CITY OF CAPE TOWN
ISIXEKO SASEKAPA
STAD KAAPSTAD

FINANCE
SUPPLY CHAIN MANAGEMENT

Tender Distribution Office

E: scm.tenders7@capetown.gov.za

1 April 2025

NOTICE TO TENDERERS NO: 1

TENDER NUMBER: 192C/2024/25

DESCRIPTION: PROVISION OF PROFESSIONAL SERVICES FOR CONSTRUCTION MONITORING AND CONTINUATION OF ENGINEERING SERVICES FOR THE CONSTRUCTION AND CLOSE OUT OF MULDERSVLEI 300Mℓ RESERVOIR AND BULK WATER PIPELINES

CLOSING DATE OF TENDER: 23 April 2025

BOX NUMBER: 221

Dear Sir/Madam

In terms of Clause **C.3.2: Issue Addenda** in the Tender Data, the City of Cape Town may if necessary, issue addenda in writing that may amend or amplify the tender documents to each tenderer during the period from the date the tender documents are available until one week before the tender closing time stated in the Tender Data. The Employer reserves its rights to issue addenda **less than one week before the tender closing time in exceptional circumstances.**

Your attention is specifically drawn to the amendments, which are to be made to the tender document for the above in terms of this addendum, which is issued in terms of Clause 3.2 of the tender document.

This notice to tenderers is an integral part of the Tender. This notice/addendum is to be signed by the tenderer and attached and/or included to the tender document submission and recorded on Schedule 22: Record of Addenda to tender documents.

This notice contains two instructions i.e. points number 1 and 2 a) to d)

Yours faithfully,

p.p. SCM.Tender7

For Director: Supply Chain Management

WRITTEN ACKNOWLEDGEMENT OF RECEIPT OF NOTICE 1 – 192C/2024/25

Signature ..... **Date** .....

Print name ……..

Legal and full name of tendering entity:

1) Your attention is specifically drawn to the following page replacements:

CURRENT PAGE IN TENDER DOCUMENT	REPLACEMENT PAGE
PART T1: TENDERING PROCEDURES	
4	4(R)
5	5(R)
PART C1.1: FORM OF OFFER AND ACCEPTANCE	
36	36(R)
37	37(R)
PART C2.2: PRICING DATA	
57	57(R)
58	58(R)
59	59(R)
60	60(R)
61	61(R)
62	62(R)

The above listed replacement pages follows this page. Changes are highlighted in italics and magenta coloured text.

T1.2 Tender Data

The conditions of tender are the *Standard Conditions of Tender as contained in Annex C of Government Gazette* 42622 of 8 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (see www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

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

The following variations, amendments and additions to the Standard Conditions of Tender as set out in the Tender Data below shall apply to this tender:

Clause number	**Tender Data**

C.1 General

C.1.1 **Actions**

C.1.1.1 *Add the following:*

The parties agree that this tender, its evaluation and acceptance and any resulting contract shall also be subject to the Employer's Supply Chain Management Policy ('SCM Policy') that was applicable on the date the bid was advertised, save that if the Employer adopts a new SCM Policy which contemplates that any clause therein would apply to the contract emanating from this tender, such clause shall also be applicable to that contract Please refer to this document contained on the Employer's website.

Abuse of the supply chain management system is not permitted and may result in the tender being rejected, cancellation of the contract, restriction of the supplier, and/or the exercise by the Employer of any other rights and remedies available to it as described in the SCM Policy and / or applicable law.

The Employer is the City of Cape Town ("City" or "CCT"), represented by the Executive Director: WATER AND SANITATION

C.1.2 **Tender Documents**

Add the following:

The documents issued by the employer for the purpose of this tender, is described in the **Contents** page preceding **Part T1: Tendering Procedures** of this document.

In addition to the above, the following further documents are part of the tender:

VOLUME 4 The **Standard Professional Services Contract (July 2009) (Edition 3 of CIDB document 1015)** as published by the Construction Industry Development Board. Tenderers must obtain copies at their own cost from the Construction Industry Development Board Pretoria, Tel. (012) 343 7136 or (012) 481 9030, Fax: (012) 343 7153, e-mail: cidb@cidb.org.za.

VOLUME 5 The relevant sections as described in the Scope of Services of the **Guideline Professional Fees (Scope of Services and Tariff of Fees for Persons Registered in terms of the Engineering Profession Act, 46 of 200)** as gazetted in Board Notice 22 of 2021 Government Gazette No. 44333, 26 March 2021.

VOLUME 6 The relevant sections as described in the Scope of Services of the **Guideline for Professional Fees in terms of Section 34(2) of The Architectural Profession Act, 44 of 2000** as gazetted in Board Notice 471 of 2023, Government Gazette 49108, 11 August 2023

VOLUME 7 The **Amended Landscape Architectural Work Stages – January 2011**, published by the South African Council for the Landscape Architectural Profession (available on their website www.saclap.co.za).

VOLUME 8 The relevant sections as described Clause 2 of the **Guideline Tariff of Professional Fees in respect of Services rendered by Persons Registered in terms of the Quantity Surveying Profession Act, 2000 (Act No 49 of 2000), Board Notice 170 of 2015** as gazetted in Government Gazette No. 39134, 28 August 2015.

VOLUME 9 The relevant sections as described in the **Guideline Scope of Services and Recommended Guideline Tariff of Fees for Persons Registered in terms of the Project and Construction Management Professions Act, 2000 (Act 48 of 2000**), **Board Notice 202 of 2011** as gazetted in Government Gazette No. 34858, 23 December 2011.

VOLUME 10 The relevant sections as described in the **Guideline Scope of Services and Recommended Guideline Tariff of Fees for Construction Health and Safety Professionals Registered in terms of the Project and Construction Management Professions Act, 2000 (Act 48 of 2000)**, **Board Notice 167 of 2019** as gazetted in government Gazette No. 42697, 13 September 2019.

VOLUME 11 *The relevant sections as described in the Recommended Consultation Fees as published by The South African Council for Natural Scientific Professions (SACNASP) under article 35 (1) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) as gazetted in government Gazette No. 670 of 2024.*

Volumes 4 to *11* may be inspected, by appointment, at the offices of the Employer during normal office hours.

