security clear-vu fencing
 Construction of new access road
 Paving around existing structures
 Installation of gantry

Pump station: : INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



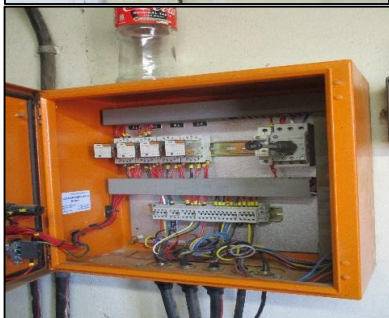
PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing pipework
Refurbishment of existing pump sets
Replace existing valves and control equipment
Installation of two (2) new pump sets
Installation of lifting equipment

Pump station: : INTABAZWE PUMP STATION (28°15'11.82"S,29° 6'27.39"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection

Pump station: : KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

Schedule Reference : CIVIL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing Pump Station:
Repaint of interior walls, ceilings and floors
Repaint access doors
Refurbish exterior concrete roofs
Refurbishing guardhouse
Removal of vegetation
Replace existing gaurdrails
Replace existing diamond mesh fencing with high security clear-vu fencing
Construction of new access road
Paving around existing structures
Reconstruct plinths
Installation of gantry

Pump station: : KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

Schedule Reference : MECHANICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Removal of existing pipework
Manufacture and install new pipework
Installation of two (2) new pump sets
Installation of lifting equipment
Replace existing valves and control equipment

Pump station: : KINGSHILL PUMP STATION (28°16'39.77"S,29° 8'45.07"E)

Schedule Reference : ELECTRICAL WORKS

PHOTOS



PROPOSED SCOPE OF WORKS (BUT NOT LIMITED TO)

Refurbishment of existing MCC Panel
Installing new pressure transmitters
Fault finding and replacement of existing electrical cables
General electrical refurbishment (lights & plugs)
Installation of exterior flood lights
Installation of security system, including:
CCTV cameras
Entrance prevention (Pepperspray)
Installation of level control equipment at Reservoir
Refurbishment of existing bulk electrical connection