



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT BENEFICIARY



IMPLEMENTING AGENT

PROJECT FUNDER

TENDER DOCUMENT

FOR

SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY KIRKWOOD BULK WATER SUPPLY SCHEME TENDER NO: AW2022/23/23

CONTRACTOR:

CONTRACT AMOUNT:

CIDB REGISTRATION NUMBER & GRADING:

CLOSING DATE: 03 MARCH 2023

CLOSING TIME: 11:00

TENDER BOX: Amatola Water Reception Area, 6 Lancaster Road, Vincent, East London

EMPLOYER: Sundays River Valley Local Municipality 31 Middle Street Kirkwood 6120	FUNDER: Water and Sanitation Department of Water & Sanitation Republic of South Africa
IMPLEMENTING AGENT: Amatola Water 6 Lancaster Road Vincent East London 5247	EMPLOYER'S AGENT: Gilgal Newground JV 17 St Andrews Road Selborne East London, 5201 Tel: (043) 722-5864
 GILGAL DEVELOPMENT CONSULTING, ENGINEERS & PROJECT MANAGERS	

Tender No. AW2022/23/23

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PART T1: TENDERING PROCEDURES

T1.1 TENDER NOTICE



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

BID NO: AW2021/23/23

SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY

TENDER NOTICE AND INVITATION TO TENDER

FOR THE KIRKWOOD BULK WATER SUPPLY SCHEME

TENDER NOTICE AND INVITATION TO TENDER

Tenders are hereby invited from suitably qualified, experienced and skilled Civil Engineering Contractors (CIDB grade 7 CE or higher) for the construction of the Kirkwood Bulk Water Supply Scheme.

The scope of work for this project includes the construction of the components listed below.

Scope Components	Description
Kirkwood Potable Water Reservoir	
Earthworks	Perform the necessary earthworks to construct the steel reservoir
Retaining wall	Construct a retaining wall around the steel reservoir
Pipework	Construct all necessary pipework to connect the new steel reservoir to existing infrastructure
Fencing	Construct fencing around the reservoir site
Reservoir	Construct new steel reservoir
Moses Mabida / Bontrug Potable Water Reservoir	
Earthworks	Perform the necessary earthworks to construct the steel reservoir
Retaining wall	Construct a retaining wall around the steel reservoir
Pipework	Construct all necessary pipework to connect the new steel reservoir to existing infrastructure
Fencing	Construct fencing around the reservoir site
Reservoir	Construct new steel reservoir
Additional raw water storage at Kirkwood WTW	
Earthworks	Perform the necessary earthworks to construct the new raw water storage dam
Lining (HDPE and Concrete)	Construct HDPE and concrete lining inside the new raw water storage dam
Pipework	Construct all necessary pipework to connect the new raw water storage dam to existing infrastructure
Fencing	Construct fencing around the raw water storage dam site
Refurbish building	Refurbish dilapidated building to be used as site office and workshop

Bid evaluation process will be based on below steps and qualified tenderers will be subject to negotiations of the most acceptable rate as outlined in the Standard for Uniformity in Engineering and Construction Works Contracts as contained in the Government Gazette No 42622 of August 2019.

STEP 1: DETERMINE COMPLETENESS OF TENDER OFFER

- (1) Tender submissions will be screened to identify schedules and requested documents that are incomplete or have not been submitted.
- (2) Tender offers will be tested for compliance with all the requirements of the as-amended Standard Conditions of Tender including the following:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Eligibility
- Pricing the tender offer
- Alterations to documents
- Alternative tender offer
- Submitting a tender offer
- SBD4-bidders disclosure

(3) Tender offers will be declared non-responsive should they fail to comply with any one of the requirements of (1) and (2) above.

(4) Non-responsive Tender Offers will not be evaluated further.

STEP 2: PRE-QUALIFICATION AND COMPLIANCE ASSESSMENT

Bids will be evaluated on the basis of responsiveness first and then functionality. Only responsive bids will be evaluated on price and specific goals.

The functionality assessment will be based on the information submitted in the Returnable Schedules and will assess the likely risk of the Tenderer not being able to successfully perform the work under this contract and meet all his/her contractual obligations.

If the assessment indicates that there is an unacceptably high risk of the Works not being successfully completed, the bid will be rejected. **Failure to submit the Completion Certificate or Practical Completion certificate may result in the bid being considered as non-compliant and may not be evaluated further.**

The overall assessment will consider the following:

Key Personnel Role	Criteria	Compliant	Non-Compliant
Contracts Manager	Qualification		
	4yr Eng degree or BTech (Civil)		
	Professional accreditation		
	ECSA Pr Eng/ Pr Tech Eng		
	Minimum years of experience		
	7		
Site Agent	Qualification		
	3yr Eng diploma (Civil)		
	Professional accreditation		
	ECSA Pr Techni Eng		
	Minimum years of experience		
	7		
Civil Works Foreman	Minimum years of experience		
	10		
Health & Safety Officer	Professional accreditation		
	SACPCMP registered Construction Health and Safety Officer		

Company experience criteria		
<p>“Experience of company” means the number of comparable projects that were successfully completed.</p> <p>A comparable project is defined to include the civil work construction of civil water infrastructure related projects with a minimum construction value of R15 million in the past 10 years.</p>		
Minimum number of projects	Compliant	Non-Compliant
2		

STEP 3: PRICE AND SPECIFIC GOALS

In terms of the Preferential Procurement Policy Framework Act (PPPFA) the 80/20 scoring system will be applicable to this tender.

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

In terms of the Preferential Procurement Policy Framework Act (PPPFA) the 80/20 scoring system will be applicable to this tender.

POINTS AWARDED FOR PRICE (80)

The price points out of 80 will be allocated to the Price Tendered or evaluated price.

Adjudication Criteria	Points
Price Evaluation $P_s = 80 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$	80

Where:

P_s = Points scored for price of Bid under consideration

P_t = Rand value of Bid under consideration

P_{min} = Rand value of lowest acceptable Bid

POINTS AWARDED FOR SPECIFIC GOALS (20)

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

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
HDI (51% or more black ownership)	8	
Black women (51% or more women ownership)	4	
Black youth (51% or more youth ownership)	4	
People with disability (20% or more disabled people ownership)	2	
Locality (Enterprises located in the Eastern Cape Province)	2	

STEP 4: RISK ANALYSIS

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following:

- (a) Reasonableness of the financial offer;
- (b) Reasonableness of unit rates and prices;
- (c) Current workload and capacity available to implement the project successfully;
- (d) Financial capability to implement the project successfully; and
- (e) Response from reference checks conducted.

The conclusions drawn from this risk analysis will be used by the Employer in determining the acceptability of the tender offer.

The Employer reserves the right to engage with the Tenderer retrospectively to obtain information required for the above risk analysis.

Local SMMEs are required to be appointed as subcontractor(s) by the appointed Contractor to complete portions of the Works. Local SMME's are defined as being from the Sundays River Valley Municipal area.

Tender documents can be obtained electronically from <https://www.amatolawater.co.za/scm/tenders> from **10 February 2023 at 12:00**.

Tender clarification meeting:

- Registration: It is **compulsory to register** for the clarification meeting to qualify to tender. To register, please send an email request to gerhard@newground.co.za by **16 February 2023 at 17:00**.
- Meeting: A non-compulsory **virtual clarification meeting** with representatives of the Employer will take place on **17 February 2023 at 12:00**. The meeting will be an online TEAMS meeting. A link will be forwarded to the registered bidders only.

The tender closing date will be:

- Tender closing date and time: **03 March 2023 at 11:00**.
- The Bid documents are to be deposited in **Amatola Water's Tender Box, 6 Lancaster Road, Vincent, East London**.
- The bid submissions will be opened in public by Amatola Water SCM officials shortly after the closing time.
- Results will be published onto Amatola Water Website within 2 days from the closing date.

For bid enquiries contact Supply Chain Management Unit, Tel No.: 043 707 3700.

Tenderers shall take note of the following tender **conditions**:

1. Prices must be valid for at least four months (120 days) from the closing date.
2. Prices quoted must be firm and must be inclusive of VAT (15%).
3. Amatola water does not bind itself to accept the lowest bid or any other bid and reserves the right to accept the whole or part of the bid.
4. Tender documents will only be available in electronic (PDF format). No hard copies will be issued by the Amatola water.
5. Bids that are late will not be considered.
6. Quotations per facsimile or E-mail will not be considered.
7. Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

Mr. Spelele Galada

Acting Chief Executive Officer

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

INVITATION TO TENDER

SBD 1

YOU ARE HEREBY INVITED TO TENDER FOR THE FOLLOWING PROJECT:

**TENDER NO: AW2022/23/23
KIRKWOOD BULK WATER SUPPLY SCHEME**

NOTE THE FOLLOWING REQUIREMENTS

TENDER NUMBER:	AW2022/23/23	CLOSING DATE:	03 March 2023	CLOSING TIME:	11:00
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All tenderers must fill in and sign the Form of Offer and Acceptance.

Tender documents must be deposited in the tender box situated at Amatola Water, 6 Lancaster Road, Vincent, East London. The documents must be submitted in a sealed envelope clearly marked with the Contract number and project name.

Tenderers must ensure that tenders are delivered timeously to the correct address. If the tender is late, it will not be accepted for consideration.

Tender box is accessible weekdays during office hours from 08:00 – 16:00.

All tenders must be submitted on the official forms – **(Do not re-type or dismantle this document)**

**THE FOLLOWING PARTICULARS MUST BE FURNISHED
(FAILURE TO DO SO MAY RESULT IN YOUR TENDER BEING DISQUALIFIED)**

Name of Tenderer		
Postal Address		
Street Address		
Telephone Number	Code:	Number:
Cell phone Number		
Facsimile Number	Code:	Number:
Vat Registration Number		

Has a valid tax clearance certificate or Tax compliance PIN Document been submitted?	YES / NO
Are you the accredited representative in South Africa for the goods/services offered	YES / NO (IF YES ENCLOSE PROOF)

SIGNATURE OF TENDERER	
DATE	
CAPACITY UNDER WHICH THIS TENDER IS SIGNED	
TOTAL TENDER PRICE (INCL. VAT)	

T1.2 TENDER DATA

Tender Data comprises three sections:

- T1.2.1 refers to the Standard Conditions of Tender
- T1.2.2 refers to the Variations to the Standard Conditions of Tender
- T1.2.3 refers to the Additional Conditions of Tender

T1.2.1 Standard Conditions of Tender

CIDB Standard Conditions of Tender



(August 2019 edition)

The Standard Conditions of Tender are those contained in the Construction Industry Development Board (CIDB) Standard for Uniformity in Engineering and Construction Works Contracts (August 2019) as published in Board Notice 423 of 2019, in Government Gazette No. 42622, on 08 August 2019. (Refer to www.cidb.org.za and/or www.gpwonline.co.za).

Annex C of the abovementioned Board Notice is reproduced below, without amendment or alteration, for the convenience of Tenderers.

C.1 GENERAL

C.1.1 Actions

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

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

Note : 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.
2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

C.1.1.3 The Employer shall not seek and a Tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the Contract.

C.1.2 Tender Documents

The documents issued by the Employer for the purpose of a tender offer are listed in the Tender Data.

C.1.3 Interpretation

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

C1.3.2 These conditions of tender, the Tender Data and tender schedules which are required for tender evaluation purposes, shall form part of any Contract arising from the invitation to tender.

C1.3.3 For the purposes of these conditions of tender, the following definitions apply:

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

- i) someone in a position of trust has competing professional or personal interests which make it difficult to fulfil his or her duties impartially;
- ii) an individual or Tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
- iii) incompatibility or contradictory interests exist between an employee and the Tenderer who employs that employee.

b) **comparative offer** means the price after the factors of a non-firm price and all unconditional

discounts it can be utilised to have been taken into consideration;

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the

action of the Employer or his staff or agents in the tender process;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process

or the award of a Contract arising from a tender offer to the detriment of the Employer, including

collusive practices intended to establish prices at artificial levels;

C.1.4 Communication and Employer's Agent

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

C.1.5 Cancellation and Re-invitation of Tenders

C.1.5.1 An Employer may, prior to the award of the tender, cancel a tender if:

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

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

c) no acceptable tenders are received.

d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised.

C.1.5.3 An Employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement Procedures

C.1.6.1 General

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

C.1.6.2 Competitive Negotiation Procedure

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

C.1.6.2.2 All responsive Tenderers, or at least a minimum of not less than three responsive Tenderers that are highest ranked in terms of the evaluation criteria stated in the Tender Data, shall be invited to enter into competitive negotiations, based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

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

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

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

C.1.6.3 Proposal Procedure Using the Two-Stage System

C.1.6.3.1 Option 1

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

C.1.6.3.2 Option 2

C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The Employer shall invite all responsive Tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

C.1.6.3.2.2 The Employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the Tender Data, and award the Contract in terms of these conditions of tender.

C.2 TENDERER'S OBLIGATIONS

C.2.1 Eligibility

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

C.2.1.2 Notify the Employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

used by the Employer as the basis in a prior process to invite the Tenderer to submit a tender offer and obtain the Employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of Tendering

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

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

C.2.3 Check Documents

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

C.2.4 Confidentiality and Copyright of Documents

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

C.2.5 Reference Documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of Contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge Addenda

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

C.2.7 Clarification Meeting

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

C.2.8 Seek Clarification

Request clarification of the tender documents, if necessary, by notifying the Employer at least five (5) working Days before the closing time stated in the Tender Data.

C.2.9 Insurance

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

C.2.10 Pricing the Tender Offer

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

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

C.2.10.3 Provide rates and prices that are fixed for the duration of the Contract and not subject to adjustment except as provided for in the conditions of Contract identified in the Contract Data.

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

C.2.11 Alterations to Documents

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

C.2.12 Alternative Tender Offers

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

C.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the Tender Data or criteria otherwise acceptable to the Employer.

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a Tender Offer

C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a Joint Venture to provide the whole of the Works identified in the Contract Data and described in the Scope of Works, unless stated otherwise in the Tender Data.

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

C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the Tender Data, with an English translation of any documentation in a language

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- other than English, and the parts communicated electronically in the same format as they were issued by the Employer.
- C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the Tender Data. The Employer will hold all authorized signatories liable on behalf of the Tenderer. Signatories for Tenderers proposing to Contract as Joint Ventures shall state which of the signatories is the lead partner whom the Employer shall hold liable for the purpose of the tender offer.
- C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the Employer's address and identification details stated in the Tender Data, as well as the Tenderer's name and contact address.
- C.2.13.6 Where a two-envelope system is required in terms of the Tender Data, place and seal the returnable documents listed in the Tender Data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the Employer's address and identification details stated in the Tender Data, as well as the Tenderer's name and contact address.
- C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the Employer's address and identification details as stated in the Tender Data.
- C.2.13.8 Accept that the Employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the Employer, unless stated otherwise in the Tender Data.
- C.2.14 Information and Data to be Completed in all Respects**
Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the Employer as non-responsive.
- C.2.15 Closing Time**
- C.2.15.1 Ensure that the Employer receives the tender offer at the address specified in the Tender Data not later than the closing time stated in the Tender Data. Accept that proof of posting shall not be accepted as proof of delivery.
- C.2.15.2 Accept that, if the Employer extends the closing time stated in the Tender Data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.
- C.2.16 Tender Offer Validity**
- C.2.16.1 Hold the tender offer(s) valid for acceptance by the Employer at any time during the validity period stated in the Tender Data after the closing time stated in the Tender Data.
- C.2.16.2 If requested by the Employer, consider extending the validity period stated in the Tender Data for an agreed additional period with or without any conditions attached to such extension.
- C.2.16.3 Accept that a tender submission that has been submitted to the Employer may only be withdrawn or substituted by giving the Employer's Agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the Employer evaluating tender, the Contractor reserves the right to review the price based on Consumer Price Index (CPI).
- C.2.16.4 Where a tender submission is to be substituted, a Tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".
- C.2.17 Clarification of Tender Offer after Submission**
Provide clarification of a tender offer in response to a request to do so from the Employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of Tenderers or substance of the tender offer is sought, offered, or permitted.
- Note : *Sub-clause C.2.17 does not preclude the negotiation of the final terms of the Contract with a preferred Tenderer following a competitive selection process, should the Employer elect to do so.*
- C.2.18 Provide Other Material**
- C.2.18.1 Provide, on request by the Employer, any other material that has a bearing on the tender offer, the Tenderer's commercial position (including notarized Joint Venture agreements), preferencing arrangements, or samples of materials, considered necessary by the Employer for the purpose of a full and fair risk assessment.
Should the Tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the Employer's request, the Employer may regard the tender offer as non-responsive.
- C.2.18.2 Dispose of samples of materials provided for evaluation by the Employer, where required.
- C.2.19 Inspections, Tests and Analysis**
Provide access during working hours to premises for inspections, tests and analysis as provided for in the Tender Data.
- C.2.20 Submit Securities, Bonds and Policies**
If requested, submit for the Employer's acceptance before formation of the Contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of Contract identified in the Contract Data.
- C.2.21 Check Final Draft**

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Check the final draft of the Contract provided by the Employer within the time available for the Employer to issue the Contract.

C.2.22 Return of Other Tender Documents

If so instructed by the Employer, return all retained tender documents within twenty-eight (28) Days after the expiry of the validity period stated in the Tender Data.

C.2.23 Certificates

Include in the tender submission or provide the Employer with any certificates as stated in the Tender Data.

C.3 THE EMPLOYER'S UNDERTAKINGS

C.3.1 Respond to Requests from the Tenderer

C.3.1.1 Unless otherwise stated in the Tender Data, respond to a request for clarification received up to five (5) working Days before the tender closing time stated in the Tender Data and notify all Tenderers who collected tender documents.

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

- a) an individual firm, or a Joint Venture as a whole, or any individual member of the Joint Venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a Joint Venture were not prequalified in the first instance, either as individual firms or as another Joint Venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each Tenderer during the period from the date that tender documents are available until three (3) working Days before the tender closing time stated in the Tender Data. If, as a result a Tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all Tenderers who collected tender documents.

C.3.3 Return Late Tender Offers

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

C.3.4 Opening of Tender Submissions

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

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

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

C.3.5 Two-Envelope System

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

C.3.5.2 Evaluate capability of the technical proposals offered by Tenderers, then advise Tenderers who remain in contention for the award of the Contract at the time and place when the financial proposals will be opened. Open only the financial proposals of Tenderers, who comply with the capability requirements as set out in the Tender Data and announce the compliance for the technical proposals and the total price and any specific goals. Return unopened financial proposals to Tenderers whose technical proposals failed to achieve the capability requirements.

C.3.6 Non-Disclosure

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

C.3.7 Grounds for Rejection and Disqualification

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

C.3.8 Test for Responsiveness

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

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

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

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

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

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

C.3.9 Arithmetical Errors, Omissions and Discrepancies

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

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

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

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

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

- a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the Tenderer's addition of prices, the total of the prices shall govern and the Tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a Tender Offer

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

C.3.11 Evaluation of Tender Offers

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

Conditions of tender are by definition the document that establishes a Tenderer's obligations in submitting a tender and the Employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a Contract is awarded and require Employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

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

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred Tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The Employer must appoint an evaluation panel of not less than three persons conversant with the proposed Scope of Works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the Tender Data.

C.3.12 Insurance Provided by the Employer

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

C.3.13 Acceptance of Tender Offer

Accept the tender offer; if in the opinion of the Employer, it does not present any risk and only if the Tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the Employer's procurement;
- b) can, as necessary and in relation to the proposed Contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the Contract;
- c) has the legal capacity to enter into the Contract;
- d) is not insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act (No. 71 of 2008) bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities, or is subject to legal proceedings in respect of any of the foregoing;
- e) complies with the legal requirements, if any, stated in the Tender Data; and
- f) is able, in the opinion of the Employer, to perform the Contract free of conflicts of interest.

C.3.14 Prepare Contract Documents

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

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

C.3.14.2 Complete the schedule of deviations attached to the Form of Offer and Acceptance, if any.

C.3.15 Complete Adjudicator's Contract

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

C.3.16 Registration of the Award

An Employer must, within twenty-one (21) working Days from the date on which a Contractor's offer to perform a construction Works Contract is accepted in writing by the Employer, register and publish the award on the CIDB Register of Projects.

C.3.17 Provide Copies of the Contracts

Provide to the successful Tenderer the number of copies stated in the Tender Data of the signed copy of the Contract as soon as possible after completion and signing of the Form of Offer and Acceptance.

C.3.18 Provide Written Reasons for Actions Taken

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

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T1.2.2 Variations to the Standard Conditions of Tender

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

The following variations, amendments and additions to the Standard Conditions of Tender shall apply to this tender:

Clause No. Variation, Amendment or Addition

C.1 General

C.1.1 Actions

C.1.1.1 Add the following:

The Employer is the AMATOLA WATER BOARD, represented by the Amatola Water CEO.

C.1.1.2 Add the following clauses after the first paragraph:

The parties agree that this tender and its acceptance shall also be subject to the terms and conditions contained in the Employer's Supply Chain Management Policy ('SCM Policy').

Abuse of the supply chain management system is not permitted and may result in actions as set out in the SCM Policy.

C.1.2 Tender Documents

Add the following to the end of Clause C.1.2:

The Tender Document for this Contract comprises the following:

Not issued to Tenderer's, but available from the S.A. Federation of Civil Engineering Contractors, the S.A. Institution of Civil Engineering, the S.A. Bureau of Standards, the Government printers, the Construction Industry Development Board, and the Employer, as applicable:

1. CIDB, "The Standard for Uniformity in Construction Procurement", Board Notice 423 of 2019, in Government Gazette No. 42622 of 08 August 2019.
2. General Conditions of Contract for Construction Works (GCC2015), Third Edition, 2015, published by the South African Institute of Civil Engineering (SAICE)
3. S.A. National Standards SANS 1200 Standardized Specifications for Civil Engineering Construction.
4. SANS 1921 (2004) Construction and Management Requirements for Works Contracts: Part 6.
5. Other National Standards as listed in Part C3.3 (Volume 2)
6. The Preferential Procurement Policy Framework Act No 5 of 2000, and the Preferential Procurement Policy Framework Act Regulations (June 2017).
7. The Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the Construction Regulations (2014).

The tender documents issued by the Employer comprise:

Part T1: Tendering Procedures

T1.1 Tender Notice and Invitation to Tender

T1.2 Tender Data

Part T2: Returnables

T2.1 Returnable Documents (Compulsory Submissions)

T2.2 Returnable Documents for Tender Evaluation

T2.3 Returnable Documents for Scoring

Part C1: Agreement and Contract Data

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Performance Guarantee

C1.4 Agreement in terms of OHS Act

Part C2: Pricing Data

C2.1 Pricing Instructions

C2.2 Bill of Quantities

Part C3: Specifications

C3.1 Scope of Works

C3.2 General Specifications

C3.3 Particular Specifications

C3.4 SMME Specifications

C3.5 Labour and Community Specifications

C3.6 Health and Safety Specifications

C3.7 Environmental Specifications

C3.8 Labour Intensive Construction Specifications

C3.9 Training Specifications

Part C4: Site Information

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- C4.1 Site Report
- C4.2 Drawing Register
- C4.3 Drawings

Volume 1 is deemed the "Returnable Document" which must be returned to the Employer in terms of submitting a tender offer.

C.1.4 Communication and Employer's Agent

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

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

The Employer's Representative is:

Name: Mr M Prince (Planning and Development Unit)

Address: AMATOLA WATER
6 Lancaster Road, Vincent
EAST LONDON
5217

Tel: 083 666 4044

E-mail: mprince@amatolawater.co.za

The Employer's Agent is:

Name: Mr L Fourie

Address: Newground Projects
17 St Andrews Road, East London, 5247

Tel: 082 5766 828

Email: louis@newground.co.za

C.1.6.2 Competitive Negotiation Procedure

Add the following to C.1.6.2.1:

A competitive negotiation procedure will not be followed.

C.1.6.3 Proposal Procedure Using the Two-Stage System

Add the following to C.1.6.3:

A two-stage system will not be followed.

Add the following after C.1.6.3.2.2:

C.2 TENDERER'S OBLIGATIONS

C.2.1 Eligibility

Delete the heading *Eligibility* and replace with **Responsiveness Criteria**

Delete the clause and replace with the following:

C.2.1.1 Tenderers must submit a tender offer that complies in all aspects to the conditions as detailed in this document. Only those tenders that comply in all aspects with the tender conditions, specifications, pricing instructions and Contract conditions will be declared responsive.

Add the following after C.2.1.2:

C.2.1.3 Only those tender submissions from which it can be established that a clear and unambiguous offer has been made to Employer, by whom the offer has been made, and what the offer constitutes, will be declared responsive.

C.2.1.4 Only those tenders that satisfy the following criteria will be declared responsive:

C.2.1.4.1 Construction Industry Development Board (CIDB) Registration

Only those tenderers who are registered (as "Active") with the CIDB (at time of tender closing), 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, but not less than **7 CE or higher** class of construction work, will be declared responsive. Tenderers must obtain such active status upon being requested to do so in writing and within the period contained in such a request, failing which their tenders will be declared non-responsive.

Joint Ventures are eligible to submit tenders provided that:

- a) every member of the joint venture is registered with an active status with the CIDB.
- b) the lead partner has a Contractor grading designation of not lower than one level below the required grading designation in the CE class of construction work; and
- c) 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 CE class of construction work or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations.

C.2.1.4.2 National Treasury Central Supplier Database Registration

Only Tenderers who are currently registered on the National Treasury Central Supplier (CSD) Database and have provided proof of their registration will be eligible to submit a tender offer. Proof of registration must be in the form of the Tenderer's CSD registration number. Tenderers who are not registered are not precluded from submitting bids, but must be registered prior to Contract Award.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

In the case of Joint Venture partnerships this requirement will apply individually to each party to the Joint Venture.

Tenderers who wish to register as service providers on the CSD can register online at <https://secure.csd.gov.za/Account/Register>.

For further enquiries contact the Supply Chain Management Unit on Tel: 043 707 3700.

C.2.1.4.4 Tenderer's Tax Clearance Certificate

Tenderers shall be registered and in good standing with the South African Revenue Services (SARS).

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance PIN Number and/or Tax Number.

C.2.1.4.5 Compliance with Requirements of Amatola Water SCM Policy and Procedures

Only those tenders that are compliant with the requirements below will be declared responsive:

- 1 Completion of the Compulsory Enterprise Questionnaire;
- 2 Completion of the Form of Offer and Acceptance;
- 3 Registration with CSD –Compliance in terms of restriction and taxes;
- 4 VAT registration number (if any) to be provided;
- 5 A completed **Certificate of Authority for Partnerships / Joint Ventures / Consortiums** to be provided authorising the tender to be made and the signatory to sign the tender on the partnership / joint venture / consortium's behalf (applicable schedule to be completed);
- 6 A copy of the partnership / joint venture / consortium agreement to be provided;
- 7 SBD4 - A completed **Declaration of Interest – State Employees** to be provided and which does not indicate any non-compliance with the legal requirements relating to state employees (applicable schedule to be completed);
- 8 The tenderer (including any of its directors or members), has not been restricted in terms of abuse of the Supply Chain Management Policy;
- 9 The tenderer's tax matters with SARS are in order;
- 10 The tenderer is not an advisor or consultant contracted with the Employer;
- 11 The tenderer is not a person, advisor, corporate entity or a director of such corporate entity, involved with the bid specification committee.

C.2.1.4.6 Capability Requirement Compliance Verification

Tenderers not complying with the minimum qualifying criterion for Tendering Entity's Relevant Experience (below) will be considered non-compliant.

Key Personnel Role	Criteria	Compliant	Non-Compliant
Contracts Manager	Qualification		
	4yr Eng degree or BTech (Civil)		
	Professional accreditation		
	ECSA Pr Eng/ Pr Tech Eng		
	Minimum years of experience		
	7		
Site Agent	Qualification		
	3yr Eng diploma (Civil)		
	Professional accreditation		
	ECSA Pr Techni Eng		
	Minimum years of experience		
	7		
Civil Works Foreman	Minimum years of experience		
	10		
Health & Safety Officer	Professional accreditation		
	SACPCMP registered Construction Health and Safety Officer		

Company Experience

“Experience of company” means the number of comparable projects that were successfully completed.

A comparable project is defined to include the civil work construction of civil water infrastructure related projects with a minimum construction value of R15 million in the past 10 years.

Minimum number of projects	Compliant	Non-Compliant
2		

C.2.3 Check Documents

Delete the clause and replace with the following:

The Tenderer should check the tender documents on receipt for completeness, missing or duplicated pages, indistinct figures or writing and any obvious errors. The Tenderer must notify the Employer's Agent at once of any such problems identified.

C.2.6 Acknowledge Addenda

Add the following:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

All tenderers are to acknowledge receipt of any Addenda issued and to complete the relevant form in the Returnable Schedules.

C.2.7 Clarification Meeting

Add the following:

The arrangements for the Site visit/clarification meeting are as stated on the General Tender Information page and in the Responsiveness Criteria (if applicable).

Tenderers should be represented at the Site visit/clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.

The Tenderer shall, in addition to providing full valid contact details (contact person's name, phone number and e-mail address) in the Clarification Meeting Attendance Register, write-in the same contact details on Returnable Schedule A2 (Certificate Of Attendance At Clarification Meeting/Site Inspection) and, within 3 (three) working Days of the Clarification Meeting date, scan Returnable Schedule A2 and e-mail the scan (using the e-mail contact address supplied) to the e-mail addresses given in the Schedule.

The contact e-mail address given shall not have a spam filter which automatically blocks any incoming e-mails where the recipient is one of up to 100 other recipients.

Tenderers must sign the Clarification Meeting Attendance Register in the name of the tendering entity. Addenda will only be issued to, and tenders will only be received from, those entities appearing on the Clarification Meeting Attendance Register.

C.2.8 Seek Clarification

Delete the clause and replace with the following:

Request clarification of the tender documents, if necessary, by notifying the Employer at least eight (8) working Days before the closing time stated in the Tender Data.

The tenderer warrants that it has:

- a) Inspected the Specifications and read and fully understood the Conditions of Contract.
- b) Read and fully understood the whole text of the Specifications and Price Schedule and thoroughly acquainted itself with the nature of the goods proposed and generally of all matters which may influence the Contract.
- c) Visited the Site(s) where delivery of the proposed Works will take place, carefully examined existing conditions, the means of access to the Site(s), the conditions under which the delivery is to be made, and acquainted itself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials, Plant and equipment to and from the Site(s) and made the necessary provisions for any additional costs involved thereby.
- d) Requested the Employer to clarify the requirements contained in the Specifications and Price Schedule, the exact meaning or interpretation of which is not clearly intelligible to the tenderer.
- e) Received any notices to the tender documents which have been issued in accordance with the Employer's SCM Policy.

The Employer will therefore not be liable for the payment of any extra costs resulting from any claim submitted by the tenderer arising from any alleged ambiguity or uncertainty contained in the tender document.

C.2.11 Alterations to Documents

Add the following:

In the event of an error having been made on the price schedule, it shall be crossed out in non-erasable ink and shall be accompanied by an initial of each signatory to the Tender at each and every price alteration.

If correction fluid has been used on any specific item price, such item will not be considered. Corrections in terms of price may not be made by means of correction fluid such as Tippex or similar product. No correction fluid may be used in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will be classified non-responsive and shall not be considered.

C.2.13 Submitting a Tender Offer

Add the following to C.2.13.1, at the end of the first sentence:

C.2.13.1 Where the tendering entity is a joint venture it is recommended that the standard CIDB Joint Venture Agreement be used.

Replace C.2.13.2 with the following:

C.2.13.2 Return all returnable documents to the Employer after completing them in their entirety by writing legibly in non-erasable ink. Notwithstanding the format in which the tender documents are issued to Tenderers, no electronic form of tender offers will be accepted.

The Original to be submitted shall comprise:

- Tender Document, as proof of specifications tendered on and duly completed and signed.
- Indexed Lever-Arch file (or files) with all supporting documentation clearly marked with Tenderer's name and the Employer's Bid Number on the spine or cover.

Failure to comply with these requirements may result in the tender being declared non-responsive. Notwithstanding any statement in any of the Returnable Schedules listed in T2.1 to the effect that supporting documentation must be attached to the associated Returnable Schedule, the

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

supporting documentation must be placed in the supporting documentation files as stipulated above.

The Schedule of Quantities must be fully and correctly filled in in by hand in black ink.

The binding of the original volume of the Tender Document may **NOT** be dismantled. PDF copies of the blank documents have been included in the accompanying CD for the purposes of distributing among members of the bidding team.

Add the following to C.2.13.3 at the end of the first sentence:

C.2.13.3 Parts of each tender offer communicated on paper shall be submitted as an original, plus all supporting documents). No copy is required.

Add the following to C.2.13.4:

C.2.13.4 Only authorised signatories may sign the original and all copies of the tender offer where required in terms of C.2.13.3.

In the case of a **ONE-PERSON CONCERN** submitting a tender, this shall be clearly stated.

In the case of a **COMPANY** submitting a tender, include a copy of a resolution by its board of directors authorising a director or other official of the company to sign the documents on behalf of the company.

In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a resolution by its members authorising a member or other official of the corporation to sign the documents on each member's behalf.

In the case of a **PARTNERSHIP** submitting a tender, all the partners shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case proof of such authorisation shall be included in the Tender.

In the case of a **JOINT VENTURE / CONSORTIUM** submitting a tender, include a resolution of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint Venture to sign the documents on behalf of the Joint Venture.

Add the following to C.2.13.5 at the end of the first sentence:

C.2.13.5 The tender submission details are all described on the General Tender Information page.

Add the following to C.2.13.6:

C.2.13.6 A two-envelope procedure will **not** be followed (C.3.5).

Add the following after C.2.13.9:

C.2.13.10 By signing the offer part of C1.1 Form of Offer and Acceptance the tenderer declares that all information provided in the tender submission is true and correct.

C.2.14 Information and Data to be Completed in all Respects

Add the following:

The tenderer is required to provide all the data or information as requested below:

- All the documents and schedules as listed under T2.1: Returnable Schedules required for tender evaluation purposes.
- All the documents and schedules as listed under T2.3: Returnable Schedules that will be incorporated in the Contract.

Should a Tenderer not provide all of the above-mentioned data or information, the Tenderer will be considered non-responsive.

Accept that the Employer shall in the evaluation of tenders take due account of the Tenderer's past performance in executing similar construction Works of comparable magnitude, and the degree to which he possesses the necessary technical, financial and other resources to enable him to complete the Works successfully within the Contract period. Satisfy the Employer and Employer's Agent as to his ability to perform and complete the Works timeously, safely and with satisfactory quality, by furnishing details in Part T2 – Returnable Documents.

Accept that the Employer is restricted in accordance with clause 4.(4) of the Constructions Regulations, 2014, to only appoint a Contractor who he is satisfied has the necessary competencies and resources to carry out the work safely. Accept that submitting inferior and inadequate information relating to health and safety (as required in clause C.2.23) shall be regarded as justifiable and compelling reasons not to award a Contract to a Tenderer.

C.2.15 Closing Time

Add the following to C.2.15.1 after the first sentence:

C.2.15.1 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

C.2.16 Tender Offer Validity

Add the following to C.2.16.1 after the first sentence:

C.2.16.1 The tender offer validity period is **4 months (120 calendar Days)**.

C.2.16.2 **Delete the clause and replace with the following:**

Tender offers shall be deemed to remain valid until formal acceptance by the Employer of an offer at any time after the expiry date of the original tender offer validity period, unless the Employer is notified in writing of anything to the contrary, including any further conditions, by the tenderer.

Any further conditions introduced by the tenderer will be considered at the sole discretion of the Employer.

C.2.17 Clarification of Tender Offer after Submission

Add the following to C.2.17 at the end of the third sentence:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

A tender will be rejected as non-responsive if the tenderer fails to provide any clarification or supporting documents requested by the Employer within the time for submission stated in the Employer's written request for such clarification or documents.

C.2.18**Provide Other Material**

Delete the following word in C.2.18.1:

C.2.18.1

notarized

Add the following after C.2.18.2:

C.2.18.3

Tenderers shall fully co-operate with the Employer's external service provider appointed to perform a due diligence review and risk assessment upon receipt of such written instruction from the Employer.

Failure to fully cooperate could result in a tender being declared as non-responsive.

C.2.18.4

Compliance with Occupational Health and Safety Act, 85 of 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act, 85 of 1993 and the Construction Regulations, 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard the Tenderer shall submit with his tender or upon request, appended to Schedule 18: Health and Safety Plan in T2.2: Returnable Schedules, a draft Health and Safety Plan in respect of the Works in sufficient detail to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act, Regulations and Health and Safety Specification in Part C3.5 Management in the Scope of Work.

C.2.23**Certificates**

Add the following after the first sentence:

The tenderer is required to submit the following:

C.2.23.1

Evidence of Tax Compliance

Tenderers shall be registered with the South African Revenue Service (SARS) and their tax affairs must be in order and they must be tax compliant. In this regard, the tax status of the Tendering company/ies shall be verified by Amatola Water using their National Treasury Central Supplier Database number/s. The tenderer must also provide its Tax Compliance Status PIN number on the **Compulsory Enterprise Questionnaire**.

Tenderers are to note that the Employer will not award a Contract to a Tenderer whose tax matters are not in order.

C.2.23.2

Specific Goals

Bidders must complete and sign SBD 6.1 in order to claim points for Specific Goals. Failure will lead to non-awarding of points for Specific Goals.

Add the following new clause:

C.2.24**Amendments, Alterations and Qualifications**

No amendments, alterations or qualifications to the tender document will be accepted. Any such changes will result in the tender submission being declared non-responsive.

C.3**THE EMPLOYER'S UNDERTAKINGS****C.3.1****Respond to Requests from the Tenderer**

Amend C.3.1.1 as follows:

C.3.1.1

The Employer will respond to a request for clarification received up to seven working Days before the tender closing time stated in the Tender Data and notify all tenderers who attended the Clarification Meeting.

C.3.2**Issue Addenda**

Amend C.3.2 as follows:

Change "three (3)" working Days to read "five (5)" working Days.

Add the following to C.3.2, at the end of the paragraph:

Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the Employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.

The Employer or his Agent shall not be held liable or responsible for non-receipt of any Addenda issued (and consequent rejection of tender submitted) where communication of such Addenda using the supplied contact e-mail address fails for whatever reason.

C.3.4**Opening of Tender Submissions**

Add the following to C.3.4.2 at the end of the paragraph:

C.3.4.2

The location for opening of the tender offers is the Tender Submission Office at the address as stated on the General Tender Information page.

C.3.5**Two-Envelope System**

A two-envelope procedure will **not** be followed.

C.3.7**Grounds for Rejection and Disqualification**

Add the following to the end of C.3.7:

Tenderers will be disqualified:

- a) If any of the directors/shareholders of the Tenderer are listed on the National Treasury Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business in the public sector;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- b) If from information given in the completed Compulsory Enterprise Questionnaire, the Employer considers that there is a potential conflict of interest which may potentially compromise the tender process.

C.3.8 Test for Responsiveness

C.3.8.2 Delete clause C.3.8.2 (c)

Replace the final sentence of clause C.3.8.2 with the following:

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

Add the following after C.3.8.2:

C.3.8.3 A tender offer that does not meet the requirements as specified below, will be deemed non-responsive:

- The Tender offer does not meet any one of the eligibility criteria specified in Clause C.2.1.1 as amended.
- The Tenderer has not fully and correctly completed the Offer portion of C1.1 Form of Offer and Acceptance i.e. the price has not been completed in words and numbers, the Tenderers details are not completed fully and correctly, and the Tenderer has failed to sign the Offer portion of C1.1.
- If requested by the Employer during the tender evaluation process, the Tenderer has failed to clarify or submit any supporting documentation within the time for submission stated in the Employer's written request.
- The Tenderer's price is based on fixed rates or amended percentage allowance in lieu of Contract Price Adjustment or amended percentage allowance for Contingencies.
- There are any other material deficiencies whereby the price submitted is not for the identical requirements and Scope of Work as other correctly completed tenders (such as changing any quantity or percentage allowance in the Pricing Schedule or failing to incorporate the requirements of Addenda where these materially affected the pricing eg where the Notice to Tenderers required any amendments or replacements of part or all of the Bill of Quantities and the submitted Bill of Quantities does not reflect these changes).

C.3.8.4 The Employer reserves the right not to accept a tender offer which, in the Employer's opinion, materially and/or substantially deviates from the terms, conditions, and specifications of the tender documents.

C.3.9 Arithmetical Errors, Omissions and Discrepancies

Add the following after clause C.3.9.4:

C.3.9.5 In the event of tendered rates or lump sums being declared by the Employer to be unacceptable to it because they are not priced, are priced either excessively low or high, or not in proper balance with other rates or lump sums, the Tenderer may be required to produce evidence and advance arguments in support of the tendered rates or lump sums objected to. If, after submission of such evidence and any further evidence requested, the Employer is still not satisfied with the tendered rates or lump sums objected to, it may request the tenderer to amend these rates and lump sums along the lines indicated by it.

The Tenderer will then have the option to alter and/or amend the rates and lump sums objected to and such other related amounts as are agreed on by the Employer, but this shall be done without altering the tender offer.

Should the Tenderer fail to amend his tender in a manner acceptable to and within the time stated by the Employer, the Employer may declare the tender as non-responsive.

C.3.10 Clarification of a Tender Offer

Delete the clause and replace with the following:

The Employer may, after the closing date, request additional information or clarification from a tenderer, in writing, on any matter affecting the evaluation of the tender offer, or that could give rise to ambiguity in a Contract arising from the tender offer.

C.3.11 Evaluation of Tender Offers

Add the following to C.3.11.1:

C.3.11.1 General

Tenders will be evaluated in terms of the Amatola Water procurement policy.

The Employer reserves the right to contact references and make enquiries to determine the tenderer's competence, reliability, experience, reputation, and capability to perform the Contract.

Preference Points

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to invitations to tender:

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

1.2 To be completed by the organ of state

- a) The applicable preference point system for this tender is the 80/20 preference point system.
- b) The lowest acceptable tender will be used to determine the accurate system once tenders are received.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- 1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:
 - (a) Price; and
 - (b) Specific Goals.

- 1.4 To be completed by the organ of state:
The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

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

- 1.6 The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) "tender" means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) "price" means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) "rand value" means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) "tender for income-generating contracts" means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) "the Act" means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

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

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

80/20 or 90/10

$$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

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

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:

- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
HDI (51% or more black ownership)	8	
Black women (51% or more women ownership)	4	
Black youth (51% or more youth ownership)	4	
People with disability (20% or more disabled people ownership)	2	
Locality (Enterprises located in the Eastern Cape Province)	2	

C.3.13 Acceptance of Tender Offer

Delete the first paragraph of C.3.13 and replace with the following:

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

Delete C.3.13 a) and replace with the following:

- C.3.13 a) Is not under restrictions, has any principals who are under restrictions, or is not currently a supplier to whom notice has been served for abuse of the supply chain management system, preventing participation in the Employer’s procurement;

Add the following at the end of C.3.13:

- C.3.13.1 If an award cannot be made in terms of anything contained herein, the Employer reserves the right to consider the next ranked tenderer(s).

C.3.17 Provide Copies of the Contracts

Add the following after the first sentence:

The number of paper copies of the signed Contract to be provided by the Employer is **one**.

Add the following after C.3.18:

C.3.19 Negotiations with Preferred Tenderers

The Employer may negotiate the final terms of a Contract with tenderers identified through a competitive tendering process, as preferred tenderers, provided that such negotiation:

- a) Does not allow any preferred tenderer a second or unfair opportunity;
- b) Is not to the detriment of any other tenderer; and
- c) Does not lead to a higher price than the tender as submitted.

Minutes of any such negotiations shall be kept for record purposes.

The provisions of this clause will be equally applicable to any invitation to negotiate with any other tenderers.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T1.2.3 Additional Conditions of Tender

The additional conditions of tender are:

T.1.2.3.1 Compliance with Occupational Health and Safety Act 1993

Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014 issued in terms of Section 43 of the Act. The tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

Tenderers are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the Contract also comply with the above requirements.

The Contractor shall prepare and maintain a Health and Safety File in respect of the project, which shall be available for inspection on Site at all times and handed over to the Employer on Final Completion of the project.

The Contractor is required to submit to the Employer the Occupational Health and Safety Agreement (included in C1.5 of the Contract Document) and a letter of good standing from the Compensation Commissioner, or a licensed compensation insurer, within 14 Days after the Commencement Date of the Contract.

T.1.2.3.2 Claims Arising after Submission of Tender

No claim for any extras arising out of any doubt or obscurity as to the true intent and meaning of anything shown on the Contract Drawings or contained in the Conditions of Contract, Scope of Work and Pricing Data, will be admitted by the Employer/Employer's Agent after the submission of any tender and the Tenderer shall be deemed to have:

- Inspected the Contract Drawings and read and fully understood the Conditions of Contract.
- Read and fully understood the whole text of the Scope of Work and Pricing Data and thoroughly acquainted himself with the nature of the Works proposed and generally of all matters which may influence the Contract.
- Visited the Site of the proposed Works, carefully examined existing conditions, the means of access to the Site, the conditions under which the work is to be done, and acquainted himself with any limitations or restrictions that may be imposed by the Municipal or other Authorities in regard to access and transport of materials and Construction Equipment to and from the Site and made the necessary provisions for any additional costs involved thereby.
- Requested the Employer or his duly authorised agent to make clear the actual requirements of anything shown on the Contract Drawings or anything contained in the Scope of Work and Pricing Data, the exact meaning or interpretation of which is not clearly intelligible to the Tenderer.

Before submission of any tender, the Tenderer should check the number of pages, and if any are found to be missing or duplicated, or the figures or writing indistinct, or if the Pricing Data contain any obvious errors, the tenderer must apply to the Employer/Employer's Agent at once to have the same rectified, as no liability will be admitted by the Employer/Employer's Agent in respect of errors in any tender due to the foregoing.

T.1.2.3.3 Community Liaison Officer

A Community Liaison Officer is to be employed for the duration of the construction period.

T.1.2.3.4 Use of Local Labour

It is a requirement for the Contract that the work be executed in such a manner as to maximize the use of labour intensive construction practices in or to provide the local community with the employment opportunities.

The Tenderer is to identify all activities for which it is intended to employ workers from the local community, and full details thereof are to be provided during weekly and monthly reporting.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

In applying the principles set out above, it is a specific requirement of this Tender that a successful Tenderer employs, in consultation with the CLO, unemployed persons from the ranks of the local communities and the immediate surroundings, who possess the appropriate skills required for a Contract of this nature.

- In order to achieve the recruitment of local labour, the Local Communities would establish, together with the RDP/Development Forum, a database of unemployed persons, indicating their specialised training, previous experience and employment, etc. The successful Tenderer will be required to liaise with the CLO to recruit his workforce and will be required to produce weekly records suitably detailed to enable the Employer's Agent, or his authorised representative, and Local Communities to ascertain that the above-mentioned labour requirements are achieved.
- The successful Tenderer will be required to provide informal skills training so that the required standards of workmanship are maintained.

Any difficulty experienced by the Tenderer/Contractor in the procurement of the requirement percentages of local labour is to be referred immediately to the Employer's Agent or his authorised representative.

T.1.2.3.5 Risk Analysis

Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the Employer will perform a risk analysis in respect of the following:

- (a) Reasonableness of the financial offer;
- (b) Reasonableness of unit rates and prices;
- (c) Current workload and capacity available to implement the project successfully;
- (d) Financial capability to implement the project successfully; and
- (e) Response from reference checks conducted.

The conclusions drawn from this risk analysis will be used by the Employer in determining the acceptability of the tender offer in terms of C.3.13 (b).

The Employer reserves the right to engage with the Tenderer retrospectively to obtain information required for the above risk analysis.

PART T2: RETURNABLES FOR TENDER EVALUATION PURPOSES

General

The Tender Document must be submitted as a whole. All forms must be properly completed as required, and the document shall not be taken apart or altered in any way whatsoever. The Tenderer is required to complete each and every Schedule and Form listed below to the best of his ability as the evaluation of tenders and the eventual Contract will be based on the information provided by the Tenderer. Failure of a Tenderer to complete the Schedules and Forms to the satisfaction of the Employer will inevitably prejudice the tender and may lead to rejection on the grounds that the tender is not responsive.

Returnable Schedules, Forms and Certificates

SCHEDULE	DESCRIPTION
T2.1	Returnable Documents - Company Specific
A1	Authority To Sign Documents
A2	Certificate of Attendance at Clarification Meeting / Site Inspection
A3	Certificate of Authority for Joint Ventures
A4	Joint Venture Agreement
A5	Compulsory Enterprise Questionnaire
A6	Tax Clearance Certificate
A7	Letter of good standing with compensation commissioner
A8	Proof of company registration
A9	Proof of Contractor Registration issued by the Construction Industry Development Board
A10	Central Supplier Database Registration
A11	Valid original or certified B-BBEE Certificate
A12	Bank Rating Reference
A13	Intention to provide Security
A14	Copies of ID Document of Directors
T2.1.15	Location of Operational Office
T2.2	Returnable Documents - Supply Chain Management Bid Documents (SBD)
<i>SBD4</i>	SBD4 Bidders disclosure
<i>SBD6.1</i>	Preference Points Claim Form in Terms of The Preferential Procurement Regulations 2022
T2.3	Returnable Documents - Technical and Evaluation
T2.3.1	Capability Requirements Assessment
T2.3.2	Skills for Key Personnel
T2.3.3	Entities Experience (Reference)
T2.3.4	Proposed organisation and staffing
T2.3.5	Schedule of Plant and Equipment
T2.3.6	Schedule of proposed subcontractors
T2.3.7	Tenderers Expertise and Experience
T2.3.8	Experience of Key Personnel
T2.3.9	Preliminary Quality Assurance Plan
T2.3.10	Health and Safety Plan
T2.3.11	Preliminary Programme
T2.3.12	Schedule of Estimated Monthly Expenditure
T2.3.13	Confirmation from steel reservoir supplier
T2.3.14	Amendments/Alternatives and Qualifications by Tenderer
T2.3.15	Record of Addenda to Tender Documents

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.1 RETURNABLE DOCUMENTS – COMPANY SPECIFIC

SCHEDULE	DESCRIPTION
T2.1.1	Authority To Sign Documents
T2.1.2	Certificate of Attendance at Clarification Meeting / Site Inspection
T2.1.3	Certificate of Authority for Joint Ventures
T2.1.4	Joint Venture Agreement
T2.1.5	Compulsory Enterprise Questionnaire
T2.1.6	Tax Clearance Certificate
T2.1.7	Letter of good standing with compensation commissioner
T2.1.8	Proof of company registration
T2.1.9	Proof of Contractor Registration issued by the Construction Industry Development Board
T2.1.10	Central Supplier Database Registration
T2.1.11	Bank Rating Reference
T2.1.12	Intention to provide Security
T2.1.13	Copies of ID Document of Directors
T2.1.14	Location of Operational Office

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.1.1 Authority to Sign Documents

I/We*, the undersigned, am/are* duly authorised to sign the form of tender on behalf of

.....

by virtue of the Articles of Association/Resolution of the Board of Directors*, of which a certified copy is attached, or

.....

.....

(*Delete whichever is inapplicable)

Indicate the status of the tenderer by ticking the appropriate box hereunder:

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation
<input type="checkbox"/>				

1.			
	NAME	SIGNATURE	DATE

2.			
	NAME	SIGNATURE	DATE

WITNESSES:

1.			
	NAME	SIGNATURE	DATE

2.			
	NAME	SIGNATURE	DATE

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.1.2 Certificate of Attendance at Clarification Meeting / Site Inspection

This is to Certify that I/We*

of (Tenderer)

of (address)

Telephone numberFax number

E-mail

have attended the clarification meeting and examined the Site of the Works and its surroundings for which I/we* am/are* submitting this Tender and have, so far as is practicable, familiarised myself/ourselves* with all information, risks, contingencies and other circumstances which may influence or affect my/our* tender.

****Delete whichever is inapplicable***

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

SIGNED ON BEHALF OF AMATOLA WATER:

NAME

SIGNATURE

CONFIRMATION OF CONTACT DETAILS FOR RECEIVING ANY ADDENDA:

Contact person: (alt person name:)

Contact number: (alt contact number:)

Contact e-mail address: (alt. e-mail address:)

NOTE: The contact e-mail address given shall not have a spam filter which automatically blocks any incoming e-mails where the recipient is one of up to 100 other recipients.

TENDERER TO SCAN THIS PAGE AND E-MAIL IT TO EMPLOYER AND EMPLOYER'S AGENT NEWGROUND PROJECTS WITHIN 5 WORKING DAYS FOLLOWING CLARIFICATION MEETING DATE: gerhard@newground.co.za.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

T2.1.3 Certificate of Authority for Joint Ventures

This Returnable Schedule is to be completed only if Tenderer is a joint venture.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorise

Mr/Ms....., authorised signatory of the company, close corporation or partnership..... acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any Contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		..... Signature Name Designation
		..... Signature Name Designation
		..... Signature Name Designation
		..... Signature Name Designation

Note:

A copy of the Joint Venture Agreement showing clearly the percentage contribution of each partner to the Joint Venture shall be appended to this Schedule.

T2.1.4 Joint Venture Agreement

The Tenderer, if a Joint Venture, must attach the Joint Venture Agreement here.

T2.1.5 Compulsory Enterprise Questionnaire

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

Section 1: Name of enterprise

Section 2: VAT registration number, if any

Section 3: CIDB registration number, if any

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

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

Section 5: Particulars of companies and close corporations

Company registration number

Close corporation number

Tax reference number

Section 6: The attached SBD4 must be completed for each attender and be attached as a tender requirement

Section 7: The attached SBD6.1 must be completed for each attender and be attached as a tender requirement

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

- i) authorises the Employer to obtain a tax Clearance certificate from the South African Revenue Services that my / our tax matters are in order;
- ii) confirms that neither the name of the enterprise nor 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;
- iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise, has within the last five years been convicted of fraud or corruption;
- iv) confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other relationship with any of the tenderers or those responsible for compiling the Scope of Work that could cause or be interpreted as a conflict of interest;
- v) confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

SIGNED:

NAME

DATE

SIGNATURE

T2.1.6 Tax Clearance Certificate

It is a condition of Tender that the taxes of the successful Tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderer's tax obligations.

1. In order to meet this requirement, Tenderers are required to complete in full the attached form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign Tenderers/individuals who wish to submit Tenders.
2. SARS will then furnish the Tenderer with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.
3. The valid Tax Clearance Certificate or Tax compliance PIN document must be submitted together with the Tender. Failure to submit the valid Tax Clearance Certificate or Tax compliance PIN will result in the invalidation of the Tender.
4. In Tenders where Consortia / Joint Ventures / Subcontractors are involved, each party must submit a separate valid Tax Clearance Certificate or Tax compliance PIN document.
5. Copies of the TCC 001 "Application for a Tax Clearance Certificate" form is available from any SARS branch office nationally or on the website www.sars.gov.za.
6. Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS's eFiling through the website www.sars.gov.za.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

T2.1.7 Letter of Good Standing with Compensation Commissioner

Supply a valid Letter of Good Standing from the Compensation Commissioner.

T2.1.8 Proof of Company Registration

Provide a proof of company registration.

T2.1.9 Proof of Contractor Registration Issued by the Construction Industry Development Board

Supply a valid registration document from CIDB showing the company's grading.

T2.1.10 Central Supplier Database Registration

Submit proof of registration on the Central Supplier Database.

T2.1.11 Bank Rating Reference

Provide a bank rating reference letter containing the bank rating code for the Contractors.

T2.1.12 Intention to Provide Security

Provide a letter of intent from a bank or listed company to provide a performance security of 10% of the tender sum.

T2.1.13 Copies of ID Document of Directors

T2.1.14 Location of Operational Office

Proof of the location of the operational office.

- Municipal Rates Statement
- Copy of Lease agreement
- Affidavit

T2.2 RETURNABLE DOCUMENTS – SUPPLY CHAIN MANAGEMENT BID DOCUMENTS (SBD)

SCHEDULE	DESCRIPTION
<i>SBD4</i>	Bidders Disclosure
<i>SBD6.1</i>	Preference Points Claim Form in Terms of The Preferential Procurement Regulations 2022

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

3. 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* will not be construed as collusive bidding.
* 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.
- 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.
- 3.5 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.
- 3.6 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.
- 3.7 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.

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.

.....	.....8.....
Signature	Date

.....
Position	Name of bidder

SBD6.1 PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022

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

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

1. GENERAL CONDITIONS

- 1.1. The following preference point systems are applicable to invitations to tender:
 - (a) the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
 - (b) the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).
- 1.2. To be completed by the organ of state
 - (a) The applicable preference point system for this tender is the 80/20 preference point system.
 - (b) The lowest acceptable tender will be used to determine the accurate system once tenders are received.
- 1.3. Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:
 - (a) Price; and
 - (b) Specific Goals.

1.4. To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	80
SPECIFIC GOALS	20
Total points for Price and SPECIFIC GOALS	100

- 1.5. Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.
- 1.6. The organ of state reserves the right to require of a tenderer, either before a tender is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the organ of state.

2. DEFINITIONS

- (a) “tender” means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;
- (b) “price” means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;
- (c) “rand value” means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;
- (d) “tender for income-generating contracts” means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and
- (e) “the Act” means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

3.1.1. THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

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

80/20	or	90/10
$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$	or	$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$

Where:

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

3.2. FORMULAE FOR DISPOSAL OR LEASING OF STATE ASSETS AND INCOME GENERATING PROCUREMENT

3.2.1. POINTS AWARDED FOR PRICE

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

80/20	or	90/10
$P_s = 80 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$	or	$P_s = 90 \left(1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$

Where:

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

4. POINTS AWARDED FOR SPECIFIC GOALS

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

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

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

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

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

(Note to organs of state: Where either the 90/10 or 80/20 preference point system is applicable, corresponding points must also be indicated as such.

Note to tenderers: The tenderer must indicate how they claim points for each preference point system.)

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (80/20 system) (To be completed by the tenderer)
HDI (51% or more black ownership)	8	
Black women (51% or more women ownership)	4	
Black youth (51% or more youth ownership)	4	
People with disability (20% or more disabled people ownership)	2	
Locality (Enterprises located in the Eastern Cape Province)	2	

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm.....

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

- Partnership/Joint Venture / Consortium
- One-person business/sole propriety
- Close corporation
- Public Company
- Personal Liability Company
- (Pty) Limited
- Non-Profit Company
- State Owned Company

[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - a) disqualify the person from the tendering process;
 - b) recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;
 - c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - d) recommend that the tenderer or contractor, its shareholders and directors, or only

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

- the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
- e) forward the matter for criminal prosecution, if deemed necessary.

.....

SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

.....

.....

T2.3 RETURNABLE DOCUMENTS – TECHNICAL EVALUATION

SCHEDULE	DESCRIPTION
T2.3.1	Capability Requirement and Compliance Assessment
T2.3.2	Skills for Key Personnel
T2.3.3	Entities Experience (Reference)
T2.3.4	Proposed organisation and staffing
T2.3.5	Schedule of Plant and Equipment
T2.3.6	Schedule of proposed subcontractors
T2.3.7	Tenderers Expertise and Experience
T2.3.8	Experience of Key Personnel
T2.3.9	Preliminary Quality Assurance Plan
T2.3.10	Health and Safety Plan
T2.3.11	Preliminary Programme
T2.3.12	Schedule of Estimated Monthly Expenditure
T2.3.13	Confirmation from steel reservoir supplier
T2.3.14	Amendments/Alternatives and Qualifications by Tenderer
T2.3.15	Record of Addenda to Tender Documents

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.3.1 Capability Requirement and Compliance Assessment

NB: Before completing this form, bidders must study the general conditions, definitions, and directives applicable in respect of specific goals, as prescribed in the Preferential Procurement Regulations, 2022.

1. GENERAL CONDITIONS

ITEM		
STEP 2 OF EVALUATION – CAPABILITY	Compliant	Non-Compliant
Capability Criteria		
• Key personnel		
• Company experience		
STEP 3 OF EVALUATION – PRICE & SPECIFIC GOALS	Weight	
Price	80	
Specific goals	20	
TOTAL	100	

1.1 CAPABILITY REQUIREMENT AND COMPLIANCE ASSESSMENT

The following capability criterion is to be utilized. Please note that each person used for tendering purposes must complete a declaration of availability. Should the tenderer submit the tender without the person having signed this form the person will not be valid for evaluation and deem that portion of the capability assessment non-responsive.

Key Personnel Role	Criteria	Compliant	Non-Compliant
Contracts Manager	Qualification		
	4yr Eng degree or BTech (Civil)		
	Professional accreditation		
	ECSA Pr Eng/ Pr Tech Eng		
Site Agent	Minimum years of experience		
	7		
	Qualification		
	3yr Eng diploma (Civil)		
Civil Works Foreman	Professional accreditation		
	ECSA Pr Techni Eng		
	Minimum years of experience		
Health & Safety Officer	7		
	Minimum years of experience		
Health & Safety Officer	10		
	Professional accreditation		
	SACPCMP registered Construction Health and Safety Officer		

Company experience criteria		
<p>“Experience of company” means the number of comparable projects that were successfully completed. A comparable project is defined to include the civil work construction of civil water infrastructure related projects with a minimum construction value of R15 million in the past 10 years.</p>		
Minimum number of projects	Compliant	Non-Compliant
2		

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.3.2 Skills for Key Personnel

Provide an adequately resourced project organogram with supporting CV's and qualifications.

A separate schedule for Contracts Manager and Site Agent is to be incorporated, indicating the required information as per the example below:

SKILLS OF KEY PERSONNEL – CONTRACTS MANAGER

Name and Surname	References for past projects	
Tertiary Qualifications	Project Description (Similar in Nature)	Project Value (Minimum of R15 000 000)
Years' Experience (Post qualification)		

SKILLS OF KEY PERSONNEL – SITE AGENT

Name and Surname	References for past projects	
Tertiary Qualifications	Project Description (Similar in Nature)	Project Value (Minimum of R 15 000 000)
Years' Experience (Post qualification)		

SKILLS OF KEY PERSONNEL – SITE FOREMAN

Name and Surname	References for past projects	
Tertiary Qualifications	Project Description (Similar in Nature)	Project Value (Minimum of R 15 000 000)
Years' Experience (Post qualification)		

SKILLS OF KEY PERSONNEL – SAFETY OFFICER

Name and Surname	References for past projects	
Tertiary Qualifications	Project Description (Similar in Nature)	Project Value (Minimum of R 15 000 000)
Years' Experience (Post qualification)		

T2.3.4 Proposed organisation and staffing

The tender offer shall include an organogram showing the team of key personnel the Tenderer proposes to assign to the Contract and how responsibilities for the various disciplines or work and components of the Works will be assigned. The name, roles and responsibilities of each person must be clearly set out, and corresponding job descriptions must be provided as an addendum to the organogram.

In the case of a Joint Venture or where major sub-contractors are made use of, the organogram must show how respective responsibilities are to be allocated.

As a minimum, the organogram must show how respective responsibilities are to be allocated. As a minimum, the organogram must include for the personnel detailed in Returnable Schedule B4: Experience of Key Personnel.

The Tenderer shall include the requisite organogram and addendums in the Supporting Documentation file, to be submitted in accordance with Clause C.2.13.3 of 0: **T1.2.2 Variations to the Standard Conditions of Tender.**

In addition to the detail request above, the names of the following shall be entered below (these names will be used to assess responsiveness):

Construction Manager (Site Agent)	
Construction Supervisor (Main Foreman)	

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

T2.3.6 Schedule of proposed subcontractors

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

SUBCONTRACTORS			
Category/type	Subcontractor Name/Address/Contact Person/Phone/e-mail/Details of Organisation/Firm/ Experience	Items of work (pay items) to be undertaken by the Subcontractor	Estimated Cost of Work (Rand)
TOTAL (Excluding VAT)			

If there is insufficient space above, the Tenderer may include the additional sheets in the Supporting Documentation file, to be submitted in accordance with Clause C.2.13.3 of 0 **T1.2.2 Variations to the Standard Conditions of Tender.**

Number of additional sheets submitted by the Tenderer to this Schedule(If nil, enter NIL)

Acceptance of this tender shall not be construed as approval of all or any of the listed subcontractors. Should any of the subcontractors not be approved subsequent to acceptance of the tender, this shall in no way invalidate this tender, and the tendered unit rates for the various items of work shall remain final and binding, even in the event of a subcontractor not listed above being approved by the Engineer.

T2.3.7 Tenderers Expertise and Experience

The evaluation of the Tenderer’s relevant Construction Experience shall be based on the minimum qualifying criteria set out in Tender Data Clause C.2.1.4.6 (Capability Requirement Compliance Verification) reproduced below:

Company experience criteria		
<p>“Experience of company” means the number of comparable projects that were successfully completed. A comparable project is defined to include the civil work construction of civil water infrastructure related projects with a minimum construction value of R15 million in the past 10 years.</p>		
Minimum number of projects	Compliant	Non-Compliant
2		

Details to be provided in the table of expertise and experience must, as a minimum, include:

- Project name
- Project location
- Employing authority/Client with Contact details (NEEDED FOR REFEREE CHECKS FOR VERIFICATION)
- Supervising Engineer, with Contact details (NEEDED FOR REFEREE CHECKS FOR VERIFICATION)
- Period of construction (commencement and completion)
- Description and value of principle work content.
- Value of Contract

T2.3.8 Experience of Key Personnel

The evaluation of Key Personnel’s relevant Roles and Construction Experience shall be based on the minimum award criteria set out in Tender Data Clause C.2.1.4.6 (Capability Requirement Compliance Verification) reproduced below:

Key Personnel Role	Criteria	Compliant	Non-Compliant
Contracts Manager	Qualification		
	4yr Eng degree or BTech (Civil)		
	Professional accreditation		
	ECSA Pr Eng/ Pr Tech Eng		
	Minimum years of experience		
	7		
Site Agent	Qualification		
	3yr Eng diploma (Civil)		
	Professional accreditation		
	ECSA Pr Techni Eng		
	Minimum years of experience		
	7		
Civil Works Foreman	Minimum years of experience		
	10		
Health & Safety Officer	Professional accreditation		
	SACPCMP registered Construction Health and Safety Officer		

Curriculum Vitae (CV), up to a maximum of five (5) pages must be submitted, for each of the above key personnel. The CVs must specifically include the qualifications, professional accreditation and relevant experience in construction projects of a similar nature. Minimum information to be included in the CV’s is given overleaf.

Each CV must be clearly cross-referenced to and labelled to correspond with the organogram submitted in terms of Returnable Schedule B1 Proposed organisation and staffing, so as to indicate which role the person in question is proposed to fulfil in the Contract.

KEY PERSONNEL CVs: MINIMUM INFORMATION TO BE SUPPLIED

- Name:
- Professional:
- Date of Birth:
- Parent Firm:
- Position in Firm:
- Years with Firm:
- Nationality:
- Tertiary Education (and year obtained):
- Professional Accreditation (and year obtained):
- Years of Relevant Experience: Relevant experience shall relate to their proposed roles in this Contract.

Languages: Indicate first language. If the first language is not English, please indicate proficiency in English. In other languages, including South African indigenous languages, please show speaking, reading and writing ability.

Language	Speaking	Reading	Writing
English			

Countries of Work Experience:

Key Qualifications: Under this heading, give outline of staff members experience and training most pertinent to the assigned work on the team.

Relevant Experience: Describe degree of responsibility held by staff member on relevant previous assignments, and give dates, project values and locations. For experience in the last ten years, also give types of activities performed and Client references where appropriate.

Summary of Other Experience: Under this heading, list all positions held by staff member since graduation, giving dates, names of employing organisation, title of position held and location, type and value of construction projects.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.3.9 Preliminary Quality Assurance Plan

The Tenderer must submit a Preliminary Quality Assurance Plan showing how the Tenderer will comply with Sub-Clause 4.9 in C1.2: Contract Data.

The Preliminary Quality Assurance Plan must outline processes, procedures and associated resources, applied by whom and when, to meet the requirements and indicate how risks will be managed and what contribution can be made regarding value management. Particular attention in the plan must be given to the following:

- a) The preparation and internal approval process for the Contractors Documents in terms of Clause 5 of the General Conditions of Contract.
- b) The proposed internal quality management procedures pertaining to the Works and including aspects such as:
 - Control and tracking of the Contractor's Documents
 - Testing procedures
 - Pipework fabrication
 - General metalwork fabrication
 - Corrosion protection and coatings
 - Installation.

The plan must include a technical description of systems and equipment offered, highlighting the main features, benefits and innovations thereof, and showing how these can meet the Employer's objectives and the specified services requirements. This must be supplemented by technical literature such as brochures, drawings, for the various items of Plant and equipment offered.

This plan must address the Tenderer's plans for completing the Works within the specified Time for Completion, paying particular attention to:

- a) Interfacing with (i) the Tenderer's own sub-contractors or Joint Ventures and (ii) the Mechanical and Electrical Contractor; and
- b) The sequencing of the Works in terms of the requirements of C3: Scope of Work.

The Tenderer must include the required Quality Assurance Plan and supporting information in the Supporting Documentation file to be submitted in accordance with Clause C.2.13.3 of 0 : T1.2.2 Variations to the Standard Conditions of **Tender**.

T2.3.10 Health and Safety Plan

Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014 issued in terms of Section 43 of the Act. The Tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all costs in compliance therewith.

In this regard, the Tenderer shall prepare and attach a Health and Safety Plan in respect of the Works in order to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act and Regulations. The Health and Safety specification for ORTDM is attached. The Tenderer's Health and Safety Plan shall cover inter-alia the following details:

- 1) Management Structure, Site Supervision and Responsible Persons including a succession plan
- 2) Contractor's induction training programme for employees, sub-contractors and visitors to the Site
- 3) Health and safety precautions and Procedures to be adhered to in order to ensure compliance with the Act, Regulations and Safety Specifications
- 4) Regular monitoring Procedures to be performed
- 5) Regular liaison, consultation and review meetings with all parties
- 6) Site security, welfare facilities and first aid
- 7) Site rules and fire and emergency Procedures.

Tenderers are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the Contract also comply with the above requirements.

The Tenderer shall also take into account the additional requirements stated in the Scope of Work when drawing up the Health and Safety Plan for the Contract.

Details of the Health and Safety Plan shall be appended to this Schedule.

Number of sheets appended by the Tenderer to this Schedule (If nil, enter NIL)

T2.3.11 Preliminary Programme

The Tenderer shall provide a preliminary programme in Gantt Chart format showing how the requirements of C1.2: Contract Data and Part C3: Scope of Work will be met; and outlining the key activities and milestones for the Works and the sequencing thereof; including design, approval of the Contractors Documents, fabrication, supply, delivery, installation, construction, testing. In addition, a preliminary cash flow forecast, matching the progress of the programme must be submitted.

The programme must be based on the tendered Time for Completion and take cognisance of the programming limitations given in the Project Specifications.

T2.3.12 Schedule of Estimated Monthly Expenditure

The Tenderer shall state his estimated expenditure indicating the values of each monthly claim in terms of Clause 6.10 of the General Conditions of Contract, which he/she estimates will arise based on his/her preliminary programme and tendered rates, in the table below.

MONTH	VALUE
1	R
2	R
3	R
4	R
5	R
6	R
7	R
8	R
9	R
10	R
11	R
12	R
13	R
14	R
15	R
16	R
17	R
18	R
19	R
20	R
TOTAL	R

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

T2.3.13 Confirmation from steel reservoir supplier

The Contractor must supply evidence of confirmation from the steel reservoir supplier that the material will be delivered in accordance with the specific criteria set out in C1.2.3 (Compulsory Data), Clause 5.6.1.

T2.3.14 Amendments/Alternatives and Qualifications by Tenderer

The Tender should not make any departures from the provisions of this Contract as per Clause C2.12 in the 0 T1.2.1 Standard Conditions of **Tender**.

(The schedules below are not an invitation for amendments, deviations or alternatives but should the Tenderer desire to make any departures from the provisions of this Contract he shall set out his proposals clearly hereunder.)

