



LEKWA LOCAL MUNICIPALITY

CONTRACT NUMBER: DTS 19/2021/2022

BID DOCUMENT

"UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER 'RESERVOIR AND PRESSURE TOWER."

PREPARED BY:	PREPARED FOR:
TMS CONSULTING ENGINEERS 39A Ehmke Street P O Box 603 NELSPRUIT 1200 Mr. T Siwele Tel: (013) 752 8478 Fax: (013) 752 2903 	THE ACTING MUNICIPAL MANAGER LEKWA LOCAL MUNICIPALITY P.O. Box 66 STANDERTON 2430 Mr LD Tsotetsi Tel: (017) 712 9600

**NAME OF BIDDER (BIDDING ENTITY) (FULL NAME,
i.e. (CC, (PTY) LTD, LTD, JV, SOLE PROPRIETOR etc.) :**

TEL NUMBER :

FAX NUMBER :

E-MAIL :

CELL NO. :

CIDB NO. :

CSD NO. :

THE OFFERED TOTAL OF THE PRICES INCLUDING VALUE-ADDED TAX IS:

R.....
.....(In figures)

VERY IMPORTANT NOTICE ON DISQUALIFICATIONS:

A bid not complying with the peremptory requirements stated hereunder will be regarded as not being an “Acceptable bid”, and as such will be rejected.

“Acceptable bid” means any bid which, in all respects, complies with the conditions of bid and specifications as set out in the bid documents, including conditions as specified in the Preferential Procurement Policy Framework Act (Act 5 of 2017) and related legislation as published in Government Gazette number 22549, dated 10 August 2001, in terms of which provision is made for this policy.

Compulsory/Mandatory documents or requirements- Failure to adhere will lead to bid being unresponsive

1. Submit a valid SARS Tax Pin issued by the South African Revenue Services or have made arrangements to meet outstanding tax obligations or are in good standing with SARS according to the Central Supplier Database;
2. CSD Registration showing compliance on tax status. Tax status to be compliant at date of appointment and duration of the contract.
3. Non-attendance of mandatory/compulsory: Site inspections or; Information/Clarification meetings.
4. No authority for signatory submitted – See example, where it is stated that a duly signed and dated original or certified copy of the company’s relevant resolution (for each specific bid) of their members or their board of directors, must be submitted.
5. The Letter of authority signed on letterhead.
6. Municipal account not older than 60 days and not in arrears.
7. VAT Registration.
8. Copy of CIDB Registration Certificate with the CIDB (6 CEPE or higher), as required in the bid documentation.
9. Failure to attach a copy of a valid signed Joint Venture/Consortium agreement (if applicable) to the bid document.
10. Form of offer not completed and signed by the authorised signatory.
11. Submit three (3) year Financial Statements Audited by Professional Registered Accountant (Applicable for tenders over R10million)
12. Declaration of interest to be signed.
13. Letter of good standing from Department of Labour.

Additional documents/information required for functionality evaluation purposes

1. Previously Successfully Completed Projects: Appointment letters & Completion Certificates
2. Certified copies of certified qualifications of all supervisory and safety personnel.
3. Submit proof of plant and equipment (If owning or renting/leasing)

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

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1

WITNESS:

NOTE:

IN THIS DOCUMENT AND OTHER DOCUMENTS REFERRED TO BUT NOT ATTACHED, THE FOLLOWING WORDS ARE SYNONYMOUS WITH EACH OTHER.

1. CLIENT, EMPLOYER, LEKWA LOCAL MUNICIPALITY (LLM).
2. BID, TENDER AND VARIATIONS THEREOF
3. JOINT VENTURE / CONSORTIUM

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PRESSURE TOWER

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WITNESS:

INVITATION TO BID

SBD 1.

FORM 7.1 YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE LEKWA LOCAL MUNICIPALITY

BID NUMBER: DTS 19/2021/2022

CLOSING DATE: Wednesday 15th June 2022

CLOSING TIME: 12Hr00

DESCRIPTION...Appointment of Contractor for UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

The successful bidder will be required to fill in and sign a written Contract Form (SBD 7).

DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)
Lekwa Local Municipality, Cnr Dr Beyers Naude & Mbonani Mayisela Street, Standerton

Bidders should ensure that bids are delivered timeously to the correct address. If the bid is late, it will not be accepted for consideration.

The bid box is generally open between 8am to 4pm hours a day, Monday to Friday.

FORM 7.2 ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS – (NOT TO BE RE-TYPED)

THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT

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

NAME OF BIDDER

.....

POSTAL ADDRESS.....

STREET ADDRESS.....

TELEPHONE NUMBER CODE.....NUMBER.....

CELLPHONE NUMBER.....

FACSIMILE NUMBER CODENUMBER.....

E-MAIL ADDRESS.....

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WITNESS:

VAT
NUMBER.....

REGISTRATION

HAS AN ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE BEEN SUBMITTED? (MBD 2) YES or NO

HAS A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE BEEN SUBMITTED? (MBD 6.1) YES or NO

IF YES, WHO WAS THE CERTIFICATE ISSUED BY?

AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA).....

☐

A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN ACCREDITATION SYSTEM (SANAS);

☐

A REGISTERED AUDITOR

☐

[TICK APPLICABLE BOX]

(A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE)

.1.1 ARE YOU THE ACCREDITED REPRESENTATIVE?

IN SOUTH AFRICA FOR THE GOODS / SERVICES / WORKS OFFERED?

YES or NO

[IF YES ENCLOSE PROOF]

SIGNATURE OF BIDDER

DATE.....

CAPACITY UNDER WHICH THIS BID IS

SIGNED.....

TOTAL BID PRICE

TOTAL NUMBER OF ITEMS OFFERED

All document procurement-related inquiries are to be directed to Ms. Lerato Nhlapo at 082 3037 516.

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WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR **UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER**

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WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER**PART T1 BIDDING PROCEDURES**

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T1.1 BID NOTICE AND INVITATION TO BID



LEKWA LOCAL MUNICIPALITY

INVITATION TO CONTRACTORS

Tenders are hereby invited from Contractors with the necessary experience and compliance documents, have an active **CIDB grading of a CIDB 6CE PE or higher**, and are in good standing with the South African Revenue Services for the **UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER.**

Tender documents will only be available from **23rd May 2022** and may be obtained from Lekwa Local Municipal Main Building at the cashier offices situated Cnr Dr. Beyers Naude and Mbonani Mayisela Street, Standerton during working hours 08h00 to 15h00 (Monday to Friday), upon payment of a non-refundable fee of **R500.00 per document** or free from etenders website.

A Compulsory Site meeting and Inspection will be held on **Monday 23rd May 2022** at Standerton Town Hall in Cnr of Dr. Beyers Naude and Mbonani Mayisela, Standerton at 10H00 (according to Municipality's time) after which Tenderers will be taken to site(s) where project's construction will be taking place. Only tenders from Tenderers who attend the above tender meeting and have signed the attendance register shall be considered.

All tenders and supporting documents shall be sealed in an envelope or package clearly marked **"Contract DTS 19/2021/2022 – UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER.**

Duly completed tenders shall be placed in the tender box situated at the main entrance of LEKWA LOCAL MUNICIPALITY at Cnr Dr. Beyers Naude and Mbonani Mayisela Street, Standerton. No Fax or Late tenders will be accepted. Tenders will be evaluated on an **80/20-point system** in terms of LEKWA LOCAL MUNICIPALITY's Supply Chain Management Policy in line with Preferential Procurement Framework Act 5 of 2017.

All Technical inquiries and document procurement-related inquiries are to be directed to Ms. Lerato Nhlapo at 082 3037 516.

In all cases, Tenders shall reach the stipulated address no later than 12h00 on Wednesday 15th June 2022 when tenders shall be opened and read in public.

Mr LD Tsotetsi
Acting Municipal Manager

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T1.2 BID DATA

The **Standard Conditions of Bid** for Procurements make several references to the bid data for details that apply specifically to this bid. The bid data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of bid.

Clause number	Data
F.1.1 ACTIONS	The Employer is: The Municipal Manager LEKWA LOCAL MUNICIPALITY Cnr Dr Beyers Naude & Mbonani Mayisela Street P.O. Box 66 Standerton 2430
F.1.2 TENDER DOCUMENTS	The bid documents issued by the Employer comprise: THE BID Part T1 Bidding procedures Part T1.1 Bid notice and invitation to bid Part T1.2 Bid data Part T2 Returnable documents Part T2.1 List of returnable documents Part T2.2 Returnable schedules THE CONTRACT Part C1 Agreements and contract data C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Form of Guarantee C1.4 Agreement in terms of Occupational Health and Safety Act, 1993 Part C2 Pricing Data C2.1 Pricing Instructions C2.2 Bill of Quantity Part C3 Scope of Works C3 Scope of Works Part C4 Site Information C4 Site Information
F.1.4 COMMUNICATION AND EMPLOYER'S AGENT	The employer's agent is: Name: TMS Consulting Engineers Address: P O Box 603 Nelspruit 1200 Telephone: (013) 752 8478 Mobile: (076) 648 7313 Fax: (013) 752 2903 Email: refilwe@tmsconsulting.co.za

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Clause number	Data
F.2.1 ELIGIBILITY	Only those bidders who are registered with the CIDB in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE PE or higher class of construction work, or by a contractor who is registered as a potential emerging enterprise in terms of these regulations at a contractor grading designation one level lower than the required class as specified above are eligible to submit bids, provided that the employer: (a) is satisfied that such a contractor has the potential to develop and qualify to be registered in that higher grade; and (b) ensures that financial, management or other support is provided to that contractor to enable the contractor to successfully execute that contract. Joint Ventures are eligible to submit bids provided that: (1) each member of the joint venture is registered with the CIDB and valid copy/ies of registration of each member is submitted with this bid; (2) the lead partner has a contractor grading designation in the 6CE PE class of construction work; and (3) the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 6CE PE or higher class of construction work, are eligible to submit bids.
F.2.7 CLARIFICATION MEETING	The arrangements for a compulsory clarification meeting are: Location: <u>Cnr Dr Beyers Naude and Mbonani Mayisela Street, Standerton</u> <u>Date: Monday 23rd May 2022 at 10H00</u>
F.2.12 ALTERNATIVE TENDER OFFERS	<i>No Alternative Bid is to be accepted</i>
F.2.13.3 SUBMITTING A TENDER OFFER	The <u>whole original</u> bid document, <i>as issued by the LLM</i>, shall be submitted. <i>No copies will be accepted.</i> Bids may only be submitted on the Bid documentation issued by the LLM.
F.2.13.5 SUBMITTING A TENDER OFFER	The Employer's address for delivery of bid offers and identification details to be shown on each bid offer package are: Location of bid box: Head Offices Physical address: LEKWA LOCAL MUNICIPALITY Cnr Dr Beyers Naude & Mbonani Mayisela Street P.O. Box 66 Standerton 2430 <i>BID NO: DTS 19/2021/2022</i>

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Clause number	Data
F.2.15 CLOSING TIME	The closing time for submission of bid offers is: 12H00 on Wednesday 15th June 2022 Telephonic, telegraphic, telex, facsimile or e-mailed bid offers will not be accepted.
F.2.16 TENDER OFFER VALIDITY	The bid offer validity period is 90 days
F.2.18 PROVIDE OTHER MATERIAL	The bidder shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements
F.2.19 INSPECTIONS, TESTS AND ANALYSIS	Access must be provided for the following inspections, tests and analysis: concrete tests, compaction strength and ball penetration and Access must be provided for the inspection of the tenderer's offices if required.
F.2.22 RETURN OF OTHER TENDER DOCUMENTS	If so instructed by the employer or the agent of the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.
F.2.23 CERTIFICATES	The bidder is required to submit with his bid. (1) a copy of the valid Certificate of Contractor Registration issued by the Construction Industry Development Board in terms of the Construction Industry Development Board Act (Form F006); and (2) Submit a valid SARS Tax Pin issued by the South African Revenue Services or have made arrangements to meet outstanding tax obligations or are in good standing with SARS according to the Central Supplier Database; (3) a copy of the valid Certificate of Competency for Contractor's Safety Officer in terms of OH/S Act (85/1993) section 16(2)
F.3.4 OPENING OF BID SUBMISSIONS	The time and location for opening of the bid offers are: Immediately after the closing time for submission of bid. Location: LEKWA LOCAL MUNICIPALITY Cnr Dr Beyers Naude & Mbonani Mayisela Street P.O. Box 66 Standerton 2430
F.3.5 TWO-ENVELOPE SYSTEM	A two-envelope procedure will not be followed.

