WATER AND SANITATION DEPARTMENT

CITY OF TSHWANE
IGNITING EXCELLENCE

TENDER REFERENCE: **WS 08-2022.23**

THE CONSTRUCTION OF A 10 ML PARKMORE LL RESERVOIR AND THE INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

VOLUME 1

EXPANDED PUBLIC WORKS PROGRAMME

A Tender for Category 7CE or higher CIDB Registered Contractors

ISSUED BY:
The Group Head Water and Sanitation Department P O Box 1022 PRETORIA 0001 Tel: (012) 358 – 7737 Fax: (012) 358 – 4684

Registered Name of Tenderer:	
Trading Name of Tenderer:	
Registration No. of Entity:	
Postal address of Tenderer:	
Contact Person:	CoT Vendor No:
Tel. No.:	E-mail Address:
Cell No.:	Fax No:
CIDB CRS Number(s):	

In compliance with THE CIDB standards for uniformity

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: WS 08-2022.23

THE CONSTRUCTION OF A 10ML PARKMORE LL RESERVOIR AND THE INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

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PART T1: TENDERING PROCEDURES

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

WS 08-2022.23 THE CONSTRUCTION OF A 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

THIS TENDER IS NOT AVAILABLE ON THE INTERNET

Tenders are hereby invited for the above services.

Tenderers should have a CIDB contractor grading designation of ***7CE*** or higher.

Tenders will be evaluated on the basis of awarding points for price and **B-BBEE** Status Level of Contribution. The 90/10 Preference Point System will be applied to this Tender

The tender documents can be downloaded from the City of Tshwane website (www.tshwane.gov.za) and National Treasury website (www.etenders.gov.za).

A COMPULSORY CLARIFICATION MEETING with a representative of the Employer will take place at the position of the Reservoir which is situated at between Corobay and Ria Avenue in Waterkloof Glen, Ext 8, and bordered to the north by the Impact Radio premises and to the east by the sport grounds of the Hatfield Christian School on 5 July 2022 @ 10h00.

Coordinates: -25.795252, 28.276286. The lowest or any tender will not necessarily be accepted, and the Municipality reserves the right to accept a tender as a whole or in part.

Tenders must remain valid for a period of **90 days** after the closing date for the submission of tenders, during which period a tender may not be amended or withdrawn and may be accepted at any time by the Municipality. The City reserves the right to extend the validity period after consultation with the concerned parties.

The closing time for receipt of tenders is 16 August 2022 @ 10h00.Tenders will be received on the closing date and time shown, must be enclosed in sealed envelopes bearing the applicable tender heading and reference number, as well as the closing time and due date, and must be addressed to the DIVISONSAL HEAD: SUPPLY CHAIN MANAGEMENT and must be deposited in the tender box situated at the City of Tshwane Metropolitan Municipality, Tshwane House, 320 Madiba Street, Pretoria Central, 0001. Tenders will be opened at the latter address at the time indicated.

ENQUIRIES:

Employer's Representative:	Ms Kefiloe Kgasi
Telephone:	012 358 2283
E mail:	kefiloek@tshwane.gov.za
Employer's Representative:	Ms Lukkie Thobejane-Selowe
Telephone:	012 358 6282
E mail:	lukkiet3@tshwane.gov.za

Ms MMASEABATA MUTLANENG
ACTING CITY MANAGER
NOTICE 1 of 2022/23

T1.2 TENDER DATA

The Standard Conditions of Tender as contained in Annex C of Board Notice 423 of 2019 in Government Gazette No. 426622 of 08 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement (see www.cidb.org.za), are applicable, bound into Section T1.3

The Standard Conditions of Tender makes several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender to which it mainly applies.

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
C.1.1	Actions	The Employer is **THE CITY OF TSHWANE**. The term "bid" in the context of this standard is synonymous with term "'tender".
C.1.2	Tender documents	<u>The documents issued by the Employer for the purpose of a tender offer are as listed below:</u> <u>1. Volume 1: Tender Document</u> This document in which are bound the Tendering Procedures, Returnable Documents, Agreements and Contract Data, Pricing Data, Scope of Work, Site Information and Additional Documents. <u>2. Volume 2: Standard Drawings</u> The standard Drawings as referred to in Portion 2: Part C3, Section C3.2 and the Bill of Quantities will form part of this contract. Request for drawings maybe emailed to the following: WS_WayleaveAPPL@Tshwane.gov.za ***Tenderers are reminded that irrespective of any other provision or requirement contained in this tender, the only mandatory required documents to be submitted with this tender are listed in Part T2 of the Returnable Documents.***
C.1.3	Interpretation	**<u>ADD the following new sub-clause: "C.1.3.4"</u>** The Tender documents have been drafted in English. The contract arising from the invitation of tender shall be interpreted and construed in English. **<u>ADD the following</u>** to the clause: The following words will have the same meaning: • ***CITY OF TSHWANE, COT or CTMM"***
C.1.4	Communication and Employer's Agent	Agent: ***Chiefton Facilities Management*** Representative: ***Mr. Ashwin Hemraj*** Tel: ***087 700 2654*** Fax: ***086 520 7096*** E-mail address: ***tenders@chiefton.co.za***

C.1.6.3	Proposal procedure using the two stage-system	**Option 1** of the two-stage system is chosen.
C.2.1	Eligibility	**ADD the following** to the clause: a) Only those Tenderers who are registered with the **CIDB** or are capable of being registered prior to the closing date of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **7CE** or higher Class of construction work, are eligible to submit tenders. b) Joint ventures are eligible to submit tenders provided that: i. Every member of a joint venture is registered with the **CIDB** prior to the closing date of submissions of tenders; ii. The lead partner has a contractor grading designation in the 6CE or higher Class of construction work; and the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor designation determined in accordance with the sum tendered for an **7CE** or higher Class of construction work, are eligible to submit tenders c) An authorized representative of the tendering entity attends the compulsory clarification meeting in terms of C.2.7 below. d) Tender complies with Sub-Contracting minimum pre-qualification threshold. The minimum prequalification threshold shall be 30% of the tendered value. e) The tender materially comply with the scope/specifications of the Tender f) The tender meets the minimum number of evaluation points set for Quality/functionality criteria as stipulated in Clause C.3.11.1 of the Tender Data. g) The tender contains a priced offer.”
C.2.7	Clarification meeting	Details of the **compulsory** clarification meeting with a representative of the Employer are stated in the Tender Notice and Invitation to Tender where required. Confirmation of attendance will be recorded on site in the attendance register to be signed by all tenderers should there be need for a **compulsory** clarification meeting. Tender documents will not be made available at the site visit and/or clarification meeting.
C.2.8	Seek clarification	**Replace** the contents of the clause with the following: “Request clarification of the tender documents, if necessary, by notifying the Employer or the Employer’s Agent indicated in the Tender Notice and Invitation to Tender in writing at least seven (7) working days before the closing time stated in the foregoing notice and clause 2.15.”

C.2.9	Insurance	**Add the following** to the clause "Accept that the submission of a Tender shall be construed as an acknowledgement by the Tenderer that he is satisfied with, where applicable, the insurance cover the Employer will affect under the contract."
C.2.11	Alterations to documents	**Add the following** to the clause*:* "In the event of a mistake having been made on the price schedule, it shall be neatly crossed out in black ink by a single straight line and be accompanied by an initial at each and every price or other alteration." ***No correction fluid may be used*** in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. The Municipality will reject the bid if corrections are not made in accordance with the above."
C.2.12	Alternative tender offers	Alternative offers will only be considered if tenderer(s) have submitted a fully completed main offer. For alternative offers a complete separate detailed activity, quantities and bill/price schedule must be submitted as a separate document. Tenderers must provide for each offer a typed copy on CD (Word and PDF format) of the above schedule with their offers.
C.2.13 C.2.13.2	Submitting a Tender Offer	**Add the following** to the clause*:* Each Tenderer is required to return the complete set of documents as listed in Part T2 with all the required information supplied and completed in all respects.
C.2.13.4		**Add the following** to the clause*:* "Only authorised signatories may sign the original and all copies of the tender offer where required in terms of F.2.13.3 In the case of a **ONE-PERSON CONCERN** submitting a tender, this shall be clearly stated. In case of a **COMPANY** submitting a tender, include a copy of a **resolution by its board of directors** authorising a director or other official of the company to sign the documents on behalf of the company. In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a **resolution by its members** authorising a member or other official of the corporation to sign the documents on each member's behalf. In the case of a **PARTNERSHIP** submitting a tender, **all the partners** shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case **proof of such authorisation** shall be included in the Tender. In the case of a **JOINT VENTURE/CONSORTIUM** submitting a tender, include **a resolution** of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint Venture to sign the documents on behalf of the Joint Venture."

		In cases where the Tenderer has not submitted proof of authorisation with the Tender, the Employer reserves the right to, at any time after the closure of the Tender, but before the award of the Tender, request the Tenderer to provide proof of authorisation within 7 (seven) calendar days from date of notification. **Accept that failure to submit proof of authorisation to sign the tender, shall result in a Tender Offer being regarded as non-responsive.**
C.2.13.5		The identification details are: Correct tender reference No.: **WS 08-2022.23** Correct Tender description: The Construction of a 10 ML Parkmore LL Reservoir and Installation of Feeder Mains: 18-month Period Civil and Building Work Correct closing time: 10:00 Correct due date: 16 August 2022 Each tender shall be enclosed in a sealed envelope, bearing the correct identification details and addressed to the **DIVISIONAL HEAD: SUPPLY CHAIN MANAGEMENT** and shall be placed in the tender box located at: **CITY OF TSHWANE** **TSHWANE HOUSE** **320 MADIBA STREET** **PRETORIA CENTRAL** **0001** This address is 24 hours available for delivery of Tender offers.
C.2.13.6		A two-envelope procedure will not be followed.
C.2.14	Information and Data to be completed in all respects	**Add the following** to the clause "Accept that the Employer shall in the evaluation of tenders take due account of the Tenderer's past performance in executing for similar construction works of comparable magnitude, and the degree to which he possesses the necessary technical, financial and other resources to enable him to complete the Works successfully within the contract period. The Tenderer must submit relevant past work experiences along with certificates or work completed.
		Satisfy the Employer and Engineer as to his ability to perform and complete the Works timeously, safely and with satisfactory quality, by furnishing details in Part T2 – Returnable Documents. Accept that the Employer is restricted in accordance with clause 4. (4) of the Constructions Regulations, 2014, to only appoint a contractor whom he is satisfied has the necessary competencies and resources to carry out the work safely. Accept that submitting inferior and inadequate information relating to health and safety (as required in clause C2.23 of the Tender Data and Standard Conditions of Tender) shall be regarded as justifiable and compelling reasons not to award a contract to a Tenderer."

C.2.15 C.2.15.1 C.2.15.2	Closing time	Details of the closing time for submission of tender offers are stated in the Tender Notice and Invitation to tender.
C.2.16 C.2.16.1	Tender Offer validity	The Tender Offer validity period is **90 days**. **<u>Add the following</u>** to the clause open for acceptance until the closure of business on the following working day." The employer has an option to extend the tender validity to 180 days after consulting the relevant parties.
C.2.19	Inspections, tests and analysis	The Tenderer must provide access during working hours to his premises for inspections on request.
C.2.23	Certificates	Refer to part T2: Returnable Documents for a list of documents that are to be returned with the tender. The Tenderer shall submit amongst other valid certificates: a) CIDB registration certificate in the category indicated in Clause C2.1 b) SARS Tax Clearance Certificate c) B-BBEE Certificate d) National Treasury Central Supplier Database (CSD) registration certificate e) Company CIPC Registration Certificate f) Works Completion Certificates for previous experience
Add the following new clause: "C.2.24"	Canvassing and obtaining of additional information by tenderer	"Accept that no Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon." "No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders."
Add the following new clause: "C.2.25"	Prohibitions on awards to persons in service of the state	"Accept that the Employer is prohibited to award a tender to a person a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality <u>or</u> municipal entity. **"In the service of the state"** means to be – i) a member of – • any municipal council; • any provincial legislature; or • the National Assembly or the National Council of Provinces; ii) a member of the board of directors of any municipal entity; iii) an official of any municipality or municipal entity;

		iv) an employee of any national or provincial department; v) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); vi) a member of the accounting authority of any national or provincial public entity; or vii) an employee of Parliament or a provincial legislature." In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed."
Add the following new clause: "C.2.26"	Awards to close family members of persons in the service of the state	"Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R2000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause 2.25), or has been in the service of the state in the previous twelve months, including – a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed."
Add the following new clause: "C.2.27"	Vendor registration	"Accept that each contractor is required to register as a supplier/ service provider on the City of Tshwane's vendor register before any payment can be done. Accept that if the Tenderer is already registered as a vendor, it is required to record the vendor number in space provided on the cover page of this Tender document. Vendor registration documents are available from the Procurement Advice Centre or can be downloaded from ***http://www.vendorportal.tshwane.gov.za*** Accept that all parties of a joint venture or consortium submitting a tender shall comply with the requirements of this clause"
Add the following new clause: "C.2.28"	Tax Clearance Certificate	"In the case of a Joint Venture/Consortium the tax clearance certificate must be for the Joint Venture/Consortium or individual valid tax clearance certificates for all the members of the Joint Venture/Consortium."
C.3.1	Respond to requests from the tenderer	**Replace** the contents of the clause with the following: "Respond to a written request for clarification received up to seven (7) calendar days before the tender closing time stated in the tender data and notify all Tenderers who drew procurement documents. The responses must be made in five (5) working days before the tender closing time stated in the Tender Data."
C.3.11.1	General	Include the following: The tender evaluation method to evaluate all responsive tender offers will be ***METHOD 2.*** Apply the ***90/10*** Preference Point system where a maximum of ***NINETY (90)*** tender adjudication point be awarded for price and a maximum of ***TEN (10)*** points for B-BBEE status level of contribution. Refer to Part T2 – Returnable Documents. The requirement of this Tender is that a Contractor must score at least **65** points (65%) for functionality to qualify for further adjudication.

The bid will be evaluated in Five stages- administrative compliance, local content and production declaration compliance, mandatory requirements will be assessed and then the 90/10-point system as prescribed in Preferential Procurement Regulation 2017. The evaluation will be done as follows:

The bids will be evaluated in four stages as follows:

- Stage 1: Administration Compliance
- Stage 2: Local Production and Content
- Stage 3: Mandatory Requirements
- Stage 4: Functionality
- Stage 5: 90/10 system as prescribed in Preferential Procurement Regulation

1. <u>Stage 1: Administration Compliance</u>

All the proposals will be evaluated against the Administrative responsiveness as follows:

a) Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data.

b) Each Tenderer is required to return the complete set of documents (including all issued Addenda) as listed in Part T2 with all the required information supplied and completed in all respects, including initialising and of all pages and signing where applicable by an authorised person with non-erasable BLACK INK.

c) <u>In the event of a mistake having been made on the price schedule, it shall be neatly crossed out in black ink by a single straight line and be accompanied by an initial at each and every price or other alteration."</u>
<u>No correction fluid may be used</u> in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. The Municipality will reject the bid if corrections are not made in accordance with the above."

2. <u>Stage 2: Local Production and Content</u>

The following stipulated minimum thresholds for local content will be applicable.

<u>Description of services, works or goods</u>	
Valve Products	70%
Electrical and Telecom Cable Products	90%
Steel Products and Components for Constructions:	100%
Plastic Pipes	100%
Steel Pipes Fittings and Specials	
Bare	100%
Galvanised	100%
Galvanised and coated	80%
Forged Fittings (Flanges)	100%

The Tenderer should have completed the returnable **Form RBD 2** in full including all it's Annexures and meet the minimum thresholds as stipulated to be compliant.

3. <u>Stage 3: Mandatory Requirements</u>

All the proposals will be evaluated against the mandatory responsiveness requirements as set out in the list of returnable documents.

a) Only those Tenderers who are registered with the CIDB or are capable of being registered prior to the closing date of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 7CE or higher Class of construction work, are eligible to submit tenders.

b) Joint ventures are eligible to submit tenders provided that:

i) Every member of a joint venture is registered with the CIDB prior to the closing date of submissions of tenders;

ii) The lead partner has a contractor grading designation in the 6CE or higher Class of construction work; and the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor designation determined in accordance with the sum tendered for an 7CE or higher Class of construction work, are eligible to submit tenders

c) An authorized representative of the tendering entity attends the compulsory clarification meeting in terms of C.2.7 below.

d) Tender complies with Sub-Contracting minimum pre-qualification threshold. The Sub-contracting threshold is a minimum of 30% of the tendered value.

e) The tender materially comply with the scope/specifications of the Tender

f) The Tenderer is able to produce a Tax Clearance Certificate issued by the South African Revenue Service and if the Tax clearance has expired, the tenderer will be requested to re-submit a valid tax clearance within 7 days. In the case of a Joint Venture the certificate must be in the name of the Joint Venture or individual valid certificates for each member.

g) The Tender meets the minimum number of evaluation points set for Quality/functionality criteria as stipulated in Clause C.3.11.1 of the Tender Data.

h) The Tenderer provides valis proof of registration on National Treasury's Central Supplier's Database (CSD). Tenderers are required to self-register on National Treasury's Central Suppliers Database (CSD) which has been established to centrally administer Contractor information for all organs of state and facilitate the verification of certain key Contractor information. The CSD can be accessed https://secure.csd.gov.za/.

i) The Tender contains a priced offer."

4. <u>Stage 4: Functionality</u>

The following criteria and weights will be applied when bids are assessed for functionality.

SCORECARD FOR FUNCTIONALITY

CRITERIA	SUB-CRITERIA	SCALE	WEIGHT	HIGH POSSIBLE SCORE
Company Experience: Proof of relevant projects completed of similar type (cast in-situ concrete reservoir ≥10ML) **Completion Certificate, Final Approval Certificate or Performance Certificate to be attached**	1 Project 2 Projects 3 Projects 4 Projects 5 5+Projects	1 2 3 4 5	6	40
Local Economic Participation - Location of Business ***Municipal Rates & Taxes not older than three months from tender advertisement date or Valid Lease Agreement***	Outside Gauteng Within Gauteng Within City of Tshwane	5 10 15	1	15
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Steel Team Leader / Supervisor (NQF 4) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	2	10
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Concrete Team Leader / Supervisor (NQF 4) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	2	10
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Health and Safety Officer (NQF 4) ***Attach copies of both proof of qualification, legal registration certificate and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	2	10
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Contract Manager (ND Civil Engineering or NQF 6) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	3	15
HIGHEST POSSIBLE SCORE				100

(a) Bids will be rated in respect of each criterion on a scale of 1 – 5. The maximum possible score that can be achieved for functionality is 100.

		(b) The CoT reserves the right to contact references submitted by the bidder. (c) **Bids that do not achieve a minimum score of 65 (out of 100) for functionality will not be evaluated further and will not pass to STAGE 4 of the Bid Evaluation process**. **Calculation of scores (Weights x Scale = Score)** • **Please note should any of the above staff be replaced, the successfully appointed service provider will be required to ensure that such replacements must have equivalent criteria as above and this need to be approved by the City of Tshwane.** **5. <u>Stage 4: Preferential Point System</u>** The system comprises of the following three elements: (i) Price 90 points (ii) BBBEE Contributor level 10 points
C.3.13	Acceptance of Tender Offer	Tender offers will only be accepted if: j) The Tenderer is able to produce a Tax Clearance Certificate issued by the South African Revenue Service and if the Tax clearance has expired, the tenderer will be requested to re-submit a valid tax clearance within 7 days. k) The Tenderer is registered with the Construction Industry Development in an appropriate contractor grading designation. l) The tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. m) The Employer is reasonably satisfied that the tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and resources to carry out the work safely. n) Tenderers are not registered on National Treasury's Central Supplier Database (CSD) which has been established to centrally administer supplier information for all organs of state and facilitate the verification of certain key supplier information, by the time of award. The CSD can be accessed at https://secure.csd.gov.za. o) The Tenderer is not in arrears for more than 3 months with municipal rates and taxes and municipal service charges; p) The Tenderer or any of its directors is not listed on the Register of Tender 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, and q) The Tenderer has not: i) abused the Employer's Supply Chain Management); or ii) failed to perform on any previous contract and has been given a written notice to this effect.

		e) It is considered that the performance of the services will not be compromised through any conflict of interest.
C.3.17	Provide Copies of the Contract	One signed copy of contract shall be provided by the Employer to the successful Tenderer.

T1.3 STANDARD CONDITIONS OF TENDER

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Annex C
(normative)

Standard Conditions of Tender

As published in Annexure C of the CIDB Standard for Uniformity for construction Procurement, Board Notice 423 Government Gazette No 42622 of 8 August 2019

C.1 General

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

C.1.1.3 The employer shall not seek, and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising

from the invitation to tender.

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **conflict of interest** means any situation in which:

i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;

ii) an individual or organisation is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or

iii) incompatibility or contradictory interests exist between an employee and the organisation which employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;

c) **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 tender process;

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

C.1.5 Cancellation and Re-Invitation of Tenders

C1.5.1 An Employer may, prior to the award of the tender, cancel a tender if-

(a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;

(b) funds are no longer available to cover the total envisaged expenditure; or

(c) no acceptable tenders are received.

(d) There is a material irregularity in the tender process.

C1.5.2 The decision to cancel a tender must be published in the same manner in which the original tender invitation was advertised.

C1.5.2 An Employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

C.1.6.2 Competitive negotiation procedure

C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

C.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal procedure using the two stage-system

C.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second

stage, following the issuing of procurement documents.

C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data and award the contract in terms of these conditions of tender.

C.2 Tenderer's obligations

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of tendering

C.2.2.1 Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

C.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

C.2.4 Confidentiality and copyright of documents

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

C.2.5 Reference documents

Obtain, as necessary for submitting a tender 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 tender documents by reference.

C.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary, apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

C.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the tender offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

C.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

C.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.

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

C.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations.

C.2.12 Alternative tender offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

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

C.2.12.3 An alternative tender offer may only be considered in the event that the main tender offer is the winning tender.

C.2.13 Submitting a tender offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture 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 tender data.

C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender 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.

C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers 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 tender offer.

C.2.13.5 Seal the original and each copy of the tender 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 tender data, as well as the tenderer's name and contact address.

C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender 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 tender data, as well as the tenderer's name and contact address.

C.2.13.7 Seal the original tender 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 tender data.

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

C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

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

Accept that tender 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.

C.2.15 Closing time

C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender offer validity

C.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.

C.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the Employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI)

C.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of tender offer after submission
Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender 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 competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

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

C.2.18 Provide other material
C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer'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 tenderer 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 tender offer as non-responsive.

C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

C.2.19 Inspections, tests and analysis
Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20 Submit securities, bonds and policies
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.

C.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.

C.2.22 Return of other tender documents
If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

C.3 The employer's undertakings

C.3.1 Respond to requests from the tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;

b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or

c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of tender submissions

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

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

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

C.3.5 Two-envelope system

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers 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 tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 Non-disclosure

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

C.3.7 Grounds for rejection and disqualification

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

C.3.8 Test for responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
c) affect the competitive position of other tenderers presenting responsive tenders if it were to be rectified.

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

C.3.9 Arithmetical errors, omissions and discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

a) the gross misplacement of the decimal point in any unit rate;
b) omissions made in completing the pricing schedule or bills of quantities; or
c) arithmetic errors in:
   i) line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
   ii) the summation of the prices.

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules 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 shall be corrected.

b) 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 tenderer's addition of prices, the total of the prices shall govern, and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of tender offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the tender data associated with the specific project.

Conditions of tender are by definition the document that establishes a tenderer’s obligations in submitting a tender and the employer’s undertakings in soliciting and evaluating tender offers. Such conditions establish the rules form the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	**Qualitative interpretation of goal**

Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to the participating parties to same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all the requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardised with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and at least resources to effectively manage and control procurement processes

The activities associated with evaluating tender offers are as follows:

a) Open and record tender offers received
b) Determine whether or not tender offers are complete
c) Determine whether or not tender offers are responsive
d) Evaluate tender offers
e) Determine acceptability of preferred tenderer
f) Prepare a tender evaluation report
g) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.12 Insurance provided by the employer.

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

C.3.13 Acceptance of tender offer

Accept the tender offer, if in the opinion of the employer, it does not present any risk and only if the tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
c) has the legal capacity to enter into the contract,
d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act, 2008, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
e) complies with the legal requirements, if any, stated in the tender data, and

f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents.

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

a) addenda issued during the tender period,
b) inclusion of some of the returnable documents, and
c) other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 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.

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the CIDB Register of Projects.

C.3.17 Provide copies of the contracts.

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

C.3.18 Provide written reasons for actions taken.

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

PART T2: LIST OF RETURNABLE DOCUMENTS

CONTENTS

RD.A RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: ***Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.***

Document Name	**Reference**	**Confirmation of Document Included** *(Tenderers may use this column to confirm documents have been completed and included in the tender)*
Form of Offer and Acceptance	Section C1.1	
Declaration of Interest in tender of persons in service of state	Form RDA 1	
Declaration of Tenderer's past supply chain management practises	Form RDA 2	
Site Inspection Certificate	Form RDA 3	

RD.B RETURNABLE DOCUMENTS REQUIRED FOR PREFERENTIAL PROCUREMENT EVALUATION PURPOSES

Note: Failure to submit the applicable documents will result in the tender offer being awarded with 0 (zero) preference points.

Document Name	**Reference**	**Confirmation of Document Included** *(Tenderers may use this column to confirm documents have been completed and included in the tender)*
Preference Points claim form in terms of the Preferential procurement regulations 2011 (90/10 version) and B-BBEE certificate	Form RDB1	
Declaration Certificate for Local Production and Content for Designated Sectors	Form RDB2	

RD.C ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result in the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]

Document Name	Reference	Confirmation of Document Included
Valid Certified Copy of Tax Clearance Certificate	-	
Valid Certified VAT Registration Certificate		
Valid Certified Copy of Company Registration Certificate		
Certified Copy of Founding Statement		
Certified Copy of Partnership Agreement		
Certified Copies of ID(s) for One Man Concerns		
Certified Copy of JV Agreement		
Certified Copy of Letter of Authority of Signatory		
Valid B-BBEE Certificate		
Certified Copy of CIDB Registration Certificate		
Property Rates or Municipal TCC or Certified Copy of Lease Agreement of Company Offices		
Bank Account Details		
Certified Copies of Qualification Certificates and CVs for Key personnel		
Certified Copy of CSD Registration Certificate		
Certified Copies of Previous Work Completion Certificates		
First Programme and method Statements		
Quality Management System		
COIDA Letter of Good Standing		
Schedule of Tenderer's experience	Form RDC1	
Schedule of Proposed Subcontractors	Form RDC2	
Schedule of Plant and Equipment	Form RDC3	
Compliance with OHSA (Act 85 of 1993)	Form RDC4	
Record of services provided to organs of state	Form RDC5	
Company information for tenders greater than R 10 million	Form RDC6	

Classification of Business	Form RDC7	
Certificate of Authority of Signatory	Form RDC8	
Status of Concern Submitting Tender	Form RDC9	
Proof of Registration with the CIDB in the applicable category or higher	Form RDC10-	
Certificate of independent bid determination	Form RDC11	
Bank Rating Report	Form RDC12	

RD.D ADDITIONAL RETURNABLE DOCUMENTS THAT WILL BE <u>INCORPORATED INTO THE CONTRACT</u>

<u>Note:</u> ***Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result in the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]***

Document name	**Reference**	**Confirmation of Document Included**
First Programme and Method Statements	Form RDD1	
Estimated Monthly Expenditure on Contract Works by Tenderer	Form RDD2	
Key-Personnel / Management and Supervisory Staff	Form RDD3	
Quality Management Systems	Form RDD4	

<u>Note:</u> ***Failure to comply with the requirements of a full-time site agent as noted under item C3.3.6 will result in immediate disqualification of your tender.***

RD.E OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Document Name	Reference	Confirmation of Document Included
Record of Addenda to Tender Documents	Form RDE 1	
Proposed Amendments	Form RDE 2	
Declaration Certificate for Local Production and Content for Designated Sectors	Form RDB2	
Cost Price Adjustment (CPA) - Local Content (SEIFSA)	Form RDE 3	
Cost Price Adjustment (CPA) – Imported Content (FOREX)	Form RDE 4	
Form of Offer and Acceptance	Section C1.1	
Contract data (Part 2: Data provided by the Contractors)	Section C1.2	
Activity Schedules / Bills of Quantities	Section C2	

Note: ***Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.***

FORM RDA 1
DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF STATE

THIS FORM MUST BE COMPLETED IN FULL AND SIGNED. FAILURE TO COMPLY WILL RESULT IN THE TENDER BEING DISQUALIFIED.

(Refer to Clauses 2.25 and 2.26 in the Tender Data)

1. Is the employer/owner of the bidder in the service of the state? ***YES / NO (INDICATE)***

If so, state particulars:

.....

2. If the provider is not a natural person, whether any of its directors, managers, principal shareholders, or stakeholder is in the service of the state, or has been in the service of the state in the previous twelve months: ***YES / NO (INDICATE)***

If so, state particulars:

.....

3. Whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to in subparagraph 2 is in the service of the state, or has been in the service of the state in the previous twelve months: ***YES / NO (INDICATE)***

If so, state particulars:

.....

4. Is an employer / owner of the bidder a person who is an advisor or consultant contracted with the municipality or municipal entity: ***YES / NO (INDICATE)***

If so, state particulars:

.....

5. Are the Tenderer or any of the members of the tendering entity involved in another entity for this particular tender: ***YES / NO (INDICATE)***

If so, state particulars:

.....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDA 2
DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal tender document must form part of all tenders 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 tender of any Tenderer may be rejected if that Tenderer, or any of its directors have:
   a. abused the Municipality's / Municipal entity's supply management system or committed any improper conduct I n 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, 2004 (Act 12 of 2004).
4. In order to give effect to the above, this form must be completed in full and signed. Failure to comply will result in the tender being disqualified. The following questionnaire must be completed and submitted with the tender:

ITEM	QUESTION	RESPONSE	
4.1	**Is the Tenderer, any of its directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector?** (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied)	Yes	No
	If so, furnish particulars:		
4.2	**Is the Tenderer 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, 2004 (Act 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 012-326-5445)	Yes	No
	If so, furnish particulars:		
4.3	**Was the Tenderer 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	No
	If so, furnish particulars:		

4.4	**Was any contract between the Tenderer 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	No
	If so, furnish particulars:		
4.5	**Does the tenderer 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	No
	If so, furnish particulars:		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE:

DATE:

FORM RDA 3
SITE INSPECTION CERTIFICATE

As required by Clause 2.7 of the Tender Data, I/we certify that I/we have visited the site of the Works and attended the compulsory site visit and clarification meeting on the date certified below.

I/we further certify that I am/we are satisfied with the description of the Work and the explanations given by the Engineer at the site visit and clarification meeting.

SIGNATURE OF TENDERER: ..... DATE: .....

Site Visit

This will certify that .....

representing .....

attended a Site Inspection for this Contract on ..... 20.....

FOR THE ENGINEER: ..... (signed)

FORM RDB 1
MBD6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2011

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011.

---

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 R1 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R1 000 000 (all applicable taxes included).

1.2 The value of this bid is estimated to exceed R1 000 000 (all applicable taxes included) and therefore the 90/10 system shall be applicable.

1.3 Preference points for this bid shall be awarded for:

(a) Price; and
(b) B-BBEE Status Level of Contribution.

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

		POINTS
1.3.1.1	**PRICE**	90
1.3.1.2	**B-BBEE STATUS LEVEL OF CONTRIBUTION**	10
	Total points for Price and B-BBEE must not exceed	100

1.4 Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5. 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

2.1 **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

2.2 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad -Based Black Economic Empowerment Act;

2.3 "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.4 **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

2.5 **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

2.6 **"comparative price"** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

2.7 **"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;

2.8 **"contract"**Error! Bookmark not defined. means the agreement that results from the acceptance of a bid by an organ of state;

2.9 **"EME"** means any enterprise with an annual total revenue of R5 million or less;

2.10 **"Firm price"** means 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 the 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;

2.11 **"functionality"** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;

2.12 **"non-firm prices"** means all prices other than "firm" prices;

2.13 **"person"** includes a juristic person;

2.14 **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;

2.15 **"sub-contract"** means the primary contractor's assigning, leasing, 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;

2.16 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;

2.17 **"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; and

2.18 **"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.

3. ADJUDICATION USING A POINT SYSTEM

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

3.6 Should two or more bids be equal in all respects the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

4.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

5. Points awarded for B-BBEE Status Level of Contribution

5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

7.1 B-BBEE Status Level of Contribution:……. = …… (maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA).

8 SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted? YES / NO (delete which is not applicable)

8.1.1 If yes, indicate:

(i) what percentage of the contract will be subcontracted? .....……%

(ii) the name of the sub-contractor? ……..

(iii) the B-BBEE status level of the sub-contractor? ……..

(iv) whether the sub-contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATIONS WITH REGARD TO COMPANY/FIRM

9.1 Name of firm : …….

9.2 VAT registration number : …….

9.3 Company registration number : …….

9.4 TYPE OF COMPANY/ FIRM

- ☐ Partnership/Joint Venture / Consortium
- ☐ One person business/sole propriety
- ☐ Close corporation
- ☐ Company
- ☐ (Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

…….....
…….....
…….....

9.6 COMPANY CLASSIFICATION

- ☐ Manufacturer
- ☐ Supplier
- ☐ Professional service provider
- ☐ Other service providers, e.g., transporter, etc.

[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated …….

Registered Account Number …….

Stand Number …….

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS? ……

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we 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 paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

(iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) disqualify the person from the bidding 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) restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, 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.

WITNESSES:

1. ……

……..
SIGNATURE(S)OF BIDDER(S)

2. ……

DATE: ……...

ADDRESS: ……...

……..

……..

……..

FORM RDB 2
MDB6.2: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2017, the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 (Edition 1) and the Guidance on the Calculation of Local Content together with the Local Content Declaration Templates [Annex C (Local Content Declaration: Summary Schedule), D (Imported Content Declaration: Supporting Schedule to Annex C) and E (Local Content Declaration: Supporting Schedule to Annex C)].

1. General Conditions

1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.

1.2. Regulation 8. (2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two-stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

$$LC = [1 - x / y] * 100$$

Where:
x is the imported content in Rand
y is the bid price in Rand excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by South African Reserve Bank (SARB) on the date of advertisement of the bid as indicated in paragraph 3.1 below.

The SABS approved technical specification number SATS 1286:2011 is accessible on http:/www.thedti.gov.za/industrial development/ip.jsp at no cost.

1.6. A bid may be disqualified if this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation;

2. The stipulated minimum threshold(s) for local production and content (refer to Annex A of SATS 1286:2011) for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
Valve Products	70%
Electrical and Telecom Cable Products	90%
Steel Products and Components for Constructions:	100%
Plastic Pipes	100%
Steel Pipes Fittings and Specials	
Bare	100%
Galvanised	100%
Galvanised and coated	80%
Forged Fittings (Flanges)	100%

3. Does any portion of the goods or services offered have any imported content?

(*Tick applicable box*)

YES		NO	

3.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.resbank.co.za

Indicate the rate(s) of exchange against the appropriate currency in the table below (refer to Annex A of SATS 1286:2011):

Currency	Rates of Exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

3. Where, after the award of a bid, challenges are experienced in meeting the stipulated minimum threshold for local content the dti must be informed accordingly in order for the dti to verify and in consultation with the AO/AA provide directives in this regard.

LOCAL CONTENT DECLARATION
(REFER TO ANNEX B OF SATS 1286:2011)

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID NO. .....

ISSUED BY: (Procurement Authority / Name of Institution):

.....
NB

1. The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.
2. Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on http://www.thedti.gov.za/industrial_development/ip.jsp. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below. Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ……..... (full names), do hereby declare, in my capacity as …… …….. of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

(i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

Bid price, excluding VAT (y)	R
Imported content (x), as calculated in terms of SATS 1286:2011	R
Stipulated minimum threshold for local content (paragraph 3 above)	
Local content %, as calculated in terms of SATS 1286:2011	

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.
The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E.

(d) I accept that the Procurement Authority / Institution has the right to request that the local content be verified in terms of the requirements of SATS 1286:2011.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286:2011, may result in the Procurement Authority / Institution imposing any or all of the remedies as provided for in Regulation 14 of the Preferential Procurement Regulations, 2017 promulgated under the Preferential Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

SATS 1286.2011

Annex C

Local Content Declaration - Summary Schedule

(C1)	Tender No.
(C2)	Tender description:
(C3)	Designated product(s)
(C4)	Tender Authority:
(C5)	Tendering Entity name:
(C6)	Tender Exchange Rate:
(C7)	Specified local content %

Pula [ ] EU [ ] GBP [ ]

Note: VAT to be excluded from all calculations

Calculation of local content								Tender summary			
Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value net of exempted imported content	Imported value	Local value	Local content % (per item)	Tender Qty	Total tender value	Total exempted imported content	Total Imported content
(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)	(C16)	(C17)	(C18)	(C19)

(C20) Total tender value	R 0	
(C21) Total Exempt imported content	R 0	
(C22) Total Tender value net of exempt imported content	R 0	
(C23) Total Imported content		R 0
(C24) Total local content		R 0
(C25) Average local content % of tender		

Signature of tenderer from Annex B

Date: _____

SATS 1286.2011

Annex D

Imported Content Declaration - Supporting Schedule to Annex C

(D1)	Tender No.	
(D2)	Tender description:	
(D3)	Designated Products:	
(D4)	Tender Authority:	
(D5)	Tendering Entity name:	
(D6)	Tender Exchange Rate:	Pula

EU R 9.00 GBP R 12.00

Note: VAT to be excluded from all calculations

A. Exempted imported content

Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Tender Qty	Exempted imported value
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)

(D19) Total exempt imported value R 0

This total must correspond with Annex C - C 21

B. Imported directly by the Tenderer

Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Tender Qty	Total imported value
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)

(D32) Total imported value by tenderer R 0

C. Imported by a 3rd party and supplied to the Tenderer

Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Calculation of imported content: Forign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Summary: Quantity imported	Total imported value
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)

(D45) Total imported value by 3rd party R 0

D. Other foreign currency payments

Type of payment	Local supplier making the payment	Overseas beneficiary	Calculation of foreign currency payments: Foreign currency value paid	Tender Rate of Exchange	Summary of payments: Local value of payments
(D46)	(D47)	(D48)	(D49)	(D50)	(D51)

(D52) Total of foreign currency payments declared by tenderer and/or 3rd party

(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above R 0

This total must correspond with Annex C - C 23

Signature of tenderer from Annex B

Date:

SATS 1286.2011

Annex E

Local Content Declaration - Supporting Schedule to Annex C

(E1)	Tender No.	
(E2)	Tender description:	
(E3)	Designated products:	
(E4)	Tender Authority:	
(E5)	Tendering Entity name:	

Note: VAT to be excluded from all calculations

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
		(E9) Total local products (Goods, Services and Works)	R 0

(E10)	Manpower costs	(Tenderer's manpower cost)	R 0
(E11)	Factory overheads	(Rental, depreciation & amortisation, utility costs, consumables etc.)	R 0
(E12)	Administration overheads and mark-up	(Marketing, insurance, financing, interest etc.)	R 0

(E13) Total local content R 0

This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date: _____

A: ORIGINAL VALID TAX CLEARANCE CERTIFICATE WITH PIN CODE

Attach Original Certificate

B: CERTIFIED COPY OF VAT REGISTRATION CERTIFICATE

Attach Certified Copy

C: CERTIFIED COPY OF CERTIFICATE OF INCORPORATION (if tenderer is a company)

Attach Certified Copy

D: CERTIFIED COPY OF FOUNDING STATEMENT (if tenderer is a closed corporation)

Attach Certified Copy

E: CERTIFIED COPY OF PARTNERSHIP AGREEMENT (if tenderer is a partnership)

Attach Certified Copy

F: CERTIFIED COPY OF IDENTITY DOCUMENT (if tenderer is a one-man concern)

Attach Certified Copy

G: JOINT VENTURE AGREEMENT (if tenderer is a joint venture)

Attach Certified Copy

H: LETTER OF AUTHORITY FOR SIGNATURE

Attach Original Document

I: VALID B-BBEE CERTIFICATE

Attach Certificate

J: CERTIFIED COPY OF CIDB REGISTRATION CERTIFICATE

Attach Certified Copy

K: ORIGINAL PROPERTY RATES AND MUNICIPAL TAXES CLEARANCE CERTIFICATE OR COPY OF VALID LEASE AGREEMENT OF COMPANY (if renting)

Attach Original Certificate

L: CONFIRMATION OF BANK ACCOUNT DETAILS (Refer to Form RDC 12)

Attach Letter from Bank

M: CERTIFIED COPIES OF QUALIFICATIONS AND CURRICULA VITAE OF ALL SUPERVISORY AND SAFETY PERSONNEL (Refer to Form RDD 3)

Attach Documents

N: CERTIFIED COPIES OF CSD REGISTRATION PROOF.

Attach Documents

O: CERTIFIED COPIES OF PREVIOUS WORK COMPLETION CERTIFICATES (Refer to Form RDC 1)

Attach Certified Copy

P: FIRST PROGRAMME AND METHOD STATEMENTS (Refer to Form RDD 1)

Attach Documents

Q: QUALITY MANAGEMENT SYSTEM (Refer to Form RDD 4)

Attach Documents

R: COIDA LETTER OF GOOD STANDING

Attach Certified Copy

FORM RDC 1
SCHEDULE OF TENDERER'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 INCLUSIVE OF VAT (RAND)	DATE COMPLETED
1._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
2._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
3._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
4._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
5._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____

FORM RDC 2

SCHEDULE OF PROPOSED SUBCONTRACTORS

You, the client, are hereby notified that it is our intention to employ the following Subcontractors for work on 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 Subcontractors 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.

	NAME AND ADDRESS OF PROPOSED SUBCONTRACTOR	NATURE AND EXTENT OF WORK
1.		
2.		
3.		
4.		
5.		

FORM RDC 3

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 tender is accepted.

1. 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)

2. Details of major equipment that will be hired or acquired for this contract if my/our tender is acceptable.

QUANTITY	DESCRIPTION, SIZE, CAPACITY, ETC.

(Attach additional pages if more space is required)

FORM RDC 4

COMPLIANCE WITH OHSA

(*Act 85 of 1993)*

Tenderers are required to satisfy the Employer and the Engineer as to their ability and available resources to comply with the above by answering the following questions and providing the relevant information required below.

1. Is your company familiar with the OHSA (ACT 85 of 1993) and its Regulations ***and*** do you have a copy available?	**YES**	**NO**
2. Who will prepare your company's Health and Safety Plan? Provide a copy of the person/s curriculum vitae/s or company profile.		
3. Does your company have a health and safety policy? If YES provide a copy.	**YES**	**NO**
4. How is this policy communicated to your employees? Provide supporting documentation to prove such communication	**YES**	**NO**
5. Does your company keep record of safety aspects of each site where work is performed? If YES, what records are kept?	**YES**	**NO**
6. Does your company conduct monthly safety meetings? If YES, provide copies of the Minutes of the last 2 meetings held.	**YES**	**NO**
7. Does your company have a safety officer in its employment, responsible for overall safety of your company? If YES, explain his/her duties and provide a copy of his/her CV ***(only if not the same person as in question 2 above)*** If NO, indicate who will be appointed as safety officer for this project and provide a copy of his/her CV.	**YES**	**NO**
8. Indicate the total number of employees in the Company.	**……..**	
9. Does your company have trained first aid employees? If YES, indicate who.	**YES**	**NO**
10. Does your company have a safety induction training programme in place? If YES, provide a summary of topics covered in such induction training programme	**YES**	**NO**

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC 5
RECORD OF SERVICES PROVIDED TO ORGANS OF STATE

Tenderers are required to complete this record in terms of the Supply Chain Management Regulations issued in terms of the Municipal Finance Management Act of 2003.

Include only those contracts where the tenderer identified in the signature block below was directly contracted by the Employer. Tenderers must not include services provided in terms of a sub-contract agreement.

Where contracts were awarded in the name of a joint venture and the tenderer formed part of that joint venture, indicate in the column entitled "Title of the contract for the service" that the contract was in joint venture and provide the name of the joint venture that contracted with the employer. In the column for the value of the contract for the service, record the value of the portion of the contract performed (or to be performed) by the tender.

Complete the record or attach the required information in the prescribed tabulation.

All services commenced or completed to an organ of state in the last five years.

#	Organ of state, i.e., national or provincial department, public entity, municipality or municipal entity.	Title of contract for the service	Value of contract for service incl. VAT (Rand)	Date completed (State current if not yet completed)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				

(Attach additional pages if more space is required.)

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC 6

COMPANY INFORMATION FOR TENDERS GREATER THAN R10 MILLION

1. The tenderer is required by law to prepare annual financial statements for auditing and is therefore requested to provide audited annual financial statements:
   - for the past three years; or
   - since their establishment if established during the past three years.

   Indicate whether these have been included in the tender: ***YES / NO***

2. Does the tenderer have any undisputed commitments for Municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO***

   If so, state particulars

   .....

3. Have any contracts been awarded to the tenderer by an organ of state during the past five years? ***YES / NO***

   If so, state particulars

   .....

4. Has there been any material non-compliance or dispute concerning the execution of such contract? ***YES / NO***

   If so, state particulars

   .....

5. Is any portion of the goods or services expected to be sourced out from outside the Republic? ***YES / NO***

   If so, state what portion and whether any portion of payment from the Municipality is expected to be transferred out of the Republic.

   .....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDC 7

CLASSIFICATION OF BUSINESS

1. THE SMALL BUSINESSES ARE DEFINED IN THE NATIONAL SMALL BUSINESS ACT, 1996 (ACT 102 OF 1996).

2. INFORMATION FURNISHED WITH REGARD TO THE CLASSIFICATION OF THE SMALL BUSINESSES

a. **Indicate** whether the company/entity is defined as a **small, medium, or micro** enterprise by the National Small Business Act, 1996 (Act 102 of 1996). ***YES / NO***

b. If the response to paragraph is **YES**, the following must be completed:

i. Sector/sub-sector in accordance with the Standard Industrial classification

.....

ii. Size or class

.....

iii. Total full-time equivalent of paid employees

.....

iv. Total annual turnover

.....

v. Total gross asset value (fixed property excluded)

.....