I / We herewith propose the amendments, alternatives and discounts as set out in the tables below:

(a) AMENDMENTS

PAGE, CLAUSE OR ITEM NO	PROPOSED AMENDMENT
	NO AMENDMENTS ALLOWED

- (1) *Amendments to the General and Special Conditions of Contract are not acceptable;*
- (2) *The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.*

(b) ALTERNATIVES

PROPOSED ALTERNATIVE	DESCRIPTION OF ALTERNATIVE
	NO ALTERNATIVES ALLOWED

- (1) *Individual alternative items that do not justify an alternative tender and an alternative offer for time for completion should be listed here.*
- (2) *In the case of a major alternative to any part of the work, a separate Bill of Quantities, programme, etc, and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.*
- (3) *Alternative tenders involving technical modifications to the design of the Works and methods of construction shall be treated separately from the main tender offer.*

(c) QUALIFICATIONS

ITEM ON WHICH QUALIFICATION IS MADE	DESCRIPTION OF QUALIFICATION
	NO QUALIFICATIONS ALLOWED

- (1) *The Tenderer must give full details of the discounts offered in a covering letter attached to his tender, failing which, the offer will be prejudiced.*

If there is insufficient space above, the Tenderer may append additional sheets.

Number of additional sheets appended by the Tenderer to this Schedule (If nil, enter NIL)

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

T2.3.15 Record of Addenda to Tender Documents

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

No.	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		

Number of additional sheets appended by the Tenderer to this Schedule (If nil, enter NIL)

SIGNED BY/ON BEHALF OF TENDERER:

NAME

SIGNATURE

DATE

THE CONTRACT

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____
The Contract

PART C1 AGREEMENT AND CONTRACT DATA

SCHEDULE	DESCRIPTION
C1.1	Form of Offer and Acceptance
C1.2	Contract Data
C1.3	Performance Guarantee
C1.4	Adjudication
C1.5	Occupational Health and Safety

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

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

KIRKWOOD BULK WATER SUPPLY SCHEME

CONTRACT NO: AW2021/23/23

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

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

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

..... Rand (in words)

R (in figures)

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

For the tenderer

Signature _____ Date _____

Name _____ Capacity _____

(Name and address of organization)

Name and signature of witness:

Signature _____ Date _____

Name _____

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Employer identified below accepts the tenderer's following offer.

In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of Contract identified in the Contract Data. Acceptance of the tenderer's offer shall form an agreement between the Employer and the tenderer upon the terms and conditions contained in this agreement and in the Contract that is the subject of this agreement.

The terms of the Contract, are contained in:

- Part C1: Agreements and Contract Data, (which includes this agreement)
- Part C2: Pricing Data
- Part C3: Scope of work.
- Part C4: Site information

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

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

The tenderer shall within four weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer's Agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this Form of Offer and Acceptance, including the schedule of deviations (if any). Unless the tenderer (now Contractor) within five working Days of the date of such receipt notifies the Employer in writing of any reason why he cannot accept the contents of this agreement, this agreement shall constitute a binding Contract between the parties.

For the Employer

Signature _____ Date _____

Name _____ Capacity _____

(Name and address of organization) Amatola Water
 6 Lancaster Road, Vincent
 EAST LONDON
 5217

Name and signature of witness:

Signature _____ Date _____

Name _____

SCHEDULE OF DEVIATIONS

Notes:

- 1. The extent of deviations from the tender documents issued by the Employer prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender.
- 2. A Tenderer's covering letter shall not be included in the final Contract document. Should any matter in such letter, which constitutes a deviation as aforesaid, become the subject of agreements reached during the process of offer and acceptance, the outcome of such agreement shall be recorded here.
- 3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the Contract and shall also be recorded here.
- 4. Any change or addition to the tender documents arising from the above agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1 Subject:

Details:

.....

2 Subject:

Details:

.....

3 Subject:

Details:

.....

4 Subject:

Details:

.....

5 Subject:

Details:

.....

By the duly authorised representatives signing this agreement, the Employer and the tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the tenderer and the Employer during this process of offer and acceptance.

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

For the Employer

Signature _____ Date _____

Name _____ Capacity _____

(Name and address of organization) Amatola Watery
6 Lancaster Rd
Vincent
East London
5241

Name and signature of witness _____

Date: _____

For the tenderer

Signature _____ Date _____

Name _____ Capacity _____

(Name and address of organization)

Name and signature of witness _____

Date: _____

CONFIRMATION OF RECEIPT

The Tenderer (now Contractor), identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

Signed in the presence of the subscribing witnesses:

At for and on behalf of

.....

on this the Day of 20.....

SIGNATURE :

CAPACITY :

ADDRESS :

:

:

AS WITNESSES : 1

2

C1.2 CONTRACT DATA

CONTRACT DATA FOR: KIRKWOOD BULK WATER SUPPLY SCHEME

CONTRACT NUMBER: AW2021/23/23

PART 1: DATA PROVIDED BY THE EMPLOYER

C1.2.1 Conditions of Contract

The General Conditions of Contract for Construction Works, Third Edition, 2015, published by the South African Institution of Civil Engineering, is applicable to this Contract and is obtainable from www.saice.org.za

Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering, Tel. 011 805 5947.

C1.2.2 Special Conditions of Contract

The following Contract specific conditions are applicable to this Contract

Clause	Specific conditions
	When referring to a Clause in the supplements below, it includes all Sub-clauses.
1.1.1.1	Replace Clause 1.1.1.1: "agreed" means agreed in writing by the Employer and the Contractor.
1.1.1.5	Replace Clause 1.1.1.5: The "Commencement Date" means the date when the tenderer receives one fully completed original copy of this Form of Offer and Acceptance, including the schedule of deviations (if any).
1.1.1.7	Replace Clause 1.1.1.7: "Contract" means the documentation of the agreement between the parties in terms of the Form of Offer and Acceptance, and written amendments or additions to the Contract as may be agreed and signed by both parties.
1.1.1.35	Add the following definition: "Schedule of Documents" means the document so designated in and forming part of the Tender Documents.
1.1.1.36	Add the following definition: "In Good Time" shall be interpreted as to the discretion of the Employer's Agent
1.2.1	Add to Clause 1.2.1: Provided any notice or claim required in accordance with this Contract shall be communicated in writing, separately from other communications, on a separate cover with specific reference to the clause requiring the same.
1.2.1.2	Replace Clause 1.2.1.2: Delivered at the address, including email, of the addressee as stated in the Contract Data.
4.1.2	Amend in Clause 4.1.2 The fifth line, amend "any drawing" to read "any design, drawing".
4.1.3	Add Clause 4.1.3: The Contractor shall be responsible for the design, construction, erection, inspection, approval and maintenance of all Temporary Works, including formwork, support work and scaffolding.
4.1.4	Add Clause 4.1.4: Prior to the commencement of the Tests on Completion, the Contractor shall submit to the Employer's Agent the as-built drawings, documents and Operational and Maintenance Manuals in accordance with the Scope of Works and in sufficient detail for the Employer to operate, maintain, dismantle, re-assemble, adjust and repair of this part of the Works. Such part shall not be considered to be completed for the purposes of issuing a Certificate of Completion until these documents and manuals have been submitted to, and accepted by, the Employer's Agent.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Clause	Specific conditions
4.4.1	Add to Clause 4.4.1: "It is a specific condition, an obligation and a material term under this Contract for the Contractor to subcontract a minimum of thirty percent (30%) of the Contract Price to a minimum of five (5) SMMEs. For the purpose of this Contract, SMMEs are defined as per the SMME specifications."
4.12.2	Replace in Clause 4.12.2" The first line with "The Construction Manager, as identified in the tender submitted by the Contractor, or" The last "or" in the Clause with "and".
5.4.2	Replace in Clause 5.4.2: "Contract Data" with "Contract Data, Scope of Works or Site Information"
5.4.3	Replace Clause 5.4.3: If the Contractor suffers delay to Practical Completion and/or incurs proven additional costs from failure of the Employer to give access to or possession in accordance to the terms of this Clause, the Contractor shall be entitled to make a claim in accordance with Clause 10.1.
5.6.1	Add to Clause 5.6.1 at the end of the first sentence: ", taking into account the financial limitations as per the Contract Data."
5.6.2	Add Clause 5.6.2.8: Health and Safety requirements. Add Clause 5.6.2.9: Critical path. Add Clause 5.6.2.10: Notices issued and claims submitted.
5.6.3	Replace Clause 5.6.3: The Employer's Agent shall, within 14 Days after the Contractor submitted an initial or adjusted programme, approve such programme, or, rejecting same with reasons and instruct the Contractor to amend such programme. Reasons for rejecting a programme are inter alia that it is not in accordance with the Contract, or, is not reflecting the actual progress. The Employer's Agent's failure to approve or reject with reasons the submitted programme, 5.6.3.1 in the event of the submitted programme, being an adjusted programme, shall be deemed to be approved; and 5.6.3.2 in the event of the submitted programme, being an initial programme, shall not constitute deemed approval.
5.6.4.1	Replace Clause 5.6.4.1: When it no longer reflects the actual progress, or
5.12.1	Add to Clause 5.12.1: "Should the Contractor consider that he may, during the course of the Contract, wish to invoke "abnormal climatic conditions" as a circumstance entitling him to an extension of time for the completion of the Works, he shall, before commencing any of the Permanent Works, establish an approved weather recording station with an approved observer who shall record daily the weather conditions that the Contractor may wish to invoke. The records shall be submitted weekly to the Employer's Agent 's Representative, together with a statement recording the Contractor's opinion of the effect on his programme of any weather condition that he may consider to be abnormal."
6.2.1	Replace in Clause 6.2.1: "selected" with "prescribed".
6.6.1.1	Add to Clause 6.6.1.1: "excluding General Items".
6.6.1.2.1	Insert in Clause 6.6.1.2.1: The first line, after the word "sums", insert ", excluding VAT".
6.6.1.2.2	Insert in Clause 6.6.1.2.2: The third line, after the word "amount" insert ", excluding VAT".
6.6.2	Insert in Clause 6.6.2: The fifth line, after the word "price", insert ", excluding VAT,"
6.9.1	Add to Clause 6.9.1: "The Contractor shall where practicable before delivery, and in any event not later than 24 hours after delivery to the Site, inform the Employer's Agent of any materials which are not his sole property."

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Clause	Specific conditions
6.9.2	Amend in clause 6.9.2 The last line, amend "Works" to read "Permanent Works".
6.10.1.5	Amend in Clause 6.10.1.5 The sixth line, amend "documentary evidence" to read "a signed statement". Add to clause 6.10.1.5 "and provide a bank guarantee for the full value of the amount claimed, valid until installation or handover of Plant and/ or material."
6.10.4	Add to Clause 6.10.4: "The Contractor's attention is directed to Clauses 1.1.1.14 and 5.6.1 as well as that detailed under the Scope of Work regarding completion in portions and the staged availability of the Employer's funding. In the event of an amount becoming due to the Contractor for the completion of a portion of the Works and where to amount exceed the corresponding available funding, the Employer shall only pay the outstanding amount due to the Contractor during the subsequent portion using the corresponding and available funding. The provisions and terms of Clause 6.10.6.2 shall not be applied for such event."
6.11	Quantities exceeding 25% (twenty-five)
7.2.1	Add to Clause 7.2.1: "Unless otherwise directed in writing by the Employer's Agent, materials for the Permanent Works shall be new and unused."
7.8.1	Amend in Clause 7.8.1 The second line in paragraph 2, after the words "Defects Liability Period", insert "within the period specified by the Employer's Agent", and amend "thereafter" to read "after the Defects Liability Period".
8.3.1.11	Add to Clause 8.3.1.11: Add at the beginning, "Except where the Contract specifically so provides,"
8.6.1.3	Add to Clause 8.6.1.3: "The minimum amount of insurance required in terms of this Clause, as stated in the Part 1 of the Contract Data, shall be per event, the number of events being unlimited."
8.6.1.6	Add Clause 8.6.1.6: "Insurance of all materials stored off Site, and intended for incorporation in the Permanent Works, including their delivery to the Site and off-loading on Site, to the value of such materials for which payment is made in terms of Clause 6.10.1.1 hereof."
8.6.5	Add to Clause 8.6.5: "The Employer shall approve (or disapprove) the terms of the insurances within the time stated in the Part 1 of the Contract Data from the date of receipt of the policies provided in terms of Clause 8.6.5."
8.6.6	Add to Clause 8.6.6: "The policies and the proof of payment of premiums and continuity of the policies shall be produced within such time as is stated in the Part 1 of the Contract Data."
8.6.8	Add Clause 8.6.8: "In the event of any claim arising under the policies held in terms of this Clause, the Contractor shall forthwith take all necessary steps to lodge his claim on the joint behalf of himself and the Employer, and to secure settlement of such claim, and he shall submit to the Employer's Agent copies of all claims and associated documents. The claim submitted by the Contractor shall cover the cost of repairing and making good as required by Clauses 8.2.2.1 and 8.2.2.3."
10.1.1	Replace in Clause 10.1.1: The third line, replace "Permanent Works" with "Works".
10.1.1.1	Replace Clause 10.1.1.1: "The Contractor shall within 28 Days after the commencement of each circumstance, event, act or omission giving rise to such a claim, deliver to the Employer's Agent a written claim, referring to this Clause and setting out:"
10.1.1.1.3	Replace Clause 10.1.1.1.3: "The length of the extension of time, if any, claimed and the basis of the calculation by incorporating the effects of each circumstance, event, act or omission on the critical path of an approved programme, indicating the delay of Practical Completion, and."

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

C1.2.3 COMPULSORY DATA

Clause	Item and data
1.1.1.13	The Defects Liability Period is measured from the date of Certificate of Completion.
1.1.1.14	The time for achieving Practical Completion (measured from the Commencement Date) is: <ul style="list-style-type: none"> • Section 1: 289 Calendar Days • Section 2: 121 Calendar Days • Section 3: 149 Calendar Days
1.1.1.15	The name of the Employer is Amatola Water .
1.1.1.16	The name of the Employer's Agent is Newground Projects represented by the Employee duly authorised thereto in writing.
1.1.1.26	The Pricing Strategy is Re-measurement Contract
1.2.1.2	The address of the Employer: Amatola Water Physical address: 6 Lancaster Road, Vincent East London Telephone: (043) 707-3700 E-mail: mprince@amatolawater.co.za The address of the Employer's Agent: Newground Projects Physical address: 17 St Andrews Road Selborne, East London 5201 Postal address: PO Box 19568 Tecoma 5214 Telephone: (043) 722-5864 E-mail: louis@newground.co.za
3.2.3	The Employer's Agent shall obtain specific approval from the Employer before executing the following functions or duties according to the following Clauses of the General Condition of Contract: Existing Clauses: 3.3.1 - Nomination of person as Employer's Agent's Representative. 5.13 - Reduction of penalty for delay. 6.3 - Variations in respect of Variations which are not small (R20 000). 6.4 - For expenditure on the Contract that exceeds the Contract Sum. 6.6 - Instruction to expend on Provisional Sums 8.2.2.2 - Order to repair and make good damage arising from any "excepted" risk.
5.1.1 & 5.8.1	The special non-working Days are: 1. Public holidays, 2. The year-end construction break (dates to be confirmed by SAFCEC).
5.3.1	The documentation required before commencement with Works execution are: Health and Safety Plan (Refer to Clause 4.3) Initial programme (Refer to Clause 5.6) Security (Refer to Clause 6.2) Insurance (Refer to Clause 8.6) Construction Work Notice to DoL (to be provided before Site establishment can commence)
5.3.2	The time to submit the documentation required before commencement with Works execution is twenty-eight (28) Days.
5.4.1	The Contractor shall not have the right to access the Works until he has complied with his obligations in terms of Clause 6.2.1 – Guarantee.
5.4.2	The Contractor does not have exclusive access to the respective Sites. The Sundays River Local Municipality and any party that are acting under instruction from them, have mutual access to the Sites to the extent that they are able to perform their normal operational and maintenance duties.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Clause	Item and data																																							
5.6.1	<p>Required expenditure per financial year (April to March): 2022/23: R12,500,000 (Incl. VAT) 2023/24: Balance</p> <p>In order to achieve the required expenditure within the 2022/23 financial year, the Contractor may need to procure large quantities of material after the Commencement Date but before the Commencement of Works. A Cession Agreement may be required to expedite payment to the supplier. The steel reservoirs are to be delivered to site on 24 March 2023.</p>																																							
5.8.1	The non-working Days are Saturdays and Sundays																																							
5.12.2.2	<p>The rainfall records at rainfall station 00554472 (ADDO ELEPHANT PARK) for the period 2000 to 2015 were analysed and the monthly averages (Rn and Nn) for this period is reproduced in the table below. The values of X and Y shall be 20 and 10 respectively.</p> <table border="1"> <thead> <tr> <th></th> <th>Jan</th> <th>Feb</th> <th>Mar</th> <th>Apr</th> <th>May</th> <th>Jun</th> <th>Jul</th> <th>Aug</th> <th>Sep</th> <th>Oct</th> <th>Nov</th> <th>Dec</th> </tr> </thead> <tbody> <tr> <td>Nn</td> <td>0.6</td> <td>1.2</td> <td>1.5</td> <td>1.5</td> <td>0.5</td> <td>0.9</td> <td>1.1</td> <td>0.9</td> <td>0.3</td> <td>1.7</td> <td>1.3</td> <td>0.7</td> </tr> <tr> <td>Rn</td> <td>27</td> <td>49.9</td> <td>53.4</td> <td>54.3</td> <td>21.4</td> <td>29.9</td> <td>38.1</td> <td>33.5</td> <td>20.2</td> <td>63.3</td> <td>40.6</td> <td>39.4</td> </tr> </tbody> </table>		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Nn	0.6	1.2	1.5	1.5	0.5	0.9	1.1	0.9	0.3	1.7	1.3	0.7	Rn	27	49.9	53.4	54.3	21.4	29.9	38.1	33.5	20.2	63.3	40.6	39.4
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec																												
Nn	0.6	1.2	1.5	1.5	0.5	0.9	1.1	0.9	0.3	1.7	1.3	0.7																												
Rn	27	49.9	53.4	54.3	21.4	29.9	38.1	33.5	20.2	63.3	40.6	39.4																												
5.13.1	The penalty for failing to complete the Works is 0.1% of the Contract amount per working Day (zero comma one percent) or prorate the sum for non-compliance in any progressive portion.																																							
5.16.3	The latent defect period is ten (10) years for civil engineering Works, 5 years for building Works and 3 years for mechanical and electrical Works.																																							
6.2.1	<p>The time to deliver the Deed of Guarantee is 28 Days of the Commencement Date. The Guarantee shall be of an Insurance Company listed on the Johannesburg Stock Exchange or owned by such company, a Registered South African Bank or recognised government sponsored, provincial or national development agency. Unless agreed in writing by the Employer's Agent, Execution of Work (Clause 5.3.1) shall not commence until the Contractor has complied with his obligations in terms of this Clause. The Form of Guarantee is to contain the wording of the document included in C1.3. The guarantee shall be for 10% of the Contract Price.</p>																																							
6.5.1.2.3	The percentage allowance is 10%.																																							
6.10.1.5	<p>The percentage advance on materials which is delivered to Site but not yet built into Permanent Works is:</p> <ul style="list-style-type: none"> 80% (eighty percent) of the proven value of the material for sand, stone, gravel, bricks, blocks and the like, and all items not approved in the point below. 100% (one hundred percent) of the proven value of the material for pipes, pumps, reservoirs, fencing, HPDE lining and similar items approved by the Employer's Agent. <p>If the related BoQ item includes anything other than supply and delivery, the amount approved for MoS may not exceed 80% of the total amount for the related BoQ item.</p>																																							
6.10.3	The percentage retention on the amounts due to the Contractor is 10% (ten percent). The "Limit of the retention money" is 5% (five percent) of the Contract Price.																																							
7.8.1	The Defects Liability Period is 12 (twelve) months.																																							
8.6.1	Proof of insurance is to be submitted to the Employer's Agent within 28 Days after the Commencement Date.																																							
8.6.1.1.2	The value of the materials supplied by the Employer to be included in the insurance sum is Nil.																																							
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included to the insurance sum is R 500,000.00																																							
8.6.1.3	The limit of indemnity for liability insurance is R20 million																																							
8.6.6	28 Days																																							
10.5	Dispute resolution is to be by means of adjudication																																							
10.7	Disputes are to be referred for final settlement to arbitration																																							

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Definition of Sections as referred to in Clause 1.1.1.14:

Description of parts of the Works that shall be designated a Section for the purpose of the Contract	Value: Percentage of the Contract Price (Will be determined before the Commencement Date)	Time for Completion (Due Completion Date will be determined before the Commencement Date)	Delay Damages
Section 1 <ul style="list-style-type: none"> • Raw water lay dam • Associated pipework • Fencing 		289 Calendar days	0.1% of the Contract Price as stated in the Agreement associated with this section.
Section 2 <ul style="list-style-type: none"> • Kirkwood town reservoir • Associated pipework • Associated retaining wall • Associated fencing 		121 Calendar days	0.1% of the Contract Price as stated in the Agreement associated with this section.
Section 3 <ul style="list-style-type: none"> • Moses Mabida reservoir • Associated pipework • Associated retaining wall • Associated fencing 		149 Calendar days	0.1% of the Contract Price as stated in the Agreement associated with this section.

Part 2: Data provided by the Contractor

Clause	Item and data
1.1.1.9	The name of the Contractor is
1.2.1.2	The address of the Contractor is: Telephone:..... Facsimile:..... E-mail: Address (physical): Address (postal):

6.2.1 The security to be provided by the Contractor shall be one of the following, please indicate the selected option:

Performance guarantee of 10% of the Contract Sum plus a retention of 10% per payment certificate to a maximum of 5% of the Contract Sum.	
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C1.3 PERFORMANCE GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Employer's Agent" means:

"Works" means:

"Site" means:

"Contract" means: The Agreement made in terms of the Form of Offer and Acceptance and such amendments or additions to the Contract as may be agreed in writing between the parties.

"Contract Sum" means: The accepted amount inclusive of tax of R

Amount in words:

"Guaranteed Sum" means: The maximum aggregate amount of R.....

Amount in words:

Type of Performance Guarantee:

"Expire Date" means:

CONTRACT DETAILS

Employer's Agent issues: Interim Payment Certificates, Final Payment Certificate and the Certificate of Completion of the Works as defined in the Contract.

1. VARIABLE PERFORMANCE GUARANTEE

1.1. Where a Variable Performance Guarantee has been selected, the Guarantor’s liability shall be limited during the following periods to diminishing amounts of the Guaranteed Sum as follows:

1.1.1. From and including the date of signing the Performance Guarantee up to and including the date of the Completion Certificate:

Amount in numbers:.....

Amount in words:.....

1.1.2. From the day following the Completion Certificate up to and including the Expiry Date, or the date of the issue by the Employer’s Agent of the Final Approval Certificate of the Works, whichever occurs first:

Amount in numbers:.....

Amount in words:.....

1.2. The Employer’s Agent and/or Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion and Final Approval Certificate have been issued for the Works.

2. FIXED PERFORMANCE GUARANTEE

2.1. Where a Fixed Performance Guarantee has been selected, the Guarantor’s liability shall be limited to the amount of the Guaranteed Sum.

2.2. The Guarantor’s period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer’s Agent of the Certificate of Completion of the Works.

2.3. The Employer’s Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. CONDITIONS APPLICABLE TO FIXED PERFORMANCE GUARANTEES

3.1. The Guarantor hereby acknowledges that:

3.1.1. Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.

3.1.2. Its obligation under this Performance Guarantee is restricted to the payment of money.

3.2. Subject to the Guarantors maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:

3.2.1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer’s Agent in an interim or final payment certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;

3.2.2. A first written demand issued by the Employer to the Guarantor at the Guarantor’s physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;

3.2.3. A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.

3.3. Subject to the Guarantor’s maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor’s physical address calling up this Performance Guarantee, such demand stating that:

3.3.1. the Contact has been terminated due to the Contractor’s default and that this Performance Guarantee is called up in terms of 3.3; or

3.3.2. a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

- 3.3.3. the aforesaid written demand is accompanied by a copy of the notice of termination and /or the provisional/ sequestration and/ or the provisional liquidation court order.
- 3.4. It is recorded that the aggregate amount of payments requires to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantors' maximum liability in terms of 1.1 or 2.1.
- 3.5. Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employers bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
- 3.6. Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 3.7. Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 3.8. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 3.9. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 3.10. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, where after no claim will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
- 3.11. The Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purpose of obtaining a court order.
- 3.12. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Atfor and on behalf of

.....

on this the day of 20.....

SIGNATURE (1) :

CAPACITY :

ADDRESS :

:

:

AS WITNESSES : 1

2

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

C1.4 ADJUDICATION

Adjudication shall be carried out in terms of Clauses 10.5 and 10.6 of the General Conditions of Contract 2015.

The Disclosure Statement and the Adjudication Board Member Agreement to be used in this Contract are contained Appendices 4 and 5 of the General Conditions of Contract 2015.

C1.5 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

THIS AGREEMENT made at

on this the Day of in the year

between

(hereinafter called "the Employer") of the one part, herein represented by

.....

in his capacity as

and

(hereinafter called "the Mandatory") of the other part, herein represented by

.....

in his capacity as

WHEREAS the Employer is desirous that certain Works be constructed, viz

.....

and has accepted a Tender by the Mandatory for the construction, completion and maintenance of such Works and whereas the Employer and the Mandatory have agreed to certain arrangements and procedures to be followed in order to ensure compliance by the Mandatory with the provisions of the Occupational Health and Safety Act, 1993 (Act 85 of 1993);

NOW THEREFORE THIS AGREEMENT WITNESSETH AS FOLLOWS:

- 1 The Mandatory shall execute the work in accordance with the Contract Documents pertaining to this Contract.
- 2 This Agreement shall hold good from its Commencement Date, which shall be the date of a written notice from the Employer or Employer’s Agent requiring him to commence the execution of the Works, to either
 - (a) the date of the Final Approval Certificate issued in terms of Clause 5.16.1 (GCC 2015) of the General Conditions of Contract (hereinafter referred to as "the GCC"), or
 - (b) the date of termination of the Contract in terms of Clauses 9.1, 9.2 or 9.3 (GCC 2015) of the GCC.
- 3 The Mandatory declares himself to be conversant with the following:
 - (a) All the requirements, regulations and standards of the Occupational Health and Safety Act (Act 85 of 1993), hereinafter referred to as "The Act", together with its amendments and with special reference to the following Sections of The Act:
 - (i) Section 8 : General duties of Employers to their employees;
 - (ii) Section 9 : General duties of Employers and self-employed persons to persons other than employees;
 - (iii) Section 37 : Acts or omissions by employees or mandatories, and
 - (iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.
 - (b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

Contractor____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

- 4 In addition to the requirements of Clause 8.4 (GCC 2015) of the GCC and all relevant requirements of the Contract, the Mandatory agrees to execute all the Works forming part of this Contract and to operate and utilise all machinery, Plant and equipment in accordance with the Act.
- 5 The Mandatory is responsible for the compliance with the Act by all his subcontractors, whether or not selected and/or approved by the Employer.
- 6 The Mandatory warrants that all his and his subcontractors' workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act, 1993 which cover shall remain in force whilst any such workmen are present on Site. A letter of good standing from the Compensation Commissioner to this effect must be produced to the Employer upon signature of the agreement.
- 7. The Mandatory undertakes to ensure that he and/or subcontractors and/or their respective Employers will at all times comply with the following conditions:
 - (a) The Mandatory shall assume the responsibility in terms of Section 16.1 of the Occupational Health and Safety Act. The Mandatory shall not delegate any duty in terms of Section 16.2 of this Act without the prior written approval of the Employer. If the Mandatory obtains such approval and delegates any duty in terms of section 16.2 a copy of such written delegation shall immediately be forwarded to the Employer.
 - (b) All incidents referred to in the Occupational Health and Safety Act shall be reported by the Mandatory to the Department of Labour as well as to the Employer. The Employer will further be provided with copies of all written documentation relating to any incident.
 - (c) The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of section 32 of the Occupational Health and Safety Act into any incident involving the Mandatory and/or his employees and/or his subcontractors.

In witness thereof the parties hereto have set their signatures hereon in the presence of the subscribing witnesses:

SIGNED FOR AND ON BEHALF OF THE EMPLOYER:

WITNESS 1 2

NAME 1 2

SIGNED FOR AND ON BEHALF OF THE MANDATORY:

WITNESS 1 2

NAME 1 2

CERTIFICATE OF AUTHORITY FOR SIGNATORY TO AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

The signatory for the company that is the Contractor in terms of the above-mentioned Contract and the Mandatory in terms of the above-mentioned Act shall confirm his or her authority thereto by attaching to this page a duly signed and dated copy of the relevant resolution of the Board of Directors.

An example is given below:

"By resolution of the Board of Directors passed at a meeting held on 20.....,
Mr/Ms whose signature
appears below, has been duly authorised to sign the AGREEMENT in terms of THE OCCUPATIONAL
HEALTH AND SAFETY ACT, 1993 (ACT 85 of 1993) on behalf of

SIGNED ON BEHALF OF THE COMPANY :

IN HIS/HER CAPACITY AS :

DATE :

SIGNATURE OF SIGNATORY :

WITNESS: 1. 2.

NAME (IN CAPITALS): 1. 2.

PART C2: PRICING DATA

C2.1 Pricing Instructions

1. The General Conditions of Contract, the Contract Data, the Specifications (including the Project Specifications) and the Drawings shall be read in conjunction with the Bill of Quantities.
2. The Bill comprises items covering the Contractor's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.

Although the Tenderer is at liberty to insert a rate of his own choosing for each item in the Bill, he should note the fact that the Contractor is entitled, under various circumstances, to payment for additional work carried out and that the Employer's Agent is obliged to base his assessment of the rates to be paid for such additional work on the rates the Contractor inserted in the Bill.

Clause 8 of each Standardized Specification, and the measurement and payment clause of each Particular Specification, read together with the relevant clauses of the Project Specifications, all set out which ancillary or associated activities are included in the rates for the specified operations.

3. Descriptions in the Bill of Quantities are abbreviated and may differ from those in the Standardized and Scope of Work. No consideration will be given to any claim by the Contractor submitted on such a basis. The Bill has been drawn up generally in accordance with the latest issue of Civil Engineering Quantities¹. Should any requirement of the measurement and payment clause of the appropriate Standardized or Project Specification(s) be contrary to the terms of the Bill or, when relevant, to the Civil Engineering Quantities, the requirement of the appropriate Standardized, Project, or Particular Specification as the case may be, shall prevail.
4. Unless stated to the contrary, items are measured net in accordance with the Drawings without any allowance having been made for waste.
5. The amounts and rates to be inserted in the Bill of Quantities shall be the full inclusive amounts to the Employer for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Tender is based.
6. An amount or rate shall be entered against each item in the Bill of Quantities, whether or not quantities are stated. An item against which no amount or rate is entered will be considered to be covered by the other amounts or rates in the Bill.

The Tenderer shall also fill in a rate against the items where the words "rate only" appear in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the tendered rates shall apply should work under these items actually be required.

Should the Tenderer group a number of items together and tender one sum for such group of items, the single tendered sum shall apply to that group of items and not to each individual item, or should he indicate against any item that full compensation for such item has been included in another item, the rate for the item included in another item shall be deemed to be nil.

The tendered rates, prices and sums shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

7. The quantities of work as measured and accepted and certified for payment in accordance with the Conditions of Contract, and not the quantities stated in the Bill of Quantities, will be used to determine payments to the Contractor. The validity of the Contract shall in no way be affected by differences between the quantities in the Bill of Quantities and the quantities certified for payment.

Ordering of materials are not to be based on the Bill of Quantities, but only on information issued for construction purposes.

8. For the purposes of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit : The unit of measurement for each item of work as defined in the Standardized, Project or Particular Specifications

¹ The standard system of measurement of civil Engineering quantities published by the South African Institution of Civil Engineers.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Tenderer tenders to do the work
Amount	:	The quantity of an item multiplied by the tendered rate of the (same) item
Sum	:	An amount tendered for an item, the extent of which is described in the Bill of Quantities, the Specifications or elsewhere, but of which the quantity of work is not measured in units

- 9 The units of measurement indicated in the Bill of Quantities are metric units. The following abbreviations may appear in the Bill of Quantities:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
km-pass	=	kilometre-pass
kPa	=	kilopascal
kW	=	kilowatt
l	=	litre
m	=	metre
mm	=	millimeter
m ²	=	square metre
m ² -pass	=	square metre-pass
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
MN	=	meganewton
MN.m	=	meganewton-metre
MPa	=	megapascal
No.	=	number
PSum	=	Provisional Sum
PC sum	=	Prime Cost sum
R/only	=	Rate only
Sum	=	lump sum
t	=	ton (1000 kg)
W/Day	=	Work Day

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

C2.2 Bill of Quantities

SUMMARY

SECTION	DESCRIPTION	TENDER AMOUNT
1	PRELIMINARIES AND GENERALS	
2	KIRKWOOD TOWN	
3	MOSES MABIDA	
4	RAW WATER STORAGE DAM	
5	DAYWORKS	
SUB-TOTAL		
SKILLS DEVELOPMENT (GAZETTE NOTICE 43495) (0.25%)		
CONTINGENCIES (10%)		
TOTAL CONTRACT AMOUNT (Excl. VAT)		
ALLOWANCE FOR VAT (15%)		
TOTAL CONTRACT SUM (Incl. VAT)		

SECTION:			1	PRELIMINARIES AND GENERALS	SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			PSA/SABS 1200 A	PRELIMINARY AND GENERAL				
1	1		8.3	<u>Fixed - Charge Items</u>				
1	1	1	8.3.1	Contractual Requirements	Sum	1		
1	1	2	8.3.2	Site Establishment				
1	1	2.1	8.3.2.1	a) Facilities for the Engineer				
1	1	2.1.1		i) Furnished Offices	Sum	1		
1	1	2.2	8.3.2.2	b) Facilities for Contractor				
1	1	2.2.1		i) Offices and Storage Sheds	Sum	1		
1	1	2.2.2		ii) Workshops	Sum	1		
1	1	2.2.3		iii) Laboratories	Sum	1		
1	1	2.2.4		iv) Living Accommodation	Sum	1		
1	1	2.2.5		v) Ablution and Latrine facilities	Sum	1		
1	1	2.2.6		vi) Tools and Equipment	Sum	1		
1	1	2.2.7		vii) Water supplies, Electric power and Communications	Sum	1		
1	1	2.2.8		viii) Dealing with water	Sum	1		
1	1	2.2.9		ix) Access	Sum	1		
1	1	2.2.10		x) Plant (designated plant specifically identified)	Sum	1		
1	1	2.2.11		xi) Professional Land Surveyor	Sum	1		
1	1	2.3	8.3.2.1	c) Nameboard as per drawing PC14005/CIV/2001	Sum	2		
1	1	3	8.3.3	Other fixed-charge obligations	Sum	1		
1	1	4	8.3.4	Removal of site establishment and trimming of site	Sum	1		
1	2		8.4	<u>Time Related Items</u>				
1	2	1	8.4.1	Contractual Requirements	Sum	1		
1	2	2	8.4.2	Operate and maintain site facilities for duration of construction, except where otherwise stated				
1	2	2.1	8.4.2.1	a) Facilities for the Engineer				
1	2	2.1.1		i) Furnished Offices	Sum	1		
1	2	2.1.2		ii) Survey assistants and materials	Sum	1		
1	2	2.2	8.4.2.2	b) Facilities for Contractor				
1	2	2.2.1		i) Offices and Storage Sheds		1		
1	2	2.2.2		ii) Workshops	Sum	1		
1	2	2.2.3		iii) Laboratories		1		
1	2	2.2.4		iv) Living Accommodation	Sum	1		
TOTAL CARRIED FORWARD								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			1	PRELIMINARIES AND GENERALS	SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS			DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
1	2	2.2.5		v) Ablution and Latrine facilities		1		
1	2	2.2.6		vi) Tools and Equipment	Sum	1		
1	2	2.2.7		vii) Water supplies, Electric power and Communications	Sum	1		
1	2	2.2.8		viii) Dealing with water	Sum	1		
1	2	2.2.9		ix) Access	Sum	1		
1	2	2.2.10		x) Plant (designated plant specifically identified)	Sum	1		
1	2	2.2.11		xi) Professional Land Surveyor	Sum	1		
1	2	3	8.4.3	Supervision for duration of construction	Sum	1		
1	2	4	8.4.4	Company and Head Office overhead cost for the duration of the contract	Sum	1		
1	2	5	8.4.5	Other time-related obligations	Sum	1		
1	3		8.8	<u>Temporary works</u>				
1	3	1	8.8.3	Protection of structures and other until construction in the vicinity is complete	Sum	1		
1	4			<u>Health and Safety Management</u>				
1	4	1		Fixed Obligations				
1	4	1.1		a) Allowance for Contractor's initial obligations in respect of the OHS Act and Construction Regulations	Sum	1		
1	4	1.2		b) Allowance for Submission of the Health and Safety File	Sum	1		
1	4	1.3		c) Personal protective clothing and equipment	Sum	1		
1	4	1.4		d) Fences, signs and barricades	Sum	1		
1	4	1.5		e) Medical Certification of Employees	Sum	1		
1	4	2		Time Related Obligations				
1	4	2.1		a) Allowance for Contractor's time related obligations in respect of the OHS Act and Construction Regulations	Sum	1		
1	4	2.2		b) Allowance for provision of full time Construction Safety Officer	Sum	1		
1	4	2.3		c) Allowance for the upkeep of the Health and Safety File	Sum	1		
1	4	2.4		d) Health and Safety training as required	Sum	1		
1	5		ISD 6	<u>Institutional and Social Development</u>				
1	5	1	ISD 6.1	Fixed Obligations				
1	5	1.1	ISD 6.1	a) Allowance for Contractor's initial obligations in respect of the ISD	Sum	1		
1	5	1.2	ISD 6.1	b) Allowance for Submission of the ISD Plan	Sum	1		
TOTAL CARRIED FORWARD								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			1	PRELIMINARIES AND GENERALS	SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
1	5	1.3	ISD 6.1	c) Allow for Community Liaison Officer	PSum	1	R 96 000.00	R 96 000.00
1	5	1.4		d) Overheads, charges, and profit in respect of 1.5.1.3 above	%			
1	5	2	ISD 6.2	Time Related Obligations				
1	5	2.1	ISD 6.2	a) Allowance for Contractor's time related obligations in respect of ISD	Sum	1		
1	5	2.2	ISD 6.2	b) Allowance for provision of part time ISD	Sum	1		
1	6			<u>Environmental Management</u>				
1	6	1		Fixed Obligations				
1	6	1.1		a) Compilation of an approved Environmental Management Plan	Sum	1		
1	6	1.2		b) Other fixed charges	Sum	1		
1	6	2		Time Related Obligations				
1	6	2.1		a) Compliance to the approved Environmental Management Plan and File	Sum	1		
1	6	2.2		b) Training	Sum	1		
1	7		Part C3.4	<u>SMME's</u>				
1	7	1	11.1	Provisional Sum for SMME Packages	PSum	1	R 5 000 000.00	R 5 000 000.00
1	7	2	11.2	Overheads, charges, and profit in respect of 1.7.1 above	%			
1	7	3	11.3	SMME Contract Manager	Sum	1		
1	7	4	11.4	Guidance and assistance to SMMEs	Sum	1		
1	7	5	11.5	Any other costs related to the management of SMMEs	Sum	1		
1	7	6	11.6	Provisional Sum for SMME competency training	PSum	1	R 75 000.00	R 75 000.00
1	7	7	11.7	Overheads, charges, and profit in respect of 1.7.6 above	%			
1	8			<u>Provisional sums</u>				
1	8	1		Testing as required by the Engineer	PSum	1	R 50 000.00	R 50 000.00
1	8	2		Overheads, charges, and profit in respect of 1.8.1 above	%			
1	9		8.4.5	<u>Other obligations. (Tenderer must specify)</u>				
1	9	1		.....	Sum	1		
1	9	2		.....	Sum	1		
1	9	3		.....	Sum	1		
TOTAL FOR SECTION 1 CARRIED FORWARD TO SUMMARY								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			2	KIRKWOOD TOWN		SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
			SABS 1200 C		SITE CLEARANCE AND EARTHWORKS				
2	1				<u>Site clearance</u>				
2	1	1	8.2.1		Clear and grub	m ²	3 041	SMME	SMME
2	1	2	8.2.10		Removal of topsoil	m ³	577	SMME	SMME
2	2		8.2.8		<u>Demolish and remove structures</u>				
2	2	1		L	Demolish concrete reservoir	m ³	51	SMME	SMME
2	2	2			Spoil rubble and debris to designated spoil site	m ³	51	SMME	SMME
2	3		PSD/SABS 1200 D		<u>Bulk excavations</u>				
2	3	1	8.3.2		Bulk excavation of reservoir platform in all materials and spoil at designated site as per drawing PC14005/CIV/2002	m ³	1 700		
2	3	2			Extra-over for				
2	3	2.1			a) Intermediate excavation	m ³	255		
2	3	2.2			b) Hard rock	m ³	51		
2	3	3	8.3.2		Excavation in all materials and backfill and compact to reroute road as per drawing PC14005/CIV/2002	m ³	350		
2	3	4	8.3.10		Topping of fencing, road berm, retaining wall etc. as per drawing PC14005/CIV/2002	m ²	1 337	SMME	SMME
2	4		SABS 1200 D		<u>Restricted excavation</u>				
2	4	1	8.3.3	L	Restricted excavations for footings, foundations, etc. in all materials and stockpile and compacted to 93% Mod. AASHTO	m ³	33	SMME	SMME
2	4	2			Extra-over for:				
2	4	2.1			a) Intermediate excavation	m ³	5.0	SMME	SMME
2	4	2.2			b) Hard rock	m ³	3.3		
2	4	3	8.3.2		Excavation, backfill and compaction of retaining wall in layers of 200mm to 93% Mod. AASHTO in all materials	m ³	558		
2	4	4	8.3.3	L	Excavate and shape cut-off drain and berm as per drawing PC14005/CIV/2004	m ³	8	SMME	SMME
2	5		PSD		<u>Existing services</u>				
2	5	1	8.3.8.1		Locating and expose existing services				
2	5	1.1			a) Locate underground electrical cables using a cable locator	hrs	4	SMME	SMME
2	5	1.2			b) Excavate around electrical cables	No.	5	SMME	SMME
2	5	1.3			c) Water, sewer and stormwater pipelines	No.	4	SMME	SMME
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		2	KIRKWOOD TOWN			SCHEDULE OF QUANTITIES				
ITEM	PAYMENT REFERS	LIC	DESCRIPTION			UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD										
2	6		SABS 1200 DB	<u>Excavations</u>						
2	6	1	8.3.2	Excavate 750mm width trench for Ø160mm pipe in all materials and use excavated material for backfill, placed in layers of 150mm and compacted to 93% Mod. AASHTO, including excavation parallel or crossing existing services.						
2	6	1.1	L	a) Not exceeding a maximum of 1.5m in depth			m	340	SMME	SMME
2	6	1.2	L	b) Exceeding 1.5m but not 2.5m in depth			m	38	SMME	SMME
2	6	1.3	L	c) Exceeding 2.5m in depth			m	15	SMME	SMME
2	6	2		Extra-over for:						
2	6	2.1		a) Intermediate excavation			m ³	47	SMME	SMME
2	6	2.2		b) Hard rock			m ³	16		
2	6	3	8.3.2	Excavate in all materials for subsoil drain trenches as per drawing PC14005/CIV/2002 and PC14005/CIV/2304, backfill in layers of 150mm and compacted to 93% Mod. AASHTO			m	82	SMME	SMME
2	7		SABS 1200 MF	<u>Resurface road</u>						
2	7	1	8.3.3	200mm Gravel wearing course			m ³	45	SMME	SMME
2	8		SABS 1200 L	<u>MEDIUM PRESSURE PIPELINES</u>						
2	8		8.2.1	<u>Supply, lay, and bed pipes complete with couplings and bends, including flanges and all required fittings etc.</u>						
2	8	1		Inlet pipework into reservoir 3 as per drawing PC14005/CIV/2002 and PC14005/CIV/2303						
2	8	1.1		a) Ø200mm (uPVC)			m	43	SMME	SMME
2	8	2		Outlet pipework from reservoir 3 to break pressure tank as per drawing PC14005/CIV/2002						
2	8	2.1		a) Ø160mm (uPVC)			m	270	SMME	SMME
2	8	3		Scour outlet pipework from reservoir 3 as per drawing PC14005/CIV/2002 and PC14005/CIV/2302						
2	8	3.1		a) Ø160mm (uPVC)			m	65	SMME	SMME
2	9		8.2.2	<u>Pipe bends and tees</u>						
2	9	1		Extra-over item 2.8: Supply, lay, and bed, joint, including cut pipes to length where required, test and disinfect.						
2	9	1.1		a) Bends smaller or equal to 45° (Class 16) for:						
2	9	1.1.1		i) Ø160mm uPVC			No.	4	SMME	SMME
2	9	1.1.2		ii) Ø200mm uPVC			No.	3	SMME	SMME
2	9	1.2		b) Bends bigger than 45° but less or equal to 90° (Class 16) for:						
2	9	1.2.1		i) Ø160mm uPVC			No.	2	SMME	SMME
TOTAL CARRIED FORWARD										

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			2	KIRKWOOD TOWN		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD									
2	9	1.2.2		ii) Ø200mm uPVC	No.	3	SMME	SMME	
2	9	1.3		c) Tee (Class 16) for:					
2	9	1.3.1		i) Ø110mm uPVC	No.	1	SMME	SMME	
2	9	1.3.2		ii) Ø160mm uPVC	No.	1	SMME	SMME	
2	9	1.3.3		iii) Ø200mm uPVC	No.	1	SMME	SMME	
2	9	1.4		d) Reducers (Class 16) for:					
2	9	1.4.1		i) Ø160uPVC to Ø110mm uPVC	No.	1	SMME	SMME	
2	9	1.5	8.2.11	e) Grade 15/13 concrete for thrust blocks	m ³	3.5			
2	10		PSLB/ SABS 1200 LB	<u>Supply only of bedding and padding by importation</u>					
2	10	1	8.2.2	Bedding of all pipes by importation	m ³	151	SMME	SMME	
2	11		SABS 1200 L	CHAMBERS					
2	11		8.2.13	<u>Construction of valve chamber, excluding brickwork.</u>					
2	11	1		Ø110mm Inlet Chamber at reservoir 1 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	11	2		Ø200mm Inlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	11	3		Ø160mm Outlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	11	4		Ø160mm Scour chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	11	5	SABS 1200LE 8.2.8	Stormwater catch pit as per drawing PC14005/CIV/2002	No.	1	SMME	SMME	
2	12			<u>Construction of chamber brickwork</u>					
2	12	1	SABS 1200 LE 8.2.9	230mm clinker brick walls including wire ties, galvanised brickforce every 2nd course and class 2 mortar	m ²	28	SMME	SMME	
2	13		8.2.5	<u>Supply and install pipework in chambers, including sundries</u>					
2	13	1		Ø110mm Inlet Chamber at reservoir 1 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	13	2		Ø200mm Inlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	13	3		Ø160mm Outlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
2	13	4		Ø160mm Scour chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME	
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		2	KIRKWOOD TOWN			SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
TOTAL BROUGHT FORWARD									
SUBSOIL DRAINAGE									
2	14		<u>Supply, lay, and bed pipes complete with couplings and bends for subsoil pipe</u>						
2	14 1		Supply, lay, bed, backfill and join Ø100mm perforated pipe, wrapped in Class 2 Geotextile as per drawing PC14005/CIV/2002	m	82	SMME	SMME		
2	14 2		Class 2 fill coarse grained free draining material as per drawing PC14005/CIV/2304	m ³	14.1	SMME	SMME		
2	14 3		Class 2 Geotextile as per drawing PC14005/CIV/2304	m ²	172	SMME	SMME		
RETAINING WALL									
2	15	PSXE PSXD	<u>Construct block retaining wall as per drawing PC14005/CIV/2004</u>						
2	15 1	SABS 1200 G 8.4	25MPa concrete						
2	15 1.1		a) Footing	m ³	23	SMME	SMME		
2	15 1.2		b) Apron	m ³	35	SMME	SMME		
2	15 2	SABS 1200 G 8.3	Reinforcement						
2	15 2.1		a) High tensile reinforcement for footing	t	1.8	SMME	SMME		
2	15 2.2		b) Mesh reference 245 for apron	m ²	290	SMME	SMME		
2	15 3	SABS 1200 G 8.4.4	Wood float finish for apron	m ²	290	SMME	SMME		
2	15 4		Class 2 geotextile inside retaining wall	m ²	491	SMME	SMME		
2	15 5		250mm wide and 4mm thick HDPE composite vertical band drain system, wrapped in Class 2 Geotextile with a minimum flow rate of 0.14 l/s, placed in 2m centre-to-centre spacings	m	103	SMME	SMME		
2	15 6		Supply, lay, bed, backfill and join Ø100mm perforated pipe, wrapped in Class 2 Geotextile as per drawing PC14005/CIV/2305	m	79	SMME	SMME		
2	15 7		Retaining blocks (420 x 300 x 200mm), filled with G7 material	m ²	184	SMME	SMME		
2	15 8		Polyester soil reinforcement, staple fibre 150 g/m ² needle punched, nonwoven / high strength polyester yarns	m ²	605	SMME	SMME		
2	15 9	SABS 1200 D 8.3.11	150mm topsoil and grassing	m ²	277	SMME	SMME		
STEEL TANK									
2	16	PSXF	<u>Supply and install steel reservoir and as per manufacturer's design, to be approved by the engineer and to conform to all minimum national standards</u>						
2	16 1		Supply 3.0M ^l effective volume Steel Reservoir with minimum prescribed specification:						
2	16		Tank wall panels consisting of profiled Zinalume steel panels, steel grade G300 or higher with AZ150 heavy duty coating conforming to SANS 9364 (ISO9364)						
2	16		Wind Girts consisting from 2.4 mm hot dipped galvanised sheet metal, punched and bent into profile						
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		2	KIRKWOOD TOWN			SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT		
TOTAL BROUGHT FORWARD									
2	16		Dome roof consisting of Zinalume corrugated sheets, 0.47 mm thick, grade G550 with a min AZ150 coating						
2	16		Hold down anchor at each wind girt to withstand winds of 144km/h						
2	16		Multi-layer woven PVC 1000g/m ² tank liner						
2	16	1.1	a) Complete tank with liner and roof as per above specifications	No.	1				
2	16	1.2	b) Tank access, fixed c/w internal and external ladders, safety cage, platform, lockable access hatch and hand rails	No.	1				
2	16	1.3	c) GMS Ventilator, static [0.01m ² /vent]	No.	4				
2	16	1.4	d) Water level indicator, mechanical with half height reading	No.	1				
2	16	1.5	e) Inlet, internal deflector, external downpipe (that terminates below ground) complete with pipe clamps and external flanged termination - Ø160mm	No.	1				
2	16	1.6	f) Bi-level inlet control valve - Ø160mm	No.	1				
2	16	1.7	g) Outlet, floor-mounted (terminates below ground), internal anti-vortex, external flanged termination - Ø160mm dia	No.	1				
2	16	1.8	h) Overflow, internal bell mouth, external downpipe with flanged termination complete with pipe clamps - Ø200mm	No.	1				
2	16	1.9	g) Scour, floor-mounted (terminates below ground), external flanged termination - Ø110mm	No.	1				
2	16	1.10	h) Instrument nozzle, roof-mounted (for telemetry, etc.) - Ø100mm	No.	1				
2	16	1.11	i) Tank delivery to site	No.	1				
2	16	1.12	j) Tank installation	No.	1				
2	17	SABS 1200 DM 8.3.5	<u>Layer works</u>						
2	17	1	Construct base with G7 material compacted to 95% Mod. AASHTO maximum dry density in layers of 150mm	m ³	75	SMME			SMME
2	17	2	100mm deep free draining sand bed compacted to 100% Mod. AASHTO, with blinding layer	m ³	38	SMME			SMME
2	18	SABS 1200 G	<u>Reinforced concrete ring beam with Accuracy Level I</u>						
2	18	1	8.4.3 25MPa concrete	m ³	10.3				
2	18	2	8.3.1 R10 Reinforcement for Concrete Ring Beam	t	0.4				
2	18	3	8.3.1 Y12 Reinforcement for Concrete Ring Beam	t	0.4				
2	18	4	8.2.5 Narrow width formwork up to 300mm	m	135				
2	18	5	8.4.4 Wood-floated finish	m ²	135				
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		2	KIRKWOOD TOWN			SCHEDULE OF QUANTITIES		
ITEM	PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD								
OUTLET STRUCTURE								
<u>Headwalls and pipes (Bends and other Fittings)</u>								
2 19								
2 19 1	SABS 1200 G 8.4.2		50mm Blinding layer	m ²	4.6	SMME	SMME	
2 19 2	SABS 1200 G 8.4.3		Class 15/19 concrete footing with Mesh reference 245 as per drawing PC14005/CIV/2302	m ³	0.5	SMME	SMME	
2 19 3			Concrete apron with stone pitching as per drawing PC14005/CIV/2302	m ²	2	SMME	SMME	
2 19 4	SABS 1200 LE 8.2.9		Brickwork as per drawing PC14005/CIV/2302	m ²	2	SMME	SMME	
2 19 5	SABS 1200 DK 8.2.2		Supply, erect and fill galvanised wire mattress with gabion stone or rocks as per drawing PC14005/CIV/2302	m ³	1	SMME	SMME	
PSXA								
FENCE								
<u>Supply and install perimeter gate and fencing as per manufacturer specification and as per drawing PC14005/CIV/2002</u>								
2 20								
2 20 1	SABS 1200 G 8.4.3		Class 15/19 concrete footing (450 x 450 x 500mm) to fencing posts	m ³	6.1	SMME	SMME	
2 20 2	1.1		Medium Security Posts: Square posts (76 x 76 x 1.6mm), 2.4 m high. Galvanised and fixed with metal security fixators	No	60	SMME	SMME	
2 20 3	1.1		Medium Security Fence: 1.8m in height and 3m wide, with a 3mm wire diameter and Aperture of (76.2 x 25mm). With spikes on top	m	180	SMME	SMME	
2 20 4	1.3		5.6m swing gate with locking system	No	2	SMME	SMME	
ADDITIONAL ITEMS								
2 21								
PSXF								
<u>Testing & disinfection</u>								
2 21 1			Water Tightness Test on Reservoir	Sum	1			
2 21 2			Disinfection of Reservoir with calcium hypochlorite	Sum	1			
TOTAL FOR SECTION 2 CARRIED FORWARD TO SUMMARY								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			3	MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
3 1			SABS 1200 C		EARTHWORKS				
					<u>Site clearance</u>				
3	1	1	8.2.1		Clear and grub	m ²	2 035	SMME	SMME
3	1	2	8.2.10		Removal of topsoil	m ³	164	SMME	SMME
3 2			PSD/SABS 1200 D		<u>Bulk excavations</u>				
3	2	1	8.3.2		Bulk excavation of platform in all materials and spoil at designated site as per drawing PC14005/CIV/2003	m ³	513		
3	2	2			Extra-over for				
3	2	2.1			a) Intermediate excavation	m ³	77		
3	2	2.2			b) Hard rock	m ³	67		
3	2	3	8.3.10		Topsoiling of fencing, road berm, retaining wall etc. as per drawing PC14005/CIV/2003	m ²	485	SMME	SMME
3 3			SABS 1200 D		<u>Restricted excavation</u>				
3	3	1	8.3.3	L	Restricted excavations for footings, foundations, etc. in all materials and stockpile and compacted to 93% Mod. AASHTO, the material to be used for backfill around the borehole chamber	m ³	60	SMME	SMME
3	3	2			Extra-over for:				
3	3	2.1			a) Intermediate excavation	m ³	9	SMME	SMME
3	3	2.2			b) Hard rock	m ³	6		
3	3	3	8.3.2		Excavation, backfill and compaction of retaining wall in layers of 200mm to 93% Mod. AASHTO in all materials	m ³	419		
3	3	4	8.3.3	L	Excavate and shape cut-off drain and berm as per drawing PC14005/CIV/2004	m ³	7	SMME	SMME
3 4			PSD		<u>Existing services</u>				
3	4	1	8.3.8.1		Locating and expose existing services				
3	4	1.1			a) Water, sewer and stormwater pipelines	No.	6	SMME	SMME
3 5			SABS 1200 DB		<u>Excavations</u>				
3	5	1	8.3.2		Excavate 850mm width trench for Ø250mm pipe in all materials and use excavated material for backfill, placed in layers of 150mm and compacted to 93% Mod. AASHTO, including excavation parallel or crossing existing services.				
3	5	1.1		L	a) Not exceeding a maximum of 1.5m in depth	m	78	SMME	SMME
3	5	2			Extra-over for:				
3	5	2.1			a) Intermediate excavation	m ³	12	SMME	SMME
3	5	2.2			b) Hard rock	m ³	4	SMME	SMME
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION: 3			MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
3 5 3	8.3.2		Excavate 600mm width trench for Ø110mm pipe in all materials and use excavated material for backfill, placed in layers of 150mm and compacted to 93% Mod. AASHTO, including excavation parallel or crossing existing services.					
3 5 3.1		L	a) Not exceeding a maximum of 1.5m in depth		m	65	SMME	SMME
3 5 4			Extra-over for:					
3 5 4.1			a) Intermediate excavation		m ³	6	SMME	SMME
3 5 4.2			b) Hard rock		m ³	2		
3 5 5	8.3.2		Excavate in all materials for subsoil drain trenches as per drawing PC14005/CIV/2304, backfill in layers of 150mm and compacted to 93% Mod. AASHTO		m	82	SMME	SMME
PSL/SABS 1200 L			MEDIUM PRESSURE PIPELINES					
3 6	8.2.1		<u>Supply, lay, and bed pipes complete with couplings, including pipe disinfection and testing</u>					
3 6 1			Inlet pipework into command reservoir 3 as per drawing PC14005/CIV/2303					
3 6 1.1			a) Ø250mm (uPVC)		m	42	SMME	SMME
3 6 2			Outlet pipework from command reservoir 3 as per drawing PC14005/CIV/2302					
3 6 2.1			a) Ø110mm (uPVC)		m	65	SMME	SMME
3 6 2.2			b) Ø250mm (uPVC)		m	36	SMME	SMME
3 7	8.2.2		<u>Pipe bends and tees</u>					
3 7 1			Extra-over item 3.6: Supply, lay, and bed, joint, including cut pipes to length where required, test and disinfect.					
3 7 1.1			a) Bends smaller or equal to 45° (Class 16) for:					
3 7 1.1.1			i) Ø110mm uPVC		No.	4	SMME	SMME
3 7 1.1.2			ii) Ø250mm uPVC		No.	3	SMME	SMME
3 7 1.2			b) Bends bigger than 45° but less or equal to 90° (Class 16) for:					
3 7 1.2.1			i) Ø110mm uPVC		No.	3	SMME	SMME
3 7 1.2.2			ii) Ø250mm uPVC		No.	3	SMME	SMME
3 7 1.3			c) Tee (Class 16) for:					
3 7 1.3.1			i) Ø250mm uPVC		No.	1	SMME	SMME
3 7 1.3.2			ii) Ø110mm uPVC		No.	2	SMME	SMME
3 7 1.4			d) Reducers (Class 16) for:					
3 7 1.4.1			i) Ø250uPVC to Ø160mm uPVC		No.	1	SMME	SMME
3 7 1.4.2			ii) Ø250uPVC to Ø110mm uPVC		No.	1	SMME	SMME
3 7 1.5	8.2.11		e) Grade 15/13 concrete for thrust blocks		m ³	5.6	SMME	SMME
TOTAL CARRIED FORWARD								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		3	MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
3	8		PSLB/SABS 1200 LB	<u>Supply only of bedding and padding by importation</u>				
3	8	1	8.2.2	Supply only of bedding and padding by importation	m ³	59	SMME	SMME
			SABS 1200 L	CHAMBERS				
3	9		8.2.13	<u>Construction of valve chamber, excluding brickwork.</u>				
3	9	1		Ø110mm Inlet Chamber at reservoir 1 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	9	2		Ø110mm Inlet chamber at reservoir 2 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	9	3		Ø160mm Inlet Chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	9	4		Ø110mm Outlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	9	5		Ø250mm Isolation valve chamber as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	9	6	SABS 1200LE 8.2.8	Stormwater catch pit as per drawing PC14005/CIV/2303	No.	1	SMME	SMME
3	10			<u>Construction of chamber brickwork</u>				
3	10	1	SABS 1200 LE 8.2.9	230mm clinker brick walls including wire ties, galvanised brickforce every 2nd course and class 2 mortar	m ²	34	SMME	SMME
3	11		8.2.5	<u>Supply and install pipework in chambers, including sundries</u>				
3	11	1		Ø110mm Inlet Chamber at Reservoir 1 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	11	2		Ø110mm Inlet chamber at reservoir 2 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	11	3		Ø160mm Inlet Chamber at Reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	11	4		Ø110mm Outlet chamber at reservoir 3 as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	11	5		Ø110mm Isolation valve chamber as per drawing PC14005/CIV/2302	No.	1	SMME	SMME
3	12		SABS 1200LF 8.2.6	<u>Supply and Install standpipe complete with special fittings as per drawing PC14005/CIV/2306</u>				
3	12	1		Installation of new double standpipe including connection to the supply line.	Sum	1	SMME	SMME
				SUBSOIL DRAINAGE				
3	13			<u>Supply, lay, and bed pipes complete with couplings and bends for subsoil pipe</u>				
3	13	1		Supply, lay, bed, backfill and join Ø100mm perforated pipe, wrapped in Class 2 Geotextile as per drawing PC14005/CIV/2003	m	82	SMME	SMME
3	13	2		Class 2 fill coarse grained free draining material as per drawing PC14005/CIV/2304	m ³	14.1	SMME	SMME
3	13	3		Class 2 Geotextile as per drawing PC14005/CIV/2304	m ²	172	SMME	SMME
TOTAL CARRIED FORWARD								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		3	MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
RETAINING WALL								
3	14	PSXE PSXD	<u>Construct block retaining wall as per drawing PC14005/CIV/2305</u>					
3	14	1	SABS 1200 G 8.4	25MPa concrete				
3	14	1.1		a) Footing	m ³	23	SMME	SMME
3	14	1.2		b) Apron	m ³	35	SMME	SMME
3	14	2	SABS 1200 G 8.3	Reinforcement				
3	14	2.1		a) High tensile reinforcement for footing	t	1.8	SMME	SMME
3	14	2.2		b) Mesh reference 245 for apron	m ²	290	SMME	SMME
3	14	3	SABS 1200 G 8.4.4	Wood float finish for apron	m ²	290	SMME	SMME
3	14	4		Class 2 geotextile inside retaining wall as per drawing PC14005/CIV/2305	m ²	390	SMME	SMME
3	14	5		250mm wide and 4mm thick HDPE composite vertical band drain system, wrapped in Class 2 Geotextile with a minimum flow rate of 0.14 l/s, placed in 2m centre-to-centre spacings	m	89	SMME	SMME
3	14	6		Supply, lay, bed, backfill and join Ø100mm perforated pipe, wrapped in Class 2 Geotextile as per drawing PC14005/CIV/2305	m	71	SMME	SMME
3	14	6		Retaining blocks (420 x 300 x 200mm), filled with G7 material	m ²	153	SMME	SMME
3	14	7		Polyester soil reinforcement, staple fibre 150 g/m ² needle punched, nonwoven / high strength polyester yarns	m ²	459	SMME	SMME
3	14	8	SABS 1200 D 8.3.11	150mm topsoil and grassing	m ²	247	SMME	SMME
STEEL TANK								
3	15	PSXF	<u>Supply and install steel reservoir and as per manufacturer's design, to be approved by the engineer and to conform to all minimum national standards</u>					
3	15	1		Supply 3.0Ml effective volume Steel Reservoir with minimum prescribed specification:				
3	15			Tank wall panels consisting of profiled Zinalume steel panels, steel grade G300 or higher with AZ150 heavy duty coating conforming to SANS 9364 (ISO9364)				
3	15			Wind Girts consisting from 2.4 mm hot dipped galvanised sheet metal, punched and bent into profile				
3	15			All trusses to be hot dipped galvanized after fabrication. Clear span self-supporting roof with no centre post				
3	15			Dome roof consisting of Zinalume corrugated sheets, 0.47 mm thick, grade G550 with a min AZ150 coating				
3	15			Hold down anchor at each wind girt to withstand winds of 144km/h				
3	15			Multi-layer woven PVC 1000g/m ² tank liner				
3	15	1.1		a) Complete tank with liner and roof as per above specifications	No.	1		
TOTAL CARRIED FORWARD								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			3	MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD									
3	15	1.2	b) Tank access, fixed c/w internal and external ladders, safety cage, platform, lockable access hatch and hand rails		No.	1			
3	15	1.3	c) GMS Ventilator, static [0.01m2/vent]		No.	4			
3	15	1.4	d) Water level indicator, mechanical with half height reading		No.	1			
3	15	1.5	e) Inlet, internal deflector, external downpipe (that terminates below ground) complete with pipe clamps and external flanged termination - Ø160mm		No.	1			
3	15	1.6	f) Bi-level inlet control valve - Ø160mm		No.	1			
3	15	1.7	g) Outlet, floor-mounted (terminates below ground), internal anti-vortex, external flanged termination - Ø160mm dia		No.	1			
3	15	1.8	h) Overflow, internal bell mouth, external downpipe with flanged termination complete with pipe clamps - Ø200mm		No.	1			
3	15	1.9	g) Scour, floor-mounted (terminates below ground), external flanged termination - Ø110mm		No.	1			
3	15	1.10	h) Instrument nozzle, roof-mounted (for telemetry, etc.) - Ø100mm		No.	1			
3	15	1.11	i) Tank delivery to site		No.	1			
3	15	1.12	j) Tank installation		No.	1			
3	16		SABS 1200 DM 8.3.5	<u>Layer works</u>					
3	16	1		Construct base with G7 material compacted to 95% Mod. AASHTO maximum dry density in layers of 150mm	m ³	75	SMME	SMME	
3	16	2		100mm deep compacted free draining sand bed with blinding layer	m ³	38	SMME	SMME	
3	17		SABS 1200 G	<u>Reinforced concrete ring beam with Accuracy Level I</u>					
3	17	1	8.4.3	25MPa concrete	m ³	10.3			
3	17	2	8.3.1	R10 Reinforcement for Concrete Ring Beam	t	0.4			
3	17	3	8.3.1	Y12 Reinforcement for Concrete Ring Beam	t	0.4			
3	17	4	8.2.5	Narrow width formwork up to 300mm	m	135			
3	17	5	8.4.4	Wood-floated finish	m ²	135			
			PSXA	FENCE					
3	18			<u>Supply and Install perimeter gate and fencing as per manufacturer specification and as per drawing PC14005/CIV/2003</u>					
3	18	1	SABS 1200 G 8.4.3	Class 15/19 concrete footing (450 x 450 x 500mm) to fencing posts	m ³	9.8	SMME	SMME	
3	18	2	1.1	Medium Security Posts: Square posts (76 x 76 x 1.6mm), 2.4 m high. Galvanised and fixed with metal security fixators	No	97	SMME	SMME	
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		3	MOSES MABIDA		SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION		UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD								
3	18	3	1.1	Medium Security Fence: 1.8m in height and 3m wide, with a 3mm wire diameter and Aperture of (76.2 x 25mm). With spikes on top	m	292	SMME	SMME
3	18	4	1.3	5.6m swing gate with locking system	No	3	SMME	SMME
ADDITIONAL ITEMS								
<u>Relocation of services</u>								
3	19			Relocation of existing electrical services as indicated by Engineer	PSum	1	R 50 000.00	R 50 000.00
3	19			Overheads, charges, and profit in respect of 3.19.1 above	%			
<u>Testing & disinfection</u>								
3	20	PSXF		Water Tightness Test on Reservoir	Sum	1	SMME	SMME
3	20			Disinfection of Reservoir with calcium hypochlorite	Sum	1	SMME	SMME
<u>Repair leakages</u>								
3	20			Provide a report to the Engineer based on the following: Inspection of reservoir site to determine the cause of leakage and providing possible solutions to stop the leakage	Sum	1		
3	20			Implementing solution as approved by the Engineer based on conclusions of 3.20.1 above	PSum	1	R 50 000.00	R 50 000.00
3	20			Overheads, charges, and profit in respect of 3.20.2 above	%			
TOTAL FOR SECTION 3 CARRIED FORWARD TO SUMMARY								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			4	RAW WATER STORAGE DAM		SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
4 1			SABS 1200 C		EARTHWORKS				
					<u>Site clearance</u>				
4	1	1	8.2.1		Clear and grub	m ²	7 920	SMME	SMME
4	1	2	8.2.10		Removal of topsoil	m ³	918	SMME	SMME
4	1	3	8.2.5		Demolish the existing fencing and remove scrap from site	m	320	SMME	SMME
4 2			PSD/SABS 1200 D		<u>Bulk excavations</u>				
4	2	1	8.3.2		Bulk excavation of platform in all materials and spoil at designated site as per drawing PC14005/CIV/2004	m ³	17 750		
4	2	2			Extra-over for				
4	2	2.1			a) Intermediate excavation	m ³	1 420		
4	2	2.2			b) Hard rock	m ³	533		
4 3			PSD/SABS 1200 D		<u>Surface preparation of raw water lay dam</u>				
4	3	1	8.3.4		Preparation of excavated surface to receive lining material by removal of all stones and making good any defects in the surface and compacting to 93% Mod. AASHTO	m ²	5 570		
4 4			PSDB/SABS 1200 DB		<u>Excavation</u>				
4	4	1	8.3.2	L	Excavate 900mm width trench for Ø355mm pipe in all materials and use excavated material for backfill, placed in layers of 150mm and compacted to 93% Mod. AASHTO, including excavation parallel or crossing existing services.				
4	4	1.1			a) Not exceeding a maximum of 1.5m in depth	m	245		
4	4	2			Extra-over for				
4	4	2.1			a) Intermediate excavation	m ³	29.4		
4	4	3	8.3.2	L	Excavate 1000mm width trench for Ø355mm pipe in all materials and use excavated material for backfill, placed in layers of 150mm and compacted to 93% Mod. AASHTO, including excavation parallel or crossing existing services.				
4	4	3.1			a) Not exceeding a maximum of 1.5m in depth	m	20		
4	4	3.2			b) Exceeding 1.5m but not 2m in depth	m	4		
4	4	3.3			c) Exceeding 2m but not 3m in depth	m	4		
4	4	3.4			d) Exceeding 3m but not 4m in depth	m	4		
4	4	3.5			e) Exceeding 4m but not 5m in depth	m	19		
4	4	4			Extra-over for				
4	4	4.1			a) Intermediate excavation	m ³	10		
4	4	4.2			b) Hard rock	m ³	2		
4	4	5	8.3.2		Excavate in all materials for subsoil drain trenches as per drawing PC14005/CIV/2004, backfill in layers of 150mm and compacted to 93% Mod. AASHTO	m	505		
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			4	RAW WATER STORAGE DAM			SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	
TOTAL BROUGHT FORWARD										
4	4	6	8.3.2		Excavate 3m deep in all materials for subsoil drain trenches as per drawing PC14005/CIV/2004, backfill in layers of 150mm and compacted to 93% Mod. AASHTO	m	75			
4	4	7	8.3.2		Excavate in all materials for anchor trenches as per drawing PC14005/CIV/2304, backfill in layers of 150mm and compacted to 93% Mod. AASHTO	m	28			
4	5		SABS 1200 D		<u>Restricted excavations</u>					
4	5	1	8.3.3	L	Excavate in all materials for manholes and footings backfill placed in layers of 150mm and compacted to 93% Mod. AASHTO	m ³	16.4			
4	5	2			Extra-over for					
4	5	2.1			a) Intermediate excavation	m ³	1.6			
4	6		SABS 1200 DB		<u>Particular items</u>					
4	6	1	8.3.4		Shore trench, sections to be approved by the Engineer	m	106			
4	7		PSL/SABS 1200 L		<u>MEDIUM PRESSURE PIPELINES</u>					
4	7		8.2.1		<u>Supply, lay, and bed pipes complete with couplings, including cut pipes to length where required, test and disinfection for extra-over items</u>					
4	7	1			uPVC Pipes:					
4	7	1.1			a) Ø355mm Class 9	m	245			
4	7	2			HDPE Pipes:					
4	7	2.1			a) Ø200mm PN8	m	35			
4	8		8.2.2		<u>Pipe bends and tees</u>					
4	8	1			Extra-over item for 4.7: Supply, lay, and bed, joint, including cut pipes to length where required, test and disinfect.					
4	8	1.1			a) Bends smaller or equal to 45° for:					
4	8	1.1.1			i) Ø355mm uPVC, Class 16	No.	1			
4	8	1.1.2			ii) Ø200mm HDPE, PN16	No.	2			
4	8	1.2			b) Bends bigger than 45° but less or equal to 90° for:					
4	8	1.2.1			i) Ø355mm uPVC, Class 16	No.	5			
4	8	1.2.2			ii) Ø200mm HDPE, PN16	No.	2			
4	8	1.3	8.2.11		Grade 15/13 Concrete for thrust blocks. Dimensions given on drawing PC14005/CIV/2301	m ³	4.0			
TOTAL CARRIED FORWARD										

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		4	RAW WATER STORAGE DAM			SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION			UNIT	QTY	RATE	AMOUNT
TOTAL BROUGHT FORWARD									
4	9	SABS 1200 LE 8.2.8	MANHOLES <u>Construction of manhole valve chamber</u>						
4	9 1		Ø355mm Inlet Chamber as per drawing PC14005/CIV/2303			No.	1		
4	9 2		Ø200mm Outlet Chamber as per drawing PC14005/CIV/2304			No.	1		
4	9 3		Ø200mm Subsoil Drain Chamber as per drawing PC14005/CIV/2304			No.	1		
4	10	PSXC	SUBSOIL DRAINAGE <u>Supply, lay, and bed pipes complete with couplings and bends for subsoil pipe</u>						
4	10 1		Supply, lay, bed, backfill and join Ø100mm perforated pipe, wrapped in Class 2 Geotextile as per drawing PC14005/CIV/2004			m	580		
4	10 2		Class 2 fill coarse grained free draining material as per drawing PC14005/CIV/2304			m ³	87		
4	10 3		Class 2 Geotextile or equally approved as per drawing PC14005/CIV/2304			m ²	1 102		
4	10 4		250mm wide and 4mm thick HDPE composite vertical band drain system with a minimum flow rate of 0.14 l/s, placed in 2m centre-to-centre spacings			m	1 281		
4	11	PSXB	STORAGE DAM LINING <u>Supply and Deliver Lining as per drawing PC145005/CIV/2304</u>						
4	11 1		Supply and deliver Class 2 geotextile			m ²	5 570		
4	11 2		Supply and deliver 2mm double texture HDPE lining Geomembrane			m ²	5 570		
4	11 3		Supply and deliver Class 3 geotextile			m ²	5 570		
4	11 4		Supply and deliver (600 x 600 x 75mm) Precast concrete panels Class 25MPa/19mm including joint seal			m ²	5 570	SMME	SMME
4	12		<u>Construct Lining as per drawing PC145005/CIV/2304</u>						
4	12 1		Place Class 2 geotextile on the sidewall			m ²	5 570		
4	12 2		Lay 2mm double texture HDPE lining Geomembrane and install according to manufacturer's specifications			m ²	5 570		
4	12 3		Place Class 3 geotextile on the sidewall			m ²	5 570		
4	12 4		Place (600 x 600 x 75mm) Precast concrete panels Class 25MPa/19mm including joint seal			m ²	5 570	SMME	SMME
4	12 5		Insitu cast concrete around pipe intrusions as per drawing PC14005/CIV/2304			m ³	2	SMME	SMME
TOTAL CARRIED FORWARD									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:		4	RAW WATER STORAGE DAM			SCHEDULE OF QUANTITIES			
ITEM	PAYMENT REFERS	LIC	DESCRIPTION	UNIT	QTY	RATE		AMOUNT	
TOTAL BROUGHT FORWARD									
4	13	PSXA	FENCE <u>Supply and Install perimeter gate and fencing as per manufacturers specification and as per drawing PC14005/CIV/2004</u>						
4	13 1	SABS 1200 G 8.4.3	Class 15/19 concrete footing (450 x 450 x 500mm) to fencing posts	m ³	16.4	SMME		SMME	
4	13 2		Medium Security Posts: Square posts (76 x 76 x 1.6mm), 2.4 m high. Galvanised and fixed with metal security fixators	No	162	SMME		SMME	
4	13 3		Medium Security Fence: 1.8m in height and 3m wide, with a 3mm wire diameter and Aperture of (76.2 x 25mm). With spikes on top	m	485	SMME		SMME	
ADDITIONAL ITEMS									
4	14		<u>Pumps and pipework</u>						
4	14 1		Supply deliver and install outlet pump and associated pipework and electrical infrastructure as indicated by engineer	PSum	1	R	130 000.00	R	130 000.00
4	14 2		Overheads, charges, and profit in respect of 4.14.1 above	%					
4	14 3		Supply deliver and install subsoil drainage pump and associated pipework and electrical infrastructure as indicated by engineer	PSum	1	R	130 000.00	R	130 000.00
4	14 4		Overheads, charges, and profit in respect of 4.14.3 above	%					
4	14 5		Supply deliver and install/store scour pump as indicated by engineer	PSum	1	R	40 000.00	R	40 000.00
4	14 6		Overheads, charges, and profit in respect of 4.14.5 above	%					
4	15		<u>Refurbishment of Dilapidated building</u>						
4	15 1		Clear, spoil, and refurbish as indicated by the Engineer	PSum	1	R	350 000.00	R	350 000.00
4	15 2		Overheads, charges, and profit in respect of 4.15.1 above	%					
TOTAL FOR SECTION 4 CARRIED FORWARD TO SUMMARY									

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

SECTION:			5	DAYWORKS	SCHEDULE OF QUANTITIES			
ITEM			PAYMENT REFERS	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
5	1		SABS 1200 8.7/PSA 8.7	<u>Personnel during all hours</u>				
5	1	1		Unskilled labour	hrs	180		
5	1	2		Semi-skilled labour	hrs	90		
5	1	3		Skilled labour	hrs	90		
5	1	4		Ganger	hrs	200		
5	2		SABS 1200 8.7/PSA 8.7	<u>Plant equipment</u>				
5	2	1		Tipper truck (10m³)	hrs	45		
5	2	2		Water truck (10000 litre)	hrs	45		
5	2	3		Tractor loader backhoe	hrs	90		
5	2	4		Excavator	hrs	45		
5	2	5		Grader (CAT140G) or similar	hrs	45		
5	2	6		Pedestrian roller (Bomag 90)	hrs	90		
5	2	7		Vibrating plate compactor (4kW capacity)	hrs	90		
5	2	8		Mobile air compressor (10m³ / min. capacity)	hrs	45		
5	2	9		Paving breaker, air driven, including all attachments and hoses	hrs	45		
5	2	10		Concrete mixer (0.6m³ capacity)	hrs	45		
5	2	11		Angle grinder (1kw capacity)	hrs	45		
5	3		SABS 1200 8.7/PSA 8.7	<u>Materials</u>				
5	3	1		Procurement of materials	PSum	1	R 30 000.00	R 30 000.00
5	3	2		Handling costs and profit in respect of above	%			
5	4		SABS 1200 8.7/PSA 8.7	<u>Transport</u>				
5	4	1		LDV	km	100		
TOTAL FOR SECTION 5 CARRIED FORWARD TO SUMMARY								

Contractor _____ Witness1 _____ Witness2 _____ Employer _____ Witness1 _____ Witness2 _____

PART C3: SPECIFICATIONS

C3.1: Scope of Works

1. DESCRIPTION OF THE WORKS

1.1. Employers Objectives

The Employer's objectives are to ensure sufficient and reliable water supply to Sundays River Valley Municipality by expansion of the current water supply scheme in Kirkwood. The Works in this Contract are to be executed by using labour-intensive construction methods where applicable and feasible.