C1.2.1 The employer will only issue tender documents though it's Tender Distribution Office as described on **T1.1 Tender Notice and Invitation to Tender.** Bidders who obtain documents through any means other than described herein, will not be known to the employer and may thus not receive tender notices and addendums.

It is the responsibility of bidders who obtain documents through any means other than described herein to notify the employer in accordance with C1.4 of these tender conditions that they are participating in the tender. The employer accepts no liability for any tender notices or addendums not reaching any bidders who obtained documents through any means other than described herein.

C.1.4 **Communication and employer's agent**

Delete the first sentence of the clause and replace with the following:

Verbal or any other form of communication, from the Employer, its employees, agents or advisors during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer, unless communicated by the Employer in writing to suppliers by its Director: Supply Chain Management or his nominee.

The Employer's contact details are:

Name: SCM Department
Address: ..... City of Cape Town
..... Civic Centre
..... 12 Hertzog Boulevard
.....Cape Town 8001
Tel: 021 400 0000
E-mail: SCM.Tenders7@capetown.gov.za

C.1.5 **Cancellation and Re-Invitation of Tenders**

Delete the full stop at the end of C.1.5.1 dd) and replace with,

Add the following after C.1.5.1 d):

e) the parties are unable to negotiate market related pricing.

C.1.6.2 **Competitive negotiation procedure**

Add the following to C.1.6.2.1:

A competitive negotiation procedure will not be followed.

C.1.6.3 **Proposal procedure using the two-stage system**

Add the following between C.1.6.3 and C.1.6.3.1:

A two-stage system will not be followed.

Add the following after C.1.6.3.2.2

CITY OF CAPE TOWN

WATER AND SANITATION: BULK SERVICES DEPARTMENT

CONTRACT NO. 192C/2024/25

PROVISION OF PROFESSIONAL SERVICES FOR CONSTRUCTION MONITORING AND CONTINUATION OF ENGINEERING SERVICES FOR THE CONSTRUCTION AND CLOSE OUT OF MULDERSVLEI 300Mℓ RESERVOIR AND BULK WATER PIPELINES.

C1.1 Form of Offer and Acceptance Offer

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:
CONTRACT NO. 192C/2024/25: PROVISION OF PROFESSIONAL SERVICES FOR CONSTRUCTION MONITORING AND CONTINUATION OF ENGINEERING SERVICES FOR THE CONSTRUCTION AND CLOSE OUT OF MULDERSVLEI 300Mℓ RESERVOIR AND BULK WATER PIPELINES.

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

By the representative of the tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the tenderer offers to perform all of the obligations and liabilities of the contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

This is a rates based contract.

The rates as contained in Part C2.2: Activity Schedule shall form the tender offer. These rates shall be multiplied, as applicable, by the quantities required in respect of relevant items to develop representative Work Order to be allocated for tender evaluation purposes to determine Points for Price and Preference.

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.

Contractor	
Business Name	
Business Registration	
Tax number (VAT)	
Physical Address	
Signed – who by signature hereto warrants authority	
Name of signatory	
Signed: Date	
Signed: Location	
Signed: Witness	
Name of Witness	

For official use.		
INITIALS OF CITY OFFICIALS AT TENDER OPENING		
1.	**2.**	**3.**

Acceptance

By signing this part of this form of offer and acceptance, the City of Cape Town accepts the tenderer's (now Contractor's) offer. In consideration thereof, the City of Cape Town shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the contractor's offer shall form an agreement between the City of Cape Town and the contractor upon the terms and conditions contained in this document.-

The terms of the contract are contained in:

Part C1: Agreements and contract data (which includes this agreement)
Part C2: Pricing data
Part C3: Scope of work
Part C4: Site information

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

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

The contractor shall within two weeks after *contract commencement* contact the City of Cape Town to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documents 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 the contract.

Unless indicated otherwise in the Deviation Schedule, this agreement comes into effect on the date when the contractor and confirms receipt from the City of Cape Town of one complete, signed copy of this contract containing price schedule as awarded by the BAC, including the schedule of deviations (if any).

CITY OF CAPE TOWN	
Business Name	
Business Registration	
Tax number (VAT)	
Physical Address	
Accepted contract sum including tax	
Signed – who by signature hereto warrants authority	
Name of signatory	
Signed: Date	
Signed: Location	
Signed: Witness	
Name of Witness	

DIRECTORATE: WATER AND SANITATION: BULK SERVICES DEPARTMENT

TENDER NO. 192C/2024/25

PROVISION OF PROFESSIONAL SERVICES FOR CONSTRUCTION MONITORING AND CONTINUATION OF ENGINEERING SERVICES FOR THE CONSTRUCTION AND CLOSE OUT OF MULDERSVLEI 300Mℓ RESERVOIR AND BULK WATER PIPELINES.

C2.2 Activity Schedule

Item No. 1: Engineering Services

SECTION 1: KEY PERSONNEL SERVICES as described in Part T1 - Tendering Procedures C.2.1.4.2 Key Personnel for Eligibility and C2.1.4.6 - Minimum Score for Quality

Time-based fees for Key Personnel for services undertaken in terms of the Scope of Work:

Item No.	Reference	Activity Description	Unit	Rate
1.1	C2.1.4.2 i)/ C.2.1.4.6 b)	Approved Professional Person (Dam Safety Specialist)	Hour	
1.2	C2.1.4.2 ii)/ C.2.1.4.6 g)	Mechanical Engineer	Hour	
1.3	C2.1.4.2 iii)/ C.2.1.4.6 h)	Electrical Engineer	Hour	
1.4	C2.1.4.2 iv)/ C.2.1.4.6 i)	Architect	Hour	
1.5	C2.1.4.2 v)/ C.2.1.4.6 j)	Occupational Health and Safety Agent	Hour	
1.6	C2.1.4.2 vi)	Professional Construction Project Manager	Hour	
1.7	C2.1.4.2 vii)/ C2.1.4.6 a)	Employers Agent (Contracts Engineer)	Hour	
1.8	C2.1.4.6 b)	Employer's Agent Representative (Engineer's Representative)	*Month*	
1.9	C2.1.4.6 c)	Geotechnical Engineer/Engineering Geologist	Hour	
1.10	C2.1.4.6 e)	Civil Engineer (Pipeline and Hydraulics Engineer)	Hour	
1.11	C2.1.4.6 f)	Structural Engineer	Hour	