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Clause number	Data
F.3.11 EVALUATION OF BID OFFERS	The preference procedure for evaluation of responsive bid offers shall be the 80/20 -point preference system, in full compliance with Form 2.3.3. Technical and general criteria will be evaluated in terms of paragraph 2.3.3. Refer to page 67 for Evaluation of Tenderers.
F.3.13.1 ACCEPTANCE OF BID OFFER	Bids containing any one or more of the errors or omissions, or bids not having complied with any one of the peremptory bid conditions as detailed on page 2 of this bid document, shall not be considered and shall automatically be rejected.
F.3.18 PROVIDE COPIES OF THE CONTRACTS	The number of paper copies of the signed contract to be provided by the Employer is one .
ADDITIONAL CONDITIONS APPLICABLE TO THIS BID	The additional conditions of bid are: 1 The Employer may also request that the bidder provide written evidence that his financial, labour and other resources are adequate for carrying out the contract. 2 The Employer reserves the right to appoint a firm of chartered accountants and auditors and/or execute any other financial investigations on the financial resources of any bidder. The bidder shall provide all reasonable assistance in such investigations. 3 The bidder shall be required to complete the Form of Offer and Acceptance (C1.1) and Bills of Quantity for all the document for which they intend to bid for 4 The bid document shall be submitted as a whole and shall not be taken apart . 5 List of returnable documents (PART T2) must be completed in full. (A bidder's company profile will not be used by the LLM to complete PART T2 on behalf of the bidder) NB: If PART T2 is not completed in full by the bidder, this offer may be rejected.

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Annex F
(Normative)
Standard Conditions of Tender

- Note: 1 These Standard Conditions of Tender are identical to that contained In Annex F of SANS 294: 2004, *Construction Procurement Processes, Procedures and Methods*.
- 2 Annex E of SANS 294, *Construction Procurement Processes, Procedures and Methods*, and SAICE's Practice Manual #1, *The use of South African National Standards in Construction Procurement* , provide guidance on referencing these Standard Conditions of Tender in procurement documents.

F.1 General

F.1.1 Actions

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 F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently.

F.1.2 Tender Documents

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

F.1.3 Interpretation

F.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.

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

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

a) Comparative offer means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration

b) corrupt practice means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and

c) 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
quality (functionality) means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and 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 read, copied and recorded. Writing shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

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F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.2 Tenderer's obligations

F.2.1 Eligibility

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.

F.2.2 Cost of tendering

Accept that 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 satisfy requirements.

F.2.3 Check documents

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

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the 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.

F.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.

F.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.

F.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 are stated in the tender data.

F.2.8 Seek clarification

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

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F.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.

F.2.10 Pricing the tender offer

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

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

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

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

F.2.11 Alterations to documents

Not make any alterations or additions to the 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. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative tender offers

F.2.12.1 Submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted. The alternative tender offer is to be submitted with the main tender offer together with a schedule that compares the requirements of the tender documents with the alternative requirements the tenderer proposes.

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

F.2.13 Submitting a tender offer

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

F.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 in Mack ink.

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

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data.

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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.

F.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.

F.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.

F.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.

F.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.

F.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.

F.2.15 Closing time

F.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. Proof of posting shall not be accepted as proof of delivery. The employer shall not accept tender offers submitted by telegraph, telex, facsimile or e-mail, unless stated otherwise in the tender data.

F.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.

F.2.16 Tender offer validity

F.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.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.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.

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

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the 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.

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

F.2.19 Inspections, tests and analysis

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

F.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

F.2.22 Return of other tender documents

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

F.2.23 Certificates

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

F.3 The employer's undertakings

F.3.1 Respond to clarification

Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.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 seven 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 drew documents.

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F.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.

F.3.4 Opening of tender submissions

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

F.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, the total of his prices, preferences claimed and time for completion, if any, for the main tender offer only.

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

F.3.5 Two-envelope system

F.3.5.1 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.

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advice tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Nondisclosure

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.

F.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.

F.3.8 Test for responsiveness

F.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.

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F.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) 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.

F.3.9 Arithmetical errors

F.3.9.1 Check responsive tender offers for arithmetical errors, correcting them in the following manner:

- a) Where there is a discrepancy between the amounts in figures and in words, the amount in figures shall govern.
- b) If bills of quantities (or schedule of quantities or schedule of rates) apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.
- c) 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.

F.3.9.2 Consider the rejection of a tender offer if the tenderer does not correct or accept the correction of his arithmetical errors in the manner described in F.3.9.1.

F.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.

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F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate it using the tender evaluation method that is indicated in the Tender Data and described below:

Method 1 : Financial offer	1) Rank tender offers from the most favourable to the least favourable comparative offer. 2) Recommend highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 2 : Financial offer and preferences	1) Score tender evaluation points for financial offer. 2) Confirm that tenderers are eligible for the preferences claimed and if so, score tender evaluation points for preferencing. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. [5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 3 : Financial offer and quality	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Calculate total tender evaluation points. 4) Rank tender offers from the highest number of tender evaluation points to the lowest. 5) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
Method 4 : Financial offer, quality and preferences	1) Score quality, rejecting all tender offers that fail to score the minimum number of points for quality stated in the Tender data. 2) Score tender evaluation points for financial offer. 3) Confirm that tenderers are eligible for the preferences claimed, and if so, score tender evaluation points for preferencing. 4) Calculate total tender evaluation points. 5) Rank tender offers from the highest number of tender evaluation points to the lowest. 6) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

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

F.3.11.2 Scoring Financial Offers

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

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

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Formula	Comparison aimed at achieving	Option 1	Option 2
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P / P_m$
2	Lowest price or percentage commission/fee	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m / P$

where:

P_m = the comparative offer of the most favourable tender offer.

P = the comparative offer of tender offer under consideration.

F.3.11.2a Preferential Procurement

Preferential procurement points will be allocated according to the tenderer's B-BBEE status level, as per the **Preferential procurement policy framework act, 2000: preferential procurement regulations, 2017**, which came into effect on the 20th of January 2017.

In order to qualify for preferential procurement points, the tenderer must attach a certified copy of its valid B-BBEE construction sector scorecard as contained in the **Codes of Good Practice on Black Economic Empowerment**, issued in terms of section 9(1) of the **Broad-Based Black Economic Empowerment Act (Act no. 53 of 2003)**.

Points will be awarded to the tenderer for attaining the B-BBEE status level of contributor in accordance with the table below.

B-BBEE Status Level of Contributor	Number of points (80/20)	Number of points (90/10)
1	20	10
2	18	9
3	14	6
4	12	5
5	8	4
6	6	3
7	4	2
8	2	1
Non-compliant contributor	0	0

In the event of a Joint Venture (JV) Tender:

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

F.3.11.3 Scoring quality (functionality)

Score quality in each of the categories in accordance with the Tender Data and calculate total score for quality.

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F.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.

F.3.13 Acceptance of tender offer

F.3.13.1 Accept tender offer only if the tenderer complies with the legal requirements stated in the Tender Data.

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

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice Of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.15. Prepare contract documents

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

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

F.3.16 Issue final contract

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

F.3.17 Complete adjudicator's contract

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

F.3.18 Provide copies of the contracts

Provide to the successful 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.

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LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

PART T2 LIST OF RETURNABLE DOCUMENTS

The bidder must complete the following returnable documents.

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T2.2	OTHER DOCUMENTS REQUIRED FOR BID EVALUATION PURPOSES	38
T2.3	RETURNABLE SCHEDULES THAT WILL BE INCORPORATED IN THE CONTRACT	80

NOTE:

Although the documents under Part T2 is headed "Returnable Documents" in line with the CIDB model, these are not the only documents to be returned together with the bid. **All** the documents indicated on Part T1, must be completed and signed where applicable and submitted as a complete set of documents.

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T2.1 RETURNABLE SCHEDULES REQUIRED FOR BID EVALUATION PURPOSES

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PART T2

LIST OF RETURNABLE DOCUMENTS

The bidder must complete the following returnable documents.

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FORM 2.1.2:	SIZE OF ENTERPRISE AND CURRENT WORKLOAD.....	26
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FORM 2.1.1 SCHEDULE OF EQUIPMENTS REQUIRED FOR THE CONTRACT

The Bidder shall state below what Equipment's will be available for the work should he be awarded the Contract.

DESCRIPTION, SIZE, CAPACITY	NUMBER

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FORM 2.1.2 SIZE OF ENTERPRISE AND CURRENT WORKLOAD

What was your turnover in the previous financial year? R_____

What is the estimated turnover for your current financial year? R_____

Physical facilities:

Provide information on offices, factories, yards and warehouses occupied by your enterprise (attach details if the space provided is not enough)

Description	Address	Area (m ²)

List your current contracts and obligations:

Description	Value (R)	Start date	Duration	Expected completed date

Do you have the capacity to supply the goods and services described in this bid, should the contract be awarded to you?

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FORM 2.1.3 STAFFING PROFILE

Provide information on the staff that you have available to execute this contract (attach a separate list if the space provided is insufficient)

[illegible]

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FORM 2.1.4 PROPOSED KEY PERSONNEL

The Bidder shall list below the key personnel (including first nominee and the second choice alternate), whom he proposes to employ on the project should his Bid be accepted, both at his headquarters and on the Site, to direct and for the execution of the work, together with their qualifications, experience, positions held and their nationalities.

DESIGNATION	NAME OF	NATIONALITY:	SUMMARY OF		HDI Status Yes/No	NQF 7 Certified Yes/No
	(i) NOMINEE (ii) ALTERNATE		QUALIFICATIONS	EXPERIENCE AND PRESENT OCCUPATION		
<u>HEADQUARTERS</u> Partner/director						
Project Manager						
Other key staff (give designation)						
<u>PROJECT MONITORING</u> Site(s) Supervisors						
Other key staff (give designation)						

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FORM 2.1.5 SCHEDULE OF PREVIOUS WORK CARRIED OUT BY BIDDER

Provide the following information on **relevant previous experience**. Indicate comparable projects of similar or larger size. This information is material to the award of the Contract.

No points will be awarded if reference cannot be reached or if it refuses to supply information. Give at least two (2) names and telephone numbers and e-mail address per reference.

EMPLOYER (Name, tel no and fax no)	CONSULTING ENGINEER (Name, tel no and fax no)	NATURE OF WORK CARRIED OUT PREVIOUSLY	VALUE OF WORK	YEAR OF COMPLETION

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FORM 2.1.6 FINANCIAL ABILITY TO EXECUTE THE PROJECT

Provide details on the surety you will provide if the bid is awarded to you

AMOUNT

Which of the following institutions will provide surety?

- Bank registered in terms of the Bank Act 1990 (Act 94 of 1990): _____
- Insurance Company registered in terms of the Short Term Insurance Act 1998 (Act 53 of 1998): _____
- Cash: _____
- _____

Provide the estimated cash flow on the project in terms of submissions of payment certificates or payment schedules to the Employer

Month no	Amount (VAT included)			
	a Received	b Payments made	a – b Net cash flow	Cumulative cash flow
1			d	j=d
2			e	j+e=k
3			f	k+f=l
4			g	l+g=m
5			h	m+h=n
6			Etc.	Etc.
7				
8				
9				
10				
11				
12				
Maximum negative cash flow: Take the largest negative number in the last column and write it in here → → → → → → →				

Notes:

- (i) Value added tax to be included in all amounts
- (ii) Assume payment of certificates within 30 days of approval of certificate
- From what sources will you fund the above amount (e.g. Funds internally available, bank overdraft, loan, etc)

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FORM 2.1.7 AUTHORITY FOR SIGNATORY

All signatories, including sole proprietors, shall confirm their authority by **attaching to the last page of this bid** a duly signed and **dated original or certified copy** of the relevant resolution of their members or their board of directors, as the case may be.

An example for “COMPANIES / PARTNERSHIPS / CLOSE CORPORATIONS is shown below:

"By resolution of the board of directors passed on 10 January 2011, Mr A.A. Other has been duly authorised to sign all documents in connection with the Bid for Contract number STW/03/2011-12 and any Contract, which may arise there from on behalf of the Bidding Entity, namely, ABC (PTY) LTD"

SIGNED ON BEHALF OF THE BIDDING ENTITY: B.B. SMITH

IN HIS CAPACITY AS: DIRECTOR / PARTNER / MEMBER

DATE: 10 January 2011

AUTHORISED PERSON'S SIGNATURE: A.A. Other

AS WITNESS: 1. C.C. Mathews

An example for “JOINT VENTURES” is shown below:

We, the undersigned are submitting this bid offer in Joint Venture and hereby authorize Mr. J. Botha, authorised signatory of the company "XYZ (PTY) LTD", acting in the capacity of lead partner, to sign all documents in connection with the bid for Contract number STW/03/2011-12 and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORIZED SIGNATORY
(Lead partner, i.e. " <u>XYZ (PTY) LTD</u> ")	P.O. Box 323 Nelspruit 1200	Signature:..... Name:..... Designation:.....
Name of 2 nd Company	Address of 2 nd Company	Signature:..... Name:..... Designation:.....
Name of 3 rd Company	Address of 3 rd Company	Signature:..... Name:..... Designation:.....