(A schedule indicating the different sectors is attached to this form.)

The tenderer should substantiate the information provided above by submitting the following documentation:

c. A letter from the tenderer's auditor or an affidavit from the South African Police Services confirming the correctness of the abovementioned information,

d. Company profile indicating the tenderer's staff compliment, and

e. 3-year financial statement or since their establishment if established during the past 3 years.

"SCHEDULE"

(See definition of 'small businesses' in section)

SIZE OF CLASS	THE TOTAL FULL-TIME EQUIVALENT OF PAID EMPLOYEES	TOTAL TURNOVER	TOTAL GROSS ASSET VALUE (FICED PROPERTY EXCLUDED)
AGRICULTURE			
Medium	100	R 5 mil	R 5 mil
Small	50	R 3 mil	R 3 mil
Very Small	10	R 500 000	R 500 000
Micro	5	R 200 000	R 100 000
MINING AND QUARRYING			
Medium	200	R 39 mil	R 23 mil
Small	50	R 10 mil	R 6 mil
Very Small	20	R 4 mil	R 2 mil
Micro	5	R 200 000	R 100 000
MANUFACTURING			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5 mil	R 2 mil
Micro	5	R 200 000	R 100 000
ELECTRICITY, GAS & WATER			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
CONSTRUCTION			
Medium	200	R 26 mil	R 5 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 3	R 500 000
Micro	5	R 200 000	R 100 000
RETAIL AND MOTOR TRADE & REPAIR SERVICES			
Medium	200	R 39 mil	R 6 mil
Small	50	R 19 mil	R 3 mil
Very Small	20	R 4 mil	R 600 000
Micro	5	R 200 000	R 100 000
WHOLESALE TRADE, COMMERCIAL AGENTS AND ALLIED SERVICES			
Medium	200	R 64 mil	R 10 mil
Small	50	R 32 mil	R 5 mil
Very Small	20	R 6 mil	R 600 000
Micro	5	R 200 000	R 100 000
CATERING, ACCOMMODATION AND OTHER TRADE			
Medium	200	R 13 mil	R 3 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
TRANSPORT, STORAGE & COMMUNICATIONS			
Medium	200	R 26 mil	R 6 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 600 000
Micro	5	R 200 000	R 100 000
FINANCE & BUSINESS SERVICES			
Medium	200	R 26 mil	R 5 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 500 000
Micro	5	R 200 000	R 100 000
COMMUNITY, SOCIAL AND PERSONAL SERVICES			
Medium	200	R 13 mil	R 6 mil
Small	50	R 6 mil	R 3 mil
Very Small	20	R 1mil	R 600 000
Micro	5	R 200 000	R 100 000

FORM RDC 8

CERTIFICATE OF AUTHORITY OF SIGNATORY

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

.....

.....

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at ..... (place)

On ..... (date)

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the City of Tshwane in respect of the following project:

   .....

   .....

   (Project description as per Bid / Tender Document)

   Bid / Tender Number: ..... (Bid/Tender No as per Bid/Tender Document)

2. Mr/Mrs/Ms: .....

   In *his/her capacity as: ..... (Position in the Enterprise)

   And who will sign as follows: .....

   be, and is hereby, authorised to sign the Bid/Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid/Tender to the Enterprise mentioned above.

	NAME	CAPACITY	SIGNATURE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

NOTE:
1. *Delete which is not applicable.
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

CERTIFICATE OF AUTHORITY FOR JOINT VENTURES AND CONSORTIA

This Returnable Schedule is to be completed by joint ventures.
(Attach additional pages if more space is required.)

We, the undersigned, are submitting this tender offer in a Joint Venture / Consortium and hereby authorise Mr/Ms ..... authorised signatory of the company ..... acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

Registered Name of Firm	Reg. Number	% Of Contract Value	Address	Duly Authorized Signatory	Mark (x) Lead Partner

FORM RDC 9
STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner or a joint venture:

(Mark the appropriate option below)

Public Company	
Private Company	
Closed Corporation	
Partnership	
Sole Proprietary	
Joint Venture	
Co-operative	

2. Information to Be Provided

	If the Tendering Entity is a:	Documentation to be submitted with the tender
1	Closed Corporation, incorporated under the Close Corporation Act,1984, Act 69 of 1984	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members
2	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973. (including Companies incorporated under Art 53 (b))	Copies of: a) CIPRO CM 1 - Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) Shareholders Certificates of all Members of the Company.
3	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 in which any, or all, shares are held by another Closed Corporation or company with, or without, share capital.	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies
4	Public Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973. (including Companies incorporated under Art 21).	A signed statement of the Company's Secretary confirming that the Company is a public Company. Copy of CM 29
5	Sole Proprietary or a Partnership	Copy of the Identity Document of: a) such Sole Proprietary, or b) Each of the Partners in the Partnership Certified copy of the Partnership agreement.

If the Tendering Entity is a:		Documentation to be submitted with the tender
6	Co-operative	CIPRO CR2 - Copies of Company registration document. (The percentage of work to be done by each partner must clearly be indicated on Form RDB1 (or RDB2 as applicable) of the tender document: MBD6.1 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2001)
7	Joint Venture	All the documents (as described above) as applicable to each partner in the JV as well as a certified copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement)

Note:

1.) If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.

2.) Include a copy of the Certificate of Change of Name (CM9) if applicable.

3. Registered for Vat Purposes in Terms of The Value-Added Tax Act, *(Act Nr. 89 of 1991)*

(Make an X in the appropriate space below)

Yes	
No	

REGISTRATION NO: .....

FORM RDC10

ATTACH PROOF OF REGISTRATION WITH CIDB IN GRADE 7CE OR HIGHER

NOTE: Only those Tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, for a 9CE class of construction work, are eligible to have their tenders evaluated

CRS Number	Status	Grading	Expiry Date

Signed: …… **Date**: ……...

Name: ……**Designation**: ……

Tenderer: ……

FORM RDC11

INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids[1] 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 *per 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 birds and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices of 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 statement 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 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 compete in every respect;
3. I am authorised 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 authorised 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 that the bidder, whether or not affiliated with the bidder who:
   a. Has been requested to submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
   b. Could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and 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 form, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[3] 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 of arrangement with any competitor regarding:
   a. Prices;
   b. Geographical area where product of services will be rendered (market allocation);
   c. Methods, factors of 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 arrangement 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 to the awarding of the contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practises 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 form conduction 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 of 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.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC12

BANK RATING REPORT

Banking Details:

Bank: _____

Branch: _____

Name of Account: _____

Account No: _____

Type of Account: _____

The Tenderer shall affix a Bank Rating Report, stamped and verified by the bank, to this page.

RDD 1

FIRST PROGRAMME AND METHOD STATEMENTS

Attach as part of your tender submission a first programme with supporting method statements.

Note:

1. The programme should include all the requirements of a programme submitted for acceptance as stipulated in Clause C.3.11.1 of the Tender data, together with any other information requested in the Scope of Work.

FORM RDD 2
ESTIMATED MONTHLY EXPENDITURE ON CONTRACT WORKS BY TENDERER

The tenderer shall, in the table below, state the estimated cash flow on the contract based on his preliminary programme, his tendered unit rates and his submission of payment certificates to the Employer. Amounts for Contract Price Adjustment shall not be included.

Payment Certificate No.	Amount (VAT Included)					
	a	b	a-b			Cumulative cash flow
	Payments Received	Expenditure		Net cash flow		
1	None		d		j=d	
2			e		k=j+e	
3			f		l=k+f	
4			g		m=l+g	
5			h		n=m+h	
6			etc		etc	
7						
8						
9						
10						
11						
12						
13						
14						
etc						
Maximum negative cash flow: take the largest negative number in the last column and write it here						

From what sources will you fund the above amount (e.g., funds internally available, bank overdraft, loan, partner (his source), etc.)

.....

.....

.....

.....

.....

FORM RDD 3

KEY PERSONNEL / MANAGEMENT AND SUPERVISORY STAFF

The Tenderer shall insert in the spaces below, the name of key personnel to be engaged on the Contract.

	NAME	**CATEGORY ***	QUALIFICATION	**EXPERIENCE (YEARS RELEVANT)**	**LOCAL OR NON – LOCAL**
1.		CONTRACT'S MANAGER			
2.		SITE AGENT			
3.		STEEL TEAM LEADER / SUPERVISOR			
4.		CONCRETE TEAM LEADER / SUPERVISOR			
5.		OHS OFFICER			
6.					
7.					
8.					
9.					
10.					

(Attach additional pages if more space is required.)

* The Contractor shall fill in the various categories, e.g., Foreman, Trainers, Plant Operators, Clerks, Technicians, Laboratory Assistants, etc as required.

Note: ***Failure to comply with the requirements of a full-time site agent as noted under item C3.3.6 will result in disqualification of your tender.***

Note: ***Please ensure that a CV and certified copies of qualification certificates for all the key personnel entered in the table above is attached on submission of your tender document.***

FORM RDD 4
QUALITY MANAGEMENT SYSTEMS

Briefly describe the construction quality system incorporated by the tenderer in his organisation and which will be applicable to this Contract.

	Internal	External	Name of responsible Company /or Person (In case of Person, give years of experience and qualification)
Survey: Setting out of the works and control			
Testing Laboratory			
Additional quality systems			

FORM RDE 1
RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before submission of this tender, amending or amplifying the tender documents, have been taken in account in this tender offer:

	DATE	TITLE OR REFERENCE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDE 2
PROPOSED AMENDMENTS

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

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

PAGE	CLAUSE OR ITEM	PROPOSAL

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDE 3
COST PRICE ADJUSTMENT (CPA)

LOCAL CONTENT (SEIFSA)

Is/Are the tender price/s firm until the end of contract period? ***(YES/NO)***

If not: .....

.....

.....

.....

LOCAL CONTENT:

Submit the cost factors which will be taken into account in the event of price increase/decrease, as well as the compilation of the tender price/s, i.e., cost price, transport cost, margin of profit, etc.

		INDEX FIGURE AND BASE DATE (E.G., SEIFSA TABLE E1)
Fixed	x = 0.1	
Labour	a = 0.30	
Plant	b = 0.15	
Material	c = 0.50	
Fuel	d = 0.05	
Other		
Total	1	

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDE 4
COST PRICE ADJUSTMENT (CPA)

IMPORTED CONTENT (FOREX)

Is/Are the tender price/s firm until the end of contract period? ***YES/NO):***

If not:

IMPORTED CONTENT:

When the price/s is/are subject to the rate of exchange, submit the price basis on which the exchange rate will be based (e.g., F.O.B. value, fixed value in respect of foreign exchange, etc.)

(i) exchange rate upon which the bid price is based

.....

.....

.....

.....

(ii) What portion of the bid price (percentage or amount) will be affected by variations in the exchange rate?

.....

.....

.....

.....

NB: ***Tenderers are also required to submit a bank statement or an auditor's report regarding the actual exchange rate in respect of the transaction value paid to the overseas supplier.***

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

1. SCHEDULE OF PARTICULARS

The following schedules are to be completed and signed by the tenderer. Failure to do so may invalidate the tender.

CITY OF TSHWANE

CONTRACT

TECHNICAL SCHEDULES

EQUIPMENT OFFERED

The following technical schedules must be completed by the Tenderer in black ink and submitted with his Tender.

All V numbered items are listed on the drawings, scheduled under the relevant pipe or valve schedules.

Contents

TECHNICAL SCHEDULE NO. 1
BUTTERFLY VALVE

ITEM V 1

Nominal diameter	……. mm
Manufacturer of valve	.....
Country of origin of valve	.....
Type of valve	.....
Catalogue Serial No. of valve	.....
Quote SABS, BS, (other) spec. to which valve was manufactured	.....
Face to face distance (valve) mm	.....
Mass of valve complete	.....kg
Max. allowable working pressure	..... kPa
Test pressure	..... kPa
Max. safe velocity through valve when fully open	.....m/s
Materials used in manufacture of various parts of valve: Body	.....
Shaft	.....
Disc	.....
Seats & seals	.....
Anti-corrosion measures	.....
Effort on handwheel with differential pressure of 1 700 kPa	.....N
Number of turns of handwheel from fully open to fully closed	.....No
Time for complete manufacture and delivery to Site after receipt of an order to commence Contract.	.....
Manufacturer's publication Nos. (Brochures to be submitted with tender	.....

NOTE: Fully detailed drawings and descriptions as well as test certificates shall be submitted by the Contractor after tender award.

Date: . . . . . .

Signed on behalf of the Tenderer: .....

TECHNICAL SCHEDULE NO. 2

STRAINER

ITEM V2

Nominal diameter	..... mm
Manufacturer	.....
Country of origin	.....
Face to face distance	..... mm
Mass complete	.....kg
Max. allowable working pressure	..... kPa
Test pressure	..... kPa
Max. safe velocity through strainer	m/s
Materials used in manufacture of various parts of pot strainer:	.....
	.....
	.....
	.....
Anti-corrosion measures	.....
Time for complete manufacture and delivery to Site after receipt of an order to commence Contract	.....
Manufacturer's publication Nos. (Brochures to be submitted with tender	.....

NOTE: Fully detailed drawings and descriptions as well as test certificates shall be submitted by the Contractor after tender award.

Date: . . . . . .

Signed on behalf
of the Tenderer: .....

TECHNICAL SCHEDULE NO. 3

FLOW MEASURING AND RECORDING INSTRUMENTS

ITEM V4

1. MEASURING UNIT

Nominal diameter ..... mm

Manufacturer .....

Country of origin .....

Type of sensor .....

Minimum recording flow .....l/s

Maximum capacity .....l/s

Head loss through flow meter
at maximum capacity ..... m

2. RECORDING UNIT

Manufacturer .....

Country of origin .....

Type of recorder .....

Type of display .....

Number of digits .....

3. MEASURING SYSTEM

Overall accuracy of system:

% Error at min. recording flow ± ..... %

% Error at 10 % max. capacity ± ..... %

% Error at max. capacity ± ..... %

4. HEAD LOSS

Through meter at:

250 l/s ..... m

350 l/s ..... m

450 l/S ..... m

NOTE: In addition, drawings/brochures showing details of the equipment offered, its operation and control and other relevant details shall be submitted with the tender.

Date: . . . .

Signed on behalf
of the Tenderer: .....

TECHNICAL SCHEDULE NO. 4

PRESSURE REDUCING VALVE

ITEM V6

Nominal diameter	..... mm
Manufacturer of valve	.....
Country of origin of valve	.....
Type of valve	.....
Catalogue Serial No. of valve	.....
Quote SABS, BS, (other) spec. to which valve was manufactured	.....
Face to face distance (valve) mm	.....
Mass of valve complete	.....kg
Max. allowable working pressure	..... kPa
Test pressure	..... kPa
Max. safe velocity through valve when fully open	.....m/s
Materials used in manufacture of various parts of valve:	.....
	.....
	.....
	.....
Anti-corrosion measures	.....
Time for complete manufacture and delivery to Site after receipt of an order to commence Contract	.....
Manufacturer's publication Nos. (Brochures to be submitted with tender	.....

NOTE: Fully detailed drawings and descriptions as well as test certificates shall be submitted by the Contractor after tender award.

Date: . . . . . .

Signed on behalf
of the Tenderer: .....

TECHNICAL SCHEDULE NO. 5

ALTITUDE AND FLOW CONTROL VALVE

ITEM V7

Nominal diameter	..... mm
Manufacturer of valve	.....
Country of origin of valve	.....
Type of valve	.....
Catalogue Serial No. of valve	.....
Quote SABS, BS, (other) spec. to which valve was manufactured	.....
Face to face distance (valve) mm	.....
Mass of valve complete	.....kg
Max. allowable working pressure	..... kPa
Test pressure	..... kPa
Max. safe velocity through valve when fully open	.....m/s
Materials used in manufacture of various parts of valve:	.....
	.....
	.....
	.....
Anti-corrosion measures	.....
Time for complete manufacture and delivery to Site after receipt of an order to commence Contract	.....
Manufacturer's publication Nos. (Brochures to be submitted with tender	.....

NOTE: Fully detailed drawings and descriptions as well as test certificates shall be submitted by the Contractor after tender award.

Date: . . . . . .

Signed on behalf
of the Tenderer: .....

TECHNICAL SCHEDULE NO. 6

RESILIENT SEALING VALVE

ITEM V8

Nominal diameter		..... mm
Manufacturer of valve		.....
Country of origin of valve		.....
Type of valve		.....
Catalogue Serial No of valve		.....
Quote SABS, BS, (other) spec. to which valve was manufactured		.....
Face to face distance (valve)		..... mm
Mass of valve complete		..... kg
Max. allowable working pressure		..... kPa
Test pressure		..... kPa
Max. safe velocity through valve when fully open		..... m/s
Materials used in manufacture of various parts of valve:	Body	.....
	Spindle	.....
	Trim	.....
Anti-corrosion measures		.....
Effort on handwheel with differential pressure of 200 kPa		.....N
Number of turns of handwheel from fully open to fully closed		..... No
Time for complete manufacture and delivery to Site after receipt of an order to commence Contract		..... weeks
Manufacturer's publication Nos. (Brochures to be submitted with tender)		.....

NOTE: **Fully detailed drawings and descriptions as well as test certificates shall be submitted by the Contractor after tender award**.

Date: . . . . Signature on behalf of the Tenderer: .....

PORTION 2: CONTRACT

PART C1: AGREEMENTS AND CONTRACT DATA

CONTENTS

C1.1 FORM OF OFFER AND ACCEPTANCE

STAMP

OFFER

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

WS 08-2022.23: **The Construction of a 10 ML Parkmore LL reservoir and installation of feeder mains: 18-month period.**

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

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

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

R .....(*in figures*) .....

..... (*in words*)

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

NAME(s): (in block letters) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents: ....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – in block letters – and signature)

1. ....

2. ....

ACCEPTANCE

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

The terms of the contract, are contained in

Part T1	Tendering Procedures
Part T2	Returnable Documents
Part C1	Agreements and Contract Data, (which includes this Agreement)
Part C2	Pricing Data
Part C3	Scope of Work

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C3 above and the drawings and the Water and Sanitation standard detail documents are available at the City of Tshwane Water and Sanitation Department, Capital Towers North, 225 Madiba Street, Pretoria, Room 702, Ms. Retha van der Westhuizen (012 358 7689). Contractor to provide own electronic storage device.

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

The Tenderer shall within two weeks after receiving a letter of acceptance, contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of 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 Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor) within five 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[1].

[1] *As an alternative, the following wording may be used:*
Notwithstanding anything contained herein, this agreement comes into effect two days after the submission by the Employer of one fully completed original copy of this document including the schedule of deviations (if any), to a courier-to-counter delivery / counter-to-counter delivery /door-to-counter delivery / door-to-door delivery / courier service (delete that which is not applicable), provided that the Employer notifies the Tenderer of the tracking number within 24 hours of such submission. Unless the Tenderer (now Contractor) within seven 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

NAME(s): (BLOCK LETTERS) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents:..... .....

SIGNED at..... on this .....day of .....

WITNESSE(s): (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;

2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such, letter, which constitutes a deviation as aforesaid become the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here;

3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here;

4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

4.1 **Subject** .....
Details .....

4.2 **Subject** .....
Details .....

4.3 **Subject** .....
Details .....

4.4 **Subject** .....
Details .....

4.5 **Subject** .....
Details .....

By the duly authorised representatives signing this agreement, the Employer and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from the amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

FOR AND ON BEHALF OF THE **TENDERER:**

NAME(s): (in block letters) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – in block letters – and signature)

1. ....

2. ....

FOR AND ON BEHALF OF THE **EMPLOYER**:

NAME(s): (in block letters) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – in block letters – and signature)

1. ....

2. ....

C1.2. CONTRACT DATA

C1.2.1 GENERAL CONDITIONS OF CONTRACT

The Conditions of Contract are

- the "General Conditions of Contract"
  - as they appear in the commercially available publication "General Conditions of Contract for Construction Works, Third Edition, 2015, (Print 3.1 or later)".
  - together with each subsequent corrigendum and erratum thereto, as issued by their publisher up to the Base Date of this Contract; (collectively hereinafter referred to as GCC 2015; and amendments to the GCC 2015 as contained in this Contract Data.

Each party to the Contract shall purchase its own copy of the GCC 2015, available from:

South African Institution of Civil Engineering
Private Bag X200
Halfway House 1685
South Africa

Tel +27 (0)11 805 5947

Each item of data below is cross-referenced to the clause in the Conditions of Contract to which it applies.

Certain pro-forma forms and pro-forma agreements contained in the GCC 2015 have been adapted for this particular contract. Those pro-forma forms and pro-forma agreements contained in the GCC 2015 do not apply where replaced by similar pro-forma forms and pro-forma agreements in this procurement document.

C1.2.2 Contract-specific Data

The following contract-specific data, referring to the General Conditions of Contract, are applicable to this Contract:

Clause	***Data***	
1.1.1.13	The Defects Liability Period is 365 Days	
1.1.1.15	The name of the Employer is City of Tshwane Metropolitan Municipality, represented by the Group Head, Water & Sanitation Department, and / or any other person or persons duly authorised thereto by the Employer in writing.	
1.1.1.16	The name of the Employer's Agent is: Chiefton Facilities Management, acting through a principal or an official authorised thereto in writing. The principal representing the Engineer is Mr Ashwin Hemraj.	
1.1.1.26	*The pricing strategy of a Re-measurement Contract* shall apply	
1.2.1.2	The address of the Employer is: Physical address: Water and Sanitation Department 6th floor 225 Madiba Street Capitol Towers North Pretoria e-mail address: MaureenMo@tshwane.gov.za	Postal address: P O Box 440 PRETORIA 0001 Contact numbers: Telephone: 012 358 7737 Fax: 012 358 4684
3.2.3	The Employer's Agent is required in terms of his appointment by the Employer to obtain the specific approval of the Employer for any variations to the Scope of Work which may increase the contract sum.	
4.10.2	The Contractor shall report in the EPWP format on a monthly basis on dates scheduled by the Employer's Agent and agreed by the Contractor and shall be penalised an amount equivalency of R5 000.00/day for delays in submission of a complete report.	

5.3.1	The documentation required before commencement with Works' execution are: • Health and Safety Plan (Refer to Clause 4.3) • A signed Agreement between the Employer and the Contractor for the Works to be completed by the Contractor in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act (Act No.85 of 1993) and the Construction Regulations promulgated thereunder (Refer to Clause 4.3). use latest 2014. • Proof of payment to the Employer, that the Contractor has paid all contributions required in terms of the Compensation for Occupational Injuries and Diseases Act, No. 130 of 1993 (Refer to Clause 4.3). • Initial programme (Refer to Clause 5.6) • Security (Refer to Clause 6.2) • Insurance (Refer to Clause 8.6)
5.3.2	The time to submit the documentation required before commencement with Works' execution is 14 Days
5.4.2.1	The Parkmore Reservoir site is an operational site for the Water and Sanitation Department and therefore operations personnel are actively working on site. Working areas need to be barricaded and signs erected to limit access to the construction working areas.
5.5.1	The estimated construction period is 18 months based on the engineer's estimates.
5.8.1	The non-working Days are Saturdays and Sundays. The special non-working Days are: Statutory public holidays; and All annual year-end shutdown periods as recommended by the South African Federation of Civil Engineering Contractors, and which commence before the Completion Date.
5.13.1	The penalty for failing to complete the Works is R 5 000.00 per day. The penalty for non-submission of EPWP reports inclusive of all supporting documents/evidence will be R5000.00 per month.
5.16.3	The latent defect period is 10 years, commencing on the Day after the date of certification of Practical Completion
6.2.1	The form of Security for this Contract will be a Performance Guarantee. This Performance Guarantee is to be 10% of the Contract Value.
6.5.1.2.3	The percentage allowance to cover overhead charges is 10 per cent

6.8.2	The values of the certificates issued shall be adjusted in accordance with the Contract Price Adjustment Schedule with the following values: The values of the coefficients are: a = 0.30 b = 0.15 c = 0.50 d = 0.05 The Site or largest part thereof shall be deemed to be located in the national province of Gauteng The applicable industry for the Producer Price index for materials is Building and Construction Civil Engineering. The area for the Producer Price Index for fuel is Witwatersrand. The base month is the month before the month in which the tenders close.
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works is 80%. Proof of ownership is required.
6.10.3	The percentage retention money is 10 % of each Interim Payment Certificate Value. The limit of retention money remains 10% for the entire contract.
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is R 25 000.00
8.6.1.3	The limit of indemnity for liability insurance is R 1 000 000.00 for any single claim. The number of claims during the construction and Defects Liability Periods shall be unlimited.
10.5.3	The number of Adjudication Committee to be appointed is one.
10.7.1	The determination of disputes shall be by arbitration

C1.2.3 Amendments to the General Conditions of Contract applicable to this contract

Clause	*Data*
1.1	**Definitions** *Add the following at the end of Sub-Clause 1.1.1:*
1.1.1.35	"Client", as used in the Occupational Health and Safety Act - Construction Regulations 2014, means Employer.
1.1.1.36	"Principal Contractor", as used in the Occupational Health and Safety Act - Construction Regulations, means Contractor.
1.1.1.37	"Designer", as used in the Occupational Health and Safety Act - Construction Regulations 2014, means Engineer.
4.12	**Contractor's superintendence** *Add the following at the end of Sub-Clause 4.12:*
4.12.4	**Health & Safety Officer** "It is a requirement of this Contract that the Contractor provides a Health & Safety officer (HSO) on the project. The duties and qualifications of the HSO are described in the Scope of Work (Part C3.7). The CV and credentials shall be submitted for approval by the Employer's Health & Safety agent. Failure by the Contractor to provide a suitable HSO shall be deemed to be a reason justifying termination by the Employer under Sub-Clause 9.2.1, with specific reference to Clause 9.2.1.3.5."
6.2	**Security** *Add the following at the end of Sub-Clause 6.2:*
6.2.4	"The Guarantee shall have the same wording as the document included as C1.3 under this Part C.1 of the document. The amount of the Guarantee is to be 10% of the Contract Price. The Guarantee is to be delivered within 14 Days after the signing of the Form of Offer and Acceptance. Failure by the Contractor to provide a suitable Guarantee within this timeframe shall be deemed to be a reason justifying termination by the Employer under Sub-Clause 9.2.1, with specific reference to Clause 9.2.1.3.2."
6.10	**Payments**
6.10.6.2	*Amend clause 6.10.6.2 to read as follows:* "Without prejudice to the Employer's other rights under this contract or by law, the Contractor shall not hold the Employer liable to pay interest to the Contractor in the event of failure by the Employer to make any payment by the due date."

Clause	***Data***
8.6	**Insurances** **<u>Replace</u>** Clause **8.6.** with the following new Clause **8.6.**: 8.6.1 Without limiting the Contractor's/Sub-contractor's obligation in terms of the Contract, the Employer will effect and maintain for the duration of the Contract until the issuing of the Defects Certificate or the end of the Maintenance Period, the following insurances in the name of the Contractor (including all Subcontractors whether nominated or otherwise): 8.6.1.1 The Employer's insurer will indemnify the Contractor/Sub-contractor against physical loss of or damage to any part of the Property Insured not exceeding the maximum contract value or the final contract value estimated at inception including free issue materials were applicable as stated in the Contract Data: a) Whilst in transit including loading and unloading whilst temporarily stored at any premises en-route to or from the Contract Site within the Territorial Limits. a) From the time of unloading, dismantling or preparation at the Contract Site and thereafter until the Property Insured has been officially accepted by the Employer and becomes his responsibility by means of a notice of completion certificate or similar evidence of legal transfer of risk. b) During the contractual defects liability or Maintenance Period which shall not exceed the period reflected in the Schedule but only so far as the Contractors and/or Sub-Contractors may be liable for such loss or damage under the defects liability or maintenance condition/s of the Insured Contract. c) Removal of debris; d) Surrounding property; e) Work Away; f) Off Site Storage; g) Temporary repairs; h) Contribution Clause – Marine; i) Escalation during Contract Period; j) Post Loss Escalation; k) Automatic Reinstatement; l) Principals Maintenance; m) Property taken over; n) Beneficial Occupation; o) Escalation due to Currency fluctuation; p) Manufacturers Guarantees

Clause	***Data***
	8.6.1.2 The Employer's insurer will indemnify the Contractor/Sub-contractor against all sums for which the Contractor/Sub-contractor shall become legally liable towards third party claimants to pay for and in consequence of: a) Accidental death of or bodily injury to or illness or disease contracted by any person (excluding employees of the Contractor/Sub-contractor). b) Accidental physical loss or damage to tangible property occurring during the Period of Insurance and arising out of or in connection with the performance of the Insured Contract at the Contract Site as defined in the Schedule. The minimum limit of indemnity for any one event is R10-million in respect of contracts with a contract value of up to R50-million (excluding VAT). 8.6.2 **Insurance Premium payable** The Employer will pay the insurance premium for the works damage and public liability insurance cover. The insurance premium will be calculated based on the approved Capital Budget per financial year and the insurance premium will be charged out to the relevant departments by the Section: Insurance and Risk Management. 8.6.3 **Additional insurance by the Employer** The Employer shall be free to effect at his own cost any additional insurance, which he deems necessary in own interest to cover loss or damage not insured in terms of the insurance policies of Sub-Clause 1 of this Clause. 8.6.4 **Additional insurance by Contractor/Sub-contractor** The Contractor and Sub-contractor shall be free to effect and maintain at their own cost any additional insurance which the Contractor/Sub-contractor deem necessary to cover damage, loss or injury not insured in terms of the insurance effected by the Employer's insurer. The cost of the additional insurance will be for the account of the Contractor/Sub-contractor. 8.6.5 **Contractor satisfied with insurance.** The submission of a tender shall be construed as acknowledgement by the Contractor that he is satisfied with the insurance cover affected by the Employer. 8.6.6 **Contractor to observe conditions.** The Contractor shall give all notices and observe all conditions and requirements imposed by the relevant insurance policies, which shall be binding on the Contractor. 8.6.7 **Contractor to Insure.** The Contractor/Sub-contractor must obtain for the duration of the contract until the issuing of the Defects Certificate or the end of the Maintenance Period, the following insurance policies at an insurance company within 14 (fourteen) days of the notification of acceptance of the tender and must pay all premiums and supply proof thereof to the relevant Employer's Project Manager, 30 (thirty) days before the inception of the contract, that the policies have been taken out and that all premiums have been paid:

	a) All Risk Insurance cover with regard to all Plant and Materials and Equipment, owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. **b)** Motor Vehicle and Liability Insurance cover indicating the registration numbers of the vehicles owned, leased or hired by the Contractor that are used in the execution of the contract to the amount of at least R10-million per claim with the number of claims unlimited. **c)** SASRIA cover for motor vehicles and Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. **d)** In respect of Plant and Materials and Equipment and Motor Vehicles brought onto the Site by or on behalf of Subcontractors, the Contractor shall be deemed to have complied with the provisions of this Sub-Clause by ensuring that such Subcontractors have similarly insured such Plant and Materials and Equipment and Motor Vehicles. **e)** Proof must also be submitted that the Contractor complies with the conditions of the following legislation: i. Compensation for Occupational Injuries and diseases, 1993. ii. Unemployment Insurance Act, 1996. iii. The Contractor shall in respect of the Site of the contract works appoint in writing a Section 16 appointee to meet the requirements of the Health and Safety Act, No. 85 of 1993 as amended. f) The Employer's Project Manager involved must furnish the required insurance documentation 30 (thirty) days before the inception of the contract to the Section: Insurance and Risk Management. g) In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Employer's Project Manager of every occurrence within 48 (forty-eight) hours giving the circumstances, nature and an estimate of the loss or damage. h) The Employer's Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Employer's Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Strategic Executive Officer motivating the reason(s) for the late reporting of the incident, but the Employer's Project Manager must take note the Insurer might repudiate the loss if it is found that the insurer's rights have been compromised as a result of the late reporting. i) The following documentation must be included with the claim documentation: a. Photos of damages caused or suffered as proof or substantiation of the claims. j) In the event of Insured Property being damaged during the Contract Works beyond economical repair, the property must be safeguarded and be handed over to the Employer's insurer for salvage. k) The Section: Insurance and Risk Management will inform the Employer's insurer of the incident. The Contractor/Subcontractor shall afford all reasonable access to the Site to the Employer, the Employer's Project Manager, the Employer's insurers and/or

Clause	***Data***
	representatives for the purpose of assessment of any loss or damage.
	8.6.8 **Reporting of catastrophic incidents** In the event of an occurrence, which is likely to give rise to a claim, under the insurance policy effected by the Employer, with an estimated loss or damage of more than R250 000,00, the Contractor and the Employer's Project Manager will adhere to the following procedures: a) In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Employer's Project Manager of every occurrence within 24 (twenty-four) hours giving the circumstances, nature and an estimate of the loss or damage. b) The Employer's Project Manager must notify the Section: Insurance and Risk Management on the same day that the Contractor/Sub-contractor has notified the Project Manager of the incident. c) The Section: Insurance and Risk Management will notify the Employer's insurer of the incident. The Contractor/Sub-contractor shall afford all reasonable access to the Site to the Employer, the Employer's Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage. d) The Employer's Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Employer's Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Strategic Executive Officer motivating the reason(s) for the late reporting of the incident. Should the relevant claim documentation not be submitted within 30 (thirty) days, the claim will be repudiated. 8.6.9 **Reporting of crime related incidents** All crime related incidents, losses, or shortages irrespective of the value, must be reported within 24 (twenty-four) hours by the person who was involved or who has discovered the incident to the nearest South African Police Services (SAPS) station. The name of the Police Station, Investigation Officer and the Case number must be obtained and stated on the Contractor Claim Form. Should the incident not be reported to the SAPS, the claim will be repudiated.

Clause	***Data***
	8.6.10 **Claim documentation** The Employer's Project Manager must obtain all relevant information from the Contractor/Sub-contractor and complete the Contractor Claim Form, included in this report as Annexure B that is available on the Intranet. The project number must be stated on the Contractor Claim Form. The Employer's Project Manager must submit with the Contractor Claim Form a detailed cost sheet indicating the estimate of the loss or damage. Any misrepresentation, mis-description or non-disclosure of material facts, at the option of the insurers, can result in claims submitted being declared null and void. 8.6.11 **Authorization of claim forms** It is imperative that a formally delegated official or his nominee of the Employer should authorize the Contractor Claim forms as proof of the appropriate authorization, verification and approval of claims submitted. The Strategic Executive Officer must provide an authorization letter to the Section: Insurance and Risk Management stating the names and the specimen signatures of the delegated official or his nominee within 30 (thirty) days from approval of this report by Council. Should the delegated official or his nominee not sign the relevant claim form, the claim will be repudiated as this may lead to inappropriate independent verification of the validity of claims, thereby increasing the risk of insurance fraud and consequent reputation damage to the Employer. 8.6.12 **Contractor to pay deductibles.** Any claim in terms of the insurance affected by the Employer shall be subject to the Contractor being responsible for the payment of the amount stated in the Annexure to the Policies as being the deductible (first amount payable or Excess) as defined in the Certificate of Insurance issued by the Employer's insurer in terms of the Policy. 8.6.13 **Settlement of claims** All incidents reported to the Section: Insurance and Risk Management in respect of an occurrence, which is likely to give rise to a claim will be forwarded to the Employer's insurer who will take the necessary actions for the settlement of any such claims. The Contractor shall negotiate for the settlement of claims with the Employer or the Employer's insurer through the Section: Insurance and Risk Management. The Employer's Chief Financial Officer will authorize all settlements of claims. Should action for the settlement of any such claim to the satisfaction of the Employer's Project Manager not be taken by the Contractor/sub-contractor within 30 (thirty) days after receipt of such claim by the Contractor/sub-contractor, the Employer or the Employer's insurer may settle any such claim, after giving the Contractor notice of its intention to do so; provided that no such claim shall be settled by the Employer or the Employer's insurer without first consulting the Contractor/sub-contractor. The foregoing provisions of this Sub-Clause shall apply mutatis mutandis to any such claim received by the Contractor directly.

Clause	***Data***
11. 11.1	Add the following Clause: **Pricing of Standing Time** The Contractor shall price the standing time items included in the Pricing Data and set out all labour and equipment he proposes to use in the execution of the Contract and their respective daily rates in a Schedule attached to the Bill of Quantity of this tender. These rates shall only be subject to escalation if the Contract is subject to escalation, failing which they will be fixed for the duration of the Contract including any extension of time that may be granted in accordance with the provisions of the Contract. Contractor's Plant: The standing time rates shall be the total cost to the Employer in respect of any standing time incurred by the Contractor and shall include for all Contractor's profits, overheads, transport to site, establishment on site, removal from site, supervision, hire rates, fuel, oil, maintenance and servicing, associated items such as slings, jackets, etc. test certificates, operator costs (including overtime and Sunday time), accommodation, travelling, subsistence and other costs relative to the employment by the Contractor of the personnel. Contractor's Labour: The standing time rates shall be the total cost to the Employer in respect of standing time of labour and shall include for all Contractor's profits, overheads, establishments, supervision, wages, accommodation, travelling, subsistence and other costs relative to the employment by the Contractor of the categories of labour detailed, and for hand and small tools such as cutting and welding torches, angles grinders, drilling machines, etc. and consumables normal to the trade or labour category.
11.2	Where the Contractor has not inserted rates for specific labour or plant, that could reasonably have been foreseen at tender stage, the Engineer – in agreement with the employer shall have the sole discretion, in the event of such foreseeable labour and plant becoming necessary, to set a rate that is in his opinion the most appropriate for such labour or tradesmen. No additional Preliminary and General costs shall be paid for standing time as these costs shall be deemed to be covered for in the rates and prices for Preliminary and General items. If the contract duration is extended, then the Preliminary and General charges shall be adjusted accordingly as stated in the General Condition of Contract only if the motivation is recommended by the engineer and approved by the client.
11.3	The payment of any standing time by the Employer shall be subject to the Contractor demonstrating that it has a valid claim in terms of Clause 10.1 'Contractor's claim'.

C1.2.4 DATA PROVIDED BY THE CONTRACTOR

The Contractor is advised to read the General Conditions of Contract*, as specified in Part 1, in order to understand the implications of this Data which is required to be completed.*

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

Clause	***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: ……..... ……..... ……..... ……..... ……..... e-mail address: ……..... Contact numbers: Corporate: ..... Direct: ..... Mobile: ..... Fax: .....

Part 3: Errata to GCC 2015 by SAICE

All updates, errata or other amendments to GCC 2015 (Print 3.1 or later) published by SAICE prior to the Base Month of this Contract shall be deemed to form part of GCC 2015.

Part 4: Errata to GCC 2015 by the Employer

The items in this Part 4 shall be deemed to be supplementary corrigenda by the Employer to the GCC 2015 (Print 3.1 or later) and shall be deemed to form part of GCC 2015. In the event of conflict between any item in this Part 4 and an item in the above Part 3, the relevant item in Part 3 shall take precedence.

1. *On page ii, delete "®" in the penultimate line.*

C1.3 FORM OF GUARANTEE

WHEREAS

THE CITY OF TSHWANE
(Hereinafter referred to as the "Council"),

enters into a Contract (No. .....) with

.....
(Hereinafter referred to as the "Contractor")

for .....
.....
.....

AND WHEREAS in terms of the General Conditions of the Contract the Contractor is required to furnish an acceptable independent guarantee for the due and proper fulfilment by him of all his duties and obligations in terms of the said contract.

NOW THEREFORE we the undersigned .....
.....[full names of authorized agent(s)]
and acting in my/our capacity as .....
and .....
and as such duly authorized thereto, do hereby bind the said .....
(hereinafter referred to as the "Guarantor") as surety and co-principal Debtor in *solidum* for the sum of:-
R ..... (.....
.....)
for the due and proper fulfilment by the Contractor of all or any of his duties and obligations in terms of the said Contract. This guarantee shall not be interpreted as accessory to the contract between Council and the Contractor.

The Guarantor further undertakes, in the event of the Contractor failing duly and properly to fulfil any of his duties and obligations in terms of the said Contract or if the Contractor is placed under provisional liquidation or in the event of termination of the Contract by the Council in terms of the General Conditions of Contract, to pay to the Council, the said sum of R.....
) or
.....
such portion thereof as may be required by the Council, immediately upon receiving written demand from the Council which written demand shall be addressed to the Guarantor at

(*domicilium* address).

The Guarantor further hereby renounces the benefits of the legal exceptions:

Exceptio non numerate pecuniae

Exception non causa debiti

Beneficium duobus vel pluribus reis debendi

Beneficium ordinis deu excussionis

Beneficium Divisionis

and all other defence which could be pleaded against the validity of this guarantee, with the meaning and effect of which it declares itself to be fully acquainted.

This undertaking shall remain in full force and effect up to and including the date of issue of the Certificate of Completion, as provided for in the General Conditions of Contract, unless the Guarantor is advised in writing by the Council 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. Notwithstanding the aforesaid, the Council may at its' sole discretion elect to have the amount provided for under this guarantee, paid out directly to it in the case of breach of contract by the Contractor by giving the Guarantor written notice to that effect, notwithstanding the fact that the Council may decide not to institute any further legal action against the contractor.

This document is not negotiable or transferable.

NAME(s): (BLOCK LETTERS) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents: ....

SIGNED at ..... on this ..... day of .....

WITNESSE(s): (Full name – in block letters – and signature)

1. ....

2. ....

ANNEXURE A

LIST OF INSTITUTIONS FROM WHO CONTRACT/DEPOSIT GUARANTEES CAN BE ACCEPTED.

1. ABSA Bank
2. CAPITEC Bank
3. Credit Agricole Indosuez (South Africa Branch)
4. Development Bank of South Africa
5. FirstRand Bank
6. ING Bank N.V. (South Africa Branch)
7. Investec Bank
8. Landbank
9. National Housing Finance Co.
10. Nedcor Bank
11. South African Reserve Bank
12. Standard Bank
13. AIG South Africa
14. Credit Guarantee Insurance Co
15. Emerald Insurance Company
16. Federated Employers Mutual Assurance Co
17. Global Insurance Company
18. Guardrisk Insurance Company
19. Hannover Re:
20. Home Loan Guarantee Company
21. Lion of Africa Insurance Company
22. Metropolitan Life
23. Metropolitan Odyssey Ltd
24. MUA Insurance
25. Mutual & Federal Insurance Company
26. Rand Mutual Assurance Company
27. Regent Insurance Company
28. SA Eagle Insurance Company
29. Lombard Insurance.

C1.4 GUARANTEE (CASH DEPOSIT)

CONTRACT NO.: .....

Employer: **CITY OF TSHWANE**

Contractor: .....

Description of Contract: .....

I/We, the undersigned, ...
(Contractor)

deposit herewith cash *a bank certified cheque", in the amount of .....

.....

.....,

as surety for the due performance of the Contract by the abovementioned Contractor, and for all losses, damages and expenses that may be suffered or incurred by the Employer as a result of non-performance of the Contract by the Contractor, renouncing all benefits from the legal exceptions *ordinis seu excussions et divisions* no value received and all other exceptions which might or could be pleaded against the surrender of this deposit.

The deposit shall be returned to the Contractor on the issue of the Completion Certificate in terms of the Contract, unless the Contractor is advised in writing by the Employer before issue of the said Certificate of his intention to institute claims and the particulars thereof, in which event this deposit shall remain in force until all such claims are paid or settled.

FOR AND ON BEHALF OF (Contractor)
.....

NAME(s): (BLOCK LETTERS)
.....

CAPACITY of authorized agents:
.....

SIGNATURE(s) of authorized agents :
.....

SIGNED at ..... on this ..... day of .....

WITNESS(s): (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

C1.5: HEALTH AND SAFETY AGREEMENT

ARTICLE OF AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL SAFETY ACT, 1993 BETWEEN

THE CITY OF TSHWANE
(Hereinafter referred to as the "EMPLOYER")
AND

.....

.....

.....

.....

Herein represented by ..... in his/her capacity as ..... duly authorised by virtue of a resolution dated ....., attached hereto Annexure A, of the said ..... (Herein after referred to as the "CONTRACTOR")

.....

WHEREAS the CONTRACTOR is the mandatory of the EMPLOYER as contemplated in an agreement in respect of .....

.....

..... Contract number .....

AND WHEREAS section 37 of the Occupational Health and Safety act, 1993 (Act 85 of 1993, hereinafter referred to as the "ACT"), imposes certain powers and duties upon the EMPLOYER.

AND WHEREAS the parties have agreed to enter into an agreement in terms of section 37(2) of the ACT.

NOW THEREFORE the parties agree as follows:

a) The CONTRACTOR undertakes to acquaint the appropriate officials and employees of the CONTRACTOR with all relevant provisions of the ACT and the regulations promulgated in terms thereof.

b) The CONTRACTOR undertakes that all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations will be fully complied with. Provided that should the EMPLOYER prescribe certain arrangements and procedures, that same shall be observed and adhered to by the CONTRACTOR, his officials and employees. The CONTRACTOR shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

c) The CONTRACTOR hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedure, if any, imposed by the ACT and Regulations and the EMPLOYER expressly absolves the EMPLOYER from itself being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedure as the case may be.

d) The CONTRACTOR agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the CONTRACTOR has complied with the undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the CONTRACTOR, or to inspect any appropriate records held by the CONTRACTOR or to take such steps it may deem necessary to remedy the default of the CONTRACTOR at the cost of the CONTRACTOR.

e) The CONTRACTOR shall be obliged to report forthwith to the EMPLOYER any investigations, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such an investigation, complaint or criminal charge as the case may be.

FOR AND ON BEHALF OF THE **EMPLOYER**:

NAME(s): (BLOCK LETTERS) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – in block letters – and signature)

1. ....

2. ....

FOR AND ON BEHALF OF THE **CONTRACTOR**:

NAME(s): (BLOCK LETTERS) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – in block letters – and signature)

1. ....

2. ....

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

PORTION 2: CONTRACT

PART C2 PRICING DATA

PRICING DATA

INDEX

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C2.1 PRICING INSTRUCTIONS

C2.1 PRICING INSTRUCTIONS

1. General

1.1 This section provides the tenderer with guidelines and requirements with regard to the completion of the Bill of Quantities. The Schedule has to be completed in black ink and the tenderer is referred to the Tender Specifications in regard to the correction of errors.