SECTION 2: ADDITIONAL PERSONNEL as described in Part C3 - Scope of Work - Section 14.3

Time-based fees for Additional Personnel for services undertaken in terms of the Scope of Work:

Item No.	Reference	Activity Description	Unit	Rate
2.1	14.3 a)	Electronic Engineer	Hour	
2.2	14.3 b)	*Quantity* Surveyor	Hour	
2.3	14.3 c)	Environmental Assessment Practitioner	Hour	
2.4	14.3 d)	Freshwater Ecologist	Hour	
2.5	14.3 e)	Land Surveyor	Hour	
2.6	14.3 f)	Town Planner	Hour	

SECTION 3: SPECIALIST SERVICES - GENERAL as described in Part C3 - Scope of Work - Section 14.3

Time-based fees for Specialist Services undertaken in terms of the Scope of Work:

Item No.	Reference	Activity Description	Unit	Rate
3.1	14.4 a)	Construction Health and Safety Officer	Hour	
3.2	14.4 b)	Environmental Control Officer	Hour	
3.3	14.4 c)	Public Participation Practitioner	Hour	
3.4	14.4 d)	Environmental Auditor	Hour	
3.5	14.4 e)	Environmental Specialist (e.g. botanist, horticulturist, marine biologist, etc.)	Hour	
3.6	14.4 f)	Cathodic Protection Specialist:	Hour	
3.7	14.4 g)	Hazardous Substance Management specialist (Major Hazardous Installations, working with hazardous materials)	Hour	
3.8	14.4 h)	Fire Services Specialist	Hour	
3.9	14.4 i)	Water Use Authorisation Specialist	Hour	
3.10	14.4 j)	Training Supervisor	Hour	

SECTION 4: GENERAL SERVICES

Time-based fees for General Services undertaken in terms of the Scope of Work:

Item No.	Reference	Activity Description	Unit	Rate
4.1		**ARCHITECTURAL SERVICES**		
4.1.1		Salaried staff (Associates and Managers)	Hour	
4.1.2		Salaried Staff (Registered architectural professionals performing work of an architectural nature and carrying direct responsibility for activities related to a project)	Hour	
4.1.3		Salaried Staff (Registered architectural professionals performing work of an architectural nature under direction and control)	Hour	
4.1.4		Salaried Staff (Staff performing work of an architectural nature and/or to support architectural work outputs under direction and control)	Hour	
4.2		**CONSTRUCTION HEALTH AND SAFETY SERVICES**	Hour	
4.2.1		Construction Health and Safety Manager	Hour	
4.3		**HERITAGE SERVICES**	Hour	
4.3.1		Heritage Assessment Practitioner	Hour	
4.3.2		Heritage Assessment Practitioner Assistant	Hour	
4.4		**LANDSCAPE ARCHITECTURAL SERVICES**		
4.4.1		Registered Professional Principal Landscape Architect (minimum 8 years' experience)	Hour	
4.4.2		Staff performing work of a landscape architectural nature and carrying direct responsibility for one or more specific activities related to a project	Hour	
4.5		**OTHER**	Hour	
4.5.1		Conveyancer	Hour	
4.5.2		Land Survey Team – Field Work (civil topographical surveys or survey/measure existing structures)	Hour	
4.5.3		Land Survey Team – Office Work (reduce field work, prepare CAD/GIS drawing/s, maps and reports)	Hour	
4.5.4		Registered Land Surveyor (cadastral surveys, property registration of sub-divisions)	*Hour*	
4.5.5		Town Planner (Zoning/Land Use report/reports or certificates/ re-zoning applications)	*Hour*	
4.5.6		CAD Draughting Operator	Hour	
4.5.7		GIS Technician	Hour	
4.5.8		BIM Modeller	Hour	

SECTION 5: NORMAL SERVICES

Time-based fees for Normal Services undertaken in terms of the Scope of Work:

Item No.	Ref	Activity Description	Unit	Rate
5.1		**CIVIL ENGINEERING SERVICES**		
5.1.1		Category B	Hour	
5.1.2		Category C	Hour	
5.1.3		Category D	Hour	
5.2		**STRUCTURAL ENGINEERING SERVICES**		
5.2.1		Category B	Hour	
5.2.2		Category C	Hour	
5.2.3		Category D	Hour	
5.3		**MECHANICAL ENGINEERING SERVICES**		
5.3.1		Category B	Hour	
5.3.2		Category C	Hour	
5.3.3		Category D	Hour	
5.4		**ELECTRICAL ENGINEERING SERVICES**		
5.4.1		Category B	Hour	
5.4.2		Category C	Hour	
5.4.3		Category D	Hour	
5.5		**ELECTRONIC ENGINEERING SERVICES**		
5.5.1		Category B	Hour	
5.5.2		Category C	Hour	
5.5.3		Category D	Hour	
5.6	**CHEMICAL ENGINEERING SERVICES/** ***PROCESS ENGINEER (Refer to 14.3 k) of C3.1 Part C3: Scope of Work)***			
5.6.1		Category B	Hour	
5.6.2		Category C	Hour	
5.6.3		Category D	Hour	

Item No.	Ref	Activity Description	Unit	Rate
5.7		**QUANTITY SURVEYING SERVICES**		
5.7.1		Registered Professional Principals (Specialist)	Hour	
5.7.2		Registered Professional Principals (5 – 10 years experience)	Hour	
5.7.3		Registered Professional Principals (< 5 years experience)	Hour	
5.8		***ENGINEERING GEOLOGY SERVICES (ENGINEERING GEOLOGIST)***		
5.8.1		*Category B*	*Hour*	
5.8.2		*Category C*	*Hour*	
5.8.3		*Category D*	*Hour*	

