RAND WATER	**REQUEST FOR QUOTATION** **CIDB**	Form No: RW SCM 00019 F Revision No: 05 Effective Date: 12 June 2024

BID NUMBER:	10415866 R	**CLOSING DATE:**	27 February 2026	**CLOSING TIME:**	16:00pm
DESCRIPTION:	**Request for quotation for Construction of Shelter for New Back-Up Generator at Rand Water Head Office**				
NON-COMPULSORY **BRIEFING SESSION DATE AND TIME**	N/A	**BRIEFING SESSION VENUE**	N/A		
ISSUE DATE	12 February 2026				

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			
BUYER		**SOURCING MANAGER**	
CONTACT PERSON	Khutso Ramafalo	**CONTACT PERSON**	Ntikane Radebe
TELEPHONE NUMBER	SCM is currently not available on landline number Since to COVID -19. Please submit correspondence via email.	**TELEPHONE NUMBER**	SCM is currently not available on landline number Since to COVID -19. Please submit correspondence via email.
E-MAIL ADDRESS	kramafal@randwater.co.za	**E-MAIL ADDRESS**	nradebe@randwater.co.za

SUPPLIER INFORMATION				
SUPPLIER ENTITY NAME				
POSTAL ADDRESS				
STREET ADDRESS				
TELEPHONE NUMBER	**CODE**		**NUMBER**	
CELLPHONE NUMBER				
E-MAIL ADDRESS 1				
E-MAIL ADDRESS 2				
VAT REGISTRATION NUMBER		**CIDB GRADING**		
SUPPLIER COMPLIANCE STATUS	**TAX COMPLIANCE SYSTEM PIN:**	**CENTRAL SUPPLIER DATABASE No:**	MAAA_____	
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	[TICK APPLICABLE BOX] ☐Yes ☐No	**B-BBEE STATUS LEVEL SWORN AFFIDAVIT** (EMEs and QSEs)	[TICK APPLICABLE BOX] ☐Yes ☐No	

BID SUBMISSION:

a. Submissions must be made by the stipulated date and time to the Rand Water website Rand Water Online Bids Application or https://bids.randwater.co.za/. Late submissions will not be accepted for consideration.

b. **All submissions must be made on the official forms provided (not to be re-typed) or in the manner prescribed in the bid document.**

c. **Fully complete and sign Form of Offer**

d. No submissions will be considered from persons in the service of the state, companies with directors who are persons in the service of the state, or close corporations with members / persons in the service of the state.

*e. Rand Water will provide any clarifications / addenda / extension of closing date by no later than **three (3)** calendar days before the closing date.*

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SECTION A: BID

PART T1: BIDDING PROCEDURES

T1.1. BID NOTICE AND INVITATION TO BID

Rand Water invites bids for the Construction of shelter for new back-up generator at Rand Water Head Office **The technical requirements for the equipment are fully stated in the bid documentation.** **Potentially emerging or other enterprises that satisfy criteria stated in the Bid Data portion of the document may submit their bid offers.**	
Minimum Contractor CIDB Grading Required	**It is estimated that tenderers must have a CIDB contractor grading designation of ….2SL.. or higher**
Contracting Strategy	**Develop and Construct**
Classification	**Complex work**
Procurement Procedure	Rand Water uses a single volume approach.
Awarding Strategy	The maximum number of suppliers to be awarded this bid is 1. *Where the award is made to more than one supplier, Rand Water shall negotiate with the highest ranking pre-determined number of suppliers in order to normalise the prices, prior to award*
Bid Submission	Bids must be submitted by the stipulated date and time on On-Line Bid Submission Systems. RFQ's submitted on e-mail will not be considered. Rand Water Online Bids Application or https://bids.randwater.co.za/
Bid Validity	Validity period of not more than 12 weeks is required from closing date of this RFQ. Rand Water reserves the right to extend the validity period for a period reasonable for business requirements.
Subcontracting	Where CIDB related works are subcontracted, each Subcontractor must also be registered with the appropriate CIDB grading Designations in accordance with the value of the work to be undertaken by that Subcontractor.
Rotation of Suppliers	In the spirit of providing equal opportunities to potential suppliers and in view of not supporting monopolies, Rand Water shall apply rotation of suppliers to ensure equitable share in Rand Water's awarded contracts.

T1.2. BID DATA

The conditions of this bid are the Standard Conditions of Tender as contained in the document *CIDB Standard for Uniformity in Engineering and Construction Works Contracts (August 2019) Annexure C* and may be obtained from the CIDB.

The Standard Conditions of Tender for Procurement make several references to the Bid Data for details that apply specifically to this bid. The Bid Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender.

Each item of data given below is cross-referenced to the Clause in the CIDB Standard Conditions of Tender to which it mainly applies.

CLAUSE NUMBER (CIDB)	BID DATA
C.1.1	The Employer is Rand Water.
C.1.2	The bid documents issued by the Employer are detailed on the contents page of this bid document.
C.1.4	The Employer's Representative/s is stated on the cover page of this bid document.
C.1.6.3	The Employer shall evaluate this bid in accordance with the evaluation criteria stated in this bid.
C.2.1	*Only those Bidders 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 **2SL** **or higher** class of construction work, are eligible to have their tenders evaluated.* *Joint ventures are eligible to submit bids provided that:* 1. *every member of the joint venture is registered with the cidb;* 2. *the lead partner has a contractor grading designation in the **2SL** class of construction work; or not lower than one level below the required grading designation in the class of works construction works under considerations and possess the required recognition status.* 3. *the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a or **2SL** class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.*
C.2.7	The arrangement for a non-compulsory site meeting (where applicable) is as stated in the Notice and Invitation to Bid.
C.2.8	The due date for seeking clarification is as stated in the Bid Notice and Invitation to Bid.
C.2.12	In addition to the information appearing in C2.12 of the CIDB Standard Conditions of Tender, the following statements shall apply: • Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative bid offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals.

	• Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. • Pricing Data must reflect all assumptions in the development of the pricing proposal. • *The pricing of the alternative bid offer may not exceed the pricing of the main bid offer.* Acceptance of an alternative bid offer will mean acceptance in principle of the offer. In the event that the alternative bid offer is accepted, it will be a contractual obligation for the Bidder to accept full responsibility and liability that the alternative bid offer complies in all respects with the Employer's standards and requirements.
C.2.13.5	Bidders must submit ***one (1)*** copy of the bid document and returnables.
C.2.13.9	Bid submission must only be submitted on On-Line Bid Submission Systems.
C.2.15	The closing time for submission of bid offers is as stated in the Bid Notice and Invitation to Bid.
C.2.16	The bid offer validity period is as stated in the Bid Notice and Invitation to Bid. *No bid substitutions will be allowed after the closing date and time.*
C.2.23	See 2.1 List of Returnable Documents for a comprehensive list of certificates and additional documents required for submission with this bid.
C.3.4	Rand Water will make available the names, prices and preference points for submissions to interested parties who make request for such information, at least one (1) week after the closing date. *(CIDB Best Practice Guideline #A3 Evaluation tenders offers, February 2008)*
C.3.11	*Rand Water's evaluation process comprises of the following steps. Specific criteria to be utilised for this bid are contained in T1.3 Evaluation Criteria* a) ***Test for Responsiveness*** **/ Pre-qualification** *Refer to the criteria as stated in T1.3 of this bid document. All test for responsiveness must be met in order for the bid submission to be considered further.* ***b) Functionality evaluation*** *Refer to the criteria as stated in T1.3 of this bid document. A minimum score of 70 points must be obtained for the bid submission to be considered further.* ***c)*** **Price** **i. Price Analysis** Rand Water uses a Financial Tolerance Range in order to assess how reasonable the market response prices are. These ranges will assist with eliminating bid prices that are deemed to be excessively high or low to complete the works. The higher limit ensures that Rand Water does not pay more that it believes the value of service or goods is worth, and the lower limit ensures that Rand Water is not exposed to risk of work not being completed or prices increasing subsequent to the award because the award price was too low to complete said scope. **ii. Specific goals**

WHERE PROCUREMENT VALUE IS R0 < R50 000 000 (INCL. VAT):

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

The following table will be used to calculate the score out of 20 for BBBEE:

B-BBEE Status Level of Contributor	Number of Points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

Where:

Ps = Points scored for comparative price of bid or offer under consideration

Pt = Comparative price of bid or offer under consideration

Pmin = Comparative price of lowest acceptable bid or offer.

Rand Water does not bind itself to accept the bid with the lowest price

BBBEE STATUS (P_P = 20 maximum)

Quantification of procurement contribution to B-BBEE

Points will 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 point (80/20 system)
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

Bidders will not be disqualified from the bidding process for not submitting a certificate substantiating the B-BBEE status level of contribution or is a non-compliant contributor. ***Such a bidder will score zero (0) out of maximum of 10 for B-BBEE***

	d) Objective Criteria *Refer to the criteria as stated in T1.3 Evaluation Criteria of this bid document.* A bid must be awarded to the bidder who scored the highest total number of points in terms of the preference point systems (price and B-BBEE points), unless objective criteria in terms of section 2(1)(f) of the Act justify the award of the bid to another bidder. **SUMMARY** The total number of functionality/ quality (P_F) shall be the sum total of the product of quality criteria by weight allocated. The total number of adjudication points (P_T) shall equal the sum of the bid price points (Ps) and the BBBEE status points (P_P) i.e. **$P_T = P_S + P_P$** **Rand Water does not bind itself to accept the bid with the highest number of adjudication points.**
C.3.17	The number of paper copies of the signed contract to be provided by the Employer is 1 (one).

T1.3. EVALUATION CRITERIA

T1.3.1. TEST FOR RESPONSIVENESS/ PRE-QUALIFICATION

1. Letter of Good Standing from the Department of Labour or an Accredited Institution.

2. 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 2SLor higher.*. class of construction work, are eligible to have their tenders evaluated.

3. Fully complete and sign Form of offer and Acceptance.

4. Two completion certificates with contactable references on previous work done of similar nature.

T1.3.2. FUNCTIONALITY EVALUATION

Bid submissions will be evaluated on the criteria outlined in items (A-D) below. Each Item (A to D) has an assigned “Weight” and “Rating” scale. During the evaluation process, Bidders shall be assigned a “Rating” for each item in A to D.

The maximum “Score” that a Bidder can achieve will be equal to the “Weight” for a particular item. The Total Scores of each functionality criterion will be multiplied by its weight and then the total score summed up to a total score out of 100.

A detailed description of the “Rating” scales and associated adjudication documentation are as follows:

	***FUNCTIONALITY* CRITERIA**	**WEIGHT**
1.	**Previous Related Experience** **(**Similar to current RFQ Scope/Work) The rating of this item is based on a four-point scale: • None = 0 % - No submission • Weak = 33.3% - 1 Company reference • Moderate = 66.7% - 2 Company references • Good = 100% - 3 Company references	25
2.	**Human Resource Capacity** Adjudicated based on Human Resource Capacity Schedule required for the execution of the scope of work. The purpose is to establish an overall picture of the company's human resource capacity and ability to undertake the work. The rating of this item is based on a four-point scale: 1. None = 0 % - No submission 2. Weak = 33.3% - Company organogram not reflecting the resource needs for the scope of work 3. Moderate = 66.7% - Company organogram partially addressing the resource needs for the scope of work	25

	***FUNCTIONALITY* CRITERIA**	**WEIGHT**
	4. Good = 100% - Company organogram adequately addressing the resource needs for the scope of work.	
3.	**Equipment Resource Capacity** Adjudicated based on Equipment Resource Capacity (Plant, Equipment, vehicles, computers, software's etc.) The purpose is to establish an overall picture of the company's equipment resource capacity and ability to undertake the work and will therefore be services/goods specific. The rating of this item is based on a four-point scale: 5. None = 0 % - No submission 6. Weak = 33.3% - Minimal capacity in relation to the scope **7.** Moderate = 66.7% - Capacity meets the scope requirements with some gaps 8. Good = 100% - Capacity meets the scope requirements.	25
4.	**Work Breakdown / Schedule / Project Programme** Aligned with Contractual requirements, credible and acceptable The rating of this item is based on a four-point scale: 9. None = 0 % - No submission 10. Weak = 33.3% - The work breakdown/ schedule / project programme is submitted but is unclear. **11.** Moderate = 66.7% - The work breakdown/ schedule / project programme is submitted and has some indication of the duration. **12.** Good = 100% - The work breakdown/ schedule / project programme is submitted and has a clear indication of the duration and delivery date.	25
TOTAL		**100**

*Responses are required to meet a **minimum of 70 percent** to be further evaluated.*

T1.3.3. PREFERENCE POINT SYSTEM

The (80/20) Preferential Point System will be used to evaluate price and preference on this quotation.

PART T2: RETURNABLE DOCUMENTS

T2.1. LIST OF RETURNABLE DOCUMENTS

1.1.1.1. All documentation listed in table T2.1 below shall form part of the Contract. *The Bidder must utilise this list as a checklist prior to bid submission.*

1.1.1.2. Non-submission of any item listed only under the column "Required for Bid Evaluation" may result in the bid being rejected by the Employer.

1.1.1.3. Attach additional pages if more space is required.

Table T2.1 List of Returnable Documents

ITEM	DESCRIPTION OF DOCUMENT TO BE RETURNED	REQUIRED FOR BID EVALUATION	ONLY REQUIRED AFTER BID AWARD
T2	**Returnable schedules** (supplied with the bid document)		
T2.2.1	Compulsory Enterprise Questionnaire including SBD 4	•	
T2.2.2	Record of Addenda to RFQ Documents	•	
T2.2.3	Proposed Subcontractors	•	
T2.2.4	Alternative Bid	•	
T2.2.5	Qualifications to Bid	•	
T2.2.6	Requirements with regard to fluctuations in the cost of labour and materials	•	
T2.2.7	FOB Prices of imported equipment/materials for which foreign exchange would be required and importing charges	•	
T2.2.8	Record of Previous Experience, Quality of Workmanship and Safety	•	
T2.2.9	Human Resource Capacity Schedule	•	
T2.2.10	Equipment Resource Capacity (Plant and Equipment)	•	
C1.1	Letter of Bid (Form of Offer and Acceptance)	•	
C1.2	Contract Agreement		•
C2.2	Pricing Schedule / Bill of Quantities (BoQ) **The Bidder is required to submit the following:** **1 Printed format and signed version of the completed pricing schedule or BoQ.**	•	
C3.1	Dates for Delivery and Completion ***NOTE: A DETAILED PROJECT PROGRAMME MUST BE INCLUDED WITH THE BID SUBMISSION***	•	
R 1	**Required documentation not issued with the bid document:**		
R 1.1	Certificate of Contractor Registration issued by CIDB OR A copy of the application form for registration in terms of the CIDB Act	•	

ITEM	DESCRIPTION OF DOCUMENT TO BE RETURNED	REQUIRED FOR BID EVALUATION	ONLY REQUIRED AFTER BID AWARD
R 1.2	Prof of tax compliance status and a valid SARS Tax PIN	•	
R 1.3	Letter of Good Standing from the Department of Labour or an Accredited Institution	•	
R 1.4	Resolution Letter for the Main Contractor (a letter authorising the person completing the bid to sign on behalf of the company)	•	
R 1.5	Resolution Letter for the Subcontractor/s (a letter authorising the person completing the bid to sign on behalf of the company)	•	
R 1.6	Subcontracting Agreement	•	
R 1.7	Certified copy of B-BBEE Certificate or Certified copy of Sworn Affidavit for EMEs or QSEs. *The DTIC B-BBEE Certificate* **No acceptance of IRBA (Independent Regulatory Board for Auditors) BBBEE Certificate.**	•	
R 1.8	Main Contractor's internal Safety and Health Policy and Project Specific SHE Plan (compliance with the project specific SHE specification)		•
R 1.9	Comprehensive SHERQ Plan (compliance with SHERQ Specification, including written agreement on Safety, Health and Environmental matters and all documents required for SHERQ compliance		•
R1.10	Contractors tools and Equipment Inventory		•
R 1.11	Staff list		•
R1.12	Site Clearance Certificate		•
R1.13	Job Creation Report/Statistics (To be submitted Monthly)		•
R1.14	ISO 9001 Certification /proof of In-house Quality Management System (must include proof of a Document Control System and proof of a Non-conformity Management System) including Sample/template of Quality Control Plan and appointment of Quality Representative		•
R1.15	Detailed Project Programme in the following: **1)** Gantt Chart Format **2)** Level 2 schedule activities **3)** Credible and Aligned to Rand Water's Programme **4)** Resource loaded schedule Monthly cash flows, project to completion.	•	

T2.2. RETURNABLE SCHEDULES

T2.2.1. COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:	
Section 2: VAT registration number, if any:	
Section 3: CIDB registration number, if any:	
Section 4: CSD Number:	

Section 5: Particulars of sole proprietors and partners in partnerships:

Name *	Identity Number *	Personal income tax number *

* Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 6: Particulars of companies and close corporations

Company registration Number:	
Close Corporation number:	
Tax reference number:	

Section 7: SBD 4 issued by National Treasury must be completed for this bid.

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

- authorizes the employer to verify the Bidders tax clearance status from the South African Revenue Services that it is in order;
- confirms that the neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
- confirms that I / we are not associated, linked or involved with any other bidding entities submitting bid offers and have no other relationship with any of the Bidders or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

SBD 4

BIDDER'S DISCLOSURE

- **PURPOSE OF THE FORM**

  Any person (natural or juristic) may make an offer or offers in terms of this invitation to bid. In line with the principles of transparency, accountability, impartiality, and ethics as enshrined in the Constitution of the Republic of South Africa and further expressed in various pieces of legislation, it is required for the bidder to make this declaration in respect of the details required hereunder.

  Where a person/s are listed in the Register for Tender Defaulters and / or the List of Restricted Suppliers, that person will automatically be disqualified from the bid process.

• Bidder's declaration

2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest[1] in the enterprise,
employed by the state? **YES/NO**

2.1.1 If so, furnish particulars of the names, individual identity numbers, and, if applicable, state employee numbers of sole proprietor/ directors / trustees / shareholders / members/ partners or any person having a controlling interest in the enterprise, in table below.

Full Name	Identity Number	Name of State institution

2.2 Do you, or any person connected with the bidder, have a relationship with any person who is employed by the procuring institution? **YES/NO**

2.2.1 If so, furnish particulars:

……

……

[1] the power, by one person or a group of persons holding the majority of the equity of an enterprise, alternatively, the person/s having the deciding vote or power to influence or to direct the course and decisions of the enterprise.

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract?

YES/NO

- If so, furnish particulars:

…….
…….

- **DECLARATION**

I, the undersigned, (name)……. in submitting the accompanying bid, do hereby make the following statements that I certify to be true and complete in every respect:

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium[2] will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

○ I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.

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

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

…… ……

Signature Date

…… ……

Position Name of bidder

T2.2.2. RECORD OF ADDENDA TO BID DOCUMENT

We acknowledge receipt of communications from the Employer amending the bid document before the submission of this bid offer. We confirm that these amendments have been taken into account in this bid offer.

Notice Number	Date	Title or Details
A.		
B.		
C.		
D.		
E.		
F.		
G.		
H.		
I.		
J.		

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.3. PROPOSED SUBCONTRACTORS

We notify the Employer that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then on official award of Contract by the Employer to us, this list duly signed below shall be binding between us.

The appointment of the proposed Subcontractors shall be subject to the approval of the Employer.

Please note it is compulsory to declare the percentage of work to be completed by the Subcontractor.

Name and Address of Proposed Subcontractor	Nature and Extent of Work	Previous Experience with Subcontractor	CIDB Grading
1)			
2)			
3)			
4)			
5)			

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.4. ALTERNATIVE BID

T2.2.4.1. Alternative bids will be accepted on the conditions described in T1.2 Bid Data (CIDB Clause C.2.12)

T2.2.4.2. Should the Bidder wish to submit an alternative bid he shall set out his proposals clearly hereunder or alternatively state them in a covering letter attached to his bid and referred to hereunder, failing which the bid will be deemed to be unqualified.

T2.2.4.3. If no departures or modifications are described, the schedule shall be marked NIL and signed by the Bidder.

Page	Item	Proposed alternative	Price saving (if any) to the Employer if proposal is accepted

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.5. QUALIFICATIONS TO BID

Should the Bidder wish to qualify any aspect of the bid (e.g. limitations, assumptions, limited liability, etc.), he shall set out his terms clearly hereunder or alternatively state them in a covering letter attached to his bid and referred to hereunder, failing which the bid will be deemed to be unqualified.

If no qualifications are made, the schedule shall be marked NIL and signed by the Bidder.

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.6. REQUIREMENTS WITH REGARD TO FLUCTUATIONS IN THE COST OF LABOUR AND MATERIALS

T2.2.6.1. The Bidder shall delete whichever of the following statements are not applicable to the bid. *Where the Bidder has not indicated the applicability of fluctuations, Rand Water shall regard the fluctuations as not applicable.*

FLUCTUATIONS IN - Wages and allowances: *TO APPLY/NOT TO APPLY
Price of materials: *TO APPLY/NOT TO APPLY

* Delete whichever is not applicable.