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An example for “SOLE PROPRIETOR” is shown below:

“I hereby certify that I’m the sole proprietor of the Bidding Entity, namely, “SMARTBUILD” and therefore duly authorised to sign the bidding documents”

SIGNATURE OF SOLE PROPRIETOR: P T Hein

IN HIS CAPACITY AS: SOLE PROPRIETOR

DATE: 10 January 2011

AUTHORISED PERSON'S SIGNATURE: P T Hein

AS WITNESS: 1. D K Peters

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FORM 2.1.8 SCHEDULE OF PROPOSED SUBCONTRACTORS

Provide details on all sub-contractors you intend utilising for this contract

	a		b	c = a x b
Type of work to be used for	% of contract	Name of sub-contractor	% HDI ownership	Total contribution to HDI ownership
Total % of contract sub-contracted		Total contribution of HDI ownership:		

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FORM 2.1.9 FINANCIAL REFERENCES

FINANCIAL STATEMENTS

I/We agree, to furnish an audited copy of the latest set of financial statements together with my/our Directors' and Auditors' report.

DETAILS OF BIDDING ENTITY'S BANK

If the bidder is a Joint Venture or partnership, the information requested below is required for each member / partner.

I/We hereby authorise the Employer/Engineer to approach all or any of the following banks for the purposes of obtaining a financial reference:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO BIDDER
Name of bank	
Contact person	
Branch name	
Branch code	
Street address	
Postal address	
Telephone number	()
Fax number	()
Account number	
Type of account, (i.e. cheque account)	

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

BIDDER'S TAX DETAILS

Bidder's VAT vendor registration number:

Bidder's SARS tax reference number:

DESCRIPTION OF BANK DETAIL	BANK DETAILS APPLICABLE TO BIDDER
Name of bank	
Contact person	
Branch name	
Branch code	
Street address	
Postal address	
Telephone number	()
Fax number	()
Account number	
Type of account, (i.e. cheque account)	

BIDDER'S TAX DETAILS

Bidder's VAT vendor registration number:

Bidder's SARS tax reference number:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.1.10 DETAILS OF ALTERNATIVE BIDS SUBMITTED

See condition of bid.

DESCRIPTION

FORM 2.1.11 AMENDMENTS AND QUALIFICATIONS BY BIDDER

See condition of bid

PAGE	DESCRIPTION

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.1.12 LABOUR-ENHANCED METHODS: PROPOSED PLANNED ACTIONS OF BIDDER RESULTING IN DEVIATIONS FROM SPECIFIED WORK

ACTIVITY OR PAY ITEM	DESCRIPTION OF PLANNED ACTION RESULTING IN DEVIATION FROM SPECIFIED WORK

Compliance with Employment Equity Act 55 of 1998

Attach a valid certificate from the Department of Labour, or a declaration (refer to “Form 2.3.5 – Specific goals”) by the **designated employer**, that the employer complies with the relevant chapters of the Employment Equity Act.

Definitions in terms of the last mentioned Act.

“designated employer” means-

- a) an employer who employs 50 or more employees;
- b) an employer who employs fewer than 50 employees, but has a total annual turnover that is equal to or above the applicable annual turnover of a small business in terms of Schedule 4 to this Act.”

“Schedule 4”

TURNOVER THRESHOLD APPLICABLE TO DESIGNATED EMPLOYERS

Sector or sub sector in accordance with the Standard Industrial Classification	Total annual turnover
Agriculture	R 2,00 m
Mining and Quarrying	R 7,50 m
Manufacturing	R 10,00 m
Electricity, Gas and Water	R 10,00 m
Construction	R 5,00 m
Retail and Motor Trade and Repair Services	R 15,00 m
Wholesale Trade, Commercial Agents and Allied Services	R 25,00 m
Catering, Accommodation and other Trade	R 5,00 m
Transport, Storage and Communications	R 10,00 m
Finance and Business Services	R 10,00 m
Community, Social and Personal Services	R 5,00 m

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

T2.2 OTHER DOCUMENTS REQUIRED FOR BID EVALUATION PURPOSES

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

38

WITNESS:

FORM 2.2.1 COMPULSORY SITE INSPECTIONS / INFORMATION / CLARIFICATION MEETINGS

Where Compulsory Site Inspections and Compulsory Information, Briefing or Clarification Meetings are to be held, it shall be subject to the following conditions:

1. Necessity for Compulsory Site Inspection and Compulsory Information / Briefing / Clarification Meetings

Compulsory Inspections / Meetings must only be held where the nature of the contract is such that it requires either an inspection of a site or a briefing session. The Bid Specification Committee should indicate to the Bid Office that such a compulsory inspection or briefing is regarded as a necessity.

2. Attendance Register

An attendance register of potential bidders and the firms they represent shall be kept and signed by attendees. A copy of such Attendance Register shall immediately after the inspection/briefing be sent to the Bid Office.

3. Confirmation Notes of Inspection/Briefing Sessions

Confirmation Notes of the Compulsory Inspection or Briefing Session shall be held by or on behalf of the contact person of the Department for whom the Bid is being advertised. A copy of the notes shall be sent to each firm that was represented at the inspection/meeting as soon as possible after the inspection or meeting and before the closing date of the bid. A copy of the notes shall also be sent to the Bid Office. The relevant Department will ensure that the notes are submitted to the Bid Evaluation Committee and to the Bid Adjudication Committee.

4. Bid Documents

The bid documentation shall clearly state that where the inspection of a site or the attendance of a briefing session is compulsory, non-attendance thereof will lead to the disqualification of the bidder in question. The bid documentation shall further clearly state that if bid documents are obtained after the compulsory briefing session or site inspection, it will only be made available to firms that were represented at the meeting. The mere fact that a firm that was not represented at a compulsory site inspection/meeting, but nevertheless submitted to the municipality a set of bidding documents, should not be construed as creating any expectations that a bid will be considered by the Municipality.

Contract No: DTS 19/2021/2022: UPGRADE OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.2.2 CERTIFICATE OF BIDDER'S ATTENDANCE AT THE COMPULSORY SITE/CLARIFICATION MEETING

This is to certify that I, **(NAME IN PRINT)**

representative of (Bidder)

.....

of (address)

.....

.....

Telephone number

Fax number

visited and inspected the Site / Attended Clarification Meeting on (date)

in the company of (Engineer/Engineer's Representative)

SIGNATURE OF BIDDER'S REPRESENTATIVE:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.2.3 PROOF OF REGISTRATION WITH CONSTRUCTION INDUSTRY DEVELOPMENT BOARD

The bidder is to affix to this page either:

- Written proof of his registration with the CIDB as a Category **6CE PE or higher**.

Note:

1. Failure to affix such documentation as prescribed to this page shall result in this bid not being further considered for the award of the contract.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF LEKWA LOCAL MUNICIPALITY

BID NUMBER:CLOSING DATE: CLOSING TIME:

DESCRIPTION.....

.....

The successful bidder will be required to fill in and sign a written Contract Form (MBD 7).

BID DOCUMENTS MAY BE POSTED TO:

**Lekwa Local Municipality
Tender Documents
PO Box 66
Standerton
2430**

OR

DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)

**Lekwa Municipality Main Building
Cnr Dr Beyers Naude and Mbonani Mayisela Streets
Standerton
2430**

Bidders should ensure that bids are delivered timeously to the correct address. If the bid is late, it will not be accepted for consideration.

The bid box is generally open on weekdays from 08h30 till 15h00.

ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS – (NOT TO BE RE-TYPED)

THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT

NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE (as defined in Regulation 1 of the Local Government: Municipal Supply Chain Management Regulations)

THE FOLLOWING PARTICULARS MUST BE FURNISHED

(FAILURE TO DO SO MAY RESULT IN YOUR BID BEING DISQUALIFIED)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

NAME OF
BIDDER.....

POSTAL
ADDRESS.....

STREET
ADDRESS.....

TELEPHONE NUMBER
CODE.....NUMBER.....

CELLPHONE
NUMBER.....

FACSIMILE NUMBER
CODE.....NUMBER.....

E-MAIL
ADDRESS.....

CENTRAL SUPPLIER DATABASE NUMBER(CSD)

VAT REGISTRATION
NUMBER.....

HAS AN ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE BEEN ATTACHED? (MBD 2) **YES/NO**

HAS AN ORIGINAL B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE BEEN SUBMITTED? (MBD 6.1)
YES/NO

IF YES, WHO WAS THE CERTIFICATE ISSUED BY?

AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA) ☐

A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM
(SANAS ☐

A REGISTERED AUDITOR ☐

(Tick applicable box)

(A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR
PREFERENCE POINTS FOR B-BBEE)

ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS
OFFERED? **YES/NO**

(IF YES ENCLOSE PROOF)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

SIGNATURE OF
BIDDER.....
DATE.....
CAPACITY UNDER WHICH THIS BID
ISSIGNED.....
TOTAL BID
PRICE.....
TOTAL NUMBER OF ITEMS
OFFERED.....

ANY ENQUIRIES REGARDING THE BIDDING PROCEDURE MAY BE DIRECTED TO:

Municipality :
Department:
Contact Person:
Tel:
Fax:

ANY ENQUIRIES REGARDING TECHNICAL INFORMATION MAY BE DIRECTED TO:

Contact Person:
Tel:
Fax:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

TAX CLEARANCE CERTIFICATE REQUIREMENTS

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

1. In order to meet this requirement bidders are required to supply their Central Data Base registration number.
2. On date of closing tax status will be referenced using the CSD number.
3. Should a potential successful bidder's tax status be non-compliant the bidder will be given seven(7) calendar days to get his status rectified at SARS. Failure to comply with a compliant status will lead to disqualification
4. In bids where Consortia / Joint Ventures / Sub-contractors are involved, each party needs to be tax compliant.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

**PRICING SCHEDULE – FIRM PRICES
(PURCHASES)**

NOTE: ONLY FIRM PRICES WILL BE ACCEPTED. NON-FIRM PRICES (INCLUDING PRICES SUBJECT TO RATES OF EXCHANGE VARIATIONS) WILL NOT BE CONSIDERED

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....	Bid Number.....
Closing Time	Closing Date

OFFER TO BE VALID FOR.....DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
-------------	----------	-------------	--

-
- Required by:
 - At:
 - Brand and Model
 - Country of Origin
 - Does the offer comply with the specification(s)? *YES/NO
 - If not to specification, indicate deviation(s)
 - Period required for delivery
*Delivery: Firm/Not firm
 - Delivery basis

Note: All delivery costs must be included in the bid price, for delivery at the prescribed destination.

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

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

**PRICING SCHEDULE – NON-FIRM PRICES
(PURCHASES)**

NOTE: PRICE ADJUSTMENTS WILL BE ALLOWED AT THE PERIODS AND TIMES SPECIFIED IN THE BIDDING DOCUMENTS.

IN CASES WHERE DIFFERENT DELIVERY POINTS INFLUENCE THE PRICING, A SEPARATE PRICING SCHEDULE MUST BE SUBMITTED FOR EACH DELIVERY POINT

Name of Bidder.....	Bid number.....
Closing Time	Closing Date

OFFER TO BE VALID FOR 90 DAYS FROM THE CLOSING DATE OF BID.

ITEM NO.	QUANTITY	DESCRIPTION	BID PRICE IN RSA CURRENCY **(ALL APPLICABLE TAXES INCLUDED)
-	Required by:		.....
-	At:		.....
-	Brand and model		.....
-			
-	Country of origin		.....
-	Does the offer comply with the specification(s)?		*YES/NO
-	If not to specification, indicate deviation(s)		.....
-	Period required for delivery		.....
-	Delivery:		*Firm/Not firm

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

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

PRICE ADJUSTMENTS

A NON-FIRM PRICES SUBJECT TO ESCALATION

1. IN CASES OF PERIOD CONTRACTS, NON FIRM PRICES WILL BE ADJUSTED (LOADED) WITH THE ASSESSED CONTRACT PRICE ADJUSTMENTS IMPLICIT IN NON FIRM PRICES WHEN CALCULATING THE COMPARATIVE PRICES
2. IN THIS CATEGORY PRICE ESCALATIONS WILL ONLY BE CONSIDERED IN TERMS OF THE FOLLOWING FORMULA:

$$Pa = (1 - V)Pt \left(D1 \frac{R1t}{R1o} + D2 \frac{R2t}{R2o} + D3 \frac{R3t}{R3o} + D4 \frac{R4t}{R4o} \right) + VPt$$

Where:

Pa	=	The new escalated price to be calculated.
(1-V) Pt	=	85% of the original bid price. Note that Pt must always be the original bid price and not an escalated price.
D1, D2..	=	Each factor of the bid price eg. labour, transport, clothing, footwear, etc. The total of the various factors D1,D2...etc. must add up to 100%.
R1t, R2t.....	=	Index figure obtained from new index (depends on the number of factors used).
R1o, R2o	=	Index figure at time of bidding.
VPt	=	15% of the original bid price. This portion of the bid price remains firm i.e. it is not subject to any price escalations.

3. The following index/indices must be used to calculate your bid price:

Index..... Dated..... Index..... Dated..... Index..... Dated.....
 Index..... Dated..... Index..... Dated..... Index..... Dated.....

4. FURNISH A BREAKDOWN OF YOUR PRICE IN TERMS OF ABOVE-MENTIONED FORMULA. THE TOTAL OF THE VARIOUS FACTORS MUST ADD UP TO 100%.