Labour intensive construction methods consists of using local workers who are temporarily employed in terms of the project specification.

Furthermore, it is vital that during construction, suitable local residents are identified and trained in the skills necessary to operate and maintain the scheme after commissioning. The onus of quality will rest on the Contractor.

1.2. Overview of the Works

The proposed Works comprises the installation of two (2) new 3 Ml steel reservoirs and a new 14 Ml raw water storage dam.

1.3. Extent of Works

a) Background

The Sundays River Valley Local Municipality (SRVM) currently faces challenges with respect to the sustainable provision of water services. Kirkwood and surrounding areas currently experience water supply interruptions caused by scheduled maintenance of the irrigation canal which is the source of raw water supply.

b) Scope Development

In summary, the scope has been confirmed as per the table hereunder:

Scope Components	Description
Kirkwood Potable Water Reservoir	
Earthworks	Perform the necessary earthworks to construct the steel reservoir
Retaining wall	Construct a retaining wall around the steel reservoir
Pipework	Construct all necessary pipework to connect the new steel reservoir to existing infrastructure
Fencing	Construct fencing around the reservoir Site
Reservoir	Construct new steel reservoir
Moses Mabida / Bontrug Potable Water Reservoir	
Earthworks	Perform the necessary earthworks to construct the steel reservoir
Retaining wall	Construct a retaining wall around the steel reservoir
Pipework	Construct all necessary pipework to connect the new steel reservoir to existing infrastructure
Fencing	Construct fencing around the reservoir Site
Reservoir	Construct new steel reservoir
Additional raw water storage at Kirkwood	
Earthworks	Perform the necessary earthworks to construct the new raw water storage dam
Lining (HDPE and Concrete)	Construct HDPE and concrete lining inside the new raw water storage dam

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Pipework	Construct all necessary pipework to connect the new raw water storage dam to existing infrastructure
Fencing	Construct fencing around the raw water storage dam Site
Refurbish building	Refurbish dilapidated building to be used as Site office and workshop

c) Scope Description

(i) Raw Water Storage

The raw water source for Kirkwood is the irrigation canal from the Korhaansdrif Weir. The Municipality has an existing lawful use of 1.3 Mm³/year for domestic use which must be licensed. A further 1.7 Mm³/year of agricultural water has been allocated to the municipality. The existing raw water storage lay dams have a capacity of 20.2 Mℓ. To resolve the raw water storage insufficiency, a new lay dam must be constructed adjacent to lay dam 4. The new lay dam will ensure that sufficient volume of raw water is stored during the period of maintenance.

(ii) Additional Clear Water Storage

- Construct a new 3.0 Mℓ reservoir at Kirkwood Town (Kirkwood, Aqua Park, Bergsig) Reservoirs; and
- Construct a new 3.0 Mℓ reservoir at Moses Mabida (Bontrug, Msengeni) Reservoirs.

d) Deliverables

As a summary of the background presented above, the main deliverables of the Kirkwood Bulk Water Supply Scheme are as follows:

- Construction of a new raw water storage lay dam (Volume = 14 Mℓ); and supply & install associated infrastructure.
- Construct a new 3.0 Mℓ reservoir at Kirkwood Town (Kirkwood, Aqua Park, Bergsig) Reservoirs and associated pipework; and
- Construct a new 3.0 Mℓ reservoir at Bontrug (Moses Mabida, Msengeni) Reservoirs, fencing and associated pipework.

1.4. Temporary Works

The Contractor is responsible for the design, construction/erection, inspection, and maintenance of all Temporary Works.

No major Temporary Works is expected for the completion of the Works. Minor Temporary Works (scaffold and formwork) may be required.

1.5. Material Sources and Spoil Areas

- Backfill material will be obtained from designated excavations and stockpiled to the designated stockpiles.
- Bedding and padding material will be obtained from designated excavations and stockpiled.
- Excess material will be stockpiled to the designated stockpiles.
- All other material will be sourced from commercial sources. The Contractor shall submit samples from the sources indicated in his tender to an independent laboratory for testing to ensure compliance with the requirements of the specification.
- The Contractor will need to identify, in conjunction with the local authorities and to the approval of the Employer’s Agent, suitable spoil sites.

1.6. Local Labour

A portion of the Works, as identified in the Bill of Quantities in the column named LIC, is to be done via labour intensive methods using local labour. Labour reports must be submitted monthly indicating all local labour used on the project, including for Sub-contractors, in the EPWP format.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

2. PROGRAMME

2.1. General Programme

The duration of the Contract is as indicated in the Contract Data. The Contractor is to ensure that he prices accordingly in the Bill of Quantities.

The Contractor will be required to liaise with the local Ward Committee concerning the programming of the Works.

2.2. Submitted Programme

The Contractor's programme shall be in a bar chart form and shall be submitted within 14 days of the Commencement Date. In addition to the requirements of Clause 5.6.1 GCC 2015, the Contractor's programme shall show:

- a) The various activities, related to a time scale, for each element of the Works, including allowance for Nominated Subcontractors, in sufficient detail to be able to assess construction progress,
- b) Critical path activities and their dependencies,
- c) Key dates in respect of work to be carried out by others,
- d) Key dates in respect of information to be provided by the Employer's Agent and/or others,
- e) Management, Site staff and labour allocated to the project for various stages.

In addition to the requirements of Clause 5.6.2 GCC 2015, the Contractor shall submit with his programme, a copy of any network diagram used in producing the programme.

If any change to the critical path occurs, the Contractor shall as soon as practicable notify the Employer's Agent in writing.

The Contractor's programme and method statement will not be accepted as the basis for claims for additional compensation without due reference to all relevant associated factors.

2.3. General Allowances

When drawing up his programme, the Contractor shall, take into consideration and make allowance for, inter alia:

- a) Expected weather conditions and their effects;
- b) Known physical conditions or artificial obstructions;
- c) Searching for, dealing with and carrying out alterations to any existing services;
- d) The accommodation and safeguarding of access and traffic;
- e) The provision and implementation of the health and safety plan in terms of the Construction Regulations, 2014 of the Occupational Health and Safety Act;
- f) The restrictions on the length of trench open at any one time;
- g) The design, testing and approval of the concrete mixes; and
- h) Allowance for response time as per the GCC2015.

2.4. Review of Progress

The Contractor shall review his progress every month and should progress lag behind the latest accepted programme, by more than two weeks, he shall submit a revised programme and method statement of how he proposes to make up the lost time. If, in the opinion of the Employer's Agent, such revised programme will not make up the lost time, the Employer's Agent shall have the right to request the Contractor to reorganize his work in a manner which will ensure an acceptable programme. Claims for additional payment to meet any costs incurred due to such reorganisation will not be accepted.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

C3.2: General Specifications



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

C3.2 - GENERAL SPECIFICATIONS

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NOTE

Whenever reference is made to the Contractor, it also applies to the Subcontractor.

1 GENERAL

The Standardised Specifications listed below are applicable to the contract. It shall however be noted that reference is made in certain of the specifications to other standardised specifications which may or may not be included in the list below. Where such specifications are not included, they shall however be deemed to be included in the contract documents.

South African Bureau of Standards, Standardized Specifications for Civil Engineering Construction. SABS/SANS 1200 series, specifically:

- SABS/SANS 1200 A – General
- SABS/SANS 1200 AB – Employer’s Agent’s Office
- SABS/SANS 1200 C – Site Clearing
- SABS/SANS 1200 D – Earthworks
- SABS/SANS 1200 DB – Earthworks (Pipe trenches)
- SABS/SANS 1200 DM – Earthworks (Roads, Subgrade)
- SABS/SANS 1200 GA – Concrete (Small works)
- SABS/SANS 1200 L – Medium Pressure Pipelines
- SABS/SANS 1200 LB – Bedding (pipes)
- SABS/SANS 1200 LE – Stormwater Drainage

The Contractor shall have available for reference on site at all times a full set of the above specifications, together with any other to which they refer.

These specifications shall remain the property of the Contractor but shall be made available to the Employer’s Agent whenever required throughout the duration of the contract.

Project specific variations to these standardized specifications are included as Scope of Work. In the event of any discrepancy with a part or parts of the standard specifications, the bill of quantities or the drawings, the project specifications described in Scope of Work shall take precedence.

2 CHARACTERS OF STRATA AND MATERIALS ON SITE

The Contractor will be held to have satisfied himself as to the subsurface conditions to be encountered and to have allowed accordingly in his tendered rates.

3 ENGINEERING

3.1 Design Services and Activity Matrix

Design Item / Level of Design	Party Responsible for Design/Supply of drawings
Up to details design and working drawings of all elements not detailed below	Employer
All Temporary works	Contractor
Structural Steel Shop Details	Contractor
Record Drawings	Contractor

3.2 Drawings

3.2.1 General

The tender drawings that form part of the tender documents shall be used for tender purposes only. These drawings are bound at the back of this tender document. The drawings form an integral part of the tender and have to be included in the tender to be submitted.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

The Contractor will be supplied with three copies of each of the construction drawings. These drawings are issued free of charge and the Contractor shall make any additional prints he may require at his own cost. The true positions (coordinated), invert levels and ground levels of all services shall be indicated on the drawings, for which purpose the Contractor shall receive a separate complete set of drawings from the Employer's Agent, at no cost.

As the work progresses, the Contractor shall keep full records of all amendments to and deviations from the drawings as issued to the Contractor at the start of the contract. This information must be submitted monthly by the Contractor with his payment certificate, to the Employer's Agent.

The Completion Certificate shall only be issued after the Employer's Agent has received a properly completed set of "as-built" drawings from the Contractor. No separate payment shall be made for this service as all costs related thereto shall be deemed to be included in the related items.

The levels on drawings are subject to confirmation on site and the Contractor shall submit all levels to the Employer's Agent for conformation before he commences construction.

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Employer's Agent. The Employer's Agent will supply all figured dimensions omitted from the drawings.

3.2.2 Drawing to be Provided by the Contractor

All drawings that are to be provided by the Contractor will be provided on paper and in electronic format in DXF or AutoCAD format. Drawings are to be metric. All electronic drawings will be in 1:1 scale and spatially co-ordinated.

Any information in the possession of the Contractor, which is requested by the Employer's Agent's Representative for record purposes, must be submitted to the Employer's Agent's Representative before a completion certificate will be issued.

3.2.3 Drawing to be Provided by the Employer

The Contractor is to only keep in his possession the latest revision of construction drawings. When revisions are issued to the Contractor, **previous revisions shall be handed to the Employer's Agent.** This is the responsibility of the Contractor.

4 CONSTRUCTION

4.1 Material Compliance with SABS/SANS Requirements

Where materials to be used in the works are required to comply with a SABS/SANS specification, they will be accepted as complying with the SABS/SANS specification if one of the following is satisfied.

- The display of a SABS/SANS mark on the product with a copy of the SABS/SANS certificate that allows the manufacturer to use the mark, or
- All the criteria in the relevant SABS/SANS specification are measured and confirmed on site or in an approved laboratory.

The same will apply to materials specified to comply with ISO, BS, ASTM, or other international specifications.

4.2 Existing Service

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, buildings, properties, road structures, pipelines, places and things, in the vicinity of the Works and so not to interfere in any way with the smooth and continuous operation of the existing facilities.

The Contractor's attention is drawn to the fact that information regarding any existing services given on the plans or in the documents is given in good faith and without guarantee. Provision is made in the Schedule of Quantities for the location of existing services.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

4.3 Site Establishment**Services Provided by the Employer**

The Employer will not provide any services to the site during construction.

Facilities Provided by the Contractor

The Contractor is to provide the necessary offices, workshops, and services as required in SABS/SANS 1200A.

The Contractor shall make his own arrangements regarding the establishment of a campsite and housing for his construction personnel. The location and standard of the Contractor's camp, offices, accommodation, ablution, and other facilities shall comply with the requirements of the authorities and local communities concerned. No residential accommodation on site will be allowed. Details of the Contractor's proposals for these facilities shall be submitted to the Employer's Agent for approval prior to their erection. All regulations stipulated by the local authorities concerned must be adhered to.

4.4 Permits and Wayleaves

The Employer shall be responsible to obtain all the wayleaves required for this Contract.

4.5 Water for the Works

The Contractor will make his own arrangements with regard to obtaining water for construction, and the cost of dewatering unless otherwise itemised in the Schedule of Quantities shall be deemed to be included in the tender price.

Under no circumstance may water be abstracted from the existing reservoirs or pipeline on site.

4.6 Survey Control and Settings

A system of benchmarks has been established on site. The coordinates and locations are indicated on the drawings.

5 DETAILS OF PLANTS AND SUPERVISORY STAFF

Within the time stipulated in the Contract Data, the Contractor shall provide the Employer's Agent with:

- a) A list of plant to be used on the Contract together with the year of manufacture, power output, and registration number of such plant; and
- b) A list detailing the supervision to be used by the Contractor. The list shall provide the title of the supervisors (e.g. foreman, assistant foreman, etc.) and the number of person on Site with these titles.

The Employer's Agent reserves the right to request changes to the programme of Work, and to request variations in the plant and labour complements on Site. The Employer's Agent further has the prerogative to inspect the plant the Contractor proposes for ratification.

6 THE WORKING DAY

For the purpose of this contract, a "working day" is defined as being 9 hours in length (excluding any breaks for meals or machine servicing) on Monday to Friday, excluding public holidays. Work shall take place during daylight hours only.

7 SITE FACILITIES AVAILABLE**7.1 Water and Power Supply and Other Services**

The Contractor shall make his own arrangements for obtaining water, power and other services. The Contractor must also be able to provide water required for testing the pipelines at his own cost.

7.2 Camps and Depot

The Contractor may erect his site storage depot within the boundaries of the area indicated by the Employer's Agent only after consultation with the local community.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

No housing is available, and the Contractor shall make his own arrangements to house his employees and transport them to and from the Site. All arrangements for housing workmen shall be made in accordance with and subject to applicable regulations and requirements.

The Contractor will be permitted to locate structures which he may require anywhere on site provided permission is obtained through the PSC and from the relevant community. Temporary buildings and fencing are to be neat and presentable, and the surrounding areas must at all times be kept in a neat, clean and in an orderly condition.

The Contractor must not cut down or damage any trees nor make any excavations without the written permission of the Employer's Agent and will be required to restore the site to its original condition on completion of the Works.

All buildings and latrines shall be in accordance with the local authority and national health regulations and shall be kept in a clean, sanitary condition to satisfaction of the Employer's Agent.

7.3 Disposal Sites

The Contractor shall locate suitable sites, off site, for the disposal of cleared vegetation, rubble, unsuitable material, or surplus material. The Contractor shall inform the Employer's Agent of any site he proposes to use. Site are to be approved by the Employer.

8 SITE FACILITIES REQUIRED

8.1 Employer's Agent's Office

The Contractor shall provide, maintain and service, for the exclusive use of the Employer's Agent, facilities as specified in SANS 1200 AB and a suitably sized furnished building to have site meetings. The office and meeting room is to be airconditioned. A minimum of 2 x 220V plug points are to be provided.

The term "use of the Employer's Agent" will be deemed to include, as appropriate, for the exclusive use by the Employer's Agent's staff and the Employer's Agent's Representative and his staff.

The Contractor shall provide and maintain on Site for the use of the Employer's Agent's Representative and adequate supply of coffee, tea, sugar, gas, potable water, toilet soap, towels, toilet rolls and cleaning materials.

The site office shall be placed on level ground or safety levelled. Should no power be available, the Contractor shall make provision for sufficient power to operate items listed above on a daily basis.

All windows shall be fitted with blinds and mesh burglar proofing covering the total glassed area. The office must be able to be locked securely.

The Contractor shall insure the equipment against any loss, damage or theft and shall indemnify the Employer's Agent against any claims in this regard.

8.2 Laboratory Facilities

No testing laboratory is required on-site for use by the Employer's Agent.

8.3 Sanitary Facilities

All latrines shall conform to the requirement of the Local Authority. All sanitary fees and charges due under the Local Authority or State Health Regulations for bylaws shall be paid by the Contractor. Throughout the progress of the Contract, all latrines shall be maintained by the Contractor in a clean sanitary condition to the satisfaction of the Employer's Agent. Sanitary facilities shall be placed at least 100m away from natural water courses or as approved by the Employer's Agent.

The Contractor shall be responsible for disposal of refuse and waste generated by his staff on a daily basis at a site approved by the local authority and the Employer's Agent. The site is to be kept clean, neat, and tidy, to the Employer's Agent's satisfaction.

8.4 Nameboard

The Contractor will be required to erect two nameboards as per the specifications and details on the drawing attached to this document. The Contractor will be allowed to remove

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

the nameboard after a final completion certificate has been submitted by the Employer's Agent.

Payment would be made on the basis of 80% when the Nameboard has been erected to the Employer's Agent's satisfaction and the remaining 20% would be paid in the final certificate.

Two nameboards would be required for this Contract. The placement of the nameboards shall be as specified by the Employer's Agent on site. The nameboards must be erected within 2 weeks of site establishment.

9 ADDITIONAL REQUIREMENTS AND CONSTRAINTS

9.1 Health and Safety Requirements

As per Clause 5(1) (a) of the Construction Regulations (2014) a Health and Safety Specification is included in this Contract. The Contractor will take the requirements of this specification into account during the tendering and execution of the works.

Furthermore, any reference to the "Machinery and Occupational Safety Act" in any specification shall be replaced with reference to the "Occupational Health and Safety Act, 1993".

9.2 Environmental Management Requirements

The Contractor will be responsible for implementing and managing an Environmental Management Plan. Refer to Particular Specification, which defines the roles and responsibilities of various members of the Contractor's staff in terms on the Environmental Management Plan.

9.3 Traffic Accommodation

Interruptions to traffic on public roads will be kept to a minimum and where interruptions are unavoidable, they will be done with the full complement of warning signs as required by the Road Traffic Sign Manual.

10 LABOUR INTENSIVE WORK

Refer to Labour Intensive Construction Specification.

11 FEATURES REQUIRING SPECIAL ATTENTION

11.1 Blasting

In the event that blasting is necessary in the construction of the Works, the Contractor shall satisfy the Employer's Agent that his proposed blasting methods and controls are such that no damage will be caused to any adjoining structures, pipelines or services.

11.2 Length of Open Trenches

The rising main and reticulation pipelines either traverse open ground or run parallel to existing gravel roads. The Contractor must ensure that all open excavations are adequately protected to prevent persons and/or animals falling into holes and/or trenches.

Except with written permission of the Employer's Agent, the length of open trench along any section of pipeline, in advance of pipe laying operations, shall at no time exceed 400m.

Special precautions and provisions must be made to maintain accesses to any public meeting place, private residences, schools, or marketplace.

11.3 Liaison with Community and Property Owners

Refer to Labour and Community Specification.

11.4 Assistance with Training

The Contractor is expected to provide the skills training of the local labour as required to ensure the Works are constructed to the required quality and specifications. The Contractor is at liberty to determine the extent of the training required and the most appropriate training methods.

Should it be found that an individual or a group, assigned for specific tasks that will require training, does not have sufficient aptitude for the requirements of the work, the Contractor

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

must advise the Labour Officer that in his opinion training of the individual or group for the specific task will not be cost effective. The Labour Officer should attempt to recruit labour with the aptitude for the Work.

The Cost of construction skills training must be included in the tendered rates for the work and no separate payments will be made in this regard.

Also refer to the SMME, Labour and Training specifications.

12 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

$$V = (Nw - Nn) + \frac{(Rw - Rn)}{X}$$

Where:

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 in the relevant calendar month, as derived from existing rainfall records, as stated in the Project Data, on which a rainfall of Y mm or more has been recorded for the calendar month.

Rw = Actual average 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 as stated in the Project Data.

- a) Extension of time in respect of delays resulting from wet climatic conditions on the Site will only be considered in respect of abnormally wet climatic conditions and shall be determined for each calendar month or part thereof, in accordance with the formula given in the General Conditions of Contract as revised.
- b) The Contractor shall, at his own cost, provide and erect on the Site at a location approved by the Employer's Agent, an approved rain gauge, which shall be fenced off in a manner which will prevent any undue interference by workmen and others. The Contractor shall, at his own cost, arrange for the reading of the rain gauge on a daily basis for the duration of the Contract. The gauge readings, as well as the date and time at which the reading was taken shall be recorded in a separate record book provided by the Contractor for this purpose. All entries in the rainfall record books shall be signed by the person taking the reading and the gauge shall be properly emptied immediately after each reading has been taken. If required by the Employer's Agent, the Employer's Agent shall be entitled to witness the reading of the gauge.
- c) The extent of any extension of time which may be granted to the Contractor in respect of wet climatic conditions (whether normal or abnormal) shall be determined as the algebraic sum of the "V" values for each month between the Commencement Date and the Due Completion Date of the Contract, calculated in accordance with the General Conditions of Contract as revised; always provided that:
 - (i) rainfall occurring within the period of the Contractor's Christmas shut-down period (referred to in the Conditions of Contract) shall not be taken into account in the calculation of the monthly "V" values;
 - (ii) rainfall occurring during any period during which the Contractor was delayed due to reasons other than wet climatic conditions on the Site, and for which delay an extension of time is granted by the Employer's Agent, shall not be taken into account in the calculation of the monthly "V" values;
 - (iii) if the algebraic sum of the "V" values for each month is negative, the time for completion will not be reduced on account of subnormal rainfall; and
 - (iv) where rainfall is recorded only for part of a month, the "V" value shall be calculated for that part of the month using pro rata values for Nn and Rn.
- d) The Employer's Agent shall, simultaneous with granting any extension of time in terms of this clause, revise the Due Completion Date of the Contract to reflect an extension

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

of time having been granted in respect of wet climatic conditions, to the extent of the algebraic sum of all the "V" values for all the preceding months of the Contract, less the aggregate of the "Nn" values for the remaining (unexpired) months of the Contract (viz less aggregate of the potential maximum negative "V" values for the remaining Contract Period). This, provided that where such period is negative, the Due Completion Date shall not be revised.

Any extension of time in respect of wet climatic conditions granted in terms of this clause shall not be deemed to take into account delays experienced by the Contractor in repairing or reinstating as regards damage to or physical loss of the Works arising from the occurrence of abnormal climatic conditions. Extension of time in respect of any such repairs or reinstatement as regards damage shall be the subject of a separate application for extension of time in accordance with the provisions of Clause 5.12 and Clause 10 of the Conditions of Contract.

C3.3: Particular Specifications



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

Particular specifications

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NOTE

In certain clauses the general specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in Particular Specifications – Construction Works. It also contains some additional specifications required for this particular contract.

The number of each clause in this part of the project specifications consists of the prefix PS followed by a letter corresponding to the part of SABS/SANS 1200 being changed and a number corresponding to the number of the relevant clause in the general specifications.

The number of a new clause which does not form part of a clause in the standard specifications and which is included herein, is also prefixed by PS followed by a letter corresponding to the part of SABS/SANS 1200 being added, followed by a new number. The new numbers follow on the last clause number used in the relevant section of the standard specifications.

PSA	GENERAL
PSA 1	SCOPE
	REPLACE THE CONTENTS OF SUBCLAUSE 1.1, INCLUDING THE NOTES, WITH THE FOLLOWING: "1.1 This specification covers requirements, principles and responsibilities of a general nature which are generally applicable to civil engineering construction and building works contracts, as well as the requirements for the Contractor's establishment on the Site."
PSA 2	INTERPRETATIONS
PSA2.2	Applicable edition of standards ADD THE FOLLOWING AT THE BEGINNING OF SUBCLAUSE 2.2: "Unless a specific edition is specified (see the List of Applicable Specifications),"
PSA 2.3	Definitions IN THE OPENING PHRASE BETWEEN THE WORDS "specification" AND "the following", INSERT THE WORDS "the definitions given in the Conditions of Contract and". (a) <u>General</u> ADD THE FOLLOWING DEFINITIONS: " 'General Conditions' and 'Conditions of Contract': The General Conditions of Contract specified for use with this Contract, together with the Particular Conditions of Contract as applicable. 'Specified': As specified in the Standardized Specifications, the Drawings or the Project Specifications. 'Specifications' shall have the corresponding meaning." (c) <u>Measurement and payment</u> REPLACE THE DEFINITIONS FOR "Fixed charge", "Time-related charge" AND "Value-related charge" WITH THE FOLLOWING: " 'Fixed charge': A charge that is not subject to adjustment on account of variations in the value of the Contract Price or the time allowed in the Contract for the completion of the work. 'Time-related charge': A charge, the amount of which varies in accordance with the Time for Completion of the Works, adjusted in accordance with the provisions of the Contract. 'Value-related charge': A charge, the amount of which varies pro rata with the final value of the measured work executed and valued in accordance with the provisions of the Contract."

PSA 2.4 Abbreviations

(a) Abbreviations relating to standard documents

ADD THE FOLLOWING ABBREVIATION:

"CKS: SABS Co-ordinating Specification."

ADD THE FOLLOWING TO SUBCLAUSE 2.4(b):

"MAMDD: Modified AASHTO maximum dry density".

Except for references to "the (official) SABS mark", the term "SABS" shall mean "SANS".

PSA 2.8 Items in bill of quantity

PSA 2.8.1 Principle

In the fourth line of Subclause 2.8.1, after the word "specification", add: "or in the measurement and payment clause of the standard specification, particular specification or Specification Data".

PSA 3 MATERIALS

PSA 3.1 Quality

ADD THE FOLLOWING AT THE END OF SUBCLAUSE 3.1:

"All manufactured materials supplied shall be new materials unless the contrary is specified. All materials specified to be in accordance with SABS Specifications shall bear the SABS mark, where such a mark is available for the type of product.

Where proprietary materials are specified it is to indicate the quality or type of materials or articles required, and where the terms "or other approved" or "or approved equivalent" are used in connection with proprietary materials or articles, it is to be understood that the approval shall be at the sole discretion of the Employer's Agent."

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 3:

PSA 3.3 Ordering of materials

The quantities set out in the Bill of Quantities have been carefully determined from calculations based on data available at the time of its compilation, but are to be considered as approximate quantities only. Before ordering materials of any kind the Contractor shall be solely responsible for determining, from the drawings issued or approved by the Employer's Agent for construction purposes, the actual quantities of materials required for the execution of the Works. No liability or responsibility whatsoever shall be attached to the Employer or the Employer's Agent in respect of materials ordered by the Contractor except when ordered in accordance with the drawings issued or approved by the Employer's Agent for construction purposes."

PSA 4 PLANT

PSA 4.1 Silencing of plant

REPLACE THE CONTENTS OF SUBCLAUSE 4.1 WITH THE FOLLOWING:

"The Contractor's attention is drawn to the applicable regulations pertaining to noise and hearing conservation, framed under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) as amended.

The Contractor shall at all times and at his own cost, be responsible for implementing all necessary steps to ensure full compliance with such regulations, including but not restricted to the provision and use of suitable and effective silencing devices for pneumatic tools and other plant which would otherwise cause a noise level in excess of that specified in the said regulations.

Where appropriate, the Contractor shall further, by means of temporary barriers, effectively isolate the source of such noise in order to comply with the said regulations."

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSA 4.2 Contractor's offices, stores and services

ADD THE FOLLOWING PARAGRAPH BEFORE THE EXISTING FIRST PARAGRAPH IN SUBCLAUSE 4.2:

"The Contractor buildings, sheds and other facilities erected or utilised on the Site for the purposes of the Contract shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. as may be required by the Contractor. The facilities shall always be kept in a neat and orderly condition.

No personnel may reside on the Site. Only night-watchmen may be on the Site after hours."

ADD THE FOLLOWING IN THE SECOND PARAGRAPH OF SUBCLAUSE 4.2:

"The Contractor shall provide on the Site and in close proximity to the actual locations where the work is being executed, toilets for workmen as specified, which toilets shall be effectively screened from public view and their use enforced. Such toilets shall be relocated from time to time as the location of the work being executed changes, so as to ensure that easy access to the toilets is maintained.

The suitable sanitary services shall be of the bucket or chemical type and shall be readily accessible to workers at all areas of the site.

The Contractor shall make all the necessary arrangements with the relevant local authority for the disposal of the contents of the toilets on a regular basis.

The suitable first aid services required in terms of Subclause 4.2 of SANS 1200 A shall include, inter alia, a First Aid cabinet fully equipped and maintained with at least the minimum contents as listed in the Annexure (Regulation 3) to the General Safety Regulations of the Occupational Health and Safety Act, 1993 (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, 1993 (Act 85 of 1993).

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 4:

PSA 4.3 Restriction on the use of plant

Except for the type of plant, and to the extent permitted in terms of the Specification Data or approved by the Employer's Agent, the Contractor shall use only hand tools and equipment in the construction of the Works, or portion(s) of the Works, that are required in terms of the Specification Data to be constructed using labour intensive methods.

PSA 5 CONSTRUCTION

PSA 5.1 Survey

PSA 5.1.1 Setting out of the Works

ADD THE FOLLOWING PARAGRAPH:

"From the installed benchmarks shown on the Drawings, the Contractor must set out all the works with a Professional Land Surveyor.

The Contractor shall be required to check and verify, prior to commencement of any construction work, all benchmarks and boundary reference pegs, as shown and detailed on the Drawings. Reference and benchmark pegs disturbed and/or removed during the construction period shall be replaced by a Professional Land Surveyor and the Contractor shall bear the cost of such replacement. Payment to check and verify the reference and benchmark pegs will be made in terms of PSA 8.12"

The Contractor shall be required prior to commencement of any construction work to have all erf boundary pegs, as specified on the drawings, pegged by a registered Land Surveyor. Any erf peg disturbed and/or removed during the construction period shall be replaced by the Land Surveyor and the Contractor shall bear the cost of such replacement. The Land Surveyor shall verify all erf pegs upon completion of the works. The cost of placing the erf pegs if applicable shall be paid for under Section 1200 A: Bill of Quantities."

The Contractor shall be responsible for setting out of the pipeline routes, positions of reservoirs and other structures indicated by the Employer's Agent on the relevant drawings,

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

along the best available alignment and/or at the best position. The Ward Committee shall confirm that the position of any pipeline or structure is acceptable to the local residents and advise the Contractor accordingly before construction work commences.

The Contractor shall advise the Employer’s Agent of any conflict between the position of any part of the Works and an existing feature.

PSA 5.1.2 Preservation and replacement of survey beacons and pegs subject to the Land Survey Act

DELETE THE SECOND SENTENCE” Before the commencement....."TO"..... apparently in their correct positions” AND REPLACE WITH THE FOLLOWING:

"Immediately on taking over the site, the Contractor, in consultation and liaison with the Employer’s Agent, shall search for all pegs and the Contractor shall compile a list of pegs that are apparently in their correct position."

ADD THE FOLLOWING AFTER THE SECOND SENTENCE OF SUBCLAUSE 5.1.2:

"The Contractor and the Employer’s Agent shall record on the said list, their concurrence or disagreement (as the case may be) regarding the completeness and accuracy of the details recorded therein."

REPLACE THE THIRD SENTENCE OF SUBCLAUSE 5.1.2 WITH THE FOLLOWING:

“At completion of the Contract, the Contractor shall expose and mark all pegs that were listed at the commencement of the construction as being in order and the Contractor shall arrange with a registered Land Surveyor the replacement of pegs that have become disturbed or damaged. The Contractor shall, as a precedent to the issue of the Certificate of Completion, provide to the Employer’s Agent, a certificate from the Registered Land Surveyor, certifying that all the pegs listed at the commencement of construction in accordance with the provisions of this Clause, have been checked and that those found to have been disturbed, damaged or destroyed have been replaced in their correct positions, all in accordance with the provisions of the said Act.

The costs of replacement and certification as aforesaid shall be entirely for the Contractor’s account, provided always that the Contractor shall not be held liable for the cost of replacement of pegs which:

- (a) cannot reasonably be re-established in their original positions by reason of the finished dimensions of the Permanent Works;
- (b) the Contractor can prove beyond reasonable doubt and to the satisfaction of the Employer’s Agent, were disturbed, damaged or destroyed by others beyond its control; and
- (c) were in close proximity to the work and which would unavoidably be removed, subject to the Employer’s Agent’s approval being given to remove such pegs.”

PSA 5.1.3 Setting out of testing location

ADD NEW SUBCLAUSE 5.1.3 AS FOLLOWING:

“PSA 5.1.3 Setting out of testing locations. The Contractor shall have available on site survey equipment suitable to obtain y,x,z accuracy of 200mm to set out and record the location of each density test. GPS systems or traditional systems may be used.”

PSA 5.2 Watching, barricading and lighting and traffic crossings

ADD THE FOLLOWING TO SUBCLAUSE 5.2:

“The Contractor shall comply in all aspects with the requirements of the Occupational Health and Safety Act (Act 85 of 1993), refer also PSA 5.10.”

PSA 5.3 Protection of existing structures

REPLACE "Machinery and Occupational Safety Act, 1983 (Act No 6 of 1983)" WITH "Occupational Health and Safety Act, 1993 (Act No 85 of 1993), as amended," AND INSERT THE FOLLOWING AFTER "(Act No. 27 of 1956)": "as amended".

PSA 5.4 Protection of overhead and underground services

REPLACE THE HEADING AND THE CONTENTS OF SUBCLAUSE 5.4 WITH THE FOLLOWING:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSA 5.4 Location and protection of existing services**PSA 5.4.1 Location of existing services**

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

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

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

Wherever there is existing water reticulation the Contractor is to verify the position, sizes and type of pipes, or other infrastructure prior to commencing with construction in the area. The Contractor will be held responsible for maintaining access at all times. No trenches will be permitted within 2 m of telephone/electrical poles or stay.

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

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

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

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

- (a) known services, anywhere along the entire lengths of their routes, as may reasonably be deduced from the actual locations at which their positions were verified as aforesaid, due cognizance being taken of such deviations in line and level which may reasonably be anticipated, and
- (b) any other service which ought reasonably to have been a known service in accordance with the provisions of this clause, as well as for consequential damage, whether caused directly by the Contractor's operations or by the lack of proper protection; provided always that the Contractor will not be held liable in respect of damages occurring to services not being Known Services.

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

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

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

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

of work involved.

PSA 5.4.2 Protection during construction

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

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

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

PSA 5.4.3 Alterations and repairs to existing services

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

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

PSA 5.7 Safety

REPLACE THE CONTENTS OF SUBCLAUSE 5.7 WITH THE FOLLOWING:

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

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

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

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Where any such investigations reveal, or where it comes to the Employer’s Agent’s attention that the Contractor is in any way in breach of the requirements of the Act or is failing to comply with the provisions of this clause, the Employer’s Agent shall, in accordance with the provisions of Clause 39 of the Conditions of Contract, be entitled to suspend progress on the Works or any part thereof until such time as the Contractor has demonstrated to the satisfaction of the Employer’s Agent, that such breach has been rectified.

The Contractor shall have no grounds for a claim against the Employer for extension of time and/or additional costs if the progress on the Works or any part thereof is suspended by the Employer’s Agent in terms of this clause and the Contractor shall remain fully liable in respect of the payment of penalties for late completion in accordance with the provisions of Clause 43 of the Conditions of Contract should the Contractor fail to complete the Works on or before the specified Due Date for Completion in consequence of the suspension.

Persistent and repeated breach by the Contractor of the requirements of the Act and/or this Clause shall constitute grounds for the Employer’s Agent to act in terms of Clause 55.1.3 of the Conditions of Contract and for the Employer to cancel the Contract in accordance with the further provisions of the said Clause 55.”

ADD THE FOLLOWING TO CLAUSE 5:

PSA 5.9 Construction regulations, 2014

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2014 (the regulations) as promulgated in Government Gazette of 07 February 2014. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and potential hazards likely to be encountered on this Contract are detailed in the Project Specifications, Bill of Quantity and Drawings, as well as in the Employers' health and safety specifications (regulation 4(1)) of the Construction Regulations 2014, which will be issued separately by the Employer.

The Contractor shall in terms of regulation 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the abovementioned plan or regulations.

A payment item is included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned regulations.

PSA 5.10 Maintaining services in use

The Contractor shall take note that he shall not cut off any service in use without the prior approval of the Employer’s Agent.

Failure on the part of the Contractor to comply with any of the above provisions will constitute sufficient reason for the Employer’s Agent to stop the works until the situation has been remedied, or should he deem it necessary, arrange for the situation to be remedied at the Contractor's cost.

No direct payment will be made for the cost of maintaining services in use. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract."

PSA 5.11 Dealing with and accommodating traffic

The Contractor shall take note that the existing roads and tracks within the Sites shall remain operational throughout the contract period. To this end the Contractor shall provide and maintain all temporary fences, security, barriers, kerb ramps, signs, markings, flagmen, drums, lighting, personnel and all other incidentals necessary to ensure safe and easy passage of all traffic.

Temporary traffic signs etc. as well as all necessary markings shall be erected and maintained by the Contractor and the number and layout of the traffic signs shall comply with the Site Manual entitled “Safety at Roadworks in Urban Areas”, as published by the Department of Transport.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Traffic signs shall have a yellow background with either a red / black border.

No direct payment will be made for the cost of dealing with and accommodating traffic. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the contract. Further, the provision of PSA 5.2 shall apply.

PSA 5.12 Site meetings

The Contractor or its authorised agent will be required to attend regular site meetings, which shall normally be held once a month on dates and at times determined by the Employer's Agent, but in any case whenever reasonably required by the Employer's Agent. Unless otherwise indicated in the Contract or instructed by the Employer's Agent, such meetings shall be held at the Contractor's offices on the Site. At such monthly meetings, matters such as general progress on the Works, quality of work, problems, claims, payments, and safety etc, shall be discussed, but not matters concerning the day-to-day running of the Contract."

PSA 5.13 Providing access to erven and properties

Access to erven and properties along the route of trenches and roads shall be provided by the Contractor at all times. To this end suitable crossings shall be constructed where required.

Temporary crossings shall be in the form of portable bridges, temporary backfill or other approved means and shall be capable of permitting the safe passage of all vehicles and pedestrians. The Contractor shall also be responsible for maintaining crossings and for removing same when they are no longer required.

If as a result of restricted road reserve widths and the nature of the Works the construction of bypasses is not feasible, construction shall be carried out under traffic in order to provide access to the properties.

The Contractor may, with the approval of the Employer's Agent, arrange with the occupiers of the affected properties to temporarily close off a portion of a road, footpath entrance, property access road or other access, provided that the Contractor shall give due notice of the intended closure and its probable duration to the occupiers and shall as punctually as possible re-open the route at the prescribed time. Where possible roads shall be made safe and re-opened to traffic overnight. Any such closure shall be an arrangement between the Contractor and the occupiers and shall not absolve the Contractor from his obligations under the Contract to provide access at all times. Barricades, traffic signs and drums shall be provided by the Contractor to suit the specific conditions.

No direct payment will be made for the cost of providing access. Payment will be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract.

PSA 5.14 Accommodation of other contractors

The Contractor shall be required to accommodate other contractors on the Site of the Works during the Contract period. Adequate access to the site of their works shall be given the above stated contractors at all times.

No direct payment will be made for the cost of providing adequate access and accommodating the stated contractors on the Site of the Works, as well as the cost of any inconvenience or disruption experienced in attending to the aforementioned. Payment shall be deemed to be covered by the rates and sums tendered and paid for the various items of work included under the Contract."

PSA 5.15 SMME CONSTRUCTION MANAGER

The Contractor shall, in addition to the requirements of subclause 4.6 of the FIDIC Conditions of Contract for Construction 1999, guide, assist and mentor all eligible potential SMMEs intended for the Works. The Contractor shall employ on a full-time basis a construction manager on the Contract who will manage the SMMEs and report on progress with such Construction Manager must be adequately experienced with SMME work and the development thereof and will be subject to the approval of the Employer. The Construction Manager will render assistance to and mentor the SMMEs and such assistance, guidance and mentoring. The provision of an SMME Manager will deemed to be included in the time related Preliminary & General charges.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSA 6 TOLERANCES

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 6:

PSA 6.4 Use of tolerances

No guarantee is given that the full specified tolerances will be available independently of each other, and the Contractor is cautioned that the liberal or full use of any one or more of the tolerances may deprive him of the full or any use of tolerances relating to other aspects of the work.

Except where the contrary is specified, or when clearly not applicable, all quantities for measurement and payment shall be determined from the 'authorised' dimensions. These are specified dimensions or those shown on the Drawings or, if changed, as finally prescribed by the Employer's Agent, without any allowance for the specified tolerances. Except if otherwise specified, all measurements for determining quantities for payment will be based on the 'authorised' dimensions.

If the work is constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the calculation of quantities will be based on the 'authorised' dimensions, regardless of the actual dimensions to which the work has been constructed.

When the work is not constructed in accordance with the 'authorised' dimensions plus or minus the tolerances allowed, the Employer's Agent may nevertheless, at his sole discretion, accept the work for payment. In such cases no payment shall be made for quantities of work or material in excess of those calculated for the 'authorised' dimensions, and where the actual dimensions are less than the 'authorised' dimensions minus the tolerance allowed, quantities for payment shall be calculated based on the actual dimensions as constructed."

PSA 7 TESTING

PSA 7.1 Principles

PSA 7.1.2 Standard of Finished Work Not to Specification

INSERT THE WORDS "or checks by an approved laboratory ..." AFTER THE WORDS "Where the Employer's Agent's checks ..." IN THE FIRST LINE OF CLAUSE 7.1.2.

PSA 7.2 Approved laboratories

REPLACE THE CONTENT OF CLAUSE 7.2 WITH THE FOLLOWING:

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

- (a) any testing laboratory certified by the South African National Accreditation Systems (SANAS) in respect of the nature and type of testing to be undertaken for the purposes of the Contract;
- (b) any testing laboratory owned, managed or operated by the Employer or the Employer's Agent;
- (c) any testing laboratory established and operated on the Site by or on behalf of the Employer or the Employer's Agent; and
- (d) any testing laboratory designated by the Employer's Agent."

ADD THE FOLLOWING SUBCLAUSE TO CLAUSE 7:

PSA 7.5 Employer's Agent laboratory

The Employer's Agent's acceptance control testing will be carried out by an independent commercial laboratory either on or off Site as may be necessary. Such testing will not relieve the Contractor of his obligations to carry out his own quality control testing to ensure that the materials and workmanship are within specification.

PSA 7.6 Quality control testing by contractor

The Contractor shall carry out quality control tests on all portions of the Works as specified in the applicable specification, and shall make available all test results of quality control

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

testing to the Employer’s Agent as soon as they become available, prior to seeking approval of the works for commencement of the next stage of construction.

PSA 7.7 Making good work disturbed by testing

On completion of the testing, the Contractor shall make good, in an acceptable manner, work disturbed by testing, whether it be due to either his own quality control testing or acceptance control testing.

PSA 7.8 Acceptance control testing

Where control testing is ordered by the Employer’s Agent in addition to the required testing specified, the Contractor shall arrange for acceptance control testing to be carried out according to TMH1 by an approved commercial laboratory.

These results shall be made available to the Employer’s Agent by the Contractor, within five days from date of order for all tests, except for soaked CBR’s for which results shall be made available within twelve days from date of order. The Contractor shall make good the work disturbed by testing.

PSA 8 MEASUREMENT AND PAYMENT

PSA 8.1 Measurement

PSA 8.1.1 Method of measurement, all sections of the Schedule

DELETE THE WORDS "and South West Africa".

PSA 8.1.2 Preliminary and General Item or section

PSA 8.1.2.1 Contents

The “tools and equipment “referred to in item b) will be regarded to include the survey equipment required under PSA 5.1.3 and the nuclear density testing device required under PSD 7.5.

REPLACE THE LAST SENTENCE OF SUBCLAUSE 8.1.2.1(b) WITH THE FOLLOWING:

"Separate items will be scheduled to cover the fixed, value-related and time-related components of the Contractor’s preliminary and general costs."

REPLACE THE CONTENTS OF ITEM (c) WITH THE FOLLOWING:

"The 'duration of construction' applicable to a time-related item shall be the tendered contract period for the total works, plus as applicable, the Civil Engineering Industry Holiday (Dec / Jan) and all gazetted public holidays for the Civil Engineering Industry."

PSA 8.1.2.2 Tendered sums

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

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

- risks, costs and obligations in terms of the Conditions of Contract and of this standardized specification;
- head-office and site overheads and supervision;
- profit and financing costs;
- expenses of a general nature not specifically related to any item or items of the permanent or temporary work;
- providing such facilities on site as may be required by the Contractor for the proper performance of the Contract and for its personnel, including, but without limitation, providing offices, storage facilities, workshops, ablutions, services such as water, electricity, sewage and rubbish disposal, access roads and all other facilities required, as well as for the maintenance and removal on completion of the works of these facilities and cleaning-up of the site of the Contractor’s establishment and reinstatement to not less than its original condition; and
- providing the facilities for the Employer’s Agent and his staff as specified in the Contract

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

and their removal from the site on completion of the Contract. The facilities provided shall comply with the applicable requirements of SABS 1200 AB and PSAB and all cost deemed to be included under the tendered rates for PSA 8.3 and PSA 8.4, except where items in the Bill of Quantities are not provided for."

PSA 8.2 Payment

PSA 8.2.1 Fixed-charge and value-related items

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.1 WITH THE FOLLOWING:

PSA 8.2.1.1 Fixed-charge items

"Payment of fixed charges in respect of item 8.3.1 will be made as follows:

- (a) EIGHTY PER CENT (80%) of the sum tendered will be paid when the facilities have been provided and approved; and
- (b) The remaining TWENTY PER CENT (20%) will be paid when the works have been completed, the facilities have been removed and the site of the Contractor's establishment has been cleared and cleaned to the satisfaction of the Employer's Agent.

No adjustment will be made to the sum tendered in respect of item 8.3.1 should the value of the works finally executed or the time for completion vary in any way from that specified in the tender.

ADD TO SUBCLAUSE 8.2.1 THE FOLLOWING:

The fixed charged items will include all associated cost to deal with the compulsory sub-contracts, other than cost already included under item 8.3.

PSA 8.2.1.2 Value-related items

Payment for the sum tendered under item 8.3.2 will be made in three separate instalments as follows:

- (a) The first instalment, which is 40% of the sum, will be paid when the Contractor has fulfilled all his obligations to date under this specification, the General Conditions of Contract and the Special Conditions of Contract, and when the value of work certified for payment, excluding materials on site and payments for preliminary and general items, is equal to not less than 5% of the total value of the work listed in the Bill of Quantities.
- (b) The second instalment, which is 40% of the sum, will be made when the amount certified for payment, including retention moneys but excluding this second instalment, exceeds 50% of the tender sum.
- (c) The final payment, which is 20% of the sum, will be made when the works have been certified as completed and the Contractor has fulfilled all his obligations to date under this Specification, the General Conditions of Contract and the Special Conditions of Contract.

Should the value of the measured work finally completed be more or less than the tender sum, the sum tendered under item 8.3.2 will be adjusted up or down in accordance with the provisions of the Conditions of Contract, and this adjustment will be applied to the third instalment."

PSA 8.2.2 Time-related items

REPLACE THE CONTENTS OF SUBCLAUSE 8.2.2 WITH THE FOLLOWING:

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

Should the Employer's Agent grant an extension of time for the completion of the total works, the Contractor will be entitled to an increase in the sums tendered for time-related items, which increase shall be in the same proportion to the original tendered sums, as the extension of time is to the duration of construction as defined in PSA 8.1.2.1. The Contractor shall however note that the aforementioned will not apply to extensions of time granted in terms of

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSA 8.4.1.

Payment of such increased sums will be taken to be as full compensation for all additional preliminary and general costs, either time-related costs or fixed costs that result from the circumstances pertaining to the extension of time granted."

The payment to the Contractor for Time-Related Items shall be adjusted in accordance with the following formula in the event of the Contract being extended by means of a Variation Order:

$$\frac{\text{Sum of Tendered amounts for Time Related Items} \times \text{Extension of Time authorised by Variation Order}}{\text{Tender Contract period}}$$

The abovementioned adjustment of the payment for Time-Related Items shall be made in the completion Payment Certificate and shall be the only payment for additional Time-Related costs irrespective of the actual period required to complete the Contract including its authorised extensions.

In the case of fixed price contracts, the amount by which the Time-Related Items is adjusted shall not be subject to the Contract Price Adjustment formula.

In the case of contracts subject to Contract Price Adjustment the amount by which the time-related items are adjusted shall be subject to the Contract Price Adjustment formula.

PSA 8.3 Scheduled fixed-charge and value-related items

PSA 8.3.1 & Contractual requirements

8.4.3.1

ADD THE FOLLOWING:

"The sum tendered shall cover all initial costs incurred in complying with the requirements of the Conditions of Contract and include for the cost of providing and maintaining the special risks insurance stipulated in the Conditions of Contract, if applicable."

PSA 8.3.2.1 Facilities for Employer's Agent

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

- "(a) One furnished offices.....Unit: Sum
- (b) One nameboard.....Unit: Sum
- (c) 2-way radio, charger and adaptor that operate on license frequency Unit: No

The facilities provided shall comply with the applicable requirements of SABS 1200 AB and PSAB."

PSA 8.3.2.2 Facilities for Contractor

All items included in the Contractor facility will be measured and priced according to subclause 8.3.2.2.

ADD THE FOLLOWING TO SUBCLAUSE 8.3.2.2:

- (k) Professional Land Surveyor

PSA 8.4 SCHEDULED TIME-CHARGE RELATED ITEMS

PSA 8.4.1 Contractual requirements.....Unit: Sum

ADD THE FOLLOWING:

"The sum shall further cover all the time-related establishment costs and be the full compensation to the Contractor for:

- (i) The maintenance of his whole organisation as established for this Contract.
- (ii) The maintenance of all insurances, indemnities and guarantees required in terms of the Conditions of Contract, where applicable.
- (iii) Compliance with all general conditions and requirements which are not specifically measured elsewhere for payment in these Contract Documents.

Payment shall be made monthly in compliance with the method laid down in PSA 8.2.2.

The Contractor will not be paid Time-Related Preliminary and General Charges for any

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

special Non-Working Days, as stipulated in the Conditions of Contract, which shall be deemed to have been allowed for in his rates.

The sum shall also include, where applicable, for the cost of providing and maintaining the special risks insurance stipulated in the Conditions of Contract.”

PSA 8.4.2.1 Facilities for Employer’s Agent

REPLACE THE CONTENTS OF THIS CLAUSE WITH THE FOLLOWING:

- “(a) One furnished officeUnit: Sum
- (b) One Contract NameboardUnit: Sum
- (c) Survey labourers.....Unit: Labourer Month

The facilities provided shall comply with the applicable requirements of SABS 1200 AB and PSAB.

Payment for the provision of survey labourers will be made pro-rata the period the labourers are provided.”

PSA 8.4.2.2 Facilities for Contractor

All items included in the Contractor facility will be measured and priced according to subclause 8.3.2.2.

ADD THE FOLLOWING TO SUBCLAUSE 8.3.2.2:

- (k) Professional Land Surveyor.....Unit: Sum

PSA 8.4.2.3 REPLACE THE WORDS "periods stated" IN THE SECOND LINE OF THIS CLAUSE WITH THE FOLLOWING:

"duration of construction as defined in PSA 8.1.2.1".

PSA 8.5.2 Contingencies

A percentage is provided in the summary of the Schedule of Quantities to cover contingent and additional expenditure on the Works. The expenditure of the contingencies amount, in whole or in part, or not at all, shall be entirely at the discretion of the Employer’s Agent.

The provision of this amount shall not in any way imply that the Contractor’s tender does not include for the provision of all resources and the fulfilment of all obligations necessary to complete the Works as specified, without payment of the amount so provided.

The Employer’s Agent shall, if he deems necessary, reduce the scope of work to ensure that expenditure on the Works remains within the limit of the project’s budget.

PSA 8.7 Daywork

ADD THE FOLLOWING:

Provisional items for Daywork are scheduled as follows:

- a) Labour at hourly rates for skilled, semi-skilled and unskilled labourers.
- b) Material as a Provisional Sum with a percentage allowance on the net cost.
- c) The Contractor's own plant at hourly rates for various types.
Tendered unit rates or unit rates that are agreed in terms of the GCC (2010) for the Contractor's own plant used for Daywork shall cover the full cost of the use of such plant and shall therefore include the cost of plant operators, consumable stores, fuel and maintenance.
- d) Hired plant as a Provisional Sum with a percentage allowance on the net cost.
The Contractor will be paid the actual net cost of plant hired by him for Daywork and in addition will be paid a percentage allowance on the net cost of such hire, which allowance will cover the Contractor’s own overhead costs and profit.

"To ensure that the plant is achieving a reasonable output of work, the Employer’s Agent's personnel will randomly monitor and measure work produced. Poor performance of any item of plant will be noted by the Employer’s Agent and certain reductions in payment may be applied.

Furthermore, should the performance of a machine be poor, or persistently break down, the Employer’s Agent may order that it be replaced, all at the cost of the Contractor.”

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSA 8.8 Temporary works

PSA 8.8.2 Dealing with Traffic

DELETE THE ENTIRE CLAUSE AND REPLACE WITH:

“The provision of PSA 5.10 shall apply. Refer also PSA 5.2, PSA 5.3, PSA 5.7 and PSA 5.10”

PSA 8.8.4 Dealing with existing services

ADD THE FOLLOWING TO CLAUSE 8.8.4 WITH:

Careful excavation carried out by the Contractor on the instruction of the Employer’s Agent to locate and expose existing services of which the exact location is not known, or where the existing service is found to be further than 2.0 m from the position indicated, will be measured by volume. The rate shall cover all costs of materials, labour and plant, including specialist detecting equipment required to locate and expose the service.

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 8.8:

PSA 8.8.7 Dealing with water

The cost involved in the control of surface water, precautions against flooding and the drainage and removal of ground water in the trenches or the protection of the road prism for the proper execution of the Works will be covered by the amount tendered for the related items (e.g. trenching, sub-base, etc.). The sum shall cover all costs with regard to the preventive measures that must be taken with regard to water and the repair of damaged portions of the Works.

PSA 8.8.8 Freehaul and overhaul

Notwithstanding any clauses in any Standardized Specification or Standard Specification Section dealing with the definition, measurement and/or payment for transport, the freehaul and overhaul is classified into two categories, namely for unsuitable material and then for backfill/bedding materials, as shown in the table below.

Material Description	Freehaul Distance	Overhaul
Unsuitable/surplus/spoil material	5 km	Distances > 5 km
Imported Backfill/bedding material	5 km	Distances > 5 km

Imported material is to be transported directly to the work area/trench where possible or to the designated stockpile areas along the pipeline; whichever distance is the shorter. Imported Backfill/bedding material required from stockpile within 5km freehaul distance will be measured and paid for in accordance with subclause 8.3.4 a) of SANS 1200 D. Imported material required outside the freehaul distance of 5km will be regarded as overhaul and will be measured and paid for in accordance with subclause 8.3.6 b) of SANS 1200 D.

Material to be spoiled outside the freehaul distance of 5km will be measured and paid for in accordance with subclause 8.3.6 b) of SANS 1200 D.”

PSAB EMPLOYER’S AGENT’S OFFICE

PSAB 3 MATERIALS

PSAB 3.2 Office building(s)

REPLACE THE WORDS "as scheduled" IN PARENTHESIS IN THE FIRST LINE OF SUBCLAUSE 3.2 OF SABS 1200 AB WITH "as specified in the General specification";

REPLACE THE SECOND SENTENCE WITH THE FOLLOWING:

Two offices will be required.

One of 12m2 for the exclusive use by the Employer’s Agent and the Employer’s Agents Representative and one of 4 x 8m for a meeting/training room that can be used by both parties, and ceiling height of at least 2.5m. The meeting room will be equipped with a table and chairs suitable for 12 persons to be seated.

AND REPLACE SUBCLAUSE 3.2(j) OF SABS 1200 AB WITH THE FOLLOWING:

"(j) an air-conditioning unit capable of both heating in winter and cooling in summer;

ADD THE FOLLOWING TO CLAUSE 3.2:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- (k) steel plan cabinet;
- (l) a whiteboard, size 2,0 m² securely fitted to the wall;
- (m) a raingauge (one only);
- (n) a minimum / maximum thermometer (one only);
- (o) 100 litre fridge (one only); and
- (p) The Contractor shall provide 2-way radios plus chargers and adaptors that operate on license frequency.
- (q) The Contractor shall construct the number of carports specified in the General specification for the sole use of the Employer's Agent and his staff. Each carport shall be constructed so that the vehicle parked under it is always protected against the direct rays of the sun. The carport area shall be at least 20 m² and the floor shall be covered with a layer of crushed stone to alleviate dusty and muddy conditions. The carport(s) shall be positioned so as to provide easy and convenient access to the Employer's Agent's office."

ADD THE FOLLOWING SUBCLAUSES TO CLAUSE 4:

PSAB 4.2 Survey equipment

The Contractor shall provide on-site and make available for the exclusive use of the Employer's Agent and his staff, the survey equipment listed in General specification.

All survey equipment provided by the Contractor shall be in good condition, properly calibrated and fit for the purpose.

In addition to survey equipment provided by the Contractor for the exclusive use of the Employer's Agent and his staff, the Contractor shall make available for use by the Employer's Agent, the further survey equipment listed in the General specification, at all times when such is reasonably required by the Employer's Agent and his staff for the purposes of the Contract.

PSAB 5 CONSTRUCTION

PSAB 5.1 Nameboards

REPLACE THE CONTENT OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The Employer's Agent's nameboards shall be erected within fourteen days of the Commencement Date and shall be placed where ordered. Any damage to this board shall be repaired within seven days of a written instruction issued by the Employer's Agent.

Further to the above, the Contractor will not be allowed to erect more than two of his own name boards in the area of the Works. The position of these shall be agreed to by the Employer's Agent.

No payment will be made for the supply, erection or maintenance of the Contractor's name boards and the Employer's Agent reserves the right to order the removal of the nameboards if not properly maintained. All nameboards shall be removed within 7 days of the issue of the Final Approval Certificate."

PSAB 5.5 Survey assistants

A survey assistant will be required from time to time to assist the Employer's Agent's Representative.

ADD THE FOLLOWING NEW SUBCLAUSES TO CLAUSE 5 OF SABS 1200 AB:

PSAB 5.6 Survey equipment

All survey equipment provided by the Contractor shall be kept fully serviceable at all times by the Contractor. The Contractor shall have any defective equipment repaired or replaced at his own cost within 12 hours after notification by the Employer's Agent's staff.

Where required by the Employer's Agent, the Contractor shall, at his own cost, promptly arrange for the recalibration of survey equipment provided."

PSAB 8 MEASUREMENT AND PAYMENT

DELETE THE CONTENTS OF THIS CLAUSE AND REPLACE WITH:

"The appropriate measurement and payment clauses have been included under Clause 8 of SABS 1200 A and PSA."

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSC SITE CLEARANCE**PSC 3 MATERIALS****PSC 3.1 Disposal of material**

ADD THE FOLLOWING:

"Material obtained from clearing and grubbing, including builder's rubble, and other unwanted debris, shall be disposed of.

The Contractor shall obtain his own dumping sites for the disposal of material and all transport costs shall be included in the rates tendered for site clearance."

PSC 5 CONSTRUCTION**PSC 5.1 Areas to be cleared and grubbed**

ADD THE FOLLOWING:

"Pipeline routes shall be cleared to a distance of 2,5 m on both sides of the pipeline centre line. Route pegs or markers shall not be destroyed or damaged during clearing operations."

Except for the above, only the approved minimum area required for the execution of the Works including areas on which material shall be stockpiled for later reuse or on which material shall be dumped and spread, shall be cleared and grubbed. This area is to be confirmed by the Employer's Agent prior to Construction.

PSC 5.5 Reclearing of vegetation

ADD THE FOLLOWING:

"Except if otherwise agreed, where areas have to be recleared on the written instruction of the Employer's Agent, such reclearing shall be carried out at the Contractor's own cost and the Contractor is advised therefore, not to clear areas at such an early stage that reclearing may become necessary."

PSC 5.6 Conservation of topsoil

REPLACE THE CONTENTS OF SUBCLAUSE 5.6 OF SABS 1200 C WITH THE FOLLOWING:

Topsoil up to a depth of 150 mm, if available, shall be removed from the above specified cleared areas and stockpiled on approved sites for later reuse. Until required for spreading, the stockpiles of topsoil material shall be stabilized by watering or other approved means.

PSC 8 MEASUREMENT AND PAYMENT**PSC 8.1 Basic principles**

Add the following:

"Levels to be used for earthworks quantity calculations will be surveyed once the clearing operation has been completed."

"Site clearance for pipe trenches will not be measured where such trenches lie within the carriageway of any road. "

PSC 8.2 Payment**PSC 8.2.1 Clear and grub**

REPLACE THE FIRST LINE WITH THE FOLLOWING:

"The area designated by the Employer's Agent to be cleared and grubbed will be measured in square metre to the nearest square metre or, "

DELETE "(except where 8.2.9 is applicable)" IN THE SEVENTH LINE OF THIS CLAUSE,

ADD THE FOLLOWING:

"The tendered rate shall also cover the cost of loading, transporting and disposing of vegetation, builder's rubble, and other unwanted debris encountered in road reserves or along service routes at the designated spoil site described in the General specification.

DELETE THIS SUBCLAUSE:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSC 8.2.9 Transport material and debris to unspecified sites and dump

Notwithstanding the fact that a disposal site will not be designated by the Employer’s Agent, the transportation of material and debris generated by any clearing operation will not be measured for payment.”

REPLACE THE FOLLOWING SUBCLAUSE:

PSC 8.2.10 Remove topsoil to nominal depth of 150mm, stockpile and maintain..... Unit: m2

The rate shall cover the cost of removing topsoil, together with such vegetation and small roots as occur the specified depth, and of stockpiling and maintaining on designated sites.

ADD THE FOLLOWING:

PSC 8.2.11 Final finishing and cleaning up of siteUnit: Sum

The tendered sum shall include full compensation for the clearing, disposal of material, finishing, tidying and all other work required to finish and clean up the Site of the works and affected areas by removing excess earth, stones, boulders, debris and other waste material, by clearing stormwater inlets and outlets and pipe barrels, by clearing the surfacing of all dirt, mud and foreign material, and by neatly finishing off all junctions, intersections and kerbing.

All material resulting from the finishing operations shall be disposed of to a spoil site furnished by the Contractor.

The tendered rate shall make provision for the reinstatement of existing driveways to their original condition where these have been affected by the works, as these items will not be measured and paid for separately.”

PSD EARTHWORKS

PSD 2 INTERPRETATIONS

PSD 2.1 Supporting specifications

REPLACE SUBCLAUSE 2.1.2 WITH THE FOLLOWING:

PSD 2.1.2 Any of the other SABS 1200 Specifications may form part of the Contract Documents.”

PSD 2.3 Definitions

REPLACE THE WORD AND THE DEFINITION FOR "Borrow" WITH THE FOLLOWING:

"Borrow material: Material, other than material obtained from excavations required for the Works, obtained from sources such as borrow pits or the authorised widening of excavations. 'Borrow' shall have a corresponding meaning."

REPLACE THE DEFINITION FOR "Specified density" WITH THE FOLLOWING:

"Specified density: The specified dry density expressed as a percentage of modified AASHTO or PROCTOR dry density."

REPLACE THE DEFINITION FOR "Stockpile" WITH THE FOLLOWING:

"Stockpile (verb): The process of selecting and, when necessary, loading, transporting and off-loading material in a designated area for later use for a specific purpose."

ADD THE FOLLOWING DEFINITIONS:

"Commercial Source: A source of material provided by the Contractor, not the Employer, and including any borrow pit, provided by the Contractor.

Fill: An embankment or terrace constructed of material obtained from excavations or borrow pits. In roads it includes the earthworks up to the underside of the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace.

Roadbed: The natural in situ material on which the fill, or in the absence of fill, the pavement layers, are constructed."

PSD 3 MATERIALS

PSD 3.1 Classification for excavation purposes

PSD 3.1.1 Method of Classifying

ADD THE FOLLOWING:

"The classification of material other than 'soft excavation' shall be agreed upon before excavation may commence.

The Contractor shall immediately inform the Employer's Agent if and when the nature of the material being excavated changes to such an extent that a new classification is warranted for further excavation. Failure on the part of the Contractor to advise the Employer's Agent in good time shall entitle the Employer's Agent to reclassify, at his discretion, such excavated material.