1.2 The Bill of Quantities shall be read with all the documents which form part of this Contract.

1.3 The following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work in terms of the Specifications and the Project Specifications.

Quantity: The number of units of work for each item.

Rate: The payment per unit of work at which the tenderer tenders to do the work.

Amount: The product of the quantity and the rate tendered for an item.

Lump sum: An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications and the Project Specifications, but the quantity of work of which is not measured in any units.

1.4 Reference shall be made to the General and Special Conditions of Contract regarding Provisional and Prime Costs Sums.

2. Pay Items

2.1 The method of measurement published by the City of Tshwane in section 001 clause 04 and the clauses titled “Measurement and Payment” in the various sections of the Standard Specifications for Municipal Civil Engineering Works, Third Edition 2005, is applicable, subject to the variations and amendments contained in section C3.5.

2.2 Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standard Specifications. The measurement and payment clause of each Standard Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standard Specification, or the Scope of Work, conflict with the terms of the Bill of Quantities, the requirements of the Standard Specification or Scope of Work, as applicable, shall prevail.

2.3 The item numbers appearing in the Bill of Quantities refer to the corresponding item number in the standard specifications or as amended in the Scope of Work. In the latter case, the item

number is prefixed with the letter “B”. The same applies to new clauses added to the standard specifications.

2.4 Those parts of the contract to be constructed using labour-intensive methods have been marked in the bill of quantities with the letter LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour intensive specification in the Scope of Works.

2.5 Payment for items which are designated to be constructed labour-intensive (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.

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

2.7 The quantities set out in the Bill of Quantities are the estimated quantities of the Works, but the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

2.8 The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000kg)
m^2	=	square metre	no.	=	number
m^2.pass	=	square metre pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m^3	=	cubic metre	MN.m	=	meganewton-metre
m^3.km	=	cubic metre-kilometre	PC sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	Per cent
MPa	=	megaspascal	kW	=	kilowatt
PS	=	Pipe Special number	V		Valve number

3. Rates

3.1 The prices and rates to be inserted in the Bill of Quantities are to be full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

3.2 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered or where a word or phrase such as “included” or “provided elsewhere” will be accepted as a rate of nil (R0,00) having been entered against such items and covered by the other prices or rates in the Schedule.

Any work executed to which such a pay item applies, shall be measured under the appropriate items in the Bill of Quantities and valued at a rate of nil (R0,00). The rate of nil shall be valid irrespective of any change in the quantities during the execution of the Contract.

3.3 The Tenderer shall fill in a rate against all items.

3.4 The Tenderer shall not group together a number of items and tender one rate for such group of items.

3.5 All rates and sums of money quoted in the Bill of Quantities shall be in rands and whole cents. Fractions of a cent shall be discarded.

3.6 All prices and rates entered in the Bill of Quantities must be excluding VAT. VAT will be added last on the summary page of the Bill of Quantities.

3.7 Should excessively high unit prices be tendered, such prices may be of sufficient importance to warrant rejection of a tender by the Employer.

CORRECTION OF ENTRIES MADE BY TENDERER

Any entry made by the Tenderer in the Bill of Quantities, forms, etc, which the tenderer desires to change, shall not be erased or painted out. A line shall be drawn through the incorrect entry and the correct entry shall be written above in black ink and the full signature of the Tenderer shall be placed next to the correction.

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C2.2 SCHEDULE OF QUANTITIES

C2.3 SUMMARY OF QUANTITIES

Section	Description	Amount		
001	GENERAL REQUIREMENTS AND CHARGES	**R**		
002	ENGINEER'S ACCOMMODATION	**R**		
101	SITE CLEARING AND GRUBBING	**R**		
102	TRAFFIC ACCOMODATION	**R**		
103	OVERHAUL	**R**		
104	LANDSCAPING AND GRASSING	**R**		
105	FENCING	**R**		
106	SERVICE DUCTS	**R**		
202	TRENCHING	**R**		
402	WATER RETICULATION AND WATER MAINS (CONSTRUCTION)	**R**		
403	WATER RETICULATION AND WATER MAINS (TESTING)	**R**		
502	PREFABRICATED CULVERTS AND STORM WATER SEWERS	**R**		
504	OPEN DRAINS	**R**		
601	GRAVEL PAVEMENT LAYERS	**R**		
609	SEGMENTED PAVING	**R**		
701	FOUNDATIONS FOR STRUCTURES	**R**		
702	FALSEWORK, FORMWORK AND CONCRETE FINISH	**R**		
703	STEEL REINFORCEMENT FOR STRUCTURES	**R**		
704	CONCRETE	**R**		
706	JOINTS IN STRUCTURES	**R**		
801	CONCRETE RESERVOIRS	**R**		
809	STRUCTURAL STEELWORK	**R**		
B10	ELECTRICAL WORK	**R**		
903	TESTING	**R**		
	SUBTOTAL A	**R**		
	Add 10% for contingencies on subtotal A	R		
	SUBTOTAL B	**R**		
	Add 15% VAT on subtotal B	**R**		
	CONTRACT PRICE CARRIED FORWARD TO FORM OF OFFER	**R**		

SIGNATURE OF PERSON AUTHORISED TO SIGN TENDER: ……

DATE : ……..

PARTICULARS OF PERSON AUTHORISED TO SIGN THE TENDER:

Name: _____

Tel no: _____

ID no: _____

BANK PARTICULARS:

Account holder: _____

Account no: _____

Bank: _____

Branch code: _____

I hereby authorise the City of Tshwane to obtain a bank code with respect to the abovementioned bank account through ABSA Bank as intermediary.

SIGNED: _____

TENDERER: _____

DAYWORK SCHEDULE

The Tenderer shall complete this Annexure in every respect.

The rates and prices given below shall be utilised in settling any claim or claims for which no comparable rate is available in the Schedule of Quantities.

The Tenderer will be required to prove that such rates and prices are reasonable.

1. MATERIAL

■ Cement	Per 50kg pocket delivered	.....
■ Sand	Per cubic metre delivered	.....
■ 38mm - Nom. stone	Per cubic metre delivered	.....
■ 20mm - Nom. stone	Per cubic metre delivered	.....
■ 13mm - Nom. stone	Per cubic metre delivered	.....
■ Clay face bricks	Per 1000 delivered	.....
■ Engineering clay bricks	Per 1000 delivered	.....

2. LABOUR

■ Foreman	Per week	.....
■ Ass Foreman	Per week	.....
■ Steel Erectors	Per hour	.....
■ Sheeters	Per hour	.....
■ Carpenters	Per hour	.....
■ Painters	Per hour	.....
■ Gangers	Per hour	.....
■ Unskilled labour	Per day	.....
■ Plumbers	Per day	.....
■ Brick layers	Per day	.....

The above wages and rates shall allow for the gross remuneration of workmen and foremen and the nett cost of materials actually used. These rates shall be subject to the markup percentages stated in the Appendix as required under Clause 40(4)b of the General Conditions of Contract.

3. TRANSPORT

Rate per cubic meter per kilometer as

- Measured in vehicle .....
- Rate per metric ton per kilometer .....

No percentage allowance shall be added to rates for transport.

4. PLANT

The Contractor is to provide rates for any equipment and plant he may consider necessary for the execution of any day work he may encounter. Rates stated here shall include all profit, etc. These rates will be deemed to include the cost of operator/s if any. In the event of plant used for which no rates are mentioned hereunder, the costs will be held as the average of the rates supplied by three recognised plant hire specialists including an extra over of 15%.

DESCRIPTION		OPERATING TARIFF	STANDING TIME TARIFF
Backactor	Per hour		
Excavator 20t	Per hour		
Drum/Roller Compactor	Per hour		
Sheep's Foot Compactor	Per hour		
Crane Truck	Per hour		
Front End Loader	Per hour		
Tippers …. m^3	Per hour		
Compressor ..... c.f.m.	Per hour		
Grader	Per hour		
Bulldozer	Per hour		
Concrete Mixer	Per hour		

TENDERER: …… **DATE :** ……

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022.23**

THE CONSTRUCTION OF A 10ML PARKMORE LL RESERVOIR AND THE INSTALLATION OF FEEDER MAINS: 18- MONTH PERIOD

PORTION 2: CONTRACT

PART C3: SCOPE OF WORK

SCOPE OF WORK

INDEX

NOTE: ALL DRAWINGS REFERED TO UNDER THIS SECTION OF THE TENDER DOCUMENT ARE INCLUDED UNDER VOLUME 2

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022.23**

THE CONSTRUCTION OF A 10ML PARKMORE LL RESERVOIR AND THE INSTALLATION OF FEEDER MAINS: 18- MONTH PERIOD

C3.1 DESCRIPTION OF THE WORKS

C3.1 DESCRIPTION OF THE WORKS

1.1 Employer's Objectives

The Employer wants to increase the Parkmore LL reserve capacity by building a new 10ML reservoir. The employer's main objective is to upgrade and replace existing public infrastructure and provide new infrastructure where required. In doing so the Employer's also wants to create jobs and empower local contractors.

Works earmarked for Labour Intensive construction methods will be numbered with a prefix "LI" in the bill of quantities to distinguish them from the conventional construction works. Such work shall be constructed using local workers who are temporarily employed in terms of the project specification.

Work earmarked for Local Sub-contractors will be numbered with a prefix "SC" in the bill of quantities to distinguish them from the conventional construction works. Such work shall be constructed by local subcontractors who will be temporarily employed in terms of the project specifications.

The Contractors will be appointed with a minimum Construction Industry Development Board (CIDB) grading of 7CE or higher.

1.2 Overview of the Works

The project requires the construction of civil engineering services to meet the increased demand in the water supply for the Parkmore Low Level Reservoir Service Area as well as, the installation of the associated pipework.

The Parkmore LL system will connect to the Garsfontein system and be disconnected from the Klapperkop system.

The new 10ML reservoir will connect to the discharge pipes of the existing 10ML Parkmore LL reservoir on the site. All pipes shall be constructed in steel with appropriate coatings and lining and be continuously welded. Valves, control valves, strainer valves, scour valves and take-offs shall be provided where required.

NEW PARKMORE LL RESERVOIR SCOPE OF WORK SUMMARY

A 10ML capacity reservoir shall be constructed at the proposed position is as shown on the site layout drawing KB059/COT/PM-RES/PRL-001. The reservoir will be of the cast in situ reinforced concrete type. Construction of the reservoir shall include bulk earthworks (Excavations and construction of foundation platform in layers of 150mm thickness of G5 material compacted to 95% MoD AASHTO), installation of subsoil drainage pipeline system comprising of perforated PVC pipes underneath the surface bed and strip foundation sloping outwards into leak detection catchpits and HDPE Class 6 pipes collecting from the catchpits into an overflow chamber, done together with the floor base no fines blinding and construction of the reservoir reinforced concrete superstructure with accessories such as supply and delivery isolation valve chambers, scour and overflow chamber, valves, control room, telemetry elements, small power electricity and earthing

of structures for lightning protection and surges, supply and delivery pipes, and special fittings. The new control room shall be for supply pipes connection and the existing control room shall be for delivery pipes connections. The roof will be a flat slab construction supported by evenly spaced (9.3m spans) columns. An earth embankment around the reservoir walls shall also be constructed including erosion, stormwater control works and a concrete V-drain apron which will discharge into leak detection catchpits. The leakages from the reservoir and isolation valve chambers, stormwater, scour and overflow will all be channeled through a 600mm 50D precast concrete culvert pipe to connect to an existing stormwater pipe system and then to a discharge point. Leakages from the delivery and supply valve chambers will also be channeled into the stormwater drainage pipe network through 110mm diameter PVC sewer pipes. All materials and workmanship shall be tested for specified quality measurements and the reservoir shall be tested for watertightness according to SANS 1200 standard specifications. The ground surface around the new and existing control rooms will be prepared in layers of G7 and G5 material and paved with 80mm thick precast interlocking concrete pavers as illustrated in drawing number KB059/COT/PM-RES/RS/MECH-001.
The reservoir site shall be fenced off using a 1.8m high see-through panel fence and a 6m wide x 1.8m high sliding gate (Hot dip galvanized steel) after removal of the existing perimeter fence.

Refurbishing of existing infrastructure to include the concrete works of the 10ML reservoir control room and valve chambers and replacing of the supply and delivery isolation valves.
The scope of work shall also include telemetry, small power and earthing electrical works. 50mm diameter PVC pipes shall be cast into the concrete works of the control room, reservoir, and overflow chamber to accommodate telemetry cables.

1.2.1 10 ML Reservoir:

The position of the new 10ML reservoir will be on the western side of the existing Parkmore LL Reservoir site. The 10ML reservoir has a Top Water Level (TWL) of 1447.3m above sea level (MSL.) and floor level of 1438.0m above sea level (MSL). The reservoir will be constructed of cast in-situ 35/19 class reinforced concrete unless otherwise specified in the drawings. The concrete shall also comprise of approved waterproofing admixture at a mixing rate of 1.5-2kg/m³ or as prescribed by the approved supplier. The reservoir is circular and designed to match the existing.

The reservoir bulk earthworks shall include excavations and layer works comprising 150mm thick layers of G5 material compacted to 95% MOD AASHTO. The pipe work in and out of the reservoir, to include inlet, outlet, overflow, and scour, shall be cast into thrust blocks underneath the reservoir strip foundation made of 20/19 concrete class. Sub soil pipes made up of perforated PVC 110mm diameter pipes shall be laid sloping towards the leak detection catchpits from the centre of the reservoir outwards, constructed on the outside of the strip foundation. The catch pits are then connected by 110mm diameter HDPE pipe Class 6 pipes which discharge into the overflow chamber. The reservoir foundations are then constructed of a 100mm wide and 300mm deep strip footing of 35/19 class reinforced concrete. The footing is cast on top of a 100mm thick no

fines concrete blinding. A surface bed of 150mm RC is then cast as well as the reservoir walls, columns, column drop heads and the roof slab. Sliding bearings shall be installed between the reservoir wall and roof slab to allow for movement. The details of the reservoir are clearly illustrated in drawing series KB059/COT/PM-RES/S-001 to KB059/COT/PM-RES/S-003 and KB059/COT/PM-RES/S-012 to KB059/COT/PM-RES/S-022. The roof slab shall also have a 900mm x 90mm access, air ventilators, access ladders, and a 100mm thick layer of 19mm stone aggregate spread on top for even distribution of heat. The reservoir will also be fitted with stainless steel access ladder inside and outside the reservoir. Details of the ladder are as shown in the drawing referred to above. Construction joints and expansion joints shall be sealed against leakage with products approved by the Engineer and as specified in drawings. These products shall include PVC waterstop and other sealing products or similar approved shall be installed on all joints as illustrated in above referred drawings.

1.2.2 Supply Pipeline:

The existing 450mm diameter MS pipeline which is fed from Garsfontein reservoir will be extended into the new control room (refer to drawings KB059/COT/PM-RES/MECH-001 and KB059/COT/PM-RES/MECH-002) connected to a manifold inside the control room passing through a bulk meter chamber. Two 350mm diameter supply pipes will run from a 450mm diameter manifold in the new control room to supply the two Parkmore LL reservoirs (one existing and one new). The 350mm supply pipeline will connect to the reservoir through a supply isolation valve chamber. Details of the supply isolation valve chamber, new control room and pipe specials connections is illustrated clearly in the drawing as referred to above and the associated structural work on the supply pipeline is illustrated in drawing KB059/COT/PM-RES/S-009 and KB059/COT/PM-RES/S-004. From the new control room, a 450mm diameter MS pipe also branches off to form a by-pass line. The 450mm diameter pipeline connects to the 600mm delivery pipeline from the new 10ML reservoir. Drawing KB059/COT/PM-RES/PRL-001 illustrates these connections graphically.

1.2.3 Delivery Pipeline:

The new Reservoir will be connected to the existing control room with a 600mm diameter MS pipe (refer to drawing KB059/COT/PM-RES/-LS-006) to form an outlet or delivery pipeline. Details of the delivery isolation valve chamber and pipe specials connections is illustrated clearly in the drawings as referred to above and the associated isolation chamber on the delivery pipeline is illustrated in drawing KB059/COT/PM-RES/S-010. The pipeline connects to the existing delivery 6000mm diameter MS pipe in the existing control room. Drawing KB059/COT/PM-RES/PRL-001 illustrates these connections graphically. The delivery pipe is taking from just above the reservoir surface bed and is covered by a 1100mm x 1100mm stainless steel grate\screen which is fixed to the reservoir floor slab.

1.2.4 Control Room, Bulk Water Meter Chamber and Valve chambers

See drawings series from KB059/COT/PM-RES/STD-001 to KB059/COT/PM-RES/MECH-006 for valve chambers and pipe schedule details. The valve chambers and the control room structural drawings

A new Control Room will be constructed to accommodate all inlet and bypass valves and the existing control room will be upgraded to accommodate all the outlet valves. Interlocking concrete paving will be provided around both control chambers. The structural drawings for the new control room are series numbered from KB059/COT/PM-RES/S-004 to KB059/COT/PM-RES/S-008.

Some ground surface preparation using G7 and G5 compacted in layers materials will be done around the new and existing control rooms. The preparation will be done to paving the area with precast 80mm thick interlocking concrete pavers. Drawing number KB059/COT/PM-RES/RS/MECH-001.
The existing control room will be refurbished as follows and shown in drawings KB059/COT/PM-RES/S-007 AND KB059/COT/PM-RES/S-008:

- The double pitched roof will be demolished and replaced with a 250mm thick prestressed echo slab or similar approved.
- Existing windows will be removed, and the openings closed with masonry.
- The wooden entrance door will be removed and replaced by a steel heavy duty strong door with a tamper proof locking system or as approved.
- 150mm x 150mm air vents spaced at 1500mm center to centre with a 100mm diameter sleeve.
- Plaster existing brickwork
- Refurbish or replace any corrosion affected pipes, fittings, and pipe specials.

The flow and pressure control valves will be accommodated in the new and inlet control room at the reservoir site. Inside the bulk water meter chamber, the 450mm diameter feeder pipe will reduce to 300mm diameter. In the bulk water meter chamber, a 300mm diameter bucket strainer and 300mm diameter Water meter are connected as illustrated in drawing KB059/COT/PM-RES/MECH-001. The bulk water meter chamber is then connected to the new inlet control room, water will flow into a 450mm diameter manifold and split into two **300**mm diameter pipes in parallel containing 300mm diameter Combination Pressure Reducing and Rate of Flow Control Valves in parallel. The combination PRV and FCV lead to a 450mm diameter MS manifold with 300mm inlet, 350mm and 450mm outlet diameter arms. The 450mm diameter outlet arm forms the by-pass pipework. The 350mm diameter outlets connect to the reservoirs.
The pipe work has isolating valves and associated valve chambers which are built of RC. The concrete grade for these chambers is specified in series of drawings from KB059/COT/PM-RES/MECH-003 to KB059/COT/PM-RES/MECH-006. The structural drawing for the isolating valve chambers is numbered KB059/COT/PM-RES/S-023.

The 300mm diameter Combination Pressure Reducing and Rate of Flow Control Valves will be set to control the water level in the reservoir with a Bottom Water Level and Top Water Level as prescribed in sub item 1.2.1 above. See drawings KB059/COT/PM-

RES/MECH-001and KB059/COT/PM-RES/MECH-002 for the layout and arrangement of the new control room. The Supply and delivery isolating valve chambers will serve to isolate either the supply or delivery to or from the two reservoirs when required.

1.2.5 Existing Valves

The Existing 375mm supply gate valve located in the existing supply valve chamber and the scour valve of the existing reservoir is to be replaced with approved valves of the same dimensions.

1.2.6 Fencing

The contractor shall demolish the existing perimeter fence and install a 1.8m high see-through panel fencing as illustrated in drawing KB059/COT/PM-RES/FSD-001. The panel fence shall consist of thick mild steel wire 22mm gauge or higher which have an advanced marine fusion bond protective layer. The wire grids in the fence panels must not allow a finger to pass through and the panels must be built in pressed ribs to increase rigidity and strength. The posts, screws and clamps must be tamper-proof. A 6m wide and 1.8m high sliding gate made of hot dip galvanized steel will be constructed on the perimeter fence as the entrance/access to the reservoir site. The perimeter fence shall also have a barbed wire tape bound electric wire on the top as shown in the above referred drawing.

1.2.7 Subsoil and Leakage and Stormwater Drainage Pipes

600mm diameter class 50D concrete precast culvert pipes and associated discharge end works shall be used for storm water, seepage, overflow, and scour flow management. A concrete V-drain apron around the 10ML reservoir shall also channel stormwater to the underground stormwater culvert system. 110mm subsoil geopipes shall be installed underneath the reservoir surface bed and strip footing. The subsoil pipework will discharge into leak detection catch pits constructed of concrete bases and brick work. 110mm HDPE class 6 pipes will collect from the leak detection catchpits and dispose into the overflow chamber. The overflow chamber is connected to the 600mm class 50D precast concrete culvert pipe which transport the water to the existing stormwater pipe system. The overflow chamber also collects from the overflow pipe and scour. The scour pipe is a 250mm diameter SS pipe, and the overflow pipe is a 600mm diameter SS pipe. Leakages channeled to the system are also collected from the isolation chambers as well as the new control room trough 110mm diameter PVC geopipes.

1.2.8 Telemetry, Small Power and Lighting Works

The works shall also include the connection of the reservoir to CoT operations telemetry master system. The works shall include installation of cables to connect the pressure, water level and flow measuring devices housed in the bulk water meter chamber, control room, overflow chamber and the reservoir. 100mm diameter pipes shall be cast in these structures concrete works to provide access to the communication and power cables as

indicated in their respective structural drawings. Telemetry works shall be done by a special contractor who may be nominated by the Client. The scope of work will also include the general lighting of the reservoir site and the insides of the control rooms as well as the electric wires of the perimeter fence. The drawings numbered in series from KB059/COT/PM-RES/ELEC-01 to KB059/COT/ELEC-004 illustrates the electrical scope of works in detail. **CoT has a City-Wide contract with a telemetry service provider. The installation of telemetry services shall be preferred to the City-Wide contractor and will only be executed by the appointed contractor for this project if the City-Wide contract is no longer valid as stated in item number 001.04.08.05 under clause C2.2: Schedule of Quantities of the tender document.**

1.2.9 Cathodic Protection

The contractor shall be expected to engage a specialist subcontractor for relevant testing, design, and installation of cathodic protection of installed steel feeder and delivery pipelines. The subcontractor details and credentials shall be reviewed and approved by the Employer's Agent. The cathodic protection sub-contractor may also be nominated by the Client. A Prime cost sum is provided for this engagement and administration of the subcontractor under series 4 of the bill of quantities. **CoT has a City-Wide contract with a cathodic protection service provider. The installation of cathodic protection services shall be preferred to the City-Wide contractor and will only be executed by the appointed contractor for this project if the City-Wide contract is no longer valid as stated in item 001.04.08.04 under clause C2.2: Schedule of Quantities of the tender document.**

1.3 Nature of the Works

a) Conventional construction methods

- The excavation of the trenches and installation of the pipes will be done conventionally due to the size of the pipes.
- The construction of the reservoir and valve chambers will be done conventionally due to the specialist skills needed and nature of work.

b) Labour intensive construction methods (EPWP)

All items on the Bill of quantities marked "LI" is earmarked for the general labour of the affected ward and should be so executed. This includes, but not limited to:

- Excavate by hand to expose existing services and backfill.
- Treatment and maintenance of areas surrounding offices and laboratories.
- Clear and grub of site on pipeline route up to 3m wide.
- Cutting and removing large trees with girth.
- Grubbing and the removal of the stumps and roots of large trees with a girth
- Laying and jointing of water pipes irrespective of depth.
- Install pipe fittings.
- Sub-surface drains, brickwork on leak detection catchpits and drainage blankets.
- Pipes in subsurface drains.
- Concrete outlet structures work for subsurface drains, including formwork.
- Concrete caps for subsurface drainpipes.

c) Local Emerging Contractors

All items on the Bill of quantities marked "SC" is earmarked for the upliftment of the Local Emerging Contractors within the affected ward/s and if such skills are not within the affected ward these items will be subcontracted to LECs within the City of Tshwane. These items include, but not limited to:

- Clear and grub of site on pipeline route up to 3m wide.
- Install meter box complete with meter, valves & fittings, model as shown on drawing KB059/COT/PM-RES/-001 and KB059/COT/PM-RES/MECH-002.
- Dismantling and reinstatement of all types of existing fences.
- Installation of bollards
- Removal of spoil material:
- Refurbishment works.
- Surface preparation and concrete block paving around control rooms
- Valve chambers complete for flanged gate valves, bulk water meter and pressure regulating valve (PRV).
- Re-clearing areas when instructed by the engineer.
- Landscaping of trees and shrubs.

d) Construction and Materials Manager

The Main Contractor will be required to appoint a Materials and Construction Manager to mentor, train and assist the appointed local emerging contractors and the daily activities are listed in C3.5.6 and C3.5.7. The minimum qualification for the materials manager will be a National Certificate (N6) in Civil Engineering or Higher.

In areas where required by the Engineer the contractor will be required to make use of local emerging contractors to execute dedicated portions of the work. Only approved tendered rates will apply for work executed and the contractor must ensure that the local emerging contractors are paid a market related price for work done. The contractor will be compensated for the additional site supervision, management of local emerging contractors, material management, training and personal protective clothing that may be required for the local emerging contractors as a percentage value of the work done by the subcontractor.

The contractor shall follow the City of Tshwane EPWP Policy on the Recruitment of Expanded Public Works Programme Beneficiaries as per Council Resolution on 28 September 2017.

The above-mentioned Policy is available on request.

1.3.2 LOCAL ECONOMIC PARTICIPATION SPECIFICATION

A. PREAMBLE

The City of Tshwane has a long-term commitment to the protection and Participation of local business and industry, including the Participation and support of construction skills and – capacity. In addition, the municipality is committed to the provision of as many job opportunities as possible to its local communities and therefore to the consistent pursuance and achievement of the objectives of EPWP. Having regard for the specialized nature of this project, the municipality in its role as Employer requires the maximum possible level of Local Economic Participation, as defined in this contract, as well is the maximum possible level of employment of local skills and labour. This specification therefore forms a very important aspect of this contract, which will be enforced and will require the full attention of the Contractor for the duration of the contract.

B. DEFINITIONS

"**Local Sub-Contractor"** means a legal business entity with its registered office and/or physical address in the affected Wards of the City of Tshwane municipal area, duly registered with the Construction Industry Participation Board (CIDB) and with the required CIDB grading or any other regulatory body.

"**Local Supplier"** means a legal business entity with its registered office and/or physical address in the City of Tshwane municipal area who has actively conducted business in the City of Tshwane municipal area for a period of more than and who supplies goods or materials directly to the end user.

C. SPECIFICATION

1. LOCAL ECONOMIC PARTICIPATION (LEP) shall comprise of:

    a. The direct participation of Local Sub-contractors in the Contract.
    b. The direct participation of Local Suppliers and Service Providers in the Contract.
    c. The direct employment of local labor, - semi-skilled and - skilled staff by the Contactor and Local Sub-contractors.

2. Direct Participation shall mean the engagement of resources, listed in 1 above, by the Contractor without the involvement of any other intermediary parties or agents.

3. LOCAL ECONOMIC PARTICIPATION (LEP) shall be measured by value as follows:

    a. Where activities, as measured under LI and SC of the Bill of Quantities, are performed entirely by Local Sub-contractors at the rate in the Bill of quantities, the value of the measured item shall be deemed to be the net value of LEP in respect of that activity.
    b. Where an activity, performed in terms of the above, is valued at a scheduled rate that includes a profit mark-up, supervision fee, administration fee or any other mark-up, the net value of the item payable to the Local Sub-contractor shall be deemed to be the net value of the LEP in respect of that activity.
    c. Where any component of the Contract, measured in the Schedule of Quantities, being a material or plant item or service required for the completion of the Contract, is provided entirely by a Local Supplier or Service Provider, at the rate

in the Schedule of Quantities, the value of the measured item shall be deemed to be the net value of LEP in respect of that component.

d. Where a component, supplied in terms of point 'c' above, is valued at a scheduled rate that includes a profit mark-up, supervision fee, administration fee or any other mark-up, the net value of the item payable to the Local Supplier shall be deemed to be the net value of the LEP in respect of that component.

e. The value of local labour shall be the net value of wages and/or salaries paid to individuals, recruited from communities in the City of Tshwane municipal area, for the purpose of the Contract, by the Contractor or any of the Local Sub-contractors, appointed in terms of this Contract.

4. Tenderers shall indicate in their tenders the value (as a percentage) of Local Economic Participation (LEP) that will be achieved should tenderer be awarded the contract. This tendered value, split between the participation of Local Suppliers and Service Providers on the one hand and Local Sub-contractors on the other shall become the Contractor's Local Economic Participation target. The achievement of this target will be a contractual obligation, which will be enforced in terms of the provisions of this section.

5. The Contractor shall, within seven (7) days of the date of the Letter of Acceptance, submit to the Engineer a detailed plan for the achievement of his tendered Local Economic Participation (LEP) objectives and target, including a schedule of construction activities, construction components, materials, goods and services, local skills and labour etc., in which their valuation in terms of the principles of this specification is clearly indicated. This schedule shall indicate how targets will be met.

6. The Engineer shall approve this detailed plan in writing within seven (7) days of its submission by the Contractor.

7. The Contractor shall submit to the Engineer monthly progress reports, in a format approved by the Engineer, clearly indicating progress to date in respect of LEP. These reports will be in addition too monthly Municipal Infrastructure Grant (MIG) reports required from the Contractor.

8. The Contractor shall, if requested by the Employer's Agent at any stage of the Contact, submit as scheduled and agreed all necessary documentation required to confirm the accuracy of information provided in the monthly progress reports. Failure to meet the tendered target will be result in a financial penalty as described under Sub-Clause 4.10.2 of the General Conditions of Contract (as amended). Documentation shall include but not be limited to:
   a. Tax invoices,
   b. Wage sheets,
   c. Salary Advices,
   d. Orders.

9. At the completion of the project and prior to the issue of the Performance Certificate, the Contractor shall submit audited (audited by a recognized third-party institution) figures to substantiate and confirm actual LEP expenditure achieved during the implementation of the Contract. Failure to meet the tendered target will be result in a financial penalty as described under Sub-Clause 4.10.2 of the General Conditions of Contract (as amended).

10. Failure by the Contractor to comply with any of the requirements in 4, 5, and 6 above shall be dealt with in terms of Clause 9.2 of the General Conditions of Contract.

11. The Contractor shall during the course of the Contract have the opportunity to submit revised detailed plans for the achievement of Local Economic Participation (LEP) objectives and targets, taking into account practical constraints encountered during the construction process and including the necessary motivation for such revised detailed plans.

12. In the event that the Contractor is prevented to comply with his implementation plan by any circumstances outside his control, he shall within seven (7) days submit to the Engineer a notice outlining such circumstances in detail and stipulating the impact of such circumstances on the Local Economic Participation in the Contract and as defined above. The Engineer shall within seven (7) days of receiving such a notice inform the Employer accordingly and who shall be obliged to:

    a. Rectify the circumstances preventing compliance and exempting the Contractor from his obligations, in terms of his implementation plan, for the duration of the period in which the circumstances prevailed, or
    b. Exempting the Contractor entirely from his obligations in terms of its implementation plan in so far as these are affected by the specific circumstances.

13. Any dispute arising from this specification or the implementation thereof shall be resolved in accordance with the provisions of Clause 10 of the General Conditions of Contract.

14. A payment item has been included under schedule 1 (preliminary and general charges) for all costs related to the compilation and administration of all LEP-related documentation as well as the auditing of the final figures by a recognized third-party institution.

D. NON-SPECIALIST WORK LOCAL SUB-CONTRACTORS

All work measured under SC of the Bill of Quantities have been identified for construction by local sub-contractors as a minimum requirement, which does not prevent the Contractor from employing sub-contractors for other portions of work in order to achieve the tendered LEP target.

1.4 Location of Site

The site is located at the corner of Corobay and Ria Avenue in Waterkloof Glen extension eight. The reservoir yard is bordered to the north by the Impact Radio premises and to the east by the sport grounds of the Hatfield Christian School. The southern boundary is alongside Ria Avenue and the western boundary alongside Corobay Avenue.

See locality plan attached (coordinates: WGS84 Y 72583.053, X 2854325.646 or 25˚47.731’ S, 28˚16.596 E).

1.5 Geotechnical Information

1.5.1 Site Conditions

The study area has been subjected to earthworks at some point. The existing reservoir was constructed in an area which has been excavated below the original ground level. The remainder of the site also appears to have been modified by cut-and-fill operations, resulting in a terraced terrain.
The surrounding area dips in a northerly direction and the site is located at an altitude between 1434m and 1445m above mean sea level. The proposed reservoir base level was indicated to be 1437m above mean sea level.

Drainage on site presumably takes place by means of sheet wash and infiltration. Excess surface runoff is destined to drain in accordance with the prevailing gradient.

The site investigated was cleared of all original, natural vegetation prior to earthworks. Nevertheless, a number of thorny trees and shrubs have grown since then. For the most part, however, the study area hosted only short, wild grass, with the mentioned trees being scattered over the reservoir yard. A number of eucalyptus trees were noted along the southern periphery of the site.

The site is located in an area with an approximate Weinert N-value of 2,4 and a Thornthwaite Moisture Index between –20 and 0. Climatically the area may thus be described sub-humid. The importance of this is that chemical weathering of rock material will take place, rather than mechanical breakdown thereof, resulting in the formation of active clays if suitable parent material is available. Minerals such as amphiboles, pyroxenes and olivine are particularly susceptible to chemical weathering.

At the time of the investigation, the reservoir yard hosted a number of structures. Apart from the existing reservoir, pump house and associated infrastructure, a contractor's yard was located in the area proposed for the new reservoir. These structures, however, are all temporary and included carports, modified shipping containers and elevated fuel tanks.

1.5.2 Geology

***Regional Geology*:** The area under investigation is located on shale of the Time ball Hill Formation, Pretoria Group, Transvaal Super group. The shale is intruded by a very prominent post Transvaal diabase dyke striking roughly east to west. The entire lithological sequence dips at approximately 15° northeast in the region. Although diabase has not been encountered during the investigations, there are numerous intrusions in the area, striking east to west and most of them have not been mapped for the official geology map.

***Site Geology*:** The site geology appears to be more complex than indicated on the regional

6 geological maps. Site observations confirmed shale bedrock; however, the bedrock observed in a cutting on the south of the property exceeded a dip of 15º, based on visual assessment. The shale also appeared to have been baked and hardened somewhat in the process. It is deduced that the intrusion of a diabase dyke just south of the site is likely responsible for these modifications to the shale. The bedrock was probably deformed and bent upwards by the intruding diabase, which corresponds with a steeper uplift of the shale, compared with the region. In addition, the apparent baking (or heat hardening) of the shale will likely be ascribed to contact (heat) metamorphism also associated with the intruding diabase. Observations on site suggest that the shale does not have the same dip or orientation everywhere on site; hence deformation cannot be considered as uniform for the entire site (or founding conditions). Where encountered in trial holes, bedrock material varied in hardness and other properties. In trial hole one the bedrock was described as pale green, grey hard (baked) rock with a very fine-grained texture and closely to medium spaced joints. In trial hole two the shale was described as dark grey and pink, brown very soft rock with a very fine-grained texture and closely jointed joint sets. The bedrock was slightly weathered.

1.5.3 Founding Conditions

Factors considering founding conditions of the proposed new reservoir can be summarised as follows:

- *Conditions of Heave:* Conditions of heave are not expected to prove problematic to founding on this site as no expansive materials were encountered on the footprint area.

- *Conditions of Settlement:* The thick successions of imported material (or fill) encountered in trial holes and three does not appear to have been compacted or consolidated, apart from slight compaction at surface (likely due to vehicular traffic). In its current state, the fill material is susceptible to settlement under loading. In addition, the composition of the fill material is likely to result in the development of stress concentrations in the foundations of the structure and differential settlement.

- *Bedrock and Differential Settlement:* In addition to the settlement discussed above, particular consideration must be given to the fact that a part of the proposed reservoir's footprint is underlain by shallow bedrock, while the remainder is underlain by fill. Founding under these circumstances will result in differential settlement under the structure. While the shale bedrock will provide a firm base for

founding, the section of the structure located on the fill material is likely to settle, resulting in unacceptable deflections and stresses in the structure.

- ·*Estimated Safe Bearing Capacities:* The estimated safe bearing capacity in the fill material is estimated to be less than 150kPa but subject to high variability, as illustrated by the results of the penetration tests. The safe bearing capacity for hard rock shale can be as high as 5MPa, but it may be substantially reduced due to the presence of the discontinuities in the rock matrix. It is thus estimated that the safe bearing capacity of the shale does not exceed 1MPa and is subject to a stability analysis of joint sets.

1.5.4 Conditions of Excavation

Recommendations concerning conditions of excavation can be summarised as follows:

- *Fill Materials:* Fill materials proved to be excavatable with the aid of a backhoe; however, this method of excavation not recommended due to the inclusion of oversized clasts. Instead, it is recommended that provision be made for excavation with the aid of an excavator.

- *Fill Stability:* Cognisance must be taken of the proven fact that excavations into the fill material are unstable. It would therefore be advisable to commence excavation of the fill from the northern side of the proposed structure footprint and working back in a southerly direction, while constantly maintaining a safe gradient into the fill. A gradient of 1(V) to 1,5 (H) should best be maintained as far as is practically possible.

- *Bedrock:* The shale bedrock encountered varied in hardness due to heat metamorphism experienced in places. As a result, the bedrock is likely to range from a very soft rock material to a hard rock material. While the former should generally be excavatable by a strong excavator, the latter may require addition measures to remove. Blasting is not recommended in this instance, as the seismic shock may damage underground pipes or foundations of the adjacent reservoir and structures in the vicinity. As an alternative, the use of pneumatic equipment (e.g., a pecker) may be considered. Chemical dissolution product may also be considered; however, the rock strength at the base of the earth mattress must not be compromised by this.

- *Bedrock Stability:* Bedrock stability must be continually monitored during excavation, as discussed in section 7.2.

General: The safety of all persons working in or near open excavations must be ensured.

1.5.5 Slope Stabilities

The client needs to take note of potential slope and rock mass stability problems which may manifest during construction. The state and orientation of the shale bedrock's joint sets need to be inspected very regularly during the excavation phase of the project. The deformed state of the shale bedrock necessitates that the bedrock be inspected as it is progressively exposed during excavation to ensure that no instabilities will occur. The current state of bedrock encountered on surface alone is not considered sufficient to analyse the rock mass stability due to the deformed nature of the bedrock.
While it would be ideal to conduct orientated rotary core drilling prior to construction to assess potential instability, the client has indicated that time to construction is very limited. This leaves the inspection of excavation faces during excavation as the only remaining alternative.

While all excavation faces must be monitored during construction, specific attention must be given to two areas:

Eastern Excavation Face
Inspections of fill and rock materials on the eastern side of the excavation must focus on the stability of the adjacent (existing) reservoir. At present it is not known how the adjacent reservoir was founded, but it is assumed that the structure was founded on shale bedrock. Nevertheless, it is vital that the eastern excavation face be monitored to ensure that the adjacent reservoir's foundations are not affected. If needed, information obtained during the on-going monitoring process must be used to design a temporary lateral support system which may be required to stay in place until construction of the new reservoir is complete.

Southern Excavation Face
Initial indications are that the shale bedrock joint sets and planes dip in a northerly direction. If this proves to be consistent, the southern excavation face will expose discontinuities or planes which dip to the north, thereby posing a risk of bedrock failing (i.e., sliding) along the joint set into the open excavation. As before, this potential problem can only be assessed during the excavation process and may necessitate the introduction of a temporary or permanent lateral support system to prevent potential rock (sliding) failure.

1.5.6 Groundwater

- ***Perched Groundwater:*** No perched groundwater was encountered in any of the trial holes excavated. Considering the very limited catchment area of this site, it is unlikely that perched water will occur, despite the shallow bedrock.

- ***Permanent Groundwater****:* The probability of drilling successfully for water in the area is less than 40%. If water is encountered a probability of producing a yield higher than 2l/s is between 10% and 20%. Groundwater that is present in the area is usually encountered at depths between 20m and 30m, occurring in fractures restricted to a zone directly below groundwater level. Groundwater is usually found in the contact aureole of the shale and the diabase.

1.5.7 Materials Utilization

No CBR samples were extracted from this site, simply due to the fact that no in situ soils were present. It was initially considered to collect samples of the fill materials in trial holes two and three; however, the very coarse nature of the material ruled it out of contention as oversized shale clasts are not suitable for sampling.

1.5.8 Blasting Considerations

Blasting is not recommended in this instance, as the seismic shock may damage underground pipes or foundations of the adjacent reservoir and structures in the vicinity.

It is unlikely that any blasting will be done however blasting of all charges must be conducted within the ANSI tables of safety. Blast mats of backfilling with soil will be necessary to reduce the risk of fly rock causing damage or injury.

As an alternative, the use of pneumatic equipment (e.g., a pecker) may be considered. Chemical dissolution product may also be considered; however, the rock strength at the base of the earth mattress must not be compromised by this.

1.5.9 PROPOSED FOUNDATION SYSTEM

Excavation to the required depth, leveling off the floor to the best practical level, compaction of the floor, fill with mass concrete for secure founding and working surface.

1.5.10 GENERAL

Although every effort has been made to ensure the accuracy of the information contained in this report, the results are based on limited fieldwork only. It is thus possible that localized soil conditions may vary with those described in this report.

1.6 Features Requiring Special Attention

1.6.1 Existing Services

All existing services shall be indicated to the contractor however the contractor is responsible to confirm these services where after he will assume full responsibility for maintaining these in good running order. It shall be understood that the production of the existing plant shall in no way be impaired during the contract.

1.6.2 Surveying and Cadastral Beacons (including Stand pegs)

The Contractor shall be held responsible for the cost incurred in replacing or repositioning of any cadastral beacons which may have been disturbed by his actions.

Under no circumstances shall cadastral beacons be replaced by unauthorized persons and the Engineer shall be informed immediately of such disturbed beacons. The Engineer shall arrange for the replacement of any beacons by a competent Land Surveyor.

1.7 Supplying of Materials

All materials required for this contract shall be supplied by the Contractor. The Contractor shall take care that no delay is caused due to a shortage of material. Therefore, material required shall be ordered well in advance.

While care had been taken in calculating the quantities, the Contractor shall check the quantities before ordering. No claims for payment of excess or incorrect materials due to such shall be entertained.

1.8 Quality Control

It is the responsibility of the Contractor to deliver work of quality and accuracy that is in accordance with the specifications and drawings, and the Contractor shall at his own cost provide a quality control system and provide experienced Engineers, Foreman, Surveyors, Technicians and other Technical Personnel together with the necessary transport, instruments and plant to ensure that proper supervision and positive control be applied on the job at all times. This also includes work done by sub-contractors, including nominated sub-contractors for specialized work or otherwise.

The cost of all supervision and control, test included, performed by the Contractor, shall be included in the relevant rates for the different items when tendering, except where separate provision has been made in the sections of the specifications.

The Contractor’s attention is drawn to the stipulations of the different sections of the specifications regarding the minimum frequency of test to ensure proper quality control. The Contractor shall increase this frequency if he deems fit to ensure appropriate control.

The Contractor shall, at the completion of each part of the work and requesting approval thereof by the Engineer, submit all applicable test results, measurements and levels to indicate that it conforms to the relevant specifications.

1.9 General

Although every effort has been made to ensure the accuracy of the information contained in this report, the results are based upon fieldwork and limited laboratory testing only. It is thus possible that localized soil conditions at variance to those described in the report may be encountered.

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022.23**

THE CONSTRUCTION OF A 10ML PARKMORE LL RESERVOIR AND THE INSTALLATION OF FEEDER MAINS: 18- MONTH PERIOD

C3.2 ENGINEERING

C3.2 ENGINEERING

C3.2.1 STANDARDS AND CODES OF PRACTICE

The following design standards for civil engineering infrastructure will apply:

i) *Principles and Standards for the Design and construction of Water and Sanitation Systems in the City of Tshwane* by the Service Delivery Department: Water and Sanitation of the CoT (Revised July 2010).
ii) *Standard Specifications for Municipal Civil Engineering Works Series 4: Water Reticulation and Water Mains (September 2000)* as supplied by the Water and the Environment Department, Water Supply Division of the City Council of Pretoria (Incorporated in the City of Tshwane).
iii) *Guidelines for the provision of engineering services and amenities in residential township development* by the National Housing Board (Red book).
iv) *General Conditions of Contract for Construction Works (2010) (Second Edition)* by the South African Institution of Civil Engineers.
v) *Standardized Specification 719* as supplied by the South African Bureau of Standards
vi) *Australian Standard® for Fusion-bonded medium-density polyethylene coating and lining for pipes and fittings AS 4321-1995* as prepared by the Committee WS/9 on Rolled and Welded Steel Pipe of Standards Australia
vii) *Standard Specifications for Municipal Civil Engineering Works* of the City of Tshwane (Third Edition 2005).

Note: Drawings and the Water and Sanitation standard detail documents are available at the City of Tshwane WATER AND SANITATION DEPARTMENT, Capital Towers North, 225 Madiba Street, Pretoria, Room 702, Ms. Retha van der Westhuizen (012 358 7689). Contractor to provide own electronic storage device. Tender drawings will also be available at the same room/office.

C3.2.2 DESIGN & SPECIFICATIONS

C 3.2.2.1 RESERVOIR

Design Parameters:

Size:	10ML (10 000m³)
Dimensions:	37.5m diameter x 10.2m high (top water height is 10.00m)
Structure Type:	Cast in-situ reinforced 35/19 concrete class superstructure. All joints sealed with suitable sealant and covered with latex rubber bandage.
Foundation:	G5 compacted to 95% MOD AASHTO in layers of 150mm thick to a minimum of 300mm. The superstructure sits on a 100mm wide and 300mm thick strip footing of 35/19 reinforced concrete. A 150mm thick reinforced concrete floor slab sitting on top of the layer works, subsoil geopipes and 100mm thick no fines concrete blinding.