FACTOR (D1, D2 etc. eg. Labour, transport etc.)	P PERCENTAGE OF BID PRICE

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

B PRICES SUBJECT TO RATE OF EXCHANGE VARIATIONS

1. Please furnish full particulars of your financial institution, state the currencies used in the conversion of the prices of the items to South African currency, which portion of the price is subject to rate of exchange variations and the amounts remitted abroad.

PARTICULARS OF FINANCIAL INSTITUTION	ITEM NO	PRICE	CURRENCY	RATE	PORTION OF PRICE SUBJECT TO ROE	AMOUNT IN FOREIGN CURRENCY REMITTED ABROAD
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		
				ZAR=		

2. Adjustments for rate of exchange variations during the contract period will be calculated by using the average monthly exchange rates as issued by your commercial bank for the periods indicated hereunder: (Proof from bank required)

AVERAGE MONTHLY EXCHANGE RATES FOR THE PERIOD:	DATE DOCUMENTATION MUST BE SUBMITTED TO THIS OFFICE	DATE FROM WHICH NEW CALCULATED PRICES WILL BECOME EFFECTIVE	DATE UNTIL WHICH NEW CALCULATED PRICE WILL BE EFFECTIVE

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state¹, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes an advertised competitive bid, a limited bid, a proposal or written price quotation). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-

- the bidder is employed by the state; and/or
- the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.

2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**

2.1 Full Name of bidder or his or her representative:

2.2 Identity Number:

2.3 Position occupied in the Company (director, trustee, shareholder², member):
.....

2.4 Registration number of company, enterprise, close corporation, partnership agreement or trust:
.....

2.5 Tax Reference Number:

2.6 VAT Registration Number:

2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / PERSAL numbers must be indicated in paragraph 3 below.

¹"State" means –

- (a) Any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (b) Any municipality or municipal entity;
- (c) Provincial legislature;
- (d) National Assembly or the national Council of provinces; or
- (e) Parliament.

²"Shareholder" means a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercises control over the enterprise.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

2.7 Are you or any person connected with the bidder presently employed by the state? YES / NO

2.7.1 If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member:

Name of state institution at which you or the person connected to the bidder is employed:

Position occupied in the state institution:

Any other particulars:

.....

.....

.....

2.7.2 If you are presently employed by the state, did you obtain the appropriate authority to undertake remunerative work outside employment in the public sector? YES / NO

2.7.2.1 If yes, did you attach proof of such authority to the bid document? YES / NO

(Note: Failure to submit proof of such authority, where applicable, may result in the disqualification of the bid.)

2.7.2.2 If no, furnish reasons for non-submission of such proof:

.....

.....

.....

2.8 Did you or your spouse, or any of the company's directors / trustees / shareholders / members or their spouses conduct business with the state in the previous twelve months? YES / NO

2.8.1 If so, furnish particulars:

.....

.....

.....

2.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid? YES / NO

2.9.1 If so, furnish particulars.

.....

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

.....
.....

2.10 Are you, or any person connected with the bidder, **YES/NO**
aware of any relationship (family, friend, other) between
any other bidder and any person employed by the state
who may be involved with the evaluation and or adjudication
of this bid?

2.10.1 If so, furnish particulars.

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

2.11 Do you or any of the directors / trustees / shareholders / members **YES/NO**
of the company have any interest in any other related companies
whether or not they are bidding for this contract?

2.11.1 If so, furnish particulars:

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

3 Full details of directors / trustees / members / shareholders.

Full Name	Identity Number	Personal Income Tax Reference Number	State Employee Number / Persal Number

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

DECLARATION

I, THE UNDERSIGNED (NAME).....
CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT.

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....
Signature

.....
Date

.....
Position

.....
Name of bidder

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

DECLARATION FOR PROCUREMENT ABOVE R10 MILLION (ALL APPLICABLE TAXES INCLUDED)

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

1 Are you by law required to prepare annual financial statements for auditing?

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

***YES / NO**

.....

.....

2 Do you have any outstanding undisputed commitments for municipal services towards any municipality for more than three months or any other service provider in respect of which payment is overdue for more than 30 days?

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

***YES / NO**

2.2 If yes, provide particulars.

.....

.....

.....

.....

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

3 Has any contract been awarded to you by an organ of state during the past five years, including particulars of any material non-compliance or dispute concerning the execution of such contract?

***YES / NO**

3.1 If yes, furnish particulars

.....

.....

4. Will any portion of goods or services be sourced from outside the Republic, and, if so, what portion and whether any portion of payment from the municipality / municipal entity is expected to be transferred out of the Republic?

***YES / NO**

4.1 If yes, furnish particulars

.....

.....

CERTIFICATION

I, THE UNDERSIGNED (NAME)

CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE.

.....

Signature

.....

Date

.....

Position

.....

Name of Bidder

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

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

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017.

1. GENERAL CONDITIONS

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

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

1.2

- a) The value of this bid is estimated to exceed/not exceed R50 000 000 (all applicable taxes included) and therefore the preference point system shall be applicable; or
- b) Either the 80/20 or 90/10 preference point system will be applicable to this tender (*delete whichever is not applicable for this tender*).

1.3 Points for this bid shall be awarded for:

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

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

	POINTS
PRICE	
B-BBEE STATUS LEVEL OF CONTRIBUTOR	
Total points for Price and B-BBEE must not exceed	100

1.5 Failure on the part of a bidder to submit proof of B-BBEE Status level of contributor together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

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

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity 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;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“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;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
 - 1) B-BBEE Status level certificate issued by an authorized body or person;
 - 2) A sworn affidavit as prescribed by the B-BBEE Codes of Good Practice;
 - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business 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;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

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PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

3. POINTS AWARDED FOR PRICE

3.1 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 bid under consideration

P_t = Price of bid under consideration

$P_{\min}$ = Price of lowest acceptable bid

4. POINTS AWARDED FOR B-BBEE STATUS LEVEL OF CONTRIBUTOR

- 4.1 In terms of Regulation 6 (2) and 7 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5. BID DECLARATION

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

6. B-BBEE STATUS LEVEL OF CONTRIBUTOR CLAIMED IN TERMS OF PARAGRAPHS 1.4 AND 4.1

- 6.1 B-BBEE Status Level of Contributor: . . . =(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

7. SUB-CONTRACTING

7.1 Will any portion of the contract be sub-contracted?

(Tick applicable box)

YES		NO	
-----	--	----	--

7.1.1 If yes, indicate:

- i) What percentage of the contract will be subcontracted.....%
- ii) The name of the sub-contractor.....
- iii) The B-BBEE status level of the sub-contractor.....
- iv) Whether the sub-contractor is an EME or QSE

(Tick applicable box)

YES		NO	
-----	--	----	--

v) Specify, by ticking the appropriate box, if subcontracting with an enterprise in terms of Preferential Procurement Regulations, 2017:

Designated Group: An EME or QSE which is at least 51% owned by:	EME √	QSE √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
OR		
Any EME		
Any QSE		

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

8. **DECLARATION WITH REGARD TO COMPANY/FIRM**

8.1 Name of company/firm:.....

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

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

8.6 COMPANY CLASSIFICATION

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

[TICK APPLICABLE BOX]

8.7 **MUNICIPAL INFORMATION**

Municipality where business is situated:

Registered Account Number:

Stand Number:.....

8.8 Total number of years the company/firm has been in business:.....

8.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contributor indicated in paragraphs 1.4 and 6.1 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are

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PRESSURE TOWER

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INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

correct;

- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
- (a) disqualify the person from the bidding process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution.

WITNESSES

1.

2.

.....
SIGNATURE(S) OF BIDDERS(S)

DATE:

ADDRESS

.....

.....

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

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

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

1. General Conditions

- 1.1. Preferential Procurement Regulations, 2017 (Regulation 8) make provision for the promotion of local production and content.
- 1.2. Regulation 8.(2) prescribes that in the case of designated sectors, organs of state must advertise such tenders with the specific bidding condition that only locally produced or manufactured goods, with a stipulated minimum threshold for local production and content will be considered.
- 1.3. Where necessary, for tenders referred to in paragraph 1.2 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.
- 1.4. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.
- 1.5. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 2011 as follows:

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

Where

x is the imported content in Rand

y is the bid price in Rand excluding value added tax (VAT)

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

The SABS approved technical specification number SATS 1286:2011 is accessible on [http://www.thedti.gov.za/industrial development/ip.jsp](http://www.thedti.gov.za/industrial%20development/ip.jsp) at no cost.

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

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LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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

<u>Description of services, works or goods</u>	<u>Stipulated minimum threshold</u>
_____	_____ %
_____	_____ %
_____	_____ %

3. Does any portion of the goods or services offered have any imported content?
(Tick applicable box)

YES		NO	
-----	--	----	--

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

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

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

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

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

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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

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

IN RESPECT OF BID NO.

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

NB

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

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

- (a) The facts contained herein are within my own personal knowledge.
- (b) I have satisfied myself that:
 - (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

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PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

If the bid is for more than one product, the local content percentages for each product contained in Declaration C shall be used instead of the table above.

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 3.1 above and the information contained in Declaration D and E.

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

SIGNATURE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CONTRACT FORM-PURCHASE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to supply all or any of the goods and/or works described in the attached bidding documents to **LEKWA LOCAL MUNICIPALITY** in accordance with the requirements and specifications stipulated in bid number **DTS 19/2021/2022**, at the price/s quoted. My offer/s remains binding upon me and open for acceptance by the purchaser during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (i) Bidding documents, viz
 - Invitation to bid;
 - Valid tax Pin;
 - Pricing schedule(s);
 - Technical Specification(s);
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of bidder's past SCM practices;
 - Certificate of Independent Bid Determination
 - Special Conditions of Contract;
 - (ii) General Conditions of Contract; and
 - (iii) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

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PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2.

DATE:

CONTRACT FORM - PURCHASE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE PURCHASER)

1. I..... in my capacity as..... accept your bid under reference numberdated.....for the supply of goods/works indicated hereunder and/or further specified in the annexure(s).
2. An official order indicating delivery instructions is forthcoming.
3. I undertake to make payment for the goods/works delivered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice accompanied by the delivery note.

ITEM NO.	PRICE (ALL APPLICABLE TAXES INCLUDED)	BRAND	DELIVERY PERIOD	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

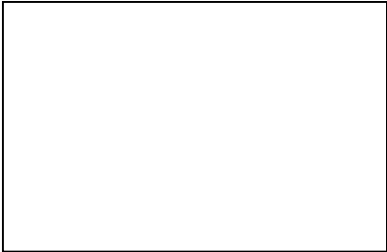
4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP



WITNESSES	
1.	..... .
2.	..... .

CONTRACT FORM - RENDERING OF SERVICES

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SERVICE PROVIDER (PART 1) AND THE PURCHASER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SERVICE PROVIDER AND THE PURCHASER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE SERVICE PROVIDER)

1. I hereby undertake to render services described in the attached bidding documents to LEKWA LOCAL MUNICIPALITY in accordance with the requirements and task directives / proposals specifications stipulated in Bid Number..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the Purchaser during the validity period indicated and calculated from the closing date of the bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (iv) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Filled in task directive/proposal;
 - Preference claims for Broad Based Black Economic Empowerment Status Level of Contribution in terms of the Preferential Procurement Regulations 2011;
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Certificate of Independent Bid Determination;
 - Special Conditions of Contract;
 - (v) General Conditions of Contract; and
 - (vi) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) and rate(s) quoted cover all the services specified in the bidding documents; that the price(s) and rate(s) cover all my obligations and I accept that any mistakes regarding price(s) and rate(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

6. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1

2

DATE:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CONTRACT FORM - RENDERING OF SERVICES

PART 2 (TO BE FILLED IN BY THE PURCHASER)

4. I..... in my capacity as Accounting Officer of LEKWA LOCAL MUNICIPALITY accept your bid under reference numberdated.....for the rendering of services indicated hereunder and/or further specified in the annexure(s).
5. An official order indicating service delivery instructions is forthcoming.
6. I undertake to make payment for the services rendered in accordance with the terms and conditions of the contract, within 30 (thirty) days after receipt of an invoice.

DESCRIPTION OF SERVICE	PRICE (ALL APPLICABLE TAXES INCLUDED)	COMPLETION DATE	B-BBEE STATUS LEVEL OF CONTRIBUTION	MINIMUM THRESHOLD FOR LOCAL PRODUCTION AND CONTENT (if applicable)

4. I confirm that I am duly authorised to sign this contract.

SIGNED AT ON

NAME (PRINT)

SIGNATURE.....

OFFICIAL STAMP

WITNESSES

1

2

DATE:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CONTRACT FORM - SALE OF GOODS/WORKS

THIS FORM MUST BE FILLED IN DUPLICATE BY BOTH THE SUCCESSFUL BIDDER (PART 1) AND THE SELLER (PART 2). BOTH FORMS MUST BE SIGNED IN THE ORIGINAL SO THAT THE SUCCESSFUL BIDDER AND THE SELLER WOULD BE IN POSSESSION OF ORIGINALLY SIGNED CONTRACTS FOR THEIR RESPECTIVE RECORDS.