PSD 3.2.3 Material suitable for backfill or fill against structures

REPLACE THE CONTENTS OF THIS SUBSUBCLAUSE WITH THE FOLLOWING:

"Material used for backfill behind structures shall generally be the material excavated, subject to the following conditions:

- (a) The material shall not contain an excessive number of stones retained on a 50 mm sieve;
- (b) The material shall not contain large clay lumps that do not break up under the action of the compaction equipment;
- (c) The liquid limit of the material shall not exceed 40, neither shall the PI exceed 18;
- (d) The minimum modified AASHTO density shall be 93%."

PSD 3.3 Selection

PSD 3.3.1 General

Replace the second paragraph with the following:

"The Contractor shall deal selectively with materials from all excavations to ensure that no acceptable backfill or bedding material is contaminated by material unfit for use. No additional payment shall be made in this regard and all costs related to the above selection process shall be included in the applicable payment items. Should useful material be contaminated to such an extent that it is regarded as unfit for use the Contractor shall at his own cost dispose of this material and replace it with material of an equivalent standard to the acceptable in situ material."

ADD THE FOLLOWING SUBSUBCLAUSE:

PSD 3.3.3 Selection in borrow pits and excavations

Approval of a borrow area for a certain purpose does not necessarily mean that all the material in that area is suitable for the specified purpose. What it does mean is that the borrow area contains some suitable material. The onus shall rest on the Contractor to ensure that only material that is indeed suitable is removed and used for the specified purpose.

When the Contractor has to select excavated material for a specific purpose, the above provisions relating to borrow areas shall apply mutatis mutandis to excavations.

The Contractor shall not waste or contaminate material that has been selected for a specific purpose."

PSD 4 PLANT

PSD 4.2 Compaction plant

ADD THE FOLLOWING TO SUBSUBCLAUSE 4.2:

Where it is required that the work be carried out using labour intensive methods, the Contractor shall not use compaction plant larger than a walk-behind compactor.

PSD 4.4 Detectors

REPLACE THE CONTENTS OF SUBCLAUSE 4.4 WITH THE FOLLOWING:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

“The Contractor shall, for the purposes of detecting and locating underground services in accordance with the provisions of Subclause 5.4 of SABS 1200 A and Subsubclause 5.1.2 of SABS 1200 D, at its own cost, provide and use detecting equipment which is suitable for the detection of underground cables and pipes.”

PSD 5 CONSTRUCTION

PSD 5.1 Precautions

PSD 5.1.1 Safety

PSD 5.1.1.1 Barricading and lighting

REPLACE “Machinery and Occupational Safety Act, 1983 (Act 6 of 1983)” WITH “Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulations 2014”.

PSD 5.1.1.2 Safeguarding of excavations

REPLACE “Machinery and Occupational Safety Act” WITH “Occupational Health and Safety Act, 1993 (Act 85 of 1993) and Construction Regulations 2014.”

PSD 5.1.1.3 Explosives

REPLACE THE CONTENTS OF THIS SUBSUBCLAUSE WITH THE FOLLOWING:

"The Contractor will generally be permitted to use explosives for breaking up hard material during excavations, for demolishing existing structures, and for other purposes where explosives are normally required, subject to the following conditions:

- (a) The Employer’s Agent may prohibit the use of explosives in cases where, in his opinion, the risk of injury to persons or damage to property or to adjoining structures is too high. Such action by the Employer’s Agent does not entitle the Contractor to additional payment for having to resort to less economical methods of construction.
- (b) The Employer’s Agent’s prior written approval shall be obtained for each and every blasting operation. This approval may be withheld if the Contractor does not use explosives responsibly and carefully.
- (c) The Contractor shall comply fully with the requirements of the Explosives Act, Act 83 of 1997 and all other legislation and regulations as may be applicable to blasting and the use of explosives.
- (d) Before blasting is undertaken, the Contractor shall satisfy the Employer’s Agent that he has established whether or not the insurers concerned require pre- and post-blasting inspections of buildings and structures within a certain radius of the proposed blasting.

Should such inspections be required, the Contractor shall, together with the Employer’s Agent and the insurer, examine and measure the buildings, houses or structures in the vicinity of the proposed blasting site and establish and record, together with the owner, lessee or occupier, the extent of any existing cracking or damage before the commencement of blasting operations. During the inspection, pictures or video must be taken.

- (e) When there is a possibility of damage to power and telephone lines or any other services or property, the Contractor shall adapt his method of blasting and the size of the charges and shall use adequate protective measures (e.g. cover-blasting, to reduce the risk of damage.
- (f) All accidents, injury to persons and animals and damage to property shall be reported to the Employer’s Agent in detail and in writing as soon as is practicable.
- (g) The Employer’s Agent shall be given 24 hours' notice by the Contractor before each blasting operation is carried out.
- (h) When blasting to specified profiles, the Contractor shall so arrange the holes and charges that the resulting exposed surfaces are as sound as the nature of the material permits. The Contractor shall make good, at its own expense, any additional excavation necessitated by the shattering of rock in excess of any overbreak allowances specified in the Project Specifications or given on any drawing.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Notwithstanding the Contractor's compliance with the above provisions, the Contractor shall remain liable for any injury to persons and animals and loss of or damage to property occurring as a result of blasting operations."

PSD 5.1.2 Existing services

PSD 5.1.2.2 Detection, location and exposure

REPLACE THE CONTENTS OF SUBSUBCLAUSE 5.1.2.2 WITH THE FOLLOWING:

"The exposure by the Contractor of underground services, as required in terms of Subclause 5.4 of SABS 1200 A (as amended) shall be carried out by careful hand excavation at such positions and consist of digging a 1000 x 600 x 1500mm hole where specified by the Employer's Agent.

Unless otherwise instructed or agreed by the Employer's Agent, no service shall be left exposed after its exact position has been determined and all excavations carried out for the purposes of exposing underground services shall be promptly backfilled and compacted to the following densities:

- (a) In roadways : 93% Mod AASHTO density; and
- (b) In all other areas : 90% Mod AASHTO density.

Where hand excavations to expose underground services have to be carried out in roadways, the Contractor shall reinstate the road layer works in accordance with the provisions of Subclause 5.9 of SABS 1200DB.

Payment in respect of the reinstatement of layer works in roadways will be made in accordance with Subclause 8.3.6.1 of SABS 1200DB (as amended).

Where a service is damaged because of the Contractor ' s negligence, the penalty payable by the Contractor shall be as specified in the project specification and he shall make good such damage or bear the cost of the repairs, as specified.

PSD 5.1.2.3 Protection of cables

REPLACE SUBSUBCLAUSE 5.1.2.3 WITH THE FOLLOWING:

PSD5.1.2.3 Protection during construction

Further to the requirements of Subclause 5.4.2 of SABS 1200A (as amended), major excavating equipment and other Plant shall not be operated dangerously close to Known Services. Where necessary, excavation in close proximity to Known Services shall be carefully carried out with suitable hand tools, excluding picks wherever their use could damage the services. No additional payment will apply to such more difficult work.

Should any service not being a Known Service be discovered or encountered during the course of the Contract, the Contractor shall, in addition to complying with the requirements of Subclause 5.4.2 of SABS 1200A (as amended), immediately notify the Employer's Agent thereof and implement such measures as will prevent damage of such service or, if it was damaged in the course of discovery, will prevent and minimise the occurrence of any further damage occurring.

PSD 5.1.3 Stormwater and groundwater

ADD THE FOLLOWING:

"The Contractor shall, where applicable and at the earliest practicable opportunity, install the permanent drainage specified or shown on the Drawings and shall at his own cost provide the temporary drainage required to protect the Works."

PSD 5.1.6 Road traffic control

DELETE THE SECOND SENTENCE OF SUBSUBCLAUSE 5.1.6.

PSD 5.2 Methods and procedures

PSD 5.2.1 Site preparation

PSD 5.2.1.2 Conservation of topsoil

ADD THE FOLLOWING TO SUBCLAUSE 5.2.1.2:

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

“Topsoil shall not be stockpiled higher than 2,0m. Care shall be exercised to prevent the compaction of topsoil in any way especially by vehicles travelling over such material.”

PSD 5.2.2 Excavation

PSD 5.2.2.1 Excavation for general earthworks and for structures

ADD THE FOLLOWING TO PARAGRAPH (b):

"When the nature of the material precludes the above procedure, additional excavations shall be carried out to provide working space for the erection of formwork. In general, payment will be made for excavating a working width of 600 mm, but the Contractor may excavate a greater working width at no additional cost to the Employer."

REPLACE THE FIRST SENTENCE OF PARAGRAPH (e) WITH THE FOLLOWING:

"Where excavations have been carried below the authorised levels, the Contractor shall backfill such excavations to the correct level with approved gravel compacted to 90% of modified AASHTO density or to the density of the surrounding material, whichever is the higher density.

Where excavations for structures have been carried out in hard material, the Employer's Agent may direct that over-excavation be backfilled with weak concrete if there is a danger of settlement or differential settlement of the foundations.

Where the sides of excavations against which concrete is to be cast have been over-excavated or have collapsed partially, the Contractor shall retrim the excavations if necessary and, unless other remedial measures are agreed to by the Employer's Agent, shall cast the concrete for the structure, including the additional concrete that may be required as a result of the over-excavation or partial collapse. The cost of the additional concrete or remedial measures shall be for the Contractor's account."

Where concrete is to be cast against an excavated face, no protrusion of the excavated face will project more than 100 mm past the designated line of the excavation or be so close to the designated position of any reinforcing as to cause less than the specified concrete cover to the reinforcing to occur.

PSD 5.2.2.3 Disposal

REPLACE SUBCLAUSE 5.2.2.3 WITH THE FOLLOWING:

All surplus material will be disposed of on the stockpiles designated for the type of material.

All surplus material and all unsuitable material from excavations and clearing and grubbing operations shall be removed from the Site by the Contractor and disposed of at the site identified by the Contractor and agreed to by the Employer's Agent.

Dumping shall proceed in an orderly manner with coarse material placed at the bottom and covered with finer material, where possible. Upon completion of dumping the material shall be shaped to provide free-draining surfaces and slopes and finished off to the satisfaction of the Employer's Agent.

ADD THE FOLLOWING SUBSUBCLAUSE IN SUBSUBCLAUSE 5.2.2:

PSD 5.2.2.4 Selection and stockpiling

Approval or designation of the material in a particular borrow pit or excavation for a particular purpose does not imply that all the material in the borrow pit or excavation is suitable for the particular purpose for which the said approval or designation relates, nor that all material in the borrow pit or source should be used for the particular purpose. The Contractor shall select suitable material from that borrow pit or source, discard unsuitable material and reserve material for other purposes as necessary.

The Contractor shall organise and carry out its operations in such a manner as will prevent the contamination of suitable embankment and backfill material with unsuitable materials. Any excavated material which becomes, in the Employer's Agent's opinion, unsuitable for use in embankments or backfill as a result of contamination, shall be disposed of in a manner acceptable to the Employer's Agent and shall be replaced by the Contractor with materials acceptable to the Employer's Agent, all at the Contractor's cost.

When required, or when ordered by the Employer's Agent, material shall be stockpiled for

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

later use. The additional costs of stockpiling material shall be paid to the Contractor in accordance with the provisions of Subclause PSD 8.3.12.”

PSD 5.2.3 Placing and compaction

PSD 5.2.3.1 Embankments

Omit "98% in the case of non-cohesive soil" and substitute "100% in the case of non-cohesive soil."

ADD THE FOLLOWING SUB CLAUSE:

PSD 5.2.3.3 The material of each area of fill shall, unless otherwise approved, be deposited in layers of thickness, before compaction, not exceeding 150 mm. The material shall be spread to form a layer that is approximately uniform thickness, and graded over the whole area of the fill site.

Each layer shall be compacted at OMC to a density of at least 93% of modified AASHTO density in the case of cohesive soil or 100% in the case of non-cohesive soil. Should the material be too wet, owing to rain or any other cause, it shall be harrowed and allowed to dry out to the correct moisture content before compaction is undertaken.

The contractor shall ensure that stormwater will at all times be discharged uniformly over the full fill area or through specially prepared and protected drainage ditches to prevent scouring of the slopes."

PSD 5.2.4 Finishing

PSD 5.2.4.2 Topsoiling

Replace the last sentence with:

"The final thickness of the topsoil shall be as directed by the Employer’s Agent or as required by the Drawings, to a nominal thickness of 100 mm after light compaction."

PSD5.2.4.3 Vegetation

ADD the FOLLOWING TO SUBCLAUSE 5.2.4.3:

“The vegetation mix to be used is described in the construction Environmental Management Plan.”

PSD 5.2.5 Transport for Earthworks

REPLACE THE CONTENTS OF SUBSUBCLAUSE 5.2.5 WITH THE FOLLOWING:

“The transport of all excavated materials from works and use in the works, irrespective of the distance and source, shall be deemed to be freehaul. All haul to and from stockpiles will be freehaul, the cost of which is included in the Contractor’s tendered rates and prices for the excavation of the materials. No separate compensation shall apply for the transportation of excavated materials.”

ADD NEW SUBCLAUSE TO CLAUSE 5:

PSD 5.3 Recording of original ground levels

Before commencing any earthworks, the Contractor shall assist the Employer’s Agent in establishing the original ground level in the area for record purposes.

PSD 6 TOLERANCES

PSD 6.1 Level Tolerances

ADD NEW ITEM c) AS FOLLOWS:

“

		Permissible deviation (PD)		
		Degree of Accuracy		
		III	II	I
		mm	mm	mm
c)	1) Specified individual layer thickness	+ 50	+50 -0	+20 -0
	2) Overall group layer thickness for multi-layer earthworks	± 50	+50 -0	+50 -0

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSD 7 TESTING

ADD THE FOLLOWING BETWEEN 7 AND 7.1:

“GENERAL. The terms of clause 7 of SABS/SANS1200 M shall apply. Judgement of quality will be done on a statistical basis for the density and the moisture content properties of the worked material”

PSD 7.2 Taking and testing of samples

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

The Contractor shall arrange with the approved independent laboratory engaged by the Contractor to carry out sufficient tests on a regular basis, as specified in SANS1200 or as required by the Employer’s Agent, to determine whether the degree of compaction, and, where applicable, the quality of materials used, comply with the Specifications and shall submit the results of these tests to the Employer’s Agent in a form approved by him.

ADD NEW SUBCLAUSE 7.4 TO AS FOLLOWS;

PSD 7.4 Process Control

PSD 7.4 PROCESS CONTROL. Notwithstanding clause 7.2 the testing frequency will be according to Table 1.

Table 1- Testing Frequency (for large scale open earthworks)

1	2	3	4
Test	Portion		Testing Frequency
		Volume or area to which one test is applied, max	No of tests per lot, min
Relative Compaction at OMC	(a) Ordinary fill	500m ³	3
	(b) Selected layers	500m ²	4
Indicator Tests	(a) Selected layers	2 500m ²	1
CBR/UCS	(a) In-situ founding material	5 000m ²	1
	(b) Selected layer and gravel surface	10 000m ²	1

Irrespective of the frequencies given in Table 1 the minimum Process Control for compaction and OMC testing will be that one lot of tests will be taken per day’s work on a layer, within 4 hours from the work being done. “

ADD NEW CLAUSE PSD 7.5 AS FOLLOWS:

PSD 7.5 Compaction Testing

For the duration of the earthworks portion of the project the Contractor will supply and maintain a calibrated nuclear density testing device on site. The Contractor will also have available on site suitably trained staff to operate the device.”

PSD 8 MEASUREMENT AND PAYMENT

PSD 8.3 Scheduled items

PSD 8.3.1 Site preparation

REPLACE SUBSUBCLAUSES 8.3.1.1 AND 8.3.1.2 WITH THE FOLLOWING:

“Where Site preparation such as clearing, grubbing, the removal of large trees or the removal and stockpiling of topsoil is required, the provisions and scheduled items of SABS 1200 C shall apply.”

PSD 8.3.6 Overhaul

ADD THE FOLLOWING:

“No overhaul shall apply to material from commercial sources or to material disposed of on sites provided by the Contractor or disposed by other means employed by the Contractor.”

PSD 8.3.8 Existing services

PSD 8.3.8.1 Location and expose existing services

REPLACE ITEM 8.3.8.1 WITH THE FOLLOWING:

8.3.8.1 Hand excavation for locating and exposing existing services:

- (a) Locate underground electrical cables using cable indicator Unit: hrs
- (b) Excavate around electrical cables Unit: No
- (c) Water, sewer and stormwater pipelines Unit: No
- (d) Relocate exiting Telkom line Unit: m
- (e) Relocate existing Eskom line Unit: m
- (f) Locate existing reticulation services Unit: m

The tendered rates shall cover the cost of excavating in all materials by means of hand tools within authorised dimensions and at locations approved by the Employer’s Agent in accordance with the requirements of subclause PSA 5.4.1 for all precautionary measures necessary to protect the services from damage during excavation and backfilling, and for subsequent backfilling and compacting. Compaction of material in all areas except in roadways shall be to 90% of the modified AASHTO density.

The tendered rate for excavation in roadways shall include compensation for compacting excavated or selected backfill material to 93% of modified AASHTO density. Reinstating layer works and surfacing shall be measured and paid for in terms of SABS 1200 DB.

The tendered rates shall also include for keeping excavations safe, for dealing with surface and subsurface water, for removing surplus excavated material from the site, for transporting all material, and for supplying adequate supervision during both excavation and backfilling operations.

PSDM EARTHWORKS (ROADS, SUBGRADE)

PSDM 3 MATERIALS

PSDM 3.2 CLASSIFICATION FOR PLACING PURPOSES

PSDM 3.2.3 Selected layer

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The following requirements shall apply in respect of the selected layer:

- (a) Maximum particle size: 60% of compacted layer thickness
- (b) Unstabilized selected layer
 - (i) Upper selected layer:
 - Minimum CBR at 95% of modified AASHTO density: 15
 - Maximum PI: 12 (the Employer’s Agent has the right to alter this requirement to 3 x the grading modulus + 10).
 - (ii) Lower selected layer:
 - Minimum CBR at 93% of modified AASHTO density: 7
 - Maximum PI: 12 (the Employer’s Agent has the right to alter this requirement to 3 x the grading modulus + 10).

PSDM 5 CONSTRUCTION

PSDM 5.2 METHODS AND PROCEDURES

PSDM 5.2.2 Cut and borrow

PSDM 5.2.2.3 Use of material

ADD THE FOLLOWING PARAGRAPH:

- "(e) Commercial sources

The provisions of subclause PSD 5.2.2.5 of SABS 1200 D as amended shall apply."

PSDM 5.2.3 Treatment of the road-bed

PSDM 5.2.3.2 Removal of unsuitable ground

REPLACE THE SECOND SENTENCE OF PARAGRAPH (a) WITH THE FOLLOWING:

"The excavated spaces shall then be backfilled with approved imported material compacted to the required density."

ADD THE FOLLOWING SENTENCE TO PARAGRAPH (b):

"Unsuitable excavated material will be paid for as cut to spoil."

PSDM 5.2.3.3 Treatment of road-bed

ADD THE FOLLOWING PARAGRAPHS:

"(c) Three-pass roller compaction

Any portion of the roadbed that is shown on the Drawings or is specified or is directed by the Employer's Agent to be given three-pass roller compaction because of its inadequate natural density, shall be prepared by shaping where necessary and compacting with a roller, complying with the requirements specified below.

Compaction shall comprise three complete coverages by the wheels of the specified roller over every portion of the area that is being compacted. While it is not the intention that the Contractor should apply water to the roadbed for this type of compaction, and while no rigid moisture control will be exercised during compaction, the Contractor shall nevertheless satisfy the Employer's Agent that everything is being done to take full advantage of favourable soil moisture conditions during the rainy season, and that such compaction is as far as possible carried out when the roadbed is neither excessively dry nor excessively wet.

The Employer's Agent has the authority to decide when conditions are favourable for compaction and where such compaction is to be carried out at any particular time, and he has the right to instruct the Contractor to water the roadbed at the Contractor's expense when, in the opinion of the Employer's Agent, the Contractor failed, neglected or refused to comply with these requirements.

The rollers to be used for roller-pass compaction shall conform to the following requirements:

Grid roller: The grid roller shall have a mass of not less than 13,5 t when ballasted, shall be loaded to this mass if required, and shall be moved at a speed of not less than 12 km/h.

Vibratory roller: The vibratory roller shall be capable of exerting a combined static and dynamic force of not less than 120 kN/m width for every metre of loose-layer thickness at an operating frequency not exceeding 25 Hz and shall move at a speed not exceeding 4 km/h."

PSDM 5.2.4 Fill

PSDM 5.2.4.3 Finishing

(e) Topsoiling

REPLACE THE SECOND SENTENCE WITH THE FOLLOWING:

"The thickness of the topsoil shall be as directed by the Employer's Agent."

PSDM 5.2.5 Selected layer

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"Except with regard to density, the requirements of subclause 5.2.4 shall apply. The degree of compaction shall be:

Upper selected : 95% of modified AASHTO density

Lower selected : 93% of modified AASHTO density."

PSDM 5.2.8 Transport

REPLACE THE CONTENTS OF THIS SUBCLAUSE WITH THE FOLLOWING:

"The provisions of subclause PSD 5.2.5 of SABS 1200 D, as amended, shall apply."

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSDM 7 TESTING**PSDM 7.3 ROUTINE INSPECTION AND TESTING**

REPLACE TABLE 2 AND THE CONTENTS OF SUBCLAUSE 7.3.2 WITH THE FOLLOWING:

PSDM 7.3.2 The dry density requirements for a particular lot of selected layer or wearing course shall be deemed to be satisfied if the average density and the results of individual tests meet the requirements specified in table 2 below. Refer to subclause PSD 7.2 for the requirements for fill.

TABLE 2 - DENSITIES

1	2	3	4	5
Layer	Specified density (% of modified AASHTO density)	Number of tests per lot	Average density, %	Minimum density for any single test, %
Lower selected layer and gravel wearing course	93	3 and 4 5 6	93,1 93,4 93,6	89,4 89,2 89,0
Upper selected layer and gravel wearing course	95	3 and 4 5 6	95,1 95,4 95,6	91,4 91,2 91,0

PSDM 8 MEASUREMENT AND PAYMENT**PSDM 8.2 Computation of quantities**

DELETE THE CONTENTS OF THIS CLAUSE AND REPLACE WITH:

“The appropriate measurement and payment clauses have been included under Clause 8 of SABS 1200 D, 1200DB, PSDB and PSDB.”

PSX ADDITIONAL CLAUSES**PSX 1 REFERENCE CLAUSE**

Clause numbers refer, where applicable, to either the Conditions of Contract or to the Technical Specifications but the absence of a clause reference shall not exonerate the Contractor from relating a measured item to the relative clause in either the Conditions of Contract or the Technical Specification.

PSXA FENCING AND GATES**PSXA 1 Materials**

PSXA 1.1 Fence Panels

- 1.8m high and 3 m width fence panels
- Panel mesh aperture size (76x25mm)
- Panels to be reinforced with a deep 4 x 50mm V-formation horizontal recess bends
- Wire diameter of 3mm
- Panels, posts and wires to be PVC Coated
- Fencing to have anti-climb and anti-cut design

PSXA 1.2 Fence Posts

- Square Tube Posts to be 2.4m high (76x76x1.6mm)
- The panels are fixed onto the front or back of the posts by means of fixators and security bolts. The welded square tubular posts have inserts to fix the panels with the fixators and covered with a plastic cap.
- Posts are corrosion treated and powder coated or hot dipped galvanized and powder coated on request.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Posts to be installed on 450 x 450 x 500mm deep footings or to the manufacture’s specification
- Razor spikes to be fitted on top of panels.

PSXA 1.3 Gate

- Dimensions: 1800mm high x 5600 mm wide
- Gates shall be installed at the locations shown on the relevant drawing.
- Gates shall be mounted to swing as indicated.
- Latches shall be installed as required.

PSXA 2 Construction

- All material to be install to manufacturer’s specifications.
- Install all fencing and gates in accordance with the drawings, specifications, instructions, and as specified lines and grades indicated.
- Line posts shall be spaced at intervals of 3.00 m.
- Terminal posts shall be set at abrupt changes in vertical and horizontal alignment.
- The fence site must be set out before construction takes place
- All corners and changes in the fence direction must be marked out.
- Posts shall be approximately centred in their footings.
- Concrete shall be allowed to cure prior to installing any additional components to the posts.

PSXA 3 Testing

All testing shall be done in accordance with the applicable SANS 1200 and/or the manufacturers specifications.

PSXA 4 Measurement and Payment

PSXA 4.1 Fencing Panels

Panels will be priced per square meter. The rate shall be all inclusive of supplying, installing testing and finishing.

PSXA 4.2 Fencing Posts

Posts will be priced per No. The rate shall be inclusive of supplying, installing, testing and finishing.

PSXA 4.3 Concrete Footings

Concrete will be priced as specified in SANS 1200G and PSG

PSXA 4.4 Gate

The gates will be priced per gate. The rate shall be all inclusive of supply, installation, testing and finishing.

PSXB LAY DAM LINING

PSXB 1 Materials

All materials has to comply with design specifications. A certificate from the supplier is required verifying the product adheres to the product specifications.

PSXB 2 Plant

When using a plant to construct the lining, it is to be made certain that no damage occurs to any layer of the lining.

PSXB 3 Construction

All material to be install to manufacturer’s specifications.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSXB 3.1 Earthworks

The Contractor shall be responsible for preparing and maintaining 150 mm sub-grade layer (Bottom surface and sidewalls) consists of the in-situ material. The material must be trimmed by labour intensive means and the surface prepared to be smooth, compacted and free of debris, roots, stones and angular or sharp objects and re-compacted, 150mm deep to 93% Mod AASHTO. The maximum size particles shall not typically exceed 2mm.

The base shall be finished to the class of planar flatness and shall have no sudden sharp or abrupt changes in grade. The maximum deviation under a 3m straight edge should typically be less than 20 mm and no abrupt changes greater than 5mm shall be tolerated.

The Contractor shall protect the sub-grade from desiccation, flooding and freezing. Sub-grade found to have unacceptable desiccation cracks or which exhibit excessive swelling, heaving or other movements shall be replaced or reworked by the Contractor and made good.

Special attention should be given to the angle between the inside anchor trench face and the adjacent horizontal surface. This can be a location for high stress concentrations and should be radiused as appropriate.

PSXB 3.2 Lining layer

The lining of layers will be implemented as follows:

- Before placing the lining, a layer of 30mm well grade sand must be placed to create a smooth surface on the bottom surface.
- A layer of Class 2 geotextile must be placed on the sidewalls of the laydam to create a smooth surface for the HDPE liner. It must placed according to the manufacturer's specification.
- A 2mm HDPE double textured geomembrane must be placed below the multi cell. At the overlaps of the geomembrane, it is to be welded by a specialist using the hot wedge seam method. Extrusion welding is only permitted upon the approval of the Engineer for approved repairs.
- Supply, deliver and place 75mm In-situ concrete Class 25MPa/19mm Panels with Mesh Ref 193 at a cover of 40mm from top of concrete

PSXB 4 Testing

After each layer of lining has been placed, it should be inspected by the supplier of the product. A signed certificate is required, from the supplier, stating that the geomembranes that was placed complies with the appropriate standards of the design and product.

Welding done on the geomembranes needs to be inspected by a specialist and the Resident Employer's Agent or Employer's Agents representative before it could be signed of as appropriate.

PSXB 5 Measurement and Payment**PSXB 5.1 Lining Layers**

Layers will be priced per square meter. The rate shall be all inclusive of supplying, installing testing and finishing.

PSXB 5.2 Well graded sand

Sand will be measured in meter cube. The rate shall be all inclusive of supplying, placing and finishing.

PSXB 5.3 Concrete

Concrete will be paid as specified in SANS 1200G and PSG

PSXC LAY DAM DRAINAGE

PSXC 1 Materials

PSXC 1.1 Drainage pipe

Pipes for subsoil drainage shall have an internal diameter of 100mm. The pipe shall be manufactured from High Density Polyethylene (HDPE) with a solid 5.0mm wall thickness. It shall be extruded into an open lattice wall structure, with 70% of the diameter consisting of open area and a 30% solid area along the invert. Perforations in the open structure of the pipe shall be greater than 3 mm but less than 12mm.

PSXC 1.2 Coarse grain

A sample of Class 2 coarse grained free draining material must be supplied prior commencement of the work.

PSXC 1.3 Geotextile

Geotextile Class 2 or equivalent approved needs to be provided before the placement of the geotextile can begin. It needs to comply to specified geotextile specifications.

PSXC 2 Construction

Subsoil Drainage:

- Subsoil drainpipes must be installed in the subsoil trenches.
- Subsoil drainpipes must discharge water into the precast manhole sump. If a fall is required 1:500 will be set out.
- Subsoil drainpipes to be wrapped in Class 2 geotextile to prevent drainage material blocking the pipe. The geotextile is to be firmly tied and secure with wire and an overlap of 50mm.
- Drainage material to use as fill for the subsoil trenches is to be class 2 coarse free draining material. If 19 or 13mm crushed stone is used the subsoil drainpipe does not required to be wrapped with geotextile.

PSXC 3 Testing

A sample test must be done on subsoil drainpipes to check for any leakages before they are closed with the necessary padding.

PSXC 4 Measurement and Payment

PSXC 4.1 Subsoil drainpipe

This item will be measured per meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXC 4.2 Coarse grain

This item will be measured per cubic meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXC 4.3 Geotextile

This item will be measured per square meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXC 4.4 Subsoil drain

This item will be measured per meter.

Excavate for subsoil drain in all materials 400mm wide and 200 deep.

The tender rate will cover all cost for completing this operation, labour and plant.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSXD RETAINING WALL DRAINAGE

PSXD 1 Materials

PSXD 1.1 Drainage pipe

Pipes for subsoil drainage shall have an internal diameter of 100mm. The pipe shall be manufactured from High Density Polyethylene (HDPE) with a solid 5.0mm wall thickness. It shall be extruded into an open lattice wall structure, with 70% of the diameter consisting of open area and a 30% solid area along the invert. Perforations in the open structure of the pipe shall be greater than 3 mm but less than 12mm.

PSXD 1.2 Coarse grain

A sample of Class 2 coarse grained free draining material must be supplied prior commencement of the work.

PSXD 1.3 Geotextile

Geotextile Class 2 or equivalent approved needs to be provided before the placement of the geotextile can begin. It needs to comply to specified geotextile specifications.

PSXD 2 Construction

Subsoil Drainage:

- Subsoil drainpipes must be installed in the subsoil trenches.
- Subsoil drainpipes must discharge water onto the adjacent apron. If a fall is required 1:500 will be set out.
- Subsoil drainpipes to be wrapped in Class 2 geotextile to prevent drainage material blocking the pipe. The geotextile is to be firmly tied and secure with wire and an overlap of 50mm.
- Drainage material to use as fill for the subsoil trenches is to be Class 2 coarse free draining material. If 19 or 13mm crushed stone is used the Subsoil drainpipe is not required to be wrapped with geotextile.

PSXD 3 Testing

A sample test must be done on subsoil drainpipes to check for any leakages before they are closed with the necessary padding.

PSXD 4 Measurement and Payment

PSXD 1.1 Subsoil drainpipes

This item will be measured per meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXD 1.2 Coarse grain

This item will be measured per cubic meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXD 1.3 Geotextile

This item will be measured per square meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXD 1.4 Subsoil drain

This item will be measured per meter.

Excavate for subsoil drain in all materials 400mm wide and 200 deep.

The tender rate will cover all cost for completing this operation, labour and plant.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSXE RETAINING WALL STRUCUTRE

PSXE 1 Materials

PSXE 1.1 Concrete Footing

Concrete footings shall be carried down to the depth indicated on the drawings and shall not be smaller than the dimensions shown.

Footing reinforcement shall be high tensile steel as indicated on the relevant drawing.

PSXE 1.2 Composite Vertical Band Drain System

<u>Item Number</u>	<u>Item</u>	<u>Description</u>
1	Filter jacket	Class 2 Geotextile
2	Composite Drain	250mm wide and 4mm thick with discharge capacity of 0.14/s

PSXE 1.3 Retaining Blocks

Blocks (420 x 300 x 200) to comply with the manufactures specifications and be filled with G7 material.

PSXE 1.4 Soil reinforcement

Polyester, staple fibre 150 g/m2 needle punched, nonwoven / high strength polyester yarns

All materials to comply in accordance to the manufacture’s specification.

PSXE 2 Testing

All testing for concrete work shall be done in accordance to SANS 1200G.

And all other specialized items in accordance to the manufacturer’s specifications.

PSXE 3 Measurement and Payment

PSXE 3.1 Reinforced Concrete Footing

Concrete-This item will be measured per cubic meter. The rate covers all costs for supply, testing and any other work for finishing the work.

Reinforcement- This item will be measured per ton. The rate covers all costs for supply, testing and any other work for finishing the work.

PSXE 3.2 Composite vertical band drain

This item will be measured per square meter. The rate covers all costs for supply, testing and any other work for finishing the work.

PSXE 3.3 Retaining blocks

This item will be measured per meter square. The rate is inclusive of G7 material.

The rate covers all costs inclusive of reinforcement for completing this operation, supply, testing and finishing

PSXE 3.4 Soil Reinforcement

This item will be measured per square meter.

The rate covers all costs for the supply, testing and finishing of the works.

PSXF STEEL RESERVOIR

PSXF 1 Materials

PSXF 1.1 Ring Beam

All materials must comply with design specifications. A certificate from the supplier is required verifying the product adheres to the product specifications.

PSXF 1.2 Tank Body

<u>Item Number</u>	<u>Item</u>	<u>Description</u>
--------------------	-------------	--------------------

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

1	Tank Wall	Zincalume Steel Panels with heavy duty coating
2	Wind Girts	Made from hot dipped galvanised sheet metal.
3	Dome roof	Made from corrugated sheets
4	Truss Set	Hot dipped galvanised after fabrication
5	Inlet Pipe	Made with internal deflector complete with all pipe clamps and pipe closure
6	Outlet Pipe	Internal anti-vortex with flange and pipe closure
7	Overflow Pipe	Bellmouth and external downpipe complete with pipe clamps
8	Scour Pipe	Internal flange with an external female thread socket and threaded ball valve and hex nipple
9	Ventilator	0.01m ² GMS per ventilator
10	Control Valve with water level indicator	Level control valve and mechanical water level reader.
11	Tank ladder	Fixed internal and external ladders with cage, platform and access hatch and handrails.

PSXF 2 Testing

All testing shall be done in accordance with the manufacturer's specifications.

PSXF 3 Measurement and Payment**PSXF 3.1 Ring Beams**

Concrete-This item will be measured per cubic meter. The rate covers all costs for completing this operation, supply, testing and finishing

Reinforcement- This item will be measured per ton. The rate covers all costs for completing this operation, supply, testing and finishing

Free draining sand-This item will be measured per cubic meter. The rate covers all costs for completing this operation, supply, testing and finishing

PSXF 3.2 Steel Tank

The Steel tank will be measured as a complete unit, including all necessary accessories, pipe work, valves and steel work. The rate covers the complete supply, installation and finishing of the reservoir.

PSXF 3.3 Telemetry system

The Telemetry system of the reservoir will be measured per sum.

The rate covers all costs for completing the supply. testing and finishing.

PSXG RESERVOIR DRAINAGE**PSXG 1 Materials****PSXG 1.1 Drainage pipe**

Pipes for subsoil drainage shall have an internal diameter of 100mm. The pipe shall be manufactured from High Density Polyethylene (HDPE) with a solid 5.0mm wall thickness. It shall be extruded into an open lattice wall structure, with 70% of the diameter consisting of open area and a 30% solid area along the invert. Perforations in the open structure of the pipe shall be greater than 3 mm but less than 12mm.

PSXG 1.2 Coarse grain

A sample of Class 2 coarse grained free draining material must be supplied prior commencement of the work.

PSXG 1.3 Geotextile

Geotextile Class 2 or equivalent approved needs to be provided before the placement of the geotextile can begin. It needs to comply to specified geotextile specifications.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

PSXG 2 Construction

Subsoil Drainage:

- Subsoil drainpipes shall be installed prior to construction of the reservoir ring beam.
- Subsoil drainpipes must be installed in the subsoil trenches.
- Subsoil drainpipes must discharge water into the stormwater catchpit. If a fall is required 1:500 will be set out.
- Subsoil drainpipes to be wrapped in Class 2 geotextile to prevent drainage material blocking the pipe. The geotextile is to be firmly tied and secure with wire and an overlap of 50mm.
- Drainage material to use as fill for the subsoil trenches is to be class 2 coarse free draining material. If 19 or 13mm crushed stone is used the subsoil drainpipe does not required to be wrapped with geotextile.

PSXG 3 Testing

A sample test must be done on subsoil drainpipes to check for any leakages before they are closed with the necessary padding.

PSXG 4 Measurement and Payment**PSXG 4.1 Subsoil drainpipe**

This item will be measured per meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXG 4.2 Coarse grain

This item will be measured per cubic meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXG 4.3 Geotextile

This item will be measured per square meter.

The tender rate will cover all cost for completing this operation, including supply, delivery, testing, installation, labour and plant.

PSXG 4.4 Subsoil drain

This item will be measured per meter.

Excavate for subsoil drain in all materials 400mm wide and 600 deep.

The tender rate will cover all cost for completing this operation, labour and plant.

C3.4: SMME Specifications



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

C3.4 - SMME SPECIFICATIONS

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1 DEFINITIONS

For the purposes of the Scope of Works, the definitions given in the General Conditions of Subcontract for Construction Works (2018), the Standard Specifications and the Scope of Works, together with the following additional definitions shall apply:

- a) "Subcontract" shall have the meaning assigned thereto in Clause 1.1.1.7 of the General Conditions of Subcontract for Construction Works (2018).
- b) "Subcontractor" shall have the meaning assigned thereto in Clause 1.1.1.9 of the General Conditions of Subcontract for Construction Works (2018).
- c) "Main Contract": shall mean the Contract entered into between the Employer, who is the Sundays River Valley Local Municipality (SRVM) and the Contractor.
- d) "EME/QSE Committee": The EME/QSE Committee shall be selected after award of the Main Contract, and its members shall consist of:
 - The Contractor, or his/her representative.
 - The Employer's Project Manager.
 - The Employer's Agent/s, or his/her representative/s.
 - The Community Liaison Officer.

The Committee will sit on a monthly basis to review, discuss, assist and advise on all matters pertaining to the EME/QSEs. The Committee may be required to meet on other occasions to address specific matters that may require attention.

- e) "EME/QSE's Subcontract" shall mean the Contract entered into between the Contractor and any EME/QSE Subcontractor.
- f) "EME/QSE Work Package" shall mean that portion of the Works which shall be set aside for construction by an EME/QSE.
- g) "EME" means an **exempted micro enterprise** in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act. For the purposes of this Contract EMEs must be at least 51% owned by black people.
- h) "QSE" means a **qualifying small enterprise** in terms of a code of good practice on black economic empowerment issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act. For the purposes of this Contract EMEs must be at least 51% owned by black people.
- i) For the purpose of this specification **Small Medium and Micro Enterprises (SMMEs)** shall mean Exempt Micro Enterprises (EMEs) and Qualifying Small Enterprises (QSEs).

2 RESOURCES STANDARDS

SMME appointments will be evaluated in terms of the SRVM's Supply Chain Management Policy and terms and conditions of the main contract unless otherwise specified in this specification.

3 SUBCONTRACTING (20% SMME PARTICIPATION GOAL)

3.1 Scope of mandatory Subcontract Works

It is an express condition of this Contract that a minimum of 20% of the value of the works must be let out to SMMEs which are at least 51% owned by black people and who are registered on the SRVM's database to meet the requirements of the "stipulated minimum threshold". Further, this work is to be subcontracted in a minimum of 3 work packages to SMMEs registered in the appropriate grading for the value of the subcontracted works tendered.

The 20% is determined by the value calculated in the summary page of the BoQ (Contract Sum). This value may vary up or down due to variations. **It is the discretion of the Employer's Agent to revise the scope of the SMMEs to achieve the minimum value of works allocated to the SMMEs.** Any matter that the Contractor feels will affect this value is to be brought to the Employer's Agent attention as soon as it becomes apparent. (Contract Sum X 20%).

The final selection of the SMMEs will be done by and "open tender" or negotiation process as none of the proposed SMMEs have the necessary expertise to complete this process on their own. The Contractor will lead this process as detailed below.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

In the Subcontract agreement, the Contractor is to clearly state the scope of the work to be subcontracted in each specific package identified by the Contractor. It must also identify the agreed value of works as per a BoQ showing the P&G's and payment intervals as well as time of payment from submission of an approved invoice. The Subcontract Agreement must in line with the terms and conditions of the main contract. A copy of the Subcontract Agreement must be submitted to the Employer's Agent prior to finalising the agreement with the Subcontractor. Any unfair subcontracting practices will not be permitted.

The Subcontract agreement must include as a minimum:

- Detailed drawings of each package
- Rates breakdown (plant, labour, materials, profits)
- Fixed and anticipated deductions inclusive of Retention
- Costs per unit (deduction per measured unit)
- EPWP requirements

The Contractor will only be provided with a list of the selected SMMEs provided by the SRVM. Packages will be negotiated with the SMMEs and any variance in the tendered rates and SMME rates, both positive and negative will be accommodated under a provisional item included in the Preliminary and General Section of the Bills of Quantities.

Provision for payment for attendance, mentoring and supervision of the SMMEs will also be made in the Preliminary and General Sections for the tenderer to price, for the management of SMMEs in terms the Tender Document.

Provision for an item is also made in the Summary of the BoQ for the mark up on the value of works carried out by SMMEs under this provision. This item will cover all other costs and profits on the value of this work. No other additional costs will be entertained as a result of these requirements. In addition, should SMMEs carry out any works measured under provisional/prime costs sums where the Contractor has had the opportunity to tender a mark-up on these provisional/prime cost sums, the Contractor will not be eligible to claim the mark up on the provisional/prime cost sum. He will however be entitled to the mark up tendered for works carried out by SMMEs.

A. SMMEs (General):

This section provides the specifications that relate to the Contractor's implementation of the policies and initiatives of the Government, community participation, and employment of SMMEs. These specifications should be read in conjunction with the various statutes and legislation that relate to small businesses and Broad-Based Black Economic Empowerment. In this regard all tenders will be considered with specific reference to applicable legislation in force from time to time and which are specifically applicable to organs of state for example the following:

- a) The Constitution of the Republic of South Africa, 1996;
- b) Public Finance Management Act, 1999 (Act No 1 of 1999);
- c) Municipal Finance Management Act, 2003 (Act No 56 of 2003);
- d) Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000);
- e) Broad-Based Black Economic Empowerment Act, 2003 (Act No 53 of 2003);
- f) Construction Industry Development Board Act, 2000 (Act No 38 of 2000) and Regulations;
- g) National Small Business Amendment Act, 2003 (Act No 26 of 2003); and
- h) PPPFA Regulations of 2017

SMMEs: a separate and distinct business entity, including cooperative enterprises and non-governmental organisations, managed by one owner or more, including its branches or subsidiaries, if any, and is registered with the South African Revenue Service, and which can be classified as a micro enterprise by satisfying the size variation criteria according to the type of enterprise in **Table 1** below:

TABLE 1 : SMME SUPPLIERS AND OTHER SERVICE PROVIDERS *				
Size	Total Full-time Equivalent of Paid Employees	Total Annual Turnover	Total Gross Asset Value (fixed property excluded)	CIDB Grading
	less than	less than	less than	
Medium	200	R26 m	R5 m	7
Small	50	R6 m	R1 m	5 & 6
Micro	5	R0.2 m	R0.1 m	1 to 4

* In terms of the National Small Business Amendment Act, 2003 (Act No 26 of 2003)

It is the Employer's objective that a minimum of 20% of the contract value be subcontracted to SMMEs in the relevant **1 to 4 CIDB grading**. It must be noted that currently the majority of the SMMEs is on a 1 grading,

It should be noted that only one work package may be subcontracted to one specific Subcontractor where possible.

It shall remain the Contractor's responsibility to ensure that this target percentage is attained, irrespective of the difference in rates between what the main contractor tendered and the award rates and resulting amounts as negotiated by the SMMEs for the various works packages.

No additional mark-up or costs will be payable to the Contractor for SMME work packages described above other than the tendered mark-up rate as entered by the Contractor in the BoQ.

3.2 Overhead Charges, Profit, etc. on SMME sub-contract works

The percentage tendered shall cover all costs including but not limited to administration, overheads, finance costs, transportation, risk, and profit on the value of the work awarded as reserved for SMME Subcontract packages in order to achieve the required 20% SMME participation goal as stipulated in the Contract Data and not covered by the other items. Management of the SMMEs during the contract will be paid under a separate item.

3.3 Preferred EME/QSEs

As indicated in paragraph 3.1 above, the successful tenderer will only be informed after the award of the selected SMMEs provided by SRVM. Packages will be negotiated with the SMMEs in conjunction with the Contractor, Employer's Agent/s, and SRVM officials.

SMMEs must be registered on the SRVM database at the time of calling for SMME work packages. Enterprises shall comply with the following:

- Business shall be registered within the SRVM boundaries;
- Must be registered with the CIDB to a relevant class e.g. CE; and
- Must have a current valid Tax Clearance Certificate.

3.4 Subcontracting procedures

A. General:

A list of SMMEs will be provided to the contractor by the SRVM after the award of the contract. Only SMMEs registered on the SRVM database will be considered.

The Employer, Employer's Agent/s together with the Contractor shall evaluate the negotiated prices for the various packages. The evaluation and adjudication panel shall comprise of equal representatives from the Employer, Employer's Agent/s, the CLO (as an observer), and the Contractor. The Employer requires the SMME Committee to form the Evaluation Panel.

The Contractor, with assistance from the Employer's Agent, will draw up procurement documents for the SMMEs to price with the assistance of the Contractor to arrive at economically viable rates. A closing date by when this process is to be completed will be announced by the committee. The Main Contractor, with the SMME will be required to submit each work package and present the work packages to the SMME committee for approval. Rates are to be agreed by the SMME committee.

Any rates balancing exercise will be carried out between the main contractor and recommended SMME will be subject to the approval of the SMME committee. Any variations in the final agreed rates and rates tendered by the Main Contractor will be accommodated in the Provisional Sum provided in the Bills of Quantities for such occurrences.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

All Subcontractors shall be appointed by the Contractor and the contents and requirements of Clause 4.4 of the Conditions of Subcontract shall apply in full.

The Contractor shall without delay award and enter into Contract with the successful tendering Subcontractor based on their accepted tender submission. Deviations from the tender document shall not be accepted by the Employer.

The Subcontractors will be issued with a programme showing the anticipated starting dates. They must also be advised of factors that may affect this date. Any events that will affect this date is to be conveyed to them so that they are fully aware of any variances in the proposed programme.

Subcontractors shall comply in full, to all aspects of the Conditions of Subcontract and the Subcontractor's attention is drawn to the contents of Clause 4.4 of the Conditions of Subcontract.

The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

Claims for extension of time due to delays caused by SMMEs as a result of the Contractor's action or inaction will not be entertained. The onus remains with the Contractor to prove that the delays were outside his control. The Main Contractor is to programme in his work, factoring in the use of SMMEs expected production rates under his supervision (reference sub-clause 5.6.2.4 of GCC 2015 for Contractor's time risks). Non-performance of SMMEs shall be dealt with in terms of the Subcontractor agreement.

A five percent (5%) Excluding VAT of the Subcontract value will be deducted as retention on SMMEs Contracts to be released on the completion certificate for the SMME work package. This is to be explained to the Subcontractors at the start of the pricing negotiations.

The Main Contractor shall not permit the SMME Subcontractor to further subcontract any portion of the work package without express written permission of the SMME Committee. This also applies to the Main Contractor carrying out such work as a subcontractor to the SMME subcontractor. This will not be permitted.

B. Subcontract agreements with the Subcontractors:

The Contractor will be required to submit a copy of the signed Subcontract Agreements for all SMME work packages which will include the Scope of Works and a BoQ for each Subcontractor, as well as agreed rates showing the production targets.

This must be submitted prior to any work being undertaken in the relevant SMME work package.

It must be further noted that the Subcontractor must be registered with the Construction Industry Development Board, in the relevant category, in accordance with the estimated value of the work package, as well as being registered on the SRVM Supplier Database. Should the Contractor have any doubts about the SMMEs acceptability as a Subcontractor, he is to refer the matter in writing to the Committee for their comment.

All the Conditions of Tender and Tender Data, as they have applied to the Main Contract, shall apply where relevant, to the various Subcontracts.

The Contract Data in the associated Subcontract documents shall be based on the General Conditions of Subcontract, with minimal project specific variations and amendments that do not constitute a material change (where practically possible).

Notwithstanding, the Specific Provisions and Conditions of the Subcontracts must however allow for the following amendments and variations to the Standard General Conditions of Subcontract:

- **Subcontract Sureties** – The Subcontract shall be drafted to allow the omission and requirement for sureties and performance bonds.
- **Insurances** – The Subcontract shall be drafted to allow the omission of insurances and to specify that such responsibility remain with the Contractor.
- **Penalty for Delay** – The Subcontract shall be drafted to specify that the Contractor shall issue and give written notice and warning to the Subcontractor prior to any penalties being deducted. Penalty amounts will be agreed by the SMME Committee in consideration of the penalties for the Main Contract. The amount of

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

penalty to be included in the agreement is also to be determined in consultation with the Committee.

- **Valuations and Payments** – The Subcontract shall be drafted to allow the Subcontractor to submit bi-weekly statements.
- **Valuations and Payments** – The Subcontract shall be drafted to specify that the Contractor shall pay the Subcontractor within two working days of the Contractor receiving his payment for such work.

The subsequent Conditions of Subcontract Agreement shall be in accordance with the Conditions of Subcontract for Construction Works (2018). The Subcontract shall also specify:

- a) The terms and conditions relating to the recruitment, employment, and remuneration of workers engaged on the Subcontract Works; and
- b) Details of any training to be provided to the temporary workforce.

3.5 Attendance on Subcontractors / Subcontracts

The Contractor shall, in addition to the requirements of Clause 4.4 of the Conditions of Contract guide, assist and mentor all the SMME Subcontractors through all stages of the works packages.

The Contractor shall closely manage and supervise all SMMEs and shall manage, guide, and assist each SMME in all aspects of management, execution and completion of his subcontract. The above shall include inter alia, but is not limited to, the following:

- a) Planning and programming of the Works;
- b) The sourcing, ordering, acquiring, assist with hiring all the necessary construction equipment, materials, tools, and accidentals necessary and required for the successful execution and completion of the Permanent as well as the Temporary Works;
- c) Ensuring the efficient use of all plant and materials;
- d) Labour relations and employment;
- e) Monthly measurements, costing and invoicing;
- f) General safety, occupational health and safety matters, compilation of OHS files, OHS compliance, take full responsibility for all obligations stated in the OHS Act and Specifications;
- g) Functions of civil engineering infrastructure, structures, services and systems;
- h) Interpreting and understanding the Contract and Subcontract;
- i) Construction and maintenance methods and procedures;
- j) Communication;
- k) Cash-flow control, submitting invoices and payment certificates;
- l) Planning, programming, scheduling, critical path control and acceleration;
- m) Maintenance planning;
- n) Material procurement and control;
- o) Risk limitation and management;
- p) Quality assurance and procedures;
- q) Compliances with all applicable laws, regulations, statutory provisions and agreements;
- r) General Conditions of Subcontract and Subcontract Data;
- s) Contractual claims, if situations arise that entitle a contractor to claims in terms of the Conditions of Contract;
- t) Profit and loss; and
- u) Replacement and running costs of construction equipment.

The extent and level of management, mentorship, supervision, guidance, and assistance to be provided by the Contractor shall be in commensuration with the expertise of the relevant Subcontractor and should be so directed as to enable the Subcontractors to achieve the successful execution and completion of the respective Subcontracts. To this end it must be noted that some proposed SMMEs are graded as CIDB Level 1 and as such have little or no experience. The Contractor is therefore expected to provide enough supervision taking into account that there will be a minimum of **3 Subcontractors** as well as his Subcontract implementation as programmed. This information will be required to be included in his Works Programme for approval.

3.6 SMME Construction Manager

The Contractor shall be required to appoint an **SMME Construction Manager** whose sole responsibility will be to assist SMMEs as and when required in terms of this specification. The

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

SMME Construction Manager's duties are specified in paragraph 3.6 below. The SMME Construction Manager must have 15 years of construction (civil/building) experience and have a NQF 5 Labour Intensive Construction certificate. The SMME Manager must be full time on site for the duration of the contract and will not be permitted to fulfil any other function on site. The SMME Manager does not replace the Contractor's need for experienced foreman to supervise the day-to-day construction activities but rather to assist and prevent any conflicts developing on site.

3.7 Assistance to the SMME Subcontractors

The Contractor shall, in addition to the requirements of Clause 4.4 of the General Conditions of Contract for Construction Works (2015), guide, assist, and mentor all eligible potential SMMEs in the rate negotiation process and submission of their particular tenders with the negotiated rates, including advice and guidance on how to establish rates.

The SMME Manager will manage the SMMEs and report on progress to the SMME Committee. The assistance rendered by the Construction Manager, shall inter alia:

- a) Be given at a level and to the extent which is commensurate with the expertise and resources of the SMMEs;
- b) Be given in a manner which is neither prescriptive, dictatorial, nor coercive towards the SMMEs;
- c) Not be utilized by the Contractor to manipulate the rates and prices submitted, to his advantage;
- d) Be given in a manner which does not unfairly prejudice or favour any particular SMME;
- e) Act as a liaison between the Subcontractors and other parties and try to diffuse or prevent any potential conflicts; and
- f) Assist with contract and company administrative requirements.

The SMME Manager will work with and manage the SMME Subcontractors throughout the Contract. The SMME Manager shall be a dedicated resource whose only responsibility is to manage the SMME Subcontractors in such a way as to promote the smooth running of operations and as such shall not be the Site Agent, or any other person employed on the Contract for other purposes.

3.8 Procedure for Engaging SMMEs on the Project

The Conditions of Subcontract shall stipulate that the SMMEs must be registered with the Construction Industry Development Board, in the relevant category, according to the estimated value of the Work Package.

The Contractor, with assistance from the SMME Committee must undertake the following tasks in appointing SMMEs:

- Obtain a list of SMMEs from the SRVM Committee;
- Together with the SMME Committee, adjudicate and award the negotiated tenders;
- Sign a Subcontract agreement for each Work Package with the successful SMME;
- Subcontractor using the General Conditions of Subcontract for Construction Works (2018);
- Assist, manage and mentor the SMME in meeting the required Contractual and Statutory requirements, inclusive of the H&S plan;
- Assist, manage, mentor, and monitor the SMME Subcontractors with the acquisition and economical use of all resources, being plant, materials, and labour.
- Assist, manage, mentor, and monitor the SMME Subcontractors with their work output and quality;
- Issue subject to the approval of the Employer a Certification of Completion for each SMME; and
- Subcontractor work package.

The Contractor shall ensure that SMMEs are appointed timeously, so as not to delay the Construction Programme of the Main Contract in any way. The above tasks are more fully described below.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

He shall also ensure that the Subcontractors understand how many and when they are to be used on site.

4 Tender Process for Appointing SMMEs

4.1 Supply Chain Management Policy

The Contractor shall procure the services of SMMEs by following a process similar to that of the Municipality's Supply Chain Management Policy, so as to ensure fairness and equity. Tenders, of which the estimated value is below R 1,000,000, may be procured by obtaining three quotes. However, for work packages whose estimated value exceeds R 200,000, tenders shall be invited from names of SMME that will be agreed to with the Amatola Water Project Manager. The final choice will be done in conjunction with the SMME Committee.

The Contractor shall invite tenders and shall be responsible for the issuing of the Subcontract tender documents to prospective tenderers. As the tenderers are mostly Grade 1-4 the Tender process is to be an open process whereby the Main Contractor assists the Tenderers in arriving at fair market related rates. The Employer's Agent will monitor and approve this process.

The Contractor shall adjudicate the tenders with the assistance of the SMME Committee and shall enter into a Subcontract agreement with the successful SMME.

All conditions of, where applicable, as they applied to the Main Contractor on this Contract, shall apply where relevant, to the tenders for SMME Subcontracts.

4.2 Conditions of Tender

The Conditions of Contract of the Subcontract agreement shall be in accordance with the General Conditions of Subcontract for Construction Works (2018).

The Contract will also specify:

- The terms and conditions relating to the recruitment, employment and remuneration of workers engaged on the Contract Works;
- Details of any training to be provided to the temporary workforce;
- Detail of accepted rates;
- Details of any penalties and the amounts; and
- Payment terms which should be 7 working days after issuing of an invoice on labour only contracts and where the Main Contractor is supplying material and plant. No early settlement discount will be permitted to be charged.

4.3 Assistance to the Tenderers

The Contractor shall be responsible for ensuring that prospective SMME tenderers fully comprehend the following:

- Implications of the liabilities and responsibilities inherent in the Subcontract into which the tenderer proposes entering;
- Implications of the tendered rates;
- Scope and extent of the works included in the Subcontract;
- Proper procedures for the submission of the tender; and
- Procedures and basis on which tenders will be adjudicated and the Subcontract awarded.

The Contractor is to provide support for the above as the tenderers will be unable to complete the process on their own. This is therefore to be done as an "open" or "negotiated" process.

4.4 Adjudication

- a) After the Contactor has assisted the tenderers and at the time agreed with the Committee, the Contractor shall receive all duly signed negotiated tenders at a location identified by him, with all sealed tender submissions being placed in a proper tender box for this purpose.
- b) All tenders received shall be evaluated by the Committee, inclusive of (SMME Manager) mandated to act and sign on behalf of the Main Contractor.
- c) After evaluation the SMME Committee shall have the right to interview all tenderers for the purpose of:
 - Clarifying any aspect of the tender;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Verifying the eligibility of the tenderer;
 - Querying abnormally high or low rates and prices;
 - Clarifying rates and prices which are not in balance with other tendered rates and prices; and
 - Ensuring understanding of scope and conditions.
- d) The correction of obvious errors shall be carried out in accordance with the requirements of the CIDB Conditions of Tender.
- e) Adjudication of the tenders received will be made by the SMME Committee. The Contractor shall be prepared to explain the process of adjudication to all tenderers and motivate his method of award, as may be necessary. All unsuccessful and successful tenderers need to be notified in writing.

4.5 Award of Tenders

The Contractor must award the work to the successful SMME tenderer where after a Subcontract agreement will be signed between the Contractor and the successful SMME tenderer.

5 SMME Competency Training

The Contractor shall be responsible for providing competency training to the appointed SMME's, or SMME's identified by the Employer. The training provider shall be SETA accredited. The following training courses must be provided:

- Tendering for Construction Contracts.
- Set up and Manage a Construction Business.
- Manage Construction Resources.
- Implement site administration procedures on Construction site.
- Preparing a Certificate.

The Contractor shall pay each SMME course attendee a daily stipend, as indicated by the Employer's Agent.

6 Contractor's Obligations to Subcontracted SMMEs

6.1 Dispute Avoidance and Resolution Procedures

The Contractor shall at all times:

- a) Apply the terms and conditions of the Subcontract fairly and justly, taking due cognizance of the level of sophistication and experience of the particular SMME concerned;
- b) Closely manage and supervise all SMMEs and wherever possible, give reasonable warning to SMMEs when any breach of the terms of the Subcontract has occurred or appears likely to occur. The Contractor shall whenever possible, give the SMMEs reasonable opportunity to remedy any such breach or to avoid such breach and shall render all reasonable assistance to the SMMEs in this regard; and
- c) Inform the SMME Committee in writing of any breaches and his intended actions as well providing supporting evidence of such breaches.

When taking any disciplinary actions or imposing any penalties as are provided for in the Subcontract, the Contractor shall explain fully to the SMMEs that such actions are provided for in the Subcontract.

If any dispute should arise between the Contractor and an SMME such dispute shall be resolved in accordance with the provisions of the Subcontract.

7 Quality of Work and Performance of the SMME Subcontractor

7.1 Quality

The Contractor shall be fully liable for the quality of work carried out by the SMMEs as if this work is carried out by the Main Contractor. All works are to be carried out in accordance with

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

the standard and project specifications and Construction Drawings provided in the Contract Document and issued by the Employer's Agent.

7.2 Performance

If the SMME Subcontractor, in the opinion of the Employer's Agent, fails to comply with the criteria as listed below, the Employer's Agent shall issue a written warning to the Main Contractor, stating all the areas of non-compliance. A copy of the letter of warning shall be forwarded to the Committee. The criteria may include, but are not limited to, the following:

- a) Acceptable standard of works as set out in the specifications in the Subcontract;
- b) Progress in accordance with the time provisions of the approved programme;
- c) Punctual and full payment of the workforce and suppliers;
- d) Site safety and H&S compliance; and
- e) Accommodation of traffic.

The SMME Subcontractor shall have 7 days from the date of receipt of the letter of warning by the Contractor to address and rectify the issues raised by the Employer's Agent, with the exception of points (d) and (e), for which the reaction time shall be immediate. Failure to do so will be sufficient grounds for the Contractor to terminate the Subcontract, provided that the SMME Committee is satisfied that the Contractor has made every effort to correct the performance by the SMME Subcontractor.

8 Issuing of Completion Certificate

The Contractor shall, within 7 days of the completion of each Subcontract completed in accordance with the provisions of this specification, issue free of charge to the SMME, a Certificate of Completion. The format, layout and appearance of certificates issued shall be agreed by the SMME Committee, provided always that they shall be respectable and presentable in accordance with the general standards of normal business practice. All certificates issued shall be co-signed by the Employer's Agent, SMME Manager and Construction Manager.

The Certificate of Completion shall provide the following information:

MAIN CONTRACT DATA:

- a) Contract title;
- b) Contractor's full name and address;
- c) Employer's Agent name and address; and
- d) Employer's name.

SUBCONTRACT DATA:

- a) SMME name and address;
- b) Scope or extent of the Subcontract Works;
- c) Value of the Subcontract Works;
- d) Duration of the Subcontract;
- e) Date of completion of the Subcontract;
- f) Description of the training undergone by the SMME; and
- g) Value of Contract.

9 Contractor's Liability

No provision or requirement set out in this specification shall be deemed to relieve the Contractor of any liability or obligation under the Contract, and in accordance with the provisions of Clause 4.4 of the General Conditions of Contract for Construction Works (2015), **the Contractor shall be fully liable for the acts, defaults and neglects of any SMME, his agents or employees**, as fully as if they were the acts, defaults and neglects of the Contractor, his agents or employees.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

10 Measurement and Payment for SMME Works

Under the work packages determined by the SMME Committee for SMMEs, the SMMEs shall be responsible for all labour, plant, equipment, tools, materials, and any other incidentals that may be required to carry out the works in accordance with the specifications.

In cases where the SMME is unable to provide all of the above then the Main Contractor is to provide plant, equipment, tools, material, and other items needed by the SMME in order to implement his work and such Contracts will be regarded as labour only Subcontracts. Any such arrangement is to be first approved by the Committee.

Alternatively, The Contractor may make arrangement to hire, advance resources to the Subcontractors and deduct from their interim payment certificates subject to the approval of the committee.

The Main Contractor shall provide full supervision and manage the SMME work at all times in order to ensure compliance with the specifications and drawings.

Measurement of SMME works for work packages must be reviewed by the SMME Manager and approved by the Employer’s Agent after approval by the Construction Manager. SMMEs will be permitted to invoice bi-monthly. All invoices from SMMEs must be submitted together with the Contractor’s Payment Certificates with a summary to show percentage targets reached.

The Main Contractor must pay SMMEs within two working days after receiving payment from the Employer. The Main Contractor will not be permitted to charge SMMEs handling costs i.e., bank charges, early payment discounts etc. These costs must be included in the **mark-up tendered by the Main Contractor** on the value of works carried out by SMMEs. Payment of SMMEs may not be delayed pending payment of the Contractor by the Employer.

11 Measurement and Payment for Fulfilling the Requirements of this Specification

11.1 Provisional Sum for SMME Work PackagesProv Sum

Provisional Sum has been allowed for the payment of works completed by SMME Subcontractors in accordance with this specification.

11.2 Mark-up on the Value of Work Carried out by SMMEs %

Provision has been made for tenderers to tender a percentage mark-up on the value of SMME Works to be undertaken under this Contract. The percentage tendered must cover all costs as indicated in **Sections 1 to 9 above** of this specification, other than the cost for the SMME Manager for all SMMEs works packages, identified as provisional sums. This must also cover lost earnings or commercial opportunities arising out meeting the requirements of this specification.

In addition, should SMMEs carry out any works measured under provisional sums where the Contractor has had the opportunity to tender a mark-up on these provisional sums, the Contractor will not be eligible to claim the mark-up on the provisional/prime cost sum. The Contractor will, however, be entitled to the mark-up tendered for works carried out by SMMEs.

11.3 SMME Contract Manager.....Sum

The monthly fee shall include full compensation (cost to company, accommodation, travelling, administration, communication, allowances, profit, risk, any other overhead). Amount will be paid as per PSA 8.2.2 (time-related items).

11.4 Provide on-site, guidance, mentoring & supervision of all activities to ensure SMMEs meet their production and quality targets.....Sum

The monthly fee shall include full compensation for all guidance, mentoring, non-accredited training, supervision, setting out, and monitoring activities that may be deemed necessary to ensure the Works carried out by SMMEs are in accordance with all aspects of the Contract Document and within the agreed timeframes and to the required quality as per the relevant sub-contractor agreement as stipulated in this specification. Amount will be paid as per PSA 8.2.2 (time-related items).

11.5 Any other costs related to the Management and administration of SMMEsSum

The Contractor is to allow for any other monthly cost he may incur and what has not been allowed for elsewhere in the document. Amount will be paid as per PSA 8.2.2 (time-related items).

11.6 Provisional Sum for SMME upliftment trainingProv Sum

A Provisional Sum has been allowed for payment of competency training for appointed SMME's.

11.7 Mark-up on the value of training costs %

The Contractor shall allow a markup for the arranging the training and enforcing quality deliverables.

C3.5: Labour and Community Specifications



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

LABOUR AND COMMUNITY SPECIFICATIONS

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ISD 1 FEATURES REQUIRING SPECIAL ATTENTION**ISD 1.1 Site Establishment**

The contractor shall negotiate the site office space through the Stakeholders and leadership of the area via the ISD facilitator.

The contractor shall negotiate payment terms if any payment has to be made for use of space for site office via the assistance of the ISD facilitator.

ISD 1.2 Project Steering Committee Representatives (PSC)

All communication to the community members of the project areas will be done through the PSC.

The contractor will reimburse the PSC a seating allowance for every meeting the PSC shall attend.

ISD Facilitator shall submit the attendance registers for all meetings attended.

ISD 1.3 Appointment of a Community Liaison Officer (CLO)

The contractor shall appoint a community liaison officer that will assist with the appointment of local labour

The contractor shall provide details of skills requirements for the person to be appointed as a CLO, and the PSC will submit at least three names of people to choose from.

The contractor, ISD Facilitator, chairperson of the PSC and the Ward Councillor where applicable, may interview the candidates to get the preferred candidate from the three names provided by the PSC representatives.

The contractor shall be responsible for remunerating the CLO for services provided.

The payment periods and amount shall be agreed upon beforehand.

ISD 1.4 Lines of Communication –Regarding Community Related Activities of the Project

The contractor may not at any given moment communicate directly with the community members on project related matters.

The PSC members are the link between the community members and the project team members.

The job seekers list will be channelled through the PSC via the CLO to the contractor.

ISD 1.5 Sourcing of Labour for the Project

All labour to be used for the project will be sourced through the CLO and the PSC representatives of the project.

All labour used in the project will be sourced from a job seekers list approved by the PSC and their respective communities.

No other jobseekers list shall be used or received by the contractor except the one residing with the CLO of the project.

The contractor shall consider all the social demographics appointing local labour. (Including women and people with disabilities and youth)

Contractor shall explain in detail how payment of local labour shall be made i.e., per day/per task and when will labour be paid (weekly, fortnightly or monthly)

The contractor shall pay labourers using the rate of pay within the area as per department of labour prescribed rates.

Social Facilitator will facilitate that all those employed as local labour will open a bank account so that the contractor may not run the risk of carrying cash on site.

The contractor will have to bear the consequences for failure to adhere to arrangements and agreements made in relation to labour payments and related matters.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

ISD 1.6 Conflict Management

The contractor should immediately report any conflict that may arise in the project to the ISD Facilitator or PSC members.

In the event that the contractor is in need of local material – local authorities should be consulted prior the use of such material. (e.g., sand or sabunga)

ISD 2 UTILISATION OF LOCAL LABOUR**ISD 2.1 Employment of labour from the local community**

The Contractor's own site staff shall be limited to key personnel only.

It is a prerequisite of this Contract that the Contractor employs members of the local community in the execution of the Works. The Contractor shall recruit all his non-skilled labour from the local community.

Local community defined as persons who normally reside within the project area.

Monthly labour returns shall indicate the numbers and details (i.e., age, gender, etc.) of the local labour employed including the nature of the work undertaken by each labourer.

The Contractor is advised to enter into a written employment contract with the local labour employed.

ISD 2.2 Identification of labour

The identification and selection of suitable labour will be undertaken in consultation with the Project Steering Committee, Community leadership, the Employer's Agent, the Community Facilitator and the Contractor.

The Contractor shall train labour to undertake the tasks for which they have been employed to perform.

Should the employment of a labourer or labourers prove unsatisfactory at any stage, the Contractor shall consult with the Employer's Agent's Representative, the Community Facilitator, Ward Councillor and the Project Steering Committee in this regard. This action will in no way relieve the Contractor of his obligation to complete the Works.

All costs incurred by the Contractor in complying with this clause shall be deemed to be included in the rates tendered in the Bill of Quantities.

ISD 3 TRAINING**ISD 3.1 General**

An aspect of the aim of this Contract is to provide training for the local labour employees.

ISD 3.2 Practical training of local labour

All local labour employed on this Contract shall receive practical training.

ISD 4 COMMUNITY PARTICIPATION

The Contractor shall make allowance for the employment of a CLO in accordance with the following terms of reference (TOR).

ISD 4.1 Terms of Reference of CLO

The Contractor shall in his dealings with the communities affected by the project, work with the Project Steering Committee (PSC) which has been elected by the community. The PSC acts as a communication structure between the project and the community. The process of appointing the Community Liaison Officer (CLO) is also facilitated by the Social Facilitator together with the PSC. The CLO acts as a link between the Contractor and the labourers and the PSC, and attends to all labour related issues. The CLO facilitates labour recruitment through the PSC. The CLO and the Executive structure of the PSC (Chairperson, Vice-Chairperson and the Secretary) attend monthly project progress report meetings (site) besides the PSC meetings attended by the full PSC. The Contractor must include in his rates the costs of attending an average of one meeting every two weeks. The CLO is appointed for the period of physical construction, plus a period of 14 days prior to this period. The Contractor will provide office and stationery to the CLO to be able to perform his or her duties.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

The ISD Consultant shall prepare and facilitate the signing of the Contract between the CLO and the Contractor. Remuneration of the CLO shall be R 5,500 per month for the period of employment and will change in accordance with change in rates from the Department of Labour.

A CLO who fails in the responsibilities he/she is given will be replaced following the procedures as stipulated in his/her Contract with the Contractor. The CLO will be expected to perform the following duties/activities:

- Organise and assist the contractor in explaining to all workers the labour-based construction model.
- Ensure labourers understand their task and the principles behind task work.
- Ensure labourers are informed of their conditions of temporal employment.
- Attend all site meetings and briefing for work procedures.
- Keep written record of community liaison and consultation which should be summarised and included in the monthly progress reports.
- Collect monthly welfare reports and submit to social facilitators.
- Ensure that contractor's workers are paid what is due to them and in time.
- Assist in the recruitment of labour.
- Promote and maintain sound relations with community stakeholders and other role players in the project.
- Screen the supplied labour by the community through Project Steering Committees to ensure compliance with the agreed upon recruitment policy and the government's labour employment targets.
- Inform local labour about their conditions of temporary employment, to ensure their timeous availability and inform them timeously when they would be relieved, where the rotation of labour is applicable.
- Keep the register of labour and manage records for local labourers in order to be able to provide reports on employment statistics.
- Consult on all decisions regarding local problems and any matters of importance that, in any way will be of relevance to the Contract.
- To be on site on a daily basis.
- To register concerns / perceptions from the labour or contractor and raise them in the PSC meetings.
- Attend PSC meetings to present monthly report on the local community labour involvement and site matters.
- Identify possible labour dispute and any disciplinary matter and advise the site agent / foreman and assist in the resolution, where necessary must call for the assistance of the Social Consultant for the resolution of the conflicts.
- Assist the contractor in preparing records of project employees.
- Assist the contractor in making task measurements and the records thereof.
- Monitor the production of individual task workers and arrange replacement of those workers who fail to produce a reasonable task output.
- Attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- Communicate daily with the contractor to determine additional labour requirements with regard to numbers and skills and pass this to the PSC.
- Attend weekly meetings with the contractor and make a weekly written report which shall be a prerequisite to being paid.