Constituents:

- **Concrete**

  Concrete used for construction of the reservoir foundations and superstructure shall have a cube strength of 35 MPa at 28 days and shall be rendered workable (75mm slump) through selections of the correct cement / water ratio required by the aggregate or using an approved plasticizer. The use of waterproofing admixture such as waterproofing admixtures at mixing ratios of 1-2kg/m³ or as advised by the admixture supplier and included in mix designs and approved shall be considered for all water retaining structures. The concrete shall contain a minimum of 350 kg of OPC per m³ for imperviousness and durability. Dolomite aggregate shall not be used for all concrete. The concrete for pipe cast in thrust blocks is 20/19 class or as specified in structural drawings. Concrete class for the reservoir components is clearly specified on the drawings. No fines 19mm stone size concrete shall be used for foundation blinding.

- **Reinforcing Steel**

  High tensile (450 MPa) reinforcing steel will be installed in all structural members (roof, wall, floor) to counter and limit crack formation to tolerable levels.

- **Roof Slab:**

  The roof slab is carried on 9 reinforced concrete columns as follows;

  - 255mm thick cast in-situ reinforced concrete roof slab sitting on evenly spaced columns.
  - Columns are 450mmx 450mm with 1350mm x 1350mm x 150mm deep mushroom/drop heads.
  - A 10mm layer of 19mm crushed rock on top of roof for heat dispersion

- Access manhole covers and level switch and telemetry cable accesses. The manhole lid and frame shall be 750mm square heavy-duty type approved by the Engineer. The cable telemetry access shall be 100mm diameter as indicated in structural drawings.
- Cast in weep holes for stormwater drainage from the roof.
- Air ventilators as approved by CoT and indicated on drawings.

- **Wall:**

  - The walls of the reservoir are constructed of class 35/19 RC. The walls are 300mm thick.
  - All construction joints shall be sealed by a PVC waterstop as well as a butyl rubber bandage to ensure water tightness.
  - Sliding continuous graphite strip bearings or similar approved installed as specified in Detail 1 of drawing KB059/COT/PM-RES/S-002

- **Foundation:**

  Excavations will be carried through to solid bedrock. G5 material layers foundation compacted to 95% MoD AASHTO in layers 150mm thick to a minimum of 300mm, will hold a cast in situ reinforced concrete 35/19 class, 100mm wide and 300mm deep strip footing and 150mm surface bed cast on 100mm thick layer of no fines concrete.
  110mm diameter perforated geopipes with a minimum cover of 95mm backfilled with a 19mm size stone no fines concrete will be installed underneath the surface bed and strip footing as shown in drawing number KB059/COT/PM-RES/S-003. The no fines concrete blinding shall vary in thickness from a maximum of 200mm to a minimum of 100mm to give a slope of 1% towards the perforated geopipe positions. The subsoil geopipes will slope from the center of the reservoir to the outside at a minimum of 1 degree slope. The geopipes will be connected to leak detection catchpits which are constructed of a concrete base, brickwork and a medium duty Mentis Grating with supporting angle iron steel grid as shown in the drawing referred to above.

C3.2.2.2 PIPELINES

Description of Mild Steel pipes

Pipe Diameter and thickness		
Supply pipe	:	350mm (DN) x 4,5mm
Delivery Pipe	:	600mm (DN) x 6.0mm
Pipe length	:	20m (600mm Diameter) and 45m (350mm Diameter)
Delivery pipe joint type	:	Beveled end welded to BS 534 (600mm Diameter)
Supply Pipe joint type	:	Beveled end welded to SANS 719 (350mm Diameter)
Pipe design working pressure	:	24 Bar.

Specification of the Steel pipes

Material

Steel pipes will be manufactured by either of the following grade steel material:

S235, 300WA, X52, and X56.

Cathodic protection of the system will be investigated and designed after the tender has been awarded.

Dimensional Specification of Pipes

Pipes will normally be ordered in lengths of 11,982 or 9,144m. The exact lengths will be within a tolerance of -0 + 15mm on basic length. Pipe wall thickness shall be subject to a tolerance of plus 10% and minus 8%. The pipe ends shall be clean cut, free from burrs and acceptable square to the axis of the pipe. The pipe ends shall be prepared for welding, or plain as specified by the CoT. Pipe with a diameter smaller than 508mm will normally be flat ended, and bevel ended for pipes with diameter greater or equal than 559mm.

Coating Specification

<u>Fusion Bonded Polyethylene Coatings</u>

The pipe coating shall be either medium polyethylene fusion bonded, complying with all aspects of AS 1193, AS 4131 and AS 4321 of the latest revisions.

All coating materials shall be supplied complete with an original ISO 17050-1 Certificates of Conformity (COC) for the materials, clearly indicating compliance with all mechanical, physical and chemical properties of the coating, as defined in AS 4321, AS 1193 and AS 4131.

The supplier shall ensure that testing takes place as per AS 4321 Appendix A, as defined in Table A1 for the pipeline coating at the mill. In addition to this, a detailed third-party report indicating compliance as per the 5 Yearly Type Testing shall be included in the bid and shall be approved by the client in writing before production commences. The annual testing as per Table A1 shall also be submitted with the bid and shall be approved by the client in writing before production commences.

The minimum Dry Film Thickness (DFT) shall be 2.3mm minimum or as per Table 1 of AS 4321 for the different pipeline diameters as agreed by the Client.

The pipeline frequency of testing during production shall be as per AS 4321 Table 2.

The surface profile shall be angular and at least 60-micron -75 micron in profile variations and the dust and debris level shall never exceed Class 2 ISO 8502-3 during production, the latter shall be confirmed during production on every 5th pipe and records shall form part of the hand-over data pack issued to the Client.

The cutback distance of the coating will be 75mm from the pipe end.

<u>Three Layer Polyethylene (3LPE) Coatings</u>

The 3LPE coating shall comply with ISO 21809-1, the Canadian Specification CSA Z245.20/Z245.21 is not applicable.

The materials supplied as part of the 3LPE coating, including the Fusion Bonded Epoxy (FBE), Copolymer adhesive and Polyethylene (PE) outer coating shall be supplied with ISO 10474 or EN 10204 Inspection Certificates 3.1.B and 3.1, giving the results of the testing of coated pipes, as supplied on the contract/purchase order and signed by a representative of the client which has been duly authorised to issue such documents, by the client in writing.

Pipeline production and coating may not take place without a client approved Inspection and Testing Plan (ITP) document providing an overview of the sequence of inspections and tests, including appropriate resources and procedures. The client shall approve the ITP and Quality Control Procedure (QCP) in writing prior to coating production commencing.

Subsequent to the approval of the documentation detailed above, a Procedure Qualification Trial (PQT) shall take place and shall be witnessed by the client or the duly appointed and authorised person appointed by the client to witness that application of the coating and subsequent inspection/testing of its properties, to confirm that the Application Procedure Specification (APS) is adequate to produce a coating with the specified properties, carried out prior to the start of production.

The 3LPE shall be Type B coating, as per ISO 21809-1 Table 1.

The 3LPE coating shall as a minimum be as follows:

FBE	0.30 mm
Adhesive	0.20 mm
HDPE	2.00 mm

The 3LPE shall have minimum total thickness as above, and on heavier wall pipes it shall comply with class B3, as per ISO 21809-1 Table 2.

The applicator shall use epoxy material that is in accordance with Table 3, Class B, as per ISO 21809-1 and shall test the materials/ensure compliance as detailed above in accordance with ISO 10474 or EN 10204.

The applicator shall use adhesive material that is in accordance with Table 4, Class B, as per ISO 21809-1 and shall test the materials/ensure compliance as detailed above in accordance with ISO 10474 or EN 10204.

The applicator shall use PE/PP material that is in accordance with Table 5, Class B, as per ISO 21809-1 and shall test the materials/ensure compliance as detailed above in accordance with ISO 10474 or EN 10204.

The applicator shall provide batch certificates supplied by the manufacturer of each material and shall contain the information given in Table 6 ISO 21809-1. The batch certificate shall state test methods and acceptance criteria. The applicator shall identify the materials and shall confirm that the certificates comply and relate to the specified materials, as well as the requirements stipulated in Clauses 8.3.2 and 8.3.3 ISO 21809-1.

Prior to the start of coating production and any specified PQT, the applicator shall prepare an APS as per Clause 9.2 ISO 21809-1.

The APS, including any client approved written revisions, shall be approved by the Client prior to the start of production and any specified PQT and shall comply with the requirements of Table 7, Class B coating system.

The APS shall be verified by a PQT in accordance with ISO 21809-1 Annexure L. The applicator shall applicator shall prepare an ITP and a daily log to record quality control data in accordance with Annexure L of ISO 21809-1.

Prior to the commencement of the surface preparation for the coating operations, a visual inspection shall be performed on the bare steel pipes in order to verify that there are no steel or weld defects (welding slag, spatter or raised/sharp edges) or contamination with oil, grease, soil, dirt and similar contaminants.

In the event that steel defects are detected they shall be rectified using a file, light grinding or any other suitable tool as stipulated in API 1104 Clause 13.10. This intervention shall not reduce the pipe wall thickness below the tolerances specified in the relevant Project Documents. In case the steel defect is of the nature that simple correction of this defect cannot be performed, the pipe affected by this defect shall be quarantined until the appropriate measures are taken.

In case oil, grease, or any other residues (e.g., adhesive materials or similar contaminants) are present, then they shall be removed using a high-pressure water based detergent cleaner, and/or a suitable “solvent” as per the requirements of SSPC-SP-1 Specification. In the event of other “adherent” contaminant being present, then power tool brushes or any other appropriate method may be utilised in order to remove the contaminant from the pipe surface prior to grit blasting.

The blast cleaning abrasives shall be, at all times, kept dry, clean and free from contamination. The blast cleaning shall be performed when the following conditions are satisfied:

- The steel surface temperature is at least 3ºC above the ambient dew point, which shall be checked using a calibrated hygrometer or other method approved by Client.
- The steel surface shall have no traces of moisture.
- The steel surface is protected from bad weather conditions such as rain or the strong wind which can bring contaminants such as soil, sand, dirt, salt or any other such similar contaminant.

In the case that the steel surface temperature is less than 3ºC above the ambient dew point or traces of moisture are detected on the steel surface, the steel surface shall be heated using induction heating until the steel surface temperature is within the range of 50ºC to 60ºC. This temperature shall be maintained until all of the moisture has been removed from the steel surface.

Abrasive blast cleaning shall be in strict compliance with ISO 21809-1 Clause 10.1.2 with the exception that the profile shall be measured using ISO 8503-4 (Stylus method), replica tape is not permitted.

As per ISO 8502-3, the cleanliness of the steel surface shall be measured using the ISO Form: “Preparation of Steel Substrates before Application of Paint and Related Products – Test for the Assessment of Surface Cleanliness – Part 3: Pressure Sensitive Tape Method.” As prescribed, a strip of clear tension tape shall be placed, tacky side down, onto the blasted steel surface of the pipe after cleaning. The tape shall then be removed from the surface and placed on a piece of white glossy paper where it will be compared to the cleanliness levels provided in the ISO 8502-3 specification procedure. This shall not exceed a “Debris” and “Dust” level of Class/Level 2 at any given time and shall be recorded during pipe production on at least every 5th pipe to confirm compliance and records shall be kept for the client, which may be inspected at any given time.

The salt level on the bare steel pipe surface shall be measured according to ISO 8502-2 and shall be a maximum of 20 mg NaCl/m². The basic procedure of the test shall be to dampen circular piece of test paper of known area with a specified volume of laboratory water containing less than 0.1µg/cm² of salt. The test paper shall then be applied to the pipe for a period of 2 minutes, after which the test paper will be removed from the pipe and its resistivity measured. The salt content on the pipe will then be determined through the calibrated Salt Contamination Meter which uses the negative correlation between resistivity

and salt content, along with empirically measured historical data to provide a reading.

If excessive salt contamination is established (≥20 mg NaCl/m²) during production testing, then the applicator shall ensure that a “Pre-Wash” system shall be employed prior to coating in order to remove the salt without causing “flash rusting” or any other “surface contamination”. The “pre-wash” shall be performed and shall form an integral part of the production Pre-Qualification Testing (PQT) before acceptance of the “Pre-Wash” procedure.

The maximum time elapsed after completion of the abrasive blasting operation, pre-wash (if applicable) and the application of the P primer shall be 120 minutes if RH < 85% and 60 minutes if RH > 85%. At no time shall the steel surface temperature be allowed to drop below the dew point before application of the P Primer. Should either of these conditions apply, the surface preparation shall be re-inspected and/or the surface preparation repeated as required.

The application of the 3LPE coating shall be in accordance with the approved APS in accordance with Clauses 10.2.2,3 and 4 of ISO 21809-1.

Inspection and testing shall be carried out in accordance with the approved APS, and ITP and shall meet the minimum requirements as stipulated in ISO 21809-1 Tables 8 and 9.

Coating repairs shall be addressed via a client approved APS and PQT as per Clause 12 ISO 21809-1

Pipeline marking shall be as per the Clients requirements, but shall as a minimum include all aspects detailed in Clause 13 of ISO 21809-1.

<u>Alternative Coatings</u>

Alternative coatings which comply with the same or possess very similar coatings properties as those detailed above, may be considered by the client.

Rigid Polyurethane (RPU) coatings shall comply fully with SANS 1217 and RPU suppliers shall verify compliance with an independent third party approved type testing report that is not more than 4 years old.

Toll manufactured RPU products shall also comply fully with SANS 1217 and RPU suppliers shall verify compliance with an independent third party approved type testing report that is not more than 4 years old showing full compliance with Table 1 for the toll manufactured product. The international “holding” company and/or overseas “registered brand” manufacturers test reports are not deemed to be acceptable, as the products are toll manufactured locally with the potential that local generic components are used. Testing of both toll manufactured, and imported products is mandatory. Imported products shall be issued with an ISO 17050-1 Certificate of Conformity from the supplier (point of origin) stipulating compliance with all chemical, physical and mechanical properties of the applied product, as per ISO 10474 or EN 10204 Inspection Certificates 3.1.B and 3.1 and shall

comply in full with SANS 1217 or AWWA C222 for RPU products.

The minimum mainline and Field Joint Repair (FJR) coating dry film thickness for the RPU system shall be 3000 microns.

Field Joint Repairs (FJR) External Coatings

On both FBMDPE and 3LPE coatings, only Client approved DVGW Certified and or other Client approved certification materials may be used. All materials shall comply with the requirements of EN 12068 Class C HT50°C UV for either tapes or heat shrinkable sleeves (HSS).

An ISO 17050-1 Certificate of Conformity from the supplier (point of origin) stipulating compliance with all chemical, physical and mechanical properties of the applied product, as per ISO 10474 or EN 10204 Inspection Certificates 3.1.B and 3.1 shall be submitted i.e., the DVGW Type Test Report and in-house batch testing for the batch(s) to be supplied.

Pipeline FJR repairs may not take place without a client approved Inspection and Testing Plan (ITP) document providing an overview of the sequence of inspections and tests, including appropriate resources and procedures. The client shall approve the ITP and Quality Control Procedure (QCP) in writing prior any FJR construction/production commencing.

Subsequent to the approval of the documentation detailed above, a Procedure Qualification Trial (PQT) shall take place and shall be witnessed by the client or the duly appointed and authorised person appointed by the client to witness that application of the FJR and subsequent inspection/testing of its properties, to confirm that the Application Procedure Specification (APS) is adequate to produce a FJR system with the specified properties, carried out prior to the start of construction.

For RPU mainline coatings, the same RPU material shall be utilised, once the Client has approved the APS, QCP and ITP. An ISO 17050-1 Certificate of Conformity from the RPU supplier (point of origin) stipulating compliance with all chemical, physical and mechanical properties of the applied product, as per ISO 10474 or EN 10204 Inspection Certificates 3.1.B and 3.1 shall be submitted i.e., the SANS 1217 Type Test Report and in-house batch testing for the batch(s) to be supplied as per SANS 1217 after completion of the jointing.

Lining Specification

The pipe lining shall be a solvent free two component polyamine cured epoxy lining and/or two components high build amine cured phenolic epoxy lining and/or two component solvent free amine cured epoxy/modified epoxy lining. The minimum dry film thickness shall be 250 microns.

Epoxy lining/coating shall comply fully with SANS 1217 and suppliers shall verify compliance with an independent third party approved type testing report that is not more than 4 years old.

Toll manufactured epoxy products shall also comply fully with SANS 1217 and suppliers shall verify compliance with an independent third party approved type testing report that is not more than 4 years old showing full compliance with Table 1 for the toll manufactured product. The international “holding” company and/or overseas “registered brand” manufacturers test reports are not deemed to be acceptable, as the products are toll manufactured locally with the potential that local generic components are used. Testing of both toll manufactured, and imported products is mandatory. Imported products shall be issued with an ISO 17050-1 Certificate of Conformity from the supplier (point of origin) stipulating compliance with all chemical, physical and mechanical properties of the applied product, as per ISO 10474 or EN 10204 Inspection Certificates 3.1.B and 3.1 and shall comply in full of SANS 1217.

All lining products shall possess a SANS Potable Water Certificate, which shall not be more than 2 years old and issued by SANS. Products without a SANS Potable Water Certificate shall be tested and shall be based upon product supplied from the Toll Manufacturing company which will be inspected and collected by the client and/or client’s representative from a production run. No material may be applied without the client approving in writing the SANS Potable Water Certificate.

Pipeline production and lining may not take place without a client approved Inspection and Testing Plan (ITP) document providing an overview of the sequence of inspections and tests, including appropriate resources and procedures. The client shall approve the ITP and Quality Control Procedure (QCP) in writing prior to lining production commencing.

Subsequent to the approval of the documentation detailed above, a Procedure Qualification Trial (PQT) shall take place and shall be witnessed by the client or the duly appointed and authorised person appointed by the client to witness that application of the lining and subsequent inspection/testing of its properties, to confirm that the Application Procedure Specification (APS) is adequate to produce a lining with the specified properties, carried out prior to the start of production.

The cutback distance from the pipe end will be 75mm for pipes that can be man entered and field repaired (pipe diameter larger than 500mm), otherwise no cutback will be accepted.

Tests required on pipes.

The following tests are required:

- Hydrostatic test on every pipe to a minimum of 90% of nominal yield strength.
- Radiographic, Ultrasonic and dye penetration tests on all welding.
- Check all pipes for dimensional compliance with relation to diameter.
- Tests to measure thickness of coating and lining.
- Spark test to check the uniformity and compliance of the lining and coating to ensure electrical isolation of steel material. The test will conform to the

requirements of NACE Standard RP0274 – 2004, Item no. 21010. Any repairs to the lining and coating due to either the spark test or the thickness tests will be done in a different colour or be clearly identified for later reference if any failures are experienced later in the lifespan of the pipeline.

- The existing, new and non-operational feeder pipes will be subject to cathodic tests to reveal any problem with the coating.

A report with all test results will be submitted to the client for storage and usage as and when required. The report will further exactly state any repairs to each pipe, and each pipe should indicate a unique reference number traceable for future reference.

Surface preparation:

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 SANS Code of Practice 10064 so that it meets the following requirements:

(a) A grade of cleanliness of at least Sa 2½ when tested by SANS test method 5767.
(b) A surface profile which does not exceed 0, 09 mm when tested by SANS test method 5772.
(c) Free from dust and debris to at least 0, 2% when tested by SANS test method 5769.

On award of tender and receipt of appointment letter, the successful bidder shall submit information on the cleaning methods to be used to meet the above requirements to the Engineer for approval. Before delivery of materials to site, Contractors must further provide the Engineer with the manufacturer's guarantee that the requirements have been met.

Flexible Couplings

All flexible couplings for plain-ended steel pipes and fittings must be of the slip-on type without a centre register, such as Viking Johnson or an approved equivalent, and they must comply with the applicable requirements of BS 534. Flexible couplings must be thoroughly cleaned and painted as specified in the project specifications.

C3.2.2.3 VALVES

BUTTERFLY VALVES:

Type	:	Flanged Butterfly Valves to BS EN 593 and 5155
Acceptable manufacturers	:	Manufacturers to be approved by Engineer before ordering of material.
Class	:	Class 16 – 1 600 kPa and Class 25 – 2500 kPA
Valve body	:	Spheroidal Graphite (SG), grey cast or ductile iron.
Disc	:	Spheroidal Graphite (SG), grey cast, ductile iron or stainless steel.
Coating	:	Inside and out with an epoxy paint of the highest quality.
Diameter	:	75% - 80% of pipe diameter
Spacing	:	1000m maximum

Specification on butterfly valves

1.1 Type

Butterfly valves shall be of the double flanged, full-bore and “tight shut off” type with the replaceable resilient seal. For pressures to 16 bar, the valve will be a double eccentric disc type, and for pressure higher than 16 bar, a triple eccentric type, metal seated valve will also be considered. All valves will be supplied complete with matching, uncoated, flanged both ends, bolted to valve complete with rubber gaskets.

The coating internally and externally, as well as the disc, shall be a two pack Epoxy, 300 microns minimum thick, or Fusion bonded epoxy powder, applied within four hours of shot blasting to S.A 3. All contact areas of dissimilar materials are to be wet assembled to prevent galvanic corrosion. The epoxy paint must be pinhole free. Paint thickness and Pinhole (spark test) recordings must be provided on delivery of valves.

Gearboxes shall be of the self-locking worm/quadrant type with no backlash.

Operation shall be by means of a pinion driving the quadrant.

Worm shafts shall be fitted with roller bearing thrust bearings to ensure minimal operating effort and smooth rotary action of the input shafts.

End stops shall be of the travelling nut type enabling precise setting of the open/closed positions.

The enclosure shall conform to a minimum of IP67 to prevent the ingress of water and debris into the gearbox housing.

The Gearbox to valve mounting flange shall have a groove from the input shaft to the edge of the flange to ensure early detection of any leakage from the valve shaft seals.

Gearboxes shall be packed with approved water resisting grease.

Gearboxes shall in all instances be sized for fitting of actuators (hand wheel operated valves included) on site without any additional modification. Actuator mounting flanges shall conform to ISO 5211. Hand wheel sizes will not exceed 400mm diameter for PN16 valve sizes 300mm to 1000mm and 400mm diameter for PN25 for valve sizes 300mm and 800mm and 500mm diameter for valve sizes 800mm to 1000mm diameter. Maximum rim pull on the hand wheel may not exceed 300 Newtons.

Additional fully enclosed spur gearing may be required to comply with the aforementioned requirement.

Gearboxes shall be provided with external mechanical open/closed position indicators and approved by the Engineer.

Full details of gearboxes in the form of a general arrangement drawing or certified catalogue information must be supplied with the tender.

Hand wheel operated valves shall be fitted with shear pins of an approved design to prevent damage to the gearbox and valve if excessive force is applied to the hand wheel.

ALL Valves shall be LEFT HAND (Anti-clockwise) closing.

ALL valves supplied must include a 15-year guarantee, and the company tendering must submit information that substantiate their claim that such a guarantee is possible and will be honoured. Information required is how long the company exist, the infrastructure and financial backing, how long is the valve being supplied by the company, clients and contact people that can verify the service backing and performance of the valves offered.

1.2 Specific Specifications

Butterfly valves shall be in accordance with BS EN 593. Flange drilling according to SANS 1123, PN 16 and PN 25.

1.3 Flow Rates

No cavitation in the fully open position shall be accepted. The maximum permissible flow rate at the maximum differential pressure across the valve and the head loss for the specified flow rate shall be as stated in the Technical Schedule.

1.4 Operation

A butterfly valve shall close under maximum specified head and flow rate and shall be functional in any position without variation of the blade position or flutter. Normal operation shall however be in either the fully open or fully closed position.

There shall be no interference in the water pattern through a valve except for the blade.

The blade shall close with a positive action with no possibility of slamming shut during any stage of the closing operation.

A butterfly valve shall be installed in a position allowing the valve to operate along the horizontal axis. The lower portion of the blade shall open towards the downstream side of the valve i.e., in the direction of flow. All valves shall be fitted with a gearbox complete with hand wheel of Left-Hand Closing.

Construction and operational requirements

2.1 Body

The hubs for the shaft-bearings and the gearbox mounting flange shall form an integral part of the valve body.

2.2 Blade

The blade shall be a single casting or fabrication of optimum hydrofoil section with a smooth continuous surface. The maximum combined stresses in the blade shall not exceed 20% of the yield stress of the material when the design pressure is applied on any of the two sides.

2.3 Seal Retaining Ring/s

The seal retaining ring/s, manufactured from stainless steel material, shall be coated to reduce galvanic corrosion. The recess for the retaining ring/s in the blade or body shall be coated to the specified corrosion protection specification or the seal face shall be assembled with a coat of wet solvent free Epoxy.

2.4 Seat and Seal

2.4.1 Soft seal butterfly valves PN 16 and 25 Bar or alternatively metal seated triple eccentric butterfly valves

Preference shall be given to a resilient seal arrangement that is removable, replaceable and adjustable in situ from the downstream side of the valve, without having to remove the valve from the pipeline.

A continuously moulded music note or tee type resilient seal is required for a valve specified for high velocity application (glued seals are not acceptable).

The edge of the seal retaining groove in the blade shall be stainless steel 304L deposit welded before machining for an O-ring or music note type seal.

The resilient seal shall have non-weathering, non-sticking, long life properties and shall be compatible with the quality of water to be conveyed.

The seat profile shall be smooth and continuous and shall provide adequate “lead in” for the resilient seal to open and close on the stainless-steel seat only. The mounting flange of the removable seat in the body shall either be stainless steel deposit welded and machined level with the seat or the seat ring manufactured to cover the seat mounting flanged.

The seat and seal shall be of a design preventing them from becoming loose and obviate water seepage under the seals or seats during all conditions of operation and testing.

2.4.2 Metal seated triple eccentric butterfly valves PN 25 Bar.

High Performance Triple Eccentric Metal Seated Design Manufactured in accordance with BS EN 593 Specification. Materials to be compatible with media and pressure requirements as per Table 6.1. Valve shall have replaceable laminated seal in the body and a replaceable seat ring on the disc.

2.5 Mechanical Stops

To prevent over travel of the valve blade in the open or closed position, all valves shall have adjustable mechanical stops incorporated in the gearbox.

2.6 Shafts

Shafts shall either be continuous or of a stub-shaft design configuration. Stub shafts shall extend into the blade hubs for a distance of at least 1.5 shaft diameters and shall not protrude from the hubs i.e., exposing the shaft.

Shafts shall be attached to the blade by means of keys, dowel pins, taper pins or any combination of the three. The connection shall be designed to transmit shat torque equivalent to at least 75% of the torsional strength of the shaft. Dowel and taper pins shall be mechanically secured.

The idle shaft cover shall be manufactured from stainless steel and secured with stainless steel fasteners.

2.7 Bearings

Self-lubricating sleeve type bearings (bronze backed or PTFE backed self-lubricating glacier or bushes shall be fitted in the hubs of the valve body. Bearing length minimum 1.5 * shaft diameter.

Each valve shall be fitted with at least one adjustable thrust bearing or spacer disc set to hold the blade securely concentric with the body or seat.

3. Butterfly valve material specification

Valve components, unless otherwise specified in the Project Specification, shall be constructed of the material specified in the following tables.

4. Test requirements

Table 3.1: Butterfly valve (DN 300 – 1000)

SIZE ND	PRESSURE RATING (kPA)	HYDRAULIC TEST PRESSURE (kPA)	
		STRUCTURAL	SEAT
300 - 1000	1 600	2 400	1 760
300 - 1000	2 500	3 750	2 750

Table 3.2: Material Specification for Butterfly Valves

COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION
BODY	SG IRON CAST STEEL MILD STEEL	BS 2789 Gr 420/SANS 936 SG 42 ASTM A216 WCB BS 1504-161 Gr 480/SANS 1465 Part 1 SANS 1431 Gr 300WA
DISC	SG IRON CAST STEEL MILD STEEL	BS 2789 Gr 420/SANS 936 SG 42 ASTM A216 WCB BS 1504-161 Gr 480/SANS 1465 Part 1 SANS 1431 Gr 300WA
BODY SEAT (PN 16) BODY SEAL for PN 16 and PN 25	STAINLESS STEEL STAINLESS STEEL	BS 970 Part 4, Gr 304 S15 BS 970, SS Gr 316 LAMINATED
BLADE / SEAL (PN 16) BLADE SEAT RING (PN 16 – 25)	ELASTOMER STAINLESS STEEL	EPDM 75°A SS Gr 304
SEAL RETAINING RING	STAINLESS STEEL	BS 970 Part 4, Gr 304 S15
SHAFTS	STAINLESS STEEL	BS 970 Part 4, Gr 431 S29
SHAFT BEARINGS / BUSHES	PHOSPHOR BRONZE SLEEVE TYPE PRFE BACKED/SELF LUBRICATING	BS 1400 PB1C (Cu, Sn10, P) BRONZE BACKED (DUB) GLACIER DU
SHAFT SEALS	RADIAL LIP SEAL/CUP SEAL/O-RING SEAL ELASTOMER	NITRILE/VITON SIMRIT NBR
IDLE SHAFT COVER	STAINLESS STEEL	BS 970 Part 4, Gr 304 S15
IDLE SHAFT THRUST BEARING / SPACER DISC	PHOSPHOR BRONZE	BS 1400 PB1C (Cu, Sn 10, P) (for vertical installation)
EXTERNAL FASTERNERS	STEEL (HOT DIP GALVANIZED) STAINLESS STEEL	SANS 1700 ASTM A193 Gr B8M, ASTM A439 Gr D2
INTERNAL FASTERNERS	STAINLESS STEEL	ASTM A193 Gr B8M, ASTM A439 Gr D2

RESILIENT SEAL VALVES

Type	:	Resilient seal gate valves to SANS 664
Acceptable manufacturers	:	Manufacturers to be approved by Engineer before ordering of material.
Class	:	Class 16 – 1 600 kPa
Specification	:	Anti-clockwise closing and non-rising spindles with hand wheel
Valve gate	:	Cast Iron covered with nitrile, EPDM or similar rubber.
Spindle	:	Stainless steel.
Valve body and bonnet	:	Spheroidal graphite, grey cast or ductile iron.
Flange dimensions and drilling	:	SANS 1123:1977 Table 1600 (or 2500 when specified)

Specification on resilient seal valves

1. General

1.1 Type

All valves shall be doubled flanged and of the resilient seal gate type, the gate of which shall be completely clear of the waterway in the fully open position. The gate valve shall be of the non-rising spindle type, fitted either with a hand wheel or cap top (type will be specified in the Schedule of Quantities). The valve shall be capable of withstanding the nominal pressure (PN) and specified test pressures from both sides. The gate shall operate satisfactorily under the specified conditions and shall be Left Hand closing.

All valves supplied shall include a 10-year guarantee, and the tendering company shall furnish information that substantiate their claim that such a guarantee is possible and will be honoured. Information required is how long your company exist, the infrastructure and financial backing, how long is the valves supplied by your company, clients and contact people that can verify the supply of the valve, the service backing, and performance of valves supplied.

1.2 Specifications

The valve shall be manufactured in accordance with SANS 664 and carry the SABS mark. Flange drilling according to SANS 1123, PN10 and PN16. The manufacturer/supplier shall have the SANS 3000 cycle test done and provide certified copies to verify that the product passed the test.

1.3 Body

The body shall be of rigid design to minimize distortion under pressure. Bodies shall be designed and manufactured to withstand any additional gearing related stresses.

1.4 Operation

The gate valve shall be able to open and close satisfactorily under the specified flow rate and pressure.

Position indicator

All valves of DN 300 and larger shall be fitted with a mechanical linear indicator system mounted on the valve stem to show the position of the gate.

Stem and thrust bearing.

Two friction washes (sizes 50mm – 200mm) and thrust ball bearings (250mm – 600mm) shall be in incorporated on the thrust colour to ensure smooth spindle operation as well as to reduce opening and closing torques.

The stem thrust collar shall bear against a ball thrust bearing, details of which shall be furnished by the Contractor with his offer.

1.8 Corrosion protection

Corrosion protection of valves shall consist of internally and external coating of minimum 250 microns of fusion bonded epoxy. The epoxy paint must be pinhole free. Paint thickness and Pinhole (spark test) recordings must be provided on delivery of valves.

An edge protecting ring shall be permanently fitted around the bonnet and body joint in order to protect the coating during transportation and installation. Damage to the corrosion protection or the rubber-coated gate during testing or normal operation will not be acceptable.

2. Construction and operational requirements

2.1 Body, guides and shoes

The gate shall have optimally placed guides of wear resistant plastic so as reduce the torques as well as reduce wear between the rubber and the coating on the body.

The valve body shall incorporate a straight unobstructed body passage without pockets and shall have inclined seats and prominent gate guides to eliminate deposits in the valve body.

The guides shall be as deep and as long as possible, but not protruding into the flow path to offer support in all gate positions.

The rubber coated gate shoes shall accurately fit the body guide profile to allow smooth operation of the gate with minimal shudder.

2.2 Gate

The gate shall be completely encapsulated in rubber and accurately molded to ensure drop tightness over the valve pressure range. The rubber coated gate shall be designed to offer an equal distribution of sealing pressure in all directions with a capacity to accept foreign matter up to 1mm in particle size. Documentation to prove that the rubber used for encapsulation comply with international health standards will be supplied, including a toxicity report with regards to toxins, taste and odour.

The gate shall be a left-hand closing type.

2.3 Stem

A corrosion resistant stem seal arrangement shall include a scraper ring to prevent the ingress of foreign matter. A stem thrust collar shall be installed between anti-friction materials to ensure low operating forces.

The gate nut shall not be fixed to the wedge, it must be of reparable type as per SANS 664, thereby reducing opening torques.

2.4 Bonnet: Bolts and Gaskets

The bonnet bolts shall be entirely sunk into the body casing, sealed and protected by re-useable hot wax melt. Bolts will be Grade 8.8 high tensile steel protected to standards in the material specification.

The valve shall have a preformed NBR rubber gasket, O ring type, set in a recess between the Bonnet and Body. The gasket must encircle each bolt.

2.5 Spindle

The manufacturing of the spindle will be a cold rolled thread stainless steel type, with minimum diameter:

Valve size	80mm– 110mm	150mm– 160mm	200mm	250mm– 600mm
Min Spindle dia	25mm	28mm	32mm	34mm

3. Material for resilient seal valves

Valve components shall be constructed of the material specified in the following tables unless otherwise specified in the Project specification. Material certificates will be provided on delivery of the valves.

3.1 Resilient seal gate valve (dn 50-600)

TEST REQUIREMENTS

SIZE DN	PRESSURE RATING (kPa)	HYDRAULIC TEST PRESSURE (kPa)	
		STRUCTURAL	SEAT
50 – 600	1 000	1 500	1 100
	1 600	2 400	1 750
	2 500	3 750	2 750

Hydro pressure test certificates must be provided on delivery of valves.

MATERIAL SPECIFICATION		
COMPONENT	MATERIAL TYPE	MATERIAL SPECIFICATION
BODY	Ductile Iron	SANS 936 SG 42
GATE	Ductile Iron, COATED	SANS 936 SG 42, Vulcanized EPDM ozone stabilized, UV resistant
BONNET	Ductile Iron	SANS 936 SG 42
SPINDLE	STAINLESS STEEL	BS 1449 Gr420 S37 Cold Rolled Thread
GATE NUT	BRONZE	Dezincification resistant (CuZn36Pb3As)
STEM BUSH	PLASTIC	
BUSH / STEM/ STUFFING BOX SEALS	O RING	NITRILE / VITON
PROFILE / SCRAPER RING	O RING	NITRILE / VITON
FRICTION RING	PLASTIC	
HAND WHEEL	SG IRON	BS 2789 Gr 420/12, SANS 936 SG 42
EXTERNAL FASTENERS	STEEL (HOT DIP GALVANIZED) STAINLESS STEEL HIGH TENSTILE	SANS 1700 ASTM A193 Gr B8M, ASTM A439 Gr D2 Grade 8.8

BULK WATER METER

Type	:	In-line through-flow with a mechanical turbine
Acceptable manufacturers	:	Manufacturers to be approved by Engineer before ordering of material.
Class	:	PN 25 – 2 500 kPa
Design Flow in m³/h up to 50°C	:	600 m³/h (115.65 l/s)
Maximum Load (Q_{max})	:	2000 m³/h
Permissible Continuous Load (Q_n)	:	1400 m³/h
Parting Line ±2% (Q_t)	:	15 m³/h
Lower limit of measuring ±5% (Q_{min})	:	12 m³/h
Starting flow	:	18 m³/h
Pressure loss at perm. cont. load (Q_n)	:	20 kPa (0,02 bar)
Flange dimensions and drilling	:	FL – FL = 500mm to SANS 1123 - Table 2500/3

1 Requirements

Water meters for this project must be of the in-line through-flow type with a mechanical turbine. The meter must be flanged. Flanges shall in accordance with SANS 1123 for pressures of 1 600 or 2 500 kPa, as specified. The meters must be suitable for the measurement of cold, potable water.

The flow meters shall be capable of relaying a 4 to 20 mA signal. The flow meters shall be flanged to SANS 1123.

The flow meters shall be installed in a control room and the display instrumentation for each meter shall be installed within a galvanized steel box and mounted against the wall of the control room.

The display instrumentation shall be able to display the following:

(i) the rate of flow, in ℓ/s, and
(ii) the totalized flow in m³.

A 20-60 V DC power supply will be provided by others to the flow meters and display instrumentation.

CONTROL VALVE SYSTEM

COMBINATION PRESSURE REDUCING & RATE OF FLOW CONTROL VALVE

Type	:	Non-Throttling Altitude Valve for One-Way Flow with direct acting pilot valve
Acceptable manufacturers	:	Manufacturers to be approved by Engineer before ordering of material.
Orifice plate bore size	:	140 mm
Class	:	PN 25 – 2 500kPa
Design Flow in m³/h up to 50°C	:	748.8 m³/h (208 l/s)
Maximum Continuous Flow	:	1584.0 m³/h (440 l/s)
Maximum Intermittent Flow	:	1980.0 m³/h (550 l/s)
Minimum Continuous Flow	:	90.0 m³/h (25 l/s)
Pressure setting - Top Water Level	:	1447.3m amsl.
Pressure setting - Bottom Water Level	:	1438.1m amsl.
Flange dimensions and drilling	:	FL – FL = 900mm to SANS 1123 - Table 2500/3

PRESSURE REDUCING CONTROL VALVE ON FEEDER PIPE

Type	:	Automatic Pilot-Operated Pressure Reducing Valve
Acceptable manufacturers	:	Manufacturers to be approved by Engineer before ordering of material
Class	:	PN 25 – 2 500kPa
Design Flow in m³/h up to 50°C	:	748.8 m³/h (208 l/s)
Maximum Continuous Flow	:	1584.0 m³/h (440 l/s)
Maximum Intermittent Flow	:	1980.0 m³/h (550 l/s)
Minimum Continuous Flow	:	90.0 m³/h (25 l/s)
Pressure setting - Top Water Level	:	1447.3m amsl.
Pressure setting - Bottom Water Level	:	1438.1m amsl.
Flange dimensions and drilling	:	FL – FL = 902mm to SANS 1123 - Table 25003

1. Requirements

The control valve system shall have the following duties:

(1) It shall open and close automatically under hydraulic control to control the inflow to the reservoir, depending on the water level in the reservoir. Each opening and closing operation shall proceed smoothly over a pre-set period (adjustable from 5 to 25 minutes) so that there will be no water hammer in the pipeline.

(2) When open it shall maintain a constant operational rate of flow at the pre-set rate regardless of fluctuations in the upstream pressure or the level of the water in the reservoir. The valve shall be capable of being easily set to the required flow rate.

In order to prevent cavitation, the use of an auxiliary hydraulically controlled valve to control the pressure automatically may be required.

The Contractor shall be entirely responsible for the suitability and adequacy of the equipment supplied and installed.

2. Mode of operation

The control valve shall be hydraulically actuated by the water level in the reservoir.

When the water level in the reservoir is below Low Water Level (LWL) the control valve (system) shall maintain the operating rate of flow of water into the reservoir at the rate to which it has been set within the stated tolerance. When the water level in the reservoir rises above the "shut-off" level, the (primary) control valve shall close smoothly. The valve shall close drop tight regardless of the upstream pressure and shall remain closed until the water level in the reservoir falls to LWL. When the LWL is reached the valve shall open smoothly until it delivers the pre-set operating rate of flow.

The valve (system) shall be capable of operating satisfactorily over the full range of pressures.

3. Equipment

The (primary) control valve shall be a globe valve or similar approved. If required, the control valve system shall also include a secondary auxiliary valve.

A 10 mm diameter, Class 12, HDPE pressure sensing line shall be connected to the scour pipeline to sense the water level in the reservoir and shall be lead from the reservoir to the control valve chamber. Within the control valve chamber the pressure sensing shall consist of 10 mm diameter stainless steel piping.

The equipment to be provided shall include all valves, associated pipework, tubing, accessories, etc., as necessary to complete the installation.

All necessary repairs shall be possible without removing the valve(s) from the pipeline.

4. Operating and maintenance instruction manual

Three copies of the approved "Operating and Maintenance Instruction Manual" in respect of the valve system are to be supplied to the Employer before the valves are commissioned, as follows:

Binding: The manual shall be securely bound in A4 size hard backed plastic/waterproof 4 ring binders with clear pockets on the spine and front cover for insertion of title slips giving Contract number, Scheme, Reservoir and equipment supplied. Drawings larger than A3 size, index and other title pages shall be contained in separate pockets.

Layout: The manual shall contain sections separated by plastic binders clearly and visibly marked to match the index and shall be set out as follows:

- Title page
- Index:
- Final acceptance certificate relating to tests carried out.
- Operating instructions: These shall be clear, concise and easy to follow and must include where applicable pre-start, safety and shut down procedures.
- Routine maintenance and lubricating schedule.
- Fault diagnosis and repair procedure.
- Spare parts lists; suppliers'/agents' details shall be provided.
- Suppliers'/agents' original brochures and instrumental literature.
- Drawings. They shall include general arrangements, a detail drawing of the valve(s) plus a full description of the pilot valves and piping system and calculations, assembly drawings, parts and material lists in A3 size.
- Approval : At least four weeks before commissioning of the valve(s) is scheduled, the Contractor shall submit two complete draft copies of the proposed manual to the Engineer for approval. The Engineer will give his approval or indicate amendments/additions to be made within two weeks of receipt of the approval copies. The Contractor shall then produce three final copies of the manual as approved by the Engineer.

5. Commissioning

Commissioning of the valve(s) shall not begin before:

1. Three copies of the approved Operating and Maintenance Instruction Manual have been supplied.
2. All calculations for the preliminary settings have been submitted to, and approved by, the Engineer.
3. Corrosion protection and pipe construction approved by Gerald Haynes and other quality inspectors.

The Contractor shall commence commissioning by setting the control and pilot valves to the approved preliminary settings.

When the Contractor has completed his testing of the installation, he shall demonstrate the operation and the full range of settings of the valve(s) to the Employer's operator in the presence of the Engineer. Commissioning will be done by a preapproved person.

6. Product quality inspections on valves

A PC amount of R500 000 (exclusive VAT) must be allowed by all tenderers for product quality inspections on all goods. Imported goods should be accompanied by the relevant ISO test certification that it complies with the above specification.

The contractor shall provide a competent quality inspector to ensure product quality, review and compile all required documentation of the goods. Contractor shall provide inspector's details to Engineer for approval.

7. SPECIFICATION ON INSULATING FLANGES (IF)

1. INSULATING FLANGE (IF) MATERIA LS

1.1 Introduction

Pipeline electrical insulating flange (IF) materials shall be selected with consideration given to the quality and standard of material required. The chosen materials shall be able to withstand the maximum line temperature, pressure and predicted line movement. All IF materials shall be crossed-referenced to the manufacturer's specifications to ensure compatibility between materials, service and the environment.

The materials required per IF, shall be supplied as one complete set. The latter shall consist of an insulating non-metallic central gasket, non-metallic bolt sleeves and non-metallic washers and steel thrust washers, as well as the associated high tensile steel studs, nut and bolts.

All materials shall comply with the latest revision of the specifications detailed below.

2. Material Specifications

The non-metallic central gasket and non-metallic washers shall conform to the following materials specification:

MATERIAL PROPERTY	ASTM TEST	VALUE	
		SI	IMPERIAL
Dielectric Strength (Min)	0149	21kV / mm	540 V / mil
Compressive Strength (Min)	0625	340 MPa	49,000 psi

Water Absorption (Max)	0229	0,1 %	0,1%
Operating Temperature (Min)	N /A	-11c	0°F
Operating Temperature (Max)	N /A	+93°C	200°F
Hardness, Rockwell M (Min)	0785	115	115
Shear Strength (Min)	0732	150 MPa	22,000 psi

Steel thrust washers shall be machined with diameter and thickness to SANS 1149 Table 3 or to ASTM A325 Table 61. Thrust washers shall have machined, parallel faces.

Insulating sleeves shall be a minimum 0.8 mm thick glass fibre-reinforced polyester sleeve for each bolt. Total length of each sleeve is to be 2.3 mm longer than the length between outside faces of the steel washers. The insulating sleeves shall fit completely inside the insulating washers and extend partially inside the steel washers.

Insulating washers shall be manufactured from 3.2 mm thick fabric reinforced phenolic resin with the outer diameter (OD) being the same as that of machined steel washer - two for each stud bolt. The inner diameter of the insulating washer shall be a sliding fit over the OD of insulating sleeves.

Stud bolts and studs shall be Grade 8.8 and nuts grade 8 to SANS 1700-7 and SANS 1700-14. Stud bolt diameters shall be selected to the next smaller size for installation in standard drilled flanges. Stud bodies shall be machined down to the next standard smaller size and a smaller nut is also to be used.

A Surge Device shall be installed across the flange faces complete with hot dip galvanising mild steel mounting brackets to suit the flange bolt. The Surge Device shall be located in an IP66 polycarbonate enclosure as close to the IF as possible, to ensure that the cables do not exceed 3.Sm. The details and rating of the Surge Device are stipulated in the Works Information (WI).

The entire insulating flange shall be wrapped circumferentially with EN 12068 cold applied petrolatum tapes certified to Class A 30°C or rated at the appropriate service temperature. The tape shall only be supplied if an independent third-party Type Test Report compliant with EN 12068 is available and not more than 4/5 years old. The tape shall contain a chemical fibre fleece which is both coated and impregnated with corrosion protection petrolatum mastic and the tape shall possess a weight of at least 1.45kg/m2 when applied. In order to prevent the mastic from being washed out by rising and falling ground water the exterior side of the tape shall be covered with a polypropylene film. The latter shall have a minimum overlap of 55%. In the case of surface irregularities, i.e., stepped flanges, etc., a client approved EN 12068 Class A 30°C (or service temperature required) certified petrolatum mastic compound material shall be used to provide a smooth contour for subsequent tape application.