PART 1 (TO BE FILLED IN BY THE BIDDER)

1. I hereby undertake to purchase all or any of the goods and/or works described in the attached bidding documents from (name of institution)..... in accordance with the requirements stipulated in (bid number)..... at the price/s quoted. My offer/s remain binding upon me and open for acceptance by the seller during the validity period indicated and calculated from the closing time of bid.
2. The following documents shall be deemed to form and be read and construed as part of this agreement:
 - (vii) Bidding documents, viz
 - Invitation to bid;
 - Tax clearance certificate;
 - Pricing schedule(s);
 - Declaration of interest;
 - Declaration of Bidder's past SCM practices;
 - Special Conditions of Contract;
 - (viii) General Conditions of Contract; and
 - (ix) Other (specify)
3. I confirm that I have satisfied myself as to the correctness and validity of my bid; that the price(s) quoted cover all the goods and/or works specified in the bidding documents; that the price(s) cover all my obligations and I accept that any mistakes regarding price(s) and calculations will be at my own risk.
4. I accept full responsibility for the proper execution and fulfilment of all obligations and conditions devolving on me under this agreement as the principal liable for the due fulfillment of this contract.
5. I undertake to make payment for the goods/works as specified in the bidding documents.
6. I declare that I have no participation in any collusive practices with any bidder or any other person regarding this or any other bid.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

7. I confirm that I am duly authorised to sign this contract.

NAME (PRINT)

CAPACITY

SIGNATURE

NAME OF FIRM

DATE

WITNESSES

1.....

2.....

DATE:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CONTRACT FORM - SALE OF GOODS/WORKS

PART 2 (TO BE FILLED IN BY THE SELLER)

1. I..... in my capacity as.....
accept your bid under reference numberdated.....for the purchase of goods/works indicated hereunder and/or further specified in the annexure(s).
2. I undertake to make the goods/works available in accordance with the terms and conditions of the contract.

ITEM NO.	DESCRIPTION	PRICE (ALL APPLICABLE TAXES INCLUDED)		

4. I confirm that I am duly authorized to sign this contract.

SIGNED ATON.....

NAME (PRINT)

SIGNATURE

OFFICIAL STAMP

WITNESSES

3.

4.

DATE

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

- 1 This Standard Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by institutions in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be disregarded if that bidder, or any of its directors have-
 - a. abused the institution's supply chain management system;
 - b. committed fraud or any other improper conduct in relation to such system; or
 - c. failed to perform on any previous contract.
- 4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the <i>audi alteram partem</i> rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website (www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME).....
CERTIFY THAT THE INFORMATION FURNISHED ON THIS DECLARATION FORM IS TRUE AND CORRECT.

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

.....
Signature

.....
Date

.....
Position

.....
Name of Bidder

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CERTIFICATE OF INDEPENDENT BID DETERMINATION

- 1 This Standard Bidding Document (SBD) must form part of all bids¹ invited.
- 2 Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
- 3 Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
 - a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
 - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.
- 4 This SBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
- 5 In order to give effect to the above, the attached Certificate of Bid Determination (SBD 9) must be completed and submitted with the bid:

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

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

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Institution)

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

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
 - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

- (a) prices;
- (b) geographical area where product or service will be rendered (market allocation)
- (c) methods, factors or formulas used to calculate prices;
- (d) the intention or decision to submit or not to submit, a bid;
- (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
- (f) bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

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

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

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

.....
Signature Date

.....
Position Name of Bidder

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

T2.3 RETURNABLE SCHEDULES THAT WILL BE INCORPORATED IN THE CONTRACT

CONTENTS

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Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.3.1

RECORD OF ADDENDA TO BID DOCUMENTS

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

	Date	Title or Details
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Attach additional pages if more space is required.

.....
Signature of Authorized person:

.....
Date:

Name:

Position:

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.3.2**CONDITIONS PERTAINING TO TARGETED PROCUREMENT**

- 2.3.2.1 PREAMBLE
- 2.3.2.2 DEFINITIONS
- 2.3.2.3 LEGISLATIVE BASE
- 2.3.2.4 SCOPE
- 2.3.2.5 PURPOSE
- 2.3.2.6 OBJECTIVES
- 2.3.2.7 GENERAL PRINCIPLES GOVERNING THE MUNICIPALITY IN ITS INTERACTION WITH BIDDERS
- 2.3.2.8 ADJUDICATION OF BIDS
- 2.3.2.9 ADJUDICATION USING A POINT SYSTEM
- 2.3.2.10 IMPLEMENTATION FRAMEWORK
- 2.3.2.11 COMPLAINTS/DISQUALIFICATIONS
- 2.3.2.12 DISQUALIFICATIONS
- 2.3.2.13 DATABASE ON LOCAL SMME
- 2.3.2.14 ADDENDUM: DEFINITION OF A SMALL BUSINESS, SPECIFICALLY AN SMME

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

BID DOCUMENT

2.3.2 CONDITIONS PERTAINING TO TARGETED PROCUREMENT

1. EVALUATION OF TENDERS

The quality criteria and maximum score in respect of each of the criteria are as follows:

COMPETENCE achievement schedules

Table A1: EXPERIENCE, REPUTATION AND REFERENCES

	TARGETED GOALS Name reference with contact details	TENDERED GOAL	POINTS Claimed by tenderer	ALLOCATED POINTS
1		5		
2		5		
3		5		
4		5		
	SUB-TOTAL: Reputation and References	20		

SCORING QUALITY FOR TABLE A1 ABOVE: (Maximum 20 Points)

Experience on previous contracts of a project with a similar scope and of similar value completed over last five years.

Reference details must be valid in order to ensure the gathering of relevant information. Experience must be on the Construction of Water infrastructures such as reservoir and water pressure towers.

The tenderer must submit a completion certificate for each project.

The tenderer must also obtain a letter of appointment.

Points shall be allocated to tenderers who submit both the completion certificate and the letter of appointment.

Points shall be awarded as follows below for each project completed with both document:

Combined construction value above R 30 million	5 points per project
Combined construction value less than and not more than R20 million	4 points per project
Combined construction value less than and not more than R10 million	3 points per project
Combined construction value less than and not more than R5 million	2 points per project
No similar work	0 points

Note: Where appointed project values received from tenderers for consideration exceed the value stated above, a maximum of 5 points shall be awarded per project. Tenderers who do not submit at least one project shall be disqualified and not considered for further evaluation. To score the full 20 points, a minimum of 4 projects must be included.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Table A2: Financial references

	TARGETED GOALS	TENDERED GOAL	POINTS Claimed by tenderer	ALLOCATED POINTS
1	Bank rating of "C" or better (proof attached)	4		
2	Proof of guarantee/letter of intent from a registered financial institution to the value of 10% of the offer shall be submitted	6		
	SUB-TOTAL: Financial references	10		

SCORING QUALITY FOR TABLE A2 ABOVE- (Maximum 10 Points)

Proof of Banking Details and Bank Rating Letter of "C" or better must be attached.

Proof of guarantee/letter of intent from a registered financial institution to the value of 10% of the offer shall be submitted.

Point Allocation:

Failure to Submit Details	Disqualification
Bank Rating of D, E or F	0 points
Bank Rating C or better	4 points
Proof of Guarantee/Letter of intent	6 points

A maximum of 10 points shall be allocated for Table A2.

Note: Bank rating and proof of guarantee must be attached. Tenderers who do not submit any of the above required documents shall be disqualified and shall not be considered further evaluation.

Table A3: SPECIFIC KNOWLEDGE

	TARGETED GOALS	TENDERED GOAL	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
1	Site agent trained in labour in intensive construction methods	4		
2	Contracts Manager	4		
3	Senior Foreman	4		
4	Quality control Officer	4		
5	Safety Officer	4		
	SUB-TOTAL: Specific Knowledge	20		

SCORING QUALITY FOR TABLE A3 ABOVE - (Maximum 20 Points)**Key Staff**

Site Agent – NQF 5 Qualification, National Diploma in Civil Engineering or Construction Management and a Labour Intensive Construction Certificate with a minimum of 15 years' relevant experience to score the maximum points in this category.

Contracts Manager – A BSc/BTech qualification or Higher, Civil Engineering or Construction Management and minimum 10 years' experience based on field of expertise under consideration to score the maximum points in this category.

Senior Foreman – NQF 4 Labour Intensive Construction, minimum 15 years' relevant experience to score the maximum points in this category.

Quality Control Officer – N Dip Civil Engineering, minimum 10 years' experience to score the maximum points in this category.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Safety Officer – Safety Management Training Course (SAMTRAC) and registration with SACPCMP minimum 5 years or more relevant experience to score the maximum points in this category.

Point Allocation:

Personnel	15 Years' Experience or more	More than 10 Years', Less than 15 Years' Experience	More than 5 Years', Less than 10 Years' Experience	Less than 5 Years' Experience but more than 2	Less than 2 Years' Experience
Site Agent	4	4	3	2	0
Contracts' Manager	4	4	3	2	0
Senior Foreman	4	2	1	0	0
Quality Control Officer	4	4	2	0	0
Safety Officer	4	4	4	2	0

Note: CV's and certified copies of qualifications must be attached in order to qualify for points Where CVs are attached with no certified copies of qualifications, no point will be awarded. A maximum of 4 points will be awarded for each relevant personnel and a maximum of 20 points can be awarded in this category.

table A4: PLANT AND EQUIPMENT

	TARGETED GOALS	TENDERED GOAL	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
1	1 TLB	2		
2	1 Tipper Trucks	2		
3	1 Compactor	3		
5	1 Excavator	3		
	Sub-Total	10		

SCORING QUALITY FOR TABLE A4 ABOVE - (Maximum 10 Points)

Points are allocated for the availability of required plant and equipment for the project (proof of ownership to be attached or letter of intent from a hiring company must be attached). There will be no pro-rated points allocated for this section.

Where letters of intent from a hiring company are attached, they should not be:

Letters obtained prior to tender advertisement.

Letters should not be dated older than 1 month prior to closing of tender.

The letter should be signed and dated with the company stamp

Note: No points shall be allocated for unsigned letters which do not fulfil the above requirements.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Table A5: PROJECT EXECUTION PLAN

	TARGETED GOALS	TENDERED GOAL	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
1	Method Statement	4		
2	Organogram	4		
3	Health and Safety Plan	4		
4	Storm water Management Plan	4		
5	Programme of Works	4		
	Sub-Total	20		

SCORING QUALITY FOR TABLE A5 ABOVE - (Maximum 20 Points)

Points are allocated for the Methodology, Organogram, Health and Safety Plan, Stormwater Management Plan and Programme respectively.

Points will be allocated for each document listed in table below:

Excellent	The method statement, organogram, stormwater management report, health and safety plan and programme are specifically tailored for the project objectives and requirements, and deals in detail with the critical construction aspects	4 points
Good	The method statement, organogram, stormwater management report, health and safety plan and programme are generally tailored for the project objectives and requirements, and deals with the construction aspects	3 points
Satisfactory	The method statement, organogram, stormwater management report, health and safety plan and programme are generic and has been tailored to meet the project objectives and requirements without dealing with construction aspects	2 points
Poor	The method statement, organogram, stormwater management report, health and safety plan and programme are poor and does not adequately identify / satisfy project objectives or requirements. The tenderer has misunderstood the scope of work and did not deal with construction aspects	1 points
No submission	The tenderer does not submit the Project Execution Plan	0 points

Note: The Project Engineer will evaluate each of these submitted document and shall determine the quality based on the scoring criteria above. A maximum of 20 points will be awarded in this category.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

table A6: QUALITY ASSURANCE AND CONTROL PLAN

	TARGETED GOALS	TENDERED GOAL	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
1	Quality Plan Report	10		
	Sub-Total	10		

SCORING QUALITY FOR TABLE A6 ABOVE - (Maximum 10 Points)

Points are allocated as below:

Excellent	The quality assurance and control plan is specifically tailored for the project objectives and requirements, and deals in detail with the critical construction aspects	10 points
Good	The quality assurance and control plan is generally tailored for the project objectives and requirements, and deals with the construction aspects	8 points
Satisfactory	The quality assurance and control plan is generic and has been tailored to meet the project objectives and requirements without dealing with construction aspects	6 points
Poor	The quality assurance and control plan is poor and does not adequately identify / satisfy project objectives or requirements. The tenderer has misunderstood the scope of work and did not deal with construction aspects	2 points
No submission	The tenderer does not submit the quality control plan	0 points

Note: The Project Engineer shall evaluate the submitted document and shall determine the quality based on the scoring criteria above. A maximum of 10 points will be awarded in this category.

Table A7: QUALITY MANAGEMENT SYSTEM

	TARGETED GOALS	TENDERED GOAL	POINTS CLAIMED BY TENDERER	ALLOCATED POINTS
1	Quality Management Report	10		
	Sub-Total	10		

SCORING QUALITY FOR TABLE A7 ABOVE - (Maximum 10 Points)

Points are allocated as below:

Excellent	The tenderer has submitted an ISO 9001 Accredited Quality Management System document.	10 points
Satisfactory	The tenderer has submitted a generic internal Quality Management Document which is not ISO Accredited.	6 points
No submission	The tenderer does not submit the Quality Management System document.	0 points

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PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Note: The Project Engineer will evaluate the submitted document and shall determine the quality based on the scoring criteria above. A maximum of 10 points will be awarded in this category.