SECTION 6: CONSTRUCTION MONITORING SERVICES

Time-based fees for Construction Monitoring Services undertaken in terms of the Scope of Work:

Item No.		Activity Description	Unit	Rate
6.1		**CIVIL ENGINEERING SERVICES**		
6.1.1		Construction Monitoring: Level 3 - Category B person	Month	
6.1.2		Construction Monitoring: Level 3 - Category C person	Month	
6.1.3		Construction Monitoring: Level 2 - Category D person	*Hour*	
6.2		**STRUCTURAL ENGINEERING SERVICES**		
6.2.1		Construction Monitoring: Level 3 - Category C person	Month	
6.2.2		Construction Monitoring: Level 2 - Category D person	*Hour*	
6.3		**MECHANICAL ENGINEERING SERVICES**		
6.3.1		Construction Monitoring: Level 2 - Category C person	*Hour*	
6.3.2		Construction Monitoring: Level 2 - Category D person	*Hour*	
6.4		**ELECTRICAL ENGINEERING SERVICES**		
6.4.1		Construction Monitoring: Level 2 - Category C person	*Hour*	
6.4.2		Construction Monitoring: Level 2 - Category D person	*Hour*	

2) Your attention is specifically drawn to the following inclusions/incorporations:

a) On page 20 of the tender document, Part T1: Tendering Procedures before *"Table B2: Awards above R50 mil (VAT Inclusive)"* insert the following new clause:

"C.3.11.4 The Employer shall create, for tender evaluation purposes, simulated (representative) Work Order, indicative of the scope of service as well as the scope of work.

The Employer shall have assigned quantities to the items in the Activity Schedule necessary for the execution of representative Work Order. The assigned quantities shall be multiplied by the tendered rates submitted by the tenderers to obtain amounts that will be totalled to provide financial offer for each tenderer for the representative Works Order. The financial offer, required in terms of the Preferential Procurement Regulations, shall be determined by the sum of the representative Works Order for each tenderer.

Based on the tender evaluation points scored in terms of Preferential Procurement Regulations, the responsive tenderers will be considered, taking into account that

The Employer shall adopt the following evaluation procedure when evaluating the tender submissions:

Step 1 Evaluate all tender offers for responsiveness as per C.3.8, and reject any found to be non-responsive.

Step 2 Evaluate all tenders using the representative Work Order to obtain a financial (price) offer.

Step 3 Score tender evaluation points for price and score the tender offers for preference.

Step 4 Add the points scored for price and preference to obtain the tender ranking of the tender submissions.

Step 5 Recommend a "Winner" for award by BAC."

b) On page 69 of the tender document, Part C3: Scope of Work under *"Section 4 – Details of Construction Works"* insert the following new clause:

"4.1 EXTENT OF CONSTRUCTION WORKS

The scope of the works includes, but are not limited to, the following:

- *Establishment of camp, offices, and plant on site*
- *Compliance with all Health and Safety and Environmental specifications*
- *Provision of security for all personnel, plant and materials*
- *Setting out of the Works*
- *Accommodation of Traffic (e.g. at the site entrances and at pipe crossings with public roads)*
- *Dealing with existing services*
- *Dealing with water (surface and subsurface)*
- *Site clearance*
- *Construction of internal roads and site services which include, but are not limited to:*
  - *Earthworks*
  - *Layerworks, including selected layers, stabilized subbase layers and crushed-stone base layers*
  - *Asphalt surfacing*
  - *Stormwater infrastructure including inlets, stormwater pipes, channels and stormwater detention ponds*
  - *Subsurface and other drainage pipelines*
  - *Water reticulation networks*
  - *Sewer infrastructure consisting of pipelines and conservancy tanks*
  - *Ducting*
  - *Energy dissipation structures*
  - *Landscaping, irrigation, and finishing*
  - *Fencing*
- *Construction of the 300 Mℓ reservoir which includes, but is not limited to:*
  - *Bulk earthworks, with large quantities of material to spoil offsite and importing material from commercial sources for the embankment*
  - *Geotechnical works such the installation of geosynthetics as a method to mechanically stabilise the earth, and temporary stabilisation of the cut slopes through soil nails and shotcrete, and other means of soil improvement*
  - *Geotechnical and dam safety monitoring works (temporary and permanent) to monitor the behaviour of the reservoir, such as settlement beacons, pore water pressure sensors, etc.*
  - *Groundwater drainage and leakage detections systems underneath, in and around the reservoir basin*
  - *HDPE dam liner over the entire reservoir basin*
  - *In-situ cast concrete works for the reservoir floors (flat and sloped), foundations, columns, walls, inspection galleries, overflow, vehicle access structure etc, including specials waterstop joints between concrete elements*
  - *Precast concrete beams and hollow core roof slabs*
  - *Ancillaries such as ventilation pipes, air vents, access hatches, daylight openings, hand railings, access stairs, roof drainage elements etc*
  - *Watertightness testing of the structure*
- *Construction of bulk steel pipelines and associated chambers which include, but are not limited to:*
  - *Trench excavations and backfilling*
  - *Imported pipe bedding*
  - *DN1600 steel incoming pipeline, approximately 4.6km long, continuously welded*
  - *DN1200 steel outgoing pipeline, approximately 2.4km long, continuously welded*
  - *Interconnecting steel pipelines on the reservoir site including DN1600 reservoir inlet pipes, a DN1800 reservoir bypass pipeline, DN1800 reservoir outlet pipes, DN400 reservoir scour pipes and a DN1800/DN1200 reservoir overflow pipe*
  - *Pipeline corrosion protection in the form of a cement mortar lining and concrete sheating.*
  - *Pipeline road crossings through pipe jacking and open trench excavations*
  - *Bulk pipeline connections to the existing DN1500 and DN1200 prestressed concrete Wemmershoek pipeline*
  - *Concrete pipeline chambers with all pipe specials, valves and instrumentation for the air valve chambers, scour valve chambers, isolation valve chambers, flow meter chambers, control valve chambers etc*
  - *Hydrostatic pressure testing of the pipelines and associated infrastructure*
- *Construction of the buildings for the disinfection facility, administration facility and guardhouse which include, but are not limited to:*
  - *Restricted excavations*
  - *Structural concrete works*