The residents of each village being served by the project are represented by a PSC. All liaisons with the community and the committees are the responsibility of the Social

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Facilitator in conjunction with the Implementing Agent, the Ward Councillor (where applicable), and the Project Manager. The Contractor will be required to liaise through them for any matters to do with the community.

ISD 4.2 Conditions of Temporary Employment

The following conditions will apply to the employment of local labour, whether employed directly or through a Subcontractor:

- Transport to site will not be provided
- There will be no payment for leave, sick leave, holidays or rain days
- Notice period for termination of employment shall be 2 days and there shall be no severance pay.

The Contractor shall however give, at the earliest possible opportunity, notice of the termination of the project and/or an employee's participation in the project:

- Workmen's Compensation Act (WCA) benefits shall apply
- The Occupational Health and Safety Act will be adhered to
- An employee shall not be required or permitted to work continuously for more than five hours without given a meal interval of not less than half an hour.

An employee shall, upon termination of his services, be entitled to a certificate of service showing the full names of his employer (i.e., the Contractor) and the employee, the type of work done by the employee, the date of commencement, a record of training received and the date of termination of his services.

ISD 4.3 TASK RATES

The following Department of Public Works task units are to be used by the Contractor:

Site Clearing and Setting Out

	Activity	Unit	Task Rate	Remarks
1.1	Setting out alignment and needed setting out of all activities	m/wd	15	
1.2	Bush clearing including disposal of cuttings out clearing width			
	• In thick bush	m ² /wd	150	
	• In light bush	m ² /wd	350	
1.3	Grass cutting	m ² /wd	750	
1.4	Grubbing including disposal of grubbed material out of clearing width			
	• Depth up to 2 cm thick	m ² /wd	200	
	• Depth more than 2c m up to 5 cm think	m ² /wd	100	
1.5	Tree and stump removal including disposal of cutting out of clearing width	m ² /wd	200	
1.6	Boulder removal including disposal of clearing width	m ³ /wd	2.00	For estimating purpose only. Use daywork
1.7	Sand and silt removal including disposal out of cleared width	m ³ /wd	3.50	In-situ measurement
1.8	Establishment of access to quarry	m/wd	25	Involves different activities
1.9	Excavation of overburden at quarry	m ³ /wd	2.50	In-situ measurement

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Excavation

	Activity	Unit	Task Rate	Remarks
2.1	Trench excavation (± 0.5m wide and up to 1.0 deep)	m/wd	7-10	
2.2	Trench excavation (± 0.5m wide and up to 1.25 deep)	m/wd	5~7	
2.3	Trench excavation	m ³ /wd	3~6	
2.4	Backfilling of trenches	m ³ /wd	4~8	

Pipe Laying Works

	Activity	Unit	Task Rate	Remarks
3.1	Laying of water pipes 100~150 mm Ø	m/wd	14~19	
3.2	Laying of sewer pipes 100~150 mm Ø	m/wd	19~24	
3.3	Laying of HDPE pipes 100~150 mm Ø	m/wd	125	

ISD 5 MEASUREMENT AND PAYMENT

ISD 5.1 Fixed-Charge Items

- a) Allowance for Contractor's initial obligations in respect of the ISD Sum
- b) Allowance for Submission of the ISD Plan Sum
- c) Allow for Community Liaison Officer Psum
- d) Allow for remuneration of PSC Members Psum
- e) Allow for training of PSC Members Psum

ISD 5.2 Time-related Items

- a) Allowance for Contractor's time related obligations in respect of ISD Sum
- b) Allowance for provision of part time ISD Sum

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

C3.6: Health and Safety Specifications



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

C3.6.1 - Occupational Health and Safety Specification

**Issued in terms of the Occupational Health and Safety Act, 1993
Construction regulations 2014**

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Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

1 SCOPE

1.1 Project Introduction

The Employers objectives are to ensure sufficient and reliable water supply to Kirkwood by expanding the Bulk Water Supply Scheme (BWSS). The work will occur at various sites, near roads, water and near houses.

1.2 Project Information

30% of the works will be done using SMME's supervised and assisted under a full time SMME Construction Manager (Refer to Part C3.4 SMME Specification). Training and upskilling will form a large part of the project delivery criteria and the contractor will be responsible, pursuant to the provisions of the contract, without in any way limiting the contractors' obligations there under, provide for the health and safety (PSA 5.7) for the works.

The principal will appoint competent contractors as per the tender scope of works documents, which will include engineering, mechanical, blasting, telemetry and other competencies. The work will happen during Covid level 1 Regulatory controls.

The project has a variety of risks, which if not managed, may have a real negative impact on the project. The appointed contractor must ensure that risk control is part of the construction program and planning.

1.2.1 Project Location

Kirkwood is a town in the Sundays River Valley Local Municipality in the Eastern Cape Province. The Implementing Agent being Amatola Water.

1.2.2 Project duration

33 Weeks

1.3 Scope of Application

This health and safety specification shall apply to this project as follows:

- Provides the overarching framework within which the Principal Contractor is required to demonstrate compliance with certain requirements for occupational health and safety established by the Occupational Health and Safety Act 85 of 1993 during construction work;
- Sets a high standard in directing the way the Principal Contractor is to manage risk reduction on all health and safety aspects, specifically those where loss incident can be suffered, during construction; and
- Establishes the way the Client's Health and Safety Agent will interact with the Principal Contractor.

This specification establishes general requirements to enable the Principal Contractor to satisfy aspects of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and the Construction Regulations, 2014. The Principal Contractor is required to develop, implement, and maintain a site-specific health and safety plan. The Client is required to provide certain site-specific information to the Principal Contractor or a health and safety specification for the works to enable such a plan to be formulated. Accordingly, this specification on its own cannot ensure compliance with the requirements of the Act.

The Construction Regulations, 2014, requires the contractor, the client and the designers to stop any contractor from executing construction work which is not in accordance with the contractor's health and safety plan and specification for the site or where construction poses a threat to the health and safety of persons.

1.4 Scope of Works

Refer to parts C3.1 and C3.2 of the tender document; however herewith a summary of the works, where the works comprises of two sections:

1.4.1 Scope Development

In summary, the scope has been confirmed as per the table hereunder:

Description	Comment
Kirkwood Potable Water Reservoir	3.0 MI
Earthworks	Main Contractor
Retaining wall	SMME Subcontractor
Pipework	SMME Subcontractor

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Description	Comment
Reservoir	Subcontractor
Moses Mabida / Bontrug Potable Water Reservoir	3.0 Ml
Earthworks	Main Contractor
Retaining wall	SMME Subcontractor
Pipework	SMME Subcontractor
Fencing	SMME Subcontractor
Reservoir	Subcontractor
Additional raw water storage at Kirkwood WTW	14 Ml
Earthworks	Main Contractor
Lining (HDPE and Concrete)	Subcontractor
Pipework	SMME Subcontractor
Fencing	SMME Subcontractor
Refurbish dilapidated building to be used as site office and workshop	SMME Subcontractor

1.4.2 Raw Water Storage

The raw water source for Kirkwood is the irrigation canal from the Korhaansdrif Weir. The Municipality has an existing lawful use of 1.3 Mm³/year for domestic use which must be licensed. A further 1.7 Mm³/year of agricultural water has been allocated to the municipality. The existing raw water storage lay dams have a capacity of 20.2 Ml. To resolve the raw water storage insufficiency, a new lay dam must be constructed adjacent to lay dam 4. The new lay dam will ensure that sufficient volume of raw water is stored during the period of maintenance.

1.4.3 Additional Clear Water Storage

- Construct a new 3.0 Ml reservoir at Kirkwood Town (Kirkwood, Aqua Park, Bergsig) Reservoirs; and
- Construct a new 3.0 Ml reservoir at Moses Mabida (Bontrug, Msengeni) Reservoirs.

1.4.4 Bontrug Elevated Water Storage

Bontrug has developed up the hill. Several dwellings have been constructed at a similar elevation, and higher, than the existing reservoirs. This resulted in the dwellings now not having water or having extremely low water pressure. The estimated number of households that will be served by the elevated tank is estimated to be 135. Based on a 24hr storage the required volume is 40 kℓ. The water will be pumped from the existing reservoir to the elevated storage. Based on a 12hr pumping cycle the flow rate will be 1.5 ℓ/s. The head will be 25 m. A Franklin FPS MH9/4 centrifugal pump with a 2.2kW motor will be installed in a new pump house next to the existing reservoir. There is electrical reticulation in the area.

1.4.5 Deliverables

As a summary of the background presented above, the main deliverables of the Kirkwood Bulk Water Supply Scheme are as follows:

- Construction of a new raw water storage lay dam (Volume = 14 Ml); and supply & install associated infrastructure.
- Construct a new 3.0 Ml reservoir at Kirkwood Town (Kirkwood, Aqua Park, Bergsig) Reservoirs and associated pipework; and
- Construct a new 3.0 Ml reservoir at Bontrug (Moses Mabida, Msengeni) Reservoirs, fencing and associated pipework.

1.5 Site Establishment

The contractor will be required to ensure:

- Provision of a site office, stores, meeting rooms, lay-down areas, employers agents offices.
- Employee ablutions, undercover eating areas, waste management and requirements according to the FR and section 8 of the contract data.
- Fenced, secure, supplied with electrical needs, water for construction and human use.
- Latrines to conform with the local authorities standard. No pit toilets are illegal. Ablutions must be clean and supplied with toilet paper, hand wash systems at all times. With the site works over a distance, this will need planning and controls.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- The permit number must be clearly displayed on the site name boards or OHS entry signage. The permit document must be on file.
- Under no circumstance may water be abstracted from the existing reservoir or pipe lines.
- EMP must include control of all worker generated waste across the works and ensure that environmental aspects, protection of Fauna and Flora, minimizing of waste through recycling, reduction and strict stock controls, are implemented. Waste must be managed as per municipal requirements and strict housekeeping practices on all construction activities will be enforced across the site camp and site works areas. No fires without prior authorization from the client site agent. Plant may not be washed, repaired or allowed to contaminate any area across the works: this must be planned for and permission noted in writing.
- The contractor shall ensure that construction activities do not encroach on, interfere with, trespass, damage adjoining lands, buildings properties, road structures, pipe lines (Specifically the asbestos pipe in operation during the works) or any other services: under or overhead. Care must be taken to protect existing services. Where crossings of roads or access to properties are a problem, the contractor must be providing safe suitable crossings and will be responsible for any damages and rehabilitation. Night traffic must never be impacted upon due to any arrangements made for access during the day.
- Traffic accommodation must be catered for as required.
- Flammable stores, fuel stores, HAZCHEM substance management must be arranged for as per MSDS and local authority advisories.
- Housing of staff must be arranged by the contractor

2 DEFINITIONS

As per the Occupational Health and Safety Act (85 of 1993) and the relevant regulations and applicable standards.

2.1 List of Abbreviations

CC	Compensation Commissioner
CHSA	Construction Health and Safety Agent
CHSO	Construction Health and Safety Officer
CR	Construction Regulations (Gazette 10113 of 07/02/2014)
DoL	Department of Labour
GAR	General Administration Regulations
GSR	General Safety Regulations
HCSR	Hazardous Chemical Substances Regulations
HIRA	Hazard Identification Risk Assessment
H&S	Health and Safety
OHSA	Occupational Health and Safety Act No. 85 of 1993 (as amended)
OHSS	Occupational Health and Safety Specification
PA	Principal Agent
PSHSS Project	Specific Health and Safety Specification
PC	Principal Contractor
PPE	Personal Protective Equipment
SANS	South African National Standards (Authority)
MSDS	Material Safety Data Sheet
SWP	Safe Work Procedure
POPIA	Protection of Information Act
ER	Ergonomic Regulations
ExR	Explosive Regulations

2.2 Key References

- Occupational Health and Safety Act, No. 85 of 1993 and Regulations (as amended)
- Construction Regulations 2014;
- Compensation for Occupational Injuries and Diseases Act, No. 130 of 1993 (as amended);
- Consolidated Directions on OH&S Measures in Certain Workplaces, 2020;
- SANS Standards; and
- Codes of Practice (COPs).

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

3 INTERPRETATION

The Occupational Health and Safety Act 85 of 1993, herein after referred to as “the Act” and its associated regulations, particularly the Construction Regulations 2014, shall have precedence in the interpretation of any ambiguity or inconsistency between it and this specification.

3.1 Purpose of the Project Specific Health and Safety Specification (PSHSS)

The PSHSS is a performance specification to ensure that the Client and any organization that enter into formal agreements with the Client / Agents, Professional Service Consultants (Engineers, Quantity Surveyors and Architects), Principal Contractors and Contractors achieve an acceptable level of OHS performance on the project.

No advice, approval of any document required by the PSHSS, such as hazard identification and risk assessments, or any other form of communication from the Client shall be construed as acceptance by the Client of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Furthermore, there is no acceptance of liability by the Client, which may result from the Principal Contractor failing to comply with the PSHSS, i.e., the Principal Contractor remains responsible for achieving the required performance levels.

A Mandatory Agreement in terms of Section 37.2 of the OHS Act will be signed between parties prior to any works commencing. The PSHSS highlights the aspects to be implemented over and above the minimum requirements of current legislation. Requirements may be changed should new risks or issues be identified that which could not have been foreseen during the design phase of the project, or during the construction phase. Any new legislation or standards (legislated or determined by the Client) that are promulgated or accepted during the contract will automatically be applied.

It should be well noted that in no way does this PSHSS relieve the Contractor of any of his responsibilities set out in the Act and Regulations.

4 THE OCCUPATIONAL HEALTH AND SAFETY FILE

As required by Construction Regulation 7, the Principal Contractor shall keep and maintain a Site Health and Safety File where all relevant health & safety records will be kept, including the Site-Specific Health & Safety Plan, COVID-19 Plan and the relevant construction risk assessments as stated above. Other relevant information includes but not limited to:

As required by Construction Regulation 7, the Principal Contractor shall keep and maintain a Site Health and Safety File where all relevant health & safety records will be kept, including the Site-Specific Health & Safety Plan, COVID-19 Plan and the relevant construction risk assessments as referred to above. Other relevant information includes but not limited to:

- a) Client Site Specific specification and HIRA
- b) PC appointment letter
- c) OHS Act 37(2)
- d) PC approved OHS Plan and approval letter
- e) OHS Administrative statutory documents:
 - Valid Letter of Good Standing with the Workmen's Compensation Commissioner
 - UIF
 - SARS clearance certificates
 - Permit from DOEL in the file with project number clearly displayed at site access.
- f) OHS Policies and procedures signed by the CEO, dated with a review provision. Ensure Smoking Policy is in the file. Include Environmental Management Policy, Substance Abuse Policy, HIV Policy, POPI Act Policy
- g) Organogram with appointments, competencies and current statutory registrations.
- h) HIRA for proposed site activities and works, Covid 19
- i) Safe work procedures / Methodologies/ Plans: inclusive of *but not limited to*:
 - Demolition planning for each structural area, and general Dust and Waste control processes for minor works
 - Blasting Method statement should the contractor need, decide to blast.
 - Noise reduction plan
 - Hoarding and lock out controls
 - Prevention of water ingress to works
 - Facility management and planning for safe access to the works areas.
 - FPP done by a competent person specific to works.
 - Covid 19 mitigation and transmission control plan.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Fire prevention plan
 - Emergency Plan
 - Air monitoring plan for work in the dam tower
 - Excavation and trenching method statements that ensure only 400 m trenches in open areas are done daily and closed, and closer to towns, 150 m trenching is done. Barricade, warnings and all trench and excavation controls to be noted
- j) Induction program that must include work in water environments
- k) Training and toolbox talks. Upliftment of competency requirements as required for this works
- l) Inspection registers with appropriate policies and procedures
- m) Emergency management, contact numbers and coordinated emergency plan for the specific areas of work along the construction works route.
- n) Police clearances for all before allows access to site, and filed for verification
- o) Hazardous Chemical Management System
- p) Construction environmental management system
- q) Laws and Regulations
- r) Communications
- s) OHS Committee
- t) Sub-Contractor Management
- u) Employee medical monitoring with formal permission in writing with regard to the POPIA Act and BCE:
- OHS Medicals fit for work: Repetitive movement, Weather exposures, Water Environments to be noted on assessment
 - Employee ID's
 - Covid daily access monitoring
 - Assessment for work at heights during work that has potential of falling into, off, onto
 - Ergonomic surveys
 - Proof of UIF payments
- v) Incident Management:
- Procedures
 - General incident management register (Monthly)
 - Annexure 1
 - COIDA forms
 - Covid Reporting COIDA forms.
- u) Audits
- Internal
 - Subbie Audits
 - CHSA Audits and Inspections

5 GENERAL REQUIREMENTS

5.1 General Risk Management

The Principal Contractor must provide a detailed risk assessment for the entire works on site. Certain construction activities, equipment, substances etc. represent significantly higher safety risks than others. The risk assessment is required to define systems and safe working procedures that will be implemented on site in an endeavour to complete the activity safely. The set of risk assessments required to be submitted to the Client must include the assessment of health risks such as those that are associated with COVID-19, and other health risks which may result from lack of personal hygiene, ergonomic hazards, etc.

The contractor is required to:

- Identify health and safety hazards and risks to which persons may be exposed;
- Analyse and evaluate the identified hazards and risks;
- Document a plan which will highlight safe working procedures to mitigate, reduce or control the identified risks; and
- Develop a Monitoring and Review Plan of the hazards and risks.

The client baseline risk assessment provided with this specification aims to provide the framework within which the risks must be assessed for the construction phase of the project, and to highlight any reasonably foreseeable risks which may be inherent to the project based on its current scope of works. The BRA is therefore not the replacement of the contractor's risk assessment but rather to point the contractor towards some risks he might not be aware of during tendering stage and while conducting

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

his formal risk assessment. The baseline risk assessment, which is attached as an Annexure to this specification must be used as a guide in conducting the construction phase risk assessments.

A baseline risk assessment is to be determined by the H&S Agent, and provided as an addendum to this H&S Specification. The PC is required to determine their own project specific risk assessment as mandated by the Construction regulations, noting procedural methodologies of choice to achieve the project deliverables. The contractor is a technical specialist and was appointed for that specific knowledge base. The OHS system must be aligned, with the purpose of reducing risk at task level, whilst construction occurs.

Technical work method statements are required by the clients’ agents. These are to be developed in order to ensure that particular work is conducted in a manner as safe as reasonably practicable and according to design, engineering specifications or similar technical specifications.

Safe work procedures must be developed by the PC in response to identified significant site-specific risks.

Near miss incidence must be noted, investigated and used to update the PC HIRA and works procedures.

Anticipated high risks summary (Not limited to):

Work in water environments Dam and other areas.	Work in adverse weather conditions	Community risk: Unrest, strikes,
Work at heights: Varies per construction task: FPP must note them individually	Excavations: Note controls that are not negotiable. Deepest depth anticipated 4M	Public liability: blocking access to private property or damaging existing structures
Temporary works: Form work and scaffold use	Use of tractor and trailer Plant and machinery	If <u>blasting</u> is used: all associated risk
Fires	Ergonomic hazards	Site over large areas: Emergency and facility needs
Snakes, spider bites, dog bites (Rabies)	Electrocution	Flooding
Noise, dust, vibration	Covid 19	Waterborne diseases

6 TRAINING, AWARENESS AND COMPETENCY

6.1.1 Health & Safety Training

The Principal Contractor must ensure that all his / her staff is adequately trained to perform the tasks allocated to them and that there is the requisite amount of supervision at all times to maintain safe work practices and standards, particularly where semi-skilled and unskilled personnel are involved. The contractor shall conduct a training needs analysis to ascertain what health and safety training and re-training is required. No employees shall be allowed on site unless there is proof of induction training and some form of identification.

6.1.2 Induction

The contractor shall conduct a site-specific health & safety induction for all the employees, contractors and visitors to the site.

Copies of the attendance registers signed by the attendees as acknowledgement of attendance are to be kept on site in the health & safety file for verification during inspections and Client Audits.

The onsite induction training must also include precautionary measures to be taken on site to prevent the spread of COVID-19. Such measures shall include inter alia the importance of disclosure of any COVID-19 related symptoms, good personal hygiene, observing and maintaining safe social distancing, use of suitable PPE such as face masks, etc.

6.1.3 Awareness

The Principal Contractor shall conduct on-site periodic toolbox talks, preferably weekly or before commencing a hazardous work (activity). The talks shall cover the relevant activity and an attendance register and the contents of the topics discussed must be kept on site in the health & safety file.

Safety notices and symbolic signs, including health and safety awareness posters must be displayed at the site entrance and at strategic positions on the site to create health and safety awareness.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

COVID-19 awareness signs, notices and posters must also be displayed at strategic positions.

6.1.4 Competency

The Principal Contractor shall send relevant persons to appropriate courses as required by the Act, relevant Regulations, and applicable safety standards. The type of training to be conducted will be determined after conducting a Hazard Identification and Risk Assessment (HIRA). Copies of training certificates must be kept on site in the health & safety file.

The training to be conducted is, but not limited to:

- Health & Safety Representative Course;
- First Aid Training;
- Fall Protection Planner (SAQA US 229994);
- Working at Heights (SAQA US 229998);
- Scaffolding Erectors and Inspectors, designers;
- Incident investigation;
- Hazard Identification & Risk Assessment Course; and
- Covid 19 training course.

6.2 Specified Hazardous Chemical Substances

The PC is to supply the products required as per the bill of quantities-, materials data sheets (MSDSs) for each of the product envisaged to be utilized on site. The South African MSDS to be provided.

Multiple chemical substances will be in use: Index and ensure relevant controls are in place and that the site F.A is aware of requirements.

6.3 Blasting

Should the PC decide to blast it is critical that a competent contractor does the work, and that all the required documents, planning, blast zone controls, rock fly zones, access controls, traffic planning, warning signals and so on is presented 2 weeks prior to blasting dates for assessment and approval. The community must be fully informed and all employees educated on the associated risks. A HIRA must guide the controls required.

7 OCCUPATIONAL HEALTH & SAFETY MANAGEMENT

7.1 Notification via Permit of Construction Work

The Client or appointed CHSA to submit a permit application to the Department of Labour as per CR 3, ensuring compliance with CR 5 and 6.

DOL acknowledgement letter shall be kept on file and the Permit number must be displayed clearly at the site entrance/ site camp.

This must take place before any work commences and post SHE Plan and implementing file approval; the contractor is to ensure this specification guides the documentation presented for approval. The required competency standards must be presented and be evidence based. This process must not be delayed by the appointed contractor who is aware of the requirements at tender phase.

It should be noted that **in no way** does this PSHSS relieve the Contractor of any of his responsibilities set out in the Act and Regulations.

7.2 Appointment of Competent Site Personnel

The CEO (OHS S16.1) of the PC will take overall responsibility for the appointment of competent site staff for the duration of the project. Should the CEO not be personally involved in the project, the H&S responsibilities are to be delegated to the Acting CEO (OHS 16.2/ 8.1).

Knowledge and training in H&S are required, and certificates indicating H&S training as well as experience to be included in CVs. The designated Construction Manager (CR 8.1) is empowered to appoint personnel on the site as part of his / her duty to ensure health and safety compliance. The 8.1 must sign off on (Not limited to:)

- FPP
- Temporary works designs
- Method Statements
- CHSA Audits

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

The signature to the above documents indicates that the responsible person, the 8.1, approves and is informed with the content of the information given.

All other legal appointments are to be made with relevance to the type of work to be performed, all appointees are specific to this site and this contract. Each appointed person must understand their role and legal liability in accepting the appointment.

7.3 Construction Manager (CR 8.1) and for in his absence, the CR. 8.1. alternate is accountable. This is a specific legal appointment under Sec 8.

The Principal Contractor must in writing appoint one full time competent person as the construction manager with the duty of managing all the construction work on this single site, including the duty of ensuring occupational health and safety compliance. In the absence of the designated Construction Manager, an alternate must be appointed and the appointed shall have training and/or experience in the area of responsibility.

7.4 Assistant Construction Managers (8.2)

The Principal Contractor must, after considering the size of the project, in writing appoint one or more assistant manager for different sections of the works; these appointments do not relieve the 8.1 of any personal accountabilities for failure in managerial duties.

7.5 Construction Work Supervisor (CR 8.7)

The Construction Manager must in writing appoint construction work supervisor/s responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

7.6 Construction Health and Safety Officer (CR 8.5)

The Principal Contractor must appoint a suitably competent Construction Health & Safety Officer (CHSO) to co-ordinate his or her organization's health & safety efforts on the site.

The CV for the proposed CHSO must be submitted to the Client appointed CHSA for approval. The appointed CHSO must be full time and readily available on site during working hours. The CHSO must conduct monthly internal audits and random site safety and equipment checks, including overall compliance with the site-specific construction health and safety plan and procedures, and compile a monthly CHSO report to be tabled at each site progress meeting.

The minimum qualification for the CHSO must be a matric certificate, SAMTRAC qualification with at least two years and more experience on civil engineering and/or building projects.

The CHSO that the Principal Contractor intends to appoint must be registered as a CHSO with the SACPCMP and shall provide a valid registration certificate with the Council.

7.7 Construction Supervisor Assistants

A contractor must consider the size of the project, appoint in writing one or more competent employees to provide full time supervision for a specified area of the works, thus does not absolve the 8.7 from personal accountability in assuring adequate supervision is given for construction works.

7.8 Health & Safety Representative / H&S Committee Member (OHS Act 17 & 19)

Irrespective of the number of employees employed on the site, the PC and contractors must each appoint a full-time health and safety representative, who at least has completed the necessary health and safety representative course. The election or appointment of health & safety representatives must be in writing.

Regular inspections are to be carried out by health & safety representatives; records must be kept on site in the health & safety file. Deviations must be rectified by the responsible person immediately.

The H&S representative will liaise and report to the health and safety officer.

In cases where there are more than two health & safety representatives elected, a health & safety committee must be established. Health and safety committee meetings must be held at least monthly to discuss relevant health & safety topics.

7.9 First Aider / First Aid Attendant

The Principal Contractor must appoint at least two Level 2 First Aid Attendant for the project and where practicable, one First Aid Attendant for each work team or section of the works. The appointed First Aid Attendants must be suitably qualified and have valid training certificates.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

The Principal Contractor together with the responsible First Aid Attendant must ensure that the first aid boxes(s) are fully stocked.

The contractor is to note that work may occur over a wide spread area and for this multiple FA may be required: also note the risk and ensure adequate FA box provisioning.

7.10 Risk Assessor

The Principal Contractor is required to appoint a competent risk assessor and must understand the process of identifying hazards and assessing risks emanating from the identified hazards.

This appointed person can be an already designated health & safety officer because the task of assessing risks is an ongoing process and therefore risk review process must be done regularly.

This will also mean that that person will be responsible to put together a risk profile, rate the risks, and ensure that there are appropriate corrective action plans.

Further to that, there must be a direct link to the personal protective equipment / clothing and training to be conducted throughout the contract.

7.11 Other Appointments are stated below but not limited to:

- Drivers / Operators of Construction Vehicles and Plant;
- Electrical Installation & Equipment Inspector;
- Excavations Supervisor;
- Emergency / Security / Fire Co-Ordinator;
- Fire Equipment Inspector;
- Temporary Works Supervisor and Inspector;
- Scaffolding Erector/s and Inspector;
- Fall Protection Planner
- Stacking and Storage Supervisor;
- Hand Tools Inspector;
- Ladder Inspector;
- COVID19 Compliance Officer and Covid Compliance Manager;
- All other relevant Appointments for the Project;
- Blaster; and
- CLO.

The Principal Contractor shall, when appointing Contractors, shall do so in terms of the Construction Regulations 2014, and in terms of the requirements of Section 37(2) of the Occupational Health and Safety Act, 85 of 1993 (As amended).

The appointments shall be in writing and the responsibilities clearly stated together with the period for which the appointment / designation is valid. This information shall be communicated and agreed with the appointees as well as all the mandataries.

The Principal Contractor must provide a project specific health and safety organogram of all appointed / designated personnel and a list of contractors appointed on the project and shall always keep an up-to-date copy of each on site. The site organogram and list of contractors shall also be displayed on the site notice board.

The Principal Contractor is to ensure that each Contractor’s H&S documentation is evaluated and approved in accordance with the Occupational Health and Safety Act 85 of 1993 (As amended) and CR 7. A copy of the Contractor’s H&S Plan Approval is to be sent through to the appointed H&S Agent.

The Principal Contractor must ensure that an audit is conducted on each Contractor on a monthly basis before the arranged site progress meeting. This audit is to be conducted by the Principal Contractor’s appointed CHSO and a report is to be given on each Contractors H&S performance for the past month.

Herewith a site register:

Contractor & Contact details	COIDA date	SHE Plan Approved	Appointment Date/duration.	37.2	Scope	Audit score	Non compliance	Date

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

8 GENERAL RISK MANAGEMENT

8.1 Health Risks and Medical Surveillance

The appropriate MSDSs are to be obtained for all products and used to develop the H&S documentation as they relate to the works. The PC is to ensure and supervise safe use of products / chemicals, and their inclusion into risk assessments.

All employees on the site, including contractors, must be in possession of valid medical certificates of fitness to work, issued by an Occupational Health Medical Practitioner in the form of Annexure 3. These medical certificates shall be in the categories of pre-employment, annual and exit medical evaluation.

Furthermore, the medical surveillance program shall include initial screening of COVID-19 symptoms based on the professional advice of the OHMP / OHNP. Good personal hygiene must be promoted on the site and the sanitary and hand washing facilities with soap and running water must be provided.

Additional monitoring in house must be done for work at heights.

Where air monitoring in the dam tower indicates risk: the employees must be monitored.

New legislation may impact on monitoring needs.

General hygiene and wellness, inclusive of mental health impacts should form part of the project training programs.

8.2 Emergency Procedures

An emergency plan and procedure that is appropriate to the risks is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan / procedure must include COVID-19 related emergencies such as responding to COVID-19 case/s on the site. Assembly point / area to be large enough to allow for social distancing during roll call.

The emergency plan is to ensure the inclusion of local service providers where possible, including nearest COVID-19 testing station. Such arrangements should be made with the service providers prior to the commencement of the project. An isolation area for COVID-19 suspected persons must be made available on site, preferably an enclosed area or room.

Local emergency telephone numbers must be displayed and made part of the emergency procedure. COVID-19 Emergency Contact numbers must also be included on the list

The general principals of emergency management are to be applied as it applies to the hierarchy of control and management. The distances between works site, the works environments must be noted in the emergency risk analysis and response planning:

Potential emergencies (Not limited to:)

- Employee incidence inclusive of Covid 19 transmission, injuries, falls
- Community unrest
- Fire
- Snake, spider and dog bites (Rabies is currently a huge concern)
- Flood
- Drowning
- Collapse of structures
- Water borne disease spread or illness due to weather exposures: heat

8.3 Security and Access Control

The Principal Contractor shall establish site access rules, implement, and maintain these throughout the construction period.

Access control procedure shall ensure that non-employees do not proceed on to work areas unaccompanied by a senior site responsible person. All workers and visitors to site must be screened for COVID-19 symptoms before they can be allowed on site. Should a person exhibit any of the COVID-19 symptoms, that person shall not be allowed to site and must either be transported home or to the nearest testing centre.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

8.4 Fires and Emergency Management

Attention to emergency planning and procedures is very important. Requirement in terms of identified risks:

- Fire;
- Public Safety;
- Working near water;
- Falls from heights;
- Electricity;
- Riots; and
- Vehicle accidents.

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project; the emergency plan is to include the risks of fire on site and related to any specific activities.

Fire extinguishers will be appropriate for the risk and in sufficient numbers to deal with the type of fires that could occur.

8.5 Incident Management and Compensation Claims

All incidents and accidents are to be investigated using a form similar to Annexure 1 hereto attached. All serious incidents requiring medical attention or involving any form of disabling or lost time injury or fatality are to be reported to the Client /CHS Agent immediately. This shall be confirmed in writing following the incident.

8.6 Personal Protective Equipment (PPE) and Clothing

The PC is to provide PPE to all employees free of charge, based on the risk assessments and the type of work to be performed.

The wearing of the identified SANS approved PPE at all times is non-negotiable.

- Hard hats;
- Protective footwear;
- Overalls that ensure worker visibility, and shows for whom employee works;
- Eye protection (if required);
- Hearing protection: Muffs and earplugs, noting that ear plugs only reduce news by 5dB;
- Reflective jackets (No bibs);
- Respiratory Protection (minimum of FFP2) for activities where a more effective mask other than a cloth mask is required;
- Safety Harnesses with Big Hooks; and
- Any other necessary PPE identified from MSDS's and/or risk assessments.

All employees and visitors to the site must always wear face masks over their mouth and nose to prevent the spread of COVID-19 both at the workplaces and within the surrounding communities. Also note requirements set out in the Covid specification.

8.7 Occupational Health and Safety Signage

As mentioned earlier on this document, on-site H&S awareness signage is required. Signage shall be posted up at fixed or temporary working areas, or other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations or SANS requirements as amended. Signage is to be noted on the site layout drawing indicating where fixed/temporary signage is required.

The signage to be displayed shall be in respect of the following:

- No Un-authorized entry – Report to Site Office;
- Permit number on Project boards;
- COVID-19 Awareness Signage / Rules / Notices (i.e., Symptoms; Wearing of Masks; Personal Hygiene; Social Distancing; Isolation Area / Room, etc.);
- 'Hard hat area' or other PPE requirements;
- First aid box positions (including vehicles);
- Fire extinguishers;
- Assembly Area;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Scaffold Signage;
- Deep Excavations;
- Blasting control signage; and
- Traffic safety signs as applicable to the works risks.

Signs shall be posted at areas of work on site indicating that a construction site is being entered and that persons should take note of H&S requirements. Signage must be clean and in good repair.

8.8 Induction of Employees and Visitors, General H&S Training

A simple, formal induction program is to be prepared which is site specific. Inductions must be carried out for all workers and visitors (including Client) to the site.

DSTI training is required to ensure workers are familiar with the risks and H&S measures of the work or tasks to be done.

9 COMMUNICATION ON SITE

All OH&S communication during the project between the CHS Agent and the PC will be done in writing, including the issues and responses to non-conformances and H&S audit results.

10 CARE OF WORKERS ON SITE (WELFARE)

The provision of toilets at reasonable distances within the work areas is required in terms of the National Building Regulations and Construction Regulation 30. Clean drinking water is to be available to all employees at all times. Hand washing stations and / or 70% alcohol-based hand sanitizer must be provided. Hand washing soap must also be provided. Also note set out under Scope.

At any one time, no employee's belongings are to be found on the active construction area, the Principal Contractor is to ensure that adequate storage facilities are available for employee's belongings.

At least one toilet for each sex and for every 30 workers and must be maintained in a hygienic manner and disinfected regularly to reduce the spread of COVID-19.

Sheltered eating area to be provided for the workers on site. All facilities to be COVID-19 compliant. An isolation room / area for suspected COVID-19 cases must also be provided on site.

11 DISCIPLINE, ALCOHOL AND SUBSTANCE ABUSE

All employees (management included) are to follow instructions given in the interest of H&S. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies.

No person shall be allowed to work or access the site if under the influence of alcohol or other substances that could impact on their own or others safety. Random alcohol testing shall be conducted on site. Care should be taken not encourage the spread of COVID-19. Single-use disposable alcohol test units to utilized and appropriately disposed of. Fires must be prevented at all cost.

12 WORKING AT HEIGHTS

A practical site-specific fall protection plan as per the requirements of CR 10 needs to be compiled by a competent person as per unit standard 229994. The Fall Protection Plan must be submitted to the client appointed CHSA for evaluation and approval.

It is envisaged that scaffolding as well as ladders may be utilized to gain access to heights during construction work.

Scaffold erector/s and the scaffold inspector with relevant competencies must be appointed in writing for the purpose of erecting and inspecting scaffolding on the site. A scaffold supervisor must also be appointed to supervise all scaffolding operations on site.

All employees who will be required to work at heights must be declared medically fit to work at heights by an occupational health medical practitioner and the medical certificates must be made available prior to work at heights. All employees working at height shall be in possession of working at heights certificates in line with US 229998.

When working at heights, the effects of wind forces must be considered, and the work must be stopped where significant wind forces are experienced.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

13 EXCAVATIONS

The Principal Contractor is to provide a method statement for excavations, and this will be approved by the H&S Agent and the Engineer/Architect.

The Principal Contractor must ensure that all excavations are safe to enter prior to any work commencing.

Area being worked at needs to be properly barricaded or fenced off. Barricading must be done in such a manner that prevents people and animals from falling into open excavations.

All deep excavations deeper than 1m must be sloped or shored to make the work environment for employees safe to work in.

All excavations deeper than 2m must be shored, and shoring must be signed off by the Construction Manager before any work can take place in such excavations.

All excavations on site where employees are performing work, must have a ladder for safe access and egress. The ladder must be long enough to protrude 900mm above the edge of an excavation and must be positioned at every 6m within the excavation length.

Excavations should preferably not be opened beyond what can be worked in daily. The Contract data state clearly: Maximum length of a trench is 400M and closer to communities 150M. This makes the risks manageable. No trenching is allowed within 2 of existing infra structure telemetry, electrical poles or stays: unless instructed and noted on a drawing.

Danger tape or candy tape is not permitted to be used on site as a means of barricading!

Suitable material such as hard-plastic mesh (long durability) adequately supported and being able to withstand a normal person's weight and the elements (wind, rain) must be utilized as barricading.

All open excavations shall be kept clean (dewatered) of stagnating water.

14 TEMPORARY WORKS

The Principal Contractor must appoint a competent person as a Temporary Works Designer to design, inspect and approve the erected temporary works on site before use. The appropriate competent persons are to be appointed to manage and monitor such works to the satisfaction of the Engineer and CHS Agent. Records of temporary works inspections and approvals are to be properly completed by the relevant competent persons and kept in the H&S file.

All temporary works must comply with the requirements of Regulations 6 and 12 of the Construction Regulations 2014. Workers who shall be required to erect, move, or dismantle temporary works structures must be provided with adequate training and instruction to perform those operations safely. If temporary works are to be erected by a Contractor, this must be notified to the Architect / Engineer / CHS Agent. All necessary calculations and drawings of temporary works must be kept on site and available to the PA and CHSA.

15 CRANES AND LIFTING OPERATIONS

Should any form of lifting device or crane (fixed or mobile) be used during the project for deliveries, moving of supplies or equipment, the appropriate documentation must be made available. Valid load test certificates for cranes and lifting tackle must be made available before use on site.

Method statements, risk assessments, safe work procedures and training records are to be available prior to work commencing. A procedure for managing loads and lifting operations on the site must be made available as an addendum to the Construction H&S Plan.

16 ELECTRICAL AND MECHANICAL INSTALLATIONS

All electrical and mechanical installations must comply with the requirements of the Health and Safety Act, the Construction Regulation 2014, other relevant regulations and applicable safety standards and industry best practice. This type of work may be done by specialist contractors, in which case, the requirements of Regulation 7 of the Construction Regulations 2014 must be complied with in respect of appointing such contractors. Relevant safe work procedures and technical method statements must be submitted for approval by the PC. Proof of pneumatic and silencing of noise on tools must be provided.

The work must be conducted by appropriately registered contractors and on completion of such installations, certificates of compliance issued by competent persons will be required.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

17 DELIVERY OF MATERIALS TO SITE

The PC must reasonably manage all deliveries of material to site. Stacking and storage of materials to be properly coordinated by a person designated for that purpose.

PC to ensure all construction materials and articles are safely stacked in areas designated for that purpose and demarcated accordingly as material laydown areas.

18 NUCLEAR DENSITY GAGE

The correct appointments, proof of department of Health appointees, storage, method statements and controls must be available for Audit.

19 CONTRACTOR MANAGEMENT

The Principal Contractor shall remain responsible for all the contractors appointed by him or her, including nominated and selected contractors and shall ensure that they also comply with requirements of this specification and legislated requirements.

All contractors shall be appointed in terms of the requirements of Regulation 7 of the Construction Regulations 2014 and shall enter into a written agreement with the Principal Contractor as stipulated in Section 37(2) of the Occupational Health and Safety Act, 85 of 1993.

Contractors must be appointed in writing by the Principal Contractor and they must submit health and safety plans which shall be evaluated and approved in writing by the Principal Contractor.

Each Contractor must be registered and in good standing with a licensed Compensation Insurer or Compensation Commissioner and a valid letter of good standing must be submitted to the PC.

The PC must audit all the contractors at least monthly and follow up on non-compliances and ensure such are attended to within reasonable time periods as agreed between the Principal Contractor and each Contractor. Audit reports to be made available for verification.

20 NON-CONFORMANCES

The Principal Contractor may be penalized for critical and / or repeat non-conformances with the requirements of this specification, the Principal Contractor's health and safety plan and current health and safety legislation. Penalties shall be in the form of monetary value or work stoppage or both. Penalties of monetary value shall be at the discretion of the CHSA, after consultation with the Client / Consulting Engineer or Architect, ranging between R100.00 to R5000.00 per count, depending on the nature and seriousness of the offence in question.

Refer to **Annexure E** for further details pertaining to the penalties applicable.

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with this specification, the PC's H&S Plan or any legislative requirements; the PC shall have no claim for extension of time or any other compensation.

21 PROJECT CLOSE OUT REQUIREMENTS

The documentation submitted and approved following the awarding of the contract will be used to form the H&S file. On completion of the project, a consolidated health and safety file consisting of the following documents but not limited to, shall be submitted to the client appointed CHSA:

- The H&S Plan and the approval by Client;
- PC Appointment Letter;
- Mandatory Agreement with Client;
- Notification of Construction work and Confirmation letter from DOL.
- Record of Competencies (CVs) and appointments;
- Training Records;
- Method statements;
- Risk assessments;
- Safe work procedures;
- Emergency and Injury Management (Accident Stats and Investigations);
- Medical surveillance records;
- Registers and Checklist;
- Internal H&S Audit Reports;

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- Contractor H&S Audit Reports;
- Non-Conformance Reports; and
- Any other documents which may be required by the appointed CHSA.

The file must be submitted in an electronic copy stored on a flash drive and must be arranged chronologically in folders and subfolders where necessary.

22 ANNEXURE A: INCIDENT RECORDING

ANNEXURE 1

**OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
(ACT NO 85 OF 1993)**

REGULATION 9 OF THE GENERAL ADMINISTRATIVE REGULATIONS

RECORDING AND INVESTIGATION OF INCIDENTS

A. RECORDING OF INCIDENT

- 1. Name of employer
- 2. Name of affected person.....
- 3. Identity number of affected person.....
- 4. Date of incident
- 5. Time of incident.....

6. Part of body affected	Head or Neck	Eye	Trunk	Finger	Hand
	Arm	Foot	Leg	Internal	Multiple

7. Effect on person	Sprains or strains	Contusion or wounds	Fractures	Burns	Amputation
	Electric shock	Asphyxiation	Unconsciousness	Poisoning	Occupational Disease

8. Expected period of disablement	0-13 days	2-4 weeks	>4-16 weeks	>16-52 weeks	>52 weeks or permanent disablement	Killed
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- 9. Description of occupational disease.....
- 10. Machine/process involved/type of work performed/exposure**.....
- 11. Was the incident reported to the Compensation Commissioner and Provincial Director?

Yes No
- 12. Was the incident reported to the police? *

Yes No
- 13. SAPS office and reference

*to be completed in case of a fatal incident.** in case of a hazardous chemical substance, indicate substance exposed to

B. INVESTIGATION OF THE ABOVE INCIDENT BY A PERSON DESIGNATED THERETO

- 1. Name of investigator
- 2. Date of investigation
- 3. Designation of Investigator
- 4. Short description of incident
.....
.....
.....
- 5. Suspected cause of incident
.....
.....
.....
- 6. Recommended steps to prevent a recurrence
.....
.....
.....
.....

.....
Signature of Investigator
Date

C. ACTION TAKEN BY EMPLOYER TO PREVENT THE RECURRENCE OF A SIMILAR INCIDENT

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

.....
Signature of employer
Date

D. REMARKS BY HEALTH AND SAFETY COMMITTEE

Remarks
.....
.....
.....
.....

.....
Signature of Chairperson of Health and Safety Committee
Date

23 ANNEXURE B: MANDATORY DOCUMENTS

**OCCUPATIONAL HEALTH AND SAFETY ACT (85 OF 1993)
CONSTRUCTION REGULATIONS 2014**

AGREEMENT WITH MANDATARY

In terms of Section 37(1) and (2)

WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

AND

*Agreement with Mandatary to be completed in black ink and each page
and any change made to be initialled*

Contractor ____ Witness 1 ____ Witness 2 ____ Employer ____ Witness 1 ____ Witness 2 ____

**OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993
AND CONSTRUCTION REGULATIONS 2014
REQUIREMENTS:**

1. Your attention is drawn to "General Duties of Employers to their Employees" as required by Section 8 of the Act.
2. You are required to:
 - 2.1. Sign a written "Agreement with Mandatary" as required by Sect 37(1)(2) of the Act before commencing any work on site.
 - 2.2. Ensure that all your employees receive the necessary Induction Training and have proof thereof.
Note: You must ensure that all employees under your control are informed, instructed and trained by a competent person regarding any hazard and the related work procedures before any work commences.
 - 2.3. Ensure the provision of Welfare Facilities for your employees as per Construction Regulation 28.
 - 2.4. Provide the Client/Principal Contractor with your SHE Plan and Specifications
 - 2.5. Ensure that Method Statements, Risk Assessments and Safe Work Procedures are done and available.
 - 2.6. Provide the Client/Principal Contractor with written appointment of the person who is going to supervise the Construction Work per Construction Reg. 8
 - 2.7. Provide the Client/Principal Contractor with written designation of your nominated Health and Safety Representative as per Section 17(1).
Note: Your Health and Safety Representative will be expected to attend the Client/Principal Contractor safety meetings.
 - 2.8. If you employ more than five (5) persons, you are required to provide your own First Aid Box (GSR 3(2)).
 - 2.9. If you employ more than ten (10) persons, you are required to provide your own qualified First Aider as per GSR 3(4)
Note: If you have difficulty in complying with items 2.7 and 2.8 above, you may arrange/come to an agreement with the Client/Principal Contractor to make use of his First Aid facilities in case of injury. You will be expected to communicate such an agreement to your employees.
 - 2.10. When working with Hazardous Chemical Substances, comply with HCS Reg. 3
Note: Asbestos and Lead Regulations are separate.
 - 2.11. When using a Materials Hoist, comply with the requirements of Construction Reg. 19.
 - 2.12. When using Lifting Machines and Lifting Tackle, comply with DMR 19
Note: You may be required to appoint a Banksman to control Lifting/Slings operations
 - 2.13. When erecting/using Scaffolding comply with the requirements of SANS/0085 "Access Scaffolding"
 - 2.14. When doing Demolition Work, comply with Construction Reg. 14
 - 2.15. When doing blasting to comply with Explosives Regulations Chapter 10
 - 2.16. When doing Excavation Work, comply with Construction Reg. 13
 - 2.17. When doing Electrical Installations, comply with the requirements of Construction Reg. 24
Note: Electrician to provide copy of registration as per Elect. Install. Reg. 9(3)
 - 2.18. When using Construction Vehicles, comply with Construction Reg. 23
 - 2.19. When using/erecting Support/Form Work, comply with Construction Reg. 12
 - 2.20. When working over or in close proximity to Water, comply with Construction Reg. 26
 - 2.21. Ensure that good Housekeeping, Stacking and Storage principles are applied on this project as per Construction Reg. 27 and 28
 - 2.22. Ensure that appropriate measures are taken to avoid the risk of Fire/Explosion and comply with requirements of Construction Reg. 29
 - 2.23. If you are going to work at heights a Fall Protection Plan must be submitted (roof work included) as per requirements of Construction Reg. 8
 - 2.24. When using Explosive Powered Tools, comply with GSR 19
 - 2.25. When Welding, Flame Cutting/Soldering, comply with GSR 9
 - 2.26. When working in Confined Spaces, comply with GSR 5
3. You are responsible for providing your own legal safety documents and registers to comply with the Act's requirements a copy of the OHS Act of 1993 and the Construction Regulations ;2003 will be available for perusal in the Principal Contractor's site office.
4. You are required to comply with General Safety Regulations 2(1) to (7) and provide your employees with: personal protective equipment which will allow them to carry out their work in a safe manner, e.g. hard hats, safety harnesses, gloves, safe footwear, eye protection, ear protection, waterproof clothing etc.
5. Reporting of Incidents of Occupational Diseases shall be done as per General Admin. Regulation 8 (Also see Sect 24 of the Act)
6. Compensation for Occupational Injuries and Diseases Act (No 130 of 1993) You are required to provide the Client/Principal Contractor with proof of registration with the Compensation Commissioner/Federated Employer(s) Mutual when signing this agreement. If you are not registered, the Client/Principal Contractor may deduct the necessary amounts from your progress payments and pay it over to the Commissioner to ensure that you are insured. See Section 80 and 89 of the COID Act.

Client Signature

Principal Contractor Signature

Date

Date

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

**AGREEMENT WITH MANDATARY
IN TERMS OF SECTION 37(1) AND (2)**

DEFINITION OF MANDATARY

- includes an agent, a contractor or sub-contractor for work, but without derogating from his status in his own right as an employer or user

SECTION 37(1)

Whenever an employee does or omits to do any act which it would be an offence in terms of this Act for the employer of such employee or a user to do or omit to do, then, unless it is provided that –

- (a) in doing or omitting to do that act the employee was acting without the connivance or permission of the employer or any such user;
- (b) it was not under any condition or in any circumstance within the scope of the authority of the employee to do or omit to do an act, whether lawful or unlawful, of the character of the act or omission charged; and
- (c) all reasonable steps were taken by the employer or any such user to prevent any act or omission of the kind in question, the employer or any such user himself shall be presumed to have done or omitted to do that act, and shall be liable to be convicted and sentenced in respect thereof; and the fact that he issued instructions forbidding any act or omission of the kind in question shall not, in itself, be accepted as sufficient proof that he took all reasonable steps to prevent the act or omission.

SECTION 37(2)

The provisions of subsection (1) shall mutates mutandis apply in the case of a mandatary of any employer or user, except if the parties have agreed in writing to the arrangements and procedures between them to ensure compliance by the mandatary with the provisions of this Act.

ACCEPTANCE BY MANDATARY

In terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993

I, _____ acting for and on behalf of

**(Company/Close Corporation/Enterprise/
Owner/User)** undertake to ensure that the requirements and provisions of the Act and Regulations are complied with.

Signature: _____ Print Name:

Contractor:

Designation: _____ Date: _____

Mandatary-Workmen’s Compensation/Federated Employers Mutual No: _____

Signature: _____

Client:

Designation: _____ Date: _____

**OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993
CONSTRUCTION REGULATIONS 2014**

PRINCIPAL CONTRACTOR APPOINTMENT

CONSTRUCTION REGULATION 5

5(1): A Client shall be responsible for the following:

- k) to appoint every principal contractor in writing for the project or part thereof on the construction site

APPOINTMENT

Principal Contractor, _____ (name)

of: _____ (Company/Close Corporation/Enterprise/Owner/and Labour Only Contractor) is hereby appointed to perform construction work

at: **Kirkwood BWSS** for **Sundays River Valley Local Municipality**

Job/Safety specifications:

You are reminded that:

1. your documented Health and Safety plan based on the Clients Health and Safety Specifications, is provided to the Client before commencing work on site
2. the Client will discuss/negotiate with you regarding the contents of the Health and Safety Plan to approve it for implementation
3. a Health and Safety File, which shall include all documentation required in terms of the provisions of the Act and Regulations are kept available on site for inspection (Risk Assessments and Fall Protection Plan)
4. should you appoint a Contractor to perform or assist you with Construction Work, the responsibilities as required by the Construction Regulations shall apply to you as if you were the Client
5. you are to promptly provide the Client with any information which might affect the Health and Safety of any person at work carrying out Construction Work or any person who might be affected by the work of such a person at work or which might justify a review of the Health and Safety Plan
6. as per Regulation 5(1)(o) audits of your Health and Safety Plan will be undertaken on at least a monthly basis.
7. all your Employees must undergo Safety Induction before starting work

Signature: _____ Date: _____
(Client)

Designation: _____

ACCEPTANCE OF APPOINTMENT

I, _____ accept and understand the requirements of this appointment

Signature: _____ Date: _____
(Principal Contractor)

Designation: _____

25 ANNEXURE D: NON-CONFORMANCES AND PENALTIES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or noncompliance with the Clients specifications or PCs H&S Plan; neither the Principal Subcontractor nor any other Subcontractor shall have a claim for extension of time or any other compensation.

The following constitute the types of non-conformances that will attract penalties:

Minor: Fine: R100/count	Medium: Fine: R500/count and a non-conformance	Severe Fine: R5000/count, a non-conformance and/or activity stoppage
Non-use of PPE supplied	Toilets not supplied or regularly serviced; lack of drinking water	Subcontractors working without Health and Safety Plan approval
Non completion of registers for plant and equipment on site	Subcontractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate H&S method statements	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Noncompliance with traffic accommodation requirements: layout or physical conditions
	No monthly OHS report at site meeting to report on	Fall protection harness not tied off/ not worn
	No certificates of fitness for workers as required	Any breach of legal requirements
	Working without approved method statements	Item not attended to as identified in the audit report – second transgression
	Item not attended to as identified in audit report – first transgression	

Failure or refusal on the part of the subcontractor to take the necessary steps to ensure the safety of workers and other person involved in accordance with these specifications, the OHS Act and the regulations shall be sufficient cause to apply the above penalties.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

26 ANNEXURE E: BASELINE RISK ASSESSMENT

26.1 MATRIX

26.2 BASELINE RISK ASSESSMENT

Risk Assessment Matrix

Risk Prioritisation Number / Risk Rating = Severity x Likelihood

Severity Table

Pt	Severity level	Workplace Safety	Workplace Health	Loss / Damage	Downtime Incurred
5	Critical	Fatality, single or multiple	Acute Poisoning, Failure of Major Bodily Functions	More Than R10 million damages	More than 1 year for full re-instatement
		Permanent Body Injury or Loss of Use for more than 30 days	Infection with No Known Cure		
4	Very Serious	Injury requiring 30 days of hospitalisation and/or medical leave	Moderate exposure, Reversible injury to Bodily Functions on prolong recovery	More Than R1 million damages	More than 3 months for full re-instatement
		Temporary Body Injury or Loss of Use for more than 10 days but not exceeding 30 days	Infection with Known Cure but extensive treatment		
3	Serious	Injury requiring 10 days of hospitalisation and/or medical leave	Mild exposure, Reversible injury to Bodily Functions with less than 30 days recovery	More Than R100k damages	More than 1 month for full re-instatement
		Temporary Body Injury or Loss of Use for up to 10 days	Infection with Known Cure but extensive treatment		
2	Marginal	Injury requiring maximum of 3 days of medical leave only	Very Mild exposure, Reversible injury to Bodily Functions with less than 3 days recovery	More Than R10k damages	More than 5 days for full re-instatement
		Temporary Body Injury or Loss of Use for 3 days or less	Infection with Known Cure but treatment needed		
1	Negligible	First aid treatment only	Very Mild exposure, Reversible injury to Bodily Functions with less than 3 days recovery	Less than R5k damages	No significant downtime
		No or superficial injury	No Exposure		

Likelihood Table

Pt	Likelihood level	Likelihood of Occurrence / Exposure Criteria
5	Frequent	Likely to occur many times per year
4	Moderate	Likely to occur once per year
3	Occasional	Might occur once in three years
2	Remote	Might occur once in five years
1	Unlikely	Might occur once in ten years

Risk level Determination - 5 x 5 Matrix

		SEVERITY				
		Critical (5)	Very Serious (4)	Serious (3)	Marginal (2)	Negligible (1)
LIKELIHOOD	Frequent (5)	25 Operation not permissible	20 Operation not permissible	15 High priority	10 Review at appropriate time	5 Risk acceptable
	Moderate (4)	20 Operation not permissible	16 Operation not permissible	12 High priority	8 Review at appropriate time	4 Risk acceptable
	Occasional (3)	15 High priority	12 High priority	9 Review at appropriate time	6 Risk acceptable	3 Risk acceptable
	Remote (2)	10 Review at appropriate time	8 Review at appropriate time	6 Risk acceptable	4 Risk acceptable	2 Risk acceptable
	Unlikely (1)	5 Risk acceptable	4 Risk acceptable	3 Risk acceptable	2 Risk acceptable	1 Risk acceptable

Review the risk assessment records every year or whenever there are changes in processes, work activities or upon any

Action Table

Colour	Score	Risks	Action
	16 - 25	High	Manage risk Stop operation & review controls. If necessary abort experimentation.
	12 - 15	Warning	High priority remedial action Proceed with extreme caution with supervision at all times. Implement additional (secondary) controls immediately. Review within 7 days. Emergency control measures shall be in place.
	8 - 10	Medium	Take remedial action at appropriate time Proceed with care. Additional control is advised. Review shall be implemented within 30 days.
	1 - 6	Warning	Risk acceptable: Residual risk If possible, risk reduction should be further considered, particularly severity. There are no imminent dangers. Frequent review shall be in place especially changes in procedures, materials or environment.

BASELINE HAZARD IDENTIFICATION AND RISK ASSESSMENT

CLIENT / EMPLOYER	AMATOLA WATER
PROJECT / CONSTRUCTION SITE & EXACT LOCATION OF THE WORKS	Kirkwood Bulk Water Supply Scheme

Hazard & Risk Identification				Raw Risk Evaluation			Risk Control Measures & Residual Risk Rating					
1a.	1b.	1c.	1d.	2a.	2b.	2c.	3a.	3b.	3c.	3d.	3e.	3f.
S/N	Work activity	Hazard	Consequential Risk / Possible Accident / Ill health to persons, fire or property loss	Severity	Likelihood	RPN*	Risk Control Measures	Severity	Likelihood	RPN*	Responsible Party/ Person	Remarks

GENERIC RISK ASSESSMENT

1	Permit to work	Principal Contractor not submitting the required documentation timeously. Loss of time will cause delay on project handover: cost increases	Loss of time, increased costs and project delays	3	1	3	Principal Contractor to begin with document preparation immediately after formal appointment and liaise with the Client appointed Pr CHSA.	N/A	N/A	N/A	N/A	
2	Gaining access to site	Restricted access to site (Parking and/or delivery areas). Work spread over a broad area. Provison of water could be difficult. Damage to access roads, adjoining property	Loss of time, Loss of reputation, loss of finance and public liability.	3	3	9	Proper layout of site by Construction Manager, taking into consideration all transport plant and material movements and storage on site. Construction Manager to check layout Drawing to compare with the requirements of the OHS Act and other relevant regulations. working with local communities and doing advanced traffic planning	N/A	N/A	N/A	N/A	
3	Site security and safeguarding	Uncontrolled access to construction site. Injury to persons. Theft / property loss. Site creep. Environmental damage	Loss of finance, delays, injury losses, loss of Reputation.	3	4	12	Security guards to be appointed to keep watch. Security fencing to be a minimum height of 1.8 metre around site area together with two double gates. Symbolic safety signage. Fencing.	2	3	6	Principal Contractor	To be monitored and implemented on an ongoing basis
4	Storage of flammables	Unsafe storage of flammables, Fumes, heat fire. Spills, Polymers stored with oxidizers.	Loss of time, finance, property, Public liability, Loss of reputation.	5	2	10	Flammable store to be well ventilated and fitted with a roof to protect from direct exposure to sunlight. Signage: No smoking. Inspect. Fire extinguishers at hand. HCS Supervisor / Controller to be designated in writing. Use MSDS to ensure safe storage and handling. Induction of workers and visitors.	5	1	5	Principal Contractor	Proceed with care. Additional control is advised.
5	Temporary electrical installations	Incompetent and/or unregistered electricians. Incorrect/unsafe installations. Damaged cables. Exposed wires. Intermitant electricity, poor connections	Loss of time, finance, property, Public liability, Loss of reputation.	4	2	8	Installation to be done by a competent registered electrician or registered electrical contractor. COC issued. Inspected. Electrical Installations Inspector to be designated in writing.	4	1	4	Principal Contractor	Proceed with care. Additional control is advised. Temporary Electrical Installations Inspector to monitor and control.
6	Availability of basic facilities and emergency services / equipment at the varies works areas.	Not having the essential services readily available. Lack of trained responders, Distance to site camp and town. Failure to identify emergency hazards and to plan. Failure to control access.	Loss of life, reputation, and increased costs. Project cancelled.	4	3	12	Services to be available during site establishment and during works. Inspected and given to supervisors as per work area needs. - Fire fighting equipment. - First aid boxes. - First aider. - Drinking water and water for hand washing. - 70% Alcohol-Based Hand Sanitizer	3	2	6	Principal Contractor	Method statements:Emergency rescue for fall in dam tower; into the dam, into or from scaffold, weir and other risk areas.
7	Public safety includes protection of Asbestos pipe line.	Blocking HO access ro proerty. Not ensuring work on roads is maanged safely during pipe laying. Not ensuring obstacles are removed for night road users. Not training on site access to works areas. Mismanageemnt of haulage. Failure to communicate with public. employees abluting randomly. Failure to secure trenches, excavations, openings, blast areas.	Injuries to persons and / or the public. Public liability / court claims.Reports to DWAF. Loss of reputation, contract, time and finance	4	5	20	Appoint CLO and CSC. Work and communicate with community. Ensure stakeholder information, warning, permission in writing. Induction of workers and visitors. Visitors complaints registers to be managed as incidents that must be closed out. Symbolic safety signs and notices	3	3	9	Principal Contractor	Proceed with care. Remedial actions to be taken at appropriate times.

Hazard & Risk Identification				Raw Risk Evaluation			Risk Control Measures & Residual Risk Rating					
1a.	1b.	1c.	1d.	2a.	2b.	2c.	3a.	3b.	3c.	3d.	3e.	3f.
S/N	Work activity	Hazard	Consequential Risk / Possible Accident / Ill health to persons, fire or property loss	Severity	Likelihood	RPN*	Risk Control Measures	Severity	Likelihood	RPN*	Responsible Party/ Person	Remarks
8	Designation of laydown areas : Site camp. Haulage and overhaul, sedimentation to be reused, fence panels and other infra structure items in schedules. Protect all rail line spans.	With inadequate space various materials will be stacked on top of each other causing unstable stacks. Fall, fire, vermin, snakes, spiders, loss of access, spillage	Loss of life, time, finance, reputation, contract.	5	3	15	Laydown areas to be sufficient in size, secured and managed. Timber poles and/or other suitable base material to be available to stack materials on. Laydown areas and site camp to be of firm level ground. Fenced. Sign posted as required. Showed on site lay-out plans. Stacks safe and training given	5	2	10	Principal Contractor	Proceed with care. Remedial actions to be taken at appropriate times.
9	Employee facilities: Abluting, eating, drinking, possessions, capacity to do the works. Water, power, transport to work as applicable, accomodation of site.	Unclean and unhygienic abluition facilities. Non-ventilated abluition facilities. Illegal pits. No protected spaces for eating and keeping possessions. Peeing near or in water ways. Community compliants. Lack of rest due to poor accomodation.	Loss of time, reputation, health, possessions, reputation, contract.	4	5	20	Facilities to be as contract and Regulations, local authorities, Human dignity is a moral consideration, educate and advancement employee knowledge with regard to health and hygiene. Make part of SHE committee agenda. Inspect and ensure all site areas have correct facility management.	3	2	6	Principal Contractor	Inspect and implement. Lack of care can lead to a 5.1.q for works.
10	Poor waste management	Not sorting, binning, minimizing Not clearing to licenced depo or placed in a collective designated point will lead to dust, injury hazards	Environmental pollution (Workplace, Air, Ground & Water) Loss of time, injuries and cost losses.	3	4	12	Site lay out drawings, Contract controls, supervision, impact on ground water drainage and run off to be noted , Good housekeeping and waste disposal always in work areas and laydown areas	2	2	4	Principal Contractor	Acceptable Risk
11	Selection of workers / staff for site: Works labour intensive and to promotre skills development. Competencies for specific works to be provided: Work at height, demolition, excavations, tempoary works, blasting, telemetry and elctrical, specific construction works: Steeltanks and works, sandblasting, Pipe line construction, Pump house, sumps, wave break point repairs, work in the water tower, Borehole works, reservoirs.	Employees medically unfit and incorrectly placed for job categories. Employees unskilled and tasked with skilled work, use of tools or plant they are not trained to use, basic demolition; collapse of structures. Employees not informed on risk. Lack of supervision.	Accidents resulting in injuries and/or damage to property.	3	5	15	Select employees fit for proposed tasks: Ensure knowledge of hazards environment: drowning, plant, vehicles, trains if operative, environmental risks.All employees to have medicals done before commencing work on site. Employment of local labour to be done in accordance to issued specification relating to the matter.	3	3	9	Principal Contractor	Proceed with care. Remedial actions to be taken at appropriate times.
		Incompetent staff appointed on project	Accidents due to incompetency resulting in serious injuries and/or damage to property. Possible fatality/ies.	5	4	20	Skilled staff to have proof of competencies available. Appointed contractor to ensure all qualifications of staff are verified before appointment for project. Management staff competent for this project full time.	5	3	15	Principal Contractor	High priority remedial action. Implement additional (secondary) controls immediately.
		Employees not inducted prior to commencement on site. Not informing on hazards	Accidents resulting in injuries and/or damage to property.	5	3	15	All staff to be inducted for site before work commences. Contractor to ensure induction is project specific. Every one coming into the site for the first time must be inducted (Visitors). Task analysis and task observations. Compent supervision.	5	1	5	Principal Contractor	Proceed with care. Additional control is advised.
*RPN - Risk Prioritization Number												
WORK SPECIFIC RISK ASSESSMENT												
1	Use of hand tools: Spades, Pikes, shovels, rakes.	Sub-standard and unsafe hand tools; Incorrect use. Loads and repetitive movement	Loss of time, injuries, and materials, delays.	2	5	10	Supervision, issue controls,PPE, checks/inspection registers training.	2	3	6	Principal Contractor	Monitor.
2	Use of portable power tools: Pneumatic, battery, generators, Electrical leads and so on.	Sub-standard electrical power tools and incorrect use thereof Increased noise and hearing loss, misuse, theft, failure to secure, failure to purchase right tool for the job, failure to maintain and clean between use.	Loss of time, material, reputation, damage to property, Injury	3	5	15	Manufacturing and purchasing standards: correct tool for the job.Control, checks, issue and inspection registers to be completed, Training, emergency action / plan PPE. SWP.	3	3	9	Principal Contractor	Remedial action is required
3	Loading and Offloading	Unsafe offloading of material and unsafe material stacks; Heavy objects and manual handling; Shortage of persons for task, Jumping form trucks, falling on material. Theft.	Loss of time, reputation, manpower, reputation, finance.	3	4	12	Adequate number of workers for the task at hand; Proper training and induction on manual handling techniques; PPE and adequate supervision; Use designated area for offloading, stacking and storage of material.	3	3	9	Principal Contractor	Proceed with care. Remedial actions to be taken at appropriate times.

Hazard & Risk Identification				Raw Risk Evaluation			Risk Control Measures & Residual Risk Rating					
1a.	1b	1c.	1d.	2a.	2b.	2c.	3a.	3b	3c	3d	3e	3f
S/N	Work activity	Hazard	Consequential Risk / Possible Accident / Ill health to persons, fire or property loss	Severity	Likelihood	RPN*	Risk Control Measures	Severity	Likelihood	RPN*	Responsible Party/ Person	Remarks
4	Stacking and storage	Improper stacking and storage.	Serious injuries and/or fatalities.	3	4	12	Good housekeeping; Competent Stacking & Storage Supervisor; Demarcated material laydown areas; Stacking and storage inspections: External and Internal Load testing and inspections, Supervision and competency. SWP, Banksman, FPP, and HIRA's for risk areas. Inspection registers & load test certificates: Control by equipment identification, replace defective equipment; Accredited training per category/unit standards of Lifting machines.	3	3	9	Principal Contractor	Remedial action is required
5	Lifting operations	Poor housekeeping and lay down area controls. Not on level ground. No banksman. Equipment in poor condition. Ungainly material and loads. Overhead power lines, access difficulties: roads, rail lines and rivers, rail culverts, bridges, private properties.	Loss of Time, Resources, reputation. Injuries, fatalities. Loss of contract.	5	5	25	Appoint competent Excavator Supervisor; Fit and competent operators to be appointed for the job; Have medical fitness. Workers to wear high visibility clothing at all times; Follow and apply specifications and contract standards. Worker training and induction; Regular safety talks; Workers to stay clear of heavy machinery; Dust control measures to be in place; Banksman. Surveys.	5	3	15	Principal Contractor	Method statements
6	Excavation Work: Mainly hand excavations of sedimentation, trenching for pipe laying. The 4m deep sump excavation may require blasting and there after larger plant.	Use of heavy equipment on site to excavate; Incompetent operators; Poor visibility; Crossing roads, rail line, streams, collisions, alarm systems not working, no banksman, No mediads, competency. Excavations left open, storm water impacts	Loss of life, equipment, property, materials, reputation and finance. Legal liabilities.	4	4	16	Appoint competent Excavator Supervisor; Fit and competent operators to be appointed for the job; Have medical fitness. Workers to wear high visibility clothing at all times; Follow and apply specifications and contract standards. Worker training and induction; Regular safety talks; Workers to stay clear of heavy machinery; Dust control measures to be in place; Banksman. Surveys.	4	3	12	Principal Contractor	Monitor.
		Excavating by hand stress, strain and load on the back and shoulders, broken tools, exhaustion, leaving trenches open without warning, trenching more than 400 M in uninhabited areas and more than 150 M near communities, digging within 2m of Eskom infra structure and stays.	Injuries due to unsafe use of picks and shovels; Collapse of excavations while there are workers inside leading serious injuries.	4	3	12	Workers keep a safe distance from each other when using picks and shovels; Induction and clear work instruction; Inspection of excavations at appropriate intervals; Plan for water and facilities, FA, Supervision and task observations. Adequate supervision;	4	2	8	Principal Contractor	Monitor.
		Open trenches / unprotected excavations	Physical injury due to falling into excavations	4	4	16	Open trenches and excavations must be kept to a minimum where possible; Monitoring and barricading of excavations with suitable protective material; Proper instruction and warning signage;	4	3	12	Principal Contractor	Inspect.
	Excavation Work (Cont.)	People & vehicle / plant movement in close proximity to excavations	Serious injuries or fatality; Asset Damage; Production Loss;	5	4	20	All excavations deeper than 1.5m shall be adequately shored and braced if not sloped; All excavation areas to be barricaded until backfill is complete; Daily Excavation inspections to be conducted before work commences by the appointed inspector (CR13(1)(a)); Checklists to be handed to safety officer for filing; Warning & prohibition signage to be installed at access to excavation. Restrict access to excavation area only to authorized persons.	5	3	15	Principal Contractor	High priority remedial action. Implement additional (secondary) controls immediately.
7	Existing Services: under and overhead.	Not being aware of existing services (i.e. Electrical and data cables; water and sewer lines)	Damage to existing services; Power cuts, flooding and sewer spillages; Coming into contact with live electrical services may result into electrocution causing serious injuries or even fatality.	5	4	20	As-built drawings and drawings for existing services; Induction of workers and proper work instruction; Wearing of non-conductive gloves when exposing services by hand; Competent operators; Adequate supervision;	5	3	15	Principal Contractor	High priority remedial action. Implement additional (secondary) controls immediately.
8	Blasting	Lack of legal compliance, incompetent personnel, over blasting, fly rock. Noise, vibration, negative impact on surrounding services, homes, people.	Injury, loss of life, loss of reputation, contract, legal impacts, loss of finance.	5	5	25	Appoint competency. Ensure legal compliance to Warning systems, alarms, communications with all stakeholders, signage, access controls. Blast strength to be determined by a competent person. Record keeping. Traffic controls.					