Table A8: FUNCTIONALITY AND QUALITY SCORING TOTALS

Scoring as per Tables A1 to A7 above.		Maximum Points to be Allocated	Points Claimed by Tenderer	Allocated Points
Functionality and Quality	Table A1	20		
	Table A2	10		
	Table A3	20		
	Table A4	10		
	Table A5	20		
	Table A6	10		
	Table A7	10		
	Sub Total	100		

The minimum number of evaluation points for quality is 70 points. Tenderers who score less than 70 points in this category will be deemed as non-responsive.

To all those who achieve the 20 points minimum threshold will qualify for 80/20 scoring system.

		POINTS
8.10	PRICE	80
8.11	B-BBEE STATUS LEVEL OF CONTRIBUTION	20
Total points for Price and B-BBEE must not exceed		100
8.12	Failure on the part of a bidder to submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.	
8.13	The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.	

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

9. POINTS AWARDED FOR PRICE

9.1 THE 80/20 PREFERENCE POINT SYSTEMS

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

80/20

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

Where

P_s = Points scored for comparative price of bid under consideration

P_t = Comparative price of bid under consideration

$P_{\min}$ = Comparative price of lowest acceptable bid

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

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

Supply Chain Policy Using 80/20 Preference point system

B-BBEE Status Level of Contributor	Number of points (80/20 system)
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

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PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

In the event of a Joint Venture (JV) Tender:

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

PLEASE REMEMBER:

- **TO ATTACH A VALID SARS PIN**
- **IN CASE OF A JOINT VENTURE, THE VALID SARS PIN OF EACH PARTNER, THIS MUST BE SUBMITTED WITH THE BID DOCUMENT**

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

FORM 2.3.3 GENERAL INFORMATION

1. Name of bidding entity:

2. Contact details

Contact name and number:

Address of bidding entity:

Postal code:

Tel no: ()

Fax no: ()

E-mail address:

3. Legal entity: Mark with an X.

Sole proprietor	
Partnership	
Close corporation	
Company (Pty) Ltd	
Joint venture	

In the case of a Joint venture, provide details on joint venture members:

Joint venture member	Type of entity (as defined above)

4. Income tax reference number:

(In the case of a joint venture, provide for all joint venture members)

5. VAT registration number:

(In the case of a joint venture, provide for all joint venture members)

6. Company or closed corporation registration number:

(In the case of a joint venture, provide for all joint venture members)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

7. Construction Industry Development Board (CIDB) registration number-----
8. Details of proprietor, partners, closed corporation members, or company directors, indicating technical qualifications where applicable (Form on the next page).
9. For joint ventures the following must be attached:
- Written authority **of each JV partner**, for authorized signatory.
 - Written authority to be on the Letterhead of the created Joint Venture
 - The joint venture agreement.
 - The major partner to satisfy at least 40 percent of the turnover and credit amount criteria, and each other partner at least 25 percent of the criteria.

SIGNATURE OF AUTHORIZED PERSON :

DATE :

DETAILS OF PROPRIETOR, PARTNERS, CLOSED CORPORATION MEMBERS OR COMPANY DIRECTORS

.1.1.1 Name and Identity Number	.1.1.2 Relevant qualifications and experience	Years of relevant experience

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOR
PRESSURE TOWER

BIDDER

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INITIAL: LLM

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WITNESS:

FORM 2.3.4 SPECIFIC GOALS

1 Equity Ownership

List all partners, shareholders or members of bidding entity by name, identity number, citizenship, HDI status and ownership.

In the case of a JV, complete an Equity ownership for each JV member.

Name and Surname	Position Occupied in Enterprise	Identity Number	Citizenship	HDI Status (Yes/No)	Date of Ownership	% Owned by HDIs	% Owned by Women	% Owned by Disabled
Total						A	B	C

Note: Where owners are themselves a company or partnership, identify the ownership of the holding firm.

In the case of joint ventures equity ownership for each of the JV members are determined as above, and the combined HDI ownership is then calculated as follows:

Joint venture members	a % Contribution to the JV	b % HDI ownership	c = a * b ÷ 100 % HDI contribution
Total HDI contribution			

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

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WITNESS:

A COPY OF A VALID SIGNED JOINT VENTURE AGREEMENT MUST BE ATTACHED TO THE BID DOCUMENT. FAILURE TO COMPLY WITH ABOVE-MENTIONED WILL RESULT IN REJECTION OF THIS BID
NOTE: See table in paragraph 2.3.3.10 for specific goals and points to be awarded.

2 SMME Status

Provide details on the following (Refer to attached table):

Sector / Sub-Sector in which located: _____

Total Full-Time Equivalent of paid Employees: _____

Total Annual Turnover: _____

Total Gross Asset Value: _____

Size or Class (Medium, Small, Very Small, Micro): _____

Note: If all of the above does not adhere to the definition of a single class, use the Total Annual Turnover only to decide on the class.

3 Local Content (Defined as LEKWA LOCAL MUNICIPALITY)

10% of the goods or services of the bid will have local content?

Description	a % of bid value	b % Local content	c = a x b ÷ 100 Total % local content
Management and other			
Materials, goods			
Plant and equipment			
Staff, labour			
Total	100 %		%

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

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INITIAL: LLM

2.....

WITNESS:

5 JOB CREATION

Provide details on the jobs that you envisage to create through this project:

- A. New permanent employed staff, employed outside the staff component declared in Forms 2.3.1 & 2.3.4 to be allocated to this project for the intensification of labour absorption, (i.e. 5 persons for 5 months = 25 person-months).
- B. Number of person-months of work to be created (i.e. 5 persons for 5 months = 25 person-months)

Description	A	B	C
	No. of persons	Period in months	No. of person months created
A. New permanent employed staff, employed outside the staff component declared in Forms 2.3.1 & 2.3.4			$A \times B = C$
B. Staff to be employed for the project (Temporary employed)			
Total			

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

BIDDER

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INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

THE CONTRACT

PART C1 AGREEMENT AND CONTRACT DATA

PART C2 PRICING DATA

PART C3 SCOPE OF WORKS

PART C4 SITE INFORMATION

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

PART C1 AGREEMENT AND CONTRACT DATA

C1.1 FORM OF OFFER AND ACCEPTANCE

C1.2 CONTRACT DATA

C1.3 FORM OF GUARANTEE

C1.4 AGREEMENT IN TERMS OF THE OCCUPATIONAL HEALTH
AND SAFETY ACT, 1993 (ACT NO 85 OF 1993)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C1.1 FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE

(AGREEMENT)

OFFER

The Employer, identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works: **UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER**

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

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

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

rand (in words);

R

(in figures),

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

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

FOR THE BIDDER:

Signature(s)

Name(s)

Capacity

(Name and address of organisation)

Name and signature of Witness

Date

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

ACCEPTANCE

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

The terms of the contract, are contained in

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

Part C2 Pricing Data

Part C3 Scope of Work

Part C4 Site Information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts C1 to C4 above.

Deviations from and amendments to the documents listed in the Bid Data and any addenda thereto listed in the Bid Schedules as well as any changes to the terms of the Offer agreed by the Bidder and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Bidder shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contract Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the, Conditions of Contract identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Bidder receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Bidder (now 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.

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

FOR THE CLIENT:

Signature(s)

Name(s)

Capacity

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY
(Name and address of organisation)

Name and signature of witness _____

Date _____

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the bid documents issued by the Employer prior to the bid closing date is limited to those permitted in terms of the Conditions of Bid.
2. A Bidder'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 bid documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here.
4. Any change or addition to the bid 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 _____
- 6 **Subject** _____
 Details _____

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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

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

FOR THE BIDDER:

Signature(s) _____

Name(s) _____

Capacity _____

(Name and address of organisation)

Name and signature of witness

_____ Date _____

FOR THE EMPLOYER:

Signature(s) _____

Name(s) _____

Capacity _____

LEKWA LOCAL MUNICIPALITY
(Name and address of organisation)

Name and signature of witness

_____ Date _____

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C1.2 CONTRACT DATA

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works (2015) 3rd Edition, published by the South African Institution of Civil Engineering, is applicable to this Contract and is incorporated herein by reference.

Copies of these Conditions of Contract may be obtained from the South African Institution of Civil Engineering, Tel. No. (011) 805-5947/48/53.

PART 1: DATA PROVIDED BY THE EMPLOYER

The following contract specific data are applicable to this Contract:

Clause	
1.1.1.15 1.2.1.2	The Employer is the LEKWA LOCAL MUNICIPALITY The Employer's address for receipt of communications is: Physical address: LEKWA LOCAL MUNICIPALITY Cnr Beyers Naude & Mbonani Mayisela Street Standerton 2430 Telephone: (017) 712 9600 Postal address: PO Box 66 Standerton 2430
	The Engineer is TMS Consulting Engineers. The Engineer's address for receipt of communications is: Physical (street address) address: 39A Ehmke Street Nelspruit, 1200 Telephone: 013 752 8478 Fax: 013 752 2903 E-mail: info@tmsconsulting.co.za Postal address: PO Box 603 Nelspruit 1200
1.1.1.12 5.1.1	Special non-working days are Sundays and the following statutory public holidays as declared by National or Regional Government: New Year's Day, Human Rights Day, Good Friday, Family Day, Freedom Day, Workers day, Youth Day, National Women's Day, Heritage Day, Day of Reconciliation, Christmas Day and the Day of Goodwill including the annual year-end shutdown periods as recommended by the South African Federation of Civil Engineering Contractors, and which commence before the Completion Date.
5.12.2.2	Extension of time due to abnormal rainfall will be determined in accordance with the principles as set out in item B1215 to the Scope of Works: Extension of time due to abnormal rainfall.
5.13.1	The penalty for failing to complete the works is R 5 000 per calendar day .
3.1.3	The Engineer is required in terms of his appointment with the Employer to obtain the following specific approvals from the Employer: - Certify additional costs/expenditure - Taking over of the Works - Determining extension of Time for Completion

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Clause																
5.3.1	The Contractor shall commence executing the Works within twenty-eight (28) days of the Commencement Date or immediately after such time as the Documents Required Before Commencement have been approved and the initial requirements have been complied with.															
	The documents required before commencement are the following: a) Contractor's health and safety plan (Clause 4.3), b) Programme of Works (Clause 5.6), c) Security (Clause 6.2), and d) Insurance (Clause 8.6)															
5.3.2	The documents required before commencement are to be delivered within 14 (Fourteen) days after the Commencement Date															
6.2	The Performance Guarantee must substantially contain the wording of the document included as "Performance Guarantee" – See Form C1.3.															
6.2	The liability of the Guarantor shall be in accordance with paragraph 21 (1)(f) of the LLM's Supply Chain Management Policy, which reads as follows: (f) where surety is required it shall be in the form of cash, a certified cheque, or a bank guarantee from a banking institution registered in terms of the Banks Act, 1990 (Act No. 94 of 1990) or from an insurer registered in terms of the Insurance Act, 1943 (Act No. 27 of 1943). Where bidders in Category A cannot raise the required surety of 2,5%, and it is feasible to deduct the amount from the first payment certificate, such concessions may be granted; Guarantees will be required as follows: <table><tr><th>CATEGORY</th><th>PROJECT VALUE</th><th>GUARANTEE</th></tr><tr><td>A</td><td>< R500 000</td><td>2,5%</td></tr><tr><td>B</td><td>R500 001 – R1 000 000</td><td>5%</td></tr><tr><td>C</td><td>R1 000 001 – R2 000 000</td><td>7,5%</td></tr><tr><td>D</td><td>>R2 000 000</td><td>10%</td></tr></table>	CATEGORY	PROJECT VALUE	GUARANTEE	A	< R500 000	2,5%	B	R500 001 – R1 000 000	5%	C	R1 000 001 – R2 000 000	7,5%	D	>R2 000 000	10%
CATEGORY	PROJECT VALUE	GUARANTEE														
A	< R500 000	2,5%														
B	R500 001 – R1 000 000	5%														
C	R1 000 001 – R2 000 000	7,5%														
D	>R2 000 000	10%														
8.6.1.1.2	The amount stated in the Contract Data to cover the value of Plant and materials supplied by the Employer for incorporation in the works and not included in the Contract Price to be included in the insurance sum is R 0.00															
8.6.1.1.3	The amount stated in the Contract Data to cover professional fees, not included in the Contract Price, payable in respect of the repair or reinstatement of damage to the Works or said movables to be included in the insurance sum is R 0.00															
8.6.1.2	A Coupon Policy for Special Risks is to be issued. (To be approved by the Employer's Claims Management Services Provider)															
8.6.1.3	The limit of the liability insurance is R5 000 000,00 for any single claim – the number of claims to be unlimited during the construction and Defects Liability period. (To be approved by the Employer's Claims Management Services Provider)															
8.6.1.5	The following additional and varied insurances are required: Not applicable															
6.5.1.2.3	The percentage allowances to cover all charges for the Contractor's and subcontractor's profits, timekeeping, clerical work, insurance, establishment, superintendence and the use of hand tools is 10%															
5.5.1	The whole of the Works shall be completed within 12 Months with effect from date of appointment															
5.13.1	The penalty for failing to complete the Works is R 5 000,00 per day or part thereof, beyond the stated completion date, for each individual work order or instruction															
6.8.2	Contract Price Adjustment Is not applicable.															
6.8.3	The following are special materials:															