- *Building works, including masonry works, doors, windows, architectural finishes, plumbing, carpentry, drainage etc*
- *Structural steel works*

- *Design, supply, and installation of all mechanical services which include all equipment, pipework, valves, fittings and related for the following:*
  - *On-site electrolytic chlorination equipment and associated pipework, valves and fittings*
  - *Calcium hypochlorite chlorination equipment and associated pipework, valves and fittings*
  - *Dosing pumps and associated pipework, valves and fittings*
  - *Water temperature control equipment and associated pipework, valves and fittings*
  - *Service water pumps and associated pipework, valves and fittings*
  - *Lifting equipment*
  - *HVAC systems for each of the admin building, disinfection facility and guardhouse*
  - *Fire water pumps and associated pipework, valves and fittings*
  - *Leakage water return pump system*
  - *Commissioning, followed by the 28-day trial operation period*
  - *Operation and maintenance manuals*
- *Design, supply, and installation of all electrical and electronic services which include, but are not limited to:*
  - *Electrical supply*
  - *Back-up generators*
  - *LV switchgear and control assemblies*
  - *LV cables and cable supports*
  - *LV earthing and bonding*
  - *Rooftop PV system on admin building*
  - *Building electrical services*
  - *Process control systems including programmable logic controllers and remote input/output control panels.*
  - *SCADA, network and telemetry infrastructure*
  - *All instrumentation required for the control and monitoring of the systems.*
  - *Cabling for instrumentation and control*
  - *Building electronic services including, access control, CCTV, fire detection, etc.*
  - *Commissioning, followed by the 28-day trial operation period*
  - *Operation and maintenance manuals.*
- *Correction of defects in the Works in accordance with the requirements stipulated in the Contract Documents.*

This description of the Works is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract."

c) On page 75 of the tender document, Part C3: Scope of Work under *"Section 7 – Use of Reasonable Skill and Care"* insert the following new clauses:

"This project is a large project lifecycle in terms of the City's Stage Gate Review guideline meaning that this project has a total project cost higher than R100 million and has a high implementation complexity score value as per the City's Project Portfolio Management Stage Gate Review Guideline Revision 6 of June 2024.

As per Board Notice 21 of 2021 (Government Gazette, 26 March 2021) i.e. Identification of Engineering Work Regulations this project is define as a Complex project. For this reason the potential Service Potential must fully familiarise themselves with the merits and technical requirements this project requires to be executed further till completion/close-out in order to exercise reasonable skill, care and diligence. For this reason, the Service Provider must ensure that key and support personnel that performs any identified engineering work in a particular engineering discipline must, in addition to any other requirement contemplated in the Engineering Profession Act:

- *be suitably qualified;*
- *be registered by ECSA in the appropriate category applicable to the level of service performed; and*
- *possess the necessary core competency in the competency areas referred to in this item to perform such core service as a professional engineer, professional engineering technologist, or a specified category practitioner.*

It's imperative that the Service Provider Safeguards the Employer against potential losses and ensure that their staff possess the core competencies required for a complex project of this nature and appropriately experienced and qualified personnel are assigned to this project to deal with project complexities at any stage of the project and for the duration of the project.

*The tenderers are to take cognisance of the following elements highlighting the **complexity** of this project. These are just key highlights, and the Service Provider is expected to thoroughly understand the project's complexities to effectively address any challenges:*

7.1 Nature of ground and subsoil conditions

a) <u>General</u>

Reservoir - The geotechnical and materials investigations carried out during 2017 and June 2022 indicated that the ground profile within the reservoir footprint generally comprises an upper layer of topsoil and transported materials, with some occurrences of pedogenic materials, which are underlain by residual horizons, generally comprising sandy or silty clays, which have weathered from the underlying shale, siltstone and granite-gneiss bedrock. The residual material is in turn underlain by very soft to soft rock, and medium hard rock to a lesser extent where the depth to bedrock varies across the site. The site has highly variable ground conditions with a deeply weathered profile. Groundwater levels are also highly variable across the site and were encountered at depths between 0.5m and 9.6m. The residual materials have varying degree of expansive potential.

Pipelines - Excavations across the majority of the pipeline routes are expected to be soft excavations. The very soft and soft bedrocks is deemed to be excavatable by heavy equipment or plant, or by ripping. However, isolated sections of boulder excavations and hard rock excavations can be expected. The test pits sidewalls were encountered to be generally stable on the stiff to very stiff residual soils to depths of up to 5m. However, in the loose to medium dense transported soils, the very loose to loose gravelly pedogenic materials and the soft to firm residual soils in the upper horizons were susceptible to instability owing to their low in-situ consistency. In these sections, the stability of excavations during construction may be compromised and shoring or battering of excavations may be required. Where gravel, ferricrete nodules and groundwater ingress are encountered, further slope battering, or shoring may also be required.

Excavations during construction are likely to experience groundwater ingress especially during the rainy season, which will require dewatering.

b) <u>Materials investigation</u>

The majority of materials encountered along the pipeline routes and across the reservoir site in general are classified as having quality poorer than G9 according to COLTO guidelines. The materials are classified as unsuitable for use in engineered fill or pipeline construction. In general, the embankment fill material and pipeline bedding material will be imported from commercial sources.

c) <u>Disclaimer</u>

The information regarding the subsurface conditions and materials on site is provided in good faith for the Service Provider's convenience as an indication of the conditions likely to be encountered. No responsibility will be accepted for, and there is no guarantee of, the information being representative of the whole area of the Works or of the various materials encountered.

The provision of such information shall not be regarded as in any way limiting, or detracting from the Service Provider's responsibilities. The Service Provider will be held to have satisfied himself as to the subsurface conditions to be encountered on site and to have allowed accordingly in his pricing.
A factual geotechnical investigation report is available for review.