Hazard & Risk Identification				Raw Risk Evaluation			Risk Control Measures & Residual Risk Rating					
1a.	1b.	1c.	1d.	2a.	2b.	2c.	3a.	3b.	3c.	3d.	3e.	3f.
S/N	Work activity	Hazard	Consequential Risk / Possible Accident / Ill health to persons, fire or property loss	Severity	Likelihood	RPN*	Risk Control Measures	Severity	Likelihood	RPN*	Responsible Party/ Person	Remarks
9	Water Environments, including works in water tower	Fear of drowning, inability to swim. Lack of risk awareness. Horseplay, lack of control on working under the influence of substances. Lack of access and works area controls. Lack of air monitoring, harness use, lack of life vest use.	Loss of life, reputation, time, finance.	5	5	25	Induct. Inform. Supervise, PPE including life jackets and life vests. Alcohol testing and substance abuse controls. Medicals for fitness to work. Toolbelts and equipment management in the tower. Competency. Supervision. Work control: amount of people in an area, time spend in the works environment. Air monitoring program. confined space risk controls.					Method statements for work in water, over and along water environments.
10	Operating of Heavy Construction Vehicles and Mobile Plant on site	Failure to inspect vehicles and mobile plant; Faulty vehicles and plant;	Equipment failure resulting in serious injuries or fatalities, asset damage and production Loss	5	3	15	Daily pre-use inspections by drivers and operators; Maintenance plans / schedules and implementation; Induction of workers and visitors; Plant to be equipped with warning devices (construction light reverse hooter flag etc.)	4	2	8	Principal Contractor	Method statements for work in tower.
		Incompetent and unfit operators;	Vehicle and plant collisions resulting in serious damage to property and loss of production; Workers / visitors being bumped or run over by vehicles and plant resulting in serious injuries or even fatality.	5	3	15	Operator to be inducted & appointed in writing; Proof of medical fitness to be available; Proof of competency and licencing to be made available prior; High visibility clothing and alertness to the immediate surroundings.	4	2	8	Principal Contractor	Remedial action is required
11	Work spread out across long distances in a variety of risk environments	Weather conditions, Rail activities, roads, Community farming, rivers, bridges, lack of supervision and provision of facilities, lack of alarm systems and emergency care, lack of skill and knowledge.	Loss of life, time, finance, contract, reputation, Environmental impacts and legal liabilities including public risks.	5	5	25	good works planning, relationship with communities, Daily task HIRA, Emergency planning, SWP, Supervision, training, PPE use, Waste and Facility planning.	3	3	9	8.1	Ongoing risk control as hazards are dynamic and varied.
12	Temporary Works	Poor or no temporary works designs; Incompetent Erectors and / or Inspector; Poorly erected temporary works;	Poorly erected temporary works or temporary works not erected according to the design may collapse resulting into serious injuries, multiple fatalities, property damage and loss of production	5	4	20	Competent person/s to design, supervise, inspect and approve temporary works must be appointed; Temporary works designs to be made available; Training of temporary works erectors; Regular safety talks and adequate supervision; Inspection of temporary works as prescribed.	5	3	15	Principal Contractor	Monitor and control.
13	Steel Fixing	Poor housekeeping - Steel lying around in work areas;	Tripping / falling over obstacles on ground resulting in injury to workers;	3	5	15	Daily removal of offcuts/ left over steel: daily tidying of stacked/ stored material; Create level pathway to job;	3	3	9	Principal Contractor	Proceed with care. Remedial actions to be taken at appropriate times.
		Placing / fixing steel at heights over 1.5m above ground: decks;	Loose deckplates allowing workmen to fall through, fall from height resulting in serious injuries or even fatality;	5	4	20	Provision of working platform with access ladders and handrails, as well as fall arrest equipment where scaffold is not possible; Supervisor to ensure deck panels are inspected before commencing work.	5	3	15	Principal Contractor	Monitor and use bending schedules, site instructions, drawings.
14	Concrete Work - Delivery of concrete by supplier (Ready Mixed)	Ready-mix trucks may collide with other vehicles on site;	Property damage, injury to workers and / or driver;	4	4	16	Ready mix to indicate prior to entering the site and be guided/directed to the off-loading zone, ensure min speed limit clear access route of other site vehicles as well as workers.	4	3	12	Principal Contractor	Inspect
	Concrete Work - Delivery of concrete by chute to job	Manual handling of chute; Uneven terrain / obstacles on ground may cause slips/ trips/ falls;	Injuries to workers : hands, body, head etc.	4	4	16	Training in correct handling methods / provision of gloves; Ground to be free of obstacles; Supervisor to ensure correct / specified Gloves are worn (PVC).	4	3	12	Principal Contractor	Inspect and implement. Lack of care can lead to a 5.1.q for works.
	Concrete Work (Cont.) - Delivery of concrete at height over 1.5m	Fall from height;	Serious injuries or fatality;	5	4	20	Provision of working platforms with access ladders and handrails; Supervisor to monitor and take control; Control cement bag waste and run off.	5	3	15	Principal Contractor	Monitor and control.
	Concrete Work - General (Placing concrete from bucket hoisted by crane)	Concrete bucket hitting the worker; Opening and closing of bucket;	Injury to workers, time lost, and possible fatal incidents.	5	4	20	Only the Banksman / Spotter responsible for directing the crane during loading and discharging, workers to be advised to stand clear of the path of the bucket; Supervisor to ensure clear visual communication at all times; Ensure bucket is properly closed after each placing, use correct PPE issued on the "PPE Schedule"	4	3	12	Principal Contractor	Monitor and control.
	Concrete Work - General (Vibrating concrete)	Concrete splash from vibrating, operating the poker;	Injury to workers, possible serious injuries;	4	5	20	Use correct PPE issued on the "PPE Schedule" ; Operator self check for PPE; Supervisor to ensure and control;	3	3	9	Principal Contractor	monitor and control

Hazard & Risk Identification				Raw Risk Evaluation			Risk Control Measures & Residual Risk Rating					
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S/N	Work activity	Hazard	Consequential Risk / Possible Accident / Ill health to persons, fire or property loss	Severity	Likelihood	RPN*	Risk Control Measures	Severity	Likelihood	RPN*	Responsible Party/ Person	Remarks
15	Brick Work	Mixing of mortar - Faulty hand tools;	Injury to workers	3	5	15	Use of correct PPE, tools in good condition; Supervisor to monitor; Regular tool box talks;	3	3	9	Principal Contractor	Monitor
		Stacking or Placing bricks at work - Bricks falling over, brick could cut skin	Injury to parts of the body	3	5	15	Proper and safe stacking of bricks; Use of correct PPE; Regular toolbox talks <u>Adequate supervision:</u>	3	3	9	Principal Contractor	Monitor
		Supplying mortar to bricklayer; Brickwork's to walls - faulty hand tool, poor standard of scaffolding or trestles	Injury to parts of the body	3	5	15	Use of correct PPE; Good standard of scaffolding/ trestles, tools in good condition;	3	3	9	Principal Contractor	Monitor.
		Placing window, door frames, and lintels - Falling frames and lintels;	Injury to workers, possible serious injuries;	4	3	12	Checks to be done to confirm that windows and door frames are well stayed; Use of correct PPE; <u>Supervisor to monitor and control:</u>	2	3	6	Principal Contractor	Monitor
16	Contractor Management	Unapproved contractors on site, lack of access control and knowledge of contract conditions. Legal non compliance.	Loss of contract, finance, time and Reputation.	5	3	15	Principal Contractor to ensure health and safety files for contractors are approved 7 days prior to commencing work. Internal audits must be conducted on contractors and proof of this to be on file; Enforcement of legal requirements; information sharing and works coordination.	5	2	10	Principal Contractor	Contractual Interventions may result.

*RPN - Risk Prioritization Number

C3.7: Environmental Specifications



PROJECT FUNDER

PROJECT BENEFICIARY

IMPLEMENTING AGENT

C3.7 - ENVIRONMENTAL SPECIFICATIONS

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Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

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CEMP 1 INTRODUCTION

The CEMP has been prepared and is to be implemented as part of the Environmental Management System for the construction of the Kirkwood Bulk Water Supply Scheme.

The CEMP provides specifications that the contractor (.....), and any appointed subcontractors shall adhere to, in order to minimise adverse environmental impacts and optimise opportunities associated with construction activities.

The CEMP will be provided to any appointed subcontractors, so that all are aware of their environmental responsibilities prior to commencing work.

The aim of this CEMP is to ensure that environmental management of site activities is integrated into the management of quality, health and safety.

CEMP 2 ORGANISATIONAL REQUIREMENTS

CEMP 2.1 Organisational Structure

This section outlines the required management structure for the administration of the CEMP, in accordance with the Generic Specifications for Environmental Management (GSEM) of Civil Engineering Contracts applicable to this project, with particular emphasis on the roles and responsibilities of key individuals.

CEMP 2.2 Roles and responsibilities

CEMP 2.2.1 Environmental Manager

The key individual appointed by the Client has the title of Project Environmental Control Officer (PECO). The PECO is responsible for monitoring the implementation of the requirements of the GSEM by the relevant parties as specified in the GSEM.

The PECO shall:

- a) Review and approve in writing valid method statements;
- b) Review and approve in writing the CEMP provided by the contractor for the project;
- c) Review and approve the Environmental Management File for the project;
- d) Inspect the project site to check compliance with method statements and the requirements of the GSEM at least monthly and maintain inspection reports on file;
- e) Meet with the Responsible Person for the contractor, whereby the Responsible Person reports on the implementation of the GSEM (at least monthly) and keep a record of minutes of the above meetings;
- f) Report in writing any problems related to conformance with the GSEM which cannot first be resolved in co-operation with the relevant Responsible Person to:
 - The Contractor(s); and
 - the Client.

CEMP 2.2.2 Environmental Control Officer

The key individual appointed by the contractor will have the title of Environmental Control Officer (ECO) in accordance with the GSEM. The ECO is responsible for monitoring the implementation of the CEMP, and also monitoring compliance with the GSEM.

The contractor shall submit a CV of the ECO to the PECO for approval prior to commencement of work on site.

The ECO shall:

- a) Use the CEMP as a tool to ensure that the GSEM is effectively implemented.
- b) Audit this system so that he/she can demonstrate to the PECO that the CEMP is being effectively implemented.
- c) Ensure that employees of the contractor, sub-contractors, suppliers etc. receive appropriate environmental awareness training prior to commencing work on the project and maintain records of training. It is anticipated, though not a requirement, that the ECO will deliver training sessions.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- d) Ensure that responsible persons for sub-contractors are designated to carry out the requirements of the CEMP.
- e) Submit method statements to the PECO for approval as specified in the GSEM and maintain approved method statements on file.
- f) Record any transgressions of the method statements, that lead to environmental impacts in the site instruction book, and report these to the PECO as soon as possible.
- g) Develop an Environmental Management File for record keeping purposes specifically for environmental related issues and documentation.
- h) Attend Site meetings, and report on environmental matters on behalf of the contractor.

CEMP 3 GENERAL SITE PROCEDURES

CEMP 3.1 Demarcation of Environmentally Sensitive Areas (ESA's)

The PECO shall advise the contractor of any environmentally sensitive areas. It is assumed that the ESA's include the following:

- All indigenous bush; and
- All Wetlands and natural water courses (natural drainage lines).

In order to minimize adverse impacts to the ESA's during construction activities, the ESA's shall not be entered or used for any purpose unless in accordance with the written authority of the PECO.

The contractor(s) shall exercise special care when working close to the ESA's in order to avoid physical disturbance or pollution of these areas.

It is accepted that damage caused to ESA's by the contractor shall be rehabilitated to the written satisfaction of the PECO.

CEMP 3.2 Location of camp and depot

The location of the Site Camp must be approved by the PECO prior to establishment and must be located away from ESA's.

CEMP 3.3 Demarcation of the site

The importance of conducting activities within a limited area so as to facilitate control and to minimize the impact on the existing natural environment, surrounding agricultural lands, public thoroughfares and residences, is understood by the contractor.

The contractor shall demarcate the boundaries of the site, and shall be required to fence the boundaries of the site as establishment of the site. The location of the demarcated area must be approved by the PECO. The contractor shall ensure that all his plant, labour and materials are confined to the site camp when no construction activities are taking place.

CEMP 3.4 Toilets

Chemical toilets shall be provided within 400m of works areas, with a minimum of one toilet per 15 persons. Toilets will be easily accessible and shall be transportable. The toilets shall be secured to prevent them from blowing over, and shall be provided with an external closing mechanism to prevent toilet paper from being blown out. Toilet paper dispensers shall be provided in all toilets. Toilets shall be cleaned and serviced regularly by a registered service provider, and proof of service must be kept on file. Toilets shall be emptied before long weekends and builders' holidays.

The contractor shall ensure that chemicals and/or waste from toilet cleaning operations are not spilled on the ground at any time. It is accepted that if there should be repeated spillage of chemicals and/or waste (i.e., more than three), the contractor shall be required to place the toilets on a solid base with a sump at own expense. Accumulations of chemicals and waste will have to be removed from the site and disposed at an approved waste disposal site or sewage plant.

Abluting anywhere other than in the toilets shall not be permitted, and all employees will be notified of this.

CEMP 3.5 Refuse

A Refuse Management Method Statement shall be submitted by the ECO to the PECO for written approval prior to the commencement of construction activities.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Refuse refers to all solid waste, including construction debris (wrapping materials, timber, cans etc.) waste and surplus food, food packaging etc.

The contractor shall institute an on-site waste management system that is acceptable to the PECO in order to prevent the spread of refuse within and beyond the site.

All waste shall be collected and contained immediately.

The contractor shall not dispose of any waste and/or construction debris by burning or burying. Waste bins with predator proof lids will be used. The contractor shall ensure that all waste is deposited by the employees in the waste bins for removal by the contractor. Bins shall not be used for any purposes other than waste collection and shall be emptied on a regular basis. All waste shall be disposed of off-site at approved landfill sites and proof of safe disposal must be kept on file.

Hazardous waste, including waste oil and other chemicals (e.g., paints, solvents) shall be stored in an enclosed area, and shall be clearly marked. If deemed necessary by the PECO, the contractor shall obtain the advice of a specialist waste expert with regard to the storage of hazardous waste. Such waste shall be disposed of off-site by a specialist waste contractor, at a licensed hazardous waste disposal site, and proof of safe disposal must be kept on file.

The PECO shall propose the method of storage and disposal of hazardous waste.

CEMP 3.6 Protection of flora and fauna

Indigenous flora is to be protected throughout the areas within and surrounding the project site.

Wild animals shall not be caught or killed by any means, including poisoning, trapping, shooting or setting of snares. The contractor accepts that offenders shall be prosecuted in terms of environmental legislation, and will also face expulsion from the project, and therefore all employees shall be warned thereof at the start of the contract.

CEMP 3.7 Defacement of natural features

Defacement of any features outside of the demarcated site shall not occur. The contractor accepts that any features defaced by them shall have to be restored.

CEMP 3.8 Protection of archaeological and palaeontological sites

If any possible palaeontological/archaeological material is found during excavations, the contractor shall stop work immediately and inform the PECO and the Resident Engineer (RE). The PECO will inform DEDEAT and the South African Heritage Resources Agency (SAHRA) and arrange for a palaeontologist/archaeologist to inspect, and if necessary, excavate, the material, subject to acquiring the requisite permits from SAHRA.

CEMP 3.9 Effluent and storm water management

An Effluent and Storm water Method Statement shall be submitted to the PECO by the ECO for written approval prior to the commencement of construction activities.

CEMP 3.10 Contamination prevention

CEMP 3.10.1 General

The contractor shall make every effort to ensure that pollution of the ground or surface water does not occur as a result of construction activities. Pollution could result from the release, accidental or otherwise, of contaminated runoff from construction a, discharge of contaminated construction water, chemicals, oils, fuels, sewage, run off from stockpiles, solid waste, litter, etc.

CEMP 3.10.2 Run off from construction camps

The contractor shall ensure that polluted runoff (excluding silt "pollution"), such as runoff from site camp where equipment is cleaned and/or serviced, fuel stores, workshops, etc. is not discharged overland. The contractor shall ensure that silt laden water is not discharged directly into any surface water courses (i.e. natural drainage channels, streams, rivers, etc.), and shall take suitable measures to discharge this into vegetated areas.

Natural run-off shall be diverted away from any camps towards the storm water drains where these are available. Special care will be taken in areas susceptible to erosion, e.g. steep slopes. The contractor shall ensure that excessive quantities of sand, silt and silt-laden water do not enter the storm water drain system, or any surface water course. The contractor shall take appropriate measures, e.g. the erection of silt traps, or drainage retention areas, to prevent silt and sand entering drainage or water courses.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Any partial or complete blockage of the storm water drainage system shall be cleared by the contractor at own expense.

CEMP 3.10.3 Discharge of construction water

Construction water refers to all water dirtied as a result of construction activities.

The contractor may discharge silt laden water overland and allow this water to filter into the ground. However, the contractor shall ensure that no erosion is caused as a result of any overland discharge.

The contractor may discharge limited quantities (less than 50 litres per day) of cement-laden water overland, i.e. washings from trowels, wheelbarrows and the like. The contractor shall ensure that all construction water is directed away from watercourses, and preferably into a temporary soak-pit.

Water from washing large concrete-mixing equipment (mixers and the like) shall not be discharged overland. Such water shall be collected and disposed of in a designated area approved by the PECO. The contractor may consider reusing such water for washing other concrete equipment, or for mixing to make concrete, to minimize the amount required to be removed off site.

Trucks delivering concrete shall not wash the trucks or the chutes on the site. All washing operations shall take place off site at a location where waste water can be disposed of in the correct manner.

CEMP 3.10.4 Servicing/fuelling of construction equipment

Servicing should preferably occur off site however there is a high probability that emergency servicing may be required on site due to breakdown. Fuelling will be done on site but only when required.

The contractor shall ensure that all emergency servicing of vehicles and equipment takes place in designated areas agreed upon by the PECO. All waste shall be collected and disposed of off-site at an appropriately licensed landfill site, and proof of safe disposal must be kept on file. All equipment that leaks onto the ground shall be repaired immediately or removed.

Similarly, no vehicles or machines shall be re-fuelled on site unless all the necessary spill prevention equipment is in place. The contractor shall not change oil or lubricants anywhere on site except at the site camp, except if there is a breakdown or an emergency repair. In such instances, the contractor shall ensure that Drizit pans (or equivalent) and/or drip trays are available to collect any oil, fluid, etc. Also, a Spill Kit shall be available wherever plant and machinery are operating so that there can be prompt response and spill control and clean-up in the case of a hydrocarbon spill.

CEMP 3.10.5 Fuels and chemicals

The contractor shall take all reasonable precautions to prevent the pollution of the ground and/or water resources by fuels and chemicals as a result of construction activities.

The contractor shall keep the necessary materials and equipment on site to deal with ground spills of any of the materials used or stored on site.

The contractor shall ensure that no oil, petrol, diesel, etc. is discharged onto the ground. Pumps and other machinery requiring oil, diesel, etc. which are to remain in one position for longer than two days shall be placed on drip trays. The drip trays shall be emptied regularly and the contaminated water disposed of off-site at a facility capable of handling such waste water. Drip trays shall be cleaned before any possible rain events that may result in the drip trays overflowing and before long week-ends and holidays.

The contractor shall also keep a Spill Kit wherever plant and machinery are operating so as to deal with spills promptly if these occur. The contractor shall also remove all oil-, petrol-, and diesel-soaked sand immediately and shall dispose of it as hazardous waste, and proof of safe disposal must be kept on file.

Should the PECO and/or the relevant authorities deem it necessary to institute a programme for the removal of contaminated ground resulting from the non-compliance of the controls detailed above, these costs will be for the contractor account. Remedial action shall be proposed by the PECO and approved by the relevant authorities, if appropriate.

CEMP 3.11 Dust control

The contractor shall be responsible for the continued control of dust arising from construction operations, through measures including, but not limited to, spraying of water on bare areas, rotovating straw bales and the scheduling of dust-generating activities. Overhead sprayers shall not be used in windy conditions, because too much water will be lost to evaporation. The use of water carts is preferred.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

CEMP 3.12 Noise control

The contractor shall take all reasonable precautions to minimize noise generated on site as a result of construction operations.

CEMP 3.13 Materials use, handling, storage and transport

A Materials Handling Method Statement shall be submitted by the ECO to the PECO for written approval prior to the commencement of construction activities.

CEMP 3.13.1 General

The contractor is aware that the site is prone to occasional very strong winds. All material storage areas shall be designed so as to reduce the risk of spillage, dispersal or damage of or to materials as a result of strong winds. Methods of protection of stored materials shall be included in the method statement.

CEMP 3.13.2 Use of cement/concrete

The contractor is aware that cement and concrete are regarded as highly hazardous to the natural environment on account of the very high pH of the material, and the chemicals contained therein. Therefore, the contractor shall ensure that:

- Concrete is mixed on mortar boards, and not directly on the ground;
- Visible remains of concrete, either solid, or from washings, are physically removed immediately and disposed of as waste. Washing the visible signs into the ground is not acceptable; and
- All aggregate is also removed.

CEMP 3.13.3 Cement stabilisation

The contractor shall not undertake cement stabilisation during windy periods. Special care shall also be taken to avoid creating dust in the vicinity of the following areas:

- Public thoroughfares
- Public amenities
- Residential areas
- ESA's

CEMP 3.13.4 Fuel storage and use

Tanks containing fuels shall have lids and shall remain firmly shut. Only clean, empty tanks may be stored on the bare ground. Fuel stores shall be placed on a bunded sealed base - the bunds shall have a volume of 110% of the volume of the largest tank in the storage area. Any waste water or spilled fuel collected within the bund shall be disposed of as hazardous waste.

The contractor shall take all the necessary precautions to prevent fires or spills at the fuel stores. No smoking shall be allowed in the vicinity of the stores.

The contractor shall ensure that there is adequate fire-fighting equipment at any fuel stores.

CEMP 3.13.5 Hazardous materials

The contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials. If necessary, the contractor shall obtain the advice of the manufacturer with regard to the safe handling of hazardous materials.

The contractor shall provide the PECO with a list of all hazardous substances on site, together with storage procedures for these materials.

The contractor shall ensure that information on all hazardous substances is available to all personnel on site. The contractor shall furthermore be responsible for the training and education of all personnel on site who will be handling the material about its proper use, handling and disposal.

CEMP 3.13.6 Transport of materials outside the site

The contractor shall comply with all the applicable local, regional and national by-laws with regard to road safety and the transport of materials, especially hazardous and/or toxic materials. Any claims against the contractor shall be for own account.

The ECO shall provide the PECO with a schedule of proposed transportation of significant quantities of hazardous material onto the site, before commencing work on site.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

CEMP 3.14 Emergency procedures

The contractor shall submit an Emergency Procedure Method Statement to the PECO prior to commencing activities on site.

CEMP 3.14.1 General

The contractor shall ensure that emergency procedures are set up prior to commencing work. Emergency procedures shall include, but are not limited to, fire, spills, contamination of the ground, accidents to employees, use of hazardous substances, etc. Emergency procedures, including responsible personnel, contact details of emergency services, etc. shall be made available to all the relevant personnel and shall be clearly demarcated at the relevant locations around the site.

The ECO shall advise the PECO of any emergencies on site, together with a record of action taken.

CEMP 3.14.2 Fire

The contractor shall take all the necessary precautions to ensure that fires are not started as a result of his activities on site, and shall also comply with the requirements of the Occupational Health and Safety Act 85 of 1993.

No open fires shall be permitted on or off site. The contractor is aware that sparks generated during welding, cutting of metal or gas cutting can cause fires. Every possible precaution shall therefore be taken when working with this equipment near potential sources of combustion, such as fuel stores, stockpiles of plant material etc. Such precautions include having an approved fire extinguisher immediately available at the site of any such activities.

The contractor shall be liable for any expenses incurred by any organizations called to assist with fighting fires, and for any costs relating to the rehabilitation of burnt areas.

CEMP 3.15 Social issues

CEMP 3.15.1 Third party or public complaints

The ECO shall be responsible for responding to queries and/or complaints and may request assistance from the PECO.

The ECO shall notify the PECO of any complaints lodged by a third party, and request appropriate information and measures to redress such complaints. The ECO shall be responsible for maintaining complaints register in which all complaints are recorded, as well as action taken. This register shall be available to the PECO.

CEMP 3.15.2 Use of local labour

It is advised that no personnel are to be recruited on site.

CEMP 4 SITE CLEARANCE

CEMP 4.1 Removal of endemic or endangered species

The PECO shall contact the DEDEAT at least three weeks before any site clearance to inform them whether or not rescue measures for endemic or endangered plant species should be implemented, and also provide them with the opportunity to visit the site. The DEDEAT shall advise the PECO and the contractor within one week if it is necessary to provide the opportunity for a specialist to remove endemic or rare plant species prior to site clearance, and if rescue measures are required, the ECO shall submit a method statement for the rescue measures. If no response is received from DEDEAT within one week the contractor may proceed with the clearance of the site.

CEMP 4.2 Removal of topsoil

Following removal of vegetation from the site, all top soil shall be removed (up to a maximum of 15cm depth) and stockpiled for re-use in subsequent rehabilitation activities. The stockpiles shall not be higher than 2 m in order to minimize composting and denaturing of the soil. The stockpiles of topsoil shall be located in an area agreed with the PECO and shall be covered should they need to be left for more than two weeks. This will prevent wind erosion and ensure that the soil retains its important biological processes.

During trench excavations topsoil shall be placed to one side of the trench and subsoil on the other side to prevent contamination of the topsoil, and after backfilling the topsoil must be applied over the backfill and rehabilitated.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

CEMP 4.3 Stabilisation of steep slopes

The disturbance of steep slopes, for example by the removal of vegetation, may result in slope instability and erosion by rain and surface run off. The contractor shall ensure that slopes that are disturbed during construction are stabilized to prevent erosion occurring. Where re-vegetation of slopes is undertaken, this shall be in accordance with the specification provided in Paragraph 5 below.

Slopes that are susceptible to accidental damage during construction shall be protected to reduce the risk of disturbance.

Any erosion that does occur shall be reinstated at the contractor's cost.

CEMP 4.4 Excavations

Excavations for trenches will cause the biggest impact of this project, because the great length, variable depth, and different soils and even streams and rivers that it will pass through. Every effort will be made to minimize the impacts through correct construction practices.

CEMP 4.4.1 Excavation of trenches

The grass cover and other vegetation over the width of the trench shall be trimmed off and placed to one side of the trench. The topsoil shall be removed to a depth of 300mm and placed separately on the same side of the trench as the grass. The subsoil excavated from the trench shall be stored on the opposite side of the trench to the topsoil, to ensure that there is no mixing of topsoil and subsoil.

CEMP 4.4.2 Open trenches

Not more than 750m/team of trenching shall be left open at a time, and all open trenches shall be demarcated with danger tape. Trenches in wetland and streams shall be excavated and backfilled as soon as possible to minimize the chances of flooding the trench, and/or causing erosion, and the time taken from excavation to rehabilitation shall not exceed 14 days.

CEMP 4.4.3 Reinstatement of trenches

Backfilling shall be done with the subsoil, and compacted in layers of 300mm. Once the backfilling and compaction has been completed, the topsoil layer shall be reinstated. The grass and vegetation that was initially removed shall be spread over the topsoil layer to offer protection against erosion while seed that is sown is allowed to germinate.

Care shall be taken to ensure that the finished level of the trench cover is slightly higher than the surrounding soil to allow for slump after being wet by rains.

CEMP 4.5 Removal of alien vegetation

The contractor shall remove all alien vegetation that establishes within the demarcated site after construction commences.

CEMP 5 SITE REHABILITATION**CEMP 5.1 Scope**

The contractor shall be responsible for rehabilitating any areas cleared or disturbed for construction purposes. The contractor shall rehabilitate such areas in accordance with the specification provided below.

The contractor shall stabilize, by straw rotovation or other means, any areas that are cleared or disturbed for construction purposes.

All construction equipment and excess aggregate, gravel, stone, concrete, bricks, temporary fencing and the like shall be removed from the site upon completion of the work. No discarded materials of whatsoever nature shall be buried on the site or on any other land surrounding the proposed development site.

CEMP 5.2 Preparation for rehabilitation

Areas that require reshaping shall be cut, filled and compacted so as to follow the contours of the surrounding landscape. Topsoil removed from the area initially shall be replaced. Care must be taken not to mix the topsoil with the subsoil during shaping operations. Should a crust form on the soil before re-vegetation is commenced, the contractor shall, at own cost, loosen the crust by scarifying to a depth of 150 mm.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

CEMP 5.3 Seeding

A commercial annual and perennial grass seed mix shall be used which has an annual to perennial ratio of greater than 1.5:1. Eragrostis tef is a suitable annual species, while perennial species should be comparable to those in the natural grassveld. Grass sown at high rates can prevent the establishment of natural species, therefore suitable sowing rates should be chosen and these will be obtained from the PECO.

Irrigation will enhance the rehabilitation and should be considered if unusually dry conditions prevail.

The use of anti-erosion compounds shall be considered on steep slopes where there is a risk of erosion.

Control of the spread of alien species shall be managed by regular monitoring of the area and removal of these seedlings. Regular monitoring of the area will also allow for modifications to the rehabilitation programme, for example the need to irrigate, sow more seed or fertilize. The rehabilitation programme should be flexible allowing for these modifications.

CEMP 6 MANAGEMENT AND MONITORING

This section focuses on the systems and procedures required to ensure that the environmental specifications are effectively implemented.

CEMP 6.1 General inspection monitoring and reporting

The ECO shall ensure that the following is complied with:

- Inspect the site on a daily basis to ensure that the environmental specifications are adhered to.
- Provide the PECO with a monthly written report, detailing both compliance with the GSEM, and environmental performance.
- Maintain a record of major incidents (spills, impacts, complaints, legal transgressions etc) as well as corrective and preventive actions taken, for submission to the PECO at the scheduled monthly report back meetings.
- Conduct regular internal audits to ensure that the system for implementation of the EMP is operating effectively, in order to ensure compliance with the GSEM. The audit shall check that a procedure is in place to ensure that:
 - The method statements and EMP being used are the up-to-date versions;
 - Variations to the Method Statements and non-compliances and corrective action are documented;
 - Appropriate environmental training of personnel is undertaken; and
 - Emergency procedures are in place and effectively communicated to personnel.

CEMP 6.2 Environmental Awareness Training

The contractor shall be responsible for introducing the CEMP and GSEM to all employees on site, before any construction activities commence. Weekly toolbox talks shall also be used to remind the employees of their responsibilities in terms of environmental management, and any issues observed will be raised in these meetings. The Contractor shall ensure that all attendees sign an attendance register, and shall keep a copy of the attendance register on file.

The emphasis of the training shall be on potential environmental impacts relating to the construction or maintenance activities to be undertaken on site, and the related environmental precautions which need to be taken to avoid or mitigate these impacts. The contractual obligation to comply with the specifications in the CEMP shall also be emphasized.

If specific training is required, the ECO shall approach the PECO for assistance in providing the necessary training.

CEMP 6.2.1 Additional environmental awareness training

If there are persistent breaches of the specifications contained in this document, and / or if new environmental issues arise during the course of construction, the PM may require additional environmental training sessions be provided to all the Contractor's employees.

CEMP 6.3 Documentation

The ECO shall maintain records to demonstrate compliance with the CEMP and method statements. The ECO shall ensure that all records of spills, pollution incidents, spot fines, training details etc. are copied to the PECO and PM for his/her records. All documents shall be open for inspection by the Client, and made available to the public on request.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

The ECO shall ensure that a register of public complaints and action taken thereon, plus the relevant documentation from the Contractor, is maintained.

CEMP 6.4 Penalties

Compliance with the CEMP is obligatory therefore contractors that are found to be non-compliant with the CEMP may be issued with a fine from the PECO or PM.

1) Spot Fines

Spot fines not exceeding R1,500.00 shall be recommended by the PECO and imposed by the PM on the Contractor if the Contractor is found to be infringing on this CEMP. The Contractor shall be advised in writing of the nature of the infringement and the amount of the spot fine. The Contractor shall determine how to recover the fine from the relevant employee and/or Sub-contractor and/or supplier. The Contractor shall also take the necessary steps (e.g. training) to prevent a recurrence of the infringement and shall advise the PM accordingly.

The Contractor is also advised that the imposition of spot fines does not replace any legal proceedings the Client, authorities, and/or members of the public may institute against the Contractor. The decision on how much to impose will be made by the PM, and will be final. In addition to the spot fine, the Contractor shall be required to make good any damage caused as a result of the infringement at his own expense.

A preliminary list of infringements for which spot fines will be imposed is as follows:

- Moving outside the demarcated Site boundaries;
- Littering of the Site and surrounds;
- Burying waste on Site and surrounds without written approval;
- Smoking in the vicinity of fuel storage and filling areas and in any other areas where flammable materials are stored/used;
- Making fires outside designated areas;
- Defacement of natural features;
- Spillage onto the ground of oil, diesel, etc;
- Picking/damaging plant material;
- Damaging/killing wild animals; and

2) Procedure

Spot fines that are recommended by the PECO, will be issued as a 'Compliance Notice' to the Contractor, and the Compliance Notice shall present the activity that caused the non-compliance, and the amount to be paid. A copy of the Compliance Notice will also be submitted to the PM and financial manager for the project who will deduct the value of the fine from the Contractors payment claim.

A repeated contravention of a requirement of the CEMP shall be sufficient grounds to require the removal by the PM of the person responsible for the non-compliance on Site and the Contractor shall have no claim for such removal from Site.

3) Fines

More severe fines may be issued on the Contractor if there are repeated contraventions of the CEMP. The fines that are issued shall be in accordance with the severity of the incident, and these will be classified as minor-, medium-, or major environmental incidents.

4) Minor environmental incidents

This refers to an incident or sequel of incidents, whether immediate or delayed, that does not result in any negative impact on the environment after immediate intervention on the day of the occurrence, and does not result in pollution, and does not have a risk of danger to the public.

Minor environmental incidents may be cause for a fine not exceeding R5,000.00. The Contractor shall also be responsible for remediation of the incident, and be liable for the costs for the said remediation.

5) Medium environmental incidents

This refers to an incident or sequel of incidents, whether immediate or delayed, that results in widespread or localized short term, reversible significant negative impact on the environment, and/or risk of legal liability to the Client, and may entail risk of danger to the public.

Medium environmental incidents may be cause for a fine not exceeding R10,000.00. The Contractor shall also be responsible for remediation of the incident, and be liable for the costs for the said remediation, as well as responsible for legal liability if applicable.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

6) Major environmental incidents

This refers to an incident or sequel of incidents, whether immediate or delayed, which results in widespread or localized long term, irreversible significant negative impact on the environment, and/or has a high risk of legal liability to the Client.

Major environmental incidents may be cause for a fine not exceeding R50,000.00. The Contractor shall also be responsible for remediation of the incident, and be liable for the costs for the said remediation, as well as responsible for legal liability if applicable.

7) Procedure

Fines that are issued will be issued as a 'Compliance Notice' to the Contractor, and a copy given to the Client, and the Compliance Notice shall present the activity that caused the non-compliance, the severity of the incident, and the amount to be paid. A copy of the Compliance Notice will also be submitted to the financial manager for the project with an instruction to deduct the value of the fine from the Contractor.

A repeated contravention of a requirement of the CEMP shall be sufficient grounds to require the removal by the PM of the person responsible for the non-compliance on Site and the Contractor shall have no claim for such removal from Site.

A major environmental incident shall be grounds for the Client to claim a 'breach of contract' against the Contractor and shall have the right to terminate the contract.

CEMP 6.5 Dispute Resolution

The CEMP shall be part and parcel of contracts between any Contractor and the Client, and therefore any dispute must be dealt with according to the relevant dispute resolution clauses in the contract.

However, to gain a better understanding of compliance and offences, the Contractor is advised to study the national environmental legislation applicable to the type of project in which he/she is involved.

CEMP 7 Measurement and payment

CEMP 7.1 Refuse removal

The unit of measurement shall be a sum for dry and/or wet refuse to be removed by the Subcontractor. The tendered rate shall include full compensation for collecting the refuse, for providing and maintaining the refuse vehicles, refuse bins and special refuse enclosures, drivers and assistants, for all transport around and off-site, for loading and unloading all as specified.

CEMP 7.2 Environmental awareness training

The organisation and attendance of the education course will be measures as a sum. The tender shall cover the time cost of all personnel attending the course, the provision of the venue and for any other operation necessary to comply with the requirements of the environmental awareness courses to the satisfaction of the Employer's Agent.

CEMP 7.3 All requirements of the environmental management specification

All other work not measured elsewhere, associated with complying with any requirement of the environmental management specification shall be measured as a sum. The tendered rate shall cover any cost associated with complying with the environmental management specification and shall include for all materials, labour and plant required to execute and complete the work as specified, described in the Bill of Quantities or shown on the drawing

The compilation and implementation of the Construction Environmental Management Plan shall meet the minimum requirements as set out in CEMP 1 – CEMP 3 as detailed on the next page.

CEMP 7.4 Fixed-Charge Items

- | | |
|---|-----|
| a) Compilation of an approved Environmental Management Plan | Sum |
| b) Other fixed charges | Sum |

CEMP 7.5 Time-related Items

- | | |
|--|-----|
| a) Compliance to the approved Environmental Management Plan and File | Sum |
|--|-----|

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

b) Training

Sum

CEMP 8 LEGISLATION APPLICABLE TO THIS SPECIFICATION

The following is a brief summary of the relevant environmental legislation, which have implications for the project.

The National Constitution establishes the fundamental framework in terms of which the law is promulgated and applied, and confers rights on everyone to an environment that is not harmful to health and well-being, and which is protected, for the present and future generations, through reasonable legislative and other measures.

In terms of the constitution, environmental matters are delegated to the province, but not exclusively. National Acts of relevance to this environmental specification are:

- Conservation of Agricultural Resources Act, No 43 of 1983
- Environment Conservation Act, No 73 of 1989
- National Environmental Management Act, No 107 of 1998 (NEMA) – EIA regulations as amended
- National Environmental Management: Biodiversity Act of 2004
- National Environmental Management: Waste Act of 2008
- National Forests Act, No 84 of 1998
- National Heritage Resources Act, No 25 of 1999 (NHRA)
- National Veld and Forest Fires Act, No 101 of 1998
- National Water Act, No 36 of 1998 (NWA)

For implementation on small or low impact developments approved under the Environment Conservation Act (Act 73 of 1989).

CEMP 9: ENVIRONMENTAL AWARENESS DO'S AND DON'TS**BASIC RULES OF CONDUCT**

The following list represents the basic Do's and Don'ts towards environmental awareness, which all participants in this project must consider whilst carrying out their tasks. These are not exhaustive and serve as a quick reference aid.

NOTE: ALL new site personnel must attend an environmental awareness presentation. Please inform your foreman or manager if you have not attended such a presentation or contact the ESA.

DO:

- Use the toilet facilities provided – report dirty or full facilities
- Clear your work areas of litter and building rubbish at the end of each day – use the waste bins provided and ensure that litter will not blow away.
- Report all fuel or oil spills immediately & stop the spill continuing.
- Dispose of cigarettes and matches carefully. (littering is an offence.)
- Confine work and storage of equipment to within the immediate work area.
- Use all safety equipment and comply with all safety procedures.
- Prevent contamination or pollution of streams and water channels.
- Ensure a working fire extinguisher is immediately at hand if any “hot work” is undertaken e.g. Welding, grinding, gas cutting etc.
- Report any injury of an animal.
- Drive on designated routes only.
- Prevent excessive dust and noise.

DO NOT:

- Remove or damage vegetation without direct instruction.
- Make any fires.
- Injure, trap, feed or harm any animals – this includes birds, frogs, snakes, lizards etc.
- Enter any fenced off or marked area.
- Allow cement or cement bags to blow around.
- Speed or drive recklessly
- Allow waste, litter, oils, or foreign materials into the stream
- Swim in the dam.
- Litter or leave food laying around

Notes:

1. Should any animals such as tortoises, chameleons or snakes be encountered then do not harm them. The ESSO or RE should be contacted to remove these safely. The harming of any animal will result in disciplinary action.
2. Construction and heavy machine operators must be particularly sensitive to staying within access routes and prevention of unnecessary damage. Dust and noise is also of particular concern. Ensure that vehicles and machinery do not leak fuel or oils. Refuelling or maintenance must be done within the maintenance camp area only.
3. Alien plant clearing, and control work teams must be closely supervised.

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

CEMP 9: METHOD STATEMENT SHEET - ENVIRONMENTAL METHOD STATEMENT

WHAT:	Subject of M/Statement			
WHO:	Site Foreman/contact person:			
	Submitted to (e.g. ESA):	Approved by:		
	Date Submitted on:	Date Approved:		
WHEN:	Date works start	Date works complete		
	Rehabilitation period:		Programme restrictions (critical path, season restrictions etc.)	
	Split work Phasing:	Item	start date	end date
	Phase 1			
	Phase 2			
WHERE	Area of works – submit plan or sketch if appropriate – stockpile, detention ponds, boundaries / restriction of works, special features or mitigation works landscape specials etc:			
HOW:	Route/site layout pegged:	Date available to inspect		Inspection persons required:
	Landscape concerns: (Specify items not covered in EMP. Refer to EMP items if required.)			
	Existing features & services affected (e.g. paths, curbing, irrigation etc.)			
	Trees (protection or removal methods).			
	Special vegetation			
	Reinstatement methods			
	Maintenance			
	Restricted areas			
	Access:			
	Machinery:			
	Earthworks & dust control:			
	Concrete works:			
	Storm-water control:			
	Stockpiles:			
	Refuse/rubble:			
	Water quality – pumping, source & discharge points, settlement, filtration, duration etc:			
	Hydrocarbon control measures:			
I&AP notifications:				
Fire/emergency contingencies:				
	Special conditions / mitigation measures (e.g. stream crossings, live sewer proximity etc):			
	Comments:			

C3.8: Labour Intensive Construction Specifications



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA



PROJECT FUNDER

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IMPLEMENTING AGENT

C3.8 - LABOUR INTENSIVE CONSTRUCTION SPECIFICATIONS

Contents

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LIC 1 LABOUR INTENSIVE WORK

LIC 1.1 Use of Labour Intensive Construction Methods

It is a requirement of this Contract that local labour is employed wherever possible. However, the Contractor shall limit the use of non-local employees to work that requires higher training or skills, and to key personnel only.

Written Contracts shall be Entered into with Local Labour.

The Contractor shall make use of labour intensive construction methods in the completion of the Works. Hand-held tools shall be used wherever possible. The use of mechanical plant shall be restricted to:

- a) Compressors;
- b) jack-hammers;
- c) excavator for excavation in rock and bulk pipelines (only with prior permission of the Employer’s Agent) as scheduled in the Bill of Quantities;
- d) plant for transportation of materials;
- e) plant for the mixing, pumping and compaction of concrete; and
- f) minor hand-held tools, e.g. drills, circular saws, etc.,

Any other mechanical plant that the Contractor may require, may only be brought onto site with the prior permission of the Employer’s Agent.

LIC 1.2 Competencies of Supervisory and Management

Established contractors shall only engage supervisory and management staff in labour-intensive works who have either completed, or are registered for training towards, the skills programme outlined in Table 1.

Emerging contractors shall have personally completed or be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or be registered on a skills programme for, the NQF level 2 unit standards or NQF level 4 unit standards.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / Supervisor	2	Apply Labour-Intensive Construction Systems and Techniques to Work Activities	 Any one of these three unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Stormwater Drainage	
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures	

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

Personnel	NQF level	Unit standard titles	Skills programme description
Foreman/ Supervisor	4	Implement Labour-Intensive Construction Systems and Techniques	 Any one of these three unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain	
		Roads and Stormwater Drainage Use Labour-Intensive Construction Methods to Construct and Maintain	
		Water and Sanitation Services Use Labour-Intensive Construction Methods to Construct, Repair and Maintain Structures	
Site Agent/ Manager (i.e. the Contractor's most senior representative that is resident on the site)	5	Manage Labour-Intensive against this Construction Processes	Skills Programme against this single unit standard
Details of these skills programmes may be obtained from the CETA.			

LIC 1.3 Generic labour-intensive specification

LIC 1.3.1 Scope

This Specification establishes general requirements for activities which are to be executed by hand involving the following:

- a) trenches having a depth of less than 1.5 metres
- b) stormwater drainage
- c) low-volume roads and sidewalks

LIC 1.3.2 Precedence

Where this Specification is in conflict with any other standard or specification referred to in this Contract, the requirements of this Specification shall prevail.

LIC 1.3.3 Hand excavatable material

Hand excavatable material is material:

- a) Granular materials:
 - i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or
 - ii) where the material is a gravel having a maximum particle size of 10 mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100 mm;
- b) Cohesive materials:
 - i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or
 - ii) where the material is a gravel having a maximum particle size of 10 mm and contains no cobbles or isolated boulders, no more than

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

8 blows of a dynamic cone penetrometer is required to penetrate 100 mm;

Note:

- 1) A boulder, a cobble and gravel is material with a particle size greater than 200 mm, between 60 and 200 mm, and between 2 mm and 60 mm respectively.
- 2) A dynamic cone penetrometer is an instrument used to measure the insitu shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400 mm and drives a cone having a maximum diameter of 20 mm (cone angle of 60° with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled

GRANULAR MATERIALS		COHESIVE MATERIALS	
Consistency	Description	Consistency	Description
Very loose	Crumbles very easily when scraped with a geological pick	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle
Loose	Small resistance to penetration by sharp end of a geological pick	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure
Medium dense	Considerable resistance to penetration by sharp end of a geological pick	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in up to 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade
Dense	Very high resistance to penetration by the sharp end of geological pick; required many blows for excavation	Stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick	Very stiff	Indented by thumb-nail with difficulty; slight indentation produced by blow of a geological pick point.

LIC 1.3.4 Trench excavation

Hand excavatable material has to have a consistency of:

- a) Granular Materials – Very loose or Loose
- b) Cohesive Materials – Very soft or Soft
- c) All other consistencies are regarded machine excavatable materials.
- d) Hand excavation only for trenches having a depth of less than 1,5 metres, all other trenches to be done by machine.

LIC 1.3.5 Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100 mm. Each layer shall be compacted using hand stamps

Contractor _____ Witness 1 _____ Witness 2 _____ Employer _____ Witness 1 _____ Witness 2 _____

- a) to 90% Proctor density;
- b) such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10 mm and contains no isolated boulders, or
- c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

LIC 1.3.6 Excavation

All excavation, as listed under PD9-3.4 classified as hand excavatable shall be excavated by hand. The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

LIC 1.3.7 Clearing and grubbing

Grass and small bushes shall be cleared by hand.

LIC 1.3.8 Shaping

All shaping shall be undertaken by hand.

LIC 1.3.9 Spreading

All material shall be spread by hand.

LIC 1.3.10 Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

LIC 1.3.11 Grassing

All grassing shall be undertaken by sprigging, sodding, or seeding by hand.

LIC 1.3.12 Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, shall be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

Grout shall be mixed and placed by hand.

LIC 1.3.13 Manufactured elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.

C3.9 Training Specifications



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TRAINING SPECIFICATIONS



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**DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE
NOTICE 363 OF 2020**

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**Construction Industry Development Board
Standard for Developing Skills through
Infrastructure Contracts**

July 2020

In terms of sections 5(2) of the Construction Industry Development Board Act, 2000 (Act no. 38 of 2000) (the Act), the Construction Industry Development Board is empowered to promote best practice Standards. This best practice Standard for developing skills through infrastructure contracts standard establishes a minimum contract skills development goal which is to be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities linked to work associated with a contract which culminate in or lead to:

- a) a part- or full occupational qualification registered on the National Qualification Framework;
- b) a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);
- c) a national diploma registered on the National Qualification Framework; and
- d) registration in a professional category by one of the professional bodies listed in the standard.

Ms Nonkululeko Sindane
Chairperson: Construction Industry Development Board

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Department:
Public Works
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**higher education
& training**

Department:
Higher Education and Training
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**economic
development**

Economic Development Department
REPUBLIC OF SOUTH AFRICA

Standard for developing skills through infrastructure contracts

(July 2020)

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INTRODUCTION

Procurement may be defined as *the process which creates, manages and fulfils contracts*. Procurement accordingly commences once a need for goods, services or works has been identified and it ends when the goods are received, or the services or construction works are completed. Public procurement, because of its nature and size, can have a significant impact on social and economic development if it is used to leverage social and development objectives.

The South African government requires that its considerable expenditure on the delivery, maintenance and operation of infrastructure (fixed assets that are constructed or result from construction operations) contribute to an increase in the number of people who have part or full occupational qualifications registered on the NQF or professional designations awarded by professional bodies or statutory councils. This standard has been prepared to leverage contributions towards the increase of the pool of qualified skilled people, and where required professionally registered, through training on professional services, services, design and build or engineering and construction works contracts associated with such expenditure. This standard establishes a minimum contract skills development goal which is to be achieved in the performance of a contract in relation to the provision of different types of workplace opportunities linked to work associated with a contract which culminate in or lead to:

- a) a part or full occupational qualification registered on the National Qualification Framework;
- b) a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012);
- c) a national diploma registered on the National Qualification Framework; and
- d) registration in a professional category by one of the professional bodies listed in Table 1 of this standard.

Contractors are responsible for achieving the contract skills development goal and are provided with a number of methods for measuring their achievements. They may, if need be, devolve their obligations onto subcontractors.

This standard should be applied to a contract or an order issued in terms of a framework agreement that has a duration of 12 months or more, and a contract amount exceeding:

- a) R5 million in the case of a professional service or service contract or an order issued in terms of such a contract; or
- b) R60 million in the case of an engineering and construction works, or design and build contract or an order issued in terms of such a contract.

This Standard will be subject to review every five years, or sooner if required.

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Standard for developing skills through infrastructure contracts

1 SCOPE

This standard establishes a key performance indicator in the form of a contract skills development goal (CSDG) relating to the structured workplace learning of occupational or professional learning, which enables learners to make measurable progress towards the attainment of:

- a) a part or full occupational qualification registered on the National Qualification Framework; or
- b) a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012); or
- c) a national diploma registered on the National Qualification Framework; or
- d) registration in a professional category by a statutory council listed in Table 1.

in the delivery, maintenance and operation of infrastructure through the performance of professional service, service, engineering and construction works, or design and build contracts or an order associated with such a contract.

This standard sets out the methods by which the key performance indicator is established, measured, quantified and verified in the performance of the contract or the execution of an order.

NOTE 1: Guidance on the manner in which this standard should be incorporated into procurement documents is provided in Annex A.

NOTE 2: This standard can be applied to contracts or to orders (call-offs) issued in terms of framework agreements. Framework agreements are well suited to situations in which long term relationships are entered into. They offer flexibility in attaining contract skills development goals as requirements can be adjusted from one order to another, thus allowing key performance indicators to be improved upon over time.

2 TERMS AND DEFINITIONS

For the purposes of this document, the following terms and definitions apply:

- 2.1 allowance** amount provided for in the contract or an order by the employer relating to one or more of the following:
- a) the performance by the contractor of work or services that are foreseen but cannot be accurately specified at the time that the contract was entered into or the order issued;

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- b) work or services to be performed, or goods provided, by a subcontractor who is either nominated by the employer or is selected by the employer in consultation with the contractor after the award of the contract or the issuing of an order;
 - c) provision for price adjustment for inflation; or
 - d) other budgetary provisions intended to cover the employer's contractual risks
- 2.2 artisan** a person who has been certified as competent to perform a listed trade in accordance with Section 26B of the Skills Development Act of 1998 (Act No. 97 of 1998)
- 2.3 black people** a generic term which means Africans, Coloureds and Indians or Chinese and who are a citizen of the Republic of South Africa:
- a) by birth or descent; or
 - b) naturalisation occurring before the commencement date of the Constitution of the Republic of South Africa Act, Act No. 200 of 1993 or occurring after the commencement date of such Act, but who, without the Apartheid policy would have qualified for naturalisation before then
- 2.4 candidate** a person who is registered in a category of registration which ultimately leads to registration in a professional category by one of the statutory councils listed in Table 1
- 2.5 cidb** Construction Industry Development Board, established in terms of the Construction Industry Development Board Act of 2000 (Act 38 of 2000)
- 2.6 class of construction works** the class of construction works referred to in Schedule 3 of the Construction Industry Development Regulations 2004 as amended and published in terms of the Construction Industry Development Board Act of 2000 (Act 38 of 2000)
- 2.7 contract amount** financial value of the contract at the time of the award of the contract or an order at the time of issue, including value added tax but excluding all allowances and expenses
- 2.8 contract skills development credits** the number of learners employed by the contractor and placed for continuous training opportunities in a three-month period
- 2.9 contract skills development goal (CSDG)** the number of hours or head count of skills development opportunities that a contractor contracts to provide in relation to work directly related to the contract or order up to:
- a) completion in the case of a professional service contract;

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- b) the end of the service period in the case of a service contract; and
 - c) practical completion in the case of an engineering and construction works contract
- 2.10 **contractor** person or organization that contracts to provide professional services, services, goods and related services, or engineering and construction works
- 2.11 **design and build contract** engineering and construction works contract where both the design and the construction are the responsibilities of the same contractor
- 2.12 **employed learner** a learner who was in the employment of an employer prior to the commencement of the contract or execution of the order. Learners deployed from the public sector, other organisations, or other contractors for the purposes of gaining structured workplace learning shall also be considered to be an employed learner albeit that their employer will remain unchanged.
- 2.13 **Employer** person or organization entering into a contract with the contractor for the provision of professional services, services, goods and related services, engineering and construction works (commonly referred to as the client)
- 2.14 **employer's representative** person authorized to represent the employer in terms of the contract
- 2.15 **engineering and construction works contract**, contract for the provision of a combination of goods and services arranged for the manufacture, development, extension, refurbishment, rehabilitation or demolition of a fixed asset, including building and engineering infrastructure
- 2.16 **expenses** costs incurred by the contractor in the performance of the contract or order which are in terms of the contract recoverable from the employer
- 2.17 **framework agreement**, agreement between an employer and one or more contractors, the purpose of which is to establish the terms governing orders to be awarded during a given period, in particular with regard to price and, where appropriate, the quantity envisaged
- 2.18 **mentor** a qualified, experienced and, in the case of professionals, registered person, designated to guide a learner or candidate through a structured work experience learning component of a learning programme required for the acquisition of a part or full qualification or professional designation
- 2.19 **occupational qualification** occupational qualification registered on the National Qualifications Framework Act (Act No. 67 of 2008)
- 2.20 **order** the instruction to carry out construction works, services or professional services under a framework agreement

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2.21 part qualification an assessed unit of learning that is registered on the National Qualifications Framework as part of an occupational qualification

2.22 practical completion the state of completion at the end of construction required in terms of an engineering and construction works contract

NOTE: Practical completion is commonly understood to be a state of readiness for occupation of the whole works although some minor work may be outstanding. Practical completion in an engineering and construction works contract occurs when:

- a) FIDIC Short Form of Contract: the date when the Employer considers that the Works have been completed in accordance with the Contract, except for minor outstanding work and defects which will not substantially affect the use of the Works for their intended purpose.
- b) FIDIC Red, Silver and Yellow Book: the date when the Engineer determines that the Works have been completed in accordance with the contract except for minor outstanding works and defects which will not substantially affect the use of the works for their intended purpose.
- c) GCC 2010: the date when the Engineer certifies that the whole or portion of the Works has reached a state of readiness, fit for the intended purpose, and occupation without danger or undue inconvenience to the Employer, although some work may be outstanding.
- d) JBCC 2000 Principal Building Agreement and JBCC Minor Works Agreement: the date when the principal agent decides that the completion of the works has substantially been reached and can be used for the purpose intended.
- e) NEC3 Engineering and Construction Contract: the date when the Project Manager decides that the Contractor has reached Completion as defined in the contract.
- f) NEC3 Engineering and Construction Short Contract: the date when the Employer decides that the Contractor has completed the works in accordance with the Works Information except for correcting notified Defects which do not prevent the Employer from using the works and others from doing their work.

2.23 professional category a category of registration identified in Table 1 or such other category recognised by the Employer in the application of this standard.

Table 1: Categories of registration

Profession	Category of registration	Act
Architectural	Architect, Senior Architectural Technologist, Architectural Technologist or Architectural Draughtsperson	Architectural Profession Act of 2000 (Act No. 44 of 2000)
Construction project management	Construction Project Manager	Project and Construction Management Professions Act of 2000 (Act No. 48 of 2000)
Construction management	Construction Manager	
Engineering	Engineer, Engineering Technologist, Engineering Technician or Certificated Engineer	Engineering Profession Act of 2000 (Act No. 46 of 2000)

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Profession	Category of registration	Act
Health and Safety Practitioners	Construction Health and Safety Agent, Construction Health and Safety Manager, Construction Health and Safety Officer	Occupational Health and Safety Act of 1993 (Act No. 85 of 1993) Construction Regulations, 2014
Landscape Architectural	Landscape Architect, Landscape Technologist, Landscape Technician or Landscape Assistant	Landscape Architectural Profession Act of 2000 (Act No. 45 of 2000)
Planning	Planner or Technical planner	Planning Profession Act, 2002. (Act No. 36 of 2002)
Quantity surveying	Quantity surveyor	Quantity Surveying Profession Act of 2000 (Act No. 49 of 2000)
Scientists	Natural scientists	Natural Scientific Professions Act (Act No. 27 of 2003)
Surveying	Land surveyor, Engineering surveyor or Technician engineering surveyor	Professional and Technical Surveyors' Act (Act No. 40 of 1984)
Valuers	Valuer or Associate Valuer	Property Valuers Profession Act (Act No. 47 of 2000)

- 2.24 professional fees** financial value of a professional service contract at the time of the award of the contract or an order at the time of issue, excluding all allowances and expenses, but including value added tax
- 2.25 professional service contract**, contract for the provision of services with the skill and care normally delivered by professionals
- 2.26 Sector Education and Training Authority (SETA)** an institution established under section 9 of the Skills Development Act, Act 97 of 1998 and which has the responsibility under this Act to register learners on learning programmes
- 2.27 service contract**, contract for the provision of labour or work, including knowledge-based expertise, carried out by hand or with the assistance of equipment and plant
- 2.28 site** means the land or place made available by the employer, for the purposes of the contract or order, on, under, over, in or through which the works or services are to be executed
- 2.29 skills development agency (SDA)** an agency which performs some or all the functions set out in section 4.1.5.
- 2.30 statutory council** a council established as follows:
- a) South African Council for the Architectural Profession, established by the Architectural Profession Act of 2000 (Act No. 44 of 2000);
 - b) South African Council for the Project and Construction Management Professions, established by the Project and Construction Management Professions Act of 2000 (Act No. 48 of 2000);

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- c) Engineering Council of South Africa, established by the Engineering Profession Act of 2000 (Act No. 46 of 2000);
- d) Construction Health and Safety Practitioners established by the Occupational Health and Safety Act of 1993 (Act No. 85 of 1993)
- e) South African Council for the Landscape Architectural Profession, established by the Landscape Architectural Profession Act of 2000 (Act No. 45 of 2000);
- f) South African Council for the Quantity Surveying Profession, established by the Quantity Surveying Profession Act of 2000 (Act No. 49 of 2000);
- g) South African Council for Professional and Technical Surveyors, established by the Professional and Technical Surveyors' of 2000 (Act No. 40 of 1984);
- h) South African Council for Planners, established by the Planning Professions Act of 2002 (Act No. 32 of 2002);
- i) South African Council for Natural Scientific Professions, established by the Natural Scientific Professions Act (Act No. 27 of 2003); or
- j) South African Council for the Property Valuers Profession established by the Property Valuers Profession Act (Act No. 47 of 2000).

- 2.31 structured mentorship**, mentorship provided by a person who is registered in a suitable category of professional registration by a professional body or statutory council who leads and directs a candidate towards professional registration
- 2.32 structured workplace learning** component of learning in an occupational qualification or work placement for a professional designation whereby a learner is mentored by a qualified, and where required, registered mentor in the application and integration of the knowledge and practical skills learnt, under supervision, in the actual context of a workplace in accordance with the prescripts set by the relevant qualifying authority, professional body or statutory council
- 2.33 supervisor** a supervisor is a person in the particular workplace charged with the responsibility of allocating workplace tasks to a learner that are aligned to the prescriptions of their learning programme and of overseeing and reporting on that learning using a formally agreed record keeping system
- 2.34 unemployed learner** a learner who was not in the full-time employment of the contractor prior to the commencement of the contract or execution of the order and is appointed by the contractor or SDA on a limited duration employment contract linked to the prescriptions of a structured workplace learning programme. Their conditions of employment shall not be less favourable than those set out for such learners on learnerships set out in section 18 (3) of the Skills Development Act (Act 97 of 1998)
- 2.35 work integrated learning** the workplace learning component required by learners completing a national diploma at a University of Technology or Comprehensive University

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3 REQUIREMENTS

3.1 CONTRACT SKILLS DEVELOPMENT GOAL (CSDG)

3.1.1 The contractor shall attain or exceed the contract skills development goal in the performance of the contract or the execution of an order.

3.1.2 The contract skills development goal shall be expressed as in 3.1.2.1 for engineering and construction works, design and build and services contracts, and as in 3.1.2.2 for professional services contracts.

3.1.2.1 In the case of engineering and construction works contracts, design and build contracts and services contracts the contract skills participation goals, expressed in Rand, shall be not less than the contract amount multiplied by a percentage (%) factor given in Table 2 for the applicable class of construction works used in the application of the Construction Industry Development Regulations issued in terms of the Construction Industry Development Board Act of 2000.

Table 2: Contract skills development goals for different classes of engineering and construction works contracts

Class of construction works as identified in terms of Regulation 25(3) of the Construction Industry Regulations 2004		Construction skills development goal (CSDG) (%)
Designation	Description	
CE	Civil engineering	0.25
CE and GB	Civil engineering and General Building	0.375
EE	Electrical Engineering works (buildings)	0.25
EP	Electrical Engineering works (Infrastructure)	0.25
GB	General Building	0.5
ME	Mechanical Engineering works	0.25
SB	Specialist	0.25

Example 1: The contract amount for an engineering and construction works contract in the GB class of construction works is R65,7m. The contract skills development goal in Rands is $R65,7m \times 0.5\% = R328\ 500$.

3.1.2.2 In the case of professional services contracts the contract skills development goals, expressed in hours, shall be not less than the professional fees in millions of Rand multiplied by 150.

Example 2: The contract amount for a professional services contract is R5.6 m. The contract skills development goal in hours is $R5.6m \times 150 = 840$ hours.

3.1.2.3 The number of hours for the contract skills development goal shall be revised as the need arises and be published in a Gazette notice.

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3.1.2.4 Where required in terms of the contract or order, a specified proportion of the learners and candidates shall be selected from persons in the employ of the state who meet the relevant eligibility criteria for the relevant programme.

3.1.2.5 Where required in terms of the contract or order, the employer shall advise the contractor of the types of training to be undertaken by the learners and candidates.

3.2 ACHIEVING THE CONTRACT SKILLS DEVELOPMENT GOAL (CSDG)

3.2.1 The contractor shall achieve the measurable contract skills development goal by providing opportunities to learners requiring structured workplace learning using one or a combination of any of the following in relation to work directly related to the contract or order:

Method 1: structured workplace learning opportunities for learners towards the attainment of a part or a full occupational qualification;

Method 2: structured workplace learning opportunities for apprentices or other artisan learners towards the attainment of a trade qualification leading to a listed trade (GG No. 35625, 31 August 2012) subject to at least 60% of the artisan learners being holders of public TVET college qualifications;

Method 3: work integrated learning opportunities for University of Technology or Comprehensive University students completing their national diplomas;

Method 4: structured workplace learning opportunities for candidates towards registration in a professional category by a statutory council listed in Table 1 above.

3.2.2 Employed learners may not account for more than 33 percent of the contract skills development goal.

3.2.3 Not more than one method may be applied to any individual concurrently in the calculation of the contract skills development goal.

NOTE: The principle is that an individual can only be counted once towards the CSDG.

3.3 CONTRACT SKILLS DEVELOPMENT GOAL CREDITS

3.3.1 Contract skills development credits will not be awarded for learners enrolled as beneficiaries of other funded or subsidised programmes.

3.3.2 In the case of engineering and construction works, design and build and services contracts:

- a) The contract skills development goals shall be granted by multiplying the number of people employed by the contractors and placed for continuous

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training opportunities in a three-month period by the notional values contained in Table 3, or as revised in a Gazette notice.

- b) The contractor may source beneficiaries of the contract skills development goal from the cidb Skills Development Agency (SDA).
- c) All beneficiaries of the Standard must be registered with the cidb SDA.

NOTE: The role and function of a cidb SDA is outlined in Annex B

Table 3: The notional cost of providing training opportunities per quarter

Type of Training Opportunity	Provision for stipends (Unemployed learners only)	Provisions for mentorship	Provisions for additional costs*	Total costs	
				Unemployed learners	Employed learners
Method 1					
Occupational qualification	R7 000	R0	R9 000	R16 000	R9 000
Method 2					
TVET College graduates	R14 000	R0	R9 000	R23 000	N/A
Apprenticeship	R14 000	R0	R12 000	R26 000	R12 000
Method 3					
P1 and P2 learners, or a 240 credits qualification	R24 000	R20 000	R4 500	R48 500	N/A
Method 4					
Candidates with a 360 credits qualification	R37 000	R20 000	R4 500	R61 500	R20 000
Candidates with 480 or more credits qualification	R47 000	R20 000	R4 500	R71 500	R20 000

*Additional provisions include provisions for personal protective equipment, insurance, medical assessments, course fees and trade tools (where applicable) assessment, moderation and monitoring of learners.

NOTE:

- i) Where an unemployed learner is employed directly by the contractor, the contractor shall pay the stipend directly to the learner
- ii) Where an unemployed learner is sourced through an SDA, training provider or skills development facilitator the contractor must pay the stipend to the SDA, training provider or skills development facilitator who in turn will pay the learner
- iii) The notional cost of providing training opportunities will be increase by CPI on an annual basis. The new, revised costs will be published on the cidb website on the 1st April in each year.

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Example 3: Training Target Calculation for a R65,7m GB contract

Contract amount	R65 700 000
Contract duration	12 Months
CSDG	0,50%
Minimum CSDG target	0,5% x R65 700 000
	R328 500

Skills Types	Number of learners	Notional Cost / Learner / Quarter	Notional cost/learner/year	Total Notional Cost over 12 months Contract
Method 2: Workplace learning opportunities, with unemployed TVET graduates	1	R23 000	R92 000	R92 000
Method 3: Candidacy for an unemployed learner with a 3-year qualification	1	R61 500	R246 00	R246 00
Total	2			R338 000

3.3.3 Credits towards the contract skills development goal for professional services contracts shall be granted by summing the hours of structured workplace learning opportunities provided to P1 and P2 learners as well as professional candidates in accordance with this standard.

3.3.4 No more than 45 hours may be claimed per week for any individual.

3.3.5 Contract skills development goal credits shall be reduced to the extent that they fail to comply with the requirements of this standard.

3.4 DENIAL OF CREDITS

Credits towards the contract skills development goal shall be denied should:

- a) the opportunities not be provided on site or the opportunities cannot be directly linked to the contract or order;
- b) Failure to register all beneficiaries of the Standard be with the cidb SDA;
- c) Failure to submit a copy of the final contract compliance training report within 15 days of practical completion;
- d) the following not be provided:
 - 1) the required contract compliance baseline plan, an interim contract compliance report or a final contract compliance report;
 - 2) the required mentorship plan for a candidate not be provided;
 - 3) the required training plan for learners not be provided;
 - 4) the training reports covering a period not be provided;

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- 5) the required records, specified documents and signatures not be provided;
 - 6) the structured mentorship is found not to be in accordance with the requirements of the applicable professional body, statutory council or qualifying authority;
 - 7) the structured workplace learning is found not to be in accordance with the curriculum requirements of the part qualification or occupational qualification or prescription for professional registration for which the learner is registered;
- e) conditions of employment and rates of allowances for learners not be in accordance with legislative provisions; and
 - f) the contractor does not maintain the required training records, or an audit reveals that there is insufficient information to substantiate claims for credits.
 - g) the contractor claims credits for learners enrolled as beneficiaries on programmes that are funded or subsidised from another source.
 - h) the contractor fails to provide sufficient evidence of disciplinary actions taken against a learner who fails to present their interim reports or credentials for assessment when they have had sufficient structured work experience or structured mentorship to do so.

4 COMPLIANCE WITH REQUIREMENTS

4.1 GENERAL

4.1.1 The contractor shall submit to the employer's representative:

- a) within 30 days of the contract coming into effect or the issuing of an order, a contract compliance baseline training plan taking into account the skills mix and type of workers that are to be engaged;
- b) interim contract compliance training reports at intervals which do not exceed 3 months; and
- c) a final contract compliance training report within 15 days of reaching completion, end of the service, the delivery date for all work required or practical completion in the case of professional service, service, design and construct contracts, and engineering and construction works contracts, respectively.

4.1.2 The information contained in the final contract compliance training report shall include the contract skills development goal achieved (in Rands or in hours) in the performance of the contract and a breakdown of the goal achieved in respect of the following:

- a) the name and contact details of the SDA,
- b) the skills mix and skills types achieved on the contract; and

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- c) the names, ID numbers and period of employment of each learner and candidate.

4.1.3 The contractor shall keep records of the hours worked and registration particulars towards compliance with this standard. The contractor shall allow the employer's representative to inspect or audit such training records at any time.

4.1.4 The employer's representative shall undertake suitable random audits on records to confirm compliance with requirements.

4.1.5 The learners shall be directly employed by the contractor or SDA. The contractor shall enter into a contract agreement with the cidb SDAs, training provider or skills development facilitator of their choice participating in the implementation of this standard to:

- a) prepare training plans for registered learners, including details of the scope of experiential work to be covered and expected outcomes;
- b) register learners with the appropriate Sector Education and Training Authority established in terms of the Skills Development Act of 2008 (Act 37 of 2008);
- c) manage learner registration with appropriate trade testing authorities as well as preparation for the trade test;
- d) liaise with the supervisor to monitor onsite training progress of learners;
- e) liaise with the supervisor to arrange for summative assessments at appropriate stages of the training; and
- f) liaise with the supervisor to prepare reports for the employer or employer's representative.

4.2 STRUCTURED WORKPLACE LEARNING OPPORTUNITIES FOR LEARNERS

4.2.1 Structured workplace learning opportunities shall be aligned to the curriculum requirements set for the particular part or full occupational qualification or professional designation for which the learner is registered.

4.2.2 A responsible supervisor will be appointed to allocate learning tasks, under the guidance of a competent person, to learners in line with their training plans.

4.2.3 Mentoring associated with structured workplace learning for artisan learners shall be undertaken by an artisan in the applicable trade with a minimum of 3 years of trade specific experience. The number of artisan learners mentored by a single mentor shall,

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unless otherwise permitted by the National Artisan Moderation Body, not exceed 4 at any one time.

- 4.2.4** Supervision associated with structured workplace learning for learners leading to a part or full occupational qualification other than artisan learners shall be undertaken by a person qualified in the applicable discipline with a minimum of 3 years of post-qualification experience.
- 4.2.5** The contractor shall submit to the employer's representative, in respect of each learner:
- a) within one month of commencing work directly related to the contract or order, a workplace training plan together with name of the learner's mentor and supervisor;
 - b) within one month of commencing work directly related to the contract or order:
 - 1) proof of registration as a learner with the relevant SETA where applicable; and
 - 2) a copy of the mentorship agreement entered into with the learner or the company mentorship agreement entered into with the relevant qualified agency;
 - c) within two weeks of updating a workplace training plan, the revised workplace training plan;
 - d) a quarterly progress report and a final report at the end of the structured mentorship period including a log of exposure and interactions with the mentor in sufficient detail to demonstrate compliance with requirements, signed off by the mentor, the supervisor and the learner.
- 4.2.6** Learners shall be required by the mentor to complete training reports required by the relevant qualifying authority whenever a substantial activity or training period has been completed.
- 4.2.7** The mentor and supervisor shall sign off all reports and logbooks to allow the learner to move to other projects or employment and continue the path towards a qualification.