3. Identification and Labelling

The following labels are required as a minimum. "OPERATING INSULATING FLANGE"

"NO ATTACHMENTS TO PIPE WORK PERMITTED"

A 25 mm wide plastic backed electrical tape to SANS 122 colour Red shall be applied in the entre on the horizontal surface.

A 2 mm thick Aluminium plate, 80 mm x 80 mm shall be engraved as detailed above. The characters shall be 20 mm high and filled with Black indelible ink.

The Aluminium plate shall be fixed to the insulating flange with stainless steel strapping.

C3.2.3 PIPELINE INSTALLATION AND ALIGNMENT

1. Connections to Parkmore LL Reservoir

The existing Parkmore LL Reservoir is currently fed through a 375mm diameter supply pipe running from the Klapperkop Supply system. A new 450mm diameter supply line is currently under construction and will replace the current supply pipeline. The new 450mm diameter pipeline is being fed by the Garsfontein reservoir.

In an attempt to ensure that supply is as risk-free as possible, a new isolating valve chamber will be constructed under the new 450mm supply line contract just inside the site of the existing Parkmore LL Reservoir. The extent of works for the Parkmore LL Reservoir project will start at the connection point of this valve chamber.

Should the valve chamber not be completed in time, a temporary connection to the existing 375mm diameter pipe will have to be made so that the reservoir contract can be commissioned and handed over.

2. Horizontal Alignment of Pipelines:

The 350mm diameter Feeder pipelines will be installed from the new control chambers to the inlets of the two reservoirs and the 600mm diameter delivery pipeline shall be installed as previously mentioned.

3. Trench excavations and vertical alignment:

The soils along the route are classified as “intermediate to hard” excavation to an average depth of 2.5m below surface. Test holes were excavated along the route. Conventional earth moving equipment would suffice for the excavation of the pipe trench over the bulk of the route. A powerful machine such as a pecker may however be necessary in confirmed areas.

The feeder pipeline will be installed with the cover over the pipe between 0.9m and 1.7m, on average the cover will be 1.2m. The delivery pipeline will be installed with the cover over the

pipe between 0.9m and 3m, on average the cover will be 1.6m. The bypass pipeline will have an average cover depth of 2.0m

The average compactibility factor of the insitu material does not fall within the SANS limits for bedding material and bedding imported from a commercial source shall be required.

All excavations should have proper sidewall protection to ensure safety of workers. The contractor is responsible for the implementation of suitably designed support systems.

The topsoil, i.e., the top 150mm of the profile containing organic matter should be stockpiled separately and be used for rehabilitation purposes on completion of the backfill.

4. Anchorage:

No thrust blocks shall be constructed where steel pipes with flanged or welded joints are used. The pipeline will be anchored at all valve boxes with puddle flanges cast into the walls.

5. Depth of Cover:

Unless otherwise shown on the drawings or required in terms of the project specifications the permissible tolerance limits shall be as follows:

a)	Cover above pipe	:	Plus, or minus 900 mm
b)	Clearance between pipelines	:	600 mm minimum

6. Road Crossings:

No road crossings are required.

7. Bending, Buckling, Deflections:

No bending, buckling or deflections shall be allowed on steel pipelines.

8. Cutting back linings and coatings:

The degree to which linings and coatings are to be cut back depends on the type of connection specified. Linings and coatings must be taken to the ends of pipes for welded and compression type couplings and according to the manufacturer's instructions for special Joint pipes. Coatings must also be applied according to the manufacturer's instructions for special Joint pipes and 50 mm from the end of pipes.

Uncoated portions of pipes must be protected with a primer which complies with SANS 926. The primer must be applied so that it has a dry thickness of 0,25 mm.

9. Internal lining cutbacks will be nil on belled ends and nil on spigot ends. (Including reverse “bullnose key”)

10. External coating cutbacks will be 50mm on belled ends and 90mm on spigot ends.

11. Water softening

After each pipeline has been successfully tested, it shall be thoroughly flushed out with clean water until all sediment and other foreign matter have been removed.

The pipeline shall then be filled with water containing 0,015 grams per litre of chloride or lime. The solution shall be allowed to flow slowly into the pipeline until it fills it completely and shall be left there for at least 24 hours. All valves shall be opened and closed during sterilization to ensure that all surfaces are sterilized.

The pipeline shall then be thoroughly and repeatedly flushed with clean water until the water which is flushed from the pipeline complies with the requirements of the Employer.

Where work, which has to be carried out on a section of pipeline which has been sterilized, causes internal contamination of the pipeline, the entire section of the pipeline shall again be sterilized. Water for the first sterilization will be provided free of charge by the Employer.

12. Dimensions, Pipe Specials and Approvals

All dimensions of existing infrastructure and newly constructed structures must be checked on site, before ordering and manufacturing of pipe specials. All pipe specials, valves and water meters must be submitted to Engineer for approval before ordering and or manufacturing.

C3.2.4: LIST OF DRAWINGS

Drawing No	Description
KB059/COT/PM-RES/EW-001	Earthworks Layout
KB059/COT/PM-RES/RS/STD-001	Road paving and Detail
KB059/COT/PM-RES/LS-001	350mm Diameter supply line to new reservoir 1
KB059/COT/PM- RES/LS-002	350mm Diameter supply line to new reservoir 2
KB059/COT/PM- RES/LS-003	350mm Diameter supply line to new reservoir 3
KB059/COT/PM- RES/LS-004	350mm Diameter supply line to new reservoir 4
KB059/COT/PM- RES/LS-005	600mm Diameter delivery line to new reservoir 1
KB059/COT/PM- RES/LS-006	600mm Diameter delivery line to new reservoir 2
KB059/COT/PM- RES/LS-007	Reservoir by-pass pipeline
KB059/COT/PM- RES/LS-008	600mm Diameter stormwater line
KB059/COT/PM- RES/EPL-001	Existing reservoir layout
KB059/COT/PM- RES/PRL-001	Proposed reservoir layout
KB059/COT/PM- RES/STD-001	New control room

KB059/COT/PM- RES/STD-002	Pipe fitting and item list
KB059/COT/PM- RES/STD-003	Supply and delivery of isolating valve chamber
KB059/COT/PM- RES/STD-004	Proposed reservoir supply valve chamber
KB059/COT/PM- RES/STD-005	Proposed delivery valve chamber
KB059/COT/PM- RES/STD-006	Overflow pipe valve box
KB059/COT/PM- RES/STD-007	Reservoir access manhole and air-vent details
KB059/COT/PM- RES/FSD-001	Fence standard detail
KB059/COT/PM- RES/FL-001	Fence layout
KB059/COT/PM- RES/S-001	Reservoir foundation layout 1
KB059/COT/PM- RES/S-002	Reservoir foundation layout 2
KB059/COT/PM- RES/S-003	Reservoir floor drainage details
KB059/COT/PM- RES/S-004	New control room architectural setting out layouts and elevations
KB059/COT/PM- RES/S-005	New control room construction layouts
KB059/COT/PM- RES/S-006	New control room sections and construction details
KB059/COT/PM- RES/S-007	Existing control room renovation plan
KB059/COT/PM- RES/S-008	Existing control room new roof layout and sections
KB059/COT/PM- RES/S-009	Supply side valve chamber layout and section
KB059/COT/PM- RES/S-010	Delivery side valve chamber layout and section
KB059/COT/PM- RES/S-011	Overflow box layout and sections
KB059/COT/PM- RES/S-012	Reservoir roof slab reinforcement details
KB059/COT/PM- RES/S-013	Reservoir floor slab reinforcement details
KB059/COT/PM- RES/S-014	Reservoir wall reinforcement details 1
KB059/COT/PM- RES/S-015	Reservoir wall reinforcement details 2
KB059/COT/PM- RES/S-016	Reservoir wall reinforcement details 3
KB059/COT/PM- RES/S-017	Reservoir wall reinforcement details 4
KB059/COT/PM- RES/S-018	Reservoir wall reinforcement details 5
KB059/COT/PM- RES/S-019	Reservoir wall reinforcement details 6
KB059/COT/PM- RES/S-020	Reservoir wall reinforcement details 7
KB059/COT/PM- RES/S-021	Reservoir wall reinforcement details 8
KB059/COT/PM- RES/S-022	Reservoir wall reinforcement details 9
KB059/COT/PM- RES/S-023	Reservoir roof beams bases and columns reinforcement details
KB059/COT/ELEC-01	New control room lighting layout
KB059/COT/ELEC-02	New control room small power layout
KB059/COT/ELEC-03	Existing control room lighting and small power layout
KB059/COT/ELEC-04	Distribution board schematics
KB059/COT/ELEC-05	Site cable reticulation and external lighting layout

ANNEXURE C3

REQUIREMENTS TO BE SPECIFIED

A: INFORMATION TO BE SUPPLIED IN TENDER SPECIFICATION	
ITEM	INSTRUCTION
Corrosion protection system	Agreement and approval
	Dry film thickness
Finishing coat colours	Departmental colour code
Repair kit	Required or not
Material type	Type of powder
Medium duty hot-dip galvanized coating	Medium duty

B: INFORMATION TO BE SUPPLIED BEFORE ORDER IS PLACED	
ITEM	INSTRUCTION
Approval of specific corrosion systems	Approval
Proprietary items	Corrosion protection
Lifting lugs	Design
Blasting material with data sheets	Blasting material
Method of application	Epoxy
Coating for duplex system	Application of duplex system

C: INFORMATION TO BE SUPPLIED AFTER ORDER IS PLACED	
ITEM	INSTRUCTION
Quality plan	Approval
Suitability of design	Hot-dip galvanizing
Programme	Approval

ANNEXURE C3

DEPARTMENTAL COLOUR GUIDE

1. CHAMBERS WITHIN A RESERVOIR SITE

Items	Colour	SANS 1091 Code
a) Pipes		
High Pressure	Signal Red	A11
Low Pressure	Flag Blue	F04
b) Valves		
Control Valves	Flag Blue	F04
Isolating Valves	Silver	
Air Valves	Silver	
c) Handrails		
Handrails – vertical Handrails – horizontal	Black Golden yellow	 G49
d) Floors		
Above NGL	Emerald green	E14
Below NGL	None	

2. CHAMBERS OUTSIDE RESERVOIR SITE

Items	Colour	SANS 1091 Code
a) Isolating Valves	Silver	
b) Pipes - High Pressure	Signal Red	A11
- Low Pressure	Flag blue	F04
c) Manhole covers	Silver	
d) Ladders Stainless Steel	None	
e) Air valves	Silver	
f) Control valves	Flag blue	F04

3. PUMPING STATIONS

Items	Colour	SANS 1091 Code
a) Pump	Flag blue	F04
b) Motor	Emerald Green	E14
c) Fan and Coupling guards	Light Orange	B26
d) Valves:		
Reflux Valves	Silver	
Isolating Valves	Silver	
Air Valves	Silver	
e) Pipes:		
Low Pressure	Arctic Blue	F29
High Pressure	Signal Red	A11
f) Handrails:		
Handrails – vertical Handrails – horizontal	Black Golden yellow	 G49
g) Floors:		
Concrete	Emerald Green	E14
Steel	Black	
h) Doors	WPD Brown	
i) Base plates	Black	
j) Overhead travelling cranes	Golden yellow	B49

4. MECHANICAL AND GENERAL

Items	**Colour**	**SANS 1091 Code**
Structural steel, gates	Light grey	G29
Hydraulic power pack	Strong blue	F11
Hydraulic oil	Salmon pink	A40
Hazardous objects / areas (restricted headroom, crane hook, etc.)	Golden yellow with black Chevron	B49*
Hand wheels and levers	Golden yellow	B49
Fire protection equipment	Signal red	A11*
Control panels	Eau de nil	H43

5. ELECTRICAL

Items	**Colour**	**SANS 1091 Code**
Low voltage panels - indoor - outdoor	Light orange Light orange	B26 B26
Medium voltage panels - indoor - outdoor	Admiral grey Admiral grey	G12 G12
Panel accessories (gland, plates, back plates, interior)	White	
UPS equipment	Light orange	B26
Transformers	Light stone	C37
LV distribution kiosks, mini subs	Light stone	C37
Standby electrical equipment (permanently powered)	Signal red	A11
General outdoor	Light grey green	H40
All equipment - interior	White	

ANNEXURE C4

LIST OF ABBREVIATIONS

3LPE	Three Layer Polyethylene
amsl	Above Mean Sea Level
ANSI	American National Standards Institute
API	American Petroleum Institute
APS	Application Procedure Specification
AS	Australian Standard
ASTM	American Society for Testing and Materials
AWWA	American Water Works Association
BS	British Standard
BSP	British Standard Pipe
CBR	California Bearing Ratio
CIDB	Construction Industry Development Board
COC	Certificate of Conformity
CoT	City of Tshwane
CSA	Canadian Standards Association
DFT	Dry Film Thickness
DVGW	German Technical and Scientific Association for Gas and Water
EN	European Standards
EPDM	Ethylene Propylene Diene Monomer (M-class) rubber
EPWP	Expanded Public Works Programme
FBE	Fusion Bonded Epoxy
FBMDPE	Fusion-bonded medium-density polyethylene
FJR	Field Joint Repairs
FL	Flange
H	Horizontal
HDPE	High Density Polyethylene
IF	Insulation Flange
ISO	International Organization of Standardization
ITP	Inspection and Testing Plan
kPa	Kilo Pascal
l/s	Litre per Second
LEC	Local Emerging Contractors
LEP	Local Economic Participation
LI	Labour Intensive
LL	Low Level
LWL	Low Water Level
MIG	Municipal Infrastructure Grant
ML	Megalitre
MPa	Mega Pascal
MSL	Mean Sea Level
NACE	National Association of Corrosion Engineers
OPC	Ordinary Portland Cement

PE	Polyethylene
PN	Nominal Pressure
PP	Polypropylene
PQT	Procedure Qualification Trial
psi	Pounds per Square Inch
PTFE	Polytetrafluoroethylene
QCP	Quality Control Plan
RPU	Rigid Polyurethane
SANS	South African National Standard
SC	Subcontractor
SG	Spherical Graphite
SSPC	Society of Protective Coatings
TWL	Top Water Level
V	Vertical

ANNEXURE C5

LIST OF SPECIFICATIONS

SOUTH AFRICAN NATIONAL STANDARDS (SANS)

Reference	Description
SANS 122	Pressure-sensitive adhesive tapes for electrical purposes
SANS 226	Water taps (metallic bodies)
SANS 664	Cast iron gate valves for waterworks
SANS 719	Electric welded low carbon steel pipes for aqueous fluids (large bore)
SANS 926	Two pack zinc-rich epoxy primer
SANS 936	Spheroidal graphite iron castings
SANS 1091	National colour standard
SANS 1123	Pipe flanges
SANS 1217	The production of painted and powder-coated steel pipes
SANS 1431	Weldable structural steels
SANS 1465 Part 1	Steel castings for general engineering applications Part 1: Carbon and low alloy steel castings
SANS 1700	Fasteners
SANS 5767	Cleanliness of blast-cleaned steel surfaces for painting (assessed by pictorial standards)
SANS 5769/SANS 8502-3:2008	Cleanliness of blast-cleaned steel surfaces for painting (assessed by freedom from dust and debris)
SANS 5772	Profile of blast-cleaned steel surfaces for painting (determined by a micrometre profile gauge)
SANS 10064	The preparation of steel surfaces for coating

BRITISH STANDARDS INSTITUTION (BS)

Reference	Description
BS 534	Specification for steel pipes, joints and specials for water and sewage
BS EN 593	Industrial valves. Metallic butterfly valves
BS 970 - 4	Specification for wrought steels for mechanical and allied engineering purposes. Valve steels
BS 1400	Specification for copper alloy ingots and copper alloy and high conductivity copper castings
BS 1449	Steel plate, sheet and strip. Specification for stainless and heat-resisting steel plate, sheet and strip
BS 1504-161	Specification for steel castings for pressure purposes
BS 2789	Specification for spheroidal graphite or nodular graphite cast iron
BS 5155	Specification for butterfly valves

AMERICAN SOCIETY FOR TESTING AND MATERIAL (ASTM)

Reference	Description
ASTM A193	Standard Specification for Alloy-Steel and Stainless-Steel Bolting for High Temperature or High-Pressure Service and Other Special Purpose Applications

ASTM A216	Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service
ASTM A439	Standard Specification for Austenitic Ductile Iron Castings

AMERICAN PETROLEUM INSTITUTE (API)

Reference	Description
API 1104	Welding of Pipelines and Related Facilities

STANDARDS AUSTRALIA (AS)

Reference	Description
AS 1193	Methods for determining the density and relative density of non-cellular plastics
AS 4131	Polyethylene (PE) compounds for pressure pipes and fittings
AS 4321	Fusion-bonded medium-density polyethylene coating and lining for pipes and fittings

AMERICAN WATER WORKS ASSOCIATION (AWWS)

Reference	Description
AWWA C222	Polyurethane Coatings for the Interior and Exterior of Steel Water Pipe and Fittings

EUROPEAN STANDARDS (EN)

Reference	Description
EN 10204	Test certificates for stainless steel products
EN 12068	Cathodic protection. External organic coatings for the corrosion protection of buried or immersed steel pipelines used in conjunction with cathodic protection. Tapes and shrinkable materials

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO)

Reference	Description
ISO 10474	Steel and steel products -- Inspection documents
ISO 17050-1	Conformity assessment -- Supplier's declaration of conformity -- Part 1: General requirements
ISO 21809-1	Petroleum and natural gas industries -- External coatings for buried or submerged pipelines used in pipeline transportation systems -- Part 1: Polyolefin coatings (3-layer PE and 3-layer PP)
ISO 8502-2	Preparation of steel substrates before application of paints and related products -- Tests for the assessment of surface cleanliness -- Part 2: Laboratory determination of chloride on cleaned surfaces
ISO 8502-3	Preparation of steel substrates before application of paints and related products — Tests for the assessment of surface cleanliness — Part 3: Assessment of dust on steel surfaces prepared for painting (pressure-sensitive tape method)

ISO 8503-4	Preparation of steel substrates before application of paints and related products -- Surface roughness characteristics of blast-cleaned steel substrates -- Part 4: Method for the calibration of ISO surface profile comparators and for the determination of surface profile -- Stylus instrument procedure

NATIONAL ASSOCIATION OF CORROSION ENGINEERS (NACE)

Reference	Description
NACE Standard RP0274 – 2004	High-Voltage Electrical Inspection of Pipeline Coatings

SOCIETY OR PROTECTIVE COATINGS (SSPC)

Reference	Description
SSPC-SP-1	Solvent Cleaning

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C3.3 PROCUREMENT

C3.3 PROCUREMENT

C.3.3.1 Preferential Procurement Procedures

The City of Tshwane promotes preferential procurement. The philosophy of the process and mechanisms of points scoring system are described in section C.3.3.5 below. The tenderer is also referred to SANS 10396:2003 "Implementing Preferential Construction Procurement Policies Using Targeted Procurement Procedures" as a general guideline for the procurement of targeted labour and enterprises. The following schedules should be noted:

Paragraph 4.3	Engagement of Target Groups in Contracts
Sub-Paragraph 4.3.2	Targeting on a Geographical Basis
Paragraph 4.5	Subcontracting
Paragraph 4.6	Conditions for Employment of Labour
Paragraph 4.9	Engaging Marginalized Communities in Infrastructure Projects
Paragraph 4.10	Measuring the Participation of Targeted Enterprises and targeted Labour.
Paragraph 5.2	Techniques and Mechanisms allocated with Targeted Procurement.
Sub- Paragraph 5.3.5	Targeting Frameworks for Employment Intensive Projects
Annexure G:	Implementing employment-intensive infrastructure projects which target the increase of employment opportunities generated per unit of expenditure.

C3.3.2 Scope of Mandatory Subcontract Work

The contractor will use local emerging contractors on all items earmarked for such and these are marked 'SC' on the Bill of Quantities. The contractor can however add to this scope at his discretion or if he is in need of such services from the local subcontractors.

C3.3.3 Preferred subcontractors/suppliers

Local emerging contractors must be Black Enterprises. A black enterprise (BE) is defined as a company or economic activity that is owned by black persons and where there is substantial management control by Black People. Ownership refers to economic interest, whilst management refers to the membership of any board or similar governing body of the enterprise. The Broad-Based Black Economic Empowerment Act No. 53 of 2003, principles must apply to BE's.

Enterprises must comply with the following:

- Business must be registered within the CoT boundaries,
- Owners must reside within the CoT.

C3.3.4 SUBCONTRACTING PROCEDURES

The contractor shall advertise and call for competitive tenders in respect of each portion of the works that are required to be subcontracted in terms of the contract in accordance with the relevant provision of the latest edition of the CIDB Standard for Uniformity in Construction Procurement. The Contract Data in the associated procurement documents shall be based on the City of Tshwane standards and any other relevant documentation of subcontracting with minimal project specific variations and amendments that do not change their intended usage.

The Employer together with the Contractor shall evaluate the tenders received in accordance with the provision of the Standard Conditions of tender. The evaluation panel shall comprise equal representatives from the Employer and from the Contractor.

The Contractor shall without delay enter into contract with the successful tendering subcontractor based on their accepted tender submission.

The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

Note:
1) The CIDB Best Practice Guideline D1, *Subcontracting Arrangements*, provides Guidance on the selection of a suitable form of subcontracts.
2) Provision in the Pricing Data should be made for provisional sums for portions of the works that are to be subcontracted in this manner.

C3.3.5 EVALUATION

The bid will be evaluated in Four stages- first stage administrative compliance will be assessed and then the 90/10-point system as prescribed in Preferential Procurement Regulation 2017. The evaluation will be done as follows:

The following Stages of Evaluation will be carried out in the evaluating Tenders:

Stage 1: Administrative Compliance
Stage 2: Local Content
Stage 3: Mandatory Requirements
Stage 4: Functionality Criteria
Stage 5: Preference Point System

<u>Stage 1: Administration Compliance</u>

All the proposals will be evaluated against the Administrative Responsiveness requirements as follows:

a) Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data.
b) Each Tenderer is required to return the complete set of documents (including all issued Addenda) as listed in Part T2 with all the required information supplied and completed in all respects, including initializing and of all pages and signing where applicable by an authorized person with non-erasable BLACK INK.
c) <u>In the event of a mistake having been made on the price schedule, it shall be neatly crossed out in black ink by a single straight line and be accompanied by an initial at each and every price or other alteration.”</u>

No correction fluid may be used in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. The Municipality will reject the bid if corrections are not made in accordance with the above."

Stage 2: Local Production and Content

The following stipulated minimum thresholds for local content will be applicable.

Description of services, works or goods	Stipulated minimum threshold
Valve Products	70%
Electrical and Telecom Cable Products	90%
Steel Products and Components for Constructions:	100%
Plastic Pipes	100%
Steel Pipes Fittings and Specials	
Bare	100%
Galvanised	100%
Galvanised and coated	80%
Forged Fittings (Flanges)	100%

The Tenderer should have completed the returnable **Form RBD 2** in full including all it's Annexures and meet the minimum thresholds as stipulated to be compliant.

Stage 3: Mandatory requirements:

The following are considered mandatory criteria and failure to submit the required valid documentation will render the tender non-complaint:

a) CIDB registration certificate in the category indicated in Clause C2.1
b) SARS Tax Clearance Certificate
c) B-BBEE Certificate
d) National Treasury Central Supplier Database (CSD) registration certificate
e) Company CIPC Registration Certificate
f) Works Completion Certificates for previous experience
g) Property rates and/or Municipal TCC/ Lease Agreement
h) COIDA Letter of Good Standing
i) Site Inspection Certificate
j) Priced Offer
k) Qualification certificates and CVs for the following key personnel:

Contract Manager:

The site agent on this project shall comply with the following minimum requirements as an additional compulsory requirement:

- Qualification: NQF 6 or higher (Civil Engineering, attach copy of certified qualifications)
- The site agent must have successfully completed a minimum of 3 (three) reinforced concrete structure projects (Signed testimonials as proof must be submitted). The City of Tshwane reserve the rights to contact the referees.

Concrete Team Leader

The site agent on this project shall comply with the following minimum requirements as an additional compulsory requirement:

- Qualification: NQF 4 or higher (Civil Engineering, attach copy of certified qualifications)
- The Concrete Team Leader must have successfully completed a minimum of 3 (three) reinforced concrete structure projects (Signed testimonials as proof must be submitted). The City of Tshwane reserve the rights to contact the referees.

Steel Team Leader

The site agent on this project shall comply with the following minimum requirements as an additional compulsory requirement:

- Qualification: NQF 4 or higher (Civil Engineering, attach copy of certified qualifications)
- The Steel Team Leader must have successfully completed a minimum of 3 (three) reinforced concrete structure projects (Signed testimonials as proof must be submitted). The City of Tshwane reserve the rights to contact the referees.

Health and Safety Officer:

Health and Safety Officer on this project shall have registered SACPCMP: CHSO certificate. (Submit valid certified copies of registration certificate, qualification certificates and CV)

Should a Bidder not comply with the abovementioned mandatory requirements then the Bidder will be regarded as non-responsive and not be considered for the next evaluation stages and will be disqualified.

Stage 3 Functionality

The following criteria and weights will be applied when bids are assessed for functionality.

SCORECARD FOR FUNCTIONALITY

CRITERIA	SUB-CRITERIA	SCALE	WEIGHT	HIGH POSSIBLE SCORE
Company Experience: Proof of relevant projects completed of similar type (cast in-situ concrete reservoir ≥10ML) **Completion Certificate, Final Approval Certificate or Performance Certificate to be attached**	1 Project 2 Projects 3 Projects 4 Projects 5 5+Projects	1 2 3 4 5	6	40
Local Economic Participation - Location of Business ***Municipal Rates & Taxes not older than three months from tender advertisement date or Valid Lease Agreement***	Outside Gauteng Within Gauteng Within City of Tshwane	5 10 15	1	15
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Steel Team Leader / Supervisor (NQF	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years	1 2 3	2	10

CRITERIA	SUB-CRITERIA	SCALE	WEIGHT	HIGH POSSIBLE SCORE
4) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	Above 6 years – 8 years Above 8 years	4 5		
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Concrete Team Leader/Supervisor (NQF 4) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	2	10
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Health and Safety Officer (NQF 4) ***Attach copies of both proof of qualification, legal registration and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	2	10
Key Staff's experience that is relevant to the scope of work (cast in-situ concrete reservoir) **Key Staff as Indicated Below:** Contract Manager (ND Civil Engineering or NQF 6) ***Attach copies of both proof of qualification and detailed CV indicating years of experience are compulsory.***	1 – 2 years Above 2 years – 4 years Above 4 years – 6 years Above 6 years – 8 years Above 8 years	1 2 3 4 5	3	15
HIGHEST POSSIBLE SCORE				100

(a) Bids will be rated in respect of each criterion on a scale of 1 – 5. The maximum possible score that can be achieved for functionality is 100.

(b) The CoT reserves the right to contact references submitted by the bidder.

(c) **Bids that do not achieve a minimum score of 65 (out of 100) for functionality will not be evaluated further and will not pass to STAGE 4 of the Bid Evaluation process**.

Calculation of scores (Weights x Scale = Score)

- **Please note should any of the above staff be replaced, the successfully appointed service provider will be required to ensure that such replacements must have equivalent criteria as above and this need to be approved by the City of Tshwane.**

Stage 4: Preferential Point System

The system comprises of the following three elements:

(i) Price 90 points
(ii) BBBEE Contributor level 10 points

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C3.4 CONSTRUCTION

C3.4 CONSTRUCTION

C3.4.1 Work's specifications

The applicable "Standard Specifications" shall be the document "Standard Specifications for Municipal Civil Engineering Works, Third Edition 2005", issued by The Strategic Executive Director: Water and Sanitation of the City of Tshwane, read together with the Particular Specifications.

Tenderers, Contractors and Subcontractors shall obtain their own copies of the document "Standard Specifications for Municipal Civil Engineering Works, Third Edition 2005", for tendering purposes and for use for the duration of the Contract from the Procurement Advice Centre, C de Wet Centre, 175 E'skia Mphahlele Drive, Pretoria West and shall bear all expenses in this regard.

The Standard Specifications have been written to cover all types of municipal civil engineering works and it may therefore cover work not applicable to this contract.

The Particular Specifications together with the Drawings and Bill of Quantities clearly indicate the sections of the Standard Specifications which apply to this contract.

Section C3.6 covers references to the Particular Specifications in the Standard Specifications as well as variations and additions to the Standard Specifications.

Section C3.7 covers corrections and amendments to the Standard Specifications for Municipal Civil Engineering Works, Third Edition 2005

C3.4.2 Plant and materials

All plant and material to be supplied by the Contractor.

C3.4.3 Construction equipment

All construction equipment to be supplied by the Contractor.

C3.4.4 Contractor's employees

1. MINIMUM EMPLOYMENT CONDITIONS FOR CONVENTIONAL CONSTRUCTION WORKS

Contractors shall comply with the Basic Conditions of Employment Act (Act No 75 of 1997).

As a determination has not been made in terms of the aforesaid Act for the building sector, the minimum employment conditions which will apply to this Contract shall be guided by the Amendment of Sectoral Determination 2: Civil Engineering Sector published in the Government Gazette dated 27 August 2010, as and when amended from time to time.

The following minimum conditions shall apply to this Contract and Contractors shall include

such conditions in employment contracts.

1.1 Employment contracts

The Contractor shall enter into an employment contract with every one of his/her employees, including short-term contracts i.e., contracts in which employment commencement and employment termination dates are specified. Short-term employment contracts will also apply an employee employed for only one day.

1.2 Normal working hours

Normal working hours are from 07:00 to 17:00 from Monday to Friday. A tea break is taken from 09:00 to 09:15 and lunch from 12:30 to 13:00.

Actual hours to work and be paid for is 9 hours per day. If a lunch break of one (1) hour is taken, then the normal working day will be as follow:

Morning work sessions from 07:00 to 12:00, lunch break from 12:00 to 13:00, and afternoon sessions from 13:00 to 17:00.

1.3 Minimum wages

Minimum wages shall be according to the latest Government Gazetted rates for the Civil Engineering Sector for Gauteng Province. For a full day's work, the hourly rate shall be multiplied by 9. Normal 5-day week hours of work shall be 45 hours and the wage calculated according to the applicable hourly rate.

Overtime pay shall be 1.5 times the ordinary wage.

An employee shall be paid fortnightly.

Wages should be increased by CPI excluding owners' equivalent rent (eoer) plus two percentage point for the second and third years of the determination, or by the latest Government Gazetted Rates as published during each year of increase. The CPI to be used is the one that is published by StatsSA six weeks prior to the scheduled increment date.

Table 1: Minimum wages per hour for all employees in the Civil Engineering Sector.

Task Grade	Job Title	Current Hourly Rates	01/09/2017 - 31/08/2020	01/09/2019 - 31/08/2019	01/09/2021 - 31/08/2022
Task 1	**General Worker**	**37.04**	**37.04**	**Latest Government Gazette Rates Or**	**Wage increases to be negotiated in terms of sectorial**
Task 2		**37.90**	**37.90**		
Task 3		**38.96**	**38.96**		
Task 4		**40.41**	**40.41**		

Task 5		**45.73**	**45.73**	**Previous year rate + CPI (eoer) + 3% or 8% (whichever is greater)**	**engineering works**
Task 6		**51.91**	**51.91**		
Task 7		**59.46**	**59.46**		
Task 8		**66.66**	**66.66**		
Task 9		**75.35**	**75.35**		

Short time (excluding short time due to inclement weather)

If for reasons, which may be ascribed to the employee, e.g., arriving late for work or taking an afternoon off, the hours not worked shall be deducted from the daily wage calculation.

1.4 Short time resulting from inclement weather.

i. If the Contractor informs his/her employees that no work will be done the following day due to inclement weather, no payment will be due to the employee for such a day.

ii. If the Contractor has not informed his/her employees that no work will be done due to inclement weather and no work or less than four (4) hours of work is possible during a day, the Contractor must pay the employee for four (4) hours of work. If more than four (4) hours of work is done, the Contractor shall pay the employee for the number of hours worked.

1.5 Vacation leave

If an employee has been in full time employment for more than four (4) months, he/she shall be entitled to 1 day's paid leave for every seventeen (17) days the employee worked or was entitled to payment.

1.6 Family responsibility leave

If an employee has been in full time employment for more than four (4) months, he/she shall be entitled to three days paid leave in a leave cycle of thirty-six (36) months of employment:

i. When the employee's child is born;
ii. When the employee's child is sick;
iii. In the event of death of the employee's spouse or life partner, parent, grandparent, child or grandchild.

The employee shall provide the required proof to the Contractor of the event, failing which the leave shall be unpaid leave.

1.7 Maternity leave

At least four (4) months unpaid leave.

1.8 Sick leave

The employee shall be entitled to one (1) day's paid sick leave of normal wages for every twenty-six (26) days worked.

If an employee is absent for three (3) or more consecutive days, the employee shall provide a sick certificate from a registered medical practitioner to qualify for sick leave payment. If such certificate is not provided, no sick leave payment will be due to the employee.

1.9 Piece work

Irrespective of the quantity of work done under a piece work system during a working week, the employee shall be entitled to a minimum of a week's wages determined as if no piece work applied.

The Contractor or employee may terminate an employment contract by giving notice of termination of not less than:

i. On short period contracts i.e., a contract which states from which date work employment commences and on which day employment terminates, the terms of the employment contract shall apply.

ii. One week if employee has been employed for four (4) weeks or less, unless it is a short-term project;

iii. Two (2) weeks if employee has been employed for more than four (4) weeks but not more than one (1) year;

iv. Four (4) weeks if employee has been employed for more than one year.

2. EMPLOYMENT CONDITIONS FOR LABOUR INTENSIVE WORKS AND CONSTRUCTION

The Ministerial Determination, Expanded Public Works Programme, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice Nº R63 of 25 January 2002, as reproduced below, shall apply to works described in scope of work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.

This clause contains the standard terms and conditions for workers employed in elementary occupations on an Expanded Public Works Programme (EPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of an EPWP.
Refer to pages 35310-1, 2, 3, 4 and 5 from Government Gazette No. 9745, after page C3.4.18 in this section of the document.

2.1 Terminology

(a) "department" means any department of the State, implementing agent or contractor;

(c) "employer" means any department, implementing agency or contractor that hires workers to work in elementary occupations on a EPWP;

(d) "workers" means any person working in an elementary occupation on a EPWP;

(e) "elementary occupation" means any occupation involving unskilled or semi-skilled work;

(f) "management" means any person employed by a department or implementing agency to administer or execute an EPWP'

(g) "task" means a fixed quantity of work;

(h) "task-based work" means work in which a worker is paid a fixed rate for performing a task;

(i) "task-rated worker" means a worker paid on the basis of the number of tasks completed;

(j) "time-rated worker" means a worker paid on the basis of the length of time worked.

2.2 Terms of Work

2.2.1 Workers on a EPWP are employed on a temporary basis or contract basis.

2.3 Normal Hours of Work

2.3.1 An employer may not set tasks or hours of work that require a worker to work:

(a) more than forty hours in any week;
(b) on more than five days in any week; and
(c) for more than eight hours on any day.

2.3.2 An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.

2.3.3 A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks allocated (based on a 40-hour week) to that worker.

2.4 Meal Breaks

2.4.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes' duration.

2.4.2 An employer and worker may agree on longer meal breaks.

2.4.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

2.4.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

2.5 Special Conditions for Security Guards

2.5.1 A security guard may work up to 55 hours per week and up to eleven hours per day.

2.5.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

2.6 Daily Rest Period

Every worker is entitled to a daily rest period of at least twelve consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

2.7 Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

2.8 Work on Sundays and Public Holidays

2.8.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.

2.8.2 Work on Sundays is paid at the ordinary rate of pay.

2.8.3 A task-rated worker who works on a public holiday must be paid –

(a) the worker's daily task rate, if the worker works for less than four hours;
(b) double the worker's daily task rate, if the worker works for more than four hours.

2.8.4 A time-rated worker who works on public holiday must be paid –

(a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;
(b) double the worker's daily rate of pay, if the worker works of more than four hours on the public holiday.

2.9 Sick Leave

2.9.1 Only workers who work more than 24 hours per month have the right to claim sick pay in terms of this clause.

2.9.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's sick leave for every full month that the worker has worked in terms of a contract.

2.9.3 A worker may accumulate a maximum of twelve days' sick leave in a year.

2.9.4 Accumulated sick leave may not be transferred from one contract to another contract.

2.9.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

2.9.6 An employer must pay a time-rated worker the worker's daily rate for a day's sick leave.

2.9.7 An employer must pay a worker sick pay on the worker's usual payday.

2.9.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –

(a) absent from work for more than two consecutive days; or
(b) absent from work on more than two occasions in any eight-week period.

2.9.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

2.9.10 A worker is not entitled to paid sick leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational injuries and Disease Act.

2.10 Maternity Leave

2.10.1 A worker may take up to four consecutive month's unpaid maternity leave.

2.10.3 A worker in not entitled to any payment or employment-related benefits during maternity leave.

2.10.4 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

2.10.5 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

2.10.6 A worker may begin maternity leave –

(a) four weeks before the expected date of birth; or

(b) on an earlier date –

i. if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or
ii. if agreed to between employer and worker; or

(c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

2.10.7 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

2.11 Family Responsibility Leave

2.11.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances –

(a) when the employee's child is born;
(b) when the employee's child is sick;
(c) in the event of a death of –

i. the employee's spouse or life partner;
ii. the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

2.12 Statement of Conditions

2.12.1 An employer must give a worker a statement containing the following details at the start of employment –

(a) the employer's name and address and the name of the EPWP;
(b) the tasks or job that the worker is to perform; and
(c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;
(d) the worker's rate of pay and how this is to be calculated;
(e) the training that the worker will receive during the EPWP.

2.12.2 An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

2.12.3 An employer must supply each worker with a copy of these conditions of employment.

2.13 Keeping Records

2.13.1 Every employer must keep a written record of at least the following –

(a) the worker's name and position;
(b) copy of an acceptable worker identification;
(b) in the case of a task-rated worker, the number of tasks completed by the worker;
(c) in the case of a time-rated worker, the time worked by the worker;
(d) payments made to each worker.

2.13.2 The employer must keep this record for a period of at least three years after the completion of the EPWP.

2.14 Payment for the Labour-Intensive Component of the Works

Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the scope of work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict.

2.14.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

2.14.2 A worker will be paid in line with sectorial determination for Civil Engineering Works Task Grade 1.

2.14.3 A task-rated worker will only be paid for tasks that have been completed.

2.14.4 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

2.14.5 A time-rated worker will be paid at the end of each month.

2.14.6 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

2.14.7 Payment in cash or by cheque must take place –

(a) at the workplace or at a place agreed to by the worker;
(b) during the worker's working hours or within fifteen minutes of the start or finish of work;
(c) in a sealed envelope which becomes the property of the worker.

2.14.8 An employer must give a worker the following information in writing –

(a) the period for which payment is made;
(b) the numbers of tasks completed or hours worked;
(c) the worker's earnings;
(d) any money deducted from the payment;
(e) the actual amount paid to the worker.

2.14.9 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.

2.14.10 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

2.15 Deductions

2.15.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

2.15.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

2.15.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

2.15.4 An employer may not require or allow a worker to –

(a) repay any payment except an overpayment previously made by the employer by mistake;
(b) state that the worker received a greater amount of money than the employer actually paid to the worker; or
(c) pay the employer or any other person for having been employed.

2.16 Health and Safety

2.16.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

2.16.2 A worker must –

(a) work in a way that does not endanger his/her health and safety or that of any other person;
(b) obey any health and safety instruction;
(c) obey all health and safety rules of the EPWP;
(d) use any personal protective equipment or clothing issued by the employer;
(e) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

2.17 Compensation for Injuries and Diseases

2.17.1 It is the responsibility of the employers (other than a contractor) to arrange for all persons employed on a EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

2.17.2 A worker must report any work-related injury or occupational disease to their employer or manager.

2.17.3 The employer must report the accident or disease to the Compensation Commissioner.

2.17.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

2.18 Termination

2.18.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

2.18.2 A worker will not receive severance pay on termination.

2.18.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the manager the employer in advance to allow the employer to find a replacement.

2.18.4 A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available of the balance for the 24-month period.

7.18.5 A worker who does not attend required training events, without good reason will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

2.19 Certificate of Service

On the termination of employment, a worker is entitled to a certificate stating –

(a) the worker's full name;
(b) the name and address of the employer;
(c) the EPWP on which the worker worked;
(d) the work performed by the worker;
(e) any training received by the worker as part of the SPWP;
(f) the period for which the worker worked on the SPWP;
(g) any other information agreed on by the employer and worker.

3. LABOUR INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Established contractors shall only engage supervisory and management staff in labour intensive works who have either completed, or for the period 1 April 2004 to 30 June 2005, are registered for training towards, the skills programme outlined in Table 1.

Emerging contractors shall have personally completed, or for the period 1 April 2004 to 30 June 2005 be registered on a skills programme for the NQF level 2-unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or for the period 1 April to 2004 to 30 June 2005 be registered on a skills programme for, the NQF level 2-unit standards or NQF level 4-unit standards.

TABLE 1: SKILLS PROGRAMME FOR SUPERVISORY AND MANAGEMENT STAFF

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader/ supervisor	2	Apply Labour Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation	any one of these 3-unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Foreman/ supervisor	4	Implement labour intensive Construction Systems and Techniques	This unit standard must be completed, and
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation	any one of these 3-unit standards
		Use Labour Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent/ Manager (i.e., the contractor's most senior representative that is resident on the site.	5	Manage Labour Intensive Construction Processes	Skills Programme against this single unit standard

Details of these skills programmes may be obtained from the CETA ETQA manager (e-mail: Gerard@ceta.co.za, Tel: 011 265 5900)

4. EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

4.1 Requirements for the Sourcing and Engagement of Labour

4.1.1 Unskilled and semi-skilled labour require for the execution of all labour-intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

4.1.2 Tasks established by the contractor must such that:

(a) the average worker completes 5 tasks per week in 40 hours or less; and
(b) the weakest worker completes 5 tasks per week in 55 hours or less.

4.1.3 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 6.1.3.

4.1.4 The Contractor shall, through all available community structures, inform the local community of the labour-intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

(a) where the head of the household has less than a primary school education;
(b) that have less than one full time person earning an income;
(c) where subsistence agriculture is the source of income;
(d) those who are not in receipt of any social security pension income.

4.1.5 The Contractor shall endeavour to ensure that the expenditure on the employment of temporary workers is in the following proportions:

(a) 50 % women;
(b) 20 % youth who are between the ages of 18 and 35; and
(c) 2 % on persons with disabilities.

4.2 Specific Provisions Pertaining to SANS 1914-5

4.2.1 Definitions

Targeted labour: Unemployment persons who are employed as local labour on the project.

4.2.2 Contract participation goals

4.2.2.1 there is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

4.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-related and task rated workers, comprise all wages paid, and any training allowance paid in respect of agreed training programmes.

4.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be

entered into with targeted labour.

4.2.4 Variations to SANS 1914-5

4.2.4.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

4.2.4.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of formal training provided to targeted labour.

4.3 Training of Targeted Labour

4.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

4.3.2 The cost of the formal training of targeted labour, shall be measured and paid for in the schedule of quantities of this contract document.

4.3.3 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.

4.3.4 An allowance equal to 100 % of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 4.3.3 above.

Proof of compliance with the requirements of 4.3.2 to 4.3.4 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

5. COMMUNITY LIAISON OFFICER

5.1 The successful tenderer shall enter into an agreement with the CLO appointed as per the Group Human Capital Department's Policy Framework on the Recruitment of Expanded Public Works Programme (EPWP) Beneficiaries as per Council Resolution on 28 September 2017

5.2 The CLO shall attend all site and other meetings concerning the project.

5.3 The agreement shall make provision for the payment by the Contractor to the CLO a maximum amount calculated as follows:

Wage per month = CoT's minimum B1-level monthly notch
(Prior to deductions)

The City of Tshwane's minimum B1-level monthly notch. The remuneration of the CLO will be escalated each financial by an amount equal to the general increase of the City of Tshwane.

Community Strategy

The CLO shall be available full time on site when contractor is active. Furthermore, it will be required of him to liaise any pertinent communication to the community. He shall attend all site and technical meetings as well as steering committee meetings as well as steering committee meetings happen after hours.

5.4 Only one CLO shall be appointed per project. If the project spans over more than one Ward, the relevant Ward Councillors shall agree on one CLO to be appointed by the Contractor. Should no agreement be found as envisaged, the relevant Project Manager together with the Group Head: Integrated Community Development, or their nominees, will interview prospective appointees and in their discretion appoint such CLO.

Notwithstanding the above, if the vastness of the project requires the use of more than one CLO, this will be permitted provided that the total monthly sum paid to all CLO's shall not exceed the amount allowed for in paragraph 5.3.

5.5 Should the Contractor experience any difficulties with the community, these difficulties shall immediately be brought to the attention of the Department/Project Manager who shall arrange a meeting with the relevant Ward Councillor(s) and the CLO to resolve such difficulties.

5.6 The main Contractor shall ensure that any Sub-Contractor he may appoint shall adhere to these conditions but also subject to the proviso's applicable to the duration of such sub-contract.

5.7 Should any of the above conditions be less favourable than any Bargaining Council Agreement or Act applicable to the Contractor, the more favourable condition will apply.

C3.4.5 Existing services

Existing services consist of an existing reservoir pipelines, overhead electrical reticulation and nominal stormwater drainage structures.

C3.4.6 Site establishment

1. Contractor's Camp site

The Contractor shall provide a suitable site for his camp and for accommodating the work force. The choice of the site for the establishment of the camp, offices and the layout thereof, shall be approved.

The camp site shall be cleared and grubbed and properly fenced with a security fence around the perimeter. The Contractor is to provide his own security at the camp or on the site if required, at his own expense.

After completion of the contract, the Contractor shall remove all his temporary buildings, plant and equipment. The site shall be made good and be left in a neat and tidy condition

before a certificate of completion shall be issued.