7.2 Operations Requiring Special Attention

7.2.1 Connections to existing Wemmershoek pipeline

Two connections between the existing Wemmershoek pipeline and Muldersvlei reservoir pipelines are required to link the new reservoir to the CCT bulk water network. These connections are located within the median between the east bound and west bound carriageways of the N1 and will involve amongst other things, pipe jacking, traffic accommodation and temporary lateral support within a confined area.

The maximum shutdown period for the existing Wemmershoek pipeline is 48 hours per connection. The pipeline will be isolated at the Wemmershoek treatment works and shall be suitably drained before commencement of the connection.

The Service Provider will be responsible for obtaining prior approval for any planned shutdown from the operations manager of the Bulk Water Directorate for the City of Cape Town Water and Sanitation department, as well as the planning for construction wayleaves and traffic accommodation approvals required from SANRAL.

7.2.2 Reservoir bulk earthworks

(a) Embankment Stability

The stability of the cut and fill embankments is a critical consideration during construction. The Service Provider shall exercise due care to execute the design objectives for embankment stability to avoid potential disasters during construction. The Service Provider shall take due cognisance of embankment stability during the construction of the cut and fill embankments, which requirements are in accordance with the geotechnical design:

- *The construction rate for raising the embankments is limited as specified in clause 7.3.1. The stability of the embankments relies on controlling excess pore pressure build-up within the in-situ materials. It's crucial to manage the rate at which the embankment height increases to facilitate the dissipation of excess pore pressures. Raising the embankment too quickly can lead to embankment instability.*
- *The northern cut slope is expected to be unstable, and must be stabilised and dewatered. See clause 7.2.3 for details on the slope stabilisation required.*
- *Both surface and groundwater management are required during the construction to maintain the stability of the embankments. Continuous dewatering will be required, especially for the excavation of the cut face.*
- *Monitoring of excess pore pressures within the embankment and in-situ founding material is required during construction. Piezometers shall be installed and monitored to ensure that maximum excess pore pressure limits, defined per material lift height, are not exceeded.*

(b) Materials of Construction

The in-situ material present at the reservoir site is deemed unsuitable for constructing the reservoir embankments. Therefore, imported material meeting the quality standards outlined in SANS 1200 DE and its applicable amendments, and references, is required for the embankment construction.

The embankments of the reservoir comprise various zones with specified grading curve envelopes which are crucial for managing water flow, particle flow and stability. These zones' grading curves are interdependent i.e., changing the grading of one zone will impact the required grading for all the other zones. It is noted that these fill zones also interface with the in-situ material and are therefore also interdependent with it.

Zone G7 constitutes the bulk of the reservoir embankment fill material. The material quality for Zone G7* is derived from that of a standard G7 material as specified in SANS 1200 M, but with a narrower envelope specified for the material grading (refer to SANS 1200 DE and its amendments). The Service Provider shall take cognisance of the grading requirements of the G7* material, including the time implications associated with obtaining such volume of material from commercial sources.*

7.2.3 Cut slope embankment stabilisation

The reservoir's cut slope necessitates over-excavation to facilitate the installation of higher-quality material and ground water drainage features, ensuring the embankment's long-term stability. Lateral support, comprising soil nails, shotcrete, and drainage features, is essential to stabilize the cut slopes. In addition to stabilise the cut slope, the soil nails are also necessary post-fill placement to ensure embankment stability during crane loading for the precast roof element installation.

The final geometry of the northern cut slope, is engineered for long-term reservoir stability, with lateral support designed to preserve this shape.

Once the construction of the reservoir is completed, the soil nails are not required for the long-term stability of the reservoir and does not have to be maintained.

7.3 Planning and Programming

The Service Provider shall carefully manage the planning and programming the following critical elements during construction:

7.3.1 Embankment construction

To ensure embankment stability, a minimum duration is required for the construction and consolidation of embankments. Stability is predominantly influenced by the management of excess pore pressure within the in-situ materials. The following minimum total consolidation times are required:

- *Northern, Eastern, and Western Embankments: 280 days*
- *Southern Fill Embankment: 210 days*

In accordance with these consolidation times, the rate of embankment fill placement must not exceed the following specified limits:

For Southern Embankment:

- *Up to 181.7 mamsl: 2 days per meter increase in embankment height*
- *Over 181.7 mamsl and up to the full embankment height: 14 days per meter increase in embankment height*

For Northern, Eastern and Western Embankments:

- *Up to 181.7 mamsl: 2 days per meter increase in embankment height*
- *Over 181.7 mamsl up to 186.7 mamsl: 5 days per meter increase in embankment height*
- *Over 186.7 mamsl and up to 189.7 mamsl: 25 days per meter increase in embankment height*
- *Over 189.7 mamsl and up to the full embankment height: 45 days per meter increase in embankment height*

Adherence to these construction rates are mandatory for each meter of embankment height increase. Monitoring of the maximum construction rates specified above shall occur after each meter increase in embankment height, ensuring compliance. If the specified rate is exceeded when placing the layer, the Contractor may proceed with embankment construction of the next layer only after the required duration for the previous one meter layer has elapsed.

7.3.2 Licence to Impound

A Licence to Impound is required from the Department of Water and Sanitation: Dam Safety Office before the first filling of the reservoir can commence. The Contractor must formally notify the Employer's Agent of their intention to commence first filling at least 90 days prior to the intended first filling date. At the same time as notifying the Employer's Agent, the Contractor must submit all relevant data, construction records, and related details required for the Employer's Agent/Approved Professional Person to prepare the relevant licence application. The licence application must be submitted at least 60 days prior to the intended first filling date. Delays caused due to the Contractor's failure to notify the Employer's Agent in time, or to provide the required information at least 90 days in advance of the first filling date, will be for the Contractor's account.