4.3 STRUCTURED WORKPLACE LEARNING FOR CANDIDATES

- 4.3.1** Mentoring associated with structured workplace learning for candidates shall be in accordance with the prescripts of the relevant professional body or statutory council.
- 4.3.2** The contractor shall:
- a) appoint a supervisor who is actively engaged in work directly associated with the contract to issue tasks, oversee their implementation and provide input to the candidate on an on-going basis;

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- b) identify a suitable mentor for the candidate. If the contractor does not have an inhouse mentor, the contractor shall enter into a mentoring agreement with the candidate and an external company as required by the professional body or statutory council; and
- c) issue each candidate with a portfolio of evidence file which is to be kept up to date with all the documentation issued or prepared including the workplace training plan and all revisions thereof as well as copies of the logbook entries and training experience reports.

4.3.3 The mentor shall from time to time provide an updated workplace training plan for a candidate outlining the activities in which the candidate will be involved, including activities required by the relevant professional body or statutory council. The mentor shall require candidates to maintain a logbook issued by the relevant professional body or statutory council. The mentor shall sign off such logbook at quarterly presentations and progress review meetings.

NOTE: The mentor should ensure where the duration of the contract or order exceeds the minimum time to register in a professional category of registration that candidates are exposed to the full range of activities and work towards assuming the full level of responsibility recommended by the relevant professional body or statutory council. This may require rotations and secondments.

4.3.4 The contractor shall submit to the employer's representative, in respect of each candidate:

- a) within one month of commencing work directly related to the contract or order:
 - 1) a workplace training plan together with name of the candidates' mentor and supervisor;
 - 2) proof of registration as a candidate with the relevant professional body or statutory council; and
 - 3) register all beneficiaries of the Standard be with the cidb SDA
- b) within one month of commencing work directly related to the contract or order a copy of the mentorship agreement entered into with the candidate or the company mentorship agreement entered into with a professional body or statutory council;
- c) within two weeks of updating a workplace training plan, the revised workplace training plan;
- d) quarterly progress reports and a final report at the end of the structured mentorship period including a log of exposure and interactions with the mentor in sufficient detail to demonstrate compliance with requirements, signed off by the mentor, the supervisor and the candidate.

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- 4.3.5 Candidates shall be required by the mentor to complete training reports required by the relevant professional body or statutory council whenever a substantial activity or training period has been completed.
- 4.3.6 The mentor and supervisor shall sign off all reports and logbooks to allow the candidate to move to other projects or employment and continue on the path towards registration where the work related to the contract ends for whatever reason prior to the candidate gaining sufficient experience for registration.

5 RECORDS

- 5.1 The contractor shall submit all the documentation required in terms of clause 4 in a timely manner and according to a prescribed format where applicable.
- 5.2 The employer's representative shall certify the value of the credits counted towards the contract skills development goal, if any, whenever a claim for payment is issued to the employer and shall notify the contractor of this amount.
- 5.3 The contractor shall, upon termination of the opportunities provided in order to satisfy the contract skills development goal, certify the quantum and nature of the opportunity and submit the certificate, counter-certified by the relevant individual, to the employer's representative for record-keeping purposes.

6 SANCTIONS

- 6.1 In the event that the contractor fails to substantiate that any failure to achieve the contract skills development goal was due to reasons beyond the contractor's control which may be acceptable to the employer, the sanctions provided for in the contract or order shall apply.

NOTE: The contract establishes the sanctions that apply. These are set out in a tender evaluation schedule, the scope of work or contract data. Sanctions where tender evaluation points are granted with respect to a tendered CSDG or where a minimum CSDG is specified are usually applied in the form of:

- a) financial penalties (low performance damages), typically formulated on the difference between the contracted CSDG and the CSDG achieved in the performance of the contract; and
- b) the issuing of completion certificates only after the certificates described in clause 5 are received.

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ANNEX A: INCORPORATING THIS STANDARD IN A PROCUREMENT DOCUMENT

(Informative)

A1 GENERAL

A1.1 The following clause should be added to the scope of work of a contract or order to establish requirements:

Skills development requirements

The contractor shall achieve in the performance of the contract the contract skills development goal established in this *Standard for developing skills through infrastructure contracts (March 2020)*

NOTE: The term contractor may need to be changed to "consultant" or "professional service provider" or "supplier" depending upon the term that is used in the form of contract that is adopted. The term "performance of the contract" may need to be replaced with "execution of an order" where the scope of work forms part of an order.

A1.2 Where an employer requires that employees of the state be seconded to the contractor in order to be provided with structured workplace learning opportunities in accordance with the provisions of this standard, the following clause should be included in the scope of work:

A1.3 The specified number of employees of the state is The employer must provide a list of persons for selection by the contractor as prescribed in the implementation guidelines. Persons selected by the contractor shall be seconded to the contractor under the terms and conditions prescribed in the implementation guidelines.

A1.4 Where the contract is part of a Strategic Infrastructure Project (SIPs) the contractor will be required to report to the Presidential Infrastructure Coordinating Council through the respective SIP Skills Coordinators linked to the office of the SIP Coordinator, using the approved PICC reporting template.

A2 SANCTIONS

A2.1 Sanctions should be provided for in the contract in the event that the contractor fails to substantiate that any failure to achieve the contract participation goal was due to quantitative under runs, the elimination of items, or any other reason beyond the contractor's control which may be acceptable to the employer.

A2.2 Reference should be made to the cidb Practice Note to be published on methodologies and mechanisms to be adopted for sanctions on contractors who fail to comply with the provisions of the Standard.

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ANNEX B: ROLE AND FUNCTION OF SKILLS DEVELOPMENT AGENCY

(Informative)

The Skills Development Agency (SDA) will provide career management and compliance reporting functions for all learners for CSDG compliance in terms of this Standard. Where the contractors provide direct employment to unemployed learners, or enrolls own employees for CSDG compliance, the contractor shall register them with the cidb SDA. The SDA can also act as an employment intermediary for unemployed learners.

The roles and functions of the Skills Development Agency (SDA) are summarised below.

B1 CAREER MANAGEMENT AND COMPLIANCE REPORTING

B1.1 The contractor shall enter into a contract agreement with the cidb SDA, training provider or skills development facilitator to manage their learners according to the provisions given below:

- a) preparing training plans for registered learners, including details of the scope of experiential work to be covered and expected outcomes;
- b) registering learners with the appropriate Sector Educational and Training Authority established in terms of the Skills Development Act of 2008 (Act 37 of 2008);
- c) conducting entry and exit level medicals for learners at the conclusion of each placement opportunity;
- d) providing personal protective equipment;
- e) liaising with the supervisor to monitor onsite training progress of learners;
- f) liaising with the supervisor to arrange for summative assessments at appropriate stages of the training; and
- g) liaising with the supervisor to prepare reports for the employer's representative and cidb at practical completion of the contract.

B1.2 The relevant training provider or skills development facilitator shall invoice the contractors for the provision of these services as per cost schedule in Table 3.

B1.3 The cidb SDA shall open a trust fund to ring-fence monies essential for all learner requirements where necessary provided for in this standard such as personal protective equipment, medical assessments, insurance, course fees, monitoring as well as top up training and assessment.

B2 EMPLOYMENT INTERMEDIARY

B2.1 The cidb SDA can act as an employment intermediary for unemployed learners and provide contractors with learners qualifying for participation in the CSDG, as well as managing their employment functions such as payment of stipends, workman's compensation, provision of personal protective equipment, trade specific tools, etc.

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- B2.2** In such cases, the contractor shall contract directly with an SDA, training provider or skills development facilitator of their choice for the recruitment, placement and management of learners. The contractor shall pay the SDA, training provider or skills development facilitator in accordance with the notional costs provided for in this standard, or as amended by a Gazette.

PART C4: SITE INFORMATION

C4.1: Site Report

Summary

This report aims to provide contextual photographic information for the tender document.

This report is divided into three sections:

- Kirkwood Reservoir
- Moses Mabida Reservoir
- Raw Water Lay Dam

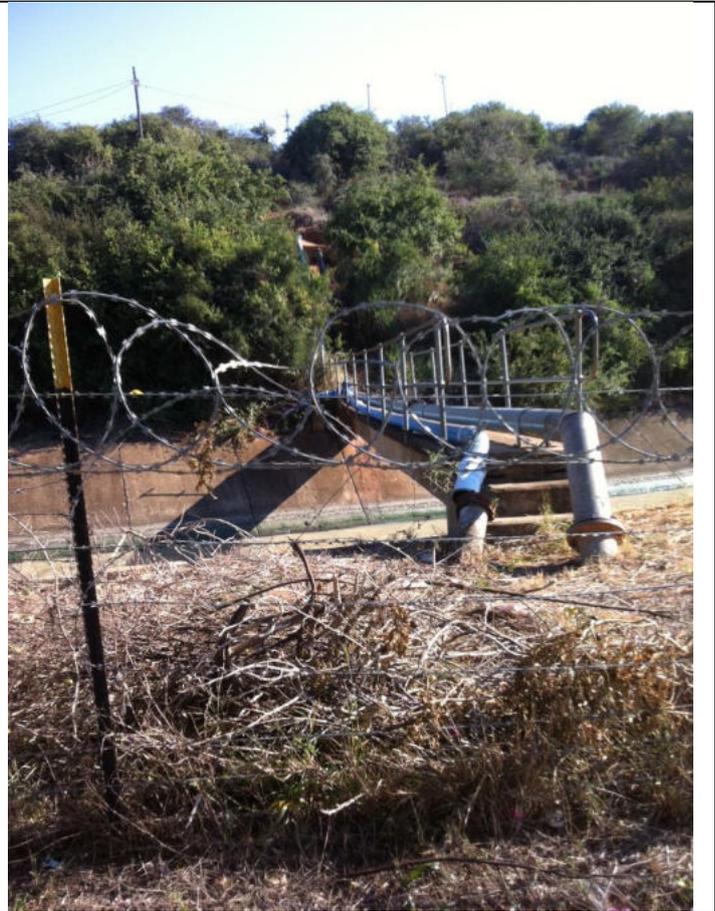
Raw Water Lay Dam

<p>Aerial view of the existing raw water lay dams.</p> <p>Pond 3</p> <p>Pond 1</p> <p>Pond 2</p> <p>Pond 4</p>	
<p>Aerial view of the existing raw water lay dams.</p> <p>Drying beds</p> <p>Pump house</p> <p>Dilapidated storeroom</p>	
<p>Photograph of Pond 1.</p> <p>Refer to raw water inlet.</p>	

<p>Photograph of Pond 3&4</p> <p>Hospital</p> <p>Pond 4</p> <p>Pond 3</p> <p>Dilapidated storeroom</p>	
<p>Photograph of Drying Beds</p> <p>Drying Beds</p>	
<p>Photograph of Pump House</p> <p>Pond 2</p> <p>Pump House</p>	
<p>Photograph of Pump House</p> <p>Pond 2</p> <p>Pump House</p>	

<p>Photograph of Pond 1&2</p> <p>Pond 2</p> <p>Pond 1</p>	 A wide-angle photograph of two adjacent ponds. The foreground is a grassy area. In the background, there are trees and a building. Two black arrows originate from the text 'Pond 2' and 'Pond 1' in the left column and point to the respective ponds in the image.
<p>Inside Pump Station (Maintenance Performed)</p>	 A photograph showing the interior of a pump station. The machinery, including pipes, valves, and gauges, is partially disassembled, indicating that maintenance work is being performed. The equipment is mounted on a metal structure.
<p>Inside Pump station</p>	 A photograph showing the interior of a pump station from a different angle. The machinery, including pipes, valves, and gauges, is fully assembled and appears to be in operation. A large orange motor is visible in the foreground.

Photograph of Pipe Bridge



Kirkwood/Bergsig Reservoir

Kirkwood town Reservoir 1 (500 kℓ)



<p>Kirkwood Reservoir 2 with dilapidated Reservoir.</p>	
<p>Access road to the Kirkwood Reservoir</p>	
<p>Photograph of Signal Tower next to Reservoir</p>	

Position of New 3 Ml Reservoir



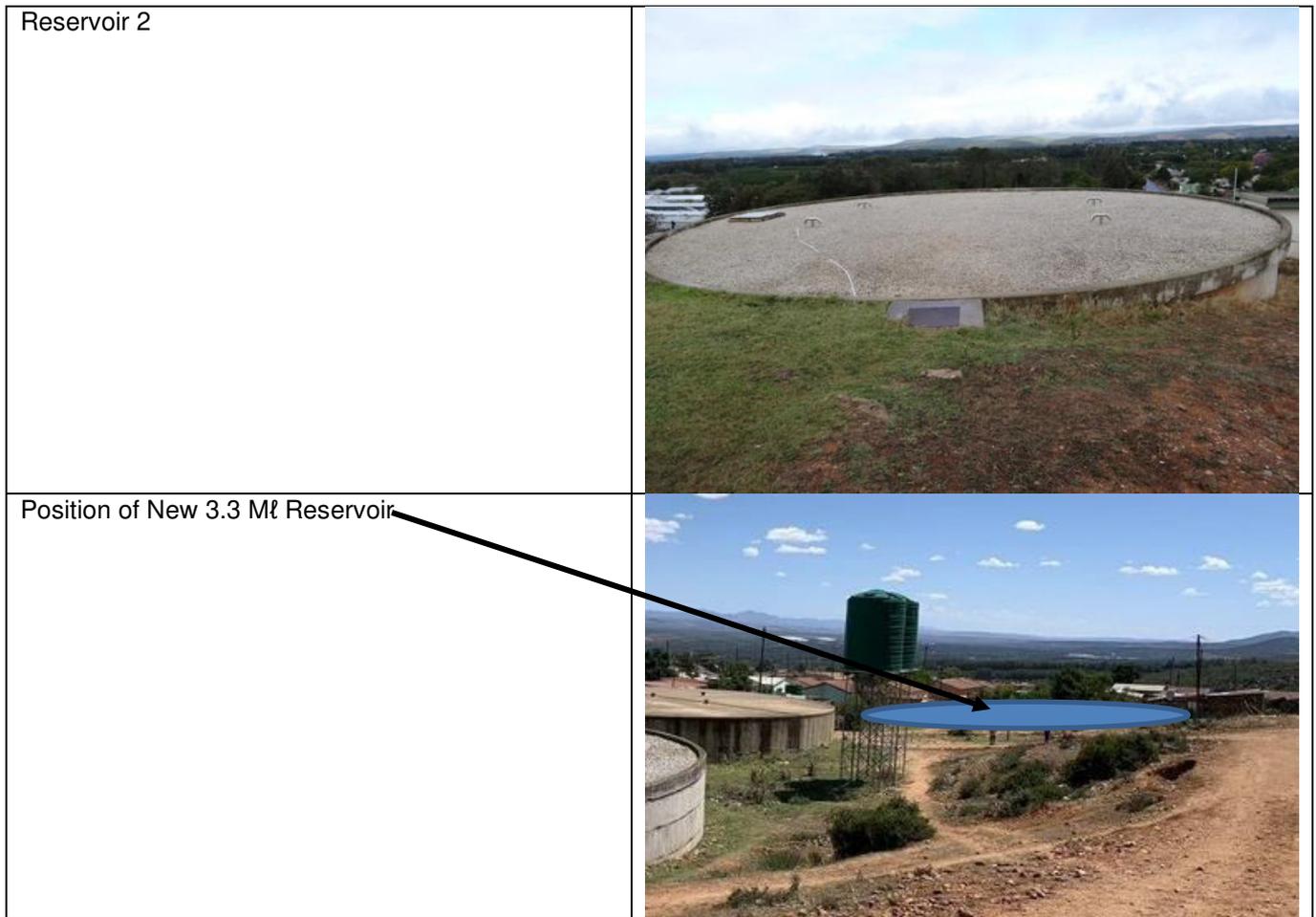
Moses Mabida/Bontrug Reservoir

Bontrug Reservoirs with an Elevated tank



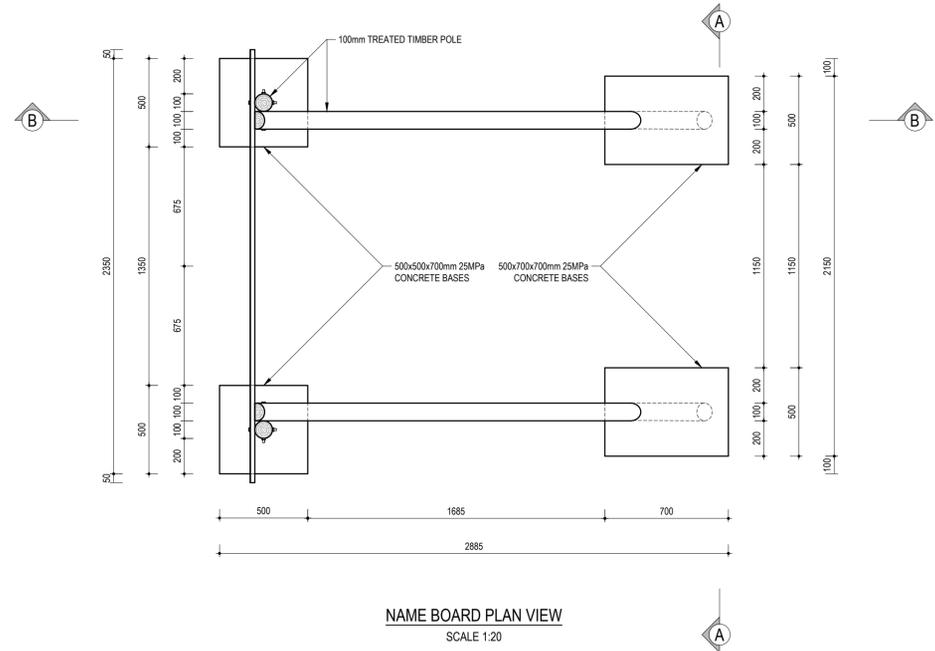
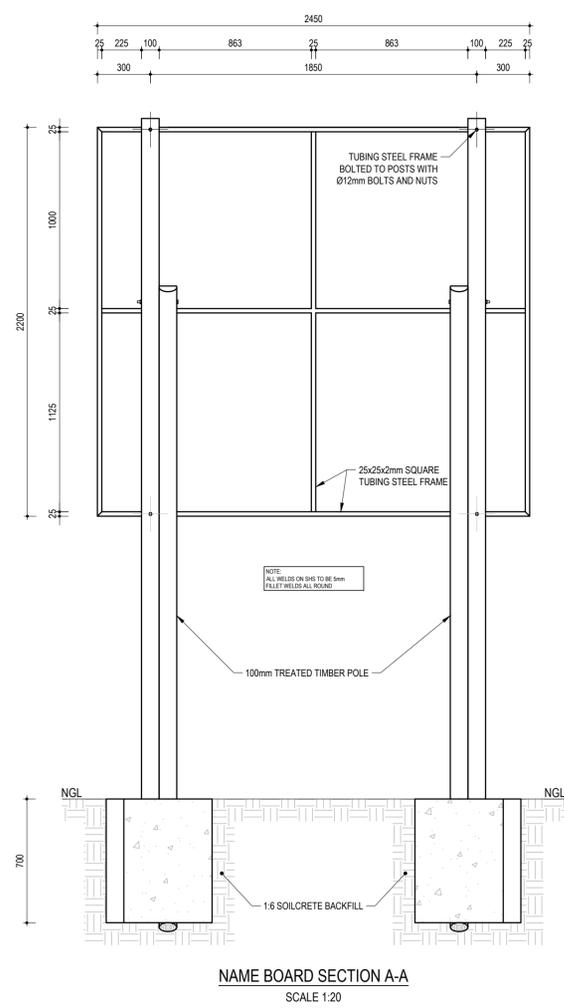
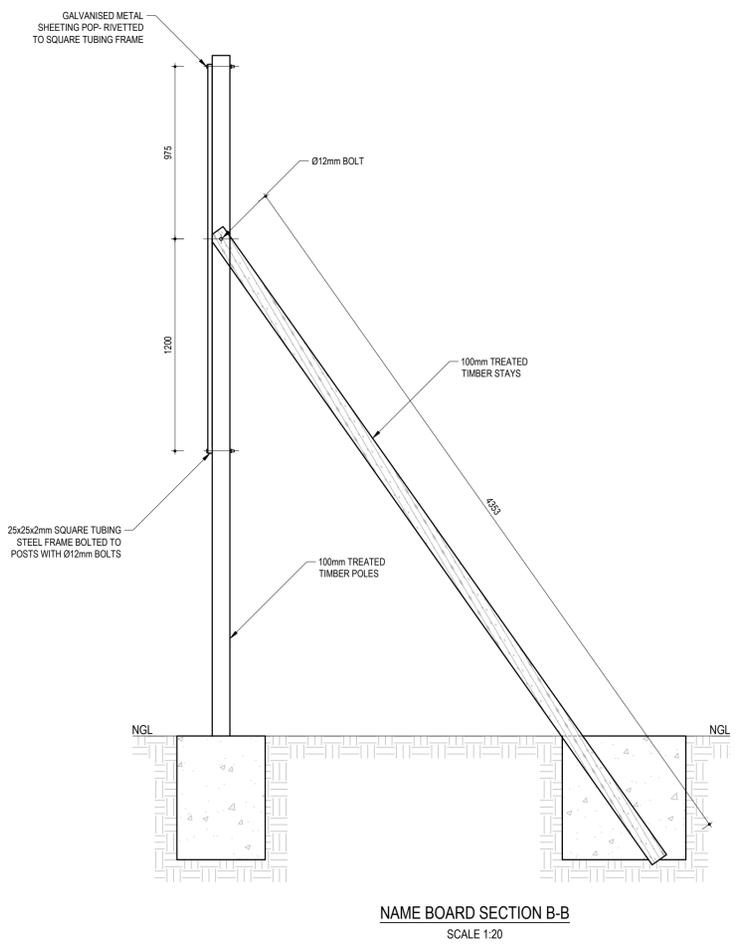
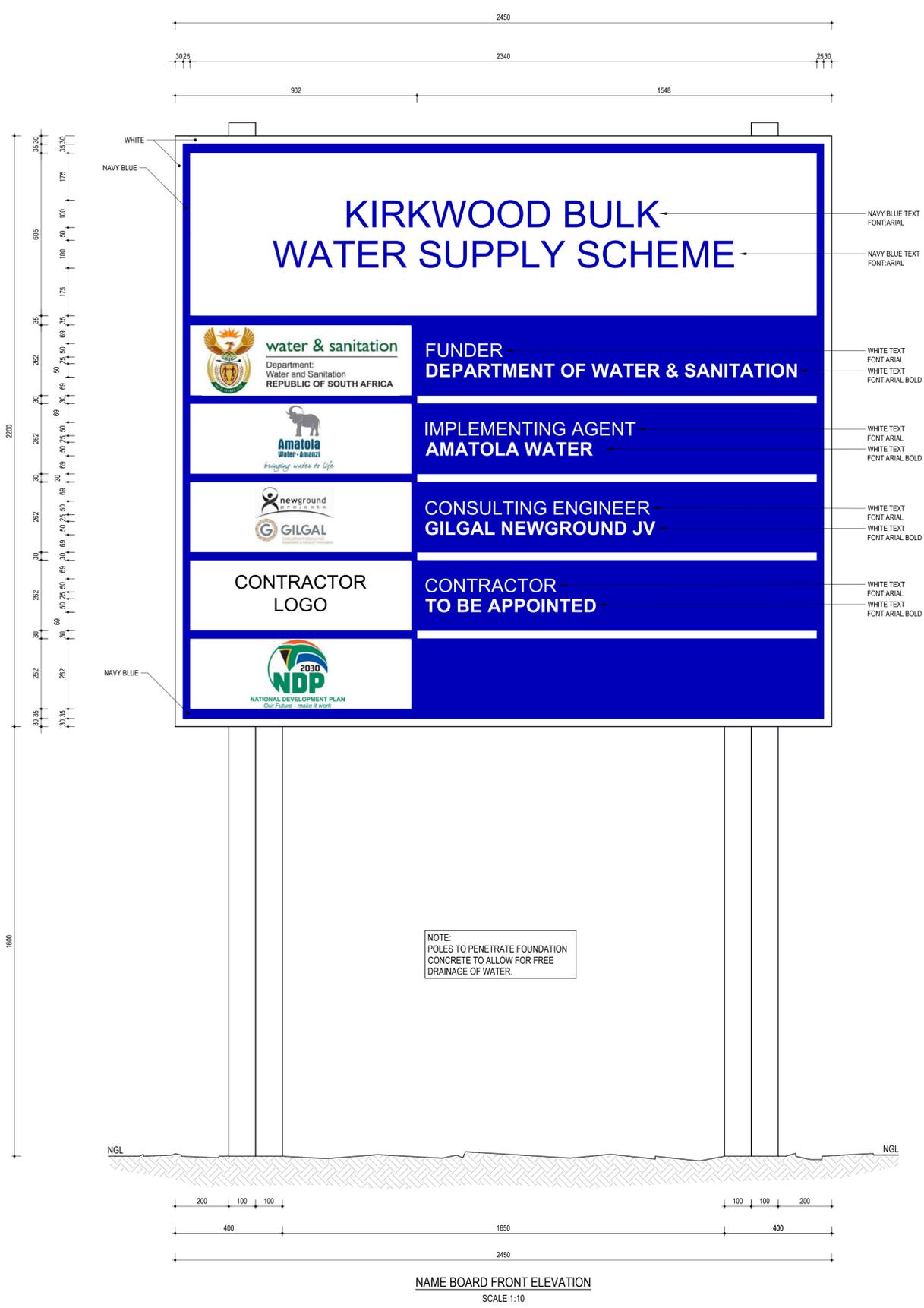
Bontrug Reservoirs with Elevated tank





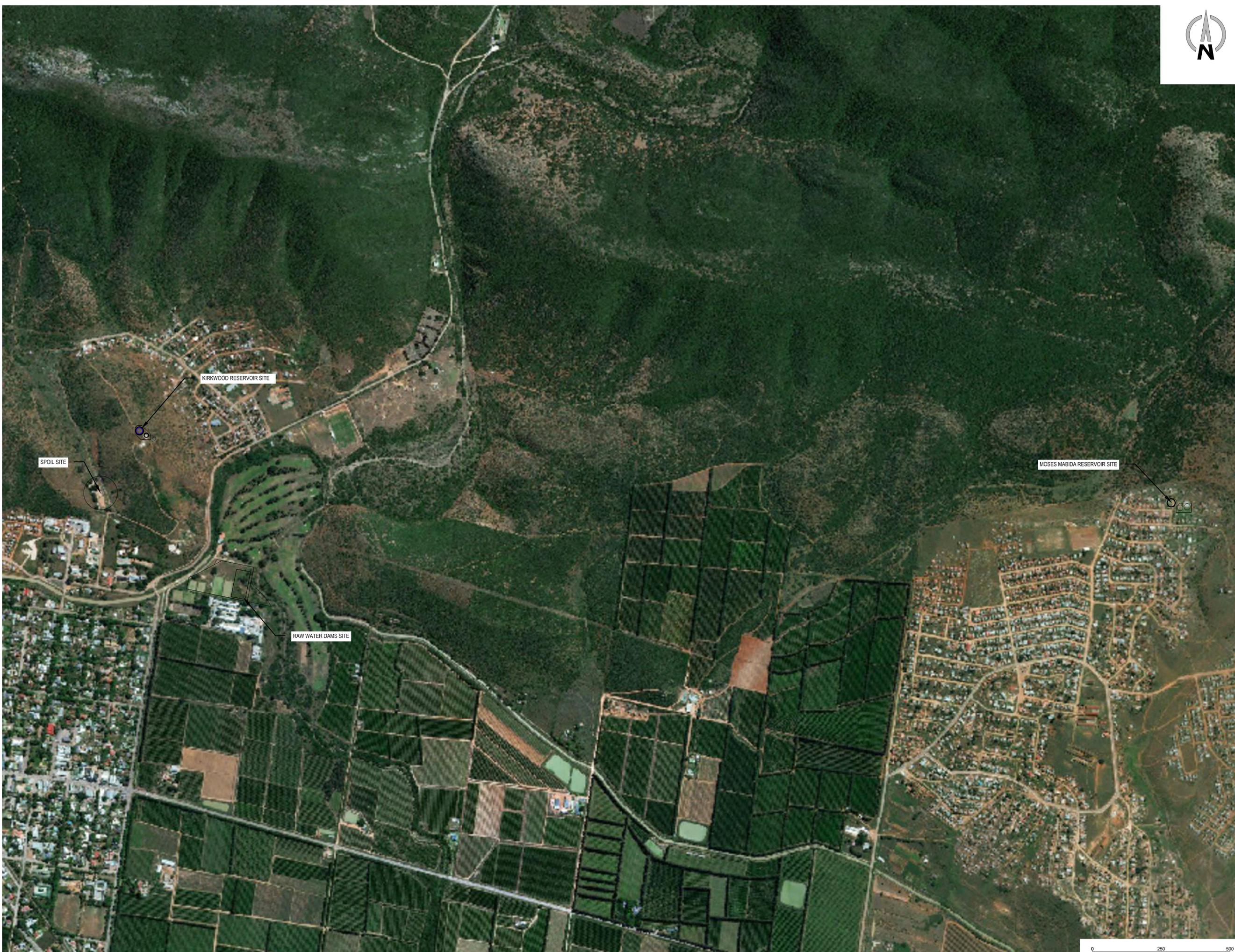
C4.2 Drawing Register

C4.3 Drawings



- NOTES:
1. FOR GENERAL, EARTHWORK AND PIPELINE NOTES, REFER TO DWG PC14005/CIV/2301.
 2. FOR CONCRETE, BRICKWORK AND REINFORCEMENT NOTES, REFER TO DWG PC14005/CIV/2302.

PROJECT NUMBER	PC14005
PROJECT NAME	SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME
CIVIL & STRUCTURAL ENGINEER	GILGAL NEWGROUND JV
IMPLEMENTING AGENT	AMATOLA WATER
MUNICIPALITY	SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY
DESIGNER	G TESELING
DRAWER	J THOMPSON
REVISOR	L FOURIE
DATE	31 JANUARY 2023
DRAWING NAME	NAME BOARD DETAILS
DRAWING NUMBER	PC14005 / CIV / 2101
DRAWING ISSUED FOR:	TENDER
SCALE	AS SHOWN
PAPER SIZE	A1
REVISION	0A
APPROVED BY ENGINEER	[Signature]
DATE	



SPOIL SITE

KIRKWOOD RESERVOIR SITE

RAW WATER DAMS SITE

MOSES MABIDA RESERVOIR SITE

PROJECT NUMBER: PC14005

PROJECT NAME: SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME

PROFESSIONAL ENGINEER: GILGAL newground

GILGAL NEWGROUND JV
17 ST ANDREW'S ROAD, SELBORNE, EAST LONDON, 6001
PO BOX 15568, TROMPSBURG, 1014
TEL: 043 722 3864
FAX: 043 051 0462
WWW.NEWGROUND.CO.ZA

IMPLEMENTING AGENT: AMATOLA WATER

MUNICIPALITY: SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY

REV	DATE	DESCRIPTION

DESIGNER: G TESELING DRAFTER: J THOMPSON

REVIEWER: L FOURIE DATE: 31 JANUARY 2022

DRAWING NAME: KIRKWOOD LAYOUT

DRAWING NUMBER: PC14005 / CIV / 2001

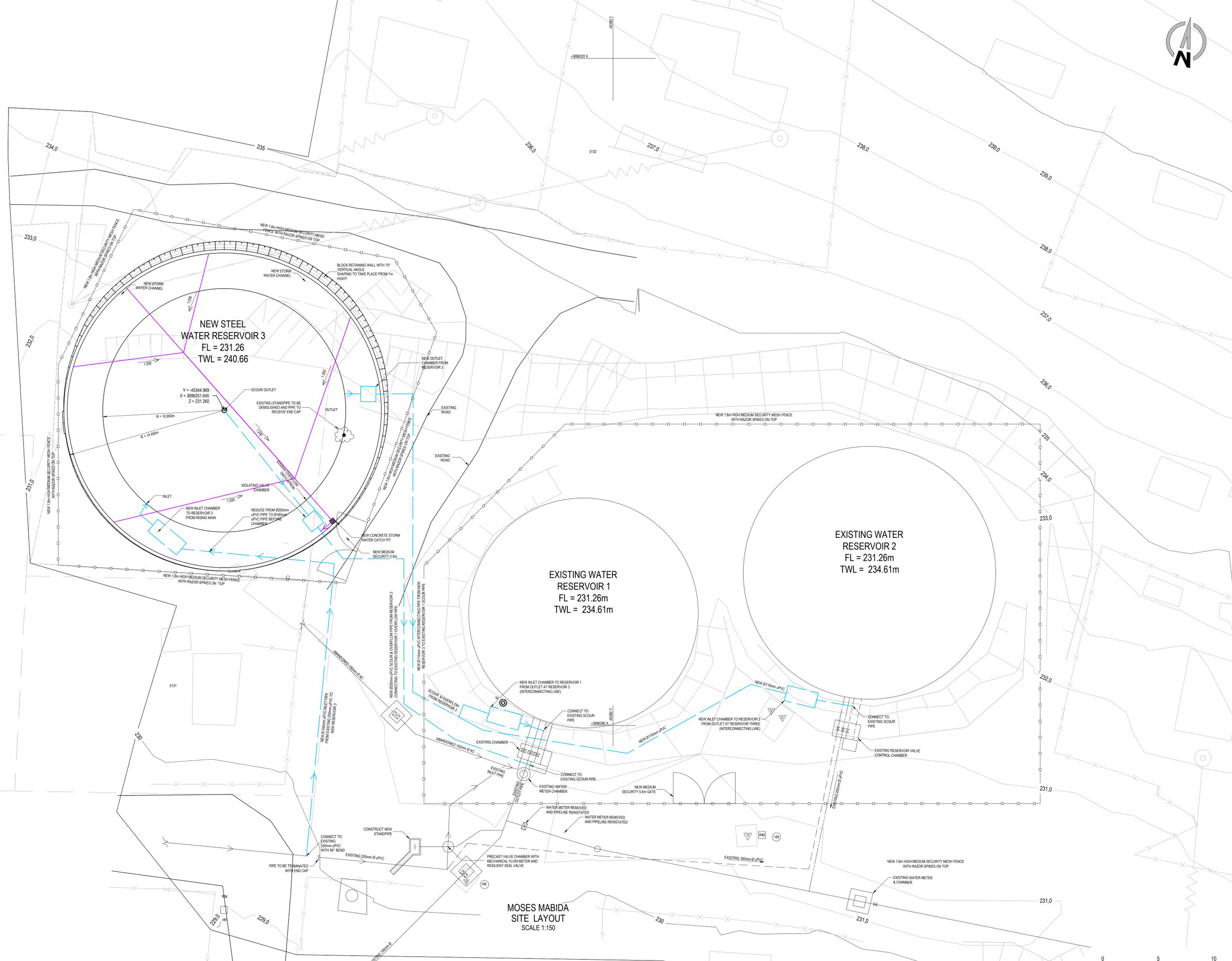
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SCALE: 1:6000 PAPER SIZE: A1 REVISION: 0A

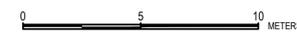
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NOTES:



MOSES MABIDA
SITE LAYOUT
SCALE 1:150



PROJECT NUMBER	PC14005		
PROJECT NAME	SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME		
CIVIL & STRUCTURAL ENGINEER			
GILGAL NEWGROUND JV	17 ST ANDREW'S ROAD, SELBORNE, EAST LONDON, 5011 PO BOX 1566, TROMPSBURG, 1145 TEL: 043 722 5864 FAX: 043 722 5842 www.newground.co.za		
IMPLEMENTING AGENT	AMATOLA WATER		
MUNICIPALITY	SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY		
REFERENCE DRAWINGS			
REV	DATE	DESCRIPTION	
DESIGNER	G TESELING	DRAWN BY	J THOMPSON
REVIEWER	L FOURIE	DATE	31 JANUARY 2023
DRAWING NUMBER	MOSES MABIDA SITE LAYOUT		
DRAWING NUMBER	PC14005 / CIV / 2003		
DRAWING ISSUED FOR:	TENDER		
SCALE	1 : 150	PAPER SIZE	A1
REVISION	0A		
SIGNATURE	APPROVED BY ENGINEER	DATE	



NOTES:

RAW WATER DAM	14.388M
VOLUME:	102m
LENGTH:	52m
WIDTH:	4.333m
MIN DEPTH:	4.5m
MAX DEPTH:	5302m ²
FOOTPRINT AREA:	5568m ²
LINING AREA:	

325/42

472

470

Syphon Servitude Area

8435/1992001

BM50

BM51

473

BM49

474

475

497

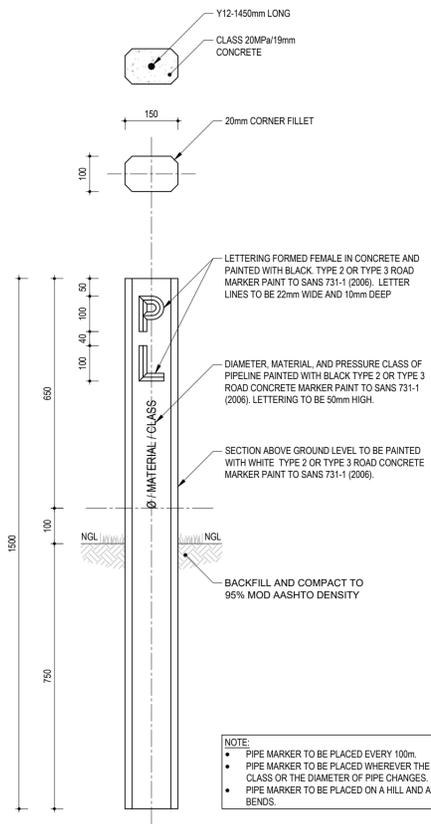
RAW WATER DAMS LAYOUT
SCALE 1:400

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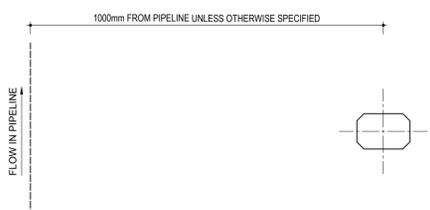
0 5 10 METERS



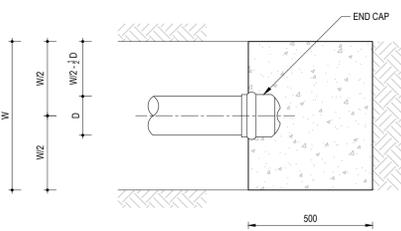
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PROJECT NAME	SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME	
CIVIL & STRUCTURAL ENGINEER		
GILGAL NEWGROUND JV	17 ST ANDREW'S ROAD, SELBORNE, EAST LONDON, 6011 P.O. BOX 19068, TROMPSBURG, 3204 TEL: 03 722 5844 FAX: 03 626 9542 WWW.NEWGROUND.CO.ZA	
IMPLEMENTING AGENT	AMATOLA WATER	
MUNICIPALITY	SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY	
REFERENCE DRAWINGS		
REV	DATE	DESCRIPTION
DESIGNER	G TESELING	DRAWN BY J THOMPSON
REVIEWER	L FOURIE	DATE 31 JANUARY 2023
DRAWING NAME	RAW WATER DAM LAYOUT	
DRAWING NUMBER	PC14005 / CIV / 2004	
DRAWING ISSUED FOR:	TENDER	
SCALE	1:500	PAPER SIZE A1
REVISION	0A	APPROVED BY ENGINEER
SIGNATURE		DATE



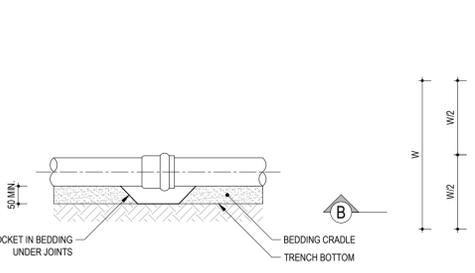
PRECAST CONCRETE PIPELINE MARKER POST DETAIL
SCALE 1:10



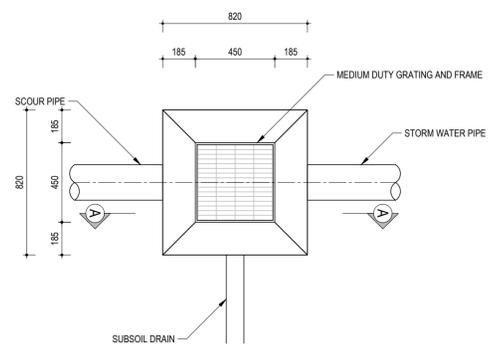
PIPELINE MARKER PLAN VIEW
SCALE 1:10



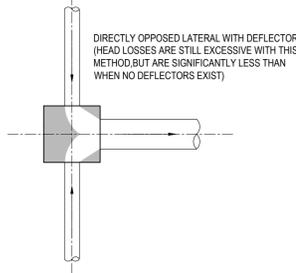
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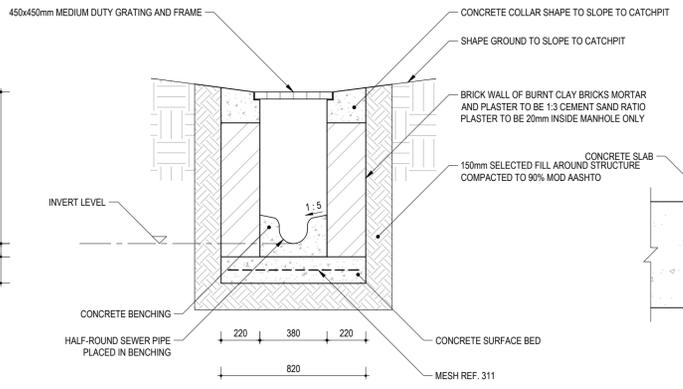
TYPICAL JOINT POCKETS FOR FLEXIBLE PIPES
NOT TO SCALE



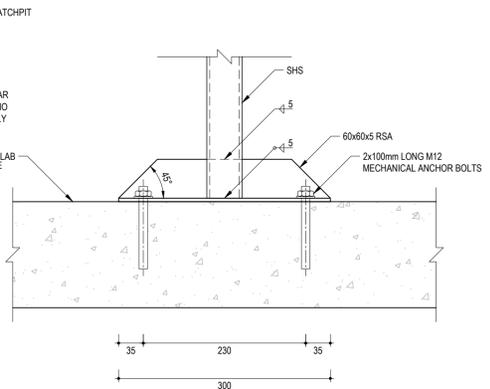
TYPICAL STORMWATER CATCHPIT DETAIL
SCALE 1:20



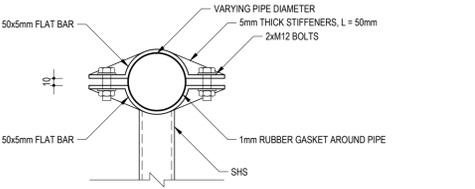
BENCHING CONFIGURATIONS
NOT TO SCALE



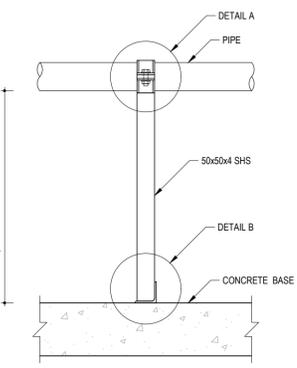
SECTION A-A
SCALE 1:20



DETAIL B
PIPE PEDESTAL FOOT MOUNTING DETAIL
SCALE 1:5



DETAIL A
PIPE PEDESTAL MOUNTING DETAIL
SCALE 1:5



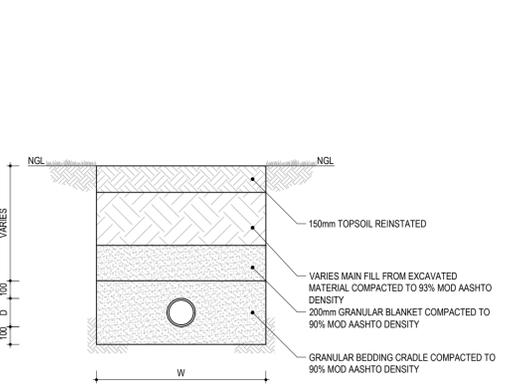
STEEL PEDESTAL DETAIL
SCALE 1:10

STANDARD TRENCH WIDTHS		
uPVC PIPE		
NOMINAL PIPE Ø (mm)	W (mm)	
Ø ≤ 50	450	
50 < Ø ≤ 110	600	
110 < Ø ≤ 160	750	
160 < Ø ≤ 200	800	
200 < Ø ≤ 250	850	

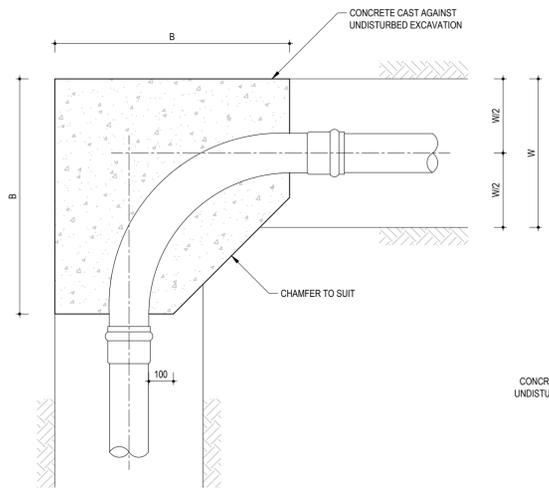
ANCHOR & THRUST BLOCK SIZING					
SOIL WITH 200kPa BEARING CAPACITY AND PIPE PRESSURE OF 9BAR					
45° < BENDS ≤ 90°		22.5° < BENDS ≤ 45°		BENDS ≤ 22.5°	
SIZE D (mm)	H (mm)	SIZE D (mm)	H (mm)	SIZE D (mm)	H (mm)
≤ 110	400	≤ 110	300	≤ 110	300
160	400	160	400	160	300
200	600	200	400	200	400
250	700	250	500	250	400

TEES AND END CAPS			REDUCER			VALVE		
BRANCH D (mm)	H (mm)	B (mm)	SIZE D (mm)	H (mm)	B (mm)	SIZE D (mm)	H (mm)	B (mm)
≤ 110	300	600	110/75	500	W-200	≤ 110	310	W-200
160	500	750	160/110	550	W-200	160	360	W-200
200	600	1000	200/160	600	W-250	200	400	W-200
250	700	1300	250/200	650	W-400	250	450	W-400

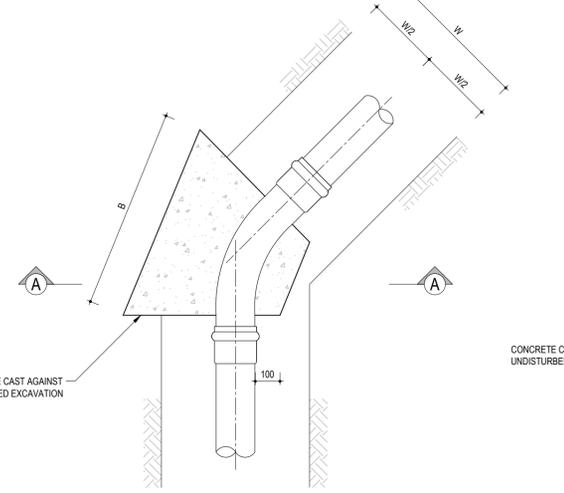
TEES AND END CAPS			REDUCER			VALVE		
BRANCH D (mm)	H (mm)	B (mm)	SIZE D (mm)	H (mm)	B (mm)	SIZE D (mm)	H (mm)	B (mm)
≤ 110	300	600	110/75	500	W-200	≤ 110	310	W-200
160	500	750	160/110	550	W-200	160	360	W-200
200	600	1000	200/160	600	W-250	200	400	W-200
250	700	1300	250/200	650	W-400	250	450	W-400



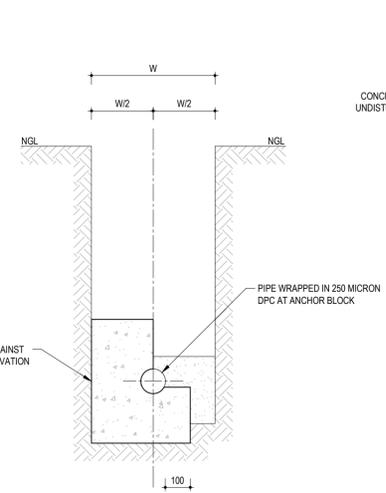
PIPE TRENCH DETAIL
SCALE 1:20



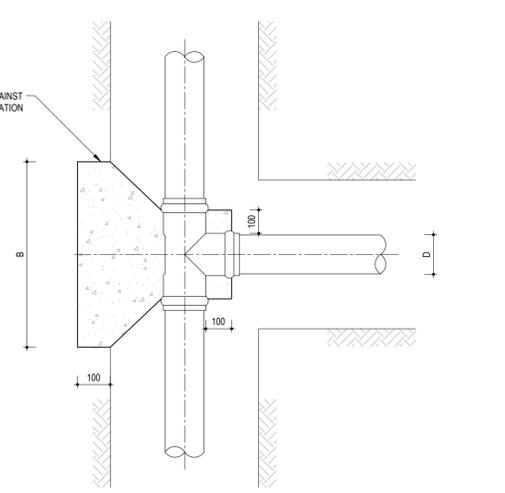
THRUST BLOCK: 90° BEND
NOT TO SCALE



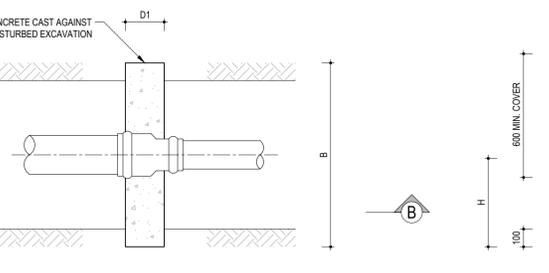
THRUST BLOCK: 45° AND LESS BENDS
NOT TO SCALE



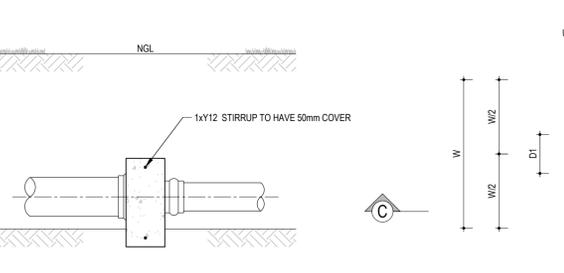
SECTION A-A
SECTION OF 45° AND LESS BENDS THRUST BLOCK
NOT TO SCALE



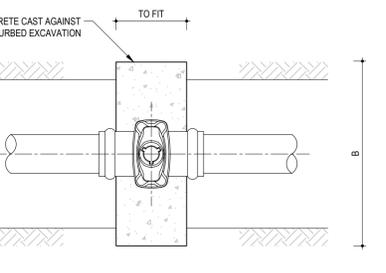
THRUST BLOCK: TEE
NOT TO SCALE



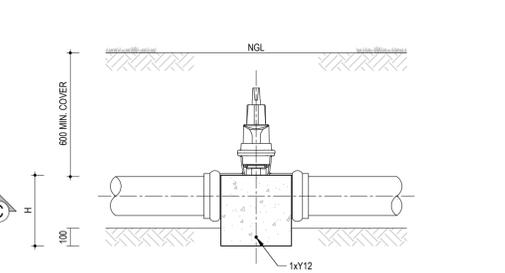
ANCHOR BLOCK: REDUCER
NOT TO SCALE



SECTION B-B
SECTION OF REDUCER ANCHOR BLOCK
NOT TO SCALE



ANCHOR BLOCK: VALVE
NOT TO SCALE



SECTION C-C
SECTION OF VALVE ANCHOR BLOCK
NOT TO SCALE

- NOTES:**
- FOR CONCRETE, BRICKWORK AND REINFORCEMENT NOTES, REFER TO DWG PC14005/CIV/2302.
 - APPLICABLE STANDARDS:
SABS 1200 DA - EARTHWORKS
SABS 1200 DB - EARTHWORKS (PIPE TRENCHING)
SABS 1200 DA - CONCRETE
SABS 1200 - MEDIUM-PRESSURE PIPELINES
SABS 1200 LB - BEDDING (PIPES)
SABS 1200 LF - STORMWATER DRAINAGE
 - GENERAL NOTES:
2. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANT'S DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.
3. DIMENSIONS MUST NOT BE SCALED OR MEASURED FROM DRAWINGS. IF ANY INFORMATION IS MISSING OR REQUIRED, PLEASE CONTACT THE ENGINEER.
4. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE RELEVANT CURRENT SOUTH AFRICAN NATIONAL STANDARDS.
5. THE CONTRACTOR SHALL COMPLY WITH THE OCCUPATIONAL HEALTH & SAFETY ACT AT ALL TIMES.
6. CONTRACTOR TO CONDUCT HIS OWN QUALITY CONTROL BEFORE CALLING THE ENGINEER FOR INSPECTION.
7. CONTRACTOR TO CHECK ALL DIMENSIONS AND LEVELS ON SITE AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE CONSTRUCTION COMMENCES.
8. THE METHOD OF CONSTRUCTION AND THE MAINTENANCE OF SAFETY DURING CONSTRUCTION ARE THE RESPONSIBILITY OF THE CONTRACTOR. IF ANY ELEMENT PRESENTS DIFFICULTY IN RESPECT OF BEING CONSTRUCTIBLE OR SAFE, THE MATTER SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK.
9. THE CONTRACTOR IS RESPONSIBLE FOR THE ADEQUACY OF ALL TEMPORARY WORKS INCLUDING SHORING, PROPPING AND BRACING AND WHERE NECESSARY IS TO ENGAGE A STRUCTURAL ENGINEER TO DESIGN AND CERTIFY HIS TEMPORARY WORKS.
10. THE CONTRACTOR IS REQUIRED TO NOTIFY AND ALLOW TIME FOR THE ENGINEER TO INSPECT AT THE FOLLOWING:
• COMPLETED EXCAVATION, FORMWORK, REINFORCEMENT, AND CAST IN ITEMS PRIOR TO PLACING OF CONCRETE.
• COMPLETED STRUCTURAL ELEMENTS PRIOR TO COVERING.
11. AT LEAST 48 HOURS NOTICE IS REQUIRED FOR INSPECTION. ALL WORK TO BE INSPECTED MUST BE COMPLETED PRIOR TO THE TIME OF INSPECTION.
12. SITE INSPECTIONS DO NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR THE COMPLETENESS AND CORRECTNESS OF HIS WORK.
13. THE CONTRACTOR IS TO ALLOW TIME AND PROVIDE SITE ACCESS FOR THE INSPECTION TO TAKE PLACE AND IS TO HAVE A RESPONSIBLE SITE FOREMAN AVAILABLE TO RECEIVE ANY COMMENT OR DIRECTION FROM THE ENGINEER.

- EARTHWORK NOTES:**
- ALL EARTHWORKS TO BE CARRIED OUT ACCORDING TO SABS 1200 D.
 - FILL SHALL BE COMPACTED IN LAYERS OF NOT MORE THAN 150mm AND TO A DENSITY OF NOT LESS THAN 93% MOD AASHTO, UNLESS OTHERWISE SPECIFIED.
 - COMPACTION TESTS TO BE CARRIED OUT ON EVERY COMPLETED LAYER. RESULTS TO BE SUBMITTED TO ENGINEER FOR APPROVAL. THE POSITIONS OF THE COMPACTION TESTS TO BE DETERMINED BY THE ENGINEER.
- PIPELINE NOTES:**
- Ø REFERS TO THE NOMINAL DIAMETER OF THE PIPES.
 - TRENCHES DEEPER THAN 1500mm IN CERTAIN TYPES OF MATERIAL TO BE CHAMFERED TO PREVENT ACCIDENTAL INJURY FROM COLLAPSING SIDEWALLS.
 - TRENCH BOTTOMS TO BE FREE FROM STONES, PROJECTIONS, SOFT SPOTS, AND BE REASONABLY UNIFORM AND GRADED TO FALL.
 - BACKFILL TO BE DONE AS THE PIPE LAYING PROGRESSES AND A 300mm SECTION TO BE LEFT EXPOSED ON EITHER SIDE OF JOINTS FOR TESTING.
 - BACKFILL TO BE COMPACTED IN LAYERS NO MORE THAN 150mm TO 93% MOD AASHTO.
 - A MINIMUM COVER OF 600mm IS REQUIRED TO TOP OF ALL PIPES. THE ENGINEER TO BE NOTIFIED OF ANY SECTION OF PIPELINE WHERE THE COVER IS LESS THAN THE PRESCRIBED 600mm.
 - ALL HORIZONTAL AND VERTICAL BENDS TO HAVE THRUST BLOCKS.
- NOTE:**
GRATING AND FRAME TO BE HOT DIPPED GALVANISED AFTER FABRICATION.

PROJECT NUMBER: **PC14005**

PROJECT NAME: **SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME**

CIVIL & STRUCTURAL ENGINEER: **newground** and **GILGAL**

GILGAL NEWGROUND JV
17 ST ANDREWS ROAD, SELBYSPRINE, EAST LONDON 1601
PO BOX 1906, TROMPSBURG 1145
TEL: 043 732 3844
WWW.REWGROUND.CO.ZA

IMPLEMENTING AGENT: **AMATOLA WATER**

MUNICIPALITY: **SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY**

REFERENCE DRAWINGS:

REV	DATE	DESCRIPTION

DESIGNER: **G TESELING** DRAWN: **J THOMPSON**

REVIEWER: **L FOURIE** DATE: **31 JANUARY 2023**

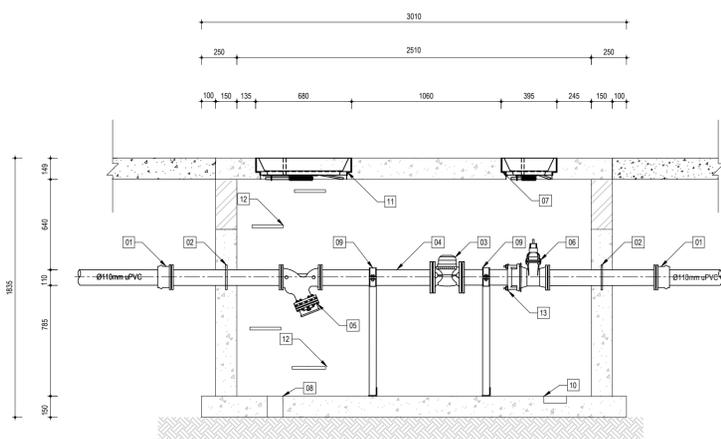
DRAWING NAME: **PIPE DETAILS**

DRAWING NUMBER: **PC14005 / CIV / 2301**

DRAWING ISSUED FOR: **TENDER**

SCALE: **AS SHOWN** PAPER SIZE: **A1** REVISION: **0A**

APPROVED BY ENGINEER: **[Signature]** DATE: **[Date]**

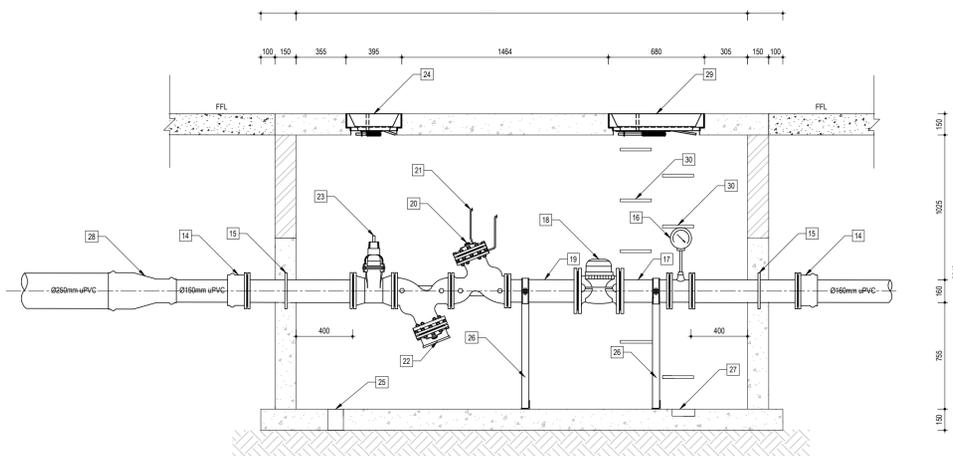


INLET CHAMBER AT RESERVOIR 1 (ICR1)
SECTION OF PIPE ANCILLARY IN THE INLET CHAMBER
SCALE 1:25

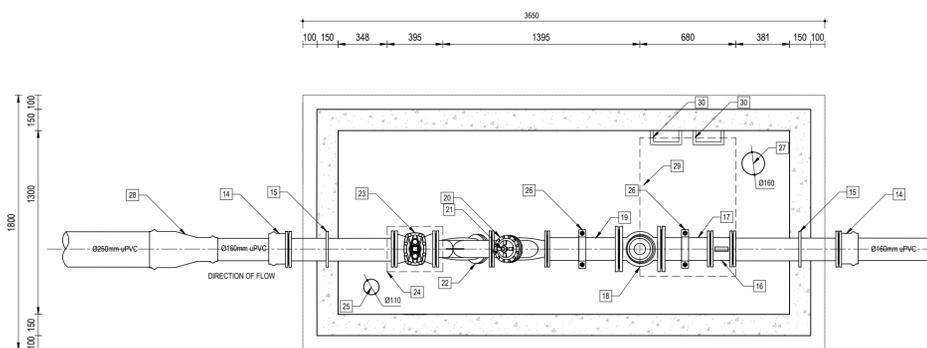


INLET CHAMBER AT RESERVOIR 1 (ICR1)
SECTION OF PIPE ANCILLARY IN THE INLET CHAMBER
SCALE 1:25

VALVE CHAMBER SCHEDULE ICR1	
ITEM	DESCRIPTION
1	Ø110mm FLANGE ADAPTOR FOR UP TO CLASS 16
2	Ø110 x 750mm LONG GMS PIPE & FBE COATED WITH PUDDLE FLANGE & FLANGED BOTH ENDS
3	MECHANICAL FLOW METER
4	Ø110 x 762mm LONG GMS PIPE FLANGED BOTH ENDS
5	STRAINER
6	RESILIENT SEAL VALVE
7	5A CONCRETE MANHOLE COVER
8	Ø110mm OPENING
9	STEEL PEDASTAL
10	SUMP (Ø110 X 50mm DEEP MPVC)
11	9A CONCRETE MANHOLE COVER
12	HOT DIPPED GALVANIZED MANHOLE STEPS
13	FLANGED VJ JOINT

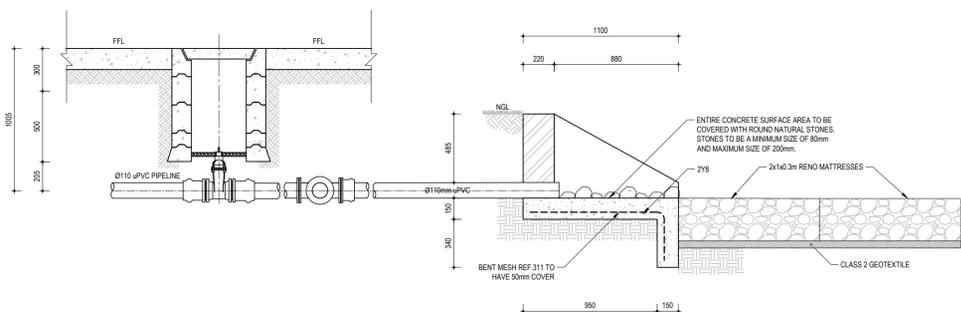


INLET CHAMBER AT RESERVOIR 3 (ICR3)
SECTION OF PIPE ANCILLARY IN THE INLET CHAMBER
SCALE 1:25

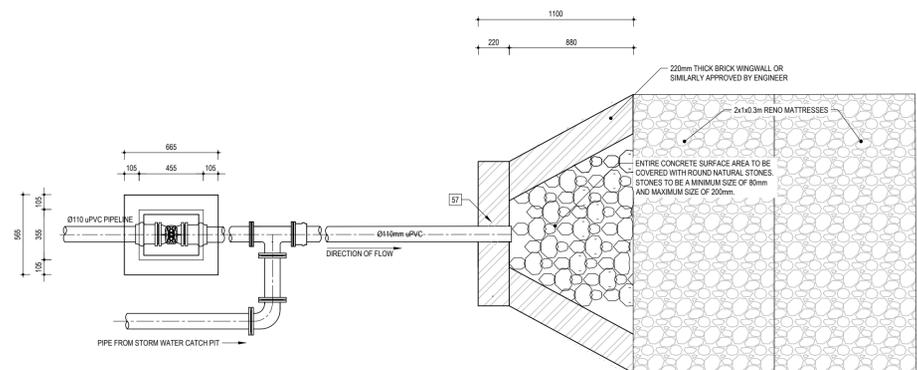


INLET CHAMBER AT RESERVOIR 3 (ICR3)
PLAN VIEW OF INLET CHAMBER 3
SCALE 1:25

VALVE CHAMBER SCHEDULE AT ICR3	
ITEM	DESCRIPTION
14	Ø160mm FLANGE ADAPTOR FOR UP TO CLASS 16
15	Ø160 x 750mm LONG GMS PIPE & FBE COATED WITH PUDDLE FLANGE & FLANGED BOTH ENDS
16	PRESSURE GAUGE
17	Ø160 x 300mm LONG GMS PIPE FLANGED BOTH ENDS
18	MECHANICAL FLOW METER
19	Ø160 x 500mm LONG GMS PIPE FLANGED BOTH ENDS
20	HYDRAULIC LEVEL CONTROL VALVE
21	TUBING TO CONNECT THE FLOAT TO THEE BALL
22	STRAINER
23	RESILIENT SEAL VALVE
24	5A CONCRETE MANHOLE COVER
25	Ø110mm OPENING
26	STEEL PEDASTAL
27	SUMP (Ø110 X 50mm DEEP MPVC)
28	PVC REDUCER - Ø250mm TO Ø160mm
29	9A CONCRETE MANHOLE COVER
30	HOT DIPPED GALVANIZED MANHOLE STEPS

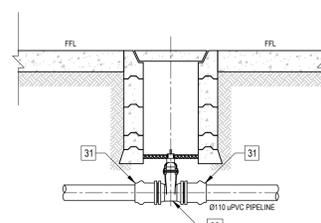


SCOUR VALVE DETAIL
SCALE 1:25

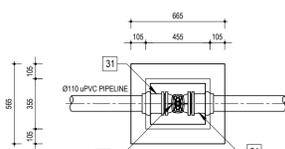


SCOUR VALVE SECTION DETAIL
SCALE 1:25

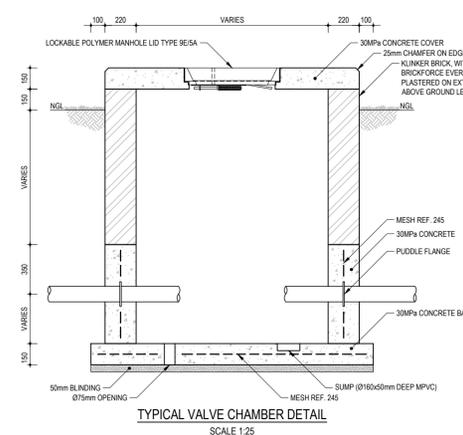
ISOLATION VALVE CHAMBER DETAILS	
ITEM	DESCRIPTION
31	Ø110mm FLANGE ADAPTOR
32	Ø110mm ISOLATION VALVE



ISOLATION VALVE CHAMBER DETAIL
SCALE 1:25



ISOLATION VALVE CHAMBER DETAILS
SCALE 1:25



TYPICAL VALVE CHAMBER DETAIL
SCALE 1:25

NOTES:
1. FOR GENERAL EARTHWORK AND PIPELINE NOTES, REFER TO DWG PC14005/CIV/2301

CONCRETE NOTES

- ALL CONCRETE WORKS TO BE CARRIED OUT ACCORDING TO SABS 1200 GA.
- CONCRETE GRADE TO BE 30MPa/19mm UNLESS OTHERWISE SPECIFIED.
- CONCRETE MIX TO BE DESIGNED IN ACCORDANCE WITH SANS 1000-1. CONTRACTOR TO SUBMIT MIX DESIGN TO ENGINEER FOR APPROVAL.
- A SLUMP TEST SHALL BE CARRIED OUT ON EVERY BATCH/TRUCK OF CONCRETE DELIVERED TO SITE. ANY BATCH OR TRUCK LOAD OF CONCRETE THAT FALLS OUTSIDE THE LIMITS WILL BE REJECTED AND REMOVED FROM SITE.
- AT LEAST ONE SET OF THREE CONCRETE TEST CUBES ARE TO BE TAKEN EVERY 50m³ OR AS REQUIRED BY THE ENGINEER.
- THE PROPOSED SEQUENCE OF CASTING ALL CONCRETE TO BE APPROVED BY THE ENGINEER 14 DAYS PRIOR TO CASTING.
- PREPARED GRAVEL SURFACE TO BE WETTED PRIOR TO CASTING TO ENSURE SURFACE IS DAMP WHEN CONCRETE IS CAST.
- ALL CONCRETE TO BE COMPACTED USING A MECHANICAL VIBRATOR OF A SUITABLE SIZE. POUSERS DEEPER THAN 300mm TO BE DOUBLY VIBRATED WITH THE SECOND VIBRATING BEING DONE JUST BEFORE INITIAL SET.
- THE TOP OF CONCRETE ELEMENTS AND THE SURFACE OF ALL CONSTRUCTION JOINTS SHALL BE SCABBLED OR WATER JETTED TO REMOVE LATENCIES AND LOOSE MATERIAL AND ROUGHENED EDGES PRIOR TO CASTING THE NEXT LIFT OF CONCRETE. A WET TO DRY EPOXY TO BE PROVIDED TO THE ENGINEER'S APPROVAL ON TOP OF SCABBLED SURFACE WHERE NEXT LIFT IS TO BE CAST.
- ALL CONCRETE TO BE CONTINUOUSLY CURED USING AN APPROVED METHOD FOR A MIN. OF 7 DAYS.
- SHOULD NO ALTERNATIVE CURING METHOD BE APPROVED BY THE ENGINEER IN WRITING, THE FOLLOWING SHOULD BE DONE:
 - CURE BY COVERING WITH PLASTIC SHEETING IMMEDIATELY AFTER STRIKING OFF FORMWORK
 - FOR POWER FLOATED SLABS, COVER SLAB WITH PLASTIC SHEETING IMMEDIATELY AFTER STRIKING OFF FORMWORK AND REPLACE PLASTIC SHEETING AFTER POWER FLOATING.
 - CURING COMPOUND TO BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING OF WORK.
- CONCRETE DEFECTS MAY ONLY BE REPAIRED AFTER THE ENGINEER HAS APPROVED A METHOD STATEMENT FOR THE REPAIR.
- CONCRETE TO BE COVERED WITH POLYETHENE SHEETS IMMEDIATELY AFTER WIRE BRUSH FINISH IN ORDER TO ENSURE SUFFICIENT CURING OF CONCRETE.
- ALL EXPOSED SURFACES TO HAVE STEEL FLOAT FINISHES.
- ALL PRECAST CONCRETE SECTIONS TO CONSIST OF 30MPa CONCRETE.
- ALL PRECAST ELEMENTS TO HAVE A SMOOTH FINISH WITH NO BLEMISHES, CRACKED, CHIPPED AND DAMAGED ELEMENTS TO BE REMOVED OFF SITE AND TO NOT BE PERMITTED FOR INSTALLATION.
- OVER EXCAVATION TO ONLY BE FILLED AFTER APPROVAL BY THE ENGINEER WITH CLASS 20MPa/19mm CONCRETE (WHERE APPLICABLE) OR A SUITABLE MATERIAL AS INSTRUCTED BY THE ENGINEER.
- NO PART OF THE MANHOLE TO BE FINISHED OFF WITH GEMENT SLUDGE OR MORTAR.
- THE MINIMUM CONCRETE COVER TO STEEL TO BE 50mm.
- WELDED STEEL FABRIC TO CONFORM TO SABS 1024.
- ALL MESH TO HAVE A MINIMUM LAP LENGTH OF 400mm.
- COVER TO MESH: 50mm TOP 50mm SIDES UNLESS OTHERWISE SPECIFIED.