FORMULAE OR BASIS FOR THE ADJUSTMENT OF THE BID PRICE

If firm prices are not quoted the Bidder shall supply the following information:

T2.2.6.2. Formula by which the bid price is to be multiplied in order to arrive at the adjusted price:

.....

.....

T2.2.6.3. Definition of all symbols used in the above formula:

.....
.....

.....

.....

T2.2.6.4. Any special materials or equipment to be excluded from the application of the formula stating the method and basis of price variation to be applied to such materials or equipment:

.....

.....

.....

RECORDING OF WEATHER AND ABNORMAL RAINFALL

If during the time for completion of the works or any extension thereof abnormal rainfall or wet conditions shall occur then an extension of time in accordance hereof shall be granted by the Employer calculated in accordance with the formula given below for each calendar month or part thereof.

V = (Nw - Nn)+ ((Rw - Rn)/X)

V	Extension of time in calendar days in respect of the calendar month under consideration.
Nw	Actual number of days during the calendar month on which a rainfall of Y mm or more has been recorded.
Nn	Average number of days, as derived from existing rainfall records, on which a rainfall of Y mm or more has been recorded for the calendar month.
Rw	Actual rainfall in mm recorded for the calendar month under consideration.
Rn	Average rainfall in mm for the calendar month as derived from existing rainfall records.

For purposes of the contract Nn, Rn, X and Y shall have those values assigned to them in the Contract Data and/or the Specification. The total extension of time shall be the algebraic sum of all monthly totals for the period under consideration, but if the total is negative the time for completion shall not be reduced due to subnormal rainfall. Extensions of time for part of a month to be calculated using pro rata values of Nn and Rn. This formula does not take account of flood damage that could cause further or concurrent delays and will be treated separately as far as extension of time is concerned.

The factor (Nw-Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall exceeds Y mm. The factor (Rw-Rn)/X shall be considered to represent a fair allowance for variations from the average in the number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

The Contractor shall be permitted to take his own rainfall measurements on site subject to the Engineer's approval, but access to the measuring gauge(s) shall be under the Engineer's control. The Contractor is to provide and install all the necessary equipment for accurately measuring the rainfall as well as to provide, erect and maintain a security fence plus gate, padlock and keys at each measuring station, all at his own cost.

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.7. F O B PRICES OF IMPORTED EQUIPMENT/MATERIALS FOR WHICH FOREIGN EXCHANGE WOULD BE REQUIRED AND IMPORTING CHARGES

T2.2.7.1. The Bidder shall complete each schedule listing the F O B value of all items of equipment/materials for which foreign exchange would be required.

T2.2.7.2. Bidders based on the supply of locally manufactured equipment and/or materials priced competitively, will be given preference by the Employer provided such equipment and/or materials, and the manufacture thereof, are of sufficiently high standard to meet the Employer's requirements.

T2.2.7.3. If no items are to be imported or if firm prices are submitted the relevant section of the schedule shall be marked NIL. If the equipment contains imported equipment/materials then the Bidder shall complete the schedule listing the F O B value of all items of equipment/materials, which have been or are to be imported. Prices tendered for this imported equipment/material shall be quoted in **currency of origin.** It will therefore be the responsibility of the employer (Rand Water) to take out a Forward Cover for this imported equipment/material, when and if deemed prudent. All charges for the Employer's account referred to in the General Conditions of Contract and any changes in the rates of exchange will only be paid or allowed by the Employer in respect of items listed in this schedule. Bidder shall be expected to provide full documentation (i.e. Invoice, Bill of Lading, etc.) supporting foreign currency requirements for this imported equipment/material to support the Employer application to the SARB for the exchange control approval.

T2.2.7.4. The Bidder shall sign each schedule.

T2.2.7.5. For evaluation purposes, the prices of imported equipment/material sourced directly from outside South Africa quoted in currency of origin will be converted to Rand using the closing rate exchange rate published by SARB on the date, one week (7 day calendar days) prior to the closing date for the Bidder.

"Imported content" means that portion of the price represented by the cost of components, parts or materials which have been, or are still to be imported (whether by the Bidder or his suppliers or Subcontractors) and which cost includes the overseas cost plus direct importation costs, such as freight, all landing charges, dock dues, import duties and the like at the South African port of entry, as well as inward transportation and handling to the factory in the Republic where the equipment offered is produced, manufactured, processed, assembled, packed or otherwise prepared.

The Bidder shall state in the appropriate column the F O B values of equipment/materials, which have already been imported, and which still have to be imported.

Item	Description and country of origin	Rate of exchange	F O B value	
			Already imported	To be imported
			R	R
Total F O B values				

Table T2.2.7.1: F O B Prices

The exchange rate to be used for conversion of the foreign content to local content shall be the closing exchange rate published by South African Reserve Bank (SARB) on the date, one week (7 day calendar days) prior to the closing date of the Bid.

IMPORT PERMIT: The Bidder shall state what arrangements have been or are to be made to obtain the necessary import permit(s).

.....

.....

Item	Rate	Total
PORT OF LANDING ..... Freight on ..... tons at Insurance on R ..... Customs duty on R ..... Landing charges on ..... tons at Wharfage on ..... tons at Forwarding and agency on ..... tons at Railage on ..... kg at Sundry importing charges .... TOTAL:	R	R

Table T2.2.7.2: F O B Prices

Guaranteed date of shipping .....

Guaranteed date of delivery to railway authority .....

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.8. RECORD OF PREVIOUS EXPERIENCE, QUALITY OF WORKMANSHIP AND SAFETY

The Bidder shall provide details of **completed** works (similar to the work set out in this bid). Individuals listed as references must be contactable and willing to provide information relating to the performance of the Bidder (in terms of safety and health, workmanship, documentation, timeous completion, etc.). In order to verify the quality of workmanship, an inspection of the works may also be undertaken should Rand Water deem it necessary.

The Bidder must take into cognisance the functionality criteria in providing the record of previous experience. Information must be provided in the following format:

Description of Works	
Project Title :	
High level project description:	
Client :	
Contract No. :	
Contract Value (excl. VAT) :	
Role(Note 1) :	
Award Date :	
Completion Date :	
Location of Works :	
Project Manager :	
Construction Manager :	
Contact Details of Reference at Client Company	
Name :	
Position Held :	
Tel :	Cell :
Fax :	email :
Note 1 – Role refers to the Contractor's responsibility w.r.t. the claimed experience. For example Single Contractor, Main Contractor but with electrical sub – contractor, Sub – contractor for civil construction etc.	

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.8.1 RECORD OF PREVIOUS EXPERIENCE, QUALITY OF WORKMANSHIP AND SAFETY

The Bidder shall provide details of **completed** works (similar to the work set out in this bid). Individuals listed as references must be contactable and willing to provide information relating to the performance of the Bidder (in terms of safety and health, workmanship, documentation, timeous completion, etc.). In order to verify the quality of workmanship, an inspection of the works may also be undertaken should Rand Water deem it necessary.

The Bidder must take into cognisance the functionality criteria in providing the record of previous experience. Information must be provided in the following format:

Description of Works	
Project Title :	
High level project description:	
Client :	
Contract No. :	
Contract Value (excl. VAT) :	
Role(Note 1) :	
Award Date :	
Completion Date :	
Location of Works :	
Project Manager :	
Construction Manager :	
Contact Details of Reference at Client Company	
Name :	
Position Held :	
Tel :	Cell :
Fax :	email :
Note 1 – Role refers to the Contractor's responsibility w.r.t. the claimed experience. For example Single Contractor, Main Contractor but with electrical sub – contractor, Sub – contractor for civil construction etc.	

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.8.2 RECORD OF PREVIOUS EXPERIENCE, QUALITY OF WORKMANSHIP AND SAFETY

The Bidder shall provide details of **completed** works (similar to the work set out in this bid). Individuals listed as references must be contactable and willing to provide information relating to the performance of the Bidder (in terms of safety and health, workmanship, documentation, timeous completion, etc.). In order to verify the quality of workmanship, an inspection of the works may also be undertaken should Rand Water deem it necessary.

The Bidder must take into cognisance the functionality criteria in providing the record of previous experience. Information must be provided in the following format:

Description of Works	
Project Title :	
High level project description:	
Client :	
Contract No. :	
Contract Value (excl. VAT) :	
Role(Note 1) :	
Award Date :	
Completion Date :	
Location of Works :	
Project Manager :	
Construction Manager :	
Contact Details of Reference at Client Company	
Name :	
Position Held :	
Tel :	Cell :
Fax :	email :
Note 1 – Role refers to the Contractor's responsibility w.r.t. the claimed experience. For example Single Contractor, Main Contractor but with electrical sub – contractor, Sub – contractor for civil construction etc.	

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.9. HUMAN RESOURCE CAPACITY SCHEDULE

The aspects covered by T2.2.11.1, T2.2.12.2 and T2.2.12.3 will be viewed in conjunction with each other to establish an overall picture of the Bidder's capacity and ability to undertake the work specified in this document.

T2.2.9.1. Project Team Organogram vs. Company Organogram

The Bidder shall detail in the block below their company organogram and the Resources dedicated to this contract must be clearly indicated. In addition, sub-contractor and Joint-Venture arrangements must be clearly indicated:

cont.

T2.2.9.2. Proposed Team Member List (Internal & External)

Name (or quantity where not yet identified)	**Role**	**Internal or External Resource**	**% Utilisation**	
			On other Contracts / Work	**On this Contract/ Work**

cont...

T2.2.9.3. List of Current Contracts (Work Load)

Contract or Work Title	**Client**	**Contract Value** (excl. VAT)	**Role** [NOTE 1]	**Progress**
				Award Date: Completion Date: % Complete: Stage [NOTE2]:
				Award Date: Completion Date: % Complete: Stage [NOTE2]:
				Award Date: Completion Date: % Complete: Stage [NOTE2]:
				Award Date: Completion Date: % Complete: Stage [NOTE2]:
				Award Date: Completion Date: % Complete: Stage [NOTE2]:

NOTES

1. Role refers to the Contractor's responsibility w.r.t. the claimed experience for example Single Contractor, Main Contractor but with Electrical subcontractor, Sub-contractor for civil construction etc.
2. Stage refers to the current stage of the work (example design, procurement, construction, installation, commissioning, handed over, in Defects Liability Period etc.)
3. Attach additional signed copies of this schedule if insufficient space is available.

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

T2.2.10. EQUIPMENT RESOURCE CAPACITY (PLANT AND EQUIPMENT)

The following are lists of major items of relevant equipment that are presently owned / leased / hired or planned to be purchased / leased / hired and will be available for this contract if the bid is accepted:

Qty	Equipment Description (including capacity/size etc)	Currently Own / Currently Lease or Hire / Plan to Purchase / Plan to Lease or Hire	% Utilisation	
			On other Contracts / Work	On this Contract/ Work

I, the Bidder, guarantee that all the above listed plant and equipment is readily available and/or will be provided when required on the works and maintained on the site in good condition and working order.

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

SECTION B: CONTRACT

PART C1: AGREEMENT AND CONTRACT DATA

C1.1. FORM OF OFFER AND ACCEPTANCE

C1.1.1. LETTER OF BID

LETTER OF BID

DESCRIPTION: Construction of shelter for new back-up generator at Rand Water Head Office

BID NO: 10415866

TO: Rand Water Online Bids Application or https://bids.randwater.co.za/

Attention: Ntikane Radebe

We have examined the Conditions of Contract, Specifications, Drawings, Schedules, the attached Appendix and Addenda No.'s …….. for the execution of the above named Works. We offer to execute and complete the Works and remedy any defects therein in conformity with this Bid which includes all said documents, for the total sum of in South **African Rand (ZAR_____)**

(_____)

Amount in Words inclusive of all taxes) or such other sum as may be determined in accordance with the Conditions of Contract.

The total ZAR value quoted above, to include the sum of imported equipment/material sourced directly from outside South Africa. The applicable currency of origin/s must be converted to South African Rand (ZAR) using the closing rate of exchange as published by SARB on the date, one week (7-day calendar days) prior to the closing date for the Bid.

The Bidder shall further complete the offer/letter and stipulate the sum in the currency of origin (i.e. Euro, USD, GBP or any other currency) as noted below.

for the sum of in **Euro (€** _____**)**
(_____**Amount in Words inclusive of all taxes*)**
or such other sum as may be determined in accordance with the Conditions of Contract.

for the sum of in **USD ($** _____**)**
(_____**__ Amount in Words inclusive of all taxes *)**
or such other sum as may be determined in accordance with the Conditions of Contract.

for the sum of in **GBP (£ _____)**
(_____Amount in Words inclusive of all taxes *)
or such other sum as may be determined in accordance with the Conditions of Contract.

for the sum of in **any other currency** _____
(_____Amount in Words inclusive of all taxes *)
or such other sum as may be determined in accordance with the Conditions of Contract.

***Applies to international suppliers that are registered for all taxes in South Africa**

We accept your suggestions for the appointment of the DAB, as set out in the Appendix to Bid.

We agree to abide by this Bid for a period of 90 days from the Submission Date and Time for Bids and it shall remain binding upon us and may be accepted at any time before that date. We acknowledge that the Appendix forms part of this Letter of Bid.

If this offer is accepted, we will provide the specified Performance Security, commence the Works as soon as is reasonably practicable after the Commencement Date, and complete the Works in accordance with the above-named documents within the Time for Completion.

Unless and until a formal Agreement is prepared and executed this Letter of Bid, together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any bid you may receive.

Signature…….… in the capacity of……..

duly authorized to sign bids for and on behalf of…….....…….…….

Address: …….…….

Date:…….....

Signature of Witness: _____ Signature of Witness: _____

Name of Witness:_____

Name of Witness: _____

Date: _____ Date : _____

C1.1.2. CONTRACT AGREEMENT

This Agreement made on the _____ day of (month) _____ (year)_____

between

RAND WATER

(hereinafter called "the Employer")

And

_____

(hereinafter called "the Contractor").

Whereas the Employer desires that the Works known as **Construction of shelter for new back-up generator at Rand Water Head Office** should be executed by the Contractor, and has accepted a bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

(a) In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract.

2. The following documents shall be deemed to form and be read and construed as part of this Agreement:
    a. The Letter of Award
    b. The Letter of Bid (incorporating the Appendix to Tender)
    c. The Conditions of Contract
    d. The Employer's Requirements
    e. The Returnable Schedules
    f. The Contractor's Proposal
    g. The Bid Addenda (where applicable)
    h. Additional Information Provided by Contractor (where applicable)

1. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein, in conformity with the provisions of the Contract.

2. The Employer hereby covenants to pay the Contractor, in consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price at the times and in the manner prescribed by the Contract.

Authorised signature of Employer	Authorised signature of Contractor
for and on behalf of the Employer	for and on behalf of the Contractor
Name: **Ntikane Radebe**	Name:
Designation:	Designation:
Date:	Date:

In the presence of the undersigned witnesses:

Name:	Name:
Signature:	Signature:
Date:	Date:

C1.2. CONTRACT DATA

C1.2.1. GENERAL CONDITIONS

The General Conditions of Contract applicable to this Contract are the:
"General Conditions" which form part of the "Conditions of Contract for **SHORT FORM OF CONTRACT**.

First Edition 1999
As published by the Federation Internationale des Ingenieurs-Conseils (FIDIC)

C1.2.2. PARTICULAR CONDITIONS

The General Conditions shall be amended by the Particular Conditions of Contract as detailed herein.

The following clauses – of the Conditions of Contract for **SHORT FORM OF CONTRACT**, First Edition 1999, published by the Federation Internationale des Ingenieurs-Conseils (FIDIC) shall be amended as stated below:

a. GENERAL PROVISIONS

2.7 Definitions

The Contract
1.1.1 Delete this definition and replacewith the following:
"Contract" means the Contract Agreement, the Letter of Acceptance, the Letter of Tender, these Conditions, the Specifications, the Drawings, the Schedules, and the further documents (if any) listed in the Contact Agreement or in the Letter of Acceptance.
1.1.2 Delete this definition and replacewith the following:
"Specification" means the document entitled Specification, as included in the Contract, including Employer's requirements in respect of design to be carried out by the Contractor, if any, and any Variation to such document.
1.1.3 Delete this definition and replacewith the following:
"Drawings" means the Employer's drawings of the Works, as included in the Contract, and any Variation to such drawings.
Persons 1.1.4 Delete this definition and replacewith the following:
"Employer" means Rand Water which is a body corporate established in terms of Section 83 of the Water Services Act 107 of 1997.
Dates, Times and Periods 1.1.7 Delete this definition and replacewith the following:
"Commencement Date" means the date recorded in the Letter of Acceptance unless otherwise defined in the Contract Agreement.
Other Definitions 1.1.12 Delete this definition and replacewith the following:
"Country" means the Republic of South Africa.
1.1.17 Delete this definition and replacewith the following:
"Site" means the places where the permanent Works are to be executed and to which Plant and Materials are to be delivered.

The following definition isadded after Sub-Clause 1.1.19:
1.1.20 **"Accepted Contract Amount"** means the amount accepted in the Letter of Acceptance, or the amount recorded in the Contract Agreement if there is no Letter of Acceptance, for the execution and completion of the Works and the remedying of any defects.

1.1.21 **"Contract Agreement"** means the contract agreement referred to in Sub-Clause 1.7 [Contract Agreement].

1.3
Priority of Documents Delete this Sub-Clause and replace with the following:
The documents forming the Contract are to be taken as being mutually explanatory of one another. If any ambiguity or discrepancy is found in the documents, the Employer shall issue any instructions to the Contractor, and the priority of the documents shall be in accordance with the following sequence:

(a) The Contract Agreement;
(b) The Letter of Acceptance;
(c) The Letter of Tender (incorporating the Appendix);
(d) The Particular Conditions;
(e) The General Conditions;
(f) The Specification;
(g) The Drawings;
(h) The Schedules;
(i) The Addenda and any other documents forming part of the Contract.

1.6
Statutory Obligations
Delete this Sub-Clause and replace with the following:
"The Contractor shall at all times conform in all respects with the provisions of any Act of Parliament, Regulations, Bye-law of any Local or any other Statutory Authority or other Enactment having the force of law which may be applicable to the performance of its obligations under the Contract and shall indemnify, and keep indemnified the Employer, against damages that it may suffer as a result of any breach by the Contractor, its agents or employees, including any hired labour, of any such Act, Regulation, Bye-law or other Enactment and including all legal costs on the attorney and client scale which may be payable as a result of any claims or proceedings in respect of the Contract."

The following Sub-Clauses are added at the end of Clause 1:
1.7
Contract Agreement

"The Contractor shall within a reasonable time after having been called upon to do so, enter into and execute a Contract Agreement."

b. THE EMPLOYER

As per FIDIC

c. EMPLOYER'S REPRESENTATIVE

As per FIDIC

d. THE CONTRACTOR

4.2 Contractor's Representative

The following is added at the end of this Sub-Clause:
"Without derogating from the generality of the foregoing, the Contractor's Representative shall, at the Contractor's cost, implement forthwith any additional safety precautions which the Engineer may consider necessary for the proper protection of the Contractor's employees engaged in the Works. Work to which such additional precautions will apply shall be suspended pending the implementation of such precautions."

4.4 Performance Security
The following is added at the end of this Sub-Clause:
"Should the Contractor fail to provide the said security within the specified time the Employer, in his sole discretion, may either:-
(a) Withhold payment from the Contractor until the amount withheld is equal in value to one tenth (10%) of Accepted Contract Amount, or
(b) Proceed to issue notice in terms of Clause 12.1 [Default by Contractor]."

The following Sub-Clauses are added at the end of Clause 4:

4.5 Safety Procedures

The following is added at the end of this Sub-Clause:
"The Contractor shall:-
(a) comply strictly with the Employer's site SHE Specifications/Rules, applicable legislation, other requirements and regulations from time to time in force, a copy of which is incorporated into and shall be read as part of the Agreement;
(b) be responsible for the safety and welfare of all its employees and shall comply with all relevant SHE requirements;
(c) familiarize himself with all the Employer's internal SHEQ systems, regulations, policies and procedures and all legislative or statutory requirements with regard to the health and safety of the Contractor's employees;
(d) ensure that all his personnel are fully briefed with regards to all relevant policies and safety procedures and that all personnel have attended the requisite inductions;
(e) ensure that all personnel sign their acceptance of these procedures and regulations – which signed documents are to be kept in a register which is to be made available at all times for inspection;
(f) at its own cost provide all of its employees with all necessary safety equipment, namely, safety boots, hard hats, overalls etc. and will at all times adhere to the Employer's site rules and regulations, including his subcontractors and their employees, the South African safety regulations in particular, the Occupational Health and Safety Act (No. 85 of 1993) and relevant regulations and their latest revisions;
(g) be responsible for the discipline of its employees and shall, at the Client's request remove from the site any incompetent or undesirable employees."