Relevant data that must be submitted for the licence application includes, but are not limited to:

- *All as built information, including: levels, dimensions, construction quality test results of the reservoir fill, concrete structures, electrical and mechanical works and the appurtenant structures.*
- *Where works are not yet complete, the intended date of completion of those parts of the works, as well as any intended deviations from the design.*
- *As built information, coordinates and all readings of the monitoring instruments.*
- *Planned date on which the outlet valves are closed and inflow of water to the basin is commenced (i.e. commencement of first filling, be it full or partial filling).*
- *Name and address of person/s responsible for taking monitoring instrument readings during first filling.*
- *Construction progress report with an indication of work that has not yet been completed.*
- *Control programme for the first filling period until the reservoir reaches 100% of its full storage capacity and the assumptions on which it is based.*

a) 7.3.4 Reservoir watertightness testing

The following conditions shall apply to the first filling and subsequent watertightness testing of the reservoir:

- *The Department of Water and Sanitation: Dam Safety Office must issue the Licence to Impound (refer to C7.3.2).*
- *All concrete works of the reservoir, including precast elements, must be completed, tested, and approved by the Employer's Agent.*
- *The reservoir shall be disinfected in accordance with the specifications (refer to SANS 1200 G and its amendments).*
- *The reservoir overflow and scour systems shall be fully operational, including the completion of the associated downstream infrastructure (e.g. energy dissipation structure, stormwater ponds, overflows, etc.).*
- *The reservoir shall be filled via the DN1600 incoming pipeline. Accordingly, the completion and testing of the DN1600 incoming pipeline and its associated valves are also prerequisites before initiating the initial filling.*
- *The Contractor must note that the reservoir will be filled from the existing Wemmershoek bulk water pipeline. To safeguard the City of Cape Town's capacity to meet other demands on the bulk distribution network, the Employer reserves the right to limit the flow rate to 20 Mℓ/d. This minimum flow should be read in conjunction with the maximum permissible filling rate stipulated in SANS1200G.*
- *Upon completion of the reservoir filling, a stabilisation period as specified in SANS 1200 G shall be allowed before commencing with the actual watertightness test.*
- *The disinfection facility must be sufficiently completed to enable outlet dosing once the reservoir's watertightness testing is completed. This ensures that water can be disinfected after remaining stagnant in the reservoir during the water tightness testing phase.*

7.3.5 Trail and Operation Period

The trail and operation period of the disinfection facility shall only commence once the watertightness testing of the reservoir is successfully completed.

7.4 Method Statements

The Service Provider shall review and evaluate method statements prepared by the Contractor. Method Statements will be required in terms of the Health and Safety or Environmental regulations or specifications, the Contractor shall submit within 2 weeks (14 days) of date of such written request or otherwise at least 2 weeks (14 days) prior to when the particular activity is planned to commence, whichever time is the soonest, a method statement detailing the Contractor's proposed construction procedure of certain elements of the Works.

No work shall commence before the method statement has been submitted and approved."

Method statement shall typically be required for the following:

- *Temporary works and designs (e.g. accommodation of traffic, accommodation of flows, access to existing properties, dealing with existing services, dealing with groundwater and stormwater, shoring, formwork, staging).*
- *Tie-inns and connections to existing pipelines (e.g. Wemmershoek pipeline) and structures*
- *In-situ, precast and prestressed concrete and structural steel (e.g. sampling and testing, construction methods, storage, curing, transporting and placement)*
- *Earthworks (excavation, selection, sampling and testing, stabilised fill, spoil, etc.)*
- *Roadworks (box cutting, layerworks, stabilisation, basecourse, asphalting, etc.)*
- *Pipelines, fittings, valves, etc. (e.g. pipe laying, field welding, corrosion protection, AC mitigation, pipe jacking, testing)*
- *Mechanical and electrical plant, instrumentation, automation, communication, etc. (e.g. design and approvals, sampling, testing)*
- *For service authorities and associated wayleave applications, if required.*

7.5 Dam Safety

The dam safety considerations were undertaken in terms of the requirements of the following legislation:

- *National Water Act No 36 of 1998 (NWA)*
- *Regulations Regarding the Safety of Dams (hereinafter referred to as the Regulations), as published under Government Notice No R. 139 in Government Gazette 35062 of 24 February 2012, in terms of section 123(1) of the NWA.*

7.5.1 Hazard Potential and Risk

7.5.1.1 Consequence of failure and risk assessment

Should a dam break occur, all flow will discharge to the southeast into a tributary at the upper reaches of the Mosselbankrivier. There are fields, households, and farms located directly adjacent to the Mosselbankrivier which may also be inundated. It appears that a number of these are located well above this river's 1:100-year floodline which the dam break flood is not expected to exceed.

- *The population at risk from a dam failure is estimated at less than 30 and includes local residents, farm labourers, and road users. The estimated risk of loss of life is less than 5 lives.*
- *Direct economic loss is expected to be in the order of R 10 – 15 million.*
- *The potential adverse impact on the resource quality is insignificantly low.*

Accordingly, the dam has been classified as a Medium sized dam with a Significant Hazard, qualifying it as a Category II dam.

7.5.1.2 Safety of existing development

The site is a greenfield site with no significant development in the nearby vicinity. The proposed reservoir basin of the dam will not adversely affect major upstream developments regarding inundation or submergence. The reservoir consists of a basin which is entirely enclosed and is created by effectively excavating a pit in the local terrain.

The river channel downstream of the reservoir crosses under the regional R304 road through a culvert. The Flood Risk Assessment Report (Zutari, 2024) showed that the culvert is capable of passing the 3 m3/s flood from the dam's spillway and it is smaller than the peak of the 1:5 year recurrence interval flood for the catchment. Phase 1 of the development will therefore not impact on the downstream R304 crossing.

Downstream of the road crossing, the stream enters an existing small unregistered dam. The dam has an estimated capacity of 182 000 m3 and wall height of ~5 m. The floods from the existing dam's catchment were therefore assessed as if it were classified as a Category I dam, and found to exceed the dam's spillway capacity. The spillway of the dam is able to pass the Phase 1 Muldersvlei development discharge from the reservoir, which is 3 m^3/s. However, at the time of the Muldersvlei Phase 2 implementation additional impacts to the downstream developments could be realised and would need to be assessed at the time of implementation.