2. Water Supply

The Contractor shall make his own arrangement for potable and construction water. It shall be the responsibility of the contractor to apply for a water connection and water meter at CoT for his site camp. The contractor shall be responsible for payment of all water used. Water quality shall be verified before use in concrete is allowed.

3. Power Supply

The Contractor shall make his own arrangements.

4. Ablution Facilities

The Contractor shall, at each construction area, provide sufficient portable chemical latrine units. The latrine units shall be serviced daily and kept in a hygienic and orderly state to the approval of the engineer. No separate payment shall be made for this requirement and the costs thereof shall be deemed to be included in the rates billed for the contractor's time-related obligations.

5. Cellular Telephone

It is a requirement of the contract that the contractor shall equip his site agent(s) with a cellular telephone to allow for effective communication between the contractor's supervisory personnel and the engineer's supervisory staff. All the applicable contact details must be made available to the Employer as well as the staff on site. All costs associated with the provision of cellular telephones for the contractor's personnel shall be deemed to be included in rates billed for time-related charges.

6. Site Facilities required by the Engineer

One office for site meetings for 10 – 12 people.
Two carports for the engineer's exclusive use, with solid sheeting, not shade cover.
An ablution unit for his exclusive use.

The engineer does not require a separate office for his personnel.

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C3.5 MANAGEMENT

C3.5 MANAGEMENT

1. Construction Programme

The Contractor shall submit, within the period stated in the Contract Data, a suitable and realistic construction programme for the consideration of the Engineer.

The programme shall be in the form of a Gantt chart and shall include the following details:

- A work breakdown structure, identifying the major activity groups.
- For each activity group further details shall be provided with regard to the scheduled start and end dates of individual activities.
- The linkages between activities shall be clearly indicated and the logical network upon which the programme is based shall be separately submitted to the engineer if requested. Any constraints shall be classified as being time-related or resource-related.
- The critical path(s) shall be clearly indicated and floats on non-critical activities shall be shown.
- The Contractor shall indicate the working hours per day, night, week and month allowed for in the programme.
- Where relevant the Contractor shall state the production rates for key activities, e.g., earthworks, etc.

Together with the programme as detailed above the contractor shall submit to the engineer a cash flow projection, indicating projected monthly invoice amounts. The cash flow projection shall be updated at monthly intervals to reflect actual payments to date and anticipated further payments.

The programme will be reviewed at the monthly site meetings at which the Contractor shall provide sufficient detail that will allow the comparison of completed work per activity that has fallen behind. The updated programme shall be submitted to the Engineer at least two days prior to the monthly meetings.

If the programme has to be revised by reason of the Contractor falling behind his programme, he shall produce a revised programme showing how he intends to regain lost time in order to ensure completion of the Works within the time for completion as defined in Clause 42 of the General Conditions of Contract or any granted extension of time. Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by providing more labour and plant on site, or by using the available labour and plant in a more efficient manner.

Failure on the part of the Contractor to submit the programme or to work according to the programme, or revised programmes, shall be sufficient reason for the Engineer to take steps as provided in Clause 9.2 of the General Conditions of Contract.

The approval by the Engineer of any programme shall have no contractual significance other than that the Engineer will be satisfied that the work is carried out according to such programme and that the Contractor undertakes to carry out the work in accordance with the programme. It shall not limit the right of the Engineer to instruct the Contractor to vary the programme if required by circumstances. The Contractor is also referred to Clause 5.6 of the General Conditions of Contract when drawing up his programme.

2. Sequence of the works

The Contractor shall supply the proposed sequence of the works.

3. Accommodation of traffic

The following contain the Employer's general requirements for accommodating the traffic during construction:

The travelling public shall have the right of way on public roads and the contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

Failure to maintain road signs, warning signs, etc, in a good condition shall constitute ample reason for the engineer to bring the works to a stop until the road signs, etc, have been repaired to his satisfaction.

The contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual Volume 2 Chapter 13.

The contractor shall submit proposals in connection with directional signs to the engineer for approval prior to construction.

Sufficient signage shall be provided, erected and relocated as necessary by the contractor to reroute traffic onto the deviations.

4. Extension of time on account of abnormal rainfall

Extension of time due to abnormal rainfall shall be determined by means of Method 1 using the rainfall records below.

STATISTICAL INFORMATION: [0513465 1] PRETORIA UNIV PROEFPLAAS		
	RAINFALL	
Month	**Nn = Actual number of days during the calendar months in which a rainfall of more than Y-mm has been received**	**Rn = Average monthly rainfall**
January	3.4	116.1
February	3.2	117.0
March	3.4	100.7
April	1.3	33.0
May	0.5	21.2
June	0.1	4.7
July	0.0	0.4
August	0.1	3.4
September	0.3	11.6
October	1.9	61.7
November	3.3	100.7
December	4.3	120.2
TOTAL	21.8	690.7

5. Community participation

Community participation consists of engagement of Project Steering Committees (PSC). A PSC will be established following the City of Tshwane's EPWP policy. The functions of the PSC will be to:

- Assist in monitoring the project.
- Ensure that the community provide assistance to the contractor to ensure that he can execute the contract in accordance with the specifications and within time.
- Encourage the community to participate in the Labour-Intensive construction.
- Identify skills, skilled personnel and suppliers in the towns.

The PSC will not have the power to:

- Give any instructions to the contractor, except through the engineer.
- Become involved in the daily operations of the contractor or interfere with the contract works.

A monthly meeting will be held with the PSC to discuss relevant matters. The site agent and resident engineer will attend the meetings. The contractor will have to report on progress, deviations from the programme, financial matters community related aspects, general problems and co-operation at the meeting. The PSC members will not receive any remuneration for attending, and they must provide their own transport.

The committee, which may be chaired by the Ward Councilors, shall consist of

representatives of:

(a) The Ward Councillor(s)
(b) The Client
(c) The Engineer
(d) The Contractor
(e) The CLO(s)
(f) Members of Ward Committees nominated by Ward Councillor(s)
(g) Local Security Company

- The Community Liaison Officer shall manage the labour desk and will have regular meetings with the Contractor where all construction and labour matters will be addressed. Some of the role players will only attend these meetings on an ad hoc basis as needed.

- The Local Security Company shall be responsible for the safekeeping of all plant, materials, construction equipment and all personnel employed on the project, 24 hour a day, seven days a week from site handover to project completion.

- The following aspects will have to be clarified by the labour desk before any person is engaged in construction work:

  - Contract of Employment
  - Type of Work
  - Duration of appointment
  - Workman's Compensation
  - Tax deduction
  - Insurance (UIF)
  - Wages and bonus and overtime regulations
  - Production pay-rate per unit of production
  - Working hours
  - Start and end times of a daily shift.
  - Lunch breaks
  - Company policy regarding:
  - Rain time
  - No work no pay
  - Disciplinary policy
  - Grievance policy
  - Method of payment and intervals
  - Safety equipment where applicable

- The appointment of any local labour under this project will be the responsibility of the main contractor. All employee/employer issues will be ruled by the statuary labour relations' regulations as well as per the relevant contractual clauses.

6. Construction management service requirements

The Contractor shall appoint a Construction Manager whose duties will be to provide construction management and materials management services to the Local Emerging Contractors in line with the employer's objective as stated in Clause 3.1.1, Description of Work.

6.1 General

The construction manager shall, in order to achieve the employer's objectives stated in Clause 3.1.1, Description of Work,

a) comply with agreements made with the employer and the local community, if any, monitor and report on project expenditure and costs and construction progress, and co-ordinate site activities,
b) advise, assist and train the supported contractor on the job in terms of the contract between the employer and the supported contractor and, if so required in the specification data, arrange for the supply of certain items of equipment and the supply and delivery to site of materials,
c) remain impartial in his dealings with the employer and the supported contractor,
d) engage, on behalf of and with the approval of the employer, specialist contractors to execute parts of the works and coordinate the work of supported contractors and the specialist contractors,
e) cooperate with other professional service providers appointed by the employer,
f) visit the site at appropriate intervals during the various stages of construction in order to confirm that the supported contractor is making satisfactory progress, that he shows technical competence in the execution of all aspects of the works and generally fulfils all contractual obligations,
g) provide continuous support to the supported contractor in order to ensure that the employer's objectives are achieved,
h) operate within any structured framework developed by the employer to enable interim payments to be made to supported contractors within relatively short time frames,
i) provide site facilities for the employer and his agents, as provided for in the specification data,
j) ensure the economic and efficient use of all plant and, to this end, maintain adequate records of plant usage,
k) maintain detailed records of all costs relating to the construction of the works including those relating to the provision of construction management services, and report to the employer at intervals not exceeding one month on the financial status of the contract, and
l) assist supported contractors in registering with a public body, if required, in terms of the specification data.

6.2 Construction stage requirements

6.2.1 General

Following the award of the contract to the supported contractor, the construction manager shall, as a minimum,

a) attend site and coordination meetings conducted by the employer and his agents,
b) arrange weekly or fortnightly site progress meetings with the supported contractor and record and distribute the minutes thereof,

c) liaise with the employer at coordination meetings at regular, agreed intervals and keep him fully informed regarding all aspects of the supported contractors' contracts,
d) confirm insurance arrangements, notify insurers of all claims and ensure that all insurance policies are maintained,
e) bring to the attention of the employer without delay any deficiencies in materials or in work performed by the supported contractor and follow up corrective actions which might be prescribed,
f) inspect all exposed services, report in writing any damage to the employer and, subject to the approval of the employer, take the necessary action to have the damage repaired,
g) implement and monitor approved security arrangements and recommend and implement changes which might be necessary, where required by the employer in terms of the specification data, arrange for the supply and erection of suitable name boards,
h) maintain and update the assets register,
i) monitor the progress of the supported contractor and submit monthly progress reports to the employer which provide information relating to,
    I. progress in relation to the programme,
    II. costs incurred in respect of materials, labour, plant, transport, specialist contractors and construction management services,
    III. the actual cash flow compared with the predicted cash flow,
    IV. expected savings or excess expenditure,
    V. site meetings,
    VI. details of plant hired, including standing-time charges, breakdowns and reasons for the use thereof, and
    VII. details regarding the theft of materials issued to site,
j) coordinate and monitor the activities of the supported contractor and others involved in the works,
k) maintain all necessary site records and documentation including those pertaining to personnel on site, equipment, progress, deliveries of materials to supported contractors, variations to their respective contracts, quantities of work executed, etc.,
l) ensure that the supported contractor implements a systematic testing programme,
m) review and monitor the supported contractor's quality control systems,
n) establish and maintain a list of defects and ensure that these are remedied,
o) brief supported contractors on health and safety requirements, and
p) verify claims for payment to supported contractors and other parties in accordance with the provisions of the contract.
q) Provide a full-time **site agent.**

6.2.2 Advice and assistance to the supported contractor

The construction manager shall, as a minimum,

a) process and resolve supported contractors' queries regarding the interpretation of drawings, specifications and contractual matters pertaining to their respective contracts,
b) motivate and guide supported contractors and, where necessary, recommend measures to expedite their progress,
c) assist supported contractors with
    I. the preparation and updating of a realistic and achievable programme,
    II. the setting out of the works,
    III. the management, administration and employment of their work forces,
    IV. the performance of their contracts,
    V. all registrations required in terms of legislation and all applicable taxes and levies,
    VI. the preparation of payment certificates,
    VII. the handing over of the works to the employer upon completion, and
    VIII. liaison with external organizations and the local community with regard to the works, and
d) advise the supported contractor on safety measures which shall be implemented in order to comply with safety legislation.

6.2.3 Training

The construction manager shall, as a minimum,
a) teach the supported contractors how to assess and order materials required for incorporation into the works,
b) train, advise and guide supported contractors both in-house and on the job with regard to the following aspects of the contract:
    I. the basic work techniques required to perform the contract;
    II. the need to develop communication skills;
    III. what is expected of a supported contractor;
    IV. health and safety requirements;
    V. the need to execute appropriate tasks correctly the first time;
    VI. how to submit claims for payments;
    VII. how to control and motivate their work-forces;
    VIII. the necessity for planning;
    IX. how to prepare and use construction programmes;
    X. the relationship between tender pricing, productivity and profit; and
    XI. payment procedures for payments required in terms of the law, including all applicable taxes and levies, and
c) act generally as a mentor to the supported contractor and facilitate, when appropriate, training of the supported contractor by other organizations.

6.2.4 Tools and equipment

The construction manager shall, as a minimum,

a) advise supported contractors regarding their hand-tool requirements and assist them with the procurement thereof,
b) arrange for the timeous supply and cost-effective use of items of equipment and plant required for the execution of the works which supported contractors are not, in terms of their contracts, required to provide,
c) arrange for the supply of calibrated testing equipment to supported contractors, as

required, and ensure that tests are properly carried out and the results forwarded to the relevant parties that require such information, and

d) arrange for the supply of all fuel and power required for the operation of power-driven equipment and tools.

6.2.5 Materials (where materials management services are provided to supported contractors)

The construction manager shall, where a materials manager has been appointed, as a minimum,

a) provide the materials manager with a programme of materials requirements, based on the programmes of supported contractors, at the commencement of their respective contracts and update such programmes as necessary,
b) review supported contractors' requests for materials, adjust quantities, if necessary, and forward orders timeously to the materials manager,
c) arrange with the materials manager for the delivery of materials direct to the site, where necessary,

d) where required, collect materials from the materials manager’s store and deliver to the site,
e) monitor and approve the overnight storage of unused materials on the site by supported contractors or, should such materials not be suitable for overnight storage on site, arrange for their return to the store,
f) determine appropriate allowances for tolerances and wastage on items where such allowances are not laid down in the supported contractor’s scope of work, and
g) reconcile quantities of materials issued to supported contractors with quantities used in the works and issue a materials reconciliation certificate to supported contractors upon completion of the works.

6.2.6 Post-construction stage requirements

After the completion of the works associated with supported contractors' contracts, the construction manager shall, as a minimum,

a) compile a completion report that includes:
    I. the final cost of the works in respect of materials, labour, plant, transport, supervision and construction management services;
    II. the time of completion relative to the programme;
    III. the nature and extent of training received by the supported contractor;
    IV. details of damage to services and insurance claims;
    V. details of the construction manager’s staff and organizational structure, equipment purchased for the contract and establishment costs; and
    VI. details of actual expenditure compared with projected expenditure,
b) monitor remedial work undertaken during the defects liability period and advise and assist the supported contractor as necessary, and
c) return, if required, to the employer or dispose of in accordance with the employer’s instructions, all items of equipment on the register of assets.

7. Materials management service requirements

7.1 General

The materials manager shall, in order to achieve the employer's objectives,

a) procure, store and issue materials for incorporation into the works either to the construction manager, who will deliver such materials to the place of work or directly to the supported contractor,
b) establish a stores facility which is capable, at short notice, of supplying all the materials required for the project in a reliable, efficient and cost-effective manner,
c) establish and implement management procedures and systems for procuring, storing, issuing and accounting for materials that:
    I. take cognizance of specific storage requirements for individual materials,
    II. comply with the employer's procurement policies and procedures,
    III. provide for quality checks upon delivery,
    IV. provide for the processing and timeous payment of statements for materials supplied and the delivery of materials to site,
    V. account for the quantities of materials that are procured, stored and issued to or on behalf of each individual supported contractor,
    VI. ensure that records are readily auditable and protect the employer against corruption and theft, and
    VII. allow the employer to be informed monthly as to the status of all aspects of the materials management,

d) ensure that all possible trade and settlement discounts are obtained and that the most favourable prices are paid for materials, and
e) ensure that all materials purchased and issued comply fully with the employer's specifications embodied in the scope of work of the supported contractors' contract or in the contract with the employer.

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C3.6 PARTICULAR SPECIFICATIONS AND VARIATIONS AND ADDITIONS TO THE STANDARD SPECIFICATIONS

C3.6 PARTICULAR SPECIFICATIONS AND VARIATIONS AND ADDITIONS TO THE STANDARD SPECIFICATIONS

The following references from, and variations and additions to the Standard Specifications will be valid for this Contract.

The clauses and pay items in this portion of the Particular Specifications are numbered "B" followed by a number corresponding to the number of the relevant clause or pay item in the Standard Specifications. New clauses and pay items not covered by clauses or pay items in the Standard Specifications, if included here, are also designated "B" followed by a number. These numbers follow on the last clause or pay item number used in the relevant section of the Standard Specifications.

SERIES 0: GENERAL

Add the following:
"**SECTION 001: GENERAL REQUIREMENTS AND CHARGES**

B001.01 Preliminary and General Charge

Add the following:

Over and above the normal requirements as specified, provision must be made for a permanent EPWP sign board, in addition to the Contract Name Board. EPWP branding must be part of the sign board. This sign board will remain on site after completion of the contract to indicate that the service provided was done according to the EPWP guidelines.

B001.04.03 Provision of construction Supervisors (full time) Per Month

The Per Month rate tendered shall include full compensation for the provision of one or more competent and experienced construction supervisors as may be necessary for the duration of the construction work.

The payment will be made in monthly instalments. The final payment will be payable when the completion certificate has been issued.

B001.04.04 Provision of Safety Officer (full time) Per Month

The per month rate tendered shall include full compensation for the provision of a competent and experienced safety officer, full-time, for the duration of the construction work.

The payment will be made in monthly instalments. The final payment will be payable when the completion certificate has been issued.

B001.04.06 Provision of personal protective clothing and equipment Lump Sum

Add the following:

Price the item to allow for all labourers on site to wear the necessary protective clothing including an overall. All labourers must also wear a bright reflected jacket over their overall. On the front of the jacket (coat) the "City of Tshwane" name must appear with the CoT logo. On the back the letters "EPWP" must appear." Local labour to wear orange EPWP overalls.

B903.06.01 Product quality inspections **Prime. Cost Sum**

The item includes inspection of pipe fittings, isolating and pressure reducing valves, strainer valves and water meters by a competent and qualified inspector for all items under section 903 in the bill of quantities. The company or inspector responsible for all inspections must be approved by CoT. The rate shall include full compensation for all inspections. The additional tests required by the Engineer are also put under these costs and the Contractor should be instructed as such to carry out these tests for payments to be effected.

B001.04.08.08 Provision of Site agent **Per Month**

The unit of measurement shall be the actual time per month for the provision of one competent and experienced full time site agent.

Monthly timesheets shall be submitted illustrating what activities in accordance with C3.5.6 and C3.5.7 have been completed.

B001.04.08.09 Administration of local emerging contractors **No**

The unit of measurement shall be the number (No) of local emerging contractor(s) that needs to be administrated by the principal contractor as may be necessary for the duration of the local emerging construction work.

B001.04.08.10 Provision of construction and materials manager **Hour**

The unit of measurement shall be the actual hours spent per month for the provision of one or two competent and experienced construction and materials managers as may be necessary for the duration of the local emerging construction work.

Monthly timesheets shall be submitted illustrating what activities in accordance with C3.5.6 and C3.5.7 have been completed.

B001.06 Mark up by Contractor on Item B001.05 **%**

The price includes all the administration, overheads and profit for the payment of the Community Liaison Office

B001.05 Community Liaison Officer **Per Month**

The unit of measurement shall be the time spent per month for the provision of a Community Liaison Officer selected by the community leadership. The rates are as Gazetted.

Monthly timesheets shall be submitted illustrating what activities in accordance with C3.5.6 and C3.5.7 have been completed.

B001.04.08.16 Mark up by Contractor on Item B001.04.08.1 **%**

The price includes all the administration, overheads, and profit for the payments of the Training of targeted labourers

B001.04.08.15 Training of targeted labourers **Prov. Sum**

1.3 Training of targeted labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The project manager, together with the consultant, shall be responsible for providing of the CETA accredited training providers.

1.3.3 The contractor shall be responsible for scheduling the training of workers and shall take all reasonable steps to ensure that each beneficiary is provided with a minimum of six (6) days of formal training if he/she is employed for 3 months or less and a minimum of ten (10) days if he she is employed for 4 months or more.

1.3.4 The contractors shall do nothing to dissuade targeted labour from participating in the above-mentioned training programmes.

1.3.5 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of 1.3.4 above. Provision for allowances is included in provisional sum.

1.3.6 Proof of compliance with the requirements of 1.3.2 to 1.3.6 must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

All labourers on site must wear the necessary protective clothing including an orange overall. All labourers must also wear a bright reflected jacket over their overall. On the front of the overall the “City of Tshwane” name must appear with the CoT logo on the left-hand side and the EPWP sectorial logo must appear on the right. On the back the letters “EPWP” must appear. Adherence to the correct colours will be necessary.

<u>SERIES 1: ANCILLARY WORK</u>

Add the following:

“SECTION 107: GENERIC LABOUR-INTENSIVE SPECIFICATION

Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

a) trenches having a depth of less than 1.5 metres.
b) stormwater drainage
c) low-volume roads and sidewalks

Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this Contract, the requirements of this specification shall

prevail.

Hand excavatable material

Hand excavatable material is classified as follows:

a) granular materials:

i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dens, or dense; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) cohesive materials:

i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note 1) A boulder, a cobble and gravel are materials with a particle size greater than 200mm, between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of 60˚ with respect to the horizontal) into the material being used.

Table 107. 1: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
CONSISTENCY	DESCRIPTION	CONSISTENCY	DESCRIPTION
Very loose	Crumbles very easily when scraped with a geological pick	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle
Loose	Small resistance to penetration by sharp end of a geological pick	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40mm; can be moulded by fingers with some pressure
Medium dense	Considerable resistance to penetration by sharp end of a geological pick	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade
Dense	Very high resistance to penetration by the sharp end of geological pick; requires many blows for excavation	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers
Very dense	High resistance to repeated blows of a geological pick	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point

Trench excavation

All hand excavatable material in trenches having a depth of less than 1.5 metres shall be excavated by hand.

Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers.

a) to 90% Proctor density;
b) such that in excess of 5 blows of a dynamic come penetrometer (DCP) is required to penetrate 100mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or
c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

Excavation

All hand excavatable material including topsoil classified as hand excavatable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

Clearing and grubbing

Grass and small bushes shall be cleared by hand.

Shaping

All shaping shall be undertaken by hand.

Loading

All loading shall be done by hand, regardless of the method of haulage.

Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilized for haulage.

Spreading

All material shall be spread by hand.

Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand.
Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.
Grout shall be mixed and placed by hand.

Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry unit and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that eight workers can conveniently and simultaneously acquire a proper hand hold on them."

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C3.7 SOCIO-ECONOMIC PLAN AND COMMUNITY PARTICIPATION AND UPLIFTMENT THROUGH PROJECTS

SOCIO-ECONOMIC PLAN AND COMMUNITY PARTICIPATION AND UPLIFTMENT THROUGH PROJECTS

1. SOCIO-ECONOMIC PLAN

1.1 The successful tenderer shall provide an economic plan which will include the job creation plan (i.e., skills required and the number for each skill). The job creation plan where applicable should include interns.

1.2 The successful tenderer shall provide details of all training to be provided, through on-site, accredited training and formal training for employees at all levels, to ensure that they enhance their competence, and are able to provide the required operation and maintenance skills across the various process streams. This shall also include SHEQ training.

1.3 The successful tenderer shall also detail the capacity building and skills transfer initiatives to be implemented so that the City can manage the facility on contract completion, in a seamless and sustainable manner.

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C3.8 REFERENCES TO THE SCOPE OF WORKS IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS: HEALTH AND SAFETY SPECIFICATION

ANNEXURE 1

APPOINTMENT LETTERS

Company Logo

Company Name
Company Address
Company Address
Code

Attention: (***Assistant Construction Supervisor's Name)***

APPOINTMENT OF THE ASSISTANT CONSTRUCTION SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 6(2)

I, **(*contractor's name)*** hereby appoint **(*assistant construction supervisor's name)*** as the assistant supervisor responsible for **(*site address)*** to carry out the construction work of ***(description of construction work and area of responsibility).***

In terms of this appointment, you are required to ensure that all construction work performed under your supervision is carried out as follows:

1. By persons suitably trained and competent to do such work;
2. That all persons are aware and understand the hazards attached to the work being carried out;
3. That the required risk assessments are carried out;
4. That precautionary measures are identified and implemented;
5. That discipline is enforced at the construction site at all times;
6. That all identified statutory requirements are met; and
7. That any other interest in terms of health and safety with respect to the responsible area is met.
8. You will accept the duties of the Construction Supervisor in his absence.

You are required to report any deviations of the above-mentioned instruction to **(*construction supervisor's name)*** and in his absence to the contractor's representative.

This appointment is valid from ***(date)*** to the completion of the stipulated construction work.

You shall submit a written weekly report any non-compliance with the construction Regulations, 2003.

_____	_____	_____
Contractor's Representative full name	Signature	Date

……

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(assistant construction supervisor)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Assistant construction supervisor's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: (***Safety Officer's Name)***

APPOINTMENT OF THE CONSTRUCTION HEALTH AND SAFETY OFFICER IN TERMS OF CONSTRUCTION REGULATION 6(6)

I, **(*contractor's name)*** hereby appoint **(*safety officer's name)*** as the Construction Health and Safety Officer responsible for **(*site address)*** to manage all the health and safety issues as required in terms of the Act by establishing a health and safety program with elected health and safety Representatives.

You shall ensure that all the requirements in terms of the Act and in particular in terms of the Construction Regulations, 2003 are met. You shall also ensure that all appointed sub-contractors comply with the requirements as stipulated in the Construction Regulations, 2003.

You shall further ensure that all records, registers and required lists are maintained and shall stop construction work upon identifying any non-compliance by any contractor; this includes stopping any work should the competency of the person carrying out such work be questionable.

This appointment is valid from (***date)*** to the completion of the stipulated construction work.

_____ _____ _____

Contractor's Representative full name Signature Date

……

Kindly confirm your acceptance of this appointment by completing the following:

I, **(*construction health and safety officer's name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____ _____ _____

Construction Health & Safety Officer's full name Signature Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Construction Vehicle and Mobile Plant Inspector)***

APPOINTMENT OF THE CONSTRUCTION VEHICLE AND MOBILE PLANT INSPECTOR IN TERMS OF CONSTRUCTION REGULATION 21(1)(j)

I, **(*contractor's name)*** hereby appoint (***construction vehicles and mobile plant inspector's name)*** as the construction vehicles and mobile plant inspector responsible for (***site address)*** to inspect on a daily basis all construction vehicles and mobile plant, as per the provided checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to construction vehicles and mobile plant that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor, and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations, 2003 are at all times met.

This appointment is valid from (***date)*** to the completion of the stipulated construction work.

_____	_____	_____
Contractor's Representative full name	Signature	Date

……

Kindly confirm your acceptance of this appointment by completing the following:

I, **(*construction vehicles and mobile plant inspector's full name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Construction vehicles and mobile plant inspector's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: (***Sub-Contractor's Name)***

APPOINTMENT OF SUB-CONTRACTOR IN TERMS OF THE CONSTRUCTION REGULATION 5(3)(b)

I, ***(contractor's name)*** hereby appoint ***(sub-contractor's name)*** as the sub-contractor responsible for ***(site address)*** to carry out the construction work of ***(description of construction work)***.

You shall ensure that you meet all the requirements in terms of the Act and in particular in terms of the section 37(2) agreement and the Construction Regulations, 2003. You shall also ensure that all contractors appointed by yourself and reporting to you comply with the requirements as stipulated in the Construction Regulations, 2003.

You shall also ensure that all the information and specifications to ensure that the construction work is carried out in a safe manner are carried over to all contractors appointed and reporting to you.

You shall further ensure that all records, registers and required lists are maintained and that all persons appointed to carry out tasks as stipulated by these regulations are competent and have the necessary resources to complete their tasks effectively in such a manner that health and safety is not in any manner compromised.
This appointment is valid from (***date)*** to the completion of the stipulated construction work.

You shall submit a written weekly report on all shortfalls that have not been met in terms of these regulations.

_____ _____ _____

Contractor's Representative full name Signature Date

Kindly confirm your acceptance of this appointment by completing the following:

I, (***sub-contractor's name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____ _____ _____

Sub-Contractor's Representative full name Signature Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: (***Construction Supervisor's Name)***

APPOINTMENT OF THE CONSTRUCTION SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 6(1)

I, ***(contractor's name)*** hereby appoint ***(construction supervisor's name)*** as the Supervisor responsible for ***(site address)*** to carry out the construction work of ***(description of construction work and area of responsibility)***.

In terms of this appointment, you are required to ensure that all construction work performed under your supervision is carried out as follows:

1. By persons suitably trained and competent to do such work;
2. That all statutory appointments have been completed;
3. That, where required, health and safety committees are established and that meetings are accordingly held;
4. That all persons are aware and understand the hazards attached to the work being carried out;
5. That the required risk assessments are carried out;
6. That precautionary measures are identified and implemented;
7. That discipline is enforced at the construction site at all times;
8. That all identified statutory requirements are met; and
9. That any other interests in terms of health and safety with respect to the responsible area is met.
10. You will in writing delegate your duties to the Assistant Construction Supervisor while absent from site.

You are required to report any deviations of the above-mentioned instructions to **(*contractor's name)***. This appointment is valid from ***(date)*** to the completion of the stipulated construction work. You shall submit a written weekly report on all shortfalls that have not been met in terms of these regulations.

_____	_____	_____
Contractor's Representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(construction supervisor)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Construction Supervisor's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: (***Excavation Work Supervisor's Name)***

APPOINTMENT OF THE EXCAVATION WORK SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 11(1)

I, ***(contractor's name)*** hereby appoint ***(excavation work supervisor's name)*** as the excavation work supervisor responsible for ***(site address)*** to supervise and carry out all the necessary inspections in terms of all excavation work as per the provided checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to excavation work that that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor, and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations are at all times met.

This appointment is valid from ***(date)*** to the completion of the stipulated construction work.

_____ _____ _____

Contractor's representative full name Signature Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(*excavation work supervisor's full name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____ _____ _____

Excavation Work Supervisor full name Signature Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Form work and Support work supervisor's name)***

APPOINTMENT OF THE FORMWORK AND SUPPORT WORK SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 10(a)

I, ***(contractor name)*** hereby appoint **(*form work and support work supervisor's name)*** as the formwork and support work supervisor responsible for ***(site address)*** to supervise and carry out all the necessary inspections in terms of all formwork and support work as per the provided checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to formwork and support work that the necessary precautionary measures are taken and enforced. Hazards are reported in writing to the Construction, Health and Safety Officer and the Construction Supervisor.

You shall further ensure that the requirements of the Construction Regulations are at all times met.

This appointment is valid from **(*date)*** to the completion of the stipulated construction work.

_____	_____	_____
Contractor's representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(formwork and support work supervisor's full name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

_____	_____	_____
Formwork and Support Work Supervisor's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Ladder Inspector's Name)***

APPOINTMENT OF THE LADDER INSPECTOR IN TERMS OF CONSTRUCTION REGULATION 13(A)

I, ***(contractor's name)*** hereby appoint (***ladder inspector's name)*** as the ladder inspector responsible for **(*site address*)** to manage ladders on site. You should inspect the ladders as per the checklist at least once a week.

You shall ensure that when becoming aware of any health and safety hazards in respect to ladders that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor, and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations, 2003 are at all times met.

This appointment is valid from **(*date*)** to the completion of the stipulated construction work.

Contractor's representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(*ladder inspector's full name*)** understand the implications of the appointment as detailed above and confirm my acceptance.

Ladder inspector's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Risk Assessor's Name)***

APPOINTMENT OF THE CONSTRUCTION SITE RISK ASSESSOR IN TERMS OF CONSTRUCTION REGULATION 7(1)

I, ***(contractor's name)*** hereby appoint ***(risk assessor's name)*** as the construction site risk assessor responsible for ***(site address)*** to carry out risk assessments prior to the commencement of construction work and any other risk assessment that may be required for the duration of the construction work.

You shall ensure that all risks are identified and analyzed and that safe working procedures are drafted and implemented to reduce, mitigate or controls the hazards that were identified.

You will at least use the risk evaluation program with the provided checklists.

This appointment is valid from **(*date*)** to the completion of the stipulated construction work.

Contractor's representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, **(*construction site risk assessor's name*)** understand the implications of the appointment as detailed above and confirm my acceptance.

Construction site Risk Assessor's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Scaffolding Supervisor's Name)***

APPOINTMENT OF THE SCAFFOLDING SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 14(2)

I, ***(contractor's name)*** hereby appoint ***(scaffolding supervisor's name)*** as the scaffolding supervisor responsible for ***(site address)*** to supervise and carry out all the necessary inspections in terms of all scaffolding work. (Whether newly erected, altered or moved as per the provided checklist)

You shall ensure that when becoming aware of any health and safety hazards in respect to scaffolding work that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor, and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations, 2003 are at all times met.

This appointment is valid from ***(date)*** to the completion of the stipulated construction work.

Contractor's Representative full name	Signature	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(scaffolding supervisor's full name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

Scaffolding Supervisor's full name	Signature	Date

Company Logo

Company Name
Company Address
Company Address
Code

Attention: ***(Stacking and Storage Supervisor's Name)***

APPOINTMENT OF THE STACKING AND STORAGE SUPERVISOR IN TERMS OF CONSTRUCTION REGULATION 26(a)

I, ***(contractor's name)*** hereby appoint ***(stacking and storage supervisor's name)*** as the stacking and storage supervisor responsible for ***(site address)*** to manage all stacking and storage on site.

You shall inspect all new stacking and thereafter as often as needed according to the checklist.

You shall ensure that when becoming aware of any health and safety hazards in respect to stacking and storage that these hazards are reported in writing to the Construction Health and Safety Officer and Construction supervisor, and the necessary precautionary measures are taken and enforced.

You shall further ensure that the requirements of the Construction Regulations are at all times met. On identifying any shortfalls or hazards convey such information in writing to the construction supervisor.

This appointment is valid from ***(date)*** to the completion of the stipulated construction work.

Contractor's Representative full name	Supervisor	Date

Kindly confirm your acceptance of this appointment by completing the following:

I, ***(stacking and storage supervisor's full name)*** understand the implications of the appointment as detailed above and confirm my acceptance.

Stacking and Storage Supervisor's full name	Signature	Date

ANNEXURE 2

NOTIFICATION TEMPLATES

Company Logo

Company Name
Company Address
Company Address
Code

Attention: The Provincial Director
The Department of Labour
[Postal Address*]

NOTIFICATION OF CONSTRUCTION WORK ON CONTRACT [NUMBER]
[CONTRACT DESCRIPTION]

In terms of regulation 3. (1) of the Construction Regulations, 2003 promulgated on 18 July 2003 in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), we hereby notify you of our intention to commence construction works on the abovementioned contract, which:

- Includes the demolition of a structure exceeding a height of 3 meters,
- Includes the use of explosives to perform the construction work,
- Includes the dismantling of fixed plant at a height greater than 3 meters,
- Will exceed 30 days or will involve more than 300 person days of construction,
- Includes excavation work deeper than 1 meter, or
- Includes working at a height greater than 3 meters above ground or a landing.

1. Parties involved on the Contract

1.1 The Principal Contractor is: [Contractor's Name]
[Contractor's postal address]
[Contractor's postal address]
Att: [Contractor's contact person and telephone number]

1.2 The Client (Employer) is: [Employer's Name]
[Employer's postal address]
Att: [Employer's contact person and telephone number]

1.3 The Client's Safety Agent is: [Safety Agent's Name]
[Safety Agent's postal address]
Att: [Safety Agent's contact person and telephone number]

1.4 The Contractor's Construction Supervisor is: [Contractor's Construction Supervisor's name and telephone number]

2. Details of the construction works

2.1 The physical address of the works is: [Physical address of works]
[Physical address of works]

2.2 The nature of the construction works is: [Provide a description of the works].

2.3 The expected commencement date of the Works is : [Insert expected commencement date]

2.4 The expected completion date of the works is : [Insert expected completion date]

2.5 The estimated maximum number of persons on the construction site:

2.6 A total of _____ contractors will be accountable to the Principal Contractor on the construction site during the execution of the Works. The names of the contractors already chosen are as follows: [Provide a list of the Contractor's subcontractors already appointed]

3. Other details

3.1 The Principal Contractor's compensation registration number is: _____

3.2 In terms of regulation 3. (3) a copy of this notification will be kept on site for inspection.

We trust the above is in order.

Yours faithfully,

_____ _____
Signature Date

* Postal Address of Provincial Director as indicated in regulation 1 of the General Administrative Regulations, 1996.

ANNEXURE 3

IDENTIFIED HEALTH AND SAFETY HAZARDS

ANNEXURE 3: IDENTIFIED HEALTH AND SAFETY HAZARDS

In terms of Regulation 4(1)(b) of the Construction Regulations 2003 the following hazards anticipated with the scope of work have been identified.

NOTE: The list of potential hazards is by no means intended to be all inclusive and is not limited to this list, and it remains the responsibility of the Contractor to identify all possible hazards with regards to his scope of work and to put measures in place to mitigate, reduce or control these hazards.

Potential Hazards

1. Commissioning of new installations
2. Confined space entry
3. Demolition/breaking into existing structures.
4. Excavation shoring / brazing
5. Excavations been flooded during rainy season.
6. Explosives
7. Hazardous material handling / storage / management
8. Heat stress
9. Loading and offloading vehicles
10. Manual handling of materials
11. Plant and equipment integrity
12. Public and traffic safety
13. Requirements for plant isolations
14. Safe usage and storage of Oxygen, Acetylene and LPG cylinders
15. Scaffolding
16. Stacking and storage of equipment / materials
17. Tie-ins into existing equipment
18. Usage of compressed air and equipment
19. Work involving radioactive sources.
20. Working in operational areas
21. Working on live electrical installations / sub-stations / MCC rooms
22. Working on moving equipment.

CITY OF TSHWANE
WATER AND SANITATION DEPARTMENT

CONTRACT NO: **WS 08-2022/23**

THE CONSTRUCTION OF THE 10ML PARKMORE LL RESERVOIR AND INSTALLATION OF FEEDER MAINS: 18-MONTH PERIOD

C3.9 REFERENCES TO THE SCOPE OF WORKS IN TERMS OF THE ENVIRONMENTAL MANAGEMENT PLAN

C3.9 REFERENCES TO THE SCOPE OF WORKS IN TERMS OF THE ENVIRONMENTAL MANAGEMENT PLAN

1. INTRODUCTION

The EMP will address the environmental impacts during the design, construction and operational phases of a project. Due regard must be given to environmental protection during the entire construction project. In order to achieve this a number of environmental specifications/recommendations are made. These are aimed at ensuring that the Contractor maintains adequate control over the project in order to:

Minimize the extent of impact during construction,
Ensure appropriate restoration of areas affected by construction.
Prevent long term environmental degradation.

The contractor must be made aware of the environmental obligations that are stipulated in this document and declares himself/herself to be conversant of all relevant environmental legislation. The Contractor should also be aware that the Engineer will monitor the implementation of the procedures.

2. POLICY STATEMENT

The construction will be to the best management practices as identified to minimize the environmental impact of activities associated with the development.

3. OBJECTIVES OF THE EMP

The EMP has the following goals:

- Identifying those construction activities that may have a detrimental impact on the environment;
- Detailing the mitigation measures that will need to be taken, and the procedures for their implementation;
- Establishing the reporting system to be undertaken during the construction.

The EMP also serves to highlight specific requirements that will be monitored during the development and should the environmental impacts not have been satisfactory prevented or mitigated; corrective action will have to be taken. The document should, therefore, be seen as a guideline that will assist in minimizing the potential environmental impact of activities.

4. DESIGNATED ENVIRONMENTAL OFFICER

For the purpose of the EMP, a nominated representative of the Contractor should be the designated environmental officer for the project. The nominated representative of the Contractor will therefore be responsible for ensuring that the provisions of the EMP are complied with. The Engineer will be responsible for issuing instructions to the Contractor where environmental considerations call for action to be taken. The environmental officer will submit monthly reports to the Engineer on site who will verify the information.

5. LEGAL REQUIREMENTS

Under normal circumstances and EMP would be the end result or the final stage in the EIA procedure. However, a working agreement was negotiated between the National Department of Environmental Affairs and Tourism (DEAT) and the City of Tshwane Metropolitan Municipality. The agreement stipulates the project types the City of Tshwane Metropolitan Municipality need to submit to DEAT for approval and those project types the City of Tshwane Metropolitan Municipality do not need to submit for approval. For those actions that do not need approval, the City of Tshwane Metropolitan Municipality undertook to compile generic EMP's to assist in minimizing degradation to the area. The following project types fall in this non-approval category: periodic maintenance, special maintenance, rehabilitation and specific upgrades.

6. MITIGATION MEASURES

In setting mitigation measures, the practical implications of executing these measures must be borne in mind. With early planning, both the cost and the impacts can be minimized.

6.1 Establishment of site offices

6.1.1 Site plan

The Contractor shall provide the Engineer on site with a plan detailing the layout of site offices facilities, such as chemical toilets, areas for stockpiling of material, storage of hazardous materials and provision of containers. The site offices should not be sited in close proximity to steep areas as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the site, and in particular the ablution facilities, aggregate stockpiles and hazardous material stockpiles are located as far away as possible from any water course as possible.

The site plan shall be submitted before the site hand over meeting. Read with Standard Specifications for Municipal Civil Engineering Works: Section 001 and 002.

6.1.2 Vegetation

The vegetation surrounding the site offices is to be left as intact as possible and vegetation planted at the site should be indigenous. Only trees directly affected by the works and such others as may be indicated by the Engineer in writing, may be sawn off/removed.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien invader plant shall be cleared by hand before seeding. Read with Specifications: 104 – Landscaping and grassing.

6.1.3 Rehabilitation

The site offices will require rehabilitation at the end of the contract. All construction material, including concrete slabs and braai areas are to be removed from the site on completion of the contract. Read with Specifications Sections 001, 002 and 104.

6.1.4 Water for human consumption

Water for human consumption must be tested and treated in accordance with recommendations.

6.2 Sewage treatment

Adequate toilet facilities are to be provided. Use of the veld for this purpose shall not, under any circumstances, be allowed. The Contractor shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the Engineer. Latrines shall be positioned within walking distance from wherever employees are employed on the works.

Save and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak always, dry composting toilets such as “enviro loos”, or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets is to be done in consultation with the Site Engineer.

Read with Specifications 104.

6.3 Waste management

Waste management and waste minimization must be implemented at the outset of the contract.

6.3.1 Litter

No littering by construction workers is allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site is to be kept free of litter. Read with Specifications Sections 001 and 002.

6.3.2 Removal of solid waste

Solid waste is to be stored in an appointed area for collection and disposal. A refuse control system must be established for the collection and removal of refuse to the satisfaction of the

Engineer. Disposal of solid waste will be in a Department of Water Affairs and Forestry (DWAF) licensed landfill site.

6.3.3 Hazardous waste

Hazardous waste such as bitumen, tar, oils, etc. shall be disposed of in a Department of Water Affairs and Forestry approved landfill site. Special care must be taken when using tar products such as tar prime or pre-coating fluid to avoid water-soluble phenols form entering the ground or contaminating water.

6.4 Soil management

6.4.1 Topsoil

The contract provides for the stripping and stockpiling of topsoil from the site for later reuse. Topsoil is considered to be of a minimum thickness of ± 300 mm of the natural soil, including all the vegetation and organic matter. The areas to be cleared of topsoil shall include the storage areas. Weeds appearing on the stockpiled topsoil shall be removed by hand before seeding. Soils contaminated by hazardous substances shall be disposed of in an approved Department of Water Affairs and Forestry waste disposal site.

6.4.2 Borrow material.

The Contractor's attention is drawn to the requirements set forth by the Department of Mineral and Energy Affairs in terms of the submission of EMPR's for establishment, operation and rehabilitation of borrow pits and quarries. The cost of complying with the requirements shall be deemed to be included in existing rates in the schedule of quantities. Read with the Specification Section 203.

6.5 Discovery of archaeological sites, artifacts or graves

6.5.1 Archaeological site

If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately. The Contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the Engineer of such discovery. The National Monuments Council must be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist. Read with General Conditions of Contract.

6.5.2 Graves

If a grave on site is uncovered, work in the immediate vicinity must be stopped and an undertaker as well as the National Monuments Council should be contacted. The undertaker will place advertisements in the newspapers concerning the grave. He will also provide for the relocation of bones, should it be necessary. Read with General Conditions of Contract.

6.6 Stockpiled material

The Contractor shall so plan his activities that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material must be indicated and demarcated on the site plan and approved in writing by the engineer.

The area chosen shall be devoid of indigenous trees and shrubs. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. After the stockpiled material has been removed, the site shall be reinstated as closely as possible to its original condition. All areas affected by stockpiling shall be landscaped, top soiled and grassed to the Engineer's approval and at the Contractor's cost.

Material milled out of the existing road surface that is temporarily stockpiled within the road reserve shall:

- be stockpiled so as to be as inconspicuous as possible.
- be prevented form contaminating water courses,
- be cleared of weeds.

In all cases, the areas for stockpiling and disposal of construction rubble shall be approved by the Engineer before such operation commences.

Read with Series 2: Earthworks – Section 203.

6.7 Fuel, diesel and other hazardous materials

6.7.1 Hazardous materials

All hazardous materials i.e., bitumen binders shall be stored in an appointed area that is fenced and has restricted entry. Storage of bituminous products shall only take place using suitable containers to the approval of the Engineer.

Under no circumstances shall the spoiling of bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected bituminous products shall be taken to the supplier's production plant. No spillage of bituminous products shall be allowed on site. Affected areas shall be promptly reinstated to the satisfaction of the Engineer.

6.7.2 Fuel

Should any fuel storage tank be required on site, the Contractor shall ensure that he has complied with the necessary legal requirements for the erection of such tanks. Leakage must be avoided. The fuel and diesel must be stored in a bunded area with adequate containment (at least 1,5 times the volume of the fuel) for potential spills and leaks.

6.7.3 Oil, grease

Oil, grease and cleaning materials from the maintenance of vehicles and machinery shall be collected in a sump and sent back to the supplier or otherwise disposed of at a registered site.

6.7.4 Cooking oil

The Contractor should ensure that sufficient fuel is available for heating and cooking purposes should this be necessary.

6.7.5 Spillages

Streams, rivers and dams must be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products. In the event of a spillage, prompt action must be taken by competent instances to clear the affected area.

6.8 General considerations

Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a designated register and the response noted with the date and action taken. This record must be submitted with the monthly reports.