4.6 Quality Assurance
"The Contractor shall maintain an effective quality management system in accordance with the requirements of ISO 9001 (or equivalent), in order to ensure and demonstrate that the Works and services conform to the specified requirements. A copy of the ISO 9001 Certification Certificate (or equivalent) must be submitted on request.
The Employer will have the right to visit the manufacturing location for the purpose of audit, surveillance or inspection during the manufacturing of the Materials/Plant to verify the Contractor's quality management.
In the event of the Material/Plant being rejected due to non-compliance with the Specification, workmanship and/or other valid reasons, then the cost of rectification as well as re-inspection shall be for the account of the Contractor."

4.7 Sufficiency of the Accepted Contract Amount
"No claim by the Contractor for additional payment will be entertained which is consequent upon any misunderstanding or the allegation, or fact that it was supplied with incorrect information by any person, or its failure to obtain correct information as to any matter affecting its accepted tender or the execution of the Works to be provided, nor will any such misunderstanding, or the obtaining of incorrect information, or the failure to obtain correct information, relieve it from any risk or responsibility for the due fulfilment of its obligations in terms of the Contract."

4.8 Contractor's Equipment
"All Contractor's Equipment shall be subject to and comply with the operational and safety regulations of the Employer and, upon notice by the Engineer, may at all times be inspected by relevant members of the Employer's Personnel for the purposes of ensuring compliance with the aforesaid regulations."

4.9 Protection of the Environment
"The Contractor's attention is directed to Employer's SHEQ Policy a copy of which is incorporated into and shall be read as part of the Contract Agreement.
The Contractor shall comply with all requirements, stipulations and the like of any Environmental Impact Assessment undertaken and/or issued in respect of the Works."

4.10Security of the Site
"The Contractor shall at all times remain responsible for the security of his own Equipment.
In addition, the Contractor shall fully acquaint himself and strictly comply with all the Employer's security regulations particularly with regard to personnel, Plant, Material and Equipment entering or leaving the Employer's property. All badging costs shall be borne by the Contractor."

4.11 Health and Safety
"The Contractor is responsible for the safety and welfare of its employees and subcontractors employed on the Works."

4.12 Key Personnel
"The Contractor shall furnish the Employer with a list of addresses and telephone numbers of key personnel in the Contractor's organisation who may be contacted in any emergency both during and outside normal working hours."

4.13 Labour Laws
"Without derogating from the generality of Sub-Clause 1.6 [Statutory Obligations] the Contractor shall comply with all the relevant labour Laws applicable to the Contractor's personnel, including Laws relating to their employment, health, safety, welfare, immigration and emigration, and shall allow them all their legal rights.
The Contractor shall require the Contractor's personnel to obey all applicable Laws, including those concerning safety at work, and shall

indemnify the Employer for the consequences of any failure by the Contractor's personnel to obey all applicable Laws as aforesaid."

4.14 Waiver of Contractor's Lien
"The Contractor waives, in favour of the Employer, any lien or right of retention that is or may be held in respect of the Works to be executed on the Site. The Contractor shall ensure that it procures similar waivers from its subcontractors."

e. **DESIGN BY CONTRACTOR**

As per FIDIC

f. EMPLOYER'S LIABILITIES

As per FIDIC

g. TIME FOR COMPLETION

As per FIDIC

h. TAKING OVER

As per FIDIC

i. REMEDYING DEFECTS

As per FIDIC

j. VARIATIONS AND CLAIMS

10.3 Early Warning
The second paragraph of this Sub-Clause is deleted and replaced with the following:
"The Contractor shall notify the Employer in writing of any event, circumstance or factor which may adversely affect the Works or the progress thereof, delay the execution of the Works or increase the contract price ("notified event"). Such notice shall be given as soon as possible, but in any event within not more than 7 days after the event, circumstance or factor in question was known or should reasonably have been known to the Contractor. In such notice the Contractor shall provide:
(a) detailed particulars of the notified event and the potential adverse effects; and
(b) proposals for the steps to be taken by the Contractor to mitigate the potential adverse effects and meet the Time for Completion.
The Employer may also require the Contractor to submit a proposal under Sub-Clause 10.5 [Variation and Claims Procedure] in respect of any notified event. A notification in terms of this Sub-Clause 10.3 shall not constitute a notification of a claim for extension of time or additional cost pursuant to Sub-Clause 7.3 [Extension of Time] or Sub-Clause 10.5 [Variation and Claim Procedure], or otherwise under the Contract. In the event of the Contractor making a claim for an extension of time or additional cost under Sub-Clause 7.3 and/or 10.5 the event relied upon shall be assessed as if the Contractor had complied with the 7 day notice period referred to above."

k. CONTRACT PRICE AND PAYMENT

11.3 Monthly Statements
Delete the last paragraph of this clause and replace with the following:
"The Contractor shall by the 25th day of each month submit to the Employer a statement showing the amounts to which he considers himself entitled.
In the event that the Contractor fails to submit a statement by the 25th day of the month any late submission will only be evaluated in the next month."

The following Sub-Clause is added at the end of Clause 11:

11.9 Tax Invoices
The Contractor shall issue an invoice to the Employer for all amounts to be paid to the Contractor under the Contract. Each invoice shall be issued to the Employer at least 28 days prior to the date on which the amount is payable.
If VAT is payable on any amount certified by the Employer for payment under the Contract, the Contractor shall ensure that the invoice complies with the requirements of a Tax Invoice under the Value Added Tax Act no. 89 of 1991 (as amended). No payment shall be made by the Employer on invoices not meeting this requirement and the Employer shall not be liable for interest for such non-payment.

l. DEFAULT
As per FIDIC

m. RISK AND RESPONSIBILITY
As per FIDIC

n. INSURANCE

14.1 Extent of Cover

Delete this Sub-Clause and replace with the following:
"The Employer shall, prior to commencement of the Works, effect and thereafter maintain insurances in the joint names of the Parties:-
(a) for loss and damage to the Works, Materials and Plant, and
(b) for liability of both Parties for loss, damage, death or injury to third parties or their property arising out of the Contractor's performance of the Contract, including the Contractor's liability for damage to the Employer's property other than the Works.
This insurance shall be effected and maintained by the Employer in accordance with and to the extent provided in the Employer's construction risks insurance policy."
Notwithstanding anything to the contrary in this Clause 14 [Insurance] (and notwithstanding the definitions and other terms of the Contract), the scope and extent of insurance cover provided by the Employer as the insuring Party, and the Employer's obligations as the insuring Party under this Sub-Clause, are subject to the terms of the said policies.
The Contractor shall, prior to commencement of the Works, effect and thereafter maintain all additional and other insurances in the joint names of the Parties:-
(a) for loss and damage to the Contractor's Equipment,
(b) for Plant and Materials during manufacture or fabrication to the extent not covered by the policies procured by the Employer as the Insuring Party,
(c) for liability of both Parties and of any Employer's representative for death or injury to the Contractor's personnel except to the extent that liability arises from the negligence of the Employer, any Employer's representative or their employees, and
(d) to the extent that the Contractor considers it necessary, for other insurances for risks carried by the Contractor under the Contract (including for the Works, Plant, Materials and/or Contractor's Documents for risks which are not covered, or not sufficiently covered, as the case may be, by the Employer's policy(s))."

o. RESOLUTION OF DISPUTES

Clause 15 deleted in its entirety and replaced with the following:
15.1 Adjudication
"If a dispute (of any kind whatsoever) arises between the Parties in connection with, or arising out of, the Contract, including the validity of the Contract, or the execution of the Works, including any dispute as to any certificate, determination, instruction, opinion or valuation of the Employer, either Party may, within 28 days after such dispute arising, refer the dispute to adjudication in accordance with the Rules for Adjudication all as appended to the FIDIC Short Form of Contract (First Edition 1999) ("the Rules"). The adjudicator shall be any person agreed by the Parties. In the event of disagreement and notwithstanding anything else provided in the Rules the adjudicator shall be appointed by the Chairman of the Association of Arbitrators of Southern Africa.
Neither Party shall be entitled to be represented by a practicing and/or admitted lawyer (including but not limited to attorneys, advocates or

judges) in any proceedings before the adjudicator. The proceedings shall be conducted on the papers unless both parties agree that a hearing should be held, or the adjudicator otherwise directs. Each Party shall bear its own costs in regard to any matter referred to the adjudicator."

15.2 Notice of Dissatisfaction

"If a Party is dissatisfied with the decision of the adjudicator or if no decision is given within the time set out in the Rules, either Party may give notice of dissatisfaction referring to this Sub-Clause within 28 days of receipt of the decision or the expiry of the time for the decision. If no notice of dissatisfaction is given within the specified time, the decision shall be final and binding on the Parties who shall give effect to it without delay. Where a notice of dissatisfaction is given within the specified 28 day period the decision shall nevertheless remain binding unless and until the decision of the adjudicator is revised by an arbitrator."

15.3 Amicable Settlement

"Where notice of dissatisfaction has been given under Sub-Clause 15.2 [Notice of Dissatisfaction] above, both Parties shall attempt to settle the dispute amicably before the commencement of arbitration. However, unless both Parties agree otherwise, arbitration may be commenced on or after the twenty-eighth day after the day on which notice of dissatisfaction was given, even if no attempt at amicable settlement has been made."

15.4 Arbitration

"Unless settled amicably, any dispute in respect of which the adjudicator's decision (if any) has not become final and binding shall be finally settled by arbitration. Unless otherwise agree by both Parties:

(a) the dispute shall be finally settled under the Rules For The Conduct of Arbitrations as published by the Association of Arbitrators (Southern Africa) in force at the time of commencement of the arbitration,

(a) the dispute shall be settled by one arbitrator to be appointed by the Chairman of the Association of Arbitrators (Southern Africa),

(b) the arbitration shall be held in Johannesburg, and

(e) the arbitration shall be conducted in the language for communications defined in Sub-Clause 1.5 [Communications].

For the purpose hereof the term "dispute" shall be interpreted in the widest sense and shall include any dispute or difference in connection with or in respect of the conclusion or existence of the Contract, the carrying into effect of the Contract, the interpretation or application or the provisions of the Contract, the Parties respective rights and/or obligations in terms of and/or arising out of the Contract and/or the validity, enforceability, rectification, termination or cancellation, whether in whole or in part, of the Contract.

The arbitration shall not be construed as a review or appeal of any adjudicator's decision. Resolution of the dispute shall commence anew, as if no adjudication had taken place. The claimant in the adjudication shall be the claimant in the arbitration. The adjudicator's decision, or reasons, shall not be admissible in the arbitration.

Neither Party shall be limited in the proceedings before the arbitrator to the evidence or arguments previously put before the adjudicator to obtain his decision, or to the reasons for dissatisfaction given in its Notice of Dissatisfaction.

The adjudicator shall not be eligible for subsequent appointment as the arbitrator nor shall any party have the right to call on the adjudicator as a witness in the arbitration.

This Sub-Clause shall exist independently of this agreement to the extent necessary to resolve disputes that may arise out of or concerning this agreement, its validity or termination"

C1.2.3. EMPLOYER'S INSURANCE MANUAL

PRINCIPAL CONTROLLED INSURANCE CLAUSES - FOR USE WITH THE EMPLOYER'S CONTRACTS

PARTICULAR CONDITION 18

18.1 **Insurance Effected by the Employer.**

18.1.1 Notwithstanding anything elsewhere contained in this Contract and without limiting the obligations liabilities or responsibilities of the Contractor in any way whatsoever (including but not limited to any requirement for the provision by the Contractor of any other insurances) the **Employer** shall effect and maintain as appropriate in the joint names of the **Employer** the Contractor and where relevant subcontractors the following insurances which are subject to the terms limits exceptions and conditions of the Policy:

(a) **CONTRACT WORKS** Insurance - which will provide cover against accidental physical loss of or damage to the Works including temporary works, Plant and Materials intended to form part of the Permanent Works

(b) **SASRIA SPECIAL RISKS** Insurance - in respect of riot and associated risks of damage to the Works, including temporary works, Plant and Materials intended to form part of the Permanent Works.

(c) **PUBLIC LIABILITY** Insurance - which will provide indemnity against the insured parties legal liability in the event of accidental death of or injury to third party persons and/or accidental loss of or damage to third party property arising directly from the execution of the contract on or about the Site and occurring during the period of insurance with a limit of indemnity of R250,000,000 in respect of all claims arising from any one occurrence or series of occurrences consequent on or attributable to one source or original cause.

- The **Employer** shall pay any premium due in connection with the insurance effected by the **Employer**. All of the aforementioned policies are renewed on an annual basis and are thus applicable for the year they are placed, that is, a 12-month period commencing 01 July and ending 30 June of the ensuing year. In terms of all details contained hereunder, they are thus applicable until 30 June. Policy terms, conditions and deductibles may change on the 01 July depending on the outcome of the renewal. This will thus be the case for every ensuing year of insurance.

- The Contractor shall not include any premium charges for this insurance except to the extent that he may deem necessary in his own interests to effect supplementary insurance to the insurance effected by the **Employer**. The **Employer** reserves the right to call for full information regarding insurance costs included by the Contractor.

- Any further clarification of the scope of cover provided by the Policies arranged by the **Employer** should be obtained from the **Employer:**

Mr. Bafana Gamede
Tel: 011 682 0362
Fax: 011 682 0765
Email: bgamede@randwater.co.za

OR
Ms. Lerato Mosweu

Tel: 011 682 0709
Fax: 011 682 0765
Email: mmosweu@randwater.co.za

18.1.5 In the event of any occurrence which is likely to or could give rise to a claim under the insurances arranged by the **Employer** the Contractor shall:

a) In addition to any statutory requirement or other requirements contained in the Contract immediately notify the **Employer** by telephone and or e-mail giving the circumstances nature and an estimate of the loss or damage or liability.

b) Complete a Claims Advice Form available from the **Employer** to whom the form must be returned without delay.

c) Negotiate the settlement of claims with the Insurers through the **Employer's** Insurance Brokers and shall when required to do so obtain the **Employers** approval of such settlement.

The **Employer** and Insurers shall have the right to make all and any enquiries on the site of the Works or elsewhere as to the cause and results of any such occurrence and the Contractor shall co-operate in the carrying out of such enquiries.

i. The Contractor will be liable for the amount of the Deductible (First Amount Payable) in respect of any claim made by or against the Contractor or Subcontractors under the insurances effected by the **Employer**.

ii. The Contractor will be liable for the amount of the Deductible (First Amount Payable) in respect of any claim made by or against the Contractor or Subcontractors under the insurances effected by the **Employer**.

Insured Contracts

All contracts undertaken by the Insured involving Design, Construction, Testing, Commission in respect of new works, capital expenditure, Upgrade, modification, retrofitting, or alteration and/or additions to existing facilities undertaken by the Insured or other Insured Parties acting on their behalf but excluding.

(a) Projects with an estimated period exceeding 36 months (excluding Defects Liability period)

(b) Projects exceeding R500 million at inception

(c) Contracts involving Tunnelling

All Sums Insured inclusive of VAT.

Where more than one Contractor is involved in the same claim the Deductible will be borne in pro-rata amounts by each Contractor in proportion to the extent of each Contractor's admitted claim.

The Deductibles (First Amount Payable) for which the Contractors are responsible and which are applicable in respect of each and every occurrence or series of occurrences attributable to one source or original cause giving rise to loss or damage or liability indemnifiable are as follows:

(a) Under the **Contract Works Insurance** in respect of loss or damage

i) Wet Risks:
ii) 10% of the claim with a minimum R10,000 and a maximum of R 500,000
iii) Maintenance:
iv) 10% of the claim with a minimum R10,000 and a maximum R500,000
v) Other contracts:
vi) 10% of the claim with a minimum of R10,000 and maximum of R250,000

b) Under the **Sasria** (Special Risks) Insurance:
0.10% of the Contract Value in respect of loss by theft following an insured peril subject to a minimum of R2,500 and a maximum of R25,000

c) Under the Public Liability Insurance
in respect of loss of or damage to property R 25,000

(d) Under any other insurances shall be as specified in such insurance policy.

1.1.1 Any amount which becomes payable to the Contractor or any of his Subcontractors as a result of a claim under the Contract Works Insurance shall if required by the **Employer** be paid net of the Deductible to the **Employer** who shall pay the Contractor from the proceeds of such payment upon rectification repair or reinstatement of the loss or damage but this provision shall not in any way affect the Contractor's obligations liabilities or responsibilities in terms of the Contract.

In respect of any amount which becomes payable as a result of a claim under any Public Liability Insurances the Contractor or his Subcontractors shall be required to pay the amount of the Deductible to the Insurer to facilitate settlement of such claim.

18.2 **Insurance Effected by the Contractor.**

18.2.1 Without in any way detracting from any requirements contained elsewhere in this contract the Contractor and Subcontractors shall where applicable provide as a minimum the following:

1 Insurance of Contractors Equipment (including tools offices and other temporary structures and contents) and other things (except those intended for incorporation into the Works) brought onto the Site for a sum sufficient to provide for their replacement.

2 Insurance in terms of the provisions of the Social Security Act as may be amended or in terms of any similar Workers Compensation and Unemployment Insurance enactment's in the Contractors' or Sub Contractor's operational, manufacturing or assembly locations.

3 Motor Vehicle Liability Insurance comprising (as a minimum) "Balance of Third Party" Risks including Passenger Liability indemnity.

4 Where the Contract involves manufacturing and/or fabrication of the Works or parts thereof at premises other than at the Site the Contractor

shall satisfy the **Employer** that all Plant and Materials for incorporation in the Works are adequately insured during manufacture and/or fabrication. In the event of the **Employer** having an insurable interest in such Works during manufacture or fabrication then such interest shall be noted by endorsement to the relevant Policies of Insurance.

Special Condition

5 Only applicable if contracts works involves elements of design

PROFESSIONAL INDEMNITY Insurance – of not less than R 1 000 000 for a period of insurance commencing on the date of award of the Contract. The Insurance shall include Retroactive cover to the date of Conceptual Design commencement and should be in effect for a period of 12 months after completion of the works.

Notwithstanding the required limit as set out above, "Professional Indemnity" the contractor will be liable for the full amount of the claim arising out of their errors and omission.

- The insurances to be provided by the Contractor and his Sub-contractor shall

2 Be effected with Insurers and on terms approved by the **Employer** – these terms shall be consistent with any terms agreed by both Parties before the date of the Letter of Acceptance. This agreement of terms shall take precedence over the provisions of this Clause

3 Be maintained in force for whatever period the perils to be insured by the Contractor are at risk (including any Defects Notification Period during which the Contractor is responsible for the care of the Works)

4 Within the respective periods stated in the Appendix to Bid submit to the **Employer** the relevant Policy or Policies of Insurance or evidence acceptable to the Employer that such insurances have been effected.

18.2.3 In the event that the Contractor or his Subcontractor receives any notice of cancellation or restrictive modification to the insurance provided to them they shall immediately notify the **Employer** in writing of such cancellation or restriction and shall advise what action the Contractor or his Sub-contractor will take to remedy such action.

If the Contractor fails to effect and keep in force the insurances referred to then the **Employer** may effect and keep in force any such insurances and pay such premium or premiums as may be necessary for that purpose and from time to time deduct the amount paid by the **Employer** from any monies due or which may become due to the Contractor or recover same as a debt from the Contractor.

18.3 **Subcontractors.**

The Contractor shall:

a) Ensure that all potential and appointed Subcontractors are aware of the whole contents of this clause, and

b) Enforce the compliance by Subcontractors with this clause where applicable.

PART C2: PRICING DATA

C2.1. PRICING ASSUMPTIONS

2 These Bills of Quantities (C2.2) shall be used to assist both parties in administering and agreeing any changes/variations, which may arise during the course of the Contract.

3 These Bills of Quantities shall be used to calculate the value of work completed in the evaluation of interim/final payments.

4 The Bidder is deemed to have allowed opposite each item contained in these Bills of Quantities whatever costs and charges it may consider necessary for the carrying out, complying with and due observance of the provisions, conditions and requirements set out in the Contract.

5 No claim whatsoever will be entertained in respect of errors or omissions in pricing due to the brevity of a description of any item contained in these Bills of Quantities which items are fully described or can reasonably be inferred when read in conjunction with the relevant clauses provided for in the Conditions of Contract, Specifications, Drawings or other relevant documentation.

6 Any item left un-priced will be deemed to be provided for elsewhere and no claim for any extras arising out of the Bidder's omission to price any item will be entertained.

C2.2. PRICING SCHEDULES / BILLS OF QUANTITIES (BoQ)

The Bidder must refer to **Annexure C2.2: Pricing Schedule / Bill of Quantities (BoQ)** provided with this bid document.

The Bidder is required to submit the following:

2 Printed format and signed version of the completed pricing schedule or BoQ.

PART C3: SCOPE OF WORK

C3.1. DATES FOR DELIVERY AND COMPLETION

(i) It is estimated that the Contract will be placed on or before 30 November 2025 access to undertake work will only become available after the issue of the Site Access Certificate.

(ii) The Bidder shall state the proposed start and completion dates based on the above approximate date, these dates shall comply with the dates mentioned below in T2.2.1.4

(iii) The Bidder shall simultaneously fill in the period required to complete the work in days or weeks from the date of acceptance of the offer by the Employer. This shall be used to adjust dates should the Contract placement date vary.

(iv) All equipment and plant shall be handed over by 30 March 2026 and the Bidder's programme shall comply with this requirement by the Employer.