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

Clause	
	NIL The basis for price adjustment for special materials is as follows: Not applicable
6.10.1.5	The percentage advance on materials not yet built into the Permanent Works but delivered on-site is eighty percent (80%)
6.10.3	The percentage retention on the amounts due to the Contractor is 10%. Retention Money guarantee is not permitted.
7.8	The Defects Liability Period is twelve (12) calendar months per work completed.
10.3	Disputes are to be settled in terms of the SCM Policy, which reads as follows: Resolution of disputes, objections, complaints and queries (1) The accounting officer must appoint an independent and impartial person, not directly involved in the supply chain management processes – (a) to assist in the resolution of disputes between the municipality and other persons regarding - (i) any decisions or actions taken in the implementation of the supply chain management system; or (ii) any matter arising from a contract awarded in the course of the supply chain management system; or (b) to deal with objections, complaints or queries regarding any such decisions or actions or any matters arising from such contract. (2) The accounting officer, or another official designated by the accounting officer, is responsible for assisting the appointed person to perform his or her functions effectively. (3) The person appointed must – (a) strive to resolve promptly all disputes, objections, complaints or queries received; and (b) submit monthly reports to the accounting officer on all disputes, objections, complaints or queries received, attended to or resolved. (4) A dispute, objection, complaint or query may be referred to the relevant provincial treasury if – (a) the dispute, objection, complaint or query is not resolved within 60 days; or (b) no response is forthcoming within 60 days. (5) If the provincial treasury does not or cannot resolve the matter, the dispute, objection, complaint or query may be referred to the National Treasury for resolution. (6) This paragraph must not be read as affecting a person's rights to approach a court at any time
10.3	Disputes are to be settled in terms of paragraph 50 of the SCM Policy, as set out above, under 58.2.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

PART 2: DATA PROVIDED BY THE CONTRACTOR

Clause	
1(1)(h) 1(2)	The Contractor is The Contractor's address for receipt of communications is: Physical address: Postal address: Telephone: Fax: E-mail:.....
1(1)(m)	The time for completing the works is days
37(2)(b)	The percentage allowances to cover all charges for the Contractor's and subcontractor's profits, timekeeping, clerical work, insurance, establishment, superintendence and the use of hand tools is%
46(3)	The rate for special materials, exclusive of value-added tax (VAT) are:

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C1.3 FORM OF GUARANTEE

PRO FORMA

PERFORMANCE GUARANTEE

For use with the General Condition for Contract for Construction Works, Third Edition, 2015

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:

Physical address:

"Employer" means:

"Contractor" means:

"Engineer" 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:
.....

"Expiry Date" means:
.....

.2 CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate Completion of the Works as defined in the Contract.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

.3 PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer 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. The Guarantor hereby acknowledges that:
 - 3.1 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;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment money.
4. Subject to the Guarantor's maximum liability refer to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 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 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 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:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 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 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.
7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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 Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor
9. Payment by the Guarantor in terms of 5 will only be made against the return of original Performance Guarantee by Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem 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.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's 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.

Signed at.....

Date.....

Guarantor's signatory (1).....

Capacity.....

Guarantor's signatory (2).....

Capacity.....

Witness signatory (1).....

Witness signatory (2).....

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

PRO FORMA

ADJUDICATION BOARD MEMBER AGREEMENT

Please note that words in italics within brackets are items which should be stated.

This Agreement is entered into between:

Adjudication Board Member: *(Name, physical address, postal address, e-mail address, fax number, telephone number and mobile number)*.

Contractor: *(Name, physical address, postal address, e-mail address, fax number, telephone number and mobile number)*.

Employer: *(Name, physical address, postal address, e-mail address, fax number, telephone number and mobile number)*.

The Contractor and the Employer will hereinafter be collectively referred to as the Parties.

The Parties entered into a Contract for *(name of project)* which provides that a dispute under or in connection with the General Conditions of Contract for Construction Works, Third Edition, 2015, must be referred to *(ad-hoc adjudication/standing adjudication)*.

The undersigned natural person has been appointed to serve as Adjudication Board Member and together with the undersigned Parties agree as follows:

1. The Adjudication Board Member accepts to perform his duties in accordance with the terms of the Contract, the General Conditions of Contract for Construction Works Adjudication Board Rules and this Agreement.
2. The Adjudicator undertakes to remain independent and impartial of the Contractor, Employer and Engineer for the duration of the Adjudication Board proceedings.
3. The Adjudication Board Member agrees to serve for the duration of the Adjudication Board proceedings.
4. The Parties may at any time, without cause and with immediate effect, jointly terminate this Agreement.
5. Unless the Parties agree, the Adjudication Board Member shall not act as arbitrator or representative of either Party in any subsequent proceedings between the Parties under the Contract. No Party may call the Adjudication Board Member as a witness in any such subsequent proceedings.
6. The standing Adjudication Board's duties shall end upon the Adjudication Board Member(s) receiving notice from the Parties of their joint decision to disband the Adjudication Board.

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BIDDER

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INITIAL: LLM

2.....

WITNESS:

7. The Adjudication Board Member shall be paid in respect of time spent upon or in connection with the adjudication including time spent traveling :

- a. A monthly retainer of *(amount)* for *(number)* of months, and/or
- b. A daily fee of *(amount)* based on a *(number)* hour day, and/or
- c. A hourly fee of *(amount)*, and/or
- d. A non-recurrent appointment fee of *(amount)* which shall be accounted for in the final sums payable.

8. The Adjudication Board Member's expenses incurred in adjudication work shall be reimbursed at cost.

Upon submission of an invoice for fees and expenses to the Parties, the *(Contractor/Employer*)* shall pay the full amount within 28 days of receipt of the invoice and he shall be reimbursed by the other party by half the amount so that the fees and expenses are borne equally by the Parties. Late payment of such invoice shall attract interest at prime plus 3 % points compounded monthly at the prime rate charged by the Adjudication Board Member's bank.

This Agreement is entered into by:

Contractor's signature: _____

Contractor's name: _____

Place: _____

Date: _____

Employer's signature : _____

Employer's name: _____

Place: _____

Date: _____

Adjudication Board Member's signature: _____

Adjudication Board Member's name: _____

Place: _____

Date: _____

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C1.4 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 **THE LEKWA LOCAL MUNICIPALITY** (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 **CONTRACT NO.DTS 19/2021/2022
UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF
KIESER RESERVOIR AND PRESSURE TOWER**

and has accepted a Bid 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 Engineer 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 of the General Conditions of Contract (hereinafter referred to as "the GCC"),
 - (b) the date of termination of the Contract in terms of Clauses 9.1, 9.2 or 9.3 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 mandataries, and
 - (iv) Subsection 37(2) relating to the purpose and meaning of this Agreement.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

- (b) The procedures and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.
- 4 In addition to the requirements of Clause 8.4 of the GCC and all relevant requirements of the above-mentioned Volume 3, 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

NAME 1
(IN CAPITALS)

SIGNED FOR AND ON BEHALF OF THE MANDATORY:

WITNESS 1

NAME 1
(IN CAPITALS)

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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

NAME 1
(IN CAPITALS)

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

PART C2 PRICING DATA

C2.1 PRICING INSTRUCTIONS

C2.2 BILL OF QUANTITY

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

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 Bidder 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 Engineer 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 Project Specifications. 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 Quantities ¹. 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 Bid is based.
- 6 The quantities set out in the schedule of quantities are only approximate quantities. The quantities of work finally accepted and certified for payment, and not the quantities given in the schedule of quantities, will be used to determine payments to the contractor.
- 7 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 Bidder 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 bidden rates shall apply should work under these items actually be required. Should the Bidder group a number of items together and bid one sum for such group of items, the single bidden sum shall apply to that group of items and not to each individual item, or should he indicate against any item

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INITIAL: LLM

2.....

WITNESS:

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 bid 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.

- 8 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.

- 9 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
Quantity	:	The number of units of work for each item
Rate	:	The payment per unit of work at which the Bidder bids to do the work
Amount	:	The quantity of an item multiplied by the bid rate of the (same) item
Sum	:	An amount bid 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

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

mm	=	millimetre
m	=	metre
km	=	kilometre
km-pass	=	kilometre-pass
m ²	=	square metre
m ² -pass	=	square metre-pass
ha	=	hectare
m ³	=	cubic metre
m ³ -km	=	cubic metre-kilometre
kW	=	kilowatt
kN	=	kilonewton
kg	=	kilogram
t	=	ton (1 000 kg)
%	=	per cent
MN	=	meganewton
MN-m	=	meganewton-metre
PC Sum	=	Prime Cost Sum
Prov Sum	=	Provisional Sum

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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

NB: PLEASE STATE THE FOLLOWING:

- ARE/IS BID PRICE/S FIRM:

YES	NO
-----	----

- IF THE BID PRICE(S) ARE NOT FIRM, SUPPLY THE INFORMATION REGARDING ESCALATION APPLICABLE TO THIS BID:

.....

.....

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C2.2 BILL OF QUANTITIES

The pricing schedule below should relate to the Programme of Works as submitted by the service provider and should address all the items and activities as detailed in this document to cover the full scope of works

SUMMARY OF SCHEDULE OF QUANTITIES		
SECTION A	GENERAL	R
SECTION B	SITE CLEARANCE AND DEMOLITIONS. . . .	R
SECTION C	BULK EARTWORKS.	R
SECTION D	PIPEWORKS.	R
SECTION E	0.3ML STEEL ELEVATED TANKS.	R
SECTION F	5.0ML RC SERVICE RESERVOIR.	R
SECTION G	PUMPING.	R
SECTION H	ELECTRICAL WORKS.	R
SECTION I	FENCING.	R
SECTION J	DAYWORKS.	R
TOTAL OF SCHEDULE OF QUANTITIES		R
CALCULATION OF TENDER SUM		
TOTAL OF SCHEDULE OF QUANTITIES		R
CONTINGENCIES		
The Sum provided here is under the sole control of the Engineer and may be deducted 10% of the schedule of quantity		R
SUBTOTAL A		R
VALUE-ADDED TAX (VAT)		
The tenderer shall add 15% of the subtotal for value-added tax		R
TENDER SUM CARRIED TO FORM OF TENDER		R

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BIDDER

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INITIAL: LLM

2.....

WITNESS:

C2.3 ANNEXURE A: BILL OF QUANTITIES

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
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BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

LEKWA LOCAL MUNICIPALITY

DEPARTMENT NAME: TECHNICAL SERVICES

CONTRACT NO: DTS 19/2021/2022

FOR

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

PART C3 SCOPE OF WORKS

CONTENTS

C3.1 DESCRIPTION OF WORKS

C3.1.1 Employer's objectives

C3.1.2 Overview of the Works

C3.1.3 Extent of Works

C3.1.4 Location of the Works

C3.1.5 Temporary Works

C3.2 ENGINEERING

C3.2.1 Design

C3.2.2 Employer's Design

C3.2.3 Contractor's Design

C3.2.4 Drawings

C3.2.5 Design procedure

C3.3 PROCUREMENT

C3.3.1 Preferential Procurement

C3.3.2 Subcontracting

C3.4 CONSTRUCTION

C3.4.1 Works specifications

C3.4.2 Site establishment

C3.4.3 Plant & Materials

C3.4.4 Construction equipment

C3.4.5 Existing services

C3.4.6 Variations and additions to COLTO Standard Specification for Road and Bridge Works for State Road Authorities
Standardized Specifications Standardized specifications and particular specifications

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INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C3.5 MANAGEMENT OF THE WORKS

C3.5.1 Generic Specification

C3.6 HEALTH AND SAFETY

C3.6.1 Health and Safety requirements and procedures

C3.6.2 Protection of the Public

C3.6.3 Barricades and lighting

C3.6.4 Traffic control on roads

C3.6.5 Measures against disease and epidemics

C3.6.6 Aids awareness

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INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

STATUS

In the event of any discrepancy between the Scope of Works and a part or parts of the SABS 1200 Standardized Specifications, the Bill of Quantities or the Drawings, the Project Specifications shall take precedence and prevail in the Contract.

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 EMPLOYER'S OBJECTIVES

This contract covers the supply of all material, labour, plant, equipment for construction of 5MI RC reservoir and 300kl elevated steel tank.

The employer's objectives are to deliver public infrastructure using labour-intensive methods and subcontractors where possible. The project will be executed using both conventional construction methods as well as labour based methods. This is as per the program of the National Department of Public Works the Special Public Works Programme (SPWP) as the guidelines of the Expanded Public Works Programme (EPWP).