Any avoidable non-compliance with the above-mentioned measures may be considered sufficient ground for withholding payment of part or all amounts to be paid for the said item.

7. MEASUREMENT AND PAYMENT

The Contractor shall not be separately reimbursed or compensated in respect of his compliance with the provisions of this part of the Scope of Works. All costs so incurred shall, save and except to the extent provided for the schedule of quantities under SECTION 001: GENERAL REQUIREMENTS AND CHARGES, be deemed to be included in the rates tendered for the various items of work listed in the schedule of quantities.

TABLE 1 SUMMARY OF MITIGATION MEASURES

ENVIRONMENTAL COMPONENT	***ACTIVITY***	***MITIGATION***	***RELEVANT SECTION IN SPECIFICATIONS***
Establishment of site offices	*Siting of offices*	*Preferred areas would be flat areas along the route. Avoid steep areas as soil erosion could increase. Avoid water courses*	*001* *002.02.01*
	Site Plan	*Contractor will provide engineer detail of layout of site facilities within two weeks of moving to the site ie chemical toilets, the demarcation of areas for stockpiling of materials, storage of hazardous materials and the provision of containers. The offices shall be fenced. The site plan will be submitted before the site hand over meeting.*	*001* *002*
Site rehabilitation	*Clean up*	*All construction material is to be removed from the site on completion of the contract.*	*001* *002* *104*
Vegetation	*On site*	*Vegetation planted on the site should be indigenous. Only trees directly affected by works as indicated in writing by Engineer, shall be sawn off/removed*	*104*
	Weeds	*Clearance of weeds must be done by hand before seeding.*	*104*
	Grass cover	*The grass cover surrounding the construction site is to be left as intact as possible or restored to its original condition.*	*104*
Water	*Available for human consumption*	*Water for human consumption must be tested and treated in accordance with recommendations.*	
Soil management	*Topsoil*	*The topsoil (± 300 mm) of any excavation shall be removed and stockpiled separately from underlying material in an appointment area*	*203* *104*

ENVIRONMENTAL COMPONENT	***ACTIVITY***	***MITIGATION***	***RELEVANT SECTION IN SPECIFICATIONS***
	Borrow material	*EMPR's for borrow pits to be submitted to the Department of Mineral and Energy Affairs for approval*	*201* *203*
Archaeological & Cultural sites	*Discover of archaeological sites of artefacts*	*If an artefact on site is uncovered, work in the immediate vicinity must be stopped immediately and an archaeological consultant must be contacted. Work may only resume once clearance is given in writing by the archaeologist.*	*GCC*
Graves	*Discovery of graves*	*If a grave on site is uncovered, work in the immediate vicinity must be stopped and an undertaker should be contacted*	*GCC*
Waste management	*Solid & Construction waste*	*Solid waste is to be stored in an appointment area for collection and disposal. Disposal of waste will be in a DWAF licensed landfill, and no waste may be burnt on site.*	
	Litter	*The site is to be kept free of litter*	*001*
Sewage treatment	*Toilet facilities*	*Adequate toilet facilities are to be provided, and the siting of chemical toilets is to be done in consultation with the site engineer. Use of the veld for this purpose shall not be allowed.*	*001* *002*
Fuel, diesel & hazardous materials	*Hazardous Materials*	*All hazardous materials i.e. bitumen binders will be stored in an appointed area that is fenced and has restricted entry. No spoiling of bituminous products on site, over embankments, in borrow pits or any burning. No spillage of bituminous products shall be allowed on site.*	
	Fuels	*All fuel tanks will be stored in an appointed area. Leakage will be avoided.*	

ENVIRONMENTAL COMPONENT	***ACTIVITY***	***MITIGATION***	***RELEVANT SECTION IN SPECIFICATIONS***
	Cooking fuel	*The Contractor should ensure that sufficient fuel is available for heating and cooking purposes should this be necessary.*	
	Oil, grease	*Oil, grease and cleaning materials from maintenance of vehicles shall be collected in a sump and sent back to supplier.*	
	Spillages	*Streams, rivers or dams must be protected against spillages of pollutants mentioned in 6.7 (e). In the event of a spillage, prompt action must be taken to clear the affected area.*	
General considerations	*Lines of authority*	*A nominated representative of the contractor will be the designated environmental officer for the site.*	***RELEVANT SECTION IN SPECIFICATIONS***
	Reports	*The environmental officer will submit monthly reports to the Engineer who will verify the information*	
	Complaints	*Complaints received regarding activities on the construction site pertaining to the environment should be recorded in a designated register, and the response noted with the date and action taken. This record must be submitted with the monthly report*	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
1	**PPG**	**SCHEDULE No.1: PRELIMINARY & GENERAL**				
		SERIES 0: GENERAL				
1.1	001.01	**Preliminary and General Charges**				
1.1.1	PS001.01	**.01 FIXED CHARGE ITEMS**				
1.1.2		.01 Contractual requirements	Sum	-		
		.02 Establishment of facilities on site				
1.1.2.1		.01 Facilities for the Engineer				
		(Ref Section 002, Engineers Accommodation)				
	PS002.03	.01 Offices (PS02.02)				
		(a) Construction monitoring staff	Sum	-		
		(b) Conference room	Sum	-		
		(c) Kitchenette	Sum	-		
		(d) Office Equipment	Sum	-		
		(e) Client's Work Inspector	Sum	-		
		(f) Client's Construction Materials Manager	Sum	-		
		.02 Carports (PS02.04)	Sum	-		
		.03 Ablution units (PS02.07)	Sum	-		
		.04 Nameboard (PS02.08)	Sum	-		
	PS002.01	.05 Services for offices (PS04.02)	Sum	-		
		.02 Facilities for the Contractor				
1.1.3		(a) Offices and storage sheds	Sum	-		
1.1.4		(b) Ablution and Latrine facilities	Sum	-		
1.1.5		(c) Tools and Equipment	Sum	-		
1.1.6		(d) Access	Sum	-		
		(e) Site Secuirty	Sum	-		
1.1.8		.03 Removal of site establishment	Sum	-		
1.1.9		.04 Other fixed charge obligations *(Contractor to specify)*				
		(a)	Sum	-		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		(b)	Sum	-		
		(c)	Sum	-		
		(d)	Sum	-		
		.02 TIME-RELATED CHARGES				
1.1.10		.01 Contractual requirements	Sum	-		
		.02 Operation and Maintenance of facilities on site				
		.01 Facilities for the Engineer				
		(Ref section 002, Engineers Accommodation)				
		.01 Offices (PS02.02)	Sum	-		
		.02 Carports (PS02.04)	Sum	-		
		.03 Ablution units (PS02.07)	Sum	-		
		.04 Nameboard (PS02.08)	Sum	-		
		.05 Services for offices (PS04.02)				
		.02 Facilities for the Contractor				
1.1.11		(a) Offices and storage sheds	Sum	-		
1.1.12		(b) Ablution and Latrine facilities	Sum	-		
1.1.13		(c) Tools and Equipment	Sum	-		
1.1.14		(d) Access	Sum	-		
1.1.15		(e) Security on Site	Sum	-		
1.1.16		.03 Supervision for the duration of the contract	Sum	-		
1.1.17		.04 Company and head office overhead costs for the duration of the contract	Sum	-		
1.1.18		.07 Other time-related obligations *(Contractor to specify)*				
		(a)	Sum	-		
		(b)	Sum	-		
		(c)	Sum	-		
		(d)	Sum	-		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
1.2	PS001.02	**LOCATING EXISTING SERVICES**				
		.01 Water services	Sum	-		
		.02 Electrical Services	Sum	-		
		.03 Effluent Pipelines	Sum	-		
1.3	001.04	Compliance with the Occupational Health and Safety Act and applicable regulations				
1.3.1		.01 Provision of a Health and Safety plan	Sum	-		
1.3.2		.02 Provision of a Health and Safety file	Sum	-		
1.3.3		.03 Provision of Construction Supervisors Supervision	Sum	-		
1.3.4		.04 Provision of a Safety Officer	Sum	-		
1.3.5		.05 Health and Safety Training	Sum	-		
1.3.6		.06 Provision of protective clothing	Sum	-		
1.3.7		.07 Provision of safety fences, signs and barricades	Sum	-		
1.3.8		.08 Other obligations	Sum	-		
1.4	PS001.05	Provision for the Contractor to meet CTMM requirements terms of liaising with the community	Prov Sum	-		R 269 953.20
1.5	PS001.06	Provision for the Contractor to appoint a Construction and Mate Manager to meet CTMM requirements in terms of management of construction and materials for the appointed Local Sub-Contractors	Sum	-		
1.6	PS001.07	Sums stated provisionally by the Engineer *The Contractor will be required to provide proof of the relevant market related cost for the specific activity in the form of three (3) quotations.*				
1.6.1		.01 Specialist Factory Inspection (Acceptance Control)	Prov Sum	-		R 25 000.00
1.6.2		.02 Accredited training	Prov Sum	-		R 25 000.00
1.6.3		.03 Spares (as specified and approved by the Engineer)	Prov Sum	-		R 50 000.00
1.6.4		.04 Percentage adjustment of Prov. Sum items (incl. markup, profit, overheads and any other cost by the Contractor	%		R 100 000	
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
1.6.5	PS001.10	.05 Targeted Enterprises (Local Sub-contractors) - Fluctuation between Main Contractor's rates and that of the Targeted Enterprises Sub-Contractors (no mark-up allowed)	Prov Sum	-		R 2 400 000.00
1.6	PS001.08	**DAYWORKS**				
1.6.1		.01 Expenditure on Daywork items	Prov sum	-		R 400 000.00
		.02 Extra over item PS001.08.01 for				
1.6.2		.01 Skilled workmen	%		R 100 000	
1.6.3		.02 Unskilled workmen	%		R 100 000	
1.6.4		.03 Material	%		R 200 000	
1.7	PS001.09	**TEMPORARY WORKS**				
1.7.1		.01 Protection of Existing Wastewater Treatment Plant Structures and Services	Sum	-		
1.7.2		.02 Stormwater Protection	Sum	-		
		.03 Other (Contractor to specify)				
1.7.3		.01	Sum	-		
1.7.4		.02	Sum	-		
	PS001.10	**OTHER GENERAL CHARGES**				
		.01 Costs pertaining to the Trial Operation Period as specified	Sum	-		
		.06 Costs pertaining to the Care of the Works during Defects Notification Period as specified	Sum	-		
		SCHEDULE No.1 PRELIMINARY & GENERAL CARRIED TO SUMMARY				
		Carried forward to Summary of Schedules				

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
2		**SCHEDULE No.2: PIPELINES**				
2.1		**SERIES 2: TRENCHING**				
		Note:				
		Clearing and grubbing shall be included in trenching rates				
	202.01	.01 Trench excavations up to 1,0m wide				
2.1.1		.01 Not exceeding 1,0m deep	m^3	90		
2.1.2		.02 Exceeding 1,0m and up to 1,5m deep	m^3	44		
		.03 Exceeding 1,5m and up to 2,0m deep	m^3			
	202.02	Extra over item 202.01 for excavating in				
2.1.3		.01 Intermediate material	m^3	132		
2.1.4		.02 Hard material	m^3	2		
2.1.5	202.03	Excavations outside the normal trench profile	m^3	15		
		HAND EXCAVATION				
2.1.6	202.04	Extra over item 202.01 for hand excavation	m^3	100		
		BACKFILLING				
2.1.7	202.06	The backfilling of trenches (excluding backfill around the pipe barrel) with material obtained from excavations, compacted to 90% mod AASHTO density	m^3	72		
		SPOIL MATERIAL				
	202.10	Removal of spoil material to				
2.1.8		.01 Dumping area provided by the Client	m^3	62		
		SOILCRETE				
2.1.9	202.13	Backfilling trenches with soilcrete (5% OPC)	m^3	5		
2.2	*section 302*	**SERIES 302: SEWER CONSTRUCTION**				
		PIPELINES				
		Supplying, laying and jointing of sewer pipes irrespective of depth or width of trench				
	302.01	.01 Spigot and socket class 50D sacrificial lined with rubber rings to SANS 677 type SI				
2.2.1		.01 375mm diameter	m	46		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		BEDDING				
		Construction of pipe beddings				
	302.02	.01 Type B bedding for concrete pipes				
2.2.3		.01 375mm diameter	m	46		
		BACKFILLING				
	302.14	Supplying and placing selected backfill material around and up to 300mm above pipe barrels using				
2.2.5		.01 Excavated material	m^3	40		
2.2.6		.02 Imported material	m^3	3		
		SCREENING				
2.2.7	302.15	Extra over sub item 302.14.01 for screening material	m^3	43		
		WORK TO EXISTING SERVICES				
	302.16	Connecting to existing manholes				
2.2.8		.01 375mm diameter concrete pipe	no	2		
		IMPORTED MATERIAL				
2.2.10	302.21	Extra over sub item 302.14.02 for using material obtained from commercial sources provided by the Contractor	m^3	3		
2.3		**SERIES 402: PRESSURE PIPELINES**				
	402.01	Supplying, Laying and Jointing of pressure pipes				
		.01 HDPE Pipes PN16				
2.3.1		.01 225mm diameter	m	108		
2.3.2	402.02	Extra over item 402.01 for providing the following fittings:				
		45º Bend				
2.3.2.1		.01 225mm HDPE	no	2		
		90º Bend				
2.3.2.2		.01 225mm HDPE	no	2		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		Flange Adaptors				
2.3.2.3		.01 225mm HDPE	no	2		
		SCHEDULE No.2 **PIPELINES** **CARRIED TO SUMMARY**				
		Carried forward to Summary of Schedules				

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
3		**SCHEDULE No. 3: CIVIL WORKS**				
3.1		**SCUM PUMP STATION**				
		SERIES 1: ANCILLARY WORK				
		SECTION 101: SITE CLEARING AND GRUBBING				
3.1.1	101.01	Clearing and grubbing and dispose of debris within freehaul distance as designated by the Engineer	m^2	30		
		SECTION 7: STRUCTURES				
	701.01	Additional Foundation investigations *Inpections to be called by Contractor after structure is excavated and must be carried out on founding conditions by the Engineer prior to any further work commencing. Allowance for inspections must be made in the Contractor's Programme.*				
3.1.2		.01 Scum Pump Station foundation	prov sum	-	-	8 000.00
		SECTION 701: FOUNDATIONS FOR STRUCTURES				
	701.02	**Excavation for structures**				
		.01 **excavation of soft material situated in the following depth ranges:**				
3.1.3		.01 0 m up to 2 m	m^3	57		
3.1.4		.02 Exceeding 2 m up to 4 m	m^3	12		
3.1.5		.02 Extra over sub item 701.02.01 for excavation in hard material irrespective of depth incl. boulder material	m^3	1		
3.1.6		.03 Extra over sub item 701.02.01 for additional excavation	m^3	2		
	701.05	**Backfill to excavations utilising**				
		.01 **Material from the excavation compacted to:**				
3.1.7		.01 93% of modified AASHTO density	m^3	35		
	707.07	**Foundation fill consisting of**				
3.1.8		.01 concrete in 75 mm blinding layer (class 15/19)	m^3	1.5		
		SECTION 702: FALSEWORK, FORMWORK AND CONCRETE FINISH				
	702.01	**Formwork class F1 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)				
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		.03 plane vertical				
3.1.8		.01 External sides of footing	m^2	5		
		.02 double-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.1.9		.01 external faces of walls below ground level	m^2	36		
	702.03	**Formwork class F3 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.1.10		.01 side of stairs	m^2	2		
3.1.11		.02 sides of risers of stairs	m^2	1		
		.02 double-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.1.12		.01 External walls above ground level	m^2	14		
3.1.13		.02 Internal walls	m^2	40		
	702.06	**Formwork to openings**				
		.01 square openings				
3.1.14		.01 500 x 500 mm opening	m^2	1		
	PS702.11	**Finish to concrete surfaces**				
3.1.15		.01 class U1 surface finish to upper surfaces of concealed work and surfaces to receive benching	m^2	1		
		.02 class U2 surface finish to upper surfaces of				
3.1.16		.01 stairs, walls and false floors	m^2	14		
		SECTION 703: STEEL REINFORCEMENT FOR STRUCTURES				
	703.04	**REINFORCEMENT FOR -**				
		.01 mild steel				
3.1.17		.01 bars with a 10 mm diameter	t	0.2		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		.02 high-yield stress steel				
3.1.18		.01 bars with a 10 mm diameter	t	1		
3.1.19		.02 bars with a 12 mm diameter	t	1		
		SECTION 704: CONCRETE				
	704.01	**Cast in situ concrete**				
		.01 concrete class 20/19				
3.1.20		.01 benching	m^3	2		
3.1.21		.02 mass concrete stairs	m^3	1		
		.02 concrete class 35/19				
3.1.22		.01 floor slabs	m^3	4		
3.1.23		.02 walls of pump station	m^3	14		
		SERIES 8: SPECIFIC WORK				
		SECTION 801: CONCRETE RESERVOIRS				
	PS10	**Testing for Watertightness**				
	PS801.05	Testing structures for watertightness				
3.1.24		.01 scum pump station	sum	1		
		SECTION 809: STRUCTURAL STEELWORK				
	PS809.05	Supply and installation of prefabricated open grid floors				
3.1.25		.01 2000mm wide x 2000mm long	no	1		
3.1.26		.02 2000mm wide x 2200mm long	no	1		
3.2		**PRECIPITATION TANK**				
		SERIES 1: ANCILLARY WORK				
		SECTION 101: SITE CLEARING AND GRUBBING				
3.2.1	101.01	Clearing and grubbing and dispose of debris within freehaul distance as designated by the Engineer	m^2	30		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		SERIES 7: STRUCTURES				
		SECTION 701: FOUNDATIONS FOR STRUCTURES				
	701.05	**Backfill to excavations utilising**				
		.01 **Material from the excavation compacted to:**				
3.2.2		.01 93% of modified AASHTO density	m^3	35		
	707.07	**Foundation fill consisting of**				
3.2.3		.01 250 micron HDPE linng	m^2	7		
		SECTION 702: FORMWORK				
	702.03	**Formwork class F3 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)	m^2	15		
		.03 plane vertical	m^2	15		
3.2.4		.01 Side of stairs	m^2	1		
3.2.5		.02 Sides of risers of stairs	m^2	1.5		
3.2.6		.03 Side of floor slab	m^2	1		
		SECTION 703: STEEL REINFORCEMENT FOR STRUCTURES				
	703.04	**Reinforcement**				
3.2.7		.01 mesh 395	kg	46		
		SECTION 704: CONCRETE				
	704.01	**Cast in situ concrete**				
		.01 concrete class 35/19				
3.2.6		.01 85mm thick walkways	m^3	1.2		
		.02 concrete strairs	m^3	5		
		SERIES 8: SPECIFIC WORK				
	805.01	**REINFORCED BRICKWORK**				
		Reinforced stock brickwork in 1:4 cement mortar				
3.2.6		.01 230mm Thick wall	m^2	16		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		FACE BRICKWORK				
		.01 Extra over items 805.01 for face brickwork (Allow R4000.00/1000 for purchasing and delivery of bricks to site excluding VAT)				
3.2.7		.01 Stretcher course bond	m^2	16		
		.02 Facebrick sundries				
		.02 230mm Wide face brick on edge	m	5		
		BRICK REINFORCING				
		.01 Brick reinforcing				
		.02 150mm Wide brickforce	m	5		
		SECTION 809: STRUCTURAL STEELWORK				
	PS809.03	**Handrails Assembly complete**				
3.2.8		.01 Stainless steel standard ball type approved handrail (1000 mm high), side or top mounted	m	16		
3.3		**STORMWATER MANAGEMENT**				
	101.01	**SECTION 101: SITE CLEARANCE**				
		Clear and grub and dispose of debris within freehaul distance as designed by the Engineer	m^2	240		
		SERIES 7: STRUCTURES				
		SECTION 701: FOUNDATIONS FOR STRUCTURES				
	701.02	**Excavation for structures**				
		.01 **excavation of soft material situated in the following depth ranges:**				
3.3.1		.01 0 m up to 2 m	m^3	80		
		SECTION 702: FALSEWORK, FORMWORK AND CONCRETE FINISH				
	702.01	**Formwork class F1 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)				
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		.03 plane vertical				
3.3.2		.01 External sides of canal	m^2	13		
	PS702.11	**Finish to concrete surfaces**				
3.3.3		.01 class U1 surface finish to upper surfaces of concealed work and surfaces to receive benching	m^2	1		
		.02 class U2 surface finish to upper surfaces of				
3.3.4		.01 stormwater drain	m^2	14		
	703.04	**REINFORCEMENT**				
		.03 mesh				
3.3.5		.01 Mesh 395	kg	520		
		CONCRETE				
	704.01	**Cast in situ concrete**				
		.01 **concrete class 20/19**				
3.3.6		.01 stormwater v-drain	m^3	13		
3.4		**TANKER DISCHARGE SLAB**				
		SECTION 203: MASS EARTHWORKS				
	203.01	**Excavation and borrow to fill**				
3.4.1		.01 Compacted to 90% of modified AASHTO density	m^3	35		
		SERIES 6: ROADS AND PARKING AREAS				
		SECTION 609: SEGMENTED PAVING				
	609.01	**Construction of segmented block paving made from**				
3.4.23		.01 80 mm thick concrete Z-blocks	m^2	26		
	609.03	**The construction of edge restraints with:**				
3.4.24		.01 Precast concrete kerbs (SANS 927 Fig 12)	m	20		
3.4.25		.02 In-situ concrete 100 mm wide x 200 mm deep	m	20		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		SERIES 7: STRUCTURES				
		SECTION 701: FOUNDATIONS FOR STRUCTURES				
	701.02	**Excavation for structures**				
		.01 **excavation of soft material situated in the following depth ranges:**				
3.4.2		.01 0 m up to 2 m	m^3	2		
3.4.3		.03 Extra over sub item 701.02.01 for additional excavation required by the Engineer after the excavation has been completed	m^3	1		
	701.05	**Backfill to excavations utilising**				
		.01 Material from the excavation compacted to:				
3.4.4		.03 93% of modified AASHTO density	m^3	1		
	701.07	Foundation fill consisting of				
3.4.5		.01 compacted granular fill	m^3	30		
3.4.6		.02 250 micron HDPE Lining	m^2	76		
		SECTION 702: FORMWORK				
	702.02	**Formwork class F2 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.4.7		.01 sides of floor slab of discharge slab	m^2	5		
		.04 plane cylinderical				
3.4.8		.01 curved section of floor slab of discharge slab	m^2	1		
	702.03	**Formwork class F3 surface finish**				
		.01 single-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.4.9		.01 walls of discharge slab	m^2	15		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		.02 double-surface formwork (measured to 150 mm below finished ground level)				
		.03 plane vertical				
3.4.10		.01 walls of drainage slab_inlet works	m^2			
	PS702.11	**Finish to concrete surfaces**				
3.1.11		.01 class U1 surface finish to upper surfaces of concealed work and surfaces to receive benching	m^2	2		
		.02 class U2 surface finish to upper surafces of				
3.4.12		.01 walkways, stairs, ramps, walls and false floors	m^2	16		
		SECTION 703: STEEL REINFORCEMENT FOR				
	703.04	**Reinforcement**				
		.01 mild steel				
3.4.13		.01 bars with a 10 mm diameter	t	0.1		
		.02 high-yield stress steel				
3.4.14		.01 bars with a 10 mm diameter	t	1		
3.4.15		.02 bars with a 12 mm diameter	t	1		
3.4.16		.03 mesh 395	kg	300		
		SECTION 704: CONCRETE				
	704.01	**Cast in situ concrete**				
		.01 concrete class 20/13				
3.4.17		.01 benching	m^3	0.5		
3.4.18		.02 mass concrete below structures or where ordered	m^3	0.5		
		.02 concrete class 35/19				
3.4.19		.01 floor slab of discharge slab	m^3	12		
3.4.20		.02 walls of discharge slab	m^3	4		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
		SECTION 706: JOINTS IN STRUCTURES				
	706.04	**Filled Joints**				
		.01 forming a 20 mm wide joints with joint sealer consisting of a two component polyether based polyyurethane sealing compound (dimensions 20 x 15 mm) on one face of joint				
3.4.21		.01 between floor panels (150mm thick)	m	25		
		.02 as in Item 706.04.01 but sealer on both sides of joint				
3.4.22		.01 between wall sections (200 mm thick)	m	2		
3.4		**OTHER ITEMS**				
3.4.1		**Road Signage**				
		SERIES 6: ROADS AND PARKING AREAS				
		SECTION 612: TRAFFIC SIGNS				
	612.01	Sign boards with painted back- ground, symbols, lettering and borders in engineering-grade retro-reflective material with signboards constructed from -				
		.01 Aluminium sheet (2,0 mm thick) with an -				
3.4.1.1		.01 Area not exceeding 2m²	m²	1		
3.4.1.2		.02 Area exceeding 2m² but not exceeding 10²	m²	5		
	612.02	Extra over item 612.01 for -				
		.01 Background of retro-reflective material of -				
3.4.1.3		.01 Engineering grade	m²	6		
		.02 Lettering, symbols and borders of retro-reflective material of -				
3.4.1.4		.01 High-intensity grade	m²	3		
3.4.2	PSCW-02	**Emptying and cleaning of existing structures**				
		Rate must include cleaning of all built in equipment and pipework				
3.4.2.1		.01 Module 1 - PST Splitter Box	m³	29		
3.4.2.2		.02 Module 1 - Dortmund Primary Settling Tanks (3 off)	m³	1145		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
3.4.2.3		.03 Module 1 - Humus Settling Tanks (3 off)	m^3	1145		
3.4.2.4		.04 Module 2 - Biological Reactor	m^3	9390		
3.4.2.5		.05 Module 2 - Secondary Settling Tanks	m^3	5730		
3.4.2.6		.06 Module 2 - RAS Pump Station	m^3	60		
3.4.2.7		.07 Fermenters (2 off)	m^3	4285		
3.4.2.8		.08 Precipitation Tank	m^3	220		
3.4.2.9		.09 Fermenter Thickeners (2 off)	m^3	2540		
3.4.2.10		.10 Module 1 - Interconnecting pipework	m^3	135		
3.4.2.11		.11 Module 2 - Interconnecting pipework	m^3	72		
3.4.3		**Ferric Chloride Bund Area**				
	704.01	**Cast in situ concrete**				
		.01 **concrete class 20/13**				
3.4.3.1		.01 200mm to 100mm thick benching poured in the existing bund area of the Ferric Dosing System of Module 2	m^3	6		
	PSCW-03	**Painting of the floor screeds**				
		.01 Gehopon 3000 floor coating				
3.4.3.2		.01 Floor screen to bund area including internal walls	m^2	75		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
3.4.4		**Building Work**				
		SERIES 8: SPECIFIC WORKS				
		SECTION 805: BUILDING WORK				
	805.08	**Roof Sheeting** *(rate will include all ancillary items required for the installation of the cladding on the existing steel frame)*				
		.01 Galvanised sheeting				
3.4.4.1		.01 "Brownbuilt" type installed at existing Gas Holder complete	m²	240		
3.4.4.2		.02 0,6mm Colomet Superseal 500 sheeting fixed to existing Workshop roof structure (to suit existing roof sheeting)	m²	30		
	PSCW-04	Safe deconstruction of roofing of old Filter Press roof structure	sum	-		
		SCHEDULE No.3 **CIVIL WORKS** **CARRIED TO SUMMARY**				
					Carried forward to Summary of Schedules	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
4	ESEC	**SCHEDULE No.4: SITE FENCING**				
		Note: All Clearing and Grubbing costs to be be included in the fencing rates and work to be carried out in accordance with the Project's Standard Specifications (i.e. Series 1, Section 101)				
4.1	ESEC 13.1	**Design, Drawings and General**				
4.1.1	*ESEC 12*	a) The Contractor will provide the following design calculations, Drawings and wiring diagrams for approval by the Engineer	sum	-		
4.1.2	*ESEC 10* *ESEC 11*	b) Provide operating and maintenance manuals, data sheets of all equipment and "as built" drawings	sum	-		
4.2	ESEC 13.2	**Supply and Delivery to site**				
		Refer to drawings: 3422.00.00.GZA.17.D001 & U001				
4.2.1		a) Supply and delivery to site of a complete reinforced security mesh fence with predrilled holes for Electric fence	m	2870		
		b) Supply and delivery to site of a complete reinforced security mesh gate with predrilled holes for Electric fence				
4.2.2		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
4.2.3		c) Supply and delivery to site of a complete electric fence bolted against reinforced security mesh fence	m	2870		
		d) Supply and delivery to site of complete electric fence components fitted to gate supplied in b)				
4.2.4		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
4.2.5		e) Supply and delivery to site of a complete electric fence gate energisers, components, software, monitors and additional signals to be monitored on CCTV System	sum	-		
4.3	ESEC 13.3	**Installation**				
4.3.1		a) Installation of complete reinforced security mesh fence with predrilled holes for Electric Fence	m	2870		
		b) Installation of a complete reinforced security mesh gate with predrilled holes for an Electric fence				
4.3.2		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
					Carried Forward	

Item	Payment Referenc	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		
4.3.3		c) Installation of a complete electric fence bolted against the reinforced security mesh fence supplied in a)	m	2870		
		d) Installation of complete electric fence components fitted to gate supplied in b)				
4.3.4		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
4.3.5		e) Installation of a complete electric fence gate energisers, components, software, monitors and additional signals to be monitored on CCTV System	sum	-		
4.4	ESEC 13.4	**Commissioning**				
4.3.1		a) Commissioning of complete reinforced security mesh fence with predrilled holes for Electric Fence	m	2870		
		b) Commissioning of a complete reinforced security mesh gate with predrilled holes for an Electric fence				
		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
		c) Commissioning of a complete electric fence bolted against the reinforced security mesh fence supplied in a)	m	2870		
		d) Commissioning of complete electric fence components fitted to gate supplied in b)				
		.01 Sliding Gate 5m long complete with motor and ancillary items as required & detailed	no	3		
		e) Commissioning of a complete electric fence gate energisers, components, software, monitors and additional signalsto be monitored on CCTV System	sum	-		
		SCHEDULE No.4 **SITE FENCING** **CARRIED TO SUMMARY**				
				Carried forward to Summary of Schedules		

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
5		**SCHEDULE No.5: MECHANICAL WORK**				
5.1	**SPEC A**	**MODULE 2 BIOLOGICAL REACTOR**				
5.1.1	**PTMa**	**MIXING EQUIPMENT**				
	PSPJ-12	**Refurbishment and modification of existing Equipment** (refer to Particular Specification PJ)				
5.1.1.1		a) Removal off-site, inspection of existing equipment, submission of condition assessment and quotation of non-mandatory parts, supply of all parts requiring mandatory replacement as required by manufacturer				
		.01 Existing mechanical mixer in Module 2 Biological Reactor (6 off)	sum	-		
5.1.1.2		b)Provision of non-mandatory items as listed in a)	prov sum	-		468 000.00
5.1.1.3		c)Re-assemble & installation of equipment listed in a)	sum	-		
5.1.1.4		d)Commissioning of refurbished equipment complete	sum	-		
	PTMa 6.1	**Design, Drawing and General**				
5.1.1.5		.01 Provide design drawings and design information as specified	sum	-		
	PTMa 6.2	**Supply and Deliver to Site**				
5.1.1.6		.01 Bridge mounted submersible mixers as specified in SPECA-3	no	4		
	PTMa 6.3	**Installation Work**				
5.1.1.7		.01 Bridge mounted submersible mixers as specified in SPECA-3	no	4		
	PTMa 6.4	**Commissioning**				
5.1.1.8		.01 Testing and commissioning of mechanical stirrer	no	4		
5.1.2	**PTK**	**AERATION EQUIPMENT**				
	PTK7.1	**Design, Drawing and General**				
5.1.2.1	PTK7.1.1	Provide design drawings & design information as specified	sum	-		
5.1.2.2	PTK7.1.2	Provide results from CFD analysis	sum	-		
	PTK7.2	**Supply and Delivery to Site**				
	PTK7.2.1	Brush aerator complete with motor, gearbox, fasteners etc.				
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
5.1.2.3		.01 Brush Aerator sets complete as specified in SPEC A-4	no	10		
	PTK7.3	**Installation Work**				
	PTK7.3.1	Brush aerator complete with motor, gearbox, fasteners etc.				
5.1.2.4		.01 Brush Aerator sets complete as specified in SPEC A-4	no	10		
	PTK7.4	**Commissioning**				
	PTK7.4.1	Brush aerator complete with motor, gearbox, fasteners etc.				
5.1.2.5		.01 Brush Aerator sets complete as specified in SPEC A-4	sum	-		
5.1.3	**PT**	**PUMPING EQUIPMENT**				
		Design, Drawing and General				
5.1.3.1	PSPT20.1.1	Provide design drawings and design information as specified	sum	-		
5.1.3.2	PSPT20.1.2	Provide operating and maintenance manuals and "as built" drawings as specified.	sum	-		
	PSPT20.2.2	**Supply and Delivery to Site**				
		The tendered rate shall include for the manufacture, supply, factory-acceptance testing, factory-applied corrosion protection, transport to site and delivery to Site				
	PSPT20.2.1	Pump & motor set complete with pump, motor, couplings, foundation steelwork and baseplate as specified				
5.1.3.3		a) Mixed liquor transfer pump complete as specified in SPEC A-5	no	1		
	PSPT20.2.2	Ancillary equipment associated with pump installation as specified				
5.1.3.4		a) Mixed liquor transfer pump complete as specified in SPEC A-5	sum	-		
	PSPT20.3	**Commissioning**				
	PSPT20.3.1	Pump and motor set complete on base plate				
5.1.3.5		a) Mixed liquor transfer pump complete	sum	-		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		
		Ancillary equipment associated with pump installation as specified				
5.1.3.6		a) Mixed liquor transfer pump complete	sum	-		
	PSPT20.4	**Commissioning**				
	PSPT20.4.1	Testing and commissioning of pumps and appertaining pipework.				
5.1.3.7		a) Mixed liquor transfer pump complete as specified	sum	-		
5.2	**PSPT**	**SEDIMENTATION TANKS**				
	PSPTR 17.1	**Refurbishment and modification of existing Equipment** (refer to Particular Specification PJ)				
		a) Removal off-site, clean and re-coat as per PSPTR-11				
5.2.1		i) Module 1 Primary Dortmund Settling Tank bridges	no	3		
5.2.2		b) Replacement of bridge wheel and centre column bearings on the tank bridges (3 off)	sum	-		
5.2.3		c) Re-assemble and installation of Refurbished Equipment	sum	-		
5.2.4		d) Commissioning of Refurbished Equipment	sum	-		
	PSPTR 17.2	**Designs, drawings and general**				
5.2.5		Provide design drawings and design information as specified	sum	-		
	PSPTR 17.3	**Supply and Delivery to Site** *The tendered rate shall include for the manufacture, supply, factory-acceptance testing, factory-applied corrosion protection, transport to site and delivery to Site*				
5.2.6		a) Sedimentation tank equipment for Module 1 Dortmund Primary Settling Tanks				
		i) Stainless V-notch Weir complete as specified	m	54		
		ii) Scum removal system including scum baffle, scum hopper and discharge pipework, valves, flanges etc as specified	no	3		
		iii) GRP V-notch Weir complete as specified	m	27		
5.2.3		b) Sedimentation tank equipment for Module 1 Humus Settling Tanks (3 off)	sum	-		
		i) Stainless V-notch Weir complete as specified	m	43		
		ii) Scum baffles plates	m	36		
				Carried Forward		

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
5.2.4		c) Sedimentation tank equipment for Module 4 Secondary Sedimentation Tanks (4 off)	sum	-		
		i) Edge-mounted peripheral drive with 0.37kW motor completed as specified (PSPTR-5)	no	4		
5.2.5		d) Sedimentation tank equipment for Module 2 Primary Settling Tank No.3 (1 off), complete	sum	-		
		i) Scum skimmer plate to be fixed to the existing rotating half-bridge (PSPTR-8)	m	100		
	PSPTR 17.3	**Installation Work** *The tendered rate shall include for the handling, installation, testing, site corrosion protection and colour coding, building into walls where applicable all equipment complete*				
5.2.6		a) Sedimentation tank equipment for Module 1 Dortmund Primary Settling Tanks (3 off) complete				
5.2.7		i) Stainless V-notch Weir complete as specified	m	54		
5.2.8		ii) Scum removal system including scum baffle, scum hopper and discharge pipework, valves, flanges etc as specified	no	3		
5.2.9		iii) GRP V-notch Weir complete as specified	m	27		
		b) Sedimentation tank equipment for Module 1 Humus Settling Tanks (3 off)	sum	-		
5.2.10		i) Stainless V-notch Weir complete as specified	m	43		
5.2.11		ii) Scum baffles plates	m	36		
		c) Sedimentation tank equipment for Module 4 Secondary Sedimentation Tanks (4 off)	sum	-		
5.2.12		i) Edge-mounted peripheral drive with 0.37kW motor completed as specified (PSPTR-5)	no	4		
		d) Sedimentation tank equipment for Module 2 Primary Settling Tank No.3 (1 off), complete	sum	-		
5.2.13		i) Scum skimmer plate to be fixed to the existing rotating half-bridge (PSPTR-8)	m	100		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PSPTR 17.4	**Commissioning** *The tendered rate shall include for the commissioning of all equipment supplied and installed complete*				
5.2.14		a) Sedimentation tank equipment for Module 1 Dortmund Primary Settling Tanks (3 off) complete	sum	-		
5.2.15		b) Sedimentation tank equipment for Module 1 Humus Settling Tanks (3 off) complete	sum	-		
5.2.16		c) Sedimentation tank equipment for Module 4 Secondary Sedimentation Tanks (4 off)	sum	-		
5.2.17		d) Sedimentation tank equipment for Module 2 Primary Settling Tank No.3 (1 off), complete	sum	-		
5.3	**PSPTS PJ**	**BIOLOGICAL FILTERS**				
	PSPTS3.1	**Refurbishment and modification of existing Equipment**				
		(refer to Particular Specification PJ)				
5.3.1		a) Removal off-site, inspection of existing equipment, submission of condition assessment and quotation of non-mandatory parts, supply of all parts requiring mandatory replacement as required by manufacturer	sum	-		
5.3.2		b)Provision of non-mandatory items as listed in a)	prov sum	-		700 000.00
5.3.3		c)Re-assemble and re-installation of equipment	sum	-		
5.3.4		d)Commissioning of refurbished equipment complete	sum	-		
5.4	**PT PSPT**	**PUMPING EQUIPMENT**				
	PSPT 20.1	**Design, Drawing and General**				
5.4.1	PSPT20.1.1	Provide design drawings and design information as specified	sum	-		
5.4.2	PSPT20.1.2	Provide operating and maintenance manuals and "as built" drawings as specified.	sum	-		
	PSPT20.2	**Supply and Delivery to Site** *The tendered rate shall include for the manufacture, supply, factory-acceptance testing, factory-applied corrosion protection, transport to site and delivery to Site*				
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PSPT20.2.1	Pump & motor set complete with pump, motor, couplings, foundation steelwork and baseplate as specified				
5.4.3		a) Fermenter Pumps (FE)	no	2		
5.4.4		b) Scum Pumps (SC)	no	2		
5.4.5		c) Drain Pump (DN)	no	1		
5.4.6		d) RAS Pumps (RS)	no	4		
5.4.7		e) RAS Pumps (motor only) (RS)	no	2		
5.4.8		f) Fermenter Thickener Pumps (motor only)	no	2		
	PSPT20.2.2	Ancillary equipment associated with pump installation as specified				
5.4.9		a) Fermenter Pumps (FE)	sum	-		
5.4.10		b) Scum Pumps (SC)	sum	-		
5.4.11		c) Drain Pump (DN)	sum	-		
5.4.12		d) RAS Pumps (RS)	sum	-		
5.4.13		e) RAS Pumps (motor only) (RS)	sum	-		
5.4.14		f) Fermenter Thickener Pumps (motor only)	sum	-		
5.4.15		g) Orifice plate to suit 200mm diameter pipe	no	6		
	PSPT20.3	**Installation Work**				
		The tendered rate shall include for the handling, installation, testing, site corrosion protection and colour coding, building into walls where applicable				
	PSPT20.3.1	Pump and motor set complete on base plate				
5.4.16		a) Fermenter Pumps (FE)	no	2		
5.4.17		b) Scum Pumps (SC)	no	2		
5.4.18		c) Drain Pump (DN)	no	1		
5.4.19		d) RAS Pumps (RS)	no	4		
5.4.20		e) RAS Pumps (motor only) (RS)	no	2		
5.4.21		f) Fermenter Thickener Pumps (motor only)	no	2		
5.4.22		g) Orifice plate to suit 200mm diameter pipe	no	6		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PSPT20.3.2	Ancillary equipment associated with pump installation as specified				
5.4.23		a) Fermenter Pumps (FE)	sum	-		
5.4.24		b) Scum Pumps (SC)	sum	-		
5.4.25		c) Drain Pump (DN)	sum	-		
5.4.26		d) RAS Pumps (RS)	sum	-		
5.4.27		e) RAS Pumps (motor only)	sum	-		
5.4.28		f) Fermenter Thickener Pumps (motor only)	sum	-		
	PSPT20.4	**Commissioning**				
	PSPT20.4.1	Testing and commissioning of pumps and appertaining pipework.				
5.4.29		a) Fermenter Pumps (FE)	sum	-		
5.4.30		b) Scum Pumps (SC)	sum	-		
5.4.31		c) Drain Pump (DN)	sum	-		
5.4.32		d) RAS Pumps complete (RS)	sum	-		
5.4.33		e) Fermenter Thickener Pumps (motor only)	sum	-		
	PJ	**Refurbishment and modification of existing Equipment**				
	PSPT20.5	(refer to Particular Specification PJ)				
5.4.34	PSPT20.5.1	Removal, Dismantling and Inspection of Equipment	sum	-		
	PSPT20.5.2	Re-assemble and Re-installation of Equipment				
5.4.35		a) RAS Pumps	no	2		
	PSPT20.5.3	Refurbished Pump set Tests				
5.4.36		a) RAS Pumps	no	2		
5.4	**PSFS**	**FERMENTATION SYSTEM**				
	PSFS-6.1	**Design, Drawings and General**				
5.4.1		a) Provide drawings and design information as specified in PSFS-2	sum	-		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PSFS-6.2	**Manufacture, Supply and Delivery to site the following**				
5.4.2		a) Fermenter Mixing system complete as specified	no	2		
5.4.3		b) Ancillary equipment required as specified	sum	-		
	PSFS-6.3	**Handling (including double handling if stored), Erection, Installation, Fixing, Grouting, Alignment, Commissioning and Handing Over of the following equipment:**				
5.4.4		a) Fermenter Mixing system complete	sum	-		
5.4.5		b) Ancillary equipment required	sum	-		
5.5	**PTA PSPTA**	**DIFFUSED AERATION EQUIPMENT**				
	PTA 7.1	**Design, Drawings and General**				
	PTA 7.1.1	Provision of designs, drawings and design information as required:				
5.5.1		.1 Fine bubble aeration system (excl blowers) as per Clause PSPTA 3	sum	-		
	PTA 7.2	**Manufacture, Supply and Delivery to site the following**				
	PTA 7.2.1	**Aeration Grids** -including diffusers, membranes, diffuser connection to laterals, lateral pipework, lateral fasteners, air distribution pipework between header and diffusers				
		a) Fine bubble diffused aeration system				
5.5.2		.01 Precipitation Tank - Aeration Zone	sum	-		
	PTA 7.2.2	**Header Pipework**				
5.5.3		.1 Fine bubble aeration system Header pipework as required, including connecting to diffuser grids and feeder pipe work, measured as total per aeration zone	no	1		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PTA 7.2.3	**Feeder Pipework - FBDA**				
5.5.4		.1 Fine bubble aeration system: SS Feeder pipework -including connecting to header line, connecting to air main, provision of socket & plug for acid injection, nipple and stop cock for pressure gauge installation, supports and couplings *(Control valves and instrument measured elsewhere)* *(Note: Feeder to be adequate length to ensure suitable temperature dissipation prior to connection to PVC-U pipework)*	no	1		
	PTA 7.2.4	**Air Manifold**				
5.5.5		.1 SS Pipe (air manifold) from 1m outside blower to 2off branches ending in flanges suitable for BF type isolating valves, incl supports and couplings as required	sum	-		
5.5.6		.2 Manual flanged butterfly (BF) valves	no	1		
5.5.7	PTA 7.2.5	Actuated knife gate type control valves installed in feeder line including suitable electrical actuator with modulating function feeder line	no	1		
5.5.8	PTA 7.2.6	Insert-type air flow meters with integrated display suitable for feeder line *(Note: Contractor's design shall allow suitable up and downstream straight pipe length on feeder lines for accurate measurements*	no	1		
5.5.9	PTA 7.2.7	Pressure gauges installed in feeder pipework, including connector pipework & support stand	no	1		
5.5.10	PTA 7.2.8	Mobile acid injection system as per clause PTA 4.8	no	1		
5.5.11	PTA 7.2.9	Condensate purging system, one per aeration zone complete as per clause PTA 4.6	no	1		
5.5.12	PTA 7.2.10	Dissolved oxygen sensors & swivel-type fixing arrangement, including common controller with local display in suitable pedestal-mounted protective housing	no	1		
5.5.13	PTA 7.2.11	Electrical & signal cabling between instruments, controllers and blower room control system to complete installation	sum	-		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PTA 7.3	**Installation**				
	PTA 7.3.1	Aeration Grids complete, including fixing into distribution pipework, diffusers and connection to header pipes position of lateral pipework, air distribution pipework, diffusers and connection to header pipes				
		(a) Fine bubble aeration system				
5.5.14		.1 Precipitation Tank - Aeration Zone	sum	-		
	PTA 7.3.2	Header Pipework				
5.5.15		.1 Fine bubble aeration system (total per zone)	no	1		
	PTA 7.3.3	Feeder pipework, including				
5.5.16		.1 Fine bubble aeration system (Rate to include for installation of knife gate control valves, blow-off valves, air flow, pressure gauges and pipe supports)	no	1		
5.5.17	PTA 7.3.4	Air manifold, including supports, up to battery limit 1m outside blower platform, inclusive of connection to feeder lines and installation of BF valve	sum	-		
5.5.18	PTA 7.3.5	Condensate purging system complete with connection to header pipe and supports for FBDA system	no	1		
5.5.19	PTA 7.3.6	Dissolved oxygen sensors installed with probe located 2m below top water level, incl swivel mechanism and support structure for cleaning	no	1		
5.5.20	PTA 7.3.7	Instrumentation controller in suitable protective housing	no	1		
5.5.21	PTA 7.3.8	Electrical and signal cabling between instruments, controllers and control system	sum	-		
	PTA 7.4	**Testing and Commissioning**				
	PTA 7.4.1	Diffuser Assemblies/Pipe Connection Load Tests				
5.5.22		.01 Fine Bubble Aeration system complete	sum	-		
	PTA 7.4.2	Leak Testing/Air Distribution testing				
5.5.23		.01 Fine bubble aeration system	sum	-		
5.5.24	PTA 7.4.3	In-situ oxygenation efficiency determination	sum	-		
	PTA 7.5	**Spare Parts and Servicing**				
5.5.25	PTA 7.5.1	Provision of spare parts as defined (refer to PTA 6)	sum	-		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		
5.6	**PTZ PSPTZ**	**AERATION BLOWER EQUIPMENT**				
	PTZ 25.1	**Design, Drawings and General**				
	PTZ 25.1.1	Provide design drawings and design information as specified.	sum	-		
	PTZ 25.2	**Manufacture, Factory Acceptance Test, Transport and Delivery to Site**				
5.6.1	PTZ 25.2.1	Air blower/compressor complete, including *inter alia* electric motor, gearbox, variable frequency drive, acoustic enclosure, integrated Local Control Panel (LCP), silencer block and machine mounts, oil lubrication and cooling system	no	1		
5.6.2	PTZ 25.2.2	Blower fittings and specials, including inlet silencer, inlet filtration system, flexible compensator, cone diffuser & silencer, blow-off valve & silencer, check valve, actuated discharge isolating valve; silencer block & machine mounts, oil lubrication and cooling system	no	1		
5.6.3	PTZ 25.2.3	Blower pipework to connect to main feeder pipe	sum	-		
5.6.4	PTZ 25.2.4	One Master Control Panel (MCP) as specified connected to all the LCP's, DO probes, actuated control "V" port valves, air flow meters and pressure transmitters, including all control and power cabling, earthing, termination etc. (Refer PTZ 10)	sum	-		
5.6.5	PTZ 25.2.5	Instrumentation as per clause PTZ 9 (Total per blower)	no	1		
5.6.6	PTZ 25.2.6	Insert type pressure transmitter and air flow meter on common feeder line	sum	-		
5.6.7	PTZ 25.2.7	Required reagents for instrumentation & first charge consumables (oil, grease etc)	sum	-		
	PTZ 25.3	**Installation**				
5.6.8	PTZ 25.3.1	Air blower/compressor complete including local control panel (LCP)	no	1		
5.6.9	PTZ 25.3.2	Master Control Panel (ABC / MCP) as specified connected to all the LCP's, DO probes, actuated control valves, air flow meters pressure transmitters, including all control and power cabling, earthing, termination etc.	and sum	-		
5.6.10	PTZ 25.3.3	Air blower pipe fittings and specials (total per blower unit)	no	1		
5.6.11	PTZ 25.3.4	All blower pipework between blower and main feeder pipework	sum	-		
				Carried Forward		