Item	Start Date	Completion Date	Working Period
PHASE 1:			
PHASE 2:			
PHASE 3:			
PHASE 4:			
PHASE 5:			

Table C3.1: Dates for delivery and completion

NOTE THAT A DETAILED PROJECT PROGRAMME MUST BE INCLUDED WITH THE BID SUBMISSION

Name of Bidder: _____

Signed by or on behalf of Bidder: _____ Official Capacity: _____

Date: _____

C3.2. SCOPE OF WORK

C3.2.1 OBJECTIVES

A. RFQ objective

The RFQ document calls for contractor to submit prices for the construction of new shelter for the existing Standby generator at Rand Water Head Office.

C3.2.2 SCOPE OF WORK

C3.2.2.1 Architectural Scope of Work

The Architectural scope of works shall consist of but not be limited to the following:

- The construction of masonry bund wall as per drawing RA61270/100
- Screed and finishing of existing generator structure floor slab in accordance with drawing RA61270/100.
- The construction of new standby generator cover structure as per civil scope of works
- Demolition of existing concrete slab between the generator structure and adjacent retaining wall and fuel storage building wall which will be replaced with paving to match the existing paving.
- The inspection and adjustment of paving around the new structure to ensure sufficient fall away from all existing and new structures towards storm water outlets.
- Provision of rodent proofing wire mesh screen and frame for the generator louvres, exhaust flue, openings in and around the generator which includes between the generator and the concrete plinth.
- Provision of method statements, to be approved by Rand Water prior to any construction or installation.
- Provision of samples and or specifications, to be approved by Rand Water Architect prior to purchasing of materials
- The provision of mark ups for:
  - Alteration to designs
  - As Built drawings.

The following should be taken into consideration during the design, construction, and installations:

A) Accommodation

Standby Generator structure

The proposed generator structure to be sized to suit an existing 500kVA enclosed generator as supplied by “Generator King”.

- The generator has an approximate footprint of 3.8x1.5x2.2m high.
- Overall generator structure has an estimated floor area of 25m²
- 7m² raised plinth area (170mm high, existing)
- Containment area to be constructed by means of a masonry bund wall sized to contain 1000L of diesel.
- 22m² Roof structure over generator

B) Accessibility

Accessibility to include the following:

- Fire requirements to comply with SANS 10400 Part T
- Access points for personnel & equipment.
- Ergonomic requirements for equipment.

C) Building form and aesthetics

The standby generator structure to consist of structural steel columns, purlins, beams, etc. with roof sheeting fixed onto concrete raft slab.

External envelope of the concrete raft slab to be 110mm face brick wall. 170mm high, 220mm Face brick bund wall finished with bullnosed brick in edge coping, to be constructed around concrete plinth to create a spillage containment area suitable to contain 1000L diesel.

All masonry shall comply with SANS 10400 standards

The generator is situated on a 170mm high concrete plinth.

Existing paving to be lifted, retained and re-laid to fall away from all structures and towards storm water outlets

D) Materiality

- All new building materials, components and fixtures for refurbishment, repairs, and modification to Rand Water Architects approval.
- The following finishes have been provided as a guideline. It is on the onus of the contractor to confirm all the finishes in relation to the requirements.
    - Masonry: Facebrick

- Steel structure: Paint
- Roof Sheeting: Pre-painted
- Floor: Specialized chemical resistant flexible polyurethane coating
- Rodent proof wire mesh: Stainless steel 304 woven wire mesh screens and frame sized to suit the openings. Mesh openings to be approximately 10x10mm with a wire size of at least 2mm.

Note contractor to confirm with generator manufacturer on available rodent resistant mesh options over openings, louvres and exhaust flue.

E) Statutory Requirements

Design, Construction workmanship and Materials, shall comply with the following legislative requirements, Rand Water & external standards:

- National Building Regulations SANS 10400
- Occupational Health & Safety Act 85 of 1993
- Critical Infrastructure Act where applicable
- Standard System of Measuring Building Work
- Model Preambles for Trades
- RW Architectural Specification Standards

It is on the onus of the contractor to confirm whether the structures or the site is registered under the Critical Infrastructures Act and to confirm the applicable sections or regulations relating to this Act.
Local building council procedures to be complied to unless exemption has been provided under the Critical Infrastructures Act. It is on the onus of the contractor to confirm this with Rand Water.
It is on the onus of the contractor to confirm with Rand Water whether the designs need to be reviewed by a registered fire engineer or reviewed with the relevant fire department representative prior to construction. All findings and or reports must be provided to Rand Water Arch. and Engineers.

F) Architectural Documentation

Refer to the RW Architectural Specifications document for further details on architectural documentation.

G) Additional requirements

All construction and finish work that will impact the day to day operations of the building will only be permitted to be done after hours or on weekends. This includes work that will make excessive noise, dust or installations that have excessive smells.

It is on the onus of the contractor to confirm the dimensions and positioning of all existing and new construction works and to inform Rand Water Architect and Engineers of any discrepancies.

H) Building activities

The following building activities have been provided as a guide for possible construction hold points:

- Carport structure hold down bolt positions to be inpsected and confirmed.
- Structural members sizes, lengths etc. to be inspected prior to erection or application of finishing.
- Brick samples to be provided for approval prior to purchasing
- Roof sheeting specifications and finishing specifications to be provided for approval prior to purchasing.
- Paving around generator structure to be inspected and fall to be confirmed.

Note that the building activities are not limited to the activities listed above. It is on the onus of the contractor to provide a comprehensive list of construction activities within their program with suitable hold point that has been agreed to between Rand Water and the contractor.

I) References

The following architectural drawings will be provided as part of this tender scope.

RA61270/100.

Civil Scope of Work

The general civil scope of works of the project shall include, but not be limited to the following:

New Containerized Generator Structure

- Demarcation of Site and Traffic Accommodation
- Setting out of works, including placement of pegs.
- Install canopy structure (including finishing) and bund wall as per Structural and Architectural requirements (including multi-disciplinary integration).

- Clean and clear site as per OHS housekeeping requirements.

References

The following Civil drawings will be provided as part of this tender scope.
RA61270/200.
RA61270/201.

Project Constraints

CONSTRUCTION

Major construction constraints detailed in this report include:

- Work impairing the normal operation of the loading bay area.

In-availability of a suitably sized construction yard – for the placement of construction tools and materials.

ARCHITECTURAL SPECIFICATION

A. SECTION A – GENERAL SPECIFICATION

FORMAT OF SPECIFICATION

Format

a) The Specification is made up of Sections A100-A700.
b) Sections A provide general requirements applicable to particular requirements specific to individual trades or elements of the works.
c) The types of Specification are as follows:
    i. Descriptive: Shows the design intent and performance requirements with which the Contractor must comply when completing the Detailed Design.
    ii. Prescriptive: Provides detailed materials and workmanship requirements reflecting the Architect's design solution.
    iii. Performance Specification: Gives the performance criteria that the Contractor shall satisfy utilizing appropriate materials, methods and techniques.
d) Architectural Specification document to be along with Architectural drawings and other engineering discipline drawings, specification and contract documentation.

Standard Method of Measurement Work Section Categories

Generated Section List:

- **A100** Format of Specification
- **A200** Description of the Project
- **A300** Contractors Responsibilities
- **A400** Submittals
- **A500** Performance Requirements and Data
- **A600** Quality Control
- **A700** Employer's Requirements

Supplemental Information

Refer to the requirements of the following Rand Water documents as appropriate:

a) Health and Safety Requirements.
b) Fire Strategy Report.
c) Design Drawings
d) Structural/ Services Engineer's Drawings.
e) Movement and Tolerance Requirements.

Definitions

The following definitions apply to the Specification:

a)	**Specification**	This document, comprising Sections A100 – A700
b)	**Contractor's Proposals**	Drawings, detailed technical specifications, method statements, calculations and any other relevant information prepared by the Contractor and submitted with the Tender response, maintaining the design intent, functional, visual, performance criteria and technical requirements as stated in the Tender documents.
c)	**Design**	That prepared for Tender purposes, shown by the Design Drawings and Specification.
d)	**Design calculations**	Deemed to satisfy requirement for compliance with SANS 10400 or rational design where applicable.
e)	**Detailed Design**	Working Drawings prepared by the Contractors Architect.
f)	**Design Drawings**	Drawings issued by the Rand Water Architect, showing the Design for Tender purposes.

g)	**Working Drawings/ Shop Drawings**	Drawings showing the Detailed Design, prepared by the Contractor (or his Architectural specialist sub-contractor) based upon the Design Drawings, keeping the design intent.
h)	**As-built Drawings**	Drawings produced by the Contractors Architect, which show the works as finally built.
i)	**Inspection**	Inspection of materials, components, equipment and installation of the works carried out by the Rand Water Architect. Such inspection shall be limited to an inspection of the visual appearance only and not to the selection of materials or the Detailed Design or construction of parts and equipment, which shall remain the sole responsibility of the Contractor's Architect. Such inspections by the Architect shall not relieve the Contractor from compliance with the Contract Documents.
j)	**Accepted, Acceptance or Acceptable**	Materials, components, equipment and installations accepted by the Rand Water Architect shall be based upon Inspections (as defined above).
k)	**Contractor's Supplemental Information**	Documentation produced after Contract award, by the Contractor, showing that the Detailed Design complies with the Contract Documents.
l)	**Inspecting Authority**	Competent independent body or association as approved by the Architect, which verifies compliance with the Specification.
m)	**Works**	The scope of work covered by the Specification and design drawings.
n)	**To be agreed**	To be agreed with the Rand Water Architect prior to work commencing

A.211 Overall Project Description

ARHCITECTURAL SCOPE OF WORKS.

The overall proposed scope of work shall consist of but not be limited to the following main objectives:

- Construction of masonry bund wall in accordance with SANS 10400 and as per drawing RA61270/100
- Construction of generator cover structure as per civil scope of works.
- Screed and finishing of existing generator structure floor slab in accordance with drawing RA61270/100.
- Demolition of existing concrete slab between the generator structure and adjacent retaining wall and fuel storage building wall which will be replaced with paving to match the existing paving.
- The inspection, reporting and adjustment of paving around the generator structure to ensure stormwater flows away from the structures towards existing rainwater outlets, as per civil scope of works

- Provision of rodent proofing wire mesh screen and frame for the generator louvres, exhaust flue, openings in and around the generator which includes between the generator and the concrete plinth.
- Provision of construction method statements prior to commencement of the works
- Provision of samples and or specifications of all material and finishes used for approval by Rand Water Architect prior to purchasing of materials and finishes.
- Provision of markups for:
    - Alterations to designs
    - As built drawings

Refer to the following documents for further details:

- BID document architectural scope of works
- System specification documents

CONTRACTORS RESPONSIBILITIES

A.310 General Requirements

a) Comply with the provisions of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and any regulations promulgated in terms of that Act or the Factories Machinery and Building Works Act of 1941.

b) The Contractor shall, before establishing on site, appoint and submit to the Rand Water Architect in writing the name(s) of the person(s) who is/ are the responsible person(s) in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act within 14 days from being appointed.

A.311 Safety

a) From date of site handover to the Contractor until the completed work is handed back to the Employer, the Contractor shall be responsible for maintaining safe working conditions on site.

b) The Contractor shall be responsible in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act or Factories, Machinery and Buildings Work Act, whichever is applicable.

c) The Contractor shall be responsible for supplying and installing the required safety signs as determined by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act or Factories, Machinery and Building Works Act, whichever is applicable, both during the construction phase and for the completed works.

d) All safety signs shall comply with the requirements of the latest edition of SANS 1186-1 as applicable.

A.312 Programme

The Contractor shall submit his programme of work and updated consultant team list to the Rand Water Architect not later than 14 days after the Contractor has been notified of the acceptance of his tender. If necessary, the Rand Water Architect may instruct the Contractor to adjust his programme to suit other activities.

A.313 Design Responsibility

a) Design drawings have been carried out to a high level of detail in the tender drawings. The contractors' Architect shall review all these drawings and documents and shall complete the Detailed Design keeping the function, visual requirements, performance and intent of the Design.

b) The Contractor's Proposals to include full supporting documentation to facilitate a full technical appraisal.

c) Provide submittals outlined in each particular trade section and allow for a minimum of two draft submissions of drawings and schedules for each detailed design set, to be presented to Rand Water Architect before the final drawings and schedules are submitted for approval by the Rand Water Design Office Manager.

d) Prepare a detailed drawing and schedule register for the complete Works indicating the drawing No, drawing title description and revision numbers starting with Revision A.

e) Be responsible for the final selection and proper installation of products and associated parts, using them solely for the purpose intended by the manufacturer.

f) The completion of all testing to certify specification compliance.

g) Co-ordinate the design with other trades including all interface conditions.

h) Provide necessary warranties.

i) Provide relevant documents for Building Control and other Statutory Authorities when instructed by the Rand Water Architect.

j) When requested, the Contractors Architect shall provide calculations and any other relevant information for submission to and approval by the Rand Water Architect. Make any changes required following submissions, to the satisfaction of the Rand Water Architect.

   i. Detailed drawings, typical details.
   ii. Working Drawing programme.
   iii. Material Samples.
   iv. Technical specifications of proposed building material products.
   v. Details of guarantees and warranties.
   vi. Summary of deviations from/ non-compliance with the Tender.

k) No portion of the works shall commence without acceptance of submittals and approval of detail design drawings by the Rand Water Architect.

A.314 Contractor's Proposals

a) The Contractor's Proposals will be reviewed during the Evaluation period. Attend evaluation meetings as required and make necessary changes and alterations prior to Contract award.

b) The Contractor's Proposals to include items A.315, A.316, A.317 listed below.

A.315 Completing the Detailed Design

a) Represent the Detailed Design on the Working Drawings.

b) Comply with all relevant Codes of Practice, Standards, Fire Regulations, Building Regulations and local Building Codes, Safety Regulations and any other regulations applicable to the works, together with all relevant Statutory Rules, Regulations, Bye-laws and other enforceable instruments applicable to both the design and execution of the works.

c) Provide a programme for the Detailed Design showing all tasks, submissions and Working Drawings.

d) Design drawings shall be in the Rand Water approved drawing templates for the drawing size. Design drawings shall incorporate the following on the template of the drawing as a minimum:

   i. Rand Water Drawing numbers which shall be different to the tender drawing numbers. New drawing numbers to be obtained from the Rand Water drawing office or Technical Information Centre.
   ii. Station Name and Plant
   iii. Rand Water Contract No.
   iv. Project SAP No and Network No
   v. Contractors Logo
   vi. Contractors Name and Address, Company Registration No
   vii. Contractors Contract No.
   viii. Contractors Drawing No.
   ix. Name and SACAP Registration Number of the Company's Design Architect who will design the detailed drawings for approval by Rand Water Architect.
   x. The full names, SACAP Registration Number and signature of the Contractors Architect shall be clearly legible on each detail drawing.

e) Do not alter the Contract Specification without the Rand Water Architect's prior written consent.

f) Use materials, fixings and sealant of suitable sizes, thicknesses, types and locations.

g) Allow for all necessary movement and tolerances in the Detailed Design.

h) Include descriptions of relevant structural performance principles of the works; including how and where loads are transmitted to the primary structure and the accommodation of tolerances.

i) Detail all fixing requirements to interfacing elements of the works, to be accepted by the Architect prior to starting installation.
j) The Rand Water Architect's review of Working Drawings will relate to visual performance and functional matters only.
k) The contractors Architect shall receive comments or acceptance of design documents from Rand Water Architect and update design documents as required.
l) Drawings or schedules accepted by Rand Water Architect will be returned to the Rand Water Project Manager together with the Rand Water Design Review Comments Document.
m) Rand Water reserves the right to implement penalties or other punitive financial measures against the Contractor if more than two submissions are submitted that are not finalised and design errors are carried over from one submission
n) Accepted drawings and schedules will be taken to Revision 0 status, printed in hard copy, stamped "For Construction", signed by the Contractors SACAP registered design Architect and signed as accepted by the Rand Water Lead Architect.
o) Contractors Architect to prepared revisions during construction with revision comments and follow the same process as in Clause n) above.
p) Detail Architectural Design package deliverables.
    i. Site Plan
    ii. Layout Plans (Floors, Roofs, Ceilings)
    iii. Sections
    iv. Elevations
    v. Details
    vi. Schedules (Windows, Doors, Sanitary fittings, Finishes)
    vii. Services layouts (Drainage, Water reticulations, Fire safety equipment & escape routes)
    viii. Room datasheets
    ix. 3-Dimensional Model

A.316 Construction Supervision

a) After acceptance of all designs, the Contractors' design Architect shall be responsible for supervision of the entire building construction process.
b) Conduct Construction quality checks for compliance with the regulations, requirements of the specifications.
c) Inform the Rand Water Lead Architect of each construction milestone inspection required as per the quality control plan.

d) Attend each construction milestone inspection and generate documentary evidence of the inspection in the form of a completed and signed attendance of all present at the inspection, sign off of the milestone if accepted or generate a punch list of items to be corrected, with actions required by each party and agreed completion dates, signed by the design architect.
e) Records shall be kept of each such visit for submission in a monthly report to the Rand Water Lead Architect.
f) A master set of approved construction documents shall be kept by the Contractors' design Architect. Any modifications that may be required shall also be recorded on the documents, together with the date(s).
g) Attend all scheduled project and technical meetings on site.

A.317 Additional Supplemental Information

a) Provide any additional information in respect of the Detailed Design, materials, systems, methods, installation and procedures as required by the Architect after Contract award.
b) Submit any additional information necessary to show compliance with the Specification to the Relevant Authorities.

A.318 Material Preferences

a) Use materials of sufficient quality, size, thickness and type.
b) Where the choice of a particular material, type of construction, dimension, size or thickness is shown in the Specification or on the Design Drawings, or a particular method of construction is implied, guarantee that the choice shown satisfies the design intent and performance requirements. If they are considered inadequate or inappropriate, make alternative proposals at the time of Tender.
c) Acceptance of alternative proposals does not relieve the Contractor from responsibility to provide suitable materials, parts and assemblies fit for the purpose intended by the manufacturer and in compliance with the Contract Documents.
d) If, with the Tender, no such alternative proposal is submitted to any of the preferences shown in the Tender Documents, then the solutions proposed in the Specification and on the Design Drawings shall be deemed to be warranted by the Contractor.
e) Final surface finish of similar materials to remain visually consistent, including colour and texture, regardless of orientation or natural grain.
f) Where proprietary products are used, provide any modifications, additional bracing, reinforcing, suitable fixings, etc. to ensure that the products meet the requirements of the Specification.

A.319 Detailed Design, Manufacturing and Installation Tolerances

a) The Specification together with the related Design Drawings indicate the dimensional tolerances (hereafter referred to as 'tolerances') required during Detailed Design, manufacture, sub-assembly, setting out and installation of the works.
b) The Working Drawings to indicate clearly methods of achieving manufacturing and construction tolerances.
c) Advise any tolerance omissions, inconsistencies, or incompatibilities.
d) Check site dimensions critical to the works, in sufficient time to enable corrective action to be taken.
e) Inform the Architect of any work that does not meet the specified tolerances.
f) The works to be free from deformation and not be subject to warping, twisting and/ or perishing, remaining stable, firm, free from vibrations, knocking, rattles and/ or whistles, squeaks or other such noises.
g) In the event of there being any discrepancy in the values of existing datum reference points, datum levels, buildings, foundations or other features to which the works are related, determine and report such a discrepancy and obtain written instructions before proceeding.
h) Permissible tolerances to be progressively checked up to handover. Where two or more different tolerances can be derived by calculation and/ or from the Design Drawings for the same dimension, the least tolerance to apply. Tolerances not to be cumulative.
   i. Deliver submittals to premises identified by the Architect.
   ii. Individually identify each submittal for the project element.
   iii. Include all relevant information with each submittal.
   iv. Identify submittals that differ from the requirements of the design.

SUBMITTALS

A.410 Procedure

a) No portion of the works to start without acceptance of the required submittals.
b) Provide a final schedule indicating the dates on which submittals will be available for inspection.
c) Provide submittals in accordance with the following:
   i. Deliver submittals to premises identified by the Rand Water Architect.
   ii. Individually identify each submittal for the project element.
   iii. Include all relevant information with each submittal.
   iv. Identify submittals that differ from the requirements of the design.

d) Submission of Drawings and Documents:

The following submission stages shall be followed for acceptance of drawings and documentations. Received documentation shall be reviewed as per RW Architectural check lists, to be completed, signed and submitted for review by RW Architect. All work stages to include Green building principals, reports and submittals. No work stage shall commence without acceptance of the required submittals of prior work stage.

i. Inception
   - Project inception report

ii. Concept & Viability
   - Concept design drawings
   - Concept Design Report

iii. Design Development
   - Design Co-ordination drawings
   - Design Co-ordination Report

iv. Construction Documentation
   - Local authority submission documentation
   - Construction documentation
   - Contract documentation report

v. Inspection of Works
   - Inspection of work for conformity to the contract documentations
   - Updates to Construction detail drawing
   - Site inspection reports

vi. Close out
   - Project completion, handover and operation documentation.
   - As-built drawings
   - Project completion report

e) Allow 21 days between the first submission of a Working Drawing and receipt of A or B status confirmation. Failure to achieve status A or B to be at the Contractor's risk.

f) Incorporate into the contract submittals reviewed and altered documentation

A.411 Tender Submittals

a) Provide, at the time of Tender, the submittals listed in the Specification and a Non-compliance Report stipulating any deviations/ non-compliance with the specification or Design Drawings.

b) Provide detailed specifications to show compliance with the Specification for materials and workmanship including structural and services elements.

c) The Contractor's Proposals to be agreed prior to Contract award.
d) After Contract award provide Working Drawings/ Shop Drawings, samples, mock-ups, prototypes, quality benchmarks, calculations, test reports and other relevant.