7.5.1.3 Occupational health and safety

All spaces intended for regular access by personnel would be fitted with railings, barriers, lighting, ventilation or similar. The gallery would be fitted with passive ventilation pipes to prevent the development of stagnant or stale air pockets. That being said, standard confined space protocols must still be used to access the galleries.

The dam is located on private property and access thereto will be controlled, to prevent members of the public or unauthorised personnel from accessing the dam or its reservoir.

Appropriate warning signs informing personnel of possible dangers will be displayed prominently.

There is ample cell phone signal at the dam site in case of emergencies.

7.5.1.4 Classification

The classification document, in terms of the Dam Safety Regulations (Government Notice R139) of Muldersvlei Reservoir, is dated 12 October 2016. The classification from the Department of Water and Sanitation: Dam Safety Office (DSO) is contained in Appendix 7A of Volume 7 of the design report.

The classification of the dam is as follows:

- *Registration number : 12/2/ G202/BJ*
- *Maximum wall height : 18 m*
- *Storage capacity : 300 000 m^3*
- *Size : Medium*
- *Hazard potential rating Significant : Category II*

7.5.2 Approved Professional Person (APP)

As part of the design and quality control (during construction) an Approved Professional Person (APP) must be appointed for the tasks, as specified in the Dam Safety Regulations. The services required from an APP for Category II dams are as follows:

- *Approve the design of a new dam,*
- *Ensure that an up-to-date set of as-built drawings are compiled,*
- *Issue a completion certificate and compile a construction completion report with up-to-date information,*
- *Compile an operation and maintenance manual and emergency preparedness plan for the dam.*

7.5.3 Licence to construct

In terms of the regulations as above a licence to construct must be obtained from the DSO before construction of the dam may commence. Part of this application is a design report; to this end Volume 7: Dam Report has been compiled. Along with the design report, the following must be submitted as part of the application:

- *Form DW695, application for the licence to construct a dam with a safety risk*
- *Document number 1001757-000-REP-JJ-0004, Revision number C, Date 2025/03/12 63*
- *Specifications for the construction*
- *Detailed engineering design drawings for the dam and its appurtenant works*

7.5.4 Licence to impound

Towards the end of the construction period, but before first filling (which includes the watertightness testing), a licence to impound must be obtained from the DSO. As part of this application for this licence, the following must be submitted:

- *Application form DW696*
- *Information in regulation 26, which includes an Operation and Maintenance Manual (O&MM)and emergency preparedness plan (EPP)*

7.6 Environmental Authorisation (EA)

EA for the project was applied for and granted on 30 January 2013 stating that the EA was valid for a period of 10 years from the date of issue. An Appeal was lodged in terms of Section 43 of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) and the Appeal was granted in favour of the applicant City of Cape Town and signed on 16 September 2013. The end date for the EA was changed to 16 September 2023.

Zutari was appointed on the project in 2021. A number of amendments to the existing EA were required and after engagement with the DEA&DP the amendments were divided on whether they could be applied under a Part 1 or Part 2 Amendment Application. The first set of amendments included the application for an extension to the EA to allow time for the necessary detailed design to be undertaken.

The second amendment was to apply to change the requirement for "all" activities to commence by the end date. It was argued that it will be not be possible to start all listed activities due to the phased nature of the project. The first set of amendments also included the amendment to the boundaries of the reservoir, and two amendments to the incoming DN1600 pipeline route corridor. These amendments formed the first part of the environmental scope of work for Zutari. The environmental process for these amendments entailed a Part 1 Amendment Application to the existing EA. The DEA&DP granted the amendment on 8 February 2023.

Once the above amendments were completed, Zutari moved onto the second set of amendments. This involved a Part 2 Amendment Application to the existing EA to allow for changes that were necessary in the alignment of the access road and the relocation of an existing pipeline in the footprint of the reservoir. The EA was granted on 12 June 2023. Additionally, a Water Use License (WUL) for Phase 1 of the Muldersvlei component was applied for and authorisation was granted on 25 August 2023.

7.6.1 Water Use License Authorisations (WULA)

A WUL for Phase 1 was approved by DWS, dated 25 August 2023 (WARMS Certificate received 12 October 2023). The WUL covers the storage of water in the reservoir, and the crossing of wetlands and rivers with roads and pipelines.

7.7 HAZOP Study

From the 22nd to 23rd of May 2023, the designs of the Muldersvlei 300Mℓ Reservoir and a disinfection facility were subjected to a Hazards and Operability (HAZOP) study which was attended by City of Cape Town Bulk Water branch (including Operations and Projects), Zutari (designers).

The HAZOP study, which is part of the design stage, was facilitated by one of Zutari's engineering professionals who was not involved in the project.

It's of paramount importance that the Service Provider familiarise themselves with Muldersvlei Reservoir and Disinfection Facility's Hazard and Operability Study Report, dated 1 June 2023.

7.8 Risk Assessment

The purpose of this Project Risk Management Plan is to describe the project risk management system and supporting procedures to be applied by the City of Cape Town and Zutari during the design and construction of the reservoir and associated infrastructure to effectively identify and manage risk.

As such, it will guide and convey overall requirements of the Project Risk Management Plan (PRMP) to project management, execution contractors and other stakeholders. It is not intended to remove all risk to the project, but to identify risks that may materially affect the project's objectives and transparently manage them to maximise project outcomes. Success requires the implementation of a clear risk management strategy supported by adequate resources and a strong risk-aware culture.It's imperative that the Service Provider familiarise themselves with the content of Risk Management Plan, dated 1 November 2023.

d) *On page 80 of the tender document, Part C3: Scope of Work under "Sub-section 14.4 – Specialist Services - General" insert the following new sub-clause:*

"k) Process Engineers (Chemical Engineering Services) Activity Schedule Item numbers 5.6.1 to 5.6.3: *The required personnel must be a qualified Chemical or Process Engineer with verifiable experience in the analyses, design as well as commissioning of on-site generation (OSEC) sodium hypochlorite plants. The Chemical or Process Engineer shall have hands-on experience with electrolytic chlorination plants, knowledge of safety protocols for handling hazardous materials and strong problem abilities as well as analytical thinking to optimise processes and resolve technical challenges."*