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		
5.6.12	PTZ 25.3.5	Instrumentation, pressure transmitter and air flow meter	sum	-		
	PTZ 25.4	**Testing and Commissioning**				
5.6.13	PTZ 25.4.1	Air blower/compressor system complete	sum	-		
5.6.14	PTZ 25.4.2	Electronic control system complete	sum	-		
5.6.15	PTZ 25.4.3	Testing, commissioning and optimization of remote instruments and equipment, including any/all DO probes, flow meters, pressure transmitters, actuators	sum	-		
5.7	**PTU PSPTU**	**CHLORINE DOSING EQUIPMENT**				
		The tendered prices shall include for the supply, delivery, installation, testing and commissioning of the equipment required as specified:				
	PTU 6.1	**Chlorine dosing equipment for System A**				
5.7.1		Chlorinators as specified shall be supplied complete with ejectors, multiple flow meter assembly, rate control valves, isolating and solenoid valves, rotameters, in-line strainers, pressure gauges, by-pass connection, heaters, vacuum regulators and automatic change-over devices (automatic rate control devices if specified)	sum	-		
	PTU 6.2	**Load Cells**				
5.7.2		Load cells for weighing 1 600 kg chlorine containers complete with trunnions and LCD displays in dosing room	no	12		
	PTU 6.3	**Pipework**				
5.7.3		.1 Cadmium plated copper flexible connectors and seamless steel header piping to BS 1485 from the containers to the regulators including brass plug valves and suitably sized catch pots	sum	-		
5.7.4		.2 The complete uPVC piping with the necessary isolating valves, bends, flanges, etc. from the ejectors to the diffus	sum	-		
5.7.5		.3 The complete uPVC piping with the necessary isolating valves, bends, flanges, pressure gauge etc. from the site water installation to the ejectors	sum	-		
	PTU 6.4	**Chlorine Diffuser**				
5.7.6		.1 Chlorine diffuser complete with the necessary fixing brackets, bends, flanges, etc. to complete the installation	sum	-		
				Carried Forward		

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PTU 6.5	**Low Levels Fans**				
5.7.7		.1 Low level extractor fans with vent pipes for controlled release	no	2		
	PTU 6.6	**Ancillary items**				
5.7.8		.1 Wall mounted cupboard with glass front complete with resuscitator and two gas masks	sum	-		
5.7.9		.2 Chlorine detector	sum	-		
5.7.10		.3 Emergency repair kit for the containers	sum	-		
5.7.11		.4 Emergency shut-off system	sum	-		
5.7.12	PSPTU 6.6.5	.5 Supply and free issue of a Regulation 7 first aid kit complete	sum	-		
5.7.13	PSPTU 6.6.6	.6 All regulation safety signage	sum	-		
5.7.14	PSPTU 6.6.7	Removal of existing Chlorine equipment (as indicated & agreed upon by the Engineer) and safe off-site disposal	sum	-		
5.7.15	PSPTU 6.6.8	Reconfiguration of the existing load cells (12 off) as specified	sum	-		
	PSPTU 6.6.9	Design, supply, delivery, installation and commissioning of a s cum suppression system complete as specified in in PSPTU-1	sum	-		
5.8	**PLC PSPLC**	**CHEMICAL DOSING EQUIPMENT**				
		FERRIC CHLORIDE DOSING SYSTEM				
	PLC 6.1	**Design, Drawings and General**				
	PLC 6.1.1	Provide design drawings and design information as specified.				
5.8.1		.1 Ferric dosing system complete as specified	sum	-		
	PLC 6.1.2	Provide operating and maintenance manuals and “as built” drawings as specified.				
5.8.2		.1 Ferric dosing system complete as required	sum	-		
	PLC 6.2	**Manufacture, Supply and Delivery to site the following**				
		.01 Ferric dosing system complete				
5.8.3		.01 Pump and motor set complete with pump, motor, couplings, foundation, steelwork and baseplate as specified.	no	2		
					Carried Forward	

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
				Brought Forward		
5.8.4		.02 Ancillary equipment associated with pump installation as specified	sum	-		
	PLC 6.3	**Handling (including double handling if stored), Erection, Installation, Fixing, Grouting, Alignment, Commissioning and Handing Over of the following equipment**				
		.01 Ferric dosing system complete				
5.8.5		.01 Pump and motor set complete with pump, motor, couplings, foundation, steelwork and baseplate as specified.	sum	-		
5.8.6		.02 Ancillary equipment associated with pump installation as specified	sum	-		
		LIME DOSING SYSTEM				
	PSPLC 6.6	**Investigation & Proposal on Dosing System**				
5.8.7		.01 Carry out investigations on existing lime dosing system at the Precipitation Tank and provide a detailed design proposal with cost estimates for review and approval by the Engineer	sum	-		
5.8.8		.02 Implement the approved dosing system based on item	prov	-		80 000.00
	PSPLC 6.5	**Refurbishment and modification of existing Equipment**				
5.8.9		a) Removal off-site (if necessary), inspection of existing equipment, submission of condition assessment and quotation of non-mandatory parts, supply of all parts requiring mandatory replacement as required by manufacturer				
		.01 Existing lime dosing equipment	sum	-		
5.8.10		.02 Provision of non-mandatory items as listed in a)	prov sum	-		60 000.00
5.8.11		.03 Re-assemble and re-installation of equipment	sum	-		
5.8.12		.04 Commissioning of refurbished equipment complete	sum	-		
5.9	**PSPE**	**ADDITIONAL EQUIPMENT**				
5.9.1	PLN	**PIPEWORK AT SLUDGE DEWATERING BUILDING**				
	PLN 11.1	**Design, Drawings and General**				
5.9.1.1	PLN 11.1.1	Provide design drawings and design information as specified, including As-built drawings	sum	-		
				Carried Forward		

Item	Payment Reference	Description	Unit	Qty	Rate (R)	Amount (R)
					Brought Forward	
	PLN 11.2	**Supply and Deliver to Site**				
	PSPLN 11.2.3	Stainless Steel 304L belt feed pipeline to tie into existing feed and discharge pipework, to be attached to ceiling of building complete as specified				
5.9.1.2		.01 200mm diameter	sum	-		
5.9.1.3	PSPLN 11.2.4	Ancillary Equipment as specified	sum	-		
	PLN 11.3	**Installation Work**				
	PLN 11.3.1	Stainless Steel 304L belt feed pipeline to tie into existing feed and discharge pipework, to be attached to ceiling of building complete as specified				
5.9.1.4		.01 200mm diameter	sum	-		
5.9.1.5	PLN 11.3.2	Ancillary Equipment as specified	sum	-		
	PSPE 3.3	**Commissioning**				
5.9.1.6		a) Commissioning of the existing solids density meter complete as specified	sum	-		
5.9.2		**FLOW METERING EQUIPMENT**				
	PSPLC 6.5	**Refurbishment and modification of existing Equipment**				
		.01 Removal off-site, inspection of existing equipment, submission of condition assessment and quotation of non-mandatory parts, supply of all parts requiring mandatory replacement as required by manufacturer				
		.01 Flow meter on inflow to Module 2	sum	-		
		.02 Provision of non-mandatory items as listed in a)	prov sum	-		15 000.00
		.03 Re-assemble and re-installation of equipment	sum	-		
		.04 Commissioning of refurbished equipment complete	sum	-		
		SCHEDULE No.5 MECHANICAL WORKS CARRIED TO SUMMARY				
					Carried forward to Summary of Schedules	

CITY OF TSHWANE
USD WS 18 2021/2022

REFURBISHMENT OF THE SUNDERLAND RIDGE WASTEWATER TREATMENT WORKS

Summary of Schedules

Schedule No.	Description	Amount (R)
1	PRELIMINARY AND GENERAL	
2	PIPELINES	
3	CIVIL WORK	
4	SITE FENCING	
5	MECHANICAL WORK	
6	MOTOR CONTROL CENTERS AND DISTRIBUTION BOARDS	
7	PROGRAMMABLE & LOGIC CONTROLLERS	
8	CONTROL INSTRUMENTATION SYSTEM	
9	GENERAL AND MISCELLANEOUS	
10	EARTHING & LIGHTNING PROTECTION	
11	SITE LIGHTING	
12	MULTICORE CABLES & EARTH WIRES	
13	SECURITY AND FENCING	
14	STANDBY GENERATOR SYSTEM	
15	SMALL POWER AND LIGHTING INSTALLATIONS	
	Sub-Total	
	Provisional sum: Allowance for Contract Price Adjustment (5% of Sub-Total)	
	Sub-Total	
	Provisional sum: Allowance for Contingencies (10% of Sub-Total)	
	Total Construction Cost	
	Value Added Tax at 15%	
	Total Amount of Tender Carried Forward to Form of Offer and Acceptance	

Bankers Details :

Contractor's Name: _____

Name reflected on bank statement:

Bank: _____

Branch: _____

Account Number:

Cheque Account | or | Savings Account |

Signature : By

Tenderer : _____

Company Name : _____

Date : _____

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

SPEC A: MODULE 2 BIOLOGICAL REACTOR

Instructions on Filling Out This Form

I - Potential Suppliers should fill out the left column of the "Proposed" field with one of the following options: "AS" (As specified) or "D" (Deviation).

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A	**MIXING EQUIPMENT**				
1	**MIXER DETAILS**				
1.1	Manufacturer	-			
1.2	Model #	-			
1.3	Mixer Type	-	Submersible		
1.4	Type of blades	-			
1.5	Number of blades	No	4		
1.6	Rotational speed (max)	rpm			
1.7	Direction of rotation	-			
1.8	Make of gearbox	-			
1.9	Material of gears	-			
1.10	Service factor on motor power	-			
1.11	Service factor on max. absorbed power	-	1.8		
1.12	Impeller diameter	mm			
1.13	Power absorbed	kW	7.5		
1.14	Shaft diameter	mm			
1.15	Method of lubrication	-	Oil		
2	**MOTOR DETAILS**				
2.1	Manufacturer	-			
2.2	Motor shaft output at site conditions				
2.3	Rotational speed	rpm			
2.4	Full load current	A			
2.5	Enclosure rating (IP rating)	-	IP55		
2.6	Recommended type of starter (DOL/STAR-DELTA)	-	DOL		
2.7	Motor heater fitted	(Yes/No)	Yes		
		-			
3	**MIXER CHARACTERISTICS**				
3.1	Mixing power input	W/m^3			
3.2	Power required at duty point	kW			
4	**GENERAL DETAILS**				
4.1	Delivery	weeks			
B	**AERATION EQUIPMENT**				
1	**GENERAL INFORMATION**				
1.1	Manufacturer				
1.2	Place and Country of manufacture				
1.3	Type of aerator		Horizontal brush		
1.4	Installed motor power	kW	45		
1.5	Make and Model of Aerator				
1.6	Material of aerator				
1.7	Diameter of impeller	mm			
1.8	Protection against corrosion				
1.9	Speed of rotation	rpm			
1.10	Tip speed	m/s			
1.11	Energy Transfer				
1.12	Maximum power absorbed at shaft	kW			

SECTION T2.3: TECHNICAL SCHEDULES

SPEC A: MODULE 2 BIOLOGICAL REACTOR

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Item	Description	units	Specified		Proposed
1.13	Torque	Nm			
1.14	Efficiency of electric motor	%			
1.15	Efficiency of speed reducer	%			
1.16	OC of individual aerator at std. conditions	kgO2/hr			
1.17	Depth of immersion	mm			
1.18	Oxygen efficiency (shaft to water)	kgO2/kWh	2		
1.19	Oxygenation efficiency (wire to water)	kgO2/kWh			
1.20	Salinity surface tension correction factor	β			
1.21	Oxygen transfer correction factor for wastewater	α			
2	**SPEED REDUCER**				
2.1	Manufacturer				
2.2	Country of manufacture				
2.3	Type number				
2.4	AGMA rating				
2.5	Actual power transmitted under maxiumum load				
2.6	Service Factor				
3	**ELECTRIC MOTOR**				
3.1	Manufacturer				
3.2	Place and Country of manufacture				
3.3	Class of insulation				
3.4	Type of motor				
3.5	Rated output	kW			
3.6	Speed of rotation	rpm			
3.7	Power factor at full load				
3.8	Power factor at 75% load				
3.9	Power factor at 50% load				
3.10	Splash protection				
4	**GENERAL DETAILS**				
4.1	Delivery	weeks			
4.2	Weight of aerator & motor	kg			
C	**PUMPING EQUIPMENT**				
1.1	Manufacturer				
1.2	Model				
1.3	Type (axial, centrifugal, etc.)				
1.4	Impeller Type				
1.5	Number of stages	No			
1.6	Rotational speed	rpm	1450		
1.7	DE bearing				
1.8	NDE bearing				
1.9	Method of lubrication				
1.10	Solids size handling capability (minimum)	mm	50		
1.11	Outlet diameter	mm	200		
1.12	Outlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.13	Inlet diameter	mm	100		

SECTION T2.3: TECHNICAL SCHEDULES

SPEC A: MODULE 2 BIOLOGICAL REACTOR

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Item	Description	units	Specified		Proposed
1.14	Inlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.15	Seal type (mechanical, gland, etc.)		Mechanical		
1.16	Type of coupling		Quick-Release		
1.17	Load speed-torque characteristics (i.e. square torque law, constant torque, etc.).				
1.18	DE bearings temperature probe fitted.				
1.19	NDE bearings temperature probe fitted.	Yes/No	No		
1.20	Shaft float electrical measuring fitted (if applicable)		No		
1.21	Shaft balance disc temperature probe fitted (if applicable)..	Yes/No	N/A		
1.22	Discharge pressure gauges	Yes/No	Yes		
1.23	Lowest liquid level at which pump can operate (measure from sump floor)	mm			
1.24	Pump Painting	Yes/No	Yes		
2	**MOTOR DETAILS**				
2.1	Manufacturer				
2.2	Motor shaft output at site conditions	kW			
2.3	Rotational speed	rpm	1450		
2.4	Full load current	A			
2.5	Voltage	V			
2.6	Enclosure rating (IP rating)		IP 55		
2.7	Recommended type of starter (DOL/ STAR-DELTA)				
2.8	Power factor at duty point				
2.9	Thermal protection fitted (thermistor/ PT100)	Yes/No	Yes		
2.10	Heater fitted	Yes/No	Yes		
2.11	DE bearings temperature probe fitted (PT100)	Yes/No	No		
2.12	NDE bearings temperature probe fitted (PT100)	Yes/No	No		
2.13	Zorc's Fitted	Yes/No	No		
2.14	Motor Painting (B26 to SANS 1091)	Yes/No	Yes		
2.15	Guard Painting		Yes		
2.16	Insulation class of cable				
2.17	VSD driven motor	Yes/No	No		
2.18	Instrumentation voltage	V			
3	**PUMP CHARACTERISTICS**				
3.1	SG of medium being pumped	Unit			
3.2	Delivery at duty point	m^3/hr			
3.3	Head at duty point	m			
3.4	Guaranteed efficiency at duty point	%			
3.5	Power absorbed at duty point	KW			
3.6	Guaranteed Minimum Pump best efficiency	%			
3.7	Delivery at best efficiency point	m^3/hr			
3.8	Head at best efficiency point	m			

SECTION T2.3: TECHNICAL SCHEDULES

SPEC A: MODULE 2 BIOLOGICAL REACTOR

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Item	Description	units	Specified		Proposed
3.9	NPSHreq (Max)	m			
3.10	Maximum Casing Pressure	m			
4	**PUMP CONSTRUCTION MATERIALS**				
4.1	Pump casing		Cast Iron		
4.2	Impeller		Cast Iron		
4.3	Shaft		Stainless Steel		
4.4	Mechanical seal faces				
5	**GENERAL DETAILS**				
5.1	Total weight of pump, motor and base-frame	kg			
5.2	Plinth size required	m x m			
5.3	Performance test to be conducted to	-	ISO 9906 Grade 2		
5.4	Delivery time	Weeks			

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification - PTK, PT, PTMa

Project Specification - SPEC A

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PTR: SEDIMENTATION TANK EQUIPMENT

Instructions on Filling Out This Form

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Item	Description	units	Specified		Proposed
A	**DORTMUND PRIMARY SETTLING TANKS - MODULE 1 (3 OFF)**				
1	**MECHANICAL EQUIPMENT**				
1.1	Diameter of tank	m	12		
1.2	Material of handrails		Stainless Steel		
1.3	Scum baffle plate width	mm	530		
1.4	Scum baffle radius	m	5		
1.6	Scum trough width/diamater	mm	150		
1.7	Scum trough depth (minimum)	mm	150		
1.8	Scum removal system materials		4,5mm 304L stainless steel		
1.9	V-Notch weir material		4,5mm 304L stainless steel		
2	**GENERAL DETAILS**				
2.1	Delivery	weeks			
B	**HUMUS SETTLING TANKS - MODULE 1 (3 OFF)**				
1	**MECHANICAL EQUIPMENT**				
1.1	Diameter of tank	m	12		
1.2	Material of handrails		Stainless Steel		
1.3	Scum baffle plate width	mm	530		
1.4	Scum baffle radius	m	5		
1.6	Scum trough width/diamater	mm	150		
1.7	Scum trough depth (minimum)	mm	150		
1.8	Scum removal system materials		4,5mm 304L stainless steel		
1.9	V-Notch weir material		4,5mm 304L stainless steel		
2	**GENERAL DETAILS**				
2.1	Delivery	weeks			
C	**PRIMARY SETTLING TANKS - MODULE 4 (1 OFF)**				
1	**MECHANICAL EQUIPMENT**				
1.1	Diameter of tank	m	32		
1.2	Scum skimmer plate thickness, width	mm	300		
1.3	Scum removal system materials		4,5mm 304L stainless steel, 150mm min depth		
2	**GENERAL DETAILS**				
2.1	Delivery	weeks			
D	**SECONDARY SETTLING TANKS - MODULE 2 (4 OFF)**				
1	**MECHANICAL EQUIPMENT**				
1.1	Diameter of tank	m	23		
2	**ELECTRICAL EQUIPMENT**				
2.1	Manufacturer of motor				
2.2	Class of insulation				
2.3	Type of Motor				
2.4	Bearin capacity				
2.5	Rated output	kW			
2.6	Power factor at full load				

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PTR: SEDIMENTATION TANK EQUIPMENT

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Item	Description	units	Specified		Proposed
2.7	Efficiency at full load				
2.8	Speed of rotation	rpm			
2.9	Details of slipring assembly				
3	**GENERAL DETAILS**				
3.1	Delivery	weeks			

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification - PTR

Project Specification - PSPTR

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

Instructions on Filling Out This Form

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Item	Description	units	Specified		Proposed
A	**FERMENTER PUMPS (FE) - 2 OFF**				
1	**PUMP DETAILS**				
1.1	Manufacturer				
1.2	Model				
1.3	Type (axial, centrifugal, etc.)		Progressive Cavity		
1.4	Maximum Pressure	m	10		
1.5	Inlet flange size	mm			
1.6	Outlet flange size	mm			
1.7	Range of rotor speeds	rpm	<250		
1.8	Drive/coupling type & descrption				
1.9	Duty torque @ duty speed	Nm @ rpm			
1.10	Max. duty power required by pump	kW			
1.11	Solids size handling capability (minimum)	mm	75		
1.12	Flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.13	Material of Rotor				
1.14	Material of Rotating Face and thickness		Hard Chrome Plating		
1.15	Material of Stator		EPDM		
1.16	Material of Shaft				
1.17	Rubbing Velocity	m/s	<1.5		
1.18	Rotor pitch	mm			
1.19	Stator pitch	mm			
1.20	Rotor diameter	mm			
1.21	Number of stages				
1.22	Corrosion Protection of Pump		SANS 12944, C5-M, High Durability		
1.23	Pump Painting	Yes/No	Yes		
1.24	Existing plinth dimensions	mm	2070 x 500		
2	**PUMP CHARACTERISTICS**				
2.1	SG of medium being pumped	Unit	1.0		
2.2	Delivery at duty point	l/s	5 - 15		
2.3	Head at duty point	m	10		
2.4	Guaranteed efficiency at duty point	%			
2.5	Power absorbed at duty point	KW			
2.6	Guaranteed Minimum Pump best efficiency	%			
2.7	Delivery at best efficiency point	l/s			
2.8	Head at best efficiency point	m			
2.9	NPSHreq (Max)	m			
2.10	Maximum Casing Pressure	m			
3	**MOTOR DETAILS**				
3.1	Manufacturer				
3.2	Motor shaft output at site conditions	kW			
2.3	Rotational speed	rpm	1450		
2.4	Full load current	A			
2.5	Voltage	V			
2.6	Enclosure rating (IP rating)		IP 55		
2.8	Power factor at duty point				
2.9	Thermal protection fitted (thermistor/ PT100)	Yes/No	Yes		

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

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Item	Description	units	Specified		Proposed
2.10	Heater fitted	Yes/No	Yes		
2.14	Motor Painting (B26 to SANS 1091)	Yes/No	Yes		
2.15	Guard Painting	Yes/No	Yes		
2.16	Insulation class of cable				
2.17	VSD driven motor	Yes/No	Yes		
2.18	Instrumentation voltage .	V	220		
4	**GEARBOX**				
4.1	Make		Cast Iron		
4.2	Model		Cast Iron		
4.3	Gearbox Service Factor		Stainless Steel		
4.4	Enclosure rating (IP rating)				
4.5	Corrosion Protection		SANS 12944, C5-M, High Durability		
5	**GENERAL DETAILS**				
5.1	Total weight of pump, motor and base-frame	kg			
5.2	Plinth size required	m x m			
5.3	Performance test to be conducted to	-	ISO 9906 Grade 2		
5.4	Delivery time	Weeks			
B	**SCUM PUMPS (SC) - 2 OFF**				
1	**PUMP DETAILS**				
1.1	Manufacturer				
1.2	Model				
1.3	Type (axial, centrifugal, etc.)		Submersible		
1.4	Impeller Type		Vortex		
1.5	Number of stages	No			
1.6	Rotational speed	rpm	1450		
1.7	DE bearing				
1.8	NDE bearing				
1.9	Method of lubrication				
1.10	Solids size handling capability (minimum)	mm	50		
1.11	Outlet diameter	mm	200		
1.12	Outlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.13	Inlet diameter	mm	100		
1.14	Inlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.15	Seal type (mechanical, gland, etc.)		Mechanical		
1.16	Type of coupling		Quick-Release		
1.17	Load speed-torque characteristics (i.e. square torque law, constant torque, etc.).				
1.18	DE bearings temperature probe fitted.				
1.19	NDE bearings temperature probe fitted.	Yes/No	No		
1.20	Shaft float electrical measuring fitted (if applicable)		No		
1.21	Shaft balance disc temperature probe fitted (if applicable).	Yes/No	N/A		

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

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Item	Description	units	Specified		Proposed
1.22	Discharge pressure gauges	Yes/No	Yes		
1.23	Lowest liquid level at which pump can operate (measure from sump floor)	mm	300		
1.24	Pump Painting	Yes/No	Yes		
2	**MOTOR DETAILS**				
2.1	Manufacturer				
2.2	Motor shaft output at site conditions	kW			
2.3	Rotational speed	rpm	1450		
2.4	Full load current	A			
2.5	Voltage	V			
2.6	Enclosure rating (IP rating)		IP 55		
2.7	Recommended type of starter (DOL/ STAR-DELTA)				
2.8	Power factor at duty point				
2.9	Thermal protection fitted (thermistor/ PT100)	Yes/No	Yes		
2.10	Heater fitted	Yes/No	Yes		
2.11	DE bearings temperature probe fitted (PT100)	Yes/No	No		
2.12	NDE bearings temperature probe fitted (PT100)	Yes/No	No		
2.13	Zorc's Fitted	Yes/No	No		
2.14	Motor Painting (B26 to SANS 1091)	Yes/No	Yes		
2.15	Guard Painting		Yes		
2.16	Insulation class of cable				
2.17	VSD driven motor	Yes/No	No		
2.18	Instrumentation voltage	V	220		
3	**PUMP CHARACTERISTICS**				
3.1	SG of medium being pumped	Unit	1.0		
3.2	Delivery at duty point	m^3/hr	12		
3.3	Head at duty point	m	2.65 - 4.65		
3.4	Guaranteed efficiency at duty point	%			
3.5	Power absorbed at duty point	KW			
3.6	Guaranteed Minimum Pump best efficiency	%			
3.7	Delivery at best efficiency point	m^3/hr			
3.8	Head at best efficiency point	m			
3.9	NPSHreq (Max)	m			
3.10	Maximum Casing Pressure	m			
4	**PUMP CONSTRUCTION MATERIALS**				
4.1	Pump casing		Cast Iron		
4.2	Impeller		Cast Iron		
4.3	Shaft		Stainless Steel		
4.4	Mechanical seal faces				
5	**GENERAL DETAILS**				
5.1	Total weight of pump, motor and base-frame	kg			

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

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Item	Description	units	Specified		Proposed
5.2	Plinth size required	m x m			
5.3	Performance test to be conducted to	-	ISO 9906 Grade 2		
5.4	Delivery time	Weeks			
C	**DRAINAGE PUMP (DN) - 1 OFF**				
1	**PUMP DETAILS**				
1.1	Manufacturer				
1.2	Model				
1.3	Type (axial, centrifugal, etc.)		Gland Leakage		
1.4	Rotational speed	rpm	1450		
1.5	Solids size handling capability (minimum)	mm	75		
1.6	Outlet diameter	mm			
1.7	Outlet flange drilling (SANS1123, BS4504, etc)		SANS 1123 T1600/3, RF		
1.8	Seal type (mechanical, gland, etc.)		Gland		
1.9	Method of gland sealing				
1.10	Type of Impeller				
1.11	Type of bearings				
2	**MOTOR DETAILS**				
2.1	Manufacturer				
2.2	Type of motor				
2.3	Type of frame				
2.4	Motor shaft output at site conditions	kW	0.75		
2.5	Rotational speed	rpm	1450		
2.6	Full load current	A			
2.7	Voltage	V			
2.8	Enclosure rating (IP rating)		IP 55		
3	**PUMP CHARACTERISTICS**				
3.1	SG of medium being pumped	Unit	1.0		
3.2	Delivery at duty point	l/s	20		
3.3	Head at duty point	m	5		
3.4	Guaranteed efficiency at duty point	%			
3.5	Power absorbed at duty point	KW			
3.6	Guaranteed Minimum Pump best efficiency	%			
3.7	Delivery at best efficiency point	l/s			
4	**PUMP CONSTRUCTION MATERIALS**				
4.1	Pump casing		Cast Iron		
4.2	Impeller		Cast Iron		
4.3	Shaft		Stainless Steel		
4.4	Mechanical seal faces				
5	**GENERAL DETAILS**				
5.1	Total weight of pump, motor and base-frame	kg			

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

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Item	Description	units	Specified		Proposed
5.2	Delivery time	Weeks			
D	**RAS PUMPS (RS) - 6 OFF**				
1	**PUMP DETAILS (EXISTING PUMPS)**				
1.1	Manufacturer		Gorman-Rupp		
1.2	Model		T4A3-BFM		
1.3	Type (axial, centrifugal, etc.)		Centrifugal self-priming		
1.4	Solids size handling capability (minimum)	mm	75		
1.7	Inlet diameter (mechical)	mm	150		
1.7	Inlet diameter (existing civil)	mm	200		
1.8	Inlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.7	Outlet diameter (mechical)	mm	150		
1.5	Outlet diameter (existing civil)	mm	200		
1.6	Outlet flange drilling (SANS1123, BS4504, BS10, etc)		SANS 1123 T1600/3, RF		
1.9	Seal type (mechanical, gland, etc.)		Mechanical		
1.12	Pump Painting	Yes/No	**Yes - to be supplied**		
1.13	Existing plinth dimensions	mm	1500 x 950		
2	**MOTOR DETAILS (TO BE SUPPLIED)**				
2.1	Manufacturer				
2.2	Type of motor				
2.3	Type of frame				
2.4	Motor shaft output at site conditions	kW	11 (proposed)		
2.5	Rotational speed	rpm			
2.6	Full load current	A			
2.7	Voltage	V			
2.8	Enclosure rating (IP rating)		IP 55		
2.9	Recommended type of starter (DOL/ STAR-DELTA)				
2.10	Power factor at duty point				
2.11	Thermal protection fitted (thermistor/ PT100)	Yes/No	Yes		
2.12	Heater fitted	Yes/No	Yes		
2.13	DE bearings temperature probe fitted (PT100)	Yes/No	No		
2.14	NDE bearings temperature probe fitted (PT100)	Yes/No	No		
2.15	Zorc's Fitted	Yes/No	No		
2.16	Motor Painting (B26 to SANS 1091)	Yes/No	Yes		
2.17	Guard Painting		Yes		
2.18	Insulation class of cable				
2.19	VSD driven motor	Yes/No	Yes		
2.20	Instrumentation voltage .	V	220		
3	**PUMP CHARACTERISTICS (NEW)**				
3.1	SG of medium being pumped	Unit	1.0		
3.2	Delivery at duty point	l/s	65		
3.3	Head at duty point	m	3.2		

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

Instructions on Filling Out This Form

I - Potential Suppliers should fill out the left column of the "Proposed" field with one of the following options: "AS" (As specified) or "D" (Deviation).

II - Suppliers must list any items marked "D" and any other clarifications in the "Deviations List", of the Technical Requisition. To include information in addition to the contents of this datasheet, suppliers should proceed in the same manner.

III - The explanatory notes at the end of the Data Sheet are to be filled out by the Issuer and not by Suppliers.

IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
3.4	Guaranteed efficiency at duty point	%			
3.5	Power absorbed at duty point	KW			
3.6	Guaranteed Minimum Pump best efficiency	%			
3.7	Delivery at best efficiency point	l/s			
3.8	Head at best efficiency point	m			
3.9	NPSHreq (Max)	m			
3.10	Maximum Casing Pressure	m			
E	**THICKENED FERMENTER PUMPS (RS) - 2 OFF**				
1	**PUMP DETAILS (EXISTING PUMPS)**				
1.1	Manufacturer		Gorman-Rupp		
1.2	Model		T4A3-BFM		
1.3	Type (axial, centrifugal, etc.)		Centrifugal self-priming		
1.4	Solids size handling capability (minimum)	mm	75		
1.7	Inlet diameter (mechical)	mm	150		
1.7	Inlet diameter (existing civil)	mm	200		
1.8	Inlet flange drilling (SANS1123, BS4504, etc)		SANS 1123 T1600/3, RF		
1.7	Outlet diameter (mechical)	mm	150		
1.5	Outlet diameter (existing civil)	mm	200		
1.6	Outlet flange drilling (SANS1123, BS4504, etc)		SANS 1123 T1600/3, RF		
1.9	Seal type (mechanical, gland, etc.)		Mechanical		
1.12	Pump Painting	Yes/No	**Yes - to be supplied**		
1.13	Existing plinth dimensions	mm	1500 x 950		
2	**MOTOR DETAILS (TO BE SUPPLIED)**				
2.1	Manufacturer				
2.2	Motor shaft output at site conditions	kW	11 (proposed)		
2.3	Rotational speed	rpm	650		
2.4	Full load current	A			
2.5	Voltage	V			
2.6	Enclosure rating (IP rating)		IP 55		
2.7	Recommended type of starter (DOL/ STAR-DELTA)				
2.8	Power factor at duty point				
2.9	Thermal protection fitted (thermistor/ PT100)	Yes/No	Yes		
2.10	Heater fitted	Yes/No	Yes		
2.11	DE bearings temperature probe fitted (PT100)	Yes/No	No		
2.12	NDE bearings temperature probe fitted (PT100)	Yes/No	No		
2.13	Zorc's Fitted	Yes/No	No		
2.14	Motor Painting (B26 to SANS 1091)	Yes/No	Yes		
2.15	Guard Painting		Yes		
2.16	Insulation class of cable				
2.17	VSD driven motor	Yes/No	No		
3	**PUMP CHARACTERISTICS (NEW)**				
3.1	SG of medium being pumped	Unit	1.0		

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PT: PUMPING EQUIPMENT

Instructions on Filling Out This Form

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III - The explanatory notes at the end of the Data Sheet are to be filled out by the Issuer and not by Suppliers.

IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
3.2	Delivery at duty point	l/s	25		
3.3	Head at duty point	m	22.01		
3.4	Guaranteed efficiency at duty point	%			
3.5	Power absorbed at duty point	KW			
3.6	Guaranteed Minimum Pump best efficiency	%			
3.7	Delivery at best efficiency point	l/s			
3.8	Head at best efficiency point	m			
3.9	NPSHreq (Max)	m			
3.10	Maximum Casing Pressure	m			

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification - PT

Project Specification - PSPT

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PSFS: FERMENTATION SYSTEM

Instructions on Filling Out This Form

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A	**MIXING SYSTEM - 2 OFF**				
1	**MIXER**				
1.1	Make & model				
1.2	Type and design				
1.3	Mixing performance details, including criterion used to judge successful mixing				
1.4	Dry Solids Content	% TSS			
1.5	Temperature Range	ºC			
1.6	Mixing Time				
1.7	Homogeniety	%			
1.8	Average Bulk Flow Velocity	m/s			
1.9	Mixer impeller diameter	mm			
1.10	Mixer thrust produced	N			
1.11	Absorbed power	kW			
1.12	Mixer speed	RPM			
1.13	Shaft diameter	mm			
1.14	Mixer impeller material				
1.15	Mixer shaft material				
1.16	Mixer Body Material				
1.17	Details of balancing procedure	ISO 1940			
1.18	Ingress Protection	IP			
1.19	Overall mass of unit	kg			
2	**MOTOR**				
	Make and model of motor				
	Absorbed power	kW			
	Rated motor power	kW			
	Ingress Protection	IP			
	Corrosion Protection				

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Project Specification - PSFS

SECTION T2.3: TECHNICAL SCHEDULES

PTA: DIFFUSED AERATION SYSTEM

Instructions on Filling Out This Form

I - Potential Suppliers should fill out the left column of the "Proposed" field with one of the following options: "AS" (As specified) or "D" (Deviation).

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III - The explanatory notes at the end of the Data Sheet are to be filled out by the Issuer and not by Suppliers.

IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A.	**PRECIPITATION TANK AERATION SYSTEM (1 OFF)**				
1	Country of manufacture				
2	Spares supplier and address				
1	**DIFFUSERS**				
3.1	Make & model				
3.2	Diameter	mm			
3.3	Material of Membrane				
3.4	Material of Coating				
3.5	Ozone Resistance	Pass/Fail			
3.6	UV Resistance	Pass/Fail			
3.7	Durometer				
3.8	FOG resistant	Yes/No			
3.9	Solvent Resistant	Yes/No			
3.10	Biofouling Resistant	Yes/No			
3.11	Friction Coefficient				
3.12	Material of Body				
3.13	Coefficient of thermal expansion of membrane	10-6 m/mK			
3.14	Diffuser Density	per m^2			
3.15	Diffuser Peak Flow	Nm^3/h			
3.16	Maximum Flux Ratio	$Nm^3/h/m^2$			
3.17	Maximum Design Flow Rate	Nm3/h			
3.18	Diffuser Pressure Loss at Design Flow	mbar			
3.19	Maximum Flow Rate Allowed	Nm3/h			
3.20	Diffuser Pressure Loss at Design Flow	mbar			
3.21	Flow Restricitng Orrifice	mm			
3.22	Layout of Diffusers				
3.23	1. No. of Groups per Zone				
3.24	2. No. of Diffusers per Group				
3.25	3. No. of Difussers per Zone				
3.26	4. Active Membrane Area per Zone	m^2			
3.27	5. Diffuser Denisty	m^2			
2	**PERFORMANCE PER ZONE**				
4.1	SOTR	kgO_2/h			
4.2	Total Air Flow	Nm^3/h			
4.3	Air Flow per Diffuser	Nm^3/h			
4.4	SOTE	%			
4.5	Flux Ratio at 0 deC, 101.3kPa	$Nm^3/m^2/h$			

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification PTA

Project Specification - PSPTA

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PTZ: BLOWERS

Instructions on Filling Out This Form

I - Potential Suppliers should fill out the left column of the "Proposed" field with one of the following options: "AS" (As specified) or "D" (Deviation).

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A.	**PRECIPITATION TANK BLOWER (1 OFF)**				
1	Country of manufacture				
2	Spares supplier and address				
3	**BLOWER**				
	Make & model				
	Material of shaft				
	Material of rotor				
	Outlet diameter	DN			
	Noise level	dB			
	Maximum guaranteed noise levelat 1 m distance (Lp, mea	dB			
	Overall dimensions of hood (L x W x H)	mm			
	Turndown Ratio	%			
	Flow range	Nm3/h			
	Pressure range	mbar			
	Filter Efficiency				
	Overall mass of unit	kg			
4	**CHARACTERISTICS OF BLOWER AT MAXIMUM EFFICIENCY (1 blower operating)**				
	Pressure	mbar			
	Flow	Nm3/h			
	Absorbed Load	kW			
	Overall Efficiency	%			
	Operating capacity	%			
	Discharge Temperature	ºC			
5	**CHARACTERISTICS OF BLOWER AT DUTY POINT (1 blower operating)**				
	Pressure	mbar			
	Flow	Nm3/h			
	Absorbed Load	kW			
	Overall Efficiency	%			
	Operating capacity	%			
	Discharge Temperature	ºC			
6	**Motor**				
	Make and Model				
	Type of enclosure				
	Class of insulation				
	Continuous maximum motor rating	kW			
	Speed of rotation	RPM			
	Full load current	A			
	Efficiency at 100% rate power	%			
	Power factor (uncorrected) at 100% rated power				
7	**Bearings**				
	Type				
	L10 life	h			
8	**Isolation Valve**				
	Make & model				
	Type				

SECTION T2.3: TECHNICAL SCHEDULES

PTZ: BLOWERS

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
	Material of body				
	Material of disc				
	Material of seat				
	Corrosion protection of valve (External)				
	Corrosion protection of valve (External)	µm			
	Corrosion protection of valve (Internal)				
	Corrosion protection of valve (Internal)	µm			
	Material of fasteners				
	Size	DN			
	Pressure rating	PN			
	Temperature Rating	ºC			
	Leak tight seal	Yes/No			
	Bidirectional Seal	Yes/No			
	Gearbox ratio				
	Torque-slip device	Yes/No			
	Torque limit	Yes/No			
	Overall mass of unit	kg			
9	**Check Valve**				
	Make & model				
	Type				
	Material of body				
	Material of disc				
	Material of seat				
	Material of seal Spring				
	Corrosion protection of valve (External)				
	Corrosion protection of valve (External)	µm			
	Corrosion protection of valve (Internal)				
	Corrosion protection of valve (Internal)	µm			
	Material of fasteners				
	Size	DN			
	Pressure rating	PN			
	Temperature Rating	ºC			
	Leak tight seal	Yes/No			
	Overall mass of unit	kg			

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification PTZ

Project Specification - PSPTZ

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PTS: BIOFILTER DISTRIBUTION ARMS

Instructions on Filling Out This Form

I - Potential Suppliers should fill out the left column of the "Proposed" field with one of the following options: "AS" (As specified) or "D" (Deviation).

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A	**MODULE 1 BIOFILTERS - 3 OFF**				
1	**MECHANICAL EQUIPMENT**				
1.1	Name of manufacturer				
1.2	Place of Manufacture				
1.3	Diameter of filter	m	33.5*		
1.4	Number of sprinkler arms	no.	4 minimum		
1.4	Capacity in litres per sec:				
1.4.1	minimum flow	l/s	27		
1.4.2	maximum flow	l/s	40.5		
1.5	Head in metres required to drive mechanisms, excl. friction in inlet pipe, measured from the top of media:				
1.5.1	minimum flow	m			
1.5.2	maximum flow	m			
1.6	Rotation Speed:				
1.6.1	minimum flow	rpm			
1.6.2	maximum flow	rpm			
1.7	Type of centre column seal				
2	**MATERIALS OF CONSTRUCTION**				
2.1	Type and Thickenss of material:				
2.2	centre column	m			
2.3	sprinkler arms	mm			
2.4	nozzles	mm			
2.5	splash plates	mm			
3	**NAME OF SUB-CONTRACTOR**				
3.1	Fabrication and delivery	weeks			

Explanatory Notes

01 - Supplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Supplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particukar Specification - PTS

Project Specification - PSPTS

Project Name:	**Tender for Refurbishment of the Sunderland Wastewater Treatment Works for a 18 month period from commencement date**
Project No:	**WS 07-2022/23**

SECTION T2.3: TECHNICAL SCHEDULES

PSFS: FERMENTATION SYSTEM

Instructions on Filling Out This Form

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
A.	**CHLORINE DOSING SYSTEM - PLANT**				
1	Country of manufacture				
2	Spares supplier and address				
3	**PUMP DETAILS**				
3.1	Make & model				
3.2	Minimum Flow	ℓ/h			
3.3	Maximum Flow	ℓ/h			
3.4	Turn Down Ratio				
3.5	Maximum Pressure	m			
3.6	Metering Accurucay	%			
3.7	Material of Dosing Head				
3.8	Material of Diaphragm				
3.9	Material of housing				
3.10	Motor rating	W			
3.11	Mass of unit	kg			
4	**PIPING**				
4.1	Pressure rating	kPA			
4.2	Material				
B.	**CHLORINE DOSING SYSTEM - SUPPRESSION SYSTEM**				
1	Country of manufacture				
2	Spares supplier and address				
3	**PUMP DETAILS**				
3.1	Make & model				
3.2	Minimum Flow	ℓ/h			
3.3	Maximum Flow	ℓ/h			
3.4	Turn Down Ratio				
3.5	Maximum Pressure	m			
3.6	Metering Accurucay	%			
3.7	Material of Dosing Head				
3.8	Material of Diaphragm				
3.9	Material of housing				
3.10	Motor rating	W			
3.11	Mass of unit	kg			
4	**PIPING**				
4.1	Pressure rating	kPA			
4.2	Material				

Explanatory Notes

01 - Suplier shall refer to reference documents listed on the requisition to complete equipment specification.

02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification PTU

Project Specification - PSPTU

SECTION T2.3: TECHNICAL SCHEDULES

PSFS: FERMENTATION SYSTEM

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IV - Should the schedules contain conflicting information with Section C3.4, the information in C3.4 will take precedence

Item	Description	units	Specified		Proposed
	A. FERRIC DOSING SYSTEM - MODULE 2				
1	Country of manufacture				
2	Spares supplier and address				
3	**PUMP DETAILS**				
3.1	Make & model				
3.2	Minimum Flow	ℓ/h			
3.3	Maximum Flow	ℓ/h			
3.4	Turn Down Ratio				
3.5	Maximum Pressure	m			
3.6	Metering Accurucay	%			
3.7	Material of Dosing Head				
3.8	Material of Diaphragm				
3.9	Material of housing				
3.10	Motor rating	W			
3.11	Mass of unit	kg			
4	**PIPING**				
4.1	Pressure rating	kPA			
4.2	Material				

Explanatory Notes

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02 - Suplier shall confirm and/or provide all equipment data while filing the proposed column.

REFERENCE DOCUMENTS

Particular Specification PLC

Project Specification - PSPLC