A.412 General Samples

a) Samples to include various natural materials, fabricated items, equipment, devices, appliances or parts thereof, as may be required to satisfy the visual appearance and technical requirements of the Design.
b) Review samples for their visual characteristics and where moving or operating elements are involved, the Architect to be given the opportunity to review working samples.
c) Provide samples where a range of colour, graining, texture and other characteristics are anticipated.
d) Where custom colours are specified, samples to be submitted illustrating precise colours, textures, patterns and finishes for review by the Architect.
e) Sample inspection location to be determined by contractor's architect & rand water architect prior to manufacturing and installation.

A.413 Tender Samples

a) Samples provided with the Tender or during the evaluation period.
b) Provide the samples, listed in the Specification, required to verify visual appearance and/or quality.
c) Deliver tender samples to the Architect's office showing type and quality of material proposed for use in the works.
d) Final agreed Tender samples will be labelled and kept by the Architect as a record of materials agreed for Contract.

A.414 Control Samples (Post Contract)

a) Provide samples during the completion of the Detailed Design for checking against the Tender samples to ensure that quality and type have been maintained.
b) The approved samples are to be considered as the agreed standard of finish and workmanship for the project.
c) The samples listed in the Specification to be kept as a record of materials to be incorporated in the works and used as references for controlling consistency throughout installation.
d) Provide samples of materials in their final form.

A.415 Mock-ups

a) During Detailed Design provide mock-ups for inspection as described in the Specification.
   i. Full size details and graphic representation describing materials, components and equipment, construction, finishes, provision for movements, fabrication and erection tolerances.
   ii. Layouts, locations and assemblies of all types of construction detail and junctions, details of materials, method of jointing, details of all Site connections and fixing and sealing methods, finishes and all pertinent information related to:
      - Method of fabrication and construction.
      - Proper relation to adjoining work.
      - Finishes.
      - Amplification of details.
      - Minor changes to the Design to suit actual conditions.

b) Mock-ups need not use final materials to be incorporated in the works but should adequately represent the design.

c) Mock-ups to confirm visual intent including colour, size, fit and co-ordination.

A.416 Prototypes

a) Prototypes to be constructed at a point in the programme that will allow modifications to be introduced into the manufacturing process without interfering with the construction programme.

b) Produce Working Drawings/ Shop Drawings for the prototypes.

c) Install prototypes where directed to allow testing for function and conformity with the design specification

d) Prototypes to be tested to demonstrate system performance of the maximum applied loads, climatic conditions and structural movements.

e) Prototypes to be used as a Quality Assurance ‘Hold Point’.

f) Manufacture of materials/ products for use in the works not to start until receipt of the Architect’s written acceptance of the prototypes.

g) Where tests are specified, carry out or arrange for the testing by an approved independent test authority.

h) Any changes required to be recorded on As-built Drawings to show their final construction.

A.417 Quality Benchmarks

a) Upon start of installation, erect complete sections of elements of the works, where described in the Specification, for acceptance of the Architect. Use these as a quality benchmark for the remainder of the works until Practical Completion.
b) Do not start installations in other areas of that particular element until the Architect has examined and accepted the quality benchmark. Carry out any alterations or adjustments required in order to achieve an acceptable quality.
c) Upon receipt of acceptance, fully protect the quality benchmark. Use, from time to time, to check and monitor quality of materials and workmanship incorporated in the remaining areas of the works, or where specifically stated for further testing. Remove and replace all protection for such purposes.

A.418 Working Drawings/ Shop Drawings

a) Provide Working Drawings/ Shop Drawings, (plus where specifically requested in writing, relevant structural, thermal and acoustic calculations and other data) as required by the Conditions of Contract.
b) The Working Drawings/ Shop Drawings will be reviewed for compliance with visual, performance and Contract requirements.
c) The Working Drawings/ Shop Drawings review will not relieve the Contractor of his responsibility for errors, or for supplying components and materials to the full satisfaction of the Architect.
d) Working Drawings/ Shop Drawings to be fully dimensioned in metric, to an agreed scale appropriate to the detail, and include:
    i. Full size details and graphic representation describing materials, components and equipment, construction, finishes, provision for movements, fabrication and erection tolerances.
    ii. Layouts, locations and assemblies of all types of construction detail and junctions, details of materials, method of jointing, details of all Site connections and fixing and sealing methods, finishes and all pertinent information related to:
        - Method of fabrication and construction.
        - Proper relation to adjoining work.
        - Finishes.
        - Amplification of details.
        - Minor changes to the Design to suit actual conditions.

e) Submit Working Drawings/ Shop Drawings in accordance with the Conditions of Contract and do not start fabrication of components until formally returned by the Architect with either 'A' or 'B' stamped on each of the Working Drawings/ Shop Drawings. Ensure that space is left clear on each of the Working Drawings/ Shop Drawings for stamping by the Architect. The following drawing inspection codes to be used when returning the Working Drawings/ Shop Drawings to the Contractor:
    i. Drawing stamped 'Category A' - Fabrication, manufacture or construction may proceed in accordance with the drawing submitted.
    ii. Drawing stamped 'Category B' - Fabrication, manufacture or construction may proceed in accordance with the drawings submitted subject to the Contractor taking necessary action based on the Architect's comments and all annotations added to the returned drawings. Unless shown to the contrary on such drawings, the work to comply with the Contract Documents. To achieve 'Category A' status, the required number of copies of amended drawings to be sent to the Architect.
    iii. Drawings stamped 'Category C' - No work to be fabricated, manufactured or constructed. Submit new drawings to the Architect for review until re-submission is not required.
    iv. Provide technical reports recording test results for systems, parts and materials as required by the Design Drawings, the Specification, the Architect or a testing laboratory, prior to start of installation.
    v. The reports to state compliance with the technical requirements of the Specification and include, where appropriate, test certificates.

f) The Architect's final comment on the Working Drawings/ Shop Drawings (Category A) will be conditional upon receipt of all documentation, certification, acceptances in respect of anchorages, fire stop assemblies, samples, mock-ups and test reports, etc. as defined in the Specification.

g) When preparing the Working Drawings/ Shop Drawings consult the current Architectural, Structural and Services Design Drawings, adjusting the Working Drawings/ Shop Drawings to allow for any changes to Site tolerances and/or discrepancies where applicable.

h) Utilise manufacturer's standard details as appropriate ensuring compliance with the design intent.

i) Annotate the Working Drawings/ Shop Drawings in English and title in the manner determined for the Contract, with the title block fully indicating the part of the works to which they apply.

j) Treat as confidential information contained in any of the Design Drawings and do not utilise for any purpose other than for the works.

k) No Working Drawings/ Shop Drawings acceptable if produced to a reduced size.

l) Submit Working Drawings/ Shop Drawings in two polyester printed copies and two electronic format copies.

A.419 Other Submittals

a) Product Data: Provide technical information detailing the characteristics of each system, system part or material incorporated in the works. Include material schedules and manufacturer's literature.
b) Certifications: Provide independently certified reports verifying compliance of each element or part with the requirements of the Design Drawings and Specification. These reports to include the chemical and physical properties of various building materials.
c) QA/ QC Programme: Provide a programme to satisfy the requirements of the Specification, the Contract conditions or any other documents referred to in the Contract Documentation.
d) Pre-construction Testing Reports:
e) Maintenance/ Operation Manuals: Manuals prepared by the Contractor for the Client/ building user's maintenance and operation of the various building systems and/ or parts thereof.
f) Supplementary Product Literature: Such literature may include manufacturer's catalogue information, product specifications, standard illustrations, diagrams and standard details. The supplementary product literature to describe physical characteristics such as size, weight, finish, material analysis, electrical requirements and other information such as load tables, test results, assessments and industry quality standards.
g) Technical Calculations: Technical engineering calculations which document technical performance of various systems, system components and/ or materials, as required by the Design Drawings and Specifications.
h) All submittals provided to be written in the English language.

A.420 Review of Submittals

a) The submittals will be reviewed for visual and performance compliance and if acceptable, stamped or marked in accordance with the project procedure. Submittals that are incomplete or erroneous, or which are not required, will be returned and a new submittal made as necessary.

PERFORMANCE REQUIREMENTS AND DATA

A.510 Performance Requirements

a) The works to comply with the performance criteria stated in the Specification.

b) Stated performance criteria sets the minimum standards with which the Detailed Design shall comply.
c) No warranty or representation is given by the Architect as to the accuracy of the Design Drawings or the adequacy or buildability of details shown. Should the Contractor adopt the details or arrangements shown on the Design Drawings it shall be deemed that he has checked their buildability and performance in terms of this Specification, all relevant Regulations and codes of practice, and manufacturers' recommendations for any products referred to.
d) Where relevant South African National Standards, British Standards, BS codes of practice, or Agreement Certificates applicable to the design exists, the recommendations and requirements of such documents to be considered a minimum standard for the works.

Design and Service Life Structural

A.511 Design Life of Building

a) The design life of the building to be a Normal Life. Minimum period 60 years.

A.512 Service Life of Parts

a) The design life of the Works is to be as stated above; however, it is recognised that various elements/ parts have varying 'service life' (i.e. actual period of time during which no excessive expenditure is required on operation, maintenance or repair of a component or construction – as recorded in use).
b) Primary components are all components with a predicted service life not less than the design life of the building without the need for maintenance other than regular cleaning.
c) Secondary components are all components with a predicted service life of design life equal to the element being specified, assuming regular cleaning and maintenance. Secondary components shall be capable of easy replacement without progressive dismantling of adjacent elements.
d) Confirm the predicted service life (i.e. the service life predicted from recorded performance or accelerated tests) and maintenance requirements of the parts of the Works for review by the Architect and provide detailed information at Tender Stage.
e) Use materials solely for the purpose intended by the manufacturer and which satisfy the requirements of the Specification and the Contract Documents.
f) Premature deterioration is not acceptable.

Structural

A.513 Movements

a) The Detailed Design, fabrication and installation to take into account all tolerances and movements of the building structure in both permanent and temporary conditions.
b) Movements include the application of dead, live and wind loads plus moisture, shrinkage, deflections, creep, seismic and thermal effects, that may occur during the fixing, final installation or lifetime of the works.
c) The works to withstand all movements of the building structure under all design loads or combination of loads without damage or any reduction in performance.
d) Fixings to be capable of providing adequate restraint and with adjustment to suit building movement and prevent system/ installation failure.
e) Movement joints to accommodate the maximum movement that can be derived from the specified and determined design loads and movements and to meet all the performance requirements of the Specification.
f) The works to resist torsional stresses, static and dynamic design loads without causing permanent deformation of components or the failure of systems, materials or seals and to transmit such loads safely to the points of support.
g) Refer to the Movement and Tolerance requirements produced by the Structural Engineer.

A.514 Dead & Live Loads

a) Accommodate the following loads without any deterioration or reduction in performance:
    i. Accommodate the component and final assembly dead load locally without causing deflections or movements that adversely affect any component.
    ii. The dead loads derived from any permanent fixtures or services attached to the surfaces of the works.
    iii. All loads resulting from movements of the building structure and support structure.
    iv. Impact loads, or transferred impact loads, that occur during the service life of the works, without deterioration in performance and without sustaining non-repairable damage.
    v. Loads imposed during replacement of components.
b) When calculating loads the worst combination to be considered.

Environmental Conditions Durability

A.515 Deflections

a) The works, when carrying full design loads, not to exceed the deflection limits specified within the relevant Work Section.
b) The works not to deflect under loading in any way that is detrimental to any part or adjacent structural or building element.
c) All parts, couplings and fixings to be capable of accommodating deflections without permanent distortion, deformation or failure.
d) The works to accommodate differential structural movements arising from any loads imposed by adjacent structures.
e) Reduce the magnitude of the allowable deflections if they are detrimental to any part of the works, its support structure or internal finishes.

A.516 Wind Loads

a) The works to withstand without permanent deformation, the effects of wind loads where appropriate (e.g. external conditions or internal areas subject to external wind pressure).
b) Design Wind Pressures:
    i. Refer to the Wind Tunnel Test Report prepared by the Structural Engineer.
    ii. Refer to the Wind Loading Study and the Roof Wind Loading Assessment.
c) Determine precise wind load values in accordance with the geographical location of the Site, the topographical conditions and the type of building in accordance with The Wind Tunnel Test Report and SANS 10160 for a return period of 50 years. When assessing the wind pressure allowances, take account of the shape of the building and its location in relation to the layout of adjacent structures.
d) Pay particular attention to areas subject to increased pressures i.e. eaves, canopies and external corners.
e) Take special care to identify and design for any situation not clearly defined in SANS 10160 where it is believed that the geometry of the building may cause increased pressure due to vortex or eddy conditions.
f) Calculate maximum gust wind pressure in accordance with SANS 10160.
g) When calculating loads ensure that the worst combination of load cases have been considered and in particular, that the governing wind pressure coefficients may be determined by more than one wind regime.

A.517 Preceding Work

a) At the appropriate time check all preceding work, including checking line, level and fixing points and report immediately to the Architect if any is considered to be unsuitable. Propose remedial action if so requested by the Architect.
b) Prior to manufacture of parts/ elements, where possible, inspect the Site and check measurements of the preceding works while completing the Working Drawings.
c) Co-ordinate all Site dimensions.

A.518 Vibration

a) Make sure that the works withstand all vibration caused by traffic, aircraft, equipment effects or any other shocks, slamming, strains, stresses and movement imposed, avoiding deterioration or fracture of any element, both during construction and after installation.

A.519 Generally

a) Make sure that the works conform to all aspects of the Specification, taking into account all local environmental conditions prevailing at Site.
b) Allow for the fact that the works will be erected in all extremes of weather conditions throughout the year and that the building may not be climatically controlled during construction.

Durability

A.520 General Requirements

a) Ensuring that the Works complies with the relevant requirements of SANS 10400.
b) Use materials in the Works that suit the design and service life of the building.

Fire and Smoke Stops

A.521 General Requirements

a) Use materials in the works that suit the design and service life of the building.

A.522 Fire and Smoke Requirements

a) Comply with all codes and acts related to fire and smoke control.

b) Where the Statutory Authorities and/ or Local/National Fire Regulations require a specific fire resistance to elements of structure which form a junction with adjacent components, ensure that the junction is fire stopped to the same degree as the elements.

QUALITY CONTROL

General Quality Assurance, Quality Control, Testing

A.610 General

a) Set up, document and maintain a quality assurance and quality control system, in accordance with SANS 9001/ ISO 9001, able to be checked to the satisfaction of the Architect, that all materials and workmanship, whatever their sources, meet the requirements of the Specification. Should the Contractor or any of his sub-contractors be certified to the SANS 9000 family of standards then monitor these works accordingly.
b) Define the quality programme in a quality control manual or similar document in which the organisation systems, inspection and test plan procedures are fully described to ensure that all essential inspection requirements are determined and satisfied throughout all phases of the works.
c) Establish a tolerance quality control manual to cover all aspects of tolerance compliance relating to the works. Prepare a quality control proposal for submission to the Architect for acceptance. This shall describe, in detail, the various types of quality control checks to be carried out during each stage of the works; what means and methods to be used; which personnel to be employed, together with their qualifications, and how each type of tolerance check is to be recorded and kept for future reference.

A.611 Testing and Inspection

a) Where required, engage an accredited independent testing specialist, as agreed with the Architect, to verify that the requirements of the Contract have been satisfied.
b) Make the following minimum provisions available to the Architect at all times:
    i. Suitably qualified personnel using appropriate validated equipment.
    ii. All necessary access and facilities for inspection and testing in fabrication shops and on Site.
    iii. Regularly calibrated equipment for the purposes of load measuring.
c) Maintain the following:

i. Tests and inspection results during all stages of manufacture, assembly and installation of components.
ii. Certificates relating to the materials used in the work, as confirmation of tests carried out in accordance with the relevant standards and codes.
iii. Records of all inspections and tests performed to substantiate conformity with the Specification, including those carried out by sub-contractors and sub-suppliers.

d) Should any test reveal defective material and/ or workmanship immediately carry out any remedial work and/ or re-testing, including that of a special nature, under instruction from the Architect.
e) Indicate on the Contract Programme the exact timing of all testing, procedural trials and trial assemblies, in order to allow the Architect the opportunity of attending.
f) If the Architect is of the opinion that the works do not conform to the requirements of this document, or to the details shown on the Working Drawings, then special tests to be carried out to establish the case.

A.612 Factory Testing and Inspection

a) The Architect reserves the right to visit and enter the manufacturer's works during the design and manufacturing stages for the purposes of interim and final inspections and for progress information acquisition.
b) Where the Contractor makes use of third parties for the manufacturing and/ or procurement of equipment, the Contractor shall ensure that this requirement is agreed with the third party.
c) The Architect reserves the right to be present at all or any tests (or, at their discretion repeats of such tests) conducted on the equipment.
d) One calendar weeks' notice of pending tests shall be given to the Architect in writing.
e) Three copies of all test records are to be submitted to the Architect for approval.

A.613 Site Testing and Commissioning of Equipment

a) Preparatory Work
i. The Contractor shall be responsible for commissioning all sections of the works and shall perform all of the tasks set out below and as detailed in the relevant standard and detail specifications.

ii. Prior to any tests and commissioning, all sections of the works shall be carefully inspected by a responsible representative of the Contractor to ensure that all construction and installation work has been properly completed.
iii. Prior notice of and proper arrangements for the commissioning shall be made with the Employer, Architect, supply authority, and all Contractors and suppliers of equipment, which will be affected by the commissioning operation.
iv. If plant and equipment, which has been supplied by others, has to be commissioned, the supplier's specific permission thereto, together with any specific requirements relating to commissioning shall be obtained prior to commissioning and the Contractor shall arrange that the commissioning shall be attended by a representative of the equipment supplier.

b) Commissioning
i. Commissioning and testing on site shall be carried out by experienced personnel under the manufacturer's supervision, and shall be the Contractor's responsibility.
ii. All equipment necessary for the purpose of the tests must be provided by the Contractor and remains the property of the Contractor.
iii. All tests and checks to be carried out shall be approved by the Architect prior to the commencement thereof.
iv. All tests and checks are to be recorded in writing and records sent to the Architect.
v. Carry out all necessary adjustments to ensure correct operation of the equipment, mechanisms and interlocks.
vi. Adjust all the protective devices to the settings required.
vii. Operate all circuits and check that all interlocks and controls operate correctly. Check that all meters are reading correctly.
viii. Instruct the client's staff in the operation and servicing of the equipment.
ix. Hand over all loose items together with lists of such items and obtain receipt from the client's representative.
x. Clean all equipment and thoroughly clean plant rooms and leave in neat and tidy condition.

A.614 Inspections and Costs

a) The Contractor shall give the Architect at least 24 hours' notice in writing to inspect, measure, test or commission any section of the works.

b) In the event of the Contractor requesting the Architect to inspect, measure, test or commission and sections of the works are not ready for the Architect, or where the testing of the works fails the Contractor shall pay the Architect per hour for his travelling and time spent on site or in the factory.
c) The Contractor shall furthermore be liable for the Architects costs for all inspections, measurements, tests and commissioning that the Architect has to undertake after the expiry of the completion period allowed for in this contract and where no extension of time has been granted.

A.615 Standards

a) South African National Standards to be the governing standards for the works.
b) Only where expressly stated in the Specification are other National Standards to be applicable to the works.
c) All reference to standards, regulations and requirements of statutory bodies mean the latest published editions at the time of Contract award.
d) Where such standards, regulations and requirements are amended after Contract award and affect the Contractor's responsibilities during the course of the works, immediately inform the Architect in writing.
e) If unable to comply with the governing standards or regulations and proposing to substitute other National Standards, inform the Architect within the summary of deviations from the Specification.
    i. Provide fully detailed reasons for being unable to comply, together with any design and/ or technical implications.
    ii. Failure to provide such notification prior to Contract award shall be deemed acceptance of the governing standards or regulations and later notification shall be invalid.

A.616 Building Codes and Regulations

a) All materials, components, equipment and workmanship to comply with Local Authority Codes and Building Regulations, South African National Standards, and any other regulations applicable to the works, together with all relevant Statutory Rules, Regulations, Bye-Laws and other enforceable instruments in both the design and execution of the installation.
b) Unless stated otherwise, South African National Standards to apply to the Building Design and Materials as listed herein.

c) The *Standard system of Measurement building work (7th Edition 2015)* document shall be used to provide a uniform basis for measuring building work.