BRICK WORK NOTES

- ALL BRICKWORK TO BE 220mm BURNT CLAY BRICK WALLS WITH CLASS II MORTAR.
- ALL INTERNAL FACES OF BRICKWORK THAT WILL BE EXPOSED TO BE PLASTERED 15mm THICK. NO CEMENT BRICKS OR PLASTERING TO BE ALLOWED.

REINFORCEMENT NOTES

- REINFORCING STEEL TO SANS 920:2011.
- BENDING OF REINFORCEMENT SHALL BE TO SANS 192.
- CARE SHOULD BE TAKEN TO ENSURE THAT MINIMUM CONCRETE COVER TO REINFORCEMENT IS ACHIEVED THROUGHOUT.
- REINFORCEMENT TO HAVE A MINIMUM COVER OF 50mm UNLESS OTHERWISE SPECIFIED.
- ALL THE REINFORCEMENT IS TO BE APPROVED BY THE ENGINEER PRIOR TO CASTING OF CONCRETE.

PROJECT NUMBER: **PC14005**

PROJECT NAME: **SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME**

CIVIL & STRUCTURAL ENGINEER

 GILGAL NEWGROUND JV
 17 ST ANDREWS ROAD, BELLEVILLE, EAST LONDON 6011
 PO BOX 1958, THURSDAY 2014
 TEL: 043 722 3884
 FAX: 043 252 9192
 WWW.NEINGROUND.CO.ZA

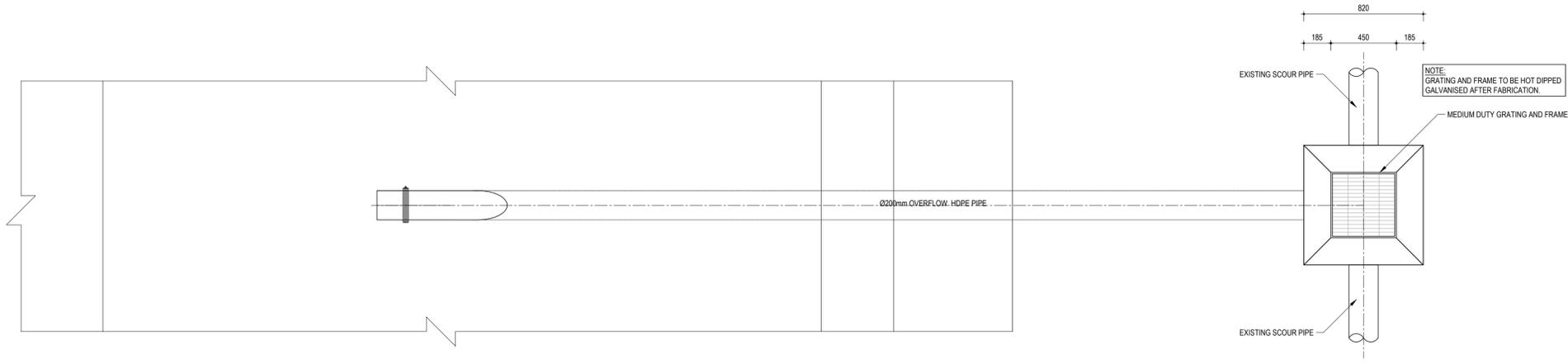
MANIPALITY: **AMATOLA WATER**

SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY

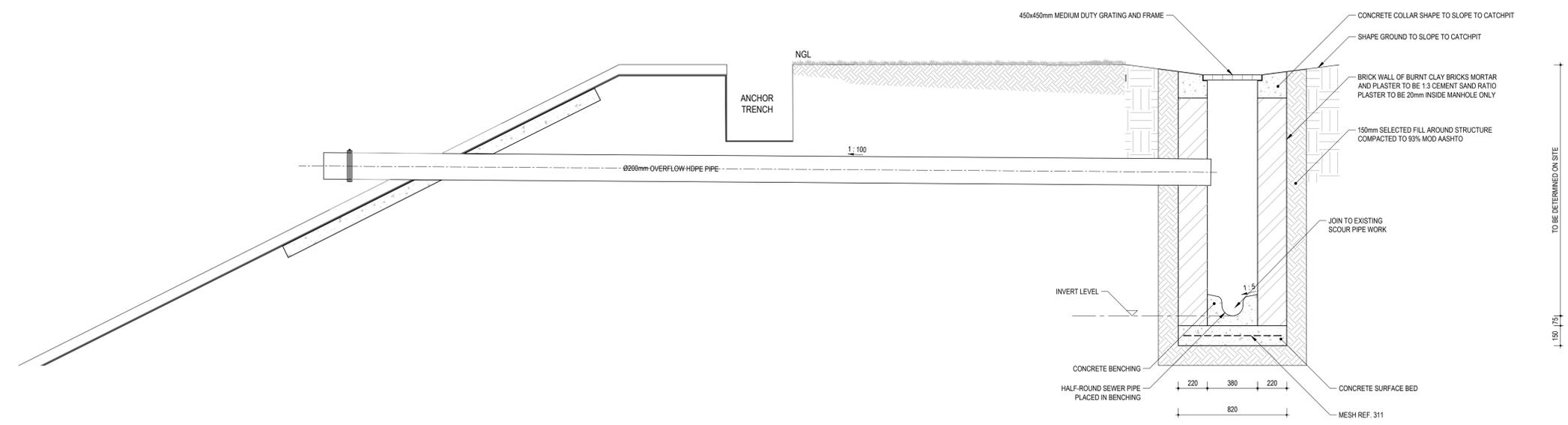
REV	DATE	DESCRIPTION

DESIGNER: G TESELING	DRAWN: J THOMPSON
REVISOR: L FOURIE	DATE: 31 JANUARY 2023
DRAWING NAME: CHAMBER DETAILS	
DRAWING NUMBER: PC14005 / CIV / 2302	
DRAWING ISSUED FOR: TENDER	
SCALE: 1:25	PAPER SIZE: A1
	APPROVED BY ENGINEER: 0A

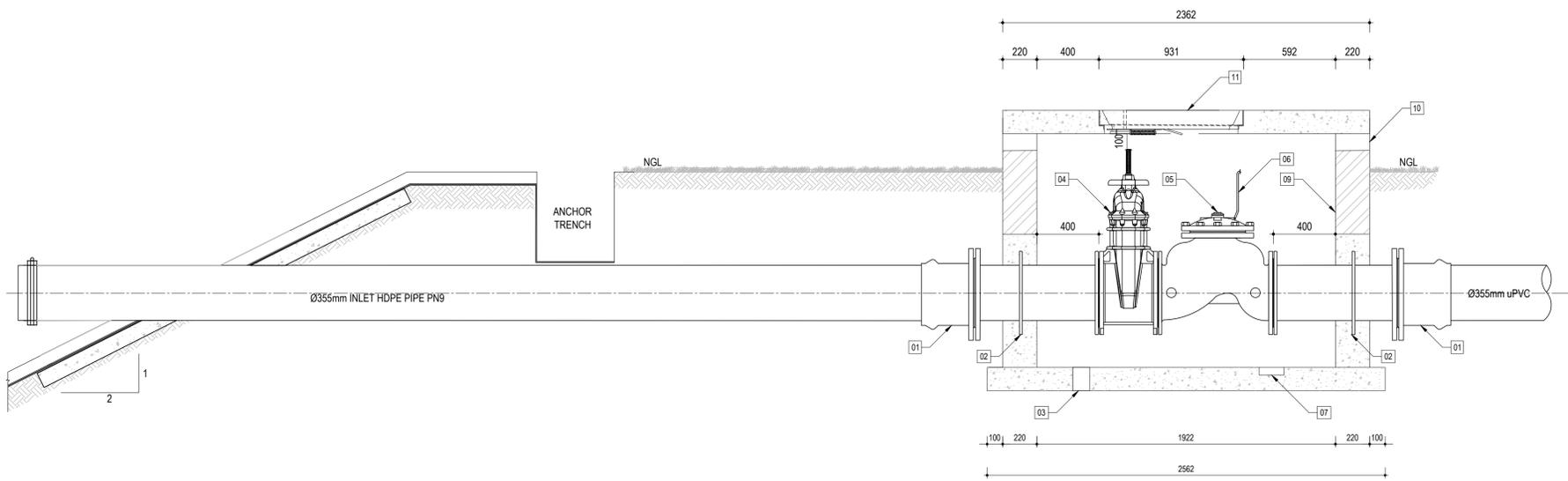
- NOTES:
- FOR GENERAL, EARTHWORK AND PIPELINE NOTES, REFER TO DWG PC14005/CIV/2301.
 - FOR CONCRETE, BRICKWORK AND REINFORCEMENT NOTES, REFER TO DWG PC14005/CIV/2302.



OVERFLOW
PLAN VIEW
SCALE 1:20



OVERFLOW CHAMBER DETAIL
SCALE 1:20



INLET PIPE DETAIL
SCALE 1:20

INLET CHAMBER PIPE SCHEDULE	
ITEM	DESCRIPTION
1	Ø355mm HDPE FLANGE ADAPTOR WITH A MALE ADAPTOR
2	Ø355mm GMS PIPE & FBE COATED WITH PUDDLE FLANGE & FLANGED BOTH ENDS
3	Ø100mm OPENING
4	RS GATE VALVE WITH A RISING SPINDLE
5	HYDRAULIC LEVEL CONTROL VALVE
6	TUBING TO CONNECT THE FLOAT VALVE TO THE BALL
7	SUMP (Ø160mm, 50mm DEEP uPVC)
8	Ø355mm FLANGE ADAPTOR
9	BRICK WALL BUILT FROM 200mm ABOVE THE ANCHORED FLANGE
10	ONE LAYER OF VERMIN PROOF BRICK (ACTING AS AIR VENT) BUILT ALL FOUR SIDES
11	POLYMER CONCRETE COVER & FRAME - TYPE 4A LOCKABLE

PROJECT NUMBER: PC14005

PROJECT NAME: SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME

CIVIL & STRUCTURAL ENGINEER

 GILGAL NEWGROUND JV
 17 ST ANDREWS ROAD, BELMORNE, EAST LONDON, 6011
 P.O. BOX 19586, TROMPSBURG, 1014
 TEL: 043 722 5884
 FAX: 043 252 5842
 www.newground.co.za

IMPLEMENTING AGENT: AMATOLA WATER

MANICIPALITY: SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY

REFERENCE DRAWINGS

REV	DATE	DESCRIPTION

DESIGNER: G TESELING DRAWER: J THOMPSON

REVIEWER: L FOURIE DATE: 31 JANUARY 2023

DRAWING NAME: RAW WATER DAM DETAILS

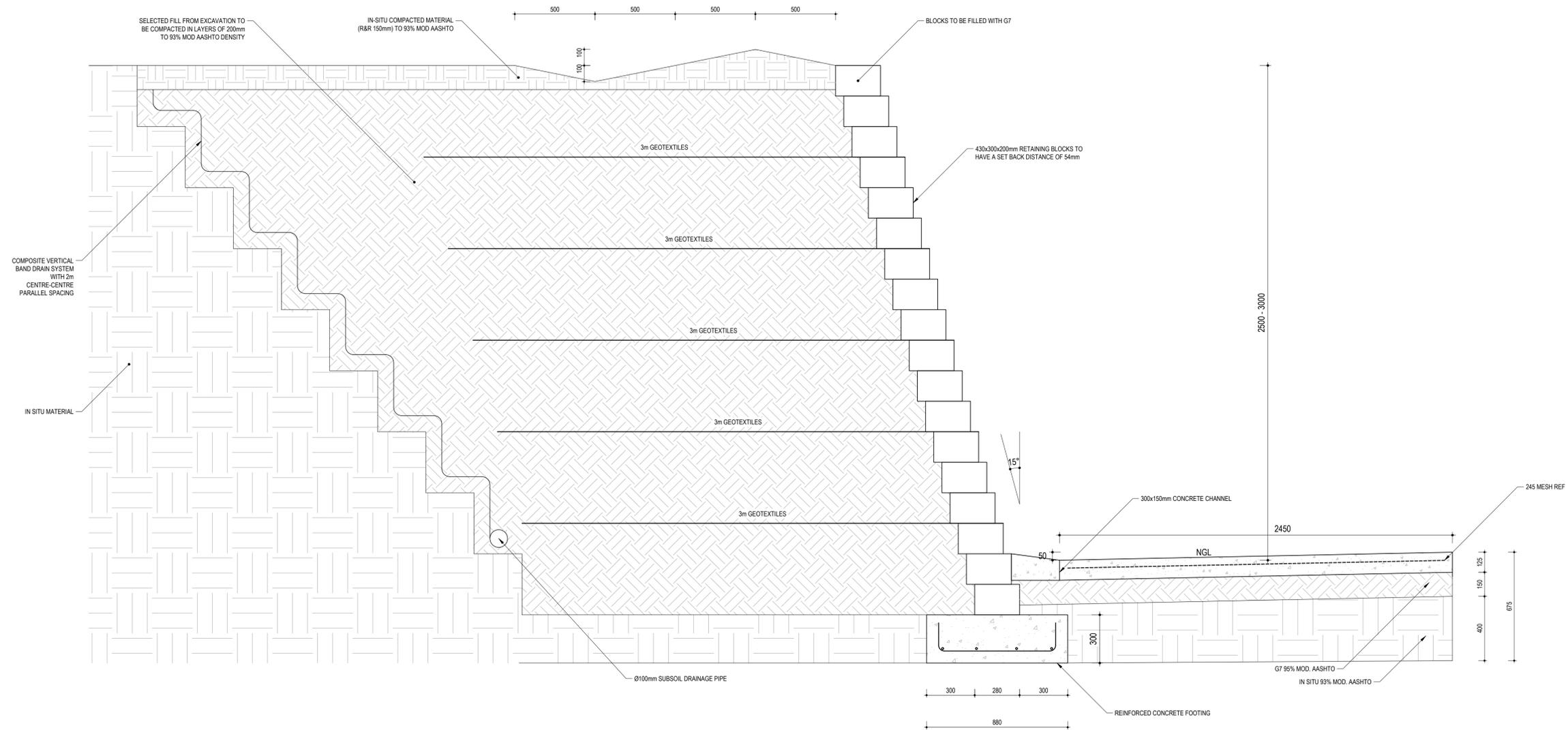
DRAWING NUMBER: PC14005 / CIV / 2303

DRAWING ISSUED FOR: TENDER

SCALE: 1:20 PAPER SIZE: A1 REVISION: 0A

SIGNATURE: DATE:

NOTES:
 1. FOR GENERAL, EARTHWORK AND PIPELINE NOTES, REFER TO DWG PC12019/CIV/2301.
 2. FOR CONCRETE, BRICKWORK AND REINFORCEMENT NOTES, REFER TO DWG PC12019/CIV/2302.
NOTES:
 IF ANOTHER BLOCK SIZE WANTS TO BE USED, IT MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCEMENT OF CONSTRUCTION.



BLOCK RETAINING WALL DETAIL
 SCALE 1:15

PROJECT NUMBER: **PC14005**

PROJECT NAME: **SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME**

CIVIL & STRUCTURAL ENGINEER

newground **GILGAL**

GILGAL NEWGROUND JV
 17 ST ANDREW'S ROAD, WELLSIDE, EAST LONDON, 2001
 PO Box 1968, Tzaneen 2214
 TEL: 061 723 9844
 FAX: 061 525 8942
 www.newground.co.za

IMPLEMENTING AGENT: **AMATOLA WATER**

MANDIPALITY: **SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY**

REV	DATE	DESCRIPTION

DESIGNER: **G TESELING** DRAWN BY: **J THOMPSON**

REVISOR: **L FOURIE** DATE: **31 JANUARY 2023**

DRAWING NAME: **RETAINING WALL DETAIL**

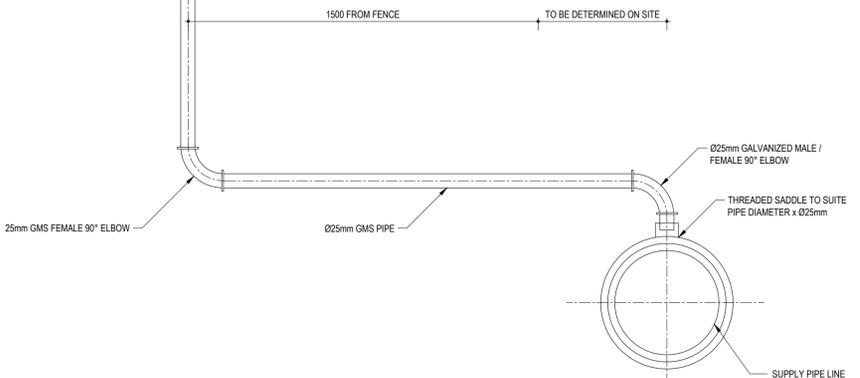
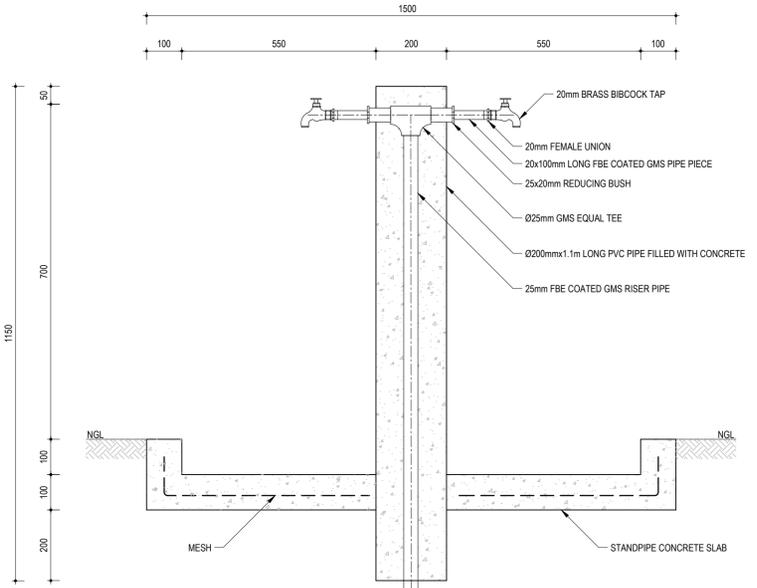
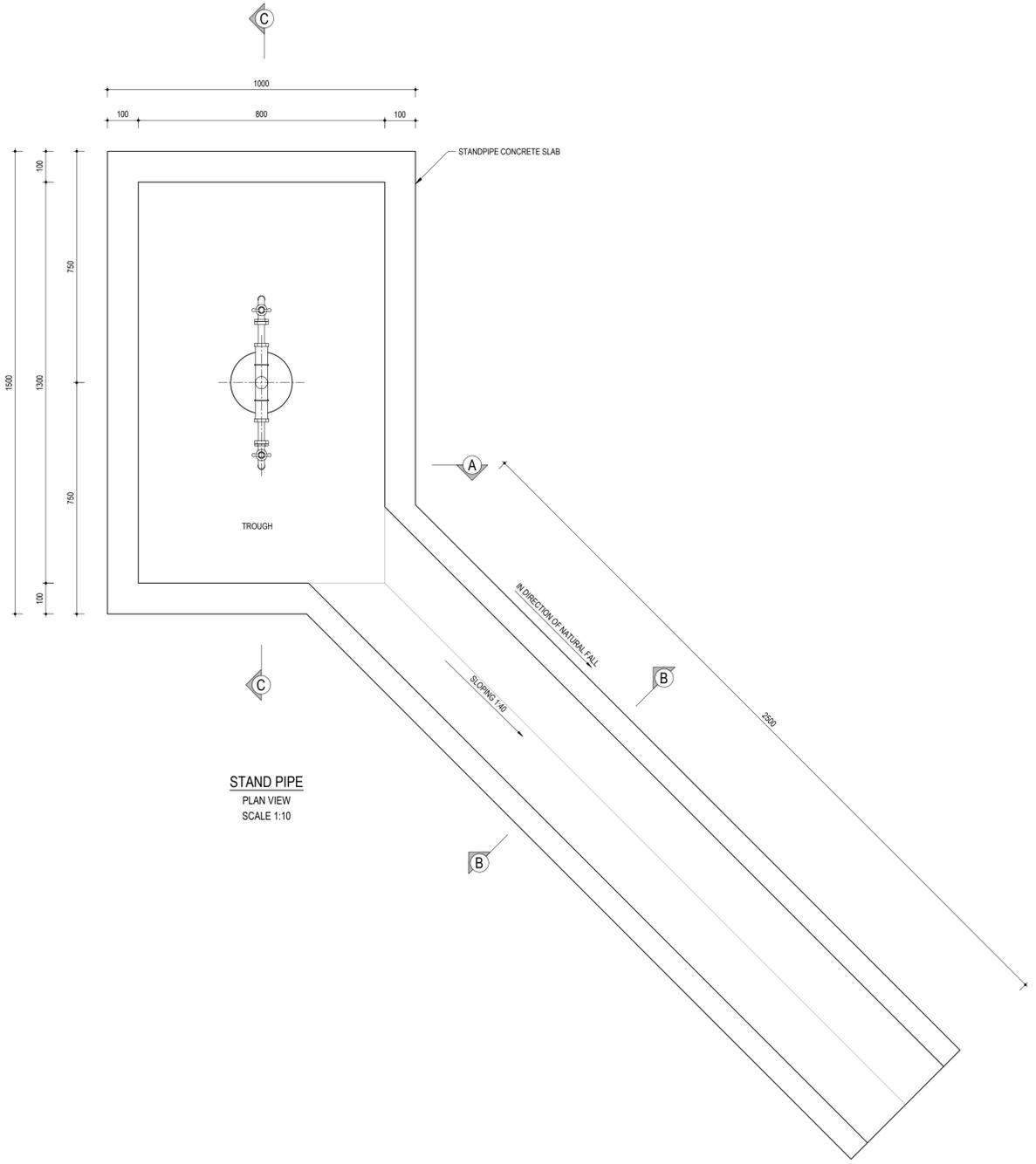
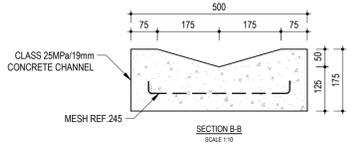
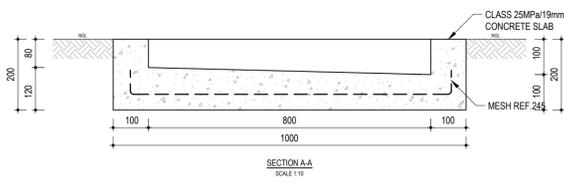
DRAWING NUMBER: **PC14005 / CIV / 2305**

DRAWING ISSUED FOR: **TENDER**

SCALE: 1:15 PAPER SIZE: **A1** REVISION: **0A**

APPROVED BY ENGINEER: _____ DATE: _____

SIGNATURE: _____ DATE: _____



SECTION C-C
SCALE 1:10

- NOTES:
- FOR GENERAL, EARTHWORK AND PIPELINE NOTES, REFER TO DWG PC14005/CIV/2301.
 - FOR CONCRETE, BRICKWORK AND REINFORCEMENT NOTES, REFER TO DWG PC14005/CIV/2302.

PROJECT NUMBER: PC14005

PROJECT NAME: SUNDAYS RIVER VALLEY BULK WATER SUPPLY SCHEME

CIVIL & STRUCTURAL ENGINEER

newground **GILGAL**

GILGAL NEWGROUND JV
17 ST ANDREW'S ROAD, BELBONNE, EAST LONDON, S20 1
PO BOX 1992, THURON, S14
TEL: 043 722 884
FAX: 086 525 1922
WWW.NEWGROUND.CO.ZA

AMATOLA WATER

SUNDAYS RIVER VALLEY LOCAL MUNICIPALITY

REV	DATE	DESCRIPTION

DESIGNER:	G TESELING	DRAWN BY:	J THOMPSON
REVISOR:	L FOURIE	DATE:	31 JANUARY 2023

DRAWING NAME: STAND PIPE DETAILS

DRAWING NUMBER: PC14005 / CIV / 2306

DRAWING ISSUED FOR: TENDER

SCALE: 1:10 PAPER SIZE: A1 REVISION: 0A

APPROVED BY ENGINEER: [Signature] DATE: [Date]

C4.4 Geotechnical Report



Reference: 01032016Rep - Kirkwood Bulk Water Supply (78254)

1 March 2016

Gilgal Newground JV
P O Box 19568
TECOMA
5214

ATTENTION: MR I DU PLESSIS

Dear Sir

KIRKWOOD BULK WATER SUPPLY:GEOTECHNICAL REPORT

Controlab was requested to do a geotechnical investigation on the above-mentioned project. The project consisted of an investigation at two (2) reservoir sites within Kirkwood. The investigation consisted of eight (8) trial pits excavated at the reservoir sites (four (4) per site). All excavations were done by hand to refusal depths. Dynamic Cone Penetrometer (DCP) tests were performed adjacent to the trial pit. The trial pits were profiled by a qualified Engineering Technician utilising "The Revised Guide to Soil Profiling for Civil Engineering Purposes in Southern Africa" produced by Jennings, Brink and Williams. The trial pit profiles are attached to this document.

The position for the new reservoir site was adjacent to existing reservoirs in Kirkwood. The Town Reservoir (TP1 to TP4) was situated in the northern part of the town while the Bontrug Reservoir (TP5 to TP8) was to the east of Kirkwood. The town of Kirkwood is part of the Sundays River Valley Municipality within the Eastern Cape Province.





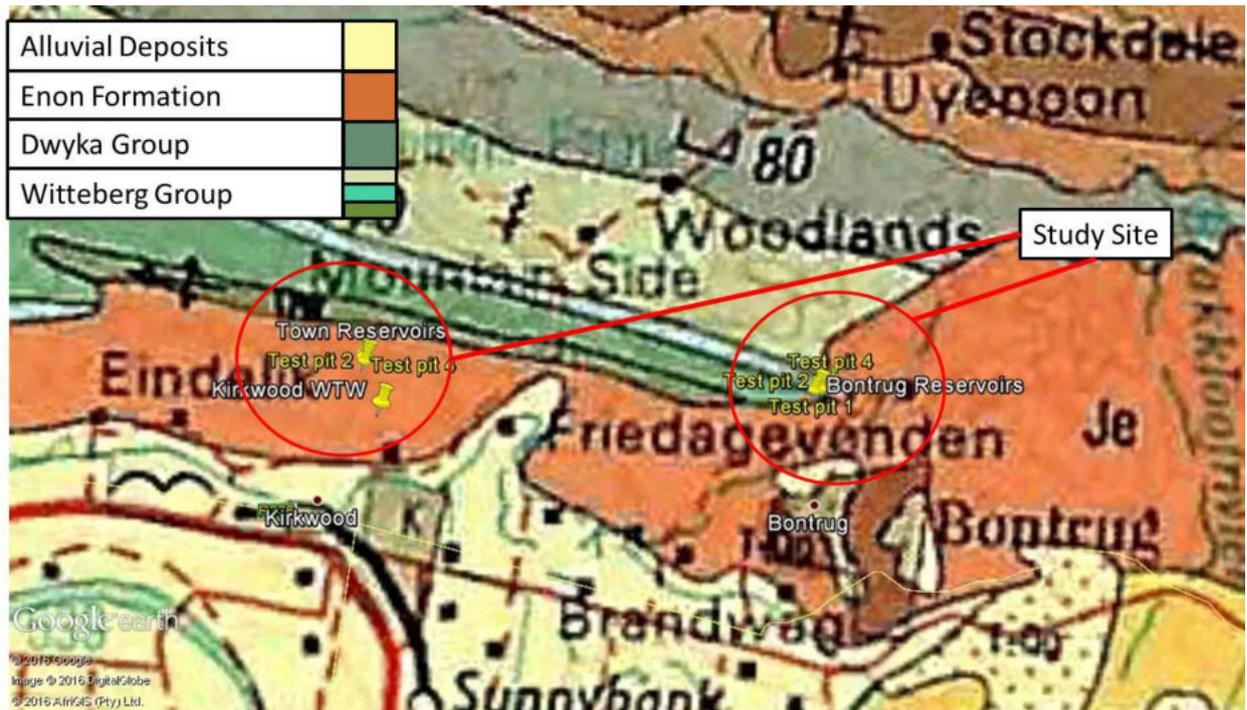
The reservoir site is located within the quartzitic conglomerates of the Enon Formation. The Enon Formation is part of the Uitenhage Group, belonging to the Algoa Basin deposits. The Uitenhage series is mainly centered around Uitenhage but extends from the coast of Port Elizabeth to the Sundays river valley where it is divided into three stages, the Enon Conglomerates, the Kirkwood Formation and the Sundays River Formation, of which, the Sundays River Formation is the upper layer.

The Enon equivalent Formation consists of well-rounded and red stained quartzite conglomerate pebbles with thin sandstone lenticular interbeds. In some locations the rounded nature of the conglomerates can grade towards more angular and thus the conglomerate can be termed breccia.

Azimuth and dip of the bedding planes is typical of the Algoa Basin and Uitenhage Group and although area specific, shows a general trend of a north easterly azimuth with a dip of between 25° and 30° . Jointing of the Enon type Formation is due to the conglomerate lithology, indistinct and small localised faults will be the only structural features apparent.

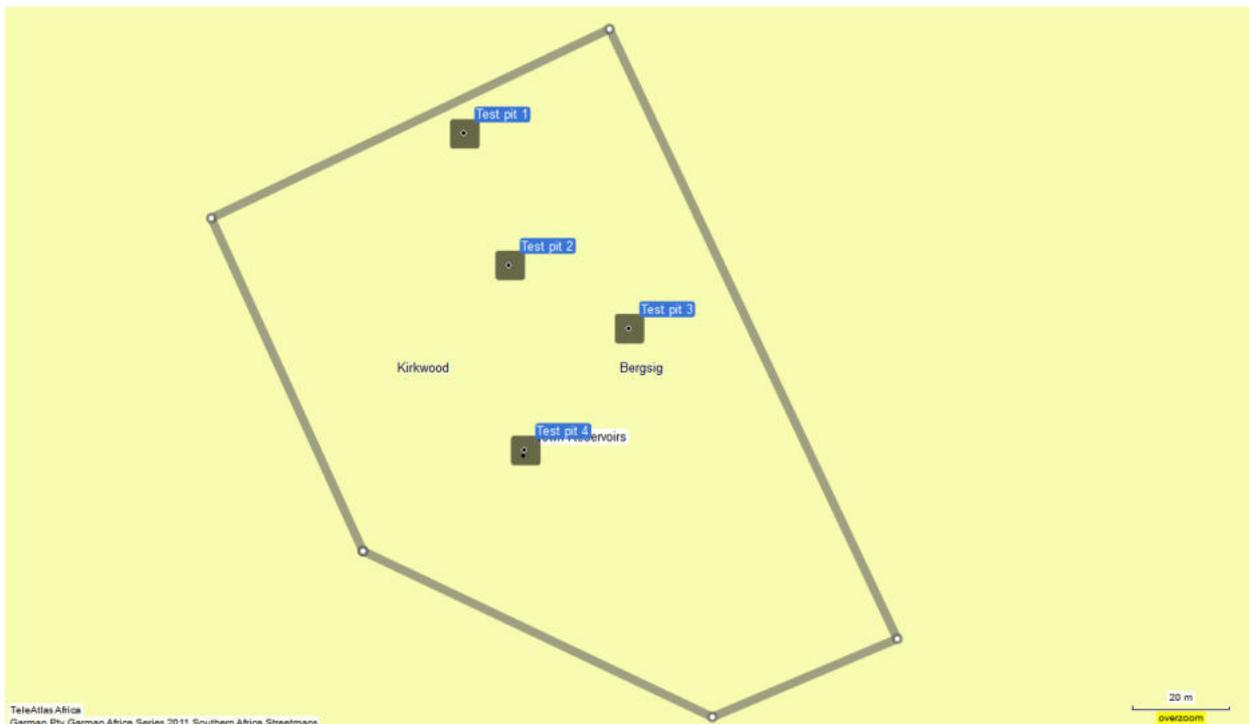
Kirkwood normally receives about 315mm of rain per year, with most rainfall occurring during summer. It receives the lowest rainfall (13mm) in July and the highest (44mm) in March. The average midday temperatures for Kirkwood range from 20.5°C in July to 29.7°C in February. The region is the coldest during July when the temperature drops to 5.6°C on average during the night.

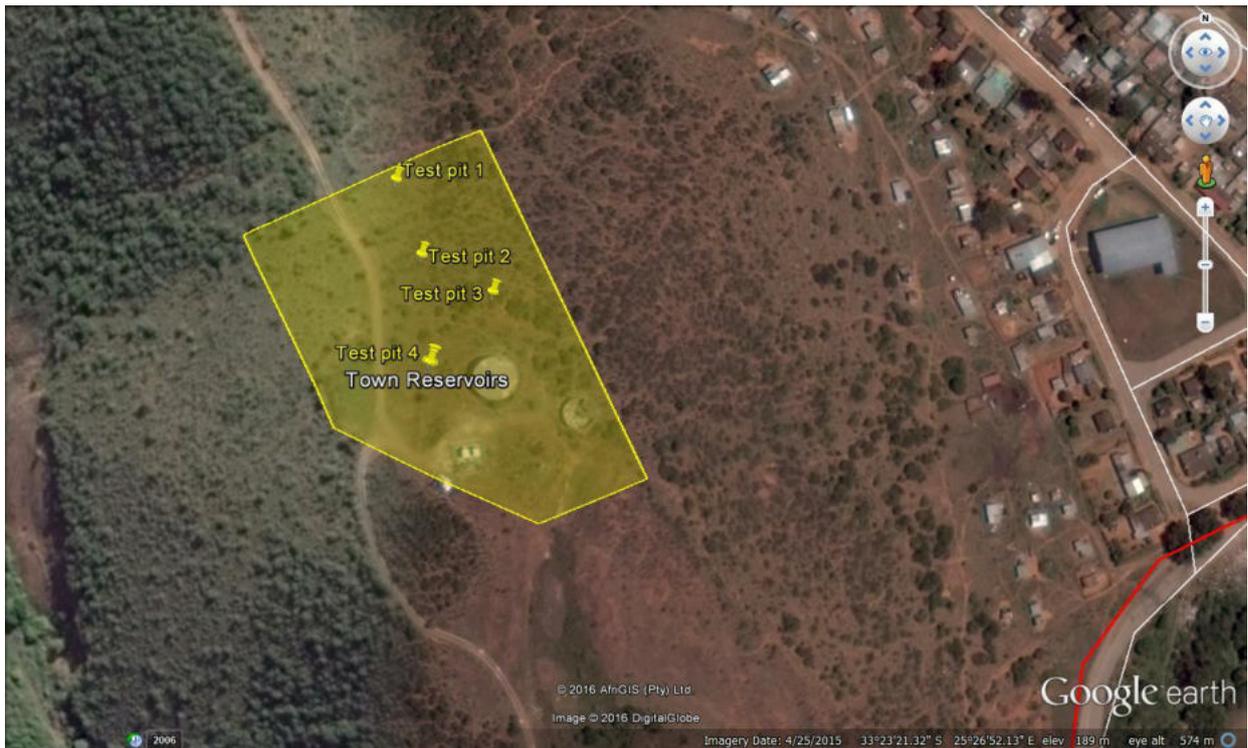
Wienerts climatic N number for the area is between 2 and 5, which should indicate that the rocks would decompose implying that chemical weathering would dominate over mechanical weathering.



The co-ordinates for the Town Reservoir trial pits were as follows:

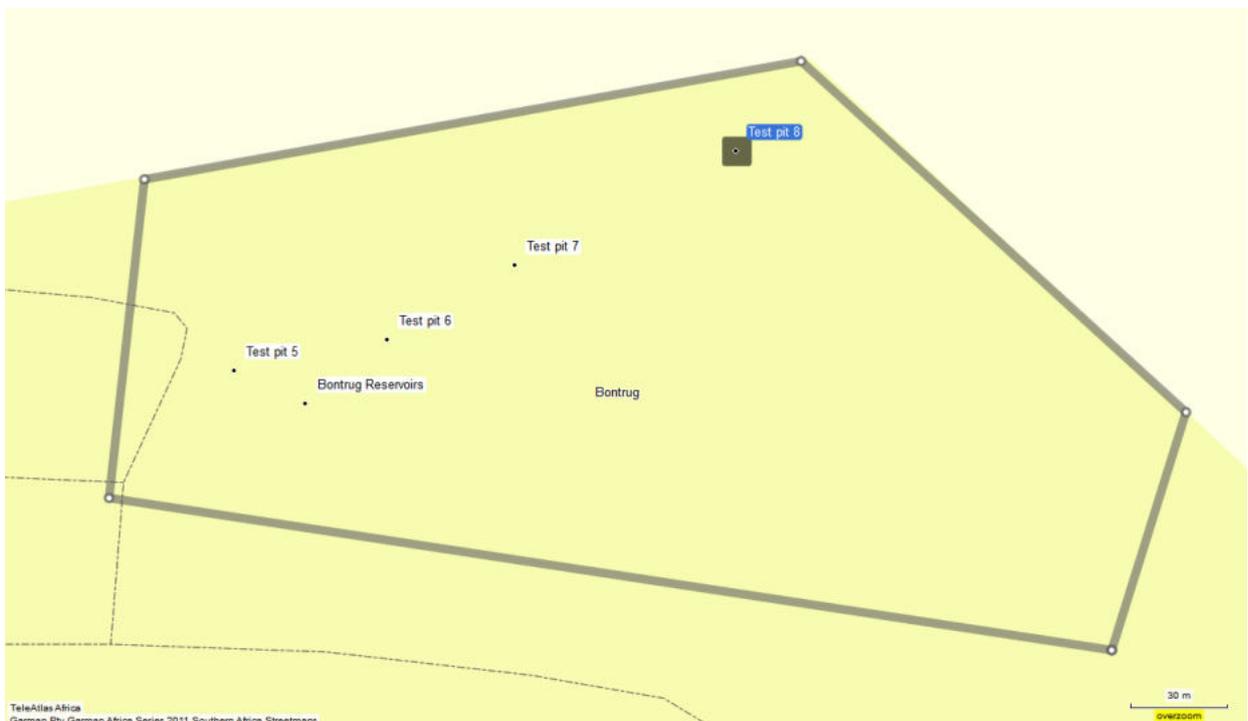
- TP 1 - Town Res S 33°23'19.1" E 25°26'48.9"
- TP 2 - Town Res S 33°23'20.0" E 25°26'49.3"
- TP 3 - Town Res S 33°23'20.4" E 25°26'50.3"
- TP 4 - Town Res S 33°23'21.2" E 25°26'49.4"





The co-ordinates for the Bontrug Reservoir trial pits were as follows:

- TP 5 - Bontrug Res S 33°23'28.8" E 25°29'16.1"
- TP 6 - Bontrug Res S 33°23'28.5" E 25°29'17.9"
- TP 7 - Bontrug Res S 33°23'27.7" E 25°29'19.5"
- TP 8 - Bontrug Res S 33°23'26.6" E 25°29'22.2"





Eight (8) disturbed soil samples were taken of typical horizons for Foundation Indicators and Atterberg Limits tests.

Six (6) disturbed samples were taken for Road Indicator, California Bearing Ratio (CBR) and Atterberg limit tests.

All the test results are attached to this document.

BRIEF INTERPRETATION OF THE TEST RESULTS - TOWN RESERVOIR SITE

- **Typical Horizons**

The transported material profiled consisted of quartz pebbles within silty sand. The moisture conditions were slightly moist, the consistency was dense and the structures were intact.

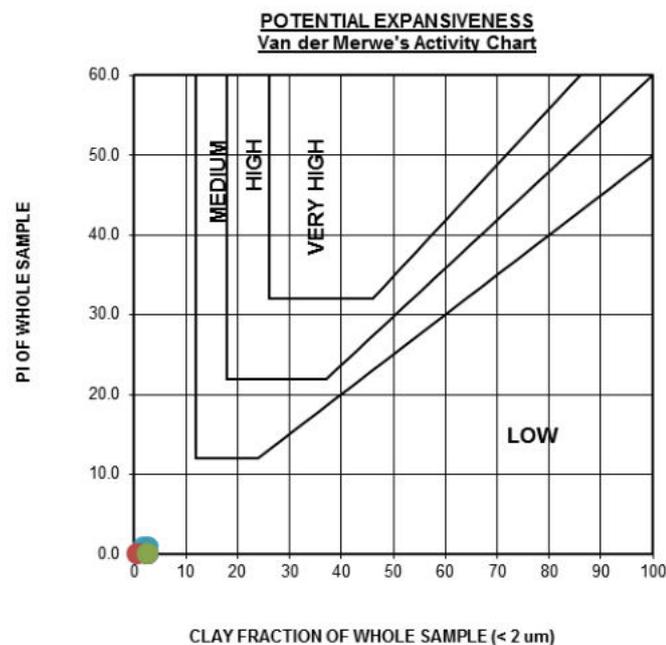
No residual material was encountered and excavation refusal was recorded within the quartz pebble and cobble horizon. Excavation depths varied between 700mm (TP3) and 900mm (TP2).

- **Foundation Indicators**

Four (4) Foundation Indicator tests were performed to determine the volumetric instability of the soils. The result indicated that there was a low potential risk for expansive material.

The expansiveness of the horizon tested was evaluated using Van der Merwes method of classification. The PI of the whole sample varied between non-plastic (0) and 1 with the clay fraction (0.002mm sieve) ranging between 1% and 3%.

POSITION	DEPTH	DESCRIPTION	0.002 mm	LINEAR SHRINKAGE	PI WHOLE SAMPLE	POTENTIAL EXPANSIVENESS
TP 1	0 - 850	dk R O sty s + Qtzte Peb	3	0.0	0.0	LOW
TP 2	0 - 900	dk R O sty s + Qtzte Peb	1	0.0	0.0	LOW
TP 3	0 - 700	dk Y sty s + Qtzte Peb	2	2.5	1.0	LOW
TP 4	0 - 750	dk Y sdy st	3	3.5	1.0	LOW



The Foundation Indicator tests identified that the material on site will not be volumetric unstable with regards to heave.

- **Road Indicators**

Four (4) samples were tests for the suitability of using the material during construction.

The Road Indicator test results indicated that the material conformed to a G6 material (TRH14 material classification). Material similar to the samples tested will be suitable for use as underfloor compaction for the reservoir.

POSITION	DEPTH	DESCRIPTION	GM	L L (%)	P I (%)	L S (%)	MDD (kg/m ³)	OMC (%)	C.B.R. @ 100%	C.B.R. @ 95 %	C.B.R. @ 90 %	SWELL (%)	TRH14 CLASS
TP 1	0 - 850	dk R O sty s + Qtzte Peb	2.60	CBD	NP	0.0	2266	4.6	71	37	19	0.00	G6
TP 2	0 - 900	dk R O sty s + Qtzte Peb	2.74	CBD	NP	0.0	2072	8.2	59	34	20	0.00	G6
TP 3	0 - 700	dk Y sty s + Qtzte Peb	2.61	17	5	2.5	2312	5.2	63	39	23	0.30	G6
TP 4	0 - 750	dk Y sdy st	2.59	20	8	3.5	2280	7.0	91	50	28	0.30	G5

- **DCP Results/Bearing Capacity**

DCP tests were performed at all of the tests. The DCP penetration can be used as an indication of the estimated safe bearing pressure of the founding material.

DCP test penetration refusals were recorded in all four test position at the following depths:

- TP 1 - Town Res Refusal @ 460mm
- TP 2 - Town Res Refusal @ 410mm
- TP 3 - Town Res Refusal @ 350mm
- TP 4 - Town Res Refusal @ 160mm

Note that the DCP penetration rate will change with any changes to the moisture content or density of the material tested. The DCP penetration refusal was within the transported quarts pebble horizons.

- **Ground Water/Dampness**

Water seepage was not recorded in any of the trial pits.

- **Excavations**

Excavations were done by hand and excavation refusals were recorded transported pebble horizons at a depth of approximately 700mm. Due to the structure of the material encountered excavations on site can be classified as being soft, but it must be noted that deeper in the excavations the material becomes denser making excavation difficult – it was however anticipated that normal equipment (TLB) should be able to do excavations to create a platform.

BRIEF INTERPRETATION OF THE TEST RESULTS - BONTRUG RESERVOIR SITE

- **Typical Horizons**

The transported material profiled varied between the trial pits. At TP5 a thick horizon of silty clay up to 950mm was profiled. Within TP6 to TP8 the transported material consisted of clayey silt with quartz pebbles and cobbles. The moisture conditions were slightly moist and the consistency was dense.

No residual material was encountered and excavation refusals were recorded in all four trial pits within the transported quartz pebbles and cobbles. The excavation depths were in the order of 950mm.

- **Foundation Indicators**

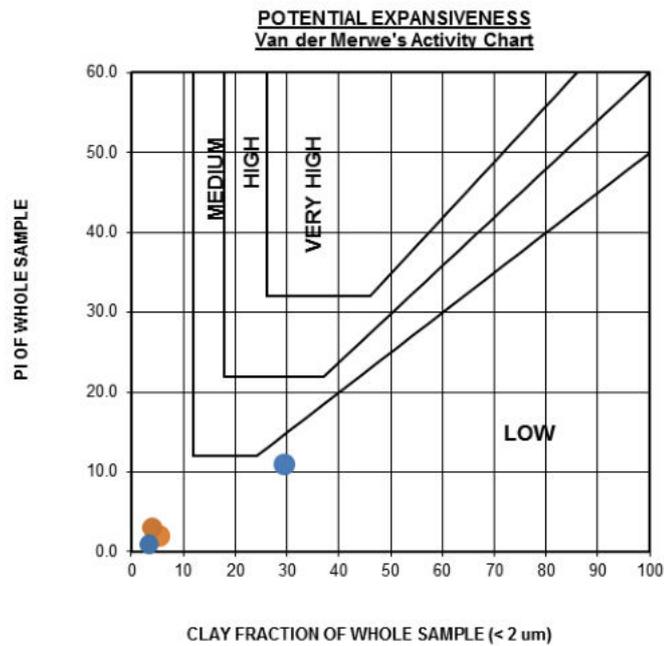
Four (4) Foundation Indicator tests were performed to determine the volumetric instability of the soils. The result indicated that there was a low potential risk for expansive material.

The expansiveness of the horizon tested was evaluated using Van der Merwes method of classification. The PI of the whole sample varied between 1 and 11 with the clay fraction (0.002mm sieve) ranging between 3% and 29%.

POSITION	DEPTH	DESCRIPTION	0.002 mm	LINEAR SHRINKAGE	PI WHOLE SAMPLE	POTENTIAL EXPANSIVENESS
TP 5	0 - 950	lt R sdy st	29	5.5	11.0	LOW
TP 6	0 - 950	lt R cly s + Qtzte Peb	5	7.0	2.0	LOW
TP 7	0 - 1200	lt R cly s + Qtzte Peb	4	6.5	3.0	LOW
TP 8	0 - 1150	dk R Br sty s Qtzte Peb	3	5.5	1.0	LOW

Although the material profiled at TP5 indicated higher plasticity values the material still remained in the low heave area and risk with regards to heave was low.

Material within the founding/platform horizons for the reservoir site was not volumetric unstable and could be used during construction.



- Road Indicators**

Two (2) samples were tests for the suitability of using the material during construction.

The Road Indicator test results indicated that the material varied between G8 and G6 material (TRH14 material classification). Material similar to the samples tested will be suitable for backfill required for the reservoir platform. It is recommended that if possible the quartz pebble material should be the preferred material for the platform.

POSITION	DEPTH	DESCRIPTION	GM	LL (%)	PI (%)	LS (%)	MDD (kg/m ³)	OMC (%)	C.B.R. @ 100%	C.B.R. @ 95 %	C.B.R. @ 90 %	SWELL (%)	TRH14 CLASS
TP 5	0 - 950	lt R sdy st	0.56	25	12	5.5	1844	15.3	33	16	12	0.80	G8
TP 6	0 - 950	lt R cly s + Qtzte Peb	2.53	30	15	7.0	2134	7.4	58	37	24	0.10	G6

Note that material for the pavement layers for the associated parking areas would have to be imported from outside the study area.

- DCP Results/Bearing Capacity**

DCP tests were performed at all of the tests. The DCP penetration can be used as an indication of the estimated safe bearing pressure of the founding material. Based on the tests on site the estimated safe bearing pressure at a depth of approximately 200mm below the surface will be in excess of 200kPa. Note that the DCP recorded penetration refusals within the transported quartz pebble horizons

DCP test penetration refusals were recorded in three of the four test position at the following depths:

➤ TP 5 - Bontrug Res	No Refusal
➤ TP 5 Ground Level minus 950mm	Refusal @ 910mm
➤ TP 6 - Bontrug Res	Refusal @ 580mm
➤ TP 7 - Bontrug Res	Refusal @ 1390mm
➤ TP 8 - Bontrug Res	Refusal @ 450mm

Note that the DCP penetration rate will change with any changes to the moisture content or density of the material tested.

- **Ground Water/Dampness**

Water seepage was not recorded in any of the trial pits.

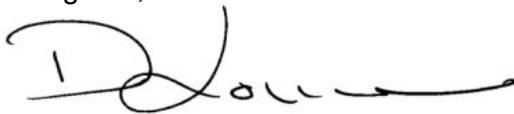
- **Excavations**

Excavations were done by hand and excavation refusals were recorded within the transported quartz pebble horizons. Excavations for the foundations can generally be classified as being soft.

While every effort has been made during the fieldwork phase of this investigation to identify the various soil horizons, their problems and distribution, it is impossible to guarantee that isolated zones of poorer material have not been missed. Disparities in founding material type should be referred to an expert.

Note that this report does not give a foundation design but offers an interpretation of the laboratory test results.

Regards,



DEON LOUW Pr. Tech. Eng, MSc (Civil)
TECHNICAL MANAGER



Controlab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

CLIENT: Gilgal Newground JV
PROJECT: KIRKWOOD BULK WATER SUPPLY SCHEME RESERVOIRS
REF: 78254

TRIAL PIT No.'s : 1 - 3
EXCAVATED BY: HAND
DATE: 25-01-2016

TEST PIT PHOTOGRAPHS

TRIAL HOLE 1



TRIAL HOLE 2



TRIAL HOLE 3





Controlab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

CLIENT: Gilgal Newground JV
PROJECT: KIRKWOOD BULK WATER SUPPLY SCHEME RESERVOIRS
REF: 78254

TRIAL PIT No.'s : 4 - 6
EXCAVATED BY: HAND
DATE: 25-01-2016

TEST PIT PHOTOGRAPHS

TRIAL HOLE 4



TRIAL HOLE 5



TRIAL HOLE 6





ControLab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

CLIENT: Gilgal Newground JV
PROJECT: KIRKWOOD BULK WATER SUPPLY SCHEME RESERVOIRS
REF: 78254

TRIAL PIT No.'s : 7 - 8
EXCAVATED BY: HAND
DATE: 25-01-2016

TEST PIT PHOTOGRAPHS

TRIAL HOLE 7



TRIAL HOLE 8





TEST PIT LOGS

Position:

Trial Hole 1
S 33°23'19.1"
E 25°26'48.9"

Position:

Trial Hole 2
S 33°23'20.0"
E 25°26'49.3"

Position:

Trial Hole 3
S 33°23'19.1"
E 25°26'48.9"

0.0	: : : :
0.1	: : : :
0.2	: : : :
0.3	: : : :
0.4	: : : :
0.5	: : : :
0.6	: : : :
0.7	: : : :
0.8	: : : :
0.9	: : : :
1.0	: : : :
1.1	: : : :
1.2	: : : :
1.3	: : : :
1.4	: : : :
1.5	: : : :

Slightly moist, dark Red Orange, medium dense to dense, intact, silty sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 867
No ground water.
Refusal @ 850mm on Quartzite Pebbles

0.0	: : : :
0.1	: : : :
0.2	: : : :
0.3	: : : :
0.4	: : : :
0.5	: : : :
0.6	: : : :
0.7	: : : :
0.8	: : : :
0.9	: : : :
1.0	: : : :
1.1	: : : :
1.2	: : : :
1.3	: : : :
1.4	: : : :
1.5	: : : :

Slightly moist, dark Red Orange, medium dense to dense, intact, silty sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 868
No ground water.
Refusal @ 900mm on Quartzite Pebbles

0.0	: : : :
0.1	: : : :
0.2	: : : :
0.3	: : : :
0.4	: : : :
0.5	: : : :
0.6	: : : :
0.7	: : : :
0.8	: : : :
0.9	: : : :
1.0	: : : :
1.1	: : : :
1.2	: : : :
1.3	: : : :
1.4	: : : :
1.5	: : : :

Slightly moist, dark Yellow, medium dense to dense, intact, silty sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 869
No ground water.
Refusal @ 700mm on Quartzite Pebbles



TEST PIT LOGS

Position:

Trial Hole 4
S 33°23'21.2"
E 25°26'49.4"

Position:

Trial Hole 5
S 33°23'28.8"
E 25°29'16.1"

Position:

Trial Hole 6
S 33°23'23.5"
E 25°29'17.9"

0.0	:	:	:	:
0.1	:	:	:	:
0.2	:	:	:	:
0.3	:	:	:	:
0.4	:	:	:	:
0.5	:	:	:	:
0.6	:	:	:	:
0.7	:	:	:	:
0.8	:	:	:	:
0.9	:	:	:	:
1.0	:	:	:	:
1.1	:	:	:	:
1.2	:	:	:	:
1.3	:	:	:	:
1.4	:	:	:	:
1.5	:	:	:	:

Slightly moist, dark Yellow, medium dense to dense, intact, sandy silt.
Transported:

SAMPLE TAKEN: 870
No ground water.
Refusal @ 750mm on Quartzite Pebbles

0.0	:	:	:	:
0.1	:	:	:	:
0.2	:	:	:	:
0.3	:	:	:	:
0.4	:	:	:	:
0.5	:	:	:	:
0.6	:	:	:	:
0.7	:	:	:	:
0.8	:	:	:	:
0.9	:	:	:	:
1.0	:	:	:	:
1.1	:	:	:	:
1.2	:	:	:	:
1.3	:	:	:	:
1.4	:	:	:	:
1.5	:	:	:	:

Slightly moist, dark Yellow, very stiff, intact, sandy silt.
Transported:

SAMPLE TAKEN: 871
No ground water.
Refusal @ 950mm on very stiff sandy silt

0.0	:	:	:	:
0.1	:	:	:	:
0.2	:	:	:	:
0.3	:	:	:	:
0.4	:	:	:	:
0.5	:	:	:	:
0.6	:	:	:	:
0.7	:	:	:	:
0.8	:	:	:	:
0.9	:	:	:	:
1.0	:	:	:	:
1.1	:	:	:	:
1.2	:	:	:	:
1.3	:	:	:	:
1.4	:	:	:	:
1.5	:	:	:	:

Slightly moist, light Red, medium dense to dense, intact, clayey sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 872
No ground water.
Refusal @ 950mm on Quartzite Pebbles



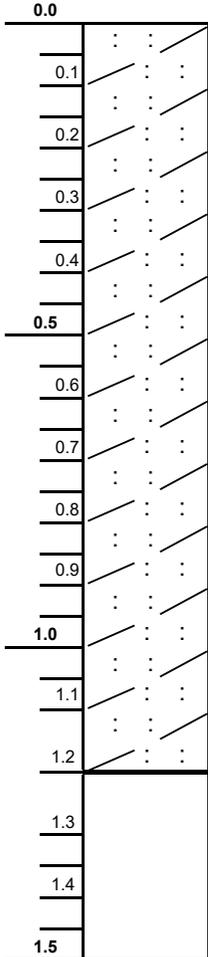
TEST PIT LOGS

Position:

Trial Hole 7
S 33°23'27.7"
E 25°29'19.5"

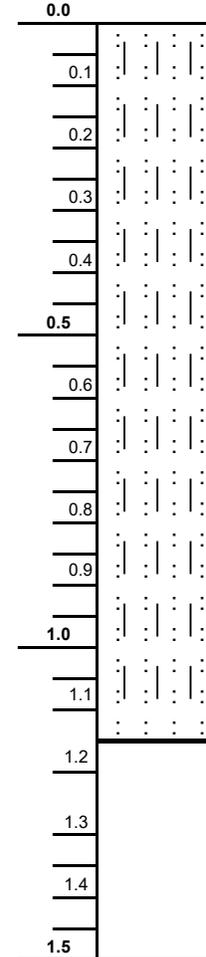
Position:

Trial Hole 8
S 33°23'26.6"
E 25°29'22.2"



Slightly moist, light Red, medium dense to dense, intact, clayey sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 873
No ground water.
Refusal @ 1200mm on Quartzite Pebbles



Slightly moist, dark Red Brown, medium dense to dense, intact, silty sand + Quartzite Pebbles.
Transported:

SAMPLE TAKEN: 874
No ground water.
Refusal @ 1150mm on Quartzite Pebbles



HEAD OFFICE: 1 Alfred Road, Vincent, 5247, Tel: 043 726 7859, Fax: 043 726 7426

CENTRAL LABORATORY: 10 St Pauls Road, East London, 5201, Tel: 043 722 5420 / 722 8565, Fax: 043 743 9942, P O Box 346, East London, 5200

OTHER BRANCH OFFICES: Cape Town, Kokstad, Mthatha, Lusaka - Zambia

CLIENT: Gilgal Newground JV
P O Box 19568
TECOMA
5214

PROJECT: KIRKWOOD BULK WATER
SUPPLY SCHEME RESERVOIRS

DATE RECEIVED: 2016-01-25

DATE TESTED: 2016-03-01

DATE REPORTED: 2016-03-03

ATT: Mr I du Plessis

TEST REPORT NO.: 78254

FOUNDATION INDICATOR REPORT

SAMPLE NO	867	868	869	870	871
POSITION	TP 1	TP 2	TP 3	TP 4	TP 5
DEPTH mm	0 - 850	0 - 900	0 - 700	0 - 750	0 - 950
DESCRIPTION	dk R O	dk R O	dk Y	dk Y	lt R
	sty s +	sty s +	sty s +	sdyst	sdyst
	Qtzte Peb	Qtzte Peb	Qtzte Peb		

SIEVE ANALYSIS % PASSING SIEVES: Method: TMH1 A1(a) & A5

% PASSING	75 mm	76	100	83	100
	37.5 mm	51	61	61	54
	19 mm	42	41	44	42
	9.5 mm	34	29	33	33
	4.75 mm	26	20	25	25
	2.36 mm	18	13	19	19
	1.18 mm	17	12	16	17
	0.600 mm	16	11	15	15
	0.425 mm	15	10	14	14
	0.300 mm	14	9	12	14
	0.150 mm	10	5	9	11
	0.075 mm	7.2	3.5	6.3	7.6
Grading Modulus		2.60	2.74	2.61	2.59

HYDROMETER ANALYSIS: Method ASTM D422

0.06 mm	6	3	5	7	53
0.02 mm	4	2	3	4	42
0.006 mm	3	1	2	3	33
0.002 mm	3	1	2	3	29

ATTERBERG LIMITS: Method: TMH1 A2; A3 & A4

LIQUID LIMIT	CBD	CBD	17	20	25
PLASTICITY INDEX	NP	NP	5	8	12
LINEAR SHRINKAGE	0.0	0.0	2.5	3.5	5.5

PREDICTION OF HEAVE (VAN DER MERWE METHOD)

PI WHOLE SAMPLE	0.0	0.0	1.0	1.0	11.0
POTENTIAL EXPANSIVENESS	LOW	LOW	LOW	LOW	LOW

Maximum Dry Density & Optimum Moisture Content - TMH1 - Method A7 / California Bearing Ratio - TMH1 - Method A8

Maximum Dry Density (kg/m ³)	2266	2072	2312	2280	1844
Optimum Moisture Content (%)	4.6	8.2	5.2	7.0	15.3
C.B.R. @ 100% COMPACTION	71	59	63	91	33
C.B.R. @ 98 % COMPACTION	55	47	47	72	22
C.B.R. @ 95 % COMPACTION	37	34	39	50	16
C.B.R. @ 93 % COMPACTION	28	27	27	40	14
C.B.R. @ 90 % COMPACTION	19	20	23	28	12
SWELL @ 100% COMP. (%)	0.00	0.00	0.30	0.30	0.80
T R H 14 CLASSIFICATION	G6	G6	G6	G5	G8

The above test results are pertinent to the samples received and tested only.

While the tests are carried out according to recognized standards Controlab shall not be liable for erroneous testing or reporting thereof. This report may not be reproduced except in full without prior consent of Controlab.

Technical Signatory:

J Atterbury

Remarks:

Samples Delivered by Customer

Sampled by Controlab: YES

HYDROMETER ANALYSIS - NON-ACCREDITED TESTS



HEAD OFFICE : 1 Alfred Road, Vincent, 5247, Tel: 043 726 7859, Fax: 043 726 7426
CENTRAL LABORATORY : 10 St Pauls Road, East London, 5201, Tel: 043 722 5420 / 722 8565, Fax: 043 743 9942, P O Box 346, East London, 5200
OTHER BRANCH OFFICES: Cape Town, Kokstad, Mthatha, Lusaka - Zambia

CLIENT: Gilgal Newground JV
P O Box 19568
TECOMA
5214

PROJECT: KIRKWOOD BULK WATER
SUPPLY SCHEME RESERVOIRS

DATE RECEIVED: 2016-01-25
DATE TESTED: 2016-03-01
DATE REPORTED: 2016-03-03

ATT : Mr I du Plessis

TEST REPORT NO.: 78254

FOUNDATION INDICATOR REPORT

SAMPLE NO	872	873	874		
POSITION	TP 6	TP 7	TP 8		
DEPTH mm	0 - 950	0 - 1200	0 - 1150		
DESCRIPTION	lt R	lt R	dk R Br		
	cl s +	cl s +	sty s		
	Qtzte Peb	Qtzte Peb	Qtzte Peb		

SIEVE ANALYSIS % PASSING SIEVES: Method :TMH1 A1(a) & A5

% PASSING	75 mm	84	100	77	
	37.5 mm	44	45	46	
	19 mm	30	27	33	
	9.5 mm	25	22	23	
	4.75 mm	21	21	18	
	2.36 mm	18	20	14	
	1.18 mm	17	19	12	
	0.600 mm	17	18	11	
	0.425 mm	17	18	10	
	0.300 mm	16	17	10	
	0.150 mm	15	15	9	
	0.075 mm	11.9	11.8	8.1	
Grading Modulus		2.53	2.50	2.68	

HYDROMETER ANALYSIS: Method ASTM D422

	0.06 mm	11	10	7	
	0.02 mm	7	7	5	
	0.006 mm	6	5	4	
	0.002 mm	5	4	3	

ATTERBERG LIMITS: Method: TMH1 A2 ; A3 & A4

LIQUID LIMIT	30	24	32	
PLASTICITY INDEX	15	14	12	
LINEAR SHRINKAGE	7.0	6.5	5.5	

PREDICTION OF HEAVE (VAN DER MERWE METHOD)

PI WHOLE SAMPLE	2.0	3.0	1.0	
POTENTIAL EXPANSIVENESS	LOW	LOW	LOW	

Maximum Dry Density & Optimum Moisture Content - TMH1 - Method A7 / California Bearing Ratio - TMH1 - Method A8

Maximum Dry Density (kg/m ³)	2134			
Optimum Moisture Content (%)	7.4			
C.B.R. @ 100% COMPACTION	58			
C.B.R. @ 98 % COMPACTION	46			
C.B.R. @ 95 % COMPACTION	37			
C.B.R. @ 93 % COMPACTION	30			
C.B.R. @ 90 % COMPACTION	24			
SWELL @ 100% COMP. (%)	0.10			
T R H 14 CLASSIFICATION	G6			

The above test results are pertinent to the samples received and tested only.
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Technical Signatory:

Remarks:

Samples Delivered by Customer

Sampled by ControlLab: YES

HYDROMETER ANALYSIS - NON-ACCREDITED TESTS



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CLIENT: Gilgal Newground JV
 P O Box 19568
 TECOMA
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 ATT: Mr I du Plessis

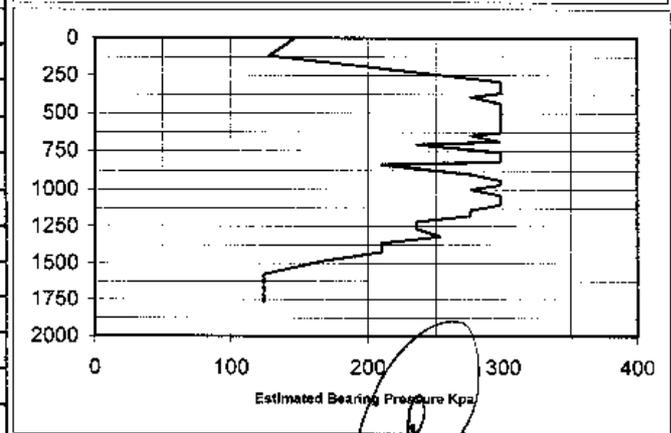
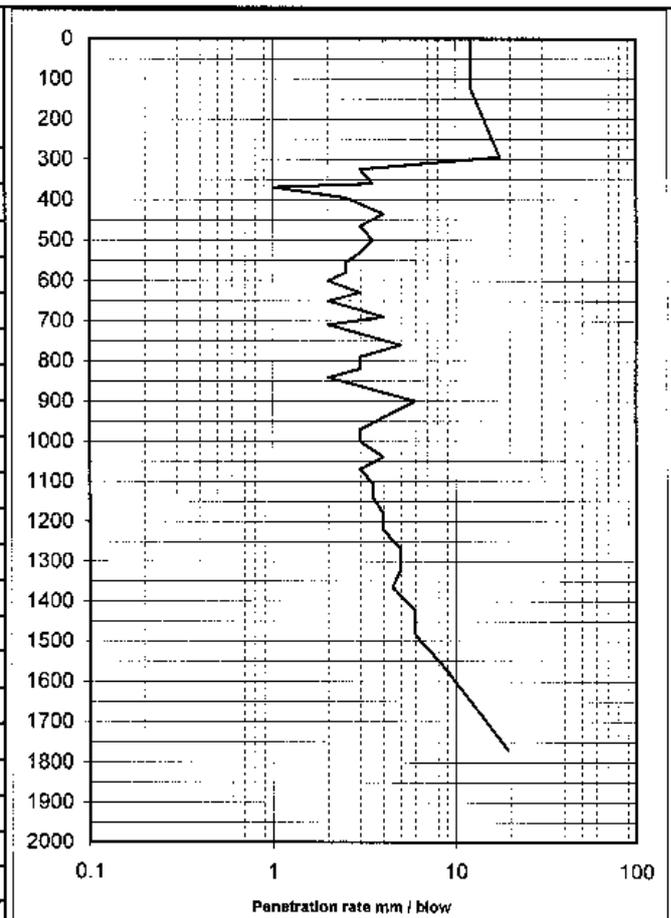
PROJECT: KIRKWOOD BULK WATER
 SUPPLY SCHEME RESERVOIRS
 REF: 78254
 DATE: 2016-02-04

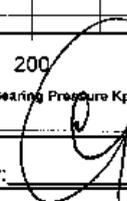
DYNAMIC CONE PENETROMETER DATA

POSITION: TP 5
 S 33°23'28.8" E 25°29'16.1"

REMARKS: No Refusal

Depth (mm)	Cumulative No. Blows	Penetration Rate (mm)	Estimated Insitu CBR
0			
120	10	12	18
295	20	17.5	11
325	30	3	110
360	40	3.5	93
370	50	1	>110
395	60	2.5	110
435	70	4	75
465	80	3	110
500	90	3.5	93
530	100	3	110
555	110	2.5	110
580	120	2.5	110
600	130	2	>110
630	140	3	110
650	150	2	>110
690	160	4	75
710	170	2	>110
760	180	5	55
790	190	3	110
820	200	3	110
840	210	2	>110
900	220	6	45
940	230	4	75
970	240	3	110
1000	250	3	110
1040	260	4	75
1070	270	3	110
1105	280	3.5	93
1140	290	3.5	93
1180	300	4	75
1220	310	4	75
1270	320	5	55
1320	330	5	55



Technical Signatory:  J Atterbury



Controlab South Africa (Pty) Ltd

CIVIL ENGINEERING MATERIALS AND GEOTECHNICAL LABORATORY

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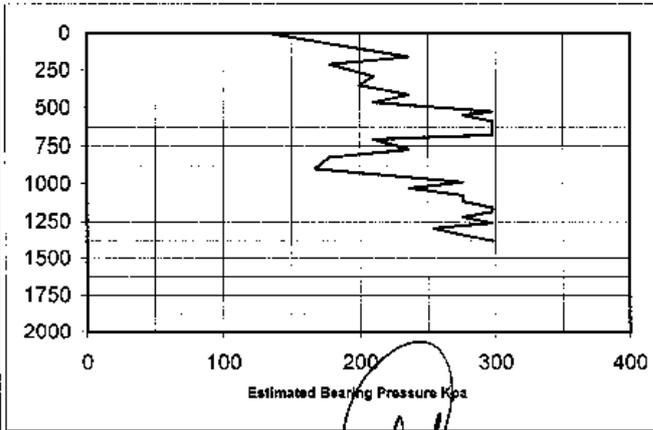
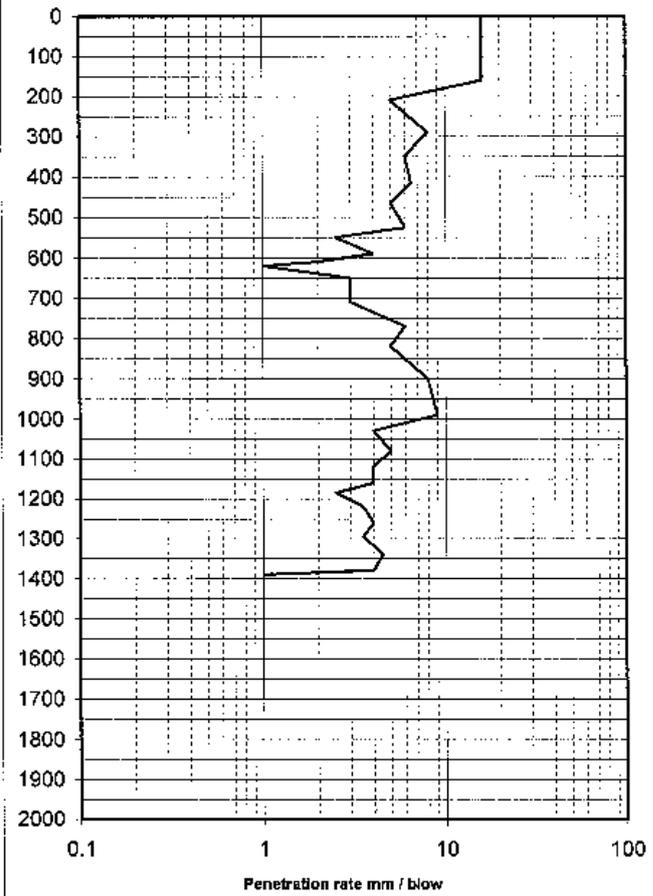
DYNAMIC CONE PENETROMETER DATA

POSITION: TP 7

REMARKS: Refusal @ 1390mm

S 33°23'27.7" E 25°29'19.5"

Depth (mm)	Cumulative No. Blows	Penetration Rate (mm)	Estimated Insitu CBR
0			
160	10	16	13
210	20	5	55
290	30	8	30
350	40	6	45
415	50	6.5	40
465	60	5	55
525	70	6	45
550	80	2.5	110
590	90	4	75
610	100	2	>110
620	110	1	>110
650	120	3	110
680	130	3	110
710	140	3	110
770	150	6	45
820	160	5	55
900	170	8	30
990	180	9	25
1030	190	4	75
1080	200	5	55
1120	210	4	75
1160	220	4	75
1185	230	2.5	110
1220	240	3.5	93
1260	250	4	75
1295	260	3.5	93
1340	270	4.5	65
1380	280	4	75
1390	290	1	>110



Technical Signatory:

J Atterbury