Safety and Protection

A.617 Regulations

a) Give full consideration to the health and safety of operatives when completing the Detailed Design, manufacturing, installing or operating and maintaining the works.
b) The Working Drawings only to incorporate methods of manufacture, installation, maintenance and use that are safe and comply with all Health and Safety requirements.

A.618 Damage Anticipation

a) Anticipate the possible sources of damage to the works and take active and positive protective measures to maintain them in pristine condition until full Practical Completion. The acceptance of responsibility for making good in the event of damage is not considered adequate.

A.619 Protective Devices

a) Provide necessary protective devices to protect all goods and materials incorporated into the works, at all stages through to Practical Completion, against damage arising from, but not limited to weather conditions, construction, other contractors, warping, distortion, abrasion and other conditions which could have an adverse effect on any goods and/ or materials used in the works.

A.620 Protective Measures

Provide full details of the protective measures proposed for use at each of the following five stages:

a) Manufacture and packaging of goods and materials at off-Site locations.
b) Shipment to Site and unloading.
c) Storage on Site and movement to point of installation or construction.
d) Installation/ construction.
e) Completion to handover.

A.621 Packing and Crating

a) Where parts/ components are delivered to the Site in packages or crates, then each package or crate to be labelled on the outside giving the reference and quantity of the contents so that deliveries can be accepted at the Site without the necessity of breaking open any package.
b) Carefully remove all protection from the works immediately before Practical Completion and leave the works perfectly clean and fit for immediate use.

A.622 Protection of Glazed Elements

a) All elements of framework and associated beads and strips to be stored on Site such that they are not damaged, distorted or weathered unevenly.
b) All finished components to be carefully packed in stillages or crates such that they are suitably separated and protected to prevent scratching, scuffing or other surface damage.
c) All glass panes, sealant and gaskets to be stored on Site in accordance with their manufacturer's written recommendations.

A.623 Earth Bonding

a) Effectively bond to earth all extraneous conductive parts of the works.
    i. An extraneous conductive part is defined as being that part which is liable to transmit a potential, including earth potential, and not forming part of the electrical installation.
    ii. Each component is to constitute an extraneous conductive part.
b) The works to be electrically continuous as required by the latest edition of the IEE (Institution of Electrical Engineers) Regulations.
c) Provide equipotential bonding to ensure that the various exposed conductive parts and extraneous conductive parts as defined by the IEE Regulations are at a substantially equal potential.
d) Earthing connecting to comply with SANS 10142, SANS 10199, SANS 10200 and SANS 10292.

A.624 Electrolytic Protection

a) At all locations where different metals are assembled together, ensure that electrolytic corrosion does not occur and that the necessary protection is provided where needed, in both temporary and permanent conditions.

A.625 Corrosion Protection

a) Take protective measures to avoid any corrosion or any deleterious effects caused by manufacturing, finishing, transportation, storage and installation of materials.
b) Ensure full resistance to any corrosion for components that are secured or bolted to each other, paying particular attention to the surface damage caused by such bolting or securing.
c) Ensure full resistance in repair of corrosion protection to cope with the Site cutting of components, especially at boundary and external conditions.
d) The minimum requirements for the corrosion protection system for all steelwork to conform to SANS 10120-3 HC and SANS 1200 HC.
e) Allow for protection against all corrosion arising from exposure to seawater, non-saline water, soil, high humidity, low or high temperatures, chemical acids and alkalis, abrasion and impact, fungi and bacteria.
f) Take particular care with delivery and storage on Site, particularly if storage is prolonged. On no account store or use materials or components beyond the manufacturer's expiry date.

A.626 Fire Protection

a) Fire performance in terms of fire resistance of elements and structure to be determined in accordance with the SANS 10177 and the National Building Regulations.
b) Non-combustible materials to be as defined in SANS 10177 and the Building Regulations.
c) Materials of limited combustibility to be as defined in SANS 10177.
d) Internal surfaces and linings requiring to be rated in terms of 'surface spread of flame' to be rated for performance by the method specified in the Building Regulations.
e) Composite products and synthetic materials requiring to be fire rated to be subject to the limitations specified in SANS 10177.
f) Supply test certificates to demonstrate that all materials meet the above requirements.
g) Ensure compliance with all Statutory Authorities' and Fire Services' requests/ recommendations.

A.627 As Built Drawings

a) The Contractor shall at all times keep a set of updated as-built drawings on site.
b) On completion of the works the Contractor shall produce and provide the Rand Water Architect with a set of as-built drawings consisting of:
    i. Hard Copy – three sets of paper prints.
    ii. Electronic copy – PDF & DWG formats (BIM Model if required)

c) Any submissions without an official transmittal note and an update drawing and schedule register and the correct updated Revision number will not be accepted.

General Materials Requirements

A.628 Standard of Materials and Quality

a) Materials to be new, unless otherwise specified, carefully selected and of the best merchantable quality.
b) Materials are to comply with the appropriate South African National Standard or British Standard where not provided for in the South African National Standard.
c) All materials to be acceptable to the Rand Water Architect.

A.629 Alternative Materials

Where alternative materials are proposed, the contractor shall be responsible for the supply and installation of materials, all in accordance with specified standards.

A.6210 Health Hazards

No proposed materials to be a potential health hazard. Maintain a full, up-to-date knowledge of all current published research and legislation in this respect.

A.630 Deleterious Materials

Do not use the following materials in the works unless it can be demonstrated that they are safe during manufacture, installation and use and that their suitability is ensured:

a) Asbestos or asbestos-containing products.
b) Lead where the metal or its corrosive products may be directly ingested, inhaled or absorbed. Applications of lead such as roofing, flashings, rainwater goods and copper alloy fittings containing lead which are specifically required are acceptable.
c) Lead based paints and primers.
d) Urea formaldehyde.
e) Materials which generally comprise mineral fibres, either man-made or naturally occurring, which have a diameter of 3 microns or less and a length of 200 microns or less, or which contain any fibres not sealed, encapsulated, or otherwise stabilised to ensure that fibre migration is prevented. Products that may contain these fibres include insulation, fire

protection and air filters. For all mineral wool insulation products, test evidence must be available and produced confirming that the materials fulfil the requirements of European Directive 97/69/EC.

A.631 Sustainable Sources of Timber

a) Procure all softwood timbers and all temperate hardwoods from sustainable sources.
b) All plywood used in the works to be from softwood or temperate hardwoods from sustainable sources.

A.633 Compliance with National and International Standards

For all material and equipment that are required to conform to any national or international specification or publication, the Contractor shall submit a certificate to the Rand Water Architect, issued by an accredited testing laboratory clearly stating that the material and/ or equipment complies with the required specification or publication.

Workmanship

A.634 Skilled Personnel

Execute the work using persons skilled in the processes to be adopted. Where requested, provide such documentation necessary to demonstrate an individual's ability to carry out the work to which he has been assigned.

A.635 Suitability of Structure

Before commencing any part or element of the works, survey the structure, checking line, level and fixing points and report immediately to the Rand Water Architect if the structure is considered to be unsuitable. If the structure is unsuitable, propose remedial action.

A.636 Setting Out

Ensure accurate setting out in accordance with the Main Contract Conditions and Preliminaries

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A.637 Compatibility

Any materials and processes employed in the works that are not compatible with each other, should be brought to the Rand Water Architect's attention. Store all building materials and associated components in a clean dry area, in accordance with the manufacturer's written recommendations.

A.638 Manufacturer's Instructions

Where proprietary systems are specified and included in the works, ensure that the method of building or installing is strictly in accordance with the manufacturer's printed instructions and that copies of all such documentation are supplied to the Rand Water Architect prior to start of the works.

A.639 Visual Inspection

All finished surfaces to be subject to visual inspection and acceptable to the Rand Water Architect.

A.640 Suppliers

Ensure that all necessary making good or replacement is carried out by sub-contractors or suppliers, for all materials, components and equipment supplied or manufactured by sub-contractors or suppliers under their warranties.

A.641 Covering Up

No work to be covered up without agreement by the Rand Water Architect. Afford reasonable notice and full opportunity for the examination and measurement of any work that is about to be covered up.

A.642 Cutting

a) All methods, principles, details, etc. for Site cutting of components to be submitted as part of the Contractor's method statement to the Rand Water Architect for review. No manufacturing of building material components to start until it can be demonstrated that all proposed techniques have been reviewed by the Rand Water Architect.
b) Cutting of metal products to be straight and free from burrs and all joints to be flush, without gaps or imperfections. If base metal is exposed, protect the surface to the same level of protection as stated in the Specification.

A.643 Deterioration

a) Ensure that no chemical or electrolytic action takes place where dissimilar metals and/ or materials are used together.
b) No materials to discolour, crack or otherwise be damaged by the worst possible combination of environmental conditions identified herein.
c) With materials subject to surface treatment, give special attention to the substrate to ensure that that the preparation is compatible with the surface treatment.
d) Ensure that all superficial dust and friable materials are removed and that adequate protection is provided during the process of the surface treatment and finishes to prevent contamination by dust and other debris.
e) No materials used in the manufacture of the works to be liable to infestation attack by micro-organisms, fungi, insects or other vermin, nor provide harbourage for same.

A.644 Line and Level

All components to be installed such that they are plumb or horizontal and line up with adjacent components, in all directions, taking account of the allowable tolerances as defined in the Project Common Tolerance and Movements Document.

A.645 Method Statements

Prepare a detailed method statement describing the sequence and methods to be employed in carrying out this work, identifying proposed solutions regarding workmanship which affects the fabrication, holding, storing and handling, setting-out, Site assembly, bolting, joining and welding of components and the protection of the metalwork against corrosion. Such notes to be clearly written on the Working Drawings to be used for Site fixing.

A.646 Handing Over Services and Equipment

a) The handing over of completed sections of the works to the Employer putting into operation of the completed sections of the works will only take place once the following documents and drawings have been submitted to the Rand Water Architect:
    i. A certificate of compliance in terms of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and the regulations promulgated in terms of the Act or Factories, Machinery and Building Works Act, whichever is applicable.

ii. A certificate issued by the Contractor that the installation complies with the contract and specifications.
iii. A certificate of acceptance which shall be specified and signed by the Employer after the inspection, acceptance and approval of the completed sections of the works has taken place.
iv. "as-built" drawings of the installation.

b) Written application to energise the completed sections of the works.

EMPLOYERS REQUIREMENTS – MANUALS + TRAINING

A.710 General

a) Prepare the manual in the format as agreed with the Rand Water Architect.
b) Content:
   i. The Maintenance Manual shall incorporate all maintenance systems and give details of the operation and required maintenance of all items, components and systems comprising the works.
   ii. This information shall be supplied for the Rand Water Architect's review in the following format:
      - Specially written information shall be on A4 size pages with typed text using double spacing and in a format agreed prior to submission.
      - Drawn information shall generally be on A3 size sheets unless a larger format is deemed necessary.
      - Standard published information shall be carefully selected and edited to include only those items installed. Where editing is not appropriate, the relevant items shall be typed out and included.

A.711 Submission of Manual

a) Submit the manual in draft for approval as directed by the Rand Water Architect.
b) One month before programmed completion/ practical completion prepare and deliver to the Rand Water Architect three bound copies and one electronic copy in Word format of the approved Maintenance Manual.
c) Demonstrate its usage to the Building Maintenance Manager.

A.712 Usage

a) The Maintenance Manual is designed to make information needed for maintenance available to non-specialist people.
b) It shall be tabulated and cross referenced to make access to information easy.
c) It shall be illustrated with drawings and reference the as-built drawings.
d) It shall form the product reference for future replacements.

A.713 Products and Components

a) Component Information: Provide the following information for every item, component and/ or system:
    i. Certified manufacturing certificate.
    ii. Full description giving any special features.
    iii. A full breakdown of the parts and the catalogue number of the constituent parts.
    iv. The guarantee period of any element or material where in excess of the warranty required by the Specification.

b) Detail the finishes/ coatings of the as installed components.
c) Provide names, addresses and phone numbers of all manufacturer's and suppliers.

A.714 Servicing Components, Materials and Assemblies

Operation and Maintenance Manuals

a) Maintenance Procedures: The Maintenance Manual shall include fully comprehensive details in respect of:
    i. Cleaning procedures for all elements of the works.
    ii. Replacement procedures.
    iii. Regular cyclical maintenance procedures (avoiding damage).
    iv. Repair procedures in the event of damage.
    v. Cleaning and Lubrication:
        - Provide all necessary information regarding materials for cleaning and treating surfaces, including the frequency and method of washing required to maintain performance and appearance.

- Provide a list of all methods and materials which shall not be used in cleaning and treating surfaces.
- Recommend methods and materials for adjusting and lubricating mechanisms and moving parts.

b) Service Life:

i. Provide in tabulated format materials, components, fabricated elements, finishes and coatings, grouped by service life.

ii. Recommend dates for replacement to pre-empt failure, loss of function or visual deterioration.

iii. Service Intervals:

- List intervals, or specific dates, and describe work needed to be done to maintain appearance and function as intended, to achieve durability and predicted service life.

Training Maintenance Personnel

A.715 Replacement Instructions

a) Describe in detail the construction of each fabricated element.

b) Provide method statements and detailed instructions for:

i. Dismantling and re-assembling in situ of elements.

ii. Removal and replacement with a duplicate element.

iii. The replacement of short life materials and components.

A.716 Guarantees, Warranties

Include copies of all guarantees, warrantees, manufacturer's assurances and certified test results.

A.717 Names and Addresses

a) Provide contact names, company names, addresses, telephone and email addresses for all sub-contractors and suppliers engaged upon the works.

b) Indicate the nature and extent of their work.

A.718 Equipment Spare Parts

a) One month before commissioning and handover of a system or functional unit, the Contractor shall submit a detailed priced list of recommended spares and consumables required for the system(s).
b) The list shall indicate which spares are consumable spares and which are strategic spares together with an expected monthly consumption.

A.719 Training of User's Maintenance Personnel

a) Prior to Practical Completion of the works provide skilled staff/ operatives to instruct the user's staff on the correct and efficient maintenance of all, components as detailed in the Maintenance Manual.
b) Provide a programme and schedule of training requirements, prior to completion of the works, stating the minimum amount of time which is required for the skilled staff to train the user's staff.
c) Throughout the training period remain responsible for the operation and maintenance of the works.
d) Where such training cannot be carried out prior to Practical Completion of the works due to the nature of the equipment, return to Site at a later mutually agreed date to complete the training period.

CIVIL TECHNICAL SPECIFICATION

1 PART 1 - PROJECT SCOPE AND GENERAL SPECIFICATIONS

Background Information

Rand Water is a public utility wholly owned by the Department of Water Affairs. It is the largest bulk water utility in Africa supplying just under 4000 Mℓ/d. It has been in existence since 1903 and supplies water to over 13 million consumers.

As part of its mandate to supply safe potable water to the public, Rand Water is required to ensure that it provides for facilities that allow for uninterrupted staff availability for all foreseeable risks – one such risk being uninterrupted electric power supply to the Rietvlei Head Office.

Problem Statement

Rand Water's Rietvlei backup power generation has become unreliable because of a degradation in the generator equipment. RW identified that a new generator is required to meet the demands of the RV building.

Project Scope

Civil Scope of Work

The civil scope of work for the design, construction and commissioning of the New Containerized Generator at RV shall include/included, but not be limited to, the following:

The building components include/included, but are not limited to the following:

- Structural Steel canopy;
- Masonry work (for bund)
- Gutter system (including rainwater harvesting);

Certification and/or testing of grouting, structural steel, welds and any other material that may be used on site.

Methodology for the construction of the works.

Design of all building components must comply with the building regulation (SANS 10400).

Architectural Scope of Work

The Architectural scope of work for the design, construction and commissioning of the New Containerized Generator at RV shall include/included, but not be limited to, the following:

- Construction of masonry bund wall in accordance with SANS 10400 and as per drawing RA61270/100
- Construction of generator cover structure as per civil scope of works.
- Screed and finishing of existing generator structure floor slab in accordance with drawing RA61270/100.
- The demolition of the existing concrete slab between the generator structure and the adjacent retaining wall and fuel storage building wall and to be replaced with paving to match the existing paving.
- The inspection, reporting and adjustment of paving around the generator structure to ensure stormwater flows away from the structures towards existing rainwater outlets, as per civil scope of works
- Provision of rodent proofing wire mesh screen and frame for the generator louvres, exhaust flue, openings in and around the generator which includes between the generator and the concrete plinth.
- Provision of construction method statements prior to commencement of the works
- Provision of samples and or specifications of all material and finishes used for approval by Rand Water Architect prior to purchasing of materials and finishes.
- Provision of markups for:
    - Alterations to designs
    - As built drawings

The following should be taken into consideration during the design, construction and installations:

J) Accommodation

Standby Generator structure
The proposed generator structure was sized to suit an existing 500kVA enclosed generator as supplied by “Generator King”.

- The generator has an approximate footprint of 3.8x1.5x2.2m high.
- Overall generator structure has an estimated floor area of 25m²
- 7m² raised plinth area (170mm high)
- Containment area to be constructed by means of a masonry bund wall sized to contain 1000L of diesel
- 22m² Roof structure to be constructed over generator

K) Accessibility

Accessibility to include the following:

- Fire requirements to comply with SANS 10400 Part T
- Access points for personnel & equipment.
- Ergonomic requirements for equipment.

L) Building form and aesthetics

The standby generator structure to consist of structural steel columns, purlins, beams, etc. with roof sheeting fixed onto the existing concrete raft slab.
The External envelope of the concrete raft slab has 110mm facebrick wall.
170mm high, 220mm Facebrick bund wall finished with bullnosed brick in edge coping, to be constructed around concrete plinth to create a spillage containment area suitable to contain 1000L diesel.
All masonry shall comply with SANS 10400 standards
The generator is situated on a 170mm high concrete plinth.
Existing paving to be lifted, retained and re-laid to fall away from all structures and towards storm water outlets

M) Materiality

- All new building materials, components and fixtures for refurbishment, repairs, and modification to Rand Water Architects approval.
- The following finishes have been provided as a guideline. It is on the onus of the contractor to confirm all the finishes in relation to the requirements.
    - Masonry: Facebrick
    - Steel structure: Paint
    - Roof Sheeting: Pre-painted
    - Floor: Specialized chemical resistant flexible polyurethane coating

- Rodent proof wire mesh: Stainless steel 304 woven wire mesh screens and frame sized to suit the openings. Mesh openings to be approximately 10x10mm with a wire size of at least 2mm.

N) Statutory Requirements

Design, Construction workmanship and Materials, shall comply with the following legislative requirements, Rand Water & external standards:

- National Building Regulations SANS 10400
- Occupational Health & Safety Act 85 of 1993
- Critical Infrastructure Act where applicable
- Standard System of Measuring Building Work
- Model Preambles for Trades
- RW Architectural Specification Standards

It is on the onus of the contractor to confirm whether the structures or the site is registered under the Critical Infrastructures Act and to confirm the applicable sections or regulations relating to this Act.
Local building council procedures to be complied to unless exemption has been provided under the Critical Infrastructures Act. It is on the onus of the contractor to confirm this with Rand Water.
It is on the onus of the contractor to confirm with Rand Water whether the designs need to be reviewed by a registered fire engineer or reviewed with the relevant fire department representative prior to construction. All findings and or reports must be provided to Rand Water Arch. and Engineers.

O) Architectural Documentation

Refer to the RW Architectural Specifications document for further details on architectural documentation.

P) Additional requirements

All construction and finish works that will impact the day to day operations of the building will only be permitted to be done after hours or on weekends. This includes work that will make excessive noise, dust or installations that have excessive smells.
It is on the onus of the contractor to confirm the dimensions and positioning of all existing and new construction works and to inform Rand Water Architect and Engineers of any discrepancies.

Q) Building activities

The following building activies have been provided as a guide for possible construction hold points:

- Generator position to be inspected and confirmed.
- Carport structure hold down bolt positions to be inpsected and confirmed.
- Structural members sizes, lengths etc. to be inspected prior to erection or application of finishing.
- Brick samples to be provided for approval prior to purchasing
- Roof sheeting specifications and finishing specifications to be provided for approval prior to purchasing.
- Paving around generator structure to be inspected and fall to be confirmed.

Note that the building activities are not limited to the activities listed above. It is on the onus of the contractor to provide a comprehesive list of construction activities within their program with suitable hold point that has been agreed to between Rand Water and the contractor.

R) References

The following architectural drawings will be provided as part of this tender scope.
RA61270/100.

PART 2 - PROJECT SPECIFICATIONS

GENERAL NOTE:

All specifications contained herein are to be read in conjunction with all other project specifications contained in referenced documents and/or other contract documents.

This document does not contain the specifications for the following:

Health and Safety; Quality; Environmental; Risk – which are contained in separate documents.

CIVIL/STRUCTURAL SPECIFICATIONS

TERMINOLOGY, ABBREVIATIONS AND APPLICABLE DRAWINGS

The following terminology shall apply:

Term	Definition
Engineer	As defined in the commercial document.
Employer	Shall mean the same as the “client”, with the client being the owner of the project
Contractor	Shall mean the legal entity under the employ of the Client who enters into a binding Contract to undertake part of or the entirety of the Works described in this and other Contract documents.

The following abbreviations shall apply:

Abbreviation	Definition
GA	General Arrangement
SANS	South African National Standards

SABS	South African Bureau of Standards

This document shall be read in conjunction with the following drawings:

General Requirements

Civil and Structural works are to be carried out as per the requirements of the SANS 2001 "Construction Works Standards"; applicable SANS 1200 "The Standardized Specification for Civil Engineering Construction" (where not superseded by SANS 2001); the Occupational Health and Safety Act; as well as the Construction Regulations (Latest Amendment at the time of construction).

The Standard Specification referenced herein are not included along with this document but are available at the Contractor's expense from the South African Bureau of Standards (SABS). The costs associated with purchasing the standards shall be included in the rates tendered by the Contractor.

Should any requirements of specifications contained herein conflict with any requirements of the standardised specifications, the requirements of the specifications contained in this document shall take precedence.

Service Water Supply

Connection points (water source)

There are no potable service water connection points on the site or in the vicinity. The Contractor is required to establish boreholes for use during construction or to find alternative means of water supply during construction. The rates for the supply of water shall be deemed to be included in the tendered rates of the Contractor. The tendered rate shall include all aspects required to make the water suitable for use during construction, including testing, as per the specifications contained or referenced in this document or other relevant standard.

The operating pressure for the existing connection point, are to be confirmed by the Contractor.

The detailed scope of works for the project, to be effected by the contractor, are as follows:

The Contractor's obligations under this project shall include, but not be limited to the following principal items (the exact extent for the scope of works shall be verified by the contractor with the Engineer prior to tendering):

A. Surveying and setting out of works
B. Accommodation of traffic along existing road maintaining entry
C. Temporary works design and erection, as part of formwork
D. Construction of structures/buildings:

- Structural Steel Superstructure,

E. Generation of as-built drawings

F. Reinstatement of structures damaged or relocated during construction to their preconstruction condition / location.

STANDARDIZED SPECIFICATIONS, VARIATIONS AND ADDITIONS TO STANDARDIZED SPECIFICATIONS

The variations and additions to the applicable standardized specifications have been compiled to provide supplemental site and project specific information, and in that regard are intended to supplement and not replace the other related specification, most notably: SANS 1200; SANS 10120; SANS 2001 and the Technical Specifications contained in this document.

STANDARDIZED SPECIFICATIONS

The variations and additions below are provided, to varying extents, refer to some of the following specifications applicable to this project:

Specification No.	Description
SANS 1200 - A	Standardized Specification for Civil Engineering Construction – General
SANS 2001 – BE1	Construction Works – Earthworks (General)
SANS 1200 - DM	Standardized Specification for Civil Engineering Construction – Earthworks Roads and Subgrade
SANS 1200 - DK	Standardized Specification for Civil Engineering Construction – Gabions and Pitching
SANS 2001 – BS1	Construction Works – Site Clearance
SANS 2001 – CC1	Construction Works – Concrete Works (Structural)
SANS 2001 – CS1	Construction Works – Structural Steelwork
SANS 1200 – HC	Standardized Specification for Civil Engineering Construction – Corrosion Protection for Structural Steelwork
SANS 2001 – DP1	Construction Works – Earthworks for Buried Pipelines and Prefabricated Culverts
SANS 2001 – DP5	Construction Works – Stormwater Drainage
SANS 2001 – CM1	Construction Works – Masonry Walling
SANS 2001 – CM2	Construction Works – Slab-on-the-Ground Foundation for Masonry Walling
SANS 2001 – CT2	Construction Works – Timber Roofing
SANS 1200 - LD	Standardized Specification for Civil Engineering Construction – Sewers
SANS 1200 - M	Standardized Specification for Civil Engineering Construction – Roads

SANS 1200 - ME	Standardized Specification for Civil Engineering Construction – Subbases
SANS 1200 - MF	Standardized Specification for Civil Engineering Construction – Bases
SANS 1200 - MJ	Standardized Specification for Civil Engineering Construction – Segmented Paving
SANS 1200 - MK	Standardized Specification for Civil Engineering Construction – Curbing and Channeling
SANS 1200 - MM	Standardized Specification for Civil Engineering Construction – Ancillary Roadworks

VARIATIONS AND ADDITIONS TO THE STANDARDIZED SPECIFICATIONS

A GENERAL - (SABS1200A – 1986)

A 3 MATERIALS

A 3.1 QUALITY AND SAMPLES

Add the following sentence tothe end of the first paragraph of “A3.1”:

“Materials shall bear the official mark of the appropriate standard.”

Also add the following as a second paragraph:

“The Contractor is responsible for the cost of all testing to ascertain that all construction materials comply with the relevant minimum requirements, and all costs associated with testing of the materials shall be deemed to be included in the tendered rates. Samples on which control testing is required by the Engineer, shall be delivered free of charge to an approved laboratory. The cost of control tests done by the Engineer and of which the results do not comply with the minimum requirements shall be for the Contractor's account.

The Contractor shall inform the Engineer of any control testing/site inspections to be done at least 48 hours before such tests/inspections are required, and the contractor must allow in his/her programme for the time necessary for the tests/inspections to be undertaken, and the processing of the results thereof.

The handling, storage, transport and erection of equipment, machinery and materials shall be strictly in accordance with the requirements of the supplier and or manufacturer.

All materials shall be new and of the best quality available unless otherwise specified. Materials must function satisfactorily under prevailing climate and weather conditions at the place of installation.

All materials shall comply with the SANS applicable to them.”

A 3.3 DELAY DUE TO SUPPLY OF MATERIALS

Add new sub-clause “A 3.3”:

“The Contractor shall ensure that the work is not delayed, due to a lack of materials on site, by placing orders with suppliers for the required materials timeously.”

A 4 PLANT

A 4.1 CONTRACTOR'S OFFICE, STORES AND SERVICES

Add the following to “A 4.2”:

“Security of the Contractor’s camp and construction site will be the Contractor’s own responsibility and no additional payment will be made if additional security measures (crime prevention, etc.) need to be employed during the contract period.

The Contractor shall make his own arrangements for housing his employees and transporting them to and from the site – such housing, shall however; meet the relevant requirements for temporary housing. The Contractor is responsible in all respects for the housing and transporting of his employees and for the arrangement thereof, and no extension of time due to any delays resulting from this will be granted.”

A 4.3 HAND TOOLS

Add new sub-clause “A 4.3”:

“The Contractor shall provide and maintain all hand tools required for the execution of the Works and all such costs shall be deemed to be included in the tendered rates and no separate payment will be made for it.”

A 4.4 MEDICAL FACILITIES AND SAFETY EQUIPMENT

Add new sub-clause “A 4.4”:

“The Contractor shall provide a First Aid cabinet fully equipped and maintained with the minimum contents as listed in the Annexure (Regulation 3) to the General Safety Regulations of the Occupational Health and Safety Act (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.

The Contractor shall provide personal safety equipment and facilities as required by Regulation 2 of the General Safety Regulations of the Occupational Health and Safety Act (Act 85 of 1993).

The Contractor shall designate his Safety Officer and Qualified First Aider. The Contractor shall give copies of the minutes of the site safety meetings to the Engineer.”

A 5 CONSTRUCTION

A5.1 SURVEY

A 5.1.2 Preservation and Replacement of Beacons and Pegs Subject to the Land Survey Act

Add the following paragraph at the end of sub clause “A 5.1.2”:

“Before the commencement of construction work, the Contractor, in consultation and liaison with the Engineer, shall search for plot pegs where boundaries have not been established by the erection of walls or fences (e.g. between two adjacent undeveloped even or on an undeveloped corner erf) and the Contractor shall compile a list of such pegs that are apparently in their correct positions. Where pegs are not in their correct positions this should be noted by the Contractor and the Engineer should be notified immediately”.

A 5.2 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS

Add the following to the end of “A 5.2”:

“Where no minimum requirements for watching, barricading, lighting and traffic crossings for work on public roads are specified in the project or earthworks specifications then the requirements set out in SABS 1200 AA-1986 for ‘Watching, Barricading, Lighting and Traffic Crossings’ shall apply.”

A 5.4 PROTECTION OF OVERHEAD AND UNDERGROUND SERVICES

Add the following to “A 5.4”:

“It can be expected that existing services will be encountered during the course of construction. The Contractor must determine as far as is possible in conjunction with the relevant authorities the location of the various services. Special care must be taken to avoid disrupting these services. The cost of locating and protecting the services shall be deemed to have been included in the rates. All services must be detected and exposed before any bulk excavation may start.

In addition to detection of services, the Contractor shall be expected to, where practically possible, to relocate or deviate existing services. All costs associated with detection, protection and/or relocation shall be deemed to be included in the Contractor’s tendered rates.”

A 5.5 DEALING WITH WATER ON WORKS

Add the following to the end of “A 5.5”:

“Dedicated dewatering measures must be provided for in the event of a high/perched water table.

Over and above his general obligations in regard to dealing with water as specified in SANS 1200 A, the Contractor shall deal with and dispose of all water so as to ensure that the Works are kept sufficiently dry at all times so that they can be properly executed, and he shall protect them against

flood damage. For this purpose, the Contractor shall provide sufficient pumps, pipes and other equipment that may be necessary. Payment for dealing with water shall be included in the Contractor's rates for foundations, except in so far as special provision for dealing with water may be made elsewhere in the Specifications."

A 5.6 POLLUTION

Replace "A 5.6" with the following:

"The Contractor shall take all reasonable measures to minimize any dust nuisance, pollution of streams and inconvenience to or interference with the public (or others) or machinery as a result of the execution of the Works (including excessive vibration of machinery caused by construction equipment)."

A5.8 GROUND AND ACCESS TO WORKS

Add the following to "A 5.8":

"The Contractor shall maintain adequate access to all public and private property at all times unless otherwise sanctioned by the Engineer. Details of the proposed methods of providing access shall be submitted to the Engineer for approval before such access is restricted. Any claims arising from impeded accesses shall wholly be the responsibility of the Contractor.

Construction along existing roads should be executed in such a manner that both pedestrian and vehicular traffic can be accommodated at all times.

Road traffic signs shall comply with the requirements of the "South African Road Traffic Signs Manual" and shall be approved by the Engineer before construction commences."

A 7 TESTING

A 7.1 PRINCIPLES

Add the following to the end "A 7.1.1":

"The Contractor is expected to anticipate any tests which may be reasonably requested by the Engineer which are not included in the technical specifications or bills of quantities. The rates for the tests and all costs thereof shall be deemed to be included in the contractor's tendered rates."

A 7.4 STATISTICAL ANALYSIS OF CONTROL TESTS

Add sub-clause "A 7.4"as follows:

"Test results shall not be evaluated by statistical methods. All results shall comply with the specified minimum requirements and Standardized Specifications of the materials concerned."

A 7.5 PROCESS CONTROL

Add new sub-clause “A 7.5”:

“All test results obtained by the Contractor in the course of his process control of the Works shall be submitted to the Engineer or his representative prior to requesting inspection of the relevant portions of the Works. Any request for inspection shall be submitted on the prescribed forms which will be provided by the Engineer – any request for inspection shall be sent to the Engineer at least 48 hours before the intended completion date of the works.

The Contractor shall make suitable arrangements for process control prior to commencement with the Works. Should he intend using site personnel for this purpose he shall ensure that suitably trained and competent personnel take charge of the necessary test work and that the necessary equipment is at their disposal prior to commencement of the Works. Failure to comply with these requirements shall be just cause for the Engineer to order suspension of the works without additional remuneration or for the Engineer to recommend termination to the Employer.”

BS1 SITE CLEARANCE – (SUPPLEMENT TO SANS 2001-BS1: 2008)

The Contractor shall program his work in such a manner that re-clearing will not be necessary. The cost of re-clearing shall be borne by the Contractor.

Where suitable topsoil exists within the limits of the area to be excavated, the Contractor shall remove the topsoil to an average depth of 150 mm together with any veld grasses and other similar vegetation as directed by the Engineer. The topsoil shall be transported and deposited in temporary stockpiles in an area which is to be confirmed with the Engineer prior to stockpiling.

Add the following sub-clauses to SANS 2001-BS1: 2008

"BS1 - 6 MEASUREMENT AND PAYMENT

The items scheduled for clearance and demolition will be classified according to the nature of the materials involved and the methods of their disposal.

Only those areas designated to be cleared as per the guidelines of SANS 2001-BS1: 2008 will be measured for payment. The area of surfaced roads, paved areas, railway formations, and major structures falling within such areas, designated to be cleared, will normally be deducted from such measurement.

Where conservation of topsoil without prior clearing is ordered, the removal of topsoil form the specified area will be measured as excavation and no payment will be made for clearing and grubbing.

"BS1 - 7 SCHEDULED ITEMS

7.1. Clear and grub ..... Unit: ha or m or km The area designated by the Engineer and cleared and grubbed will be measured to the nearest 0,1 ha or, in the case of pipelines, etc., where the width is specified, to the nearest metre or kilometre. The rate shall cover the cost of clearing the surface, removing boulders of size up to 0,15 m^3, grubbing of trees and tree stumps (except large trees and stumps as specified in 7.2 below), cutting of trunks and branches exceeding 0,5 m in girth into transportable lengths, backfilling of cavities, demolishing structures (except where otherwise provided for in the project specification) and removing, transporting (except where 7.9 is applicable), and disposing of material thus cleared, grubbed, cut, and demolished. Boulders over 0,15 m^3 will be dealt with as excavation in terms of the items scheduled for bulk excavation or restricted excavation, as applicable, in Clause 7-8 of SANS 2001-BE1 - EARTHWORKS, as applicable.

7.2. Remove and grub large trees and tree stums of girth

a) Over 1m and up to and including 2m ..... Unit: No.
b) Over 2m and up to and including 3m ..... Unit: No.
c) Over 3m, in steps of 1m ..... Unit: No.

The girth of a tree or stump will be measured at the narrowest point of the tree or stump in the first metre of its height above ground level. Trees and stumps of girth exceeding 1m will be measured individually and classified according to size in increments of 1m as Indicated above. The rate shall cover the cost of clearing and grubbing trees and Stumps of all sizes, cutting branches, backfilling holes, and removing. transporting, and disposing of all such trees, stumps, and brunches and associated material.

7.3. Remove and grub all trees and tree stumps regardless of girth ..... Unit: ha In exceptional circumstances, where construction is carried out through plantations or where the quantity of trees of girth exceeding 1m renders individual measurement impracticable, the project specification may provide that the clearing and grubbing of trees be measured in hectares. If this method of measured is used, the areas to which it is applicable will be defined clearly on the drawings, and the reason for adopting the method of measurement will be stated in the project specification. The rate shall cover the cost all operations specified in 7.2.

7.4. Reclear surfaces (only on instructions from the engineer) ..... Unit: ha or m or km The reclearing of areas which have been previously cleared will be measured to the nearest 0.1 ha or, in the case of pipelines, etc. where the width is specified, to the nearest metre or kilometre. The rate shall cover the cost of clearing the surface, grubbing if necessary, backfilling holes, and removing, transporting, and disposing of material arising from these operations.

7.5. Take down existing fences ..... Unit: km The rate shall cover the cost of taking down the fences, coiling wire, sorting and stacking all material at sites indicated by the Engineer and the cost of loading, transporting, and offloading such material.

7.6. Clear hedge or fence or both where not scheduled separately ..... Unit: m Separate items will be scheduled for each type and size of hedge or fence. The rate shall cover the cost of uprooting and disposing of each hedge complete with roots or the removing of each fence complete with all wire, posts, and other materials, as applicable.

7.7. Dismantle and remove pipelines, electricity transmission lines, cables, etc. ..... Unit: m Separate items will be scheduled for each type and diameter (or group of diameters) of pipeline (encased in concrete or not encased), each type of transmission line, cable, etc. The rate shall cover the cost of dismantling, lifting, and disposing of each pipeline, transmission line, and cable and the additional cost of precautions required during excavation in their vicinity, but not the cost of excavation and backfilling. Excavation and backfilling will be measured separately.

7.8. Demolish and remove structures/buildings and dismantle steelwork, etc. ..... Unit: Sum Separate items will be scheduled for steelwork and for each structure that is too large to be included as part of the clearing operations covered by 4.2.

7.9. Transport materials and debris to unspecified sites and dump (Provisional) ..... Unit: t.km or m^3.km Where the location of disposal or dumping sites is not at the discretion of the Contractor or is not specified at the tender stage by the Engineer in terms of Subclause 4.4, cartage will be scheduled separately.

The total distance and the total mass or volume, as relevant, will be computed from the distance by the shortest route in one direction measured to the nearest 0,1 km and the capacity of the vehicles being used for transport, as agreed between the Engineer and the Contractor before the removal commences. The rate shall cover the cost of loading, transporting, dumping, and any charges for the use of the dumping site.

7.10. Remove topsoil to nominal depth.of 150 mm and stockpile ..... Unit: m^3 The rate shall cover the cost of removing topsoil, together with such vegetation and small roots as occur within the specified depth, and of stockpiling on designated sites.

7.11. Dealing with Fences and Walls ..... Unit: m The rate shall cover the cost of all activities, plant, material and labour to comply with the requirements set out under these specifications. This shall cover the protection and re-erection of fences and walls as specified in the Bill of Quantieis.

7.12. Crossing Fences or Walls ..... Unit: No. When it is necessary to cross a fence//wall, a 5m wide double gate is to be installed in the existing fence/wall and 20m of fence is to be refurbished as showed on Rand Water drawing 4085. The rate shall cover the cost of all activities, plant, material and labour to comply with the drawing requirements.

7.13. Firebreaks ..... Unit: Sq. m. Measurement will be in square metres over the area instructed by the Engineer.

7.13. Supply and erect fences and gates for working strip ..... Unit: m. It is necessary to protect the working area from potential damage caused by public and animals. Hence, prior to commencing with works a 1.8m high cattle proof temporary fence shall be erected on both sides of the temporary working strip or servitude with gates. The rate shall cover the cost of all activities, plant, material and labour to dismantle the fence and gates for reuse.

CS1 STRUCTURAL STEELWORK - (SUPPLEMENT TO SANS 2001-CS1: 2017)

CS1- 4 REQUIREMENTS

CS1- 4.2 DRAWINGS

CS1- 4.2.5 Erection drawings

Add the following sentence to the end of sub-clause 4.2.5.1:

"All temporary steelwork necessary for erection purposes shall be designed by a relevant competent person, registered as such with the Engineering Council of South Africa as a Professional Engineer or Engineering Technologist, in the employ of the Contractor."

CS1 - 6 MEASUREMENT AND PAYMENT

6.1. BASIC PRINCIPLES

6.1.1. Work involving steel members and platework will be measured by mass of steel. Sundry items will be measured by number, mass or area, depending on the nature of the item (see 6.1.2 below).

6.1.2. Where there is considerable repetition of articles of the same description and mass (e.g. ladders, foundation bolts, frames, loose cleats, etc.) that are measured by mass, the number of such articles and the mass or length, as applicable, of each will be stated in the schedule.

6.2. COMPUTATION OF QUANTITIES

6.2.1. The mass of steelwork will be calculated on the basis of the nominal mass per unit length as stated in the South African Institute of Steel Construction's structural steel tables or, where not so stated, the mass will be calculated from a steel density of 7 850 kg/m^3. The mass of fittings such as cleats, gussets. battens and stiffeners will be added to the mass of the members.

6.2.2. Tolerances for rolling margins and other permissible deviations will be neglected. No deductions will be made for holes for fasteners or for milling or planing, and no additions will be made for rolling margin, waste, weld metal or shop fasteners.

6.2.3. Unless otherwise stated, gussets will be measured on the basis of the minimum enclosing rectangle. Each large, shaped plate such as a roof, a bottom to a circular tank or a hopper bottom to a bunker or a silo, will be measured on the basis of the net size of the element.

CS1 - 7 SCHEDULED ITEMS

7.1. Supply and Fabrication

7.1.1. Preparation of shop detail drawings ..... Unit: t or Sum The rate shall cover the cost of the preparation and submission to the Engineer of

acceptable shop detail drawings and supporting calculations. Payment under this item will only be made where such drawings are required in terms of the project specification.

7.1.2. Supply and fabrication of steelwork ..... Unit: t Separate items will be scheduled for each type of member and each structural position. Members will be subdivided to distinguish between different methods of jointing, e.g. welding and bolting. The type of fastener will be stated, where necessary. The rate shall cover the cost of supply, trial assembly (if required in terms of the project specification) and fabrication of the steelwork complete with all the necessary cleats, brackets, gussets, shop fasteners, packs, baseplates and the like, and loading ready for despatch to site.

7.2. Delivery to site

7.2.1. Normal delivery ..... Unit: t Transportation (delivery) of steelwork to site will be scheduled separately.

7.2.2. Abnormal loads ..... Unit: t Separate items will be scheduled as extra-over 7.2.1 for transportation of members that are so abnormal in shape, size or mass as to warrant special arrangements for their transportation in terms of the Road Traffic Ordinance.

7.2.3. Rates. The rates for 7.2.1 and 7.2.2 shall cover the cost of transportation from the shop to the site of the works, including handling on and off railway trucks, if required as part of the transit operation, and the cost of any demurrage incurred in connection with the movement of the steelwork from shop to site.

7.3. Erection on Site ..... Unit: t or No. Erection of steelwork on Site will be scheduled separately. Separate items will be provided for expansion bolts and other anchorages for handrailing and the like. The rate shall cover the cost of offloading the steelwork from vehicles on Site, stacking in a designated area, moving from such area, assembly, erection, aligning, provision of erection equipment, temporary supports, and safety measures.

7.4. Erection Bolts ..... Unit: t or No. Separate items will be scheduled for each grade and type of bolt. The rate shall cover the cost of supplying, delivery and storage on Site of bolts, washers and nuts.

7.5. Site Welding ..... Unit: m Separate items will be scheduled describing the extent, nature and position of Site welding. The rate shall cover the cost of access, including scaffolding, preparation of the weld areas, welding, including the supply of consumables and equipment, and the cleaning up of the weld, including grinding, if necessary, and removal of weld spatter.

7.6. Holding-down (HD) Bolts ..... Unit: t or No. Separate items will be scheduled for each diameter, size and shape of bolt. The rate shall cover the cost of supplying and delivering HD bolts complete with washers and nuts, and all

threading, shaping, anchor plates and frames, as shown on drawings, and stacking them on Site ready for installation by others, as directed.

7.7. Handrails

a) Handrail assembly complete (Drawing number stated) ..... Unit: Sum
b) Handrail assembly complete (Details given)
1) Horizontal ..... Unit: m
2) Sloping (measured on slope) ..... Unit: m
3) Shaped ends ..... Unit: No.
c) Handrail (Type stated)
1) Rails only ..... Unit: m
2) Stanchions only ..... Unit: No.
3) Bends, end closures and accessories ..... Unit: No.
4) HD bolts, nuts and washers for each stanchion ..... Unit: Sets.

The rates for (a) and (b) above shall cover the cost of supplying all materials and fixing bolts, assembling and grouting in. The rates for (c) above shall cover the cost of supplying the rails, stanchions (with bases), bends, closures, accessories and HD bolts (or expansive bolts) complete with nuts and washers, as necessary, and assembling and installing the rails and stanchions complete with grouting in.

7.8. Ladders, Complete and Installed (Drawing number type and length stated) ..... Unit: No. or t The rate shall cover the cost of supplying all materials for each ladder, including lugs or other means of fixing to walls, floors, etc., as shown on the drawing, and fabricating, installing and grouting in.

7.9. Flooring, Complete and Installed with Frames (Drawing number stated)... Unit: Sum or m^2 or No.

a) Open grid floors ..... Unit: m^2 or Sum
b) Floorplate floors ..... Unit: m^2 or t

The rate shall cover the cost of supplying the specified or scheduled type of flooring complete with frames as shown on the drawings and the cost of all fixings, installing, fixing (including welding, where applicable) and grouting in.

7.10. Non-destructive Testing ..... Unit: h or No. Where there are special requirements for the non-destructive testing of welding, or other elements, such items will be measured separately. The rate shall cover the cost of carrying out the test that is specially required, and of supplying the necessary test certificates to the Engineer.

7.11. Commissioning (Turn-key Projects) ..... Unit: Sum The sum shall cover the cost of all materials and operations specified in 7.1-7.10.

7.12. Additional Items. Where and as required in terms of the project specification, additional items or groups of items may be provided for operations such as

a) daywork rates (see SABS 1200 A, as applicable);
b) trial assembly (other than that covered by 7.1.2);
c) destructive tests;
d) machining;
e) dismantling;
f) re-erection;
g) tying-in to existing building;
h) coding of welders (if required);
i) independent testing;
j) radiographic or ultrasonic testing, or both, to be paid on a direct cost basis under daywork or on a pre-agreed basis of a sum for provision of equipment, etc., and unit rate(s) for testing.

7.13. Corrosion Protection. Corrosion protection will be measured and paid extra-over Items 7.1 to 7.9, as applicable, in accordance with SANS 1200 HC. Including testing thereof.

FUNCTIONAL SPECIFICATIONS

The entirety of the Structural Design aspects of the proposed Works (excluding temporary structures, required for and during construction, as well as any precast units which have to be erected) to be completed are to be designed by the Employer, through their representatives.

The following functional specifications are provided to the Contractor to set a basis for the minimum requirements of elements whose requirements need to be clarified for design and/or pricing and/or construction and/or fabrication purposes. It should be noted that where clarity is given elsewhere in the document on critical elements then such clarity will not be repeated below.

Preliminary and General

Design of the temporary works shall comply with all requirements of the Occupational Health and Safety Act (latest amendment relevant at the time of appointment), and the Construction regulations (latest amendment relevant at the time of appointment).

Equipment and plant selected for use by the Contractor shall be specified in the tender document, and shall be selected on the basis of minimizing on site vibration to existing machinery, approval for the equipment and plant shall be at the discretion of the Engineer during construction.

Site Clearance:

Any materials obtained from the removal of vegetation and demolition of structures, that do not form part of the material to be disposed, shall remain the property of the client or the custodian of the service (should it be a municipal service item). If items are sold or salvaged, the monies recovered form salvaging or selling shall be transferred to the client or taken off the Contract value.

Structural Steel Works:

All structural steel shall be grade S355JR, unless shown otherwise on the drawings.

All structural steelwork to be hot dipped galvanizing, and the process is to be carried out in strict accordance with SANS 121:2000 / ISO 1461:1999 by an SABS accredited galvaniser

The Contractor is required to provide workshop drawings to the Engineer for approval prior to commissioning the manufacture of any structural steel elements.

General Requirements:

The Contractor is required to comply with the requirements of the Occupational Health and Safety Act (latest amendment) and its accompanying Construction Regulations (latest amendment) – and is also required to prepare and submit all documents pertaining with the requirement of the said Act and regulations.

The Contractor's attention is drawn to the following risks which may arise on site:

1.1.9.1.1 Working at heights

The Contractor is required to accompany their priced documents with a proposed, high level, construction method statement, in line with Occupational Health and Safety, as well as, Construction Regulation standards. The method statement should include a programme highlighting the activities anticipated for the proposed works.

The Contractor is required to issue to the Engineer, prior to the use of intended construction materials, test certificates issued by an accredited, independent testing authority (Accredited by the South African Bureau of Standards or other equivalent accreditation body) to confirm that the respective materials comply with the specified requirement, or a certificate by the patent holder or designer, certifying that the manufactured item complies in all respects with relevant product specifications.

A Degree of Accuracy II (SANS 1200 and 2001) shall be applicable to all structural works under this project, unless stated otherwise elsewhere

The Contractor's Attention is drawn to the fact that this is a multi-disciplinary project and as such Construction work will require adequate integration.

ARCHITECTURAL SPECIFICATION

Technical requirements

- **Masonry brickwork:**
    - 230mm Clay Solid Face brickwork

a) Standard:
- SANS 227
- SANS 2001 CM1

b) Type:
- 230mm face brick solid brick wall, in two half brick skins

c) Brick Skins:
i. Clay Facing brick extra (FBX).
ii. Colour: e.g “Corobrik” maize travertine FBS or equal & approved.
iii. Working size: 222 x 106 x 73mm.
iv. Bond: Half lap stretcher.
v. Joints: 10mm flat recessed.

d) Mortar:
i. Cement
- Cement: CEM I Portland cement 42.5N to SANS 50197 or CEM II Portland Fly Ash Cement 32.5N – no site blending of extenders is permitted.
- Where the use of masonry cement is permitted, it shall comply with SANS 50413: type MC 12.5 or 22.5X.

ii. Sand
- To SANS 1090.
- Sand for facework to be from one source, mix to ensure consistency of colour and texture

iii. Lime
- To SANS 523 hydrated lime.

iv. Admixtures
- Use only admixtures that are specified and approved.
- Do not use calcium chloride or admixtures containing calcium chloride.

v. Plasticiser/ Air Entraining Agent:
- Mixing quantity: As recommended by manufacturer.
- Use strictly in accordance with the manufacturer's recommendations.

vi. Colouring Agent
- Colour: To be agreed.
- Use strictly in accordance with the manufacturer's recommendations.

vii. Do not use plasticiser with this cement.
viii. Mix: 1:6 cement/ sand, above ground.

e) Brick force (Bed Joint Reinforcement):

Welded wire bed joint ladder reinforcement.

- To SANS 190.
- Material: hard drawn mild steel light galvanising.
- Wires size: 2.8mm diameter, cross wires at 300mm centres.
- Width: 150mm for 230mm walls, 75mm for 110mm walls.

f) Damp-proof Courses:

- To SANS 952 type B, embossed.
- 375 micron, or other acceptable equivalent.

Quality and workmanship

Submittals

1. Pre-contract Samples
   a. Not required.
2. Post-contract Samples

   In accordance with Section A, post contract samples of the following shall be provided:
   a. 3 No. samples of each brick type.

3. Control Samples

   Provide the following control samples:
   a. 3 No. samples of each brick type.

4. Sample Panels
   a. Not required

5. Mock-ups
   a. Not required

6. Prototypes
   a. Not required.

Testing

Consistency of Fair-faced Work

a. Agree with the manufacturer and the Architect, methods of ensuring the supply of masonry units to remain visible is of a consistent, even colour/ texture range, batch to batch and within batches.
b. Check each delivery for consistency of appearance with previous deliveries and with accepted samples or reference panels; do not use if variation is excessive.
c. Mix units from different packs/ pallets and deliveries which vary in colour to avoid undesirable variations, patches, horizontal stripes and racking back marks in the finished work.

Workmanship

1. Site Control
   a. Site installation shall be carried out in accordance with SANS 10164, SANS 10249 and SANS 10145.
   b. Materials shall be clean and built uniform and level within the tolerances specified.
   c. Quoins and jambs shall be plumbed as the work proceeds. The head of walls shall be laid level.
   d. Damaged material shall not be used.
   e. Materials shall only be cut by power-driven masonry saw, wet hosed down to remove any slurry, and then dried prior to laying. No cut faces shall be exposed unless agreed with the Architect.
   f. Where areas of the works incorporate service openings, the reveal edges of these shall be treated as fair-faced.
   g. Fixed to top courses, which consist of full size, uncut units only. No cut materials that reduce the structural or fire-rating integrity of the wall shall be used.

1. Laying
   a. Wet bricks well two hours before laying.
   b. Place on a full bed of mortar, properly jointed with other work, to correct lines and levels. Perpend joints shall be aligned plumb within vertical tolerance.
   c. Keep courses level and evenly spaced using gauge rods. Vertical and horizontal joints to be equal and of uniform thickness.
   d. Mortar shall be applied to obtain full vertical perpend joints. Slushing of perpend joints or furrowing of bed joints is not permitted.
   e. Intersections, external corners and internal corners shall be fully bonded, except where shown otherwise.
   f. Grout all joints in the foundation walls with 3:1 liquid cement mortar to eradicate crevices.

g. Do not shift or tap units after mortar has taken initial set. Where adjustment is necessary, mortar shall be removed and replaced.
h. Excess mortar shall be removed as the work proceeds.
i. Point joints as the work proceeds. Where coloured mortar is specified, rake out joints and point after walls are complete.
j. Overhand laying shall be avoided unless dictated by the confines of the Site and accepted by the Architect.
k. Walls shall be racked back when raising quoins and other advanced work. Toothing is not permitted.
l. The gauge shall be based on the combined height of four courses of masonry unit plus bed joint with a tolerance of ±2mm.
m. Build in lugs and grout all pressed steel door frames with cement mortar as the work proceeds. Frames to be plumb and without twist.
n. Rake out joints to a depth of 30mm for flashings and repoint later in 1:3 cement: mortar.
o. Start facework not less than 150mm below finished levels externally.

2. Bed Joint Reinforcement

Place throughout the building:

a. 3 courses above concrete footings, below window cills, above door and window heads and at wall plate level to gable ends.
b. Otherwise at every fourth course.
c. Internal half brick walls to be reinforced at every course to the eighth course and three courses above all openings.

3. Backfill

a. Do not backfill until the wall is at least seven days old.
b. Carry out backfilling equally to each side of the wall.

4. Height of Lifts

a. Do not carry any portion of the work more than 1200mm above another section, rake back between levels.
b. Complete each lift of facework in one period of operation.
c. Build no part of a wall more than 1500mm high in one day, unless permitted by the Architect.

5. Vertical Control Joints

a. Refer to the Design Drawings to derive the standard joint details and locations.
b. The works shall be divided into panels separated by vertical control joints, which shall be located such that the length of each panel is generally 6m, or as shown on the Design Drawings.
c. Vertical control joints shall coincide with the structural support elements where possible, and shall utilise proprietary sleeved tie anchors, as specified in Section H40 of the Specification. Those not shown on the Design Drawings shall be at junctions with a column or different material. Restrict control joints to the corner of abutting walls where possible.
d. Control joint fillers, sealants and/ or fire stops shall be in accordance with the respective manufacturer's written instructions or written recommendations.

6. Joints in Mortar
   a. Generally, all masonry shall be well buttered with mortar before being laid and filled at each course.
   b. All mortar joints shall be of a thickness consistent in appearance and density.
   c. Tooling of joints shall be carried out while the mortar is thumbprint hard. Any excess mortar that extrudes from the joints of fair-faced units shall be cut away as work proceeds and not smeared on the face of the works. No washing or scrubbing of the finished face with proprietary cleaners or acids shall be allowed. To avoid staining of the surface of the works, smears shall be removed by gentle brushing off with a soft brush and water only.

7. Keyed Finish

   Rake out joints to a nominal depth of 10mm to receive render/ plaster or tile finishes as shown on the Design Drawings.

Curing and protection

1. Curing

   Maintain all walls in a damp condition for at least 24 hours after laying.

2. Protection
   a. Cover up and protect finished work from damage by subsequent operations.
   b. Prevent soiling of the fair-faced surfaces.
   c. Clean off any traces of mortar as the work proceeds.

3. Service Penetrations

Service penetrations through the works shall be provided as required and the fire integrity of the works maintained in compliance with the relevant South African Standards.

4. Fire and Smoke Stopping

All fire and smoke stops shall be positively fixed in position in such a manner that they shall not become dislodged in the event of fire. The fixing shall secure the stop in position for a period at least equal to that required for the compartment wall or floor against which the fireworks abut.

5. Site Storage, Handling and Transportation

Deliver material to Site suitably packaged to prevent damage and contamination, clearly identified with type, grade, date of manufacture, etc. Do not remove labels or packaging until time for use. Inspect materials before use and reject any that are cracked, damaged or contaminated.

a. Masonry Units:
   i. Store masonry units in stable stacks clear of the ground and clearly identified by type, strength, grade, etc. Protect from adverse weather, moisture, staining and contamination with earth and other foreign materials and keep clean and dry. Allow air to circulate around units.
   ii. All components shall be stacked, before and after delivery on Site, in such a manner that they are not damaged in any way through excessive stresses or by atmospheric deterioration, paying particular attention to the finished surfaces.
   iii. Handle block units to prevent chipping, breakage, soiling or other damage. Lift with wide-belt type slings wherever possible; do not use wire ropes or ropes containing tar or other substances that might cause staining. If required use wood rollers and provide cushion at end of wood sides.
   iv. Handle brick units on pallets or flat-bed wheel barrows.
b. Mortar Materials:
   i. Store in a weatherproof structure clear of the ground.
   ii. Portable silos can be used for bulk storage of cement.
   iii. Protect packaged materials against contamination and moisture.
   iv. Stockpile and handle aggregates to prevent contamination from foreign materials.
   v. Store admixtures to prevent contamination or damage from excessive temperature changes.

vi. Keep water free of harmful materials.

6. Site Dimensions

Take site dimensions as necessary to ensure a proper fit between the masonry and adjacent work and to achieve specified erection tolerances.

7. Setting out

a. Be responsible for the true and proper setting out of the works, the correctness of position, levels, dimensions and alignment of all walling including openings.
b. Before work begins on Site submit proposed methods for dimensional setting out and crosschecking with other trades to satisfy the required accuracy.
c. All controlling dimensions, especially at interface with surrounding elements, shall be observed. All dimensions shall be checked on Site.
d. Setting-out shall be taken from grid lines as shown on the Design Drawings.
e. Allow for all necessary formers to achieve required opening sizes and tolerances.

8. Lintel Bearings

Carefully predetermine setting out to ensure that full units occur below lintel ends and ensure that all materials are fully bonded or tied together.

9. Tolerances

a. Comply with the requirements of Code of Practice SANS 10155.
b. Alignment and Levelling:
   i. Length:
      - Up to 5m: +/- 10mm.
      - 5m to 10m: +/- 15mm.
      - Over 10m: +/- 20mm.
   ii. Height:
      - Up to 3m: +/- 5mm.
      - 3m to 6m: +/-15mm.
      - Over 6m: +/- 20mm.
   iii. Straightness in any 5m length: 10mm (non-cumulative).
   iv. Vertically in any 1m height: 3mm (non-cumulative).
   v. Vertically in any 3m height: 10mm (non-cumulative).
c. Notwithstanding the provisions of SANS 10155 and the tolerances above, tolerances shall be reduced when, for the purposes of fit and/ or appearance, the

tolerances within SANS 10155 would fail to meet the design intent and dimensional criteria required by the works.

10. Adverse Weather
    a. Do not use frozen materials.
    b. Do not lay bricks/ blocks when the air temperature is at or below 3°C unless mortar has a minimum temperature of 4°C when laid and walling is protected. Do not lay mortar on frozen or frost covered surfaces.
    c. Maintain temperature of the work above freezing until mortar has fully hardened.
    d. Rake out and replace mortar damaged by frost. When instructed, rebuild damaged work.
    e. All newly erected work shall be protected from precipitation and drying out too rapidly in hot/ dry conditions by covering thoroughly at all times when work is not proceeding.

11. Final Clean
    a. Clean down all work immediately prior to completion or prior to the handing over of any part of the work and leave clean, to the acceptance of the Architect.
    b. Do not use wire brushes, acid type cleaning agents or other cleaning compounds with caustic or harsh constituents

List of specifications

A list of applicable architectural specifications for this tender is provided in the architectural general specification document **ARCH.SPEC-001**, issued with this tender. Only Rand Water Specifications are provided on a CD as part of this tender (Rand Water shall not provide any National or International Standard listed)

DRAWINGS, DOCUMENTATION

a) The sizes of the drawings shall comply with the “A” series of drawing paper as specified in SANS 822-2007 (3.6.1 A series). Sizes to be used are A3 to A1 only. Letter height sizes and line thicknesses on these drawings shall be not less than 3 mm and 0.3 mm respectively.

b) Should any manufacturer or the contractor consider any of their drawings or information to be confidential, the documents shall be marked "CONFIDENTIAL" and they shall be treated as such by the client.

c) All communications, pamphlets and technical literature shall be in English and any programme of work or work breakdown structure shall be in a Gantt Chart format using a suitable software application such as MS Projects.

d) Where required to do so as per the project scope, The Contractor shall supply complete design calculations in hard copies.

e) Structural steel fabrication and erection drawings are to be prepared and presented as per the requirements of SANS 2001-CS1: 2017 (or latest amendment)

INSPECTION AND VERIFICATION

For elements of the Works to be delivered complete on site, The Engineer's Representative shall inspect the whole of these works at the manufacturer's, Sub-Contractor's and/or other outside suppliers' works during manufacture. Full information regarding the progress and the necessary facilities to enable the various components to be properly tested and/or inspected shall be given to the Engineer's Representative. The Contractor shall make available his expertise, tools and equipment to the Engineer or his Representative for examination of the work. The Engineer reserves the right to reject any item which has not been presented for such test and/or inspection

Within 10 (ten) calendar days after the date of the signing of the Contract, the Contractor shall submit a comprehensive proposal for a quality assurance plan. The programme shall have facility for the Engineer to indicate hold and witness points as required. The Engineer shall then issue his requirements for quality assurance which shall be based on the Contractor's proposals provided these are adequate and shall be finally subject to the approval of the Engineer. The Contractor shall produce a quality assurance report on any component within 2 (two) days of being so requested. The method of obtaining the samples shall be decided during manufacture. The Engineer shall, if necessary make further checks on the quality of the work and require the removal of the components for tests and measurements at a place to be selected by the Contractor.

Certificates of all tests on materials and components shall be forwarded to the Engineer immediately on completion of the tests.

Inspection during Installation

The Engineer during the course of installation will inspect the work and every reasonable facility is to be afforded by the Contractor for such inspection.

The Engineer will notify the Contractor in writing of any imperfect or unsound work or of any inferior material which has been supplied and the Contractor shall within 3 (three) working days, proceed to alter, reconstruct or remove such work or supply new material to the standard required by the specification.

PART C4: SITE INFORMATION

C4. SITE INFORMATION

The sites referred to in this document is as follows.
Rand Water - Head Office,
522 Impala Rd,
Glenvista,
Johannesburg
2058