Labour-intensive works comprise the activities described in SANS 1921-5/Earthworks activities which are to be performed by hand/Labour-Intensive Specification ⁽¹⁾ and its associated specification data. Such works shall be constructed using local workers who are temporarily employed in terms of this scope of work.

C3.1.2 OVERVIEW OF THE WORKS

The project entails of construction of 1 x 5MI reinforced concrete reservoir, 1 x 300kl elevated steel tank on 10.0m height steel stand and repair of the existing reservoirs.

The main categories that will be dealt with include;

- Earthworks platform for the 5MI RC reservoir and tank stand for the 300kl steel reservoir
- Pipework including bends, tees and other specials.
- Valves and valve chambers.
- Pipe trenches excavation and backfilling.

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LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C3.1.3-EXTENT OF WORKS

The Works to be carried out by the Contractor under this Contract comprise mainly the following:

a. Site Clearance

- Clearing site of trees, grass and top soils.

b. Pipeworks

- Supply and installation of water pipelines from 75mm diameter to 315mm diameter pipes, HDPE and Galvanised steel pipe material
- Construction of concrete open channels and surface water outlets.

c. 0.3ML Elevated Steel Tank

- Supply and install 0.3ML elevated steel tank and 10m high galvanised steel stand including all components,
- Supply and installation of the inlet pipe, outlet pipe and scour valve,
- Construction of tank foundation and steel support structures,
- Provide lighting protection and water tightness test and sterilization of the tank.

d. 5.0ML Reinforced Concrete Service Reservoir

- Construction of 5.0ML RC service reservoir, including the cover and foundation,
- Supply and installation of the inlet pipe, outlet pipe and scour valve,
- Provide lighting protection and water tightness test and sterilization of the tank.

e. Rehabilitation of the existing pump station

- Removal of existing pumps and fittings,
- Rehabilitation of the existing pump house,
- Supply and installation of pumps and pumps fittings as per specification,
- Supply and installation of the inlet pipe and outlet pipe,
- Provide testing and commissioning of the pumps and pumping system.

f. Electric Works

- Wiring and electrification of the pump house as per applicable standards for electrification of General Buildings in South Africa,
- Mounting of MC Board for pumps, tank and reservoir water level monitoring devices,
- Outdoor lighting, 3m High Galvanised Stepped Steel Pole with 150W LED Floodlights (3x).

g. Other works,

- Bulk Earthwork as per details and specification,
- Rehabilitation of the existing fence
- Supply and installation of access gate,
- Reinstating topsoil and providing vegetation for the sites.

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LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

C3.1.4 LOCATION OF THE WORKS

Location of site

The project is located in Standerton CBD, under Lekwa Local Municipality, as shown on the locality plan (C4.2) included in this document.

Access to site

Rooikoppen can be accessed from R39 from JHB, turn right by the T-junction to R546, towards Standerton, at the four-way intersection turn left toward Leyds St. The Site is situated at the corner of Kieser Street and Coligny Street, opposite to George Hofmeyer High School

The GPS coordinates of the area are
S 26° 56' 9.24" E 29° 14' 20.81"

C3.1.5 TEMPORARY WORKS

There will be no temporary works on this project.

B1215 EXTENSION OF TIME RESULTING FROM ABNORMAL RAINFALL

- (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 below:

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

in which formula the symbols shall have the following meanings:

V = Potential extension of time in calendar days for the calendar month under consideration:
If V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.
When the value of V for any month exceeds the number of days in the particular month, V will be the number of days in the month.

Nw = Actual number of days in the calendar month under consideration on which a rainfall of Y mm or more was recorded on the Site

Nn = Average number of days, derived from existing records of rainfall in the region of the Site, on which a rainfall of Y mm or more was recorded for the calendar month

Rw = Actual rainfall in mm recorded on the Site in an approved rain gauge for the calendar month under consideration

Rn = Average rainfall in mm for the calendar month, derived from existing records of rainfall in the region of the Site

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INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM

2.....

WITNESS:

The factor $(N_w - N_n)$ shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall exceeds Y mm.

The factor $(R_w - R_n)/X$ shall be deemed to be a fair allowance for variations from the average number of days during which the rainfall did not exceed Y mm but wet conditions prevented or disrupted work.

- (b) The rainfall records at rainfall station number **30576- Grootdraai Dam** for the period **July 2002 to December 2012** are reproduced in the accompanying table, and the monthly averages (R_n and N_n) for this period shall, for the purposes of this Contract be taken as normal and as the values to be substituted for R_n and N_n in the formula above. The values of X and Y shall be 20 and 10 respectively.

The potential extension of time V has been calculated for each month and year of the period concerned to indicate the possible effect of the rainfall formula. The values of V were obtained by applying the rainfall formula and using the actual rainfall figures and the calculated values of R_n and N_n indicated in the table.

- (c) The Contractor shall, at his own cost, provide and erect on the Site at a location approved by the Engineer, 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 Engineer, the Engineer shall be entitled to witness the reading of the gauge.
- (d) The Contractor's claims in terms of Subclause 42.2 of the Conditions of Contract for extension of time in respect of delays resulting from wet climatic conditions on the Site during each month, shall be submitted in writing to the Engineer monthly;

provided always that

- (i) the period allowed to the Contractor in terms of Clause 48 of the Conditions of Contract in which to submit his claim for each month shall be reduced to seven (7) days, calculated from the last day of the month to which the claim applies; and
- (ii) the 28-day period allowed to the Engineer in terms of Subclause 42.2 of the Conditions of Contract in which to give his ruling on the claim, shall be reduced to fourteen (14) days.

The Contractor's monthly claim shall be accompanied by a copy of the signed daily rainfall readings for the applicable month.

- (e) 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 subclause C3.4.2.6(a) above;
- provided always that
- (i) rainfall occurring within the period of the Contractor's Christmas shut-down period (referred to in Subclause 1.6 of the Conditions of Contract) shall not be taken into account in the calculation of the monthly "V" values;

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- (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 Engineer, 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.
- (f) The Engineer 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 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). Thus, provided that where such period is negative, the Due Completion Date shall not be revised.
- (g) 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 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 regarding damage shall be the subject of a separate application for extension of time in accordance with the provisions of Clause 42 and Clause 48 of the Conditions of Contract.

LEGEND

"AVE" represents the average rainfall for the month

"N DAY RAIN" represents the average number of rain days per month

PERIOD: 2002 – 2012

30576 Grootdraai Dam S=25 55" 9' E=29 17" 53' Height: 1554m

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Rainfall records for Grootdraai Dam (Last 10 years).

Month	Average Rainfall (mm)	Rain Days (Per Month)
January	99.581	10.2
February	48.578	5.8
March	67.221	7.7
April	37.688	5.3
May	8.850	2.4
June	6.280	1.4
July	0.692	0.8
August	22.058	1.4
September	14.415	1.7
October	44.339	8.1
November	74.082	11.5
December	96.686	10.5

Or

Method (ii) (Critical path method)

Delete "(based on a five-day working week)" in the fifth and sixth lines of the second paragraph of the description of this method.

Delete the last sentence of the second paragraph of the description of this method and replace with the following:
"The value of "n" shall be taken as three (3) working days per calendar month.

If normal rainy or inclement weather, resulting in delays, occurs for less than three (3) working days in any calendar month, the difference between the three (3) working days and the actual number of working days on which normal rainy or inclement weather occurred, shall be ignored and not accumulated for the duration of the contract period for the purposes of determining an extension of time due to normal rainy weather, nor due to any other reason.

Items of work on the critical path of the programme of work which are subject to climatic limitations shall also be considered for extension of time if such items of work are delayed by e.g. cold weather, high winds or other inclement weather conditions.

In this regard, reference shall be made to weather limitations specified for the application of various bituminous products. However, for months during which seal-work cannot be undertaken in terms of the specifications, no extension of time shall be claimed for.

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C3.2 ENGINEERING

C3.2.1 DESIGN

Works designed by, per design stage:

Concept, feasibility and overall process	Employer
Basic engineering and detail layouts to bid stage	Employer
Final design to approved for construction stage	Employer
Temporary works	Contractor
Preparation of as-built drawings	Contractor

- (a) The Employer is responsible for the design of the permanent Works as reflected in the Contract Documents unless otherwise stated.
- (b) The Contractor is responsible for the design of the temporary Works and their compatibility with the permanent Works.
- (c) The Contractor shall supply all details necessary to assist the Engineer in the compilation of the as-built drawings.

C3.2.2 EMPLOYER'S DESIGN

- (a) Works as described in scope of works above

C3.2.3 CONTRACTOR'S DESIGN

Where contractor is to supply the design of designated parts of the permanent Works or temporary Works he shall supply full working drawings supported by a professional engineer's design certificate.

C3.2.4 DRAWINGS

The Contractor shall use only the dimensions stated in figures on the Drawings in setting out the Works, and dimensions shall not be scaled from the Drawings, unless required by the Engineer. The Engineer will, on the request of the Contractor in accordance with the provisions of the Conditions of Contract, provide such dimensions as may have been omitted from the Drawings.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the contract. The position of pipe bends, junction boxes, duct ends and all other underground infrastructure shall be given by either co-ordinates, or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the Contractor. This information shall be supplied to the Engineer's Representative on a regular basis.

All information in possession of the Contractor, required by the Engineer and/or the Engineer's Representative to complete the as-built/record drawings, must be submitted to the Engineer's Representative before a Certificate of Completion will be issued.

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The Drawings prepared by the Employer for the permanent Works are listed below and bound in the tender document. The Employer reserves the right to issue amended and/or additional drawings during the Contract.

DRAWING NO.	REV	DRAWING DESCRIPTION
KIESER-01	00	LIST OF DRAWING
KIESER-02	00	LOCALITY LAYOUT
KIESER-03	00	EXISTING KIESER STREET RESERVOIR FACILITIES
KIESER-04	00	GENERAL LAYOUT PLAN
KIESER-05	00	RESERVOIR PLAN SECTION AND DETAILS
KIESER-06	00	RESERVOIR UNDERFLOOR DRAIN LAYOUT AND DETAILS
KIESER-07	00	INLET AND OUTLET CONNECTION DETAILS SHEET 01 OF 02
KIESER-08	00	INLET AND OUTLET CONNECTION DETAILS SHEET 02 OF 02
KIESER-09	00	REINFORCEMENT DETAILS FOR RESERVOIR WALLS AND MANHOLES
KIESER-10	00	REINFORCEMENT DETAILS FOR RESERVOIR FLOOR AND ROOF SLAB PLAN LAYOUT
KIESER-11	00	300KL ELEVATED STEEL TANK PLAN VIEW AND BENDING SCHEDULE
KIESER-12	00	300KL ELEVATED STEEL TANK PLAN SECTION AND CONNECTION DETAILS
KIESER-13	00	EARTHWORK PLAN LAYOUT AND SECTION
KIESER-14	00	FENCE LAYOUT PLAN LAYOUT AND DETAILS
KIESER-15	00	PIPE BEDDING DETAILS
KIESER-16	00	THRUST BLOCK DETAILS
KIESER-17	00	VALVE CHAMBER DETAILS AND HYDRANT DETAILS
KIESER-18	00	STORMWATER DETAILS SHEET 01 OF 02
KIESER-19	00	STORMWATER DETAILS SHEET 02 OF 02
KIESER-20	00	NAMBE COARD DETAILS

C3.2.5 DESIGN PROCEDURES

- interfaces with existing structures, plant etc;
- any temporary works requirements, if any, e.g. specialized items of equipment;
- design integration before and during construction;
- procedures for all necessary approvals;
- special procedures e.g. environmental;
- design change procedures, and
- record keeping and tracking of documents.

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C3.3 PROCUREMENT

C3.3.1 PREFERENTIAL PROCUREMENT

C3.3.1.1 Requirements

The preferential procurement will be in accordance with the ***Preferential Procurement Policy Framework Act, 2000 (Act No 5 of 2000)*** and the ***Preferential Procurement Regulations 20017***.

Preference points will be awarded for the targeting of local resources in accordance with the resource specification for the Implementation of Targeted Construction Procurement ***SOUTH AFRICA NATIONAL STANDARDS (SANS)***

C3.3.1.2 Resource standard pertaining to targeted procurement

1914-4: 2002: Participation of Targeted Enterprises and Targeted Labour, issued by the South African Bureau of Standards.

Tender evaluation points for preferences is scored in relation to the extent to which the tenderer commits himself/herself to the employment of targeted labour or engaging targeted enterprises in the execution of the contract as reflected in the tendered Contract Participation Goal.

C3.3.2 SUBCONTRACTING

C3.3.2.1 Scope of mandatory subcontract works

The reallocation of specialise services such as Telkom, Eskom cables.

C3.3.2.2 Preferred subcontractors/suppliers

The will be no specific supplier/subcontractor on this project. However, the contractor is strongly advised to look within the village for necessary subcontractors. If none found then he can look within the greater LEKWA LOCAL MUNICIPALITY's jurisdiction. There after he can look within the Gert Sibande District Municipality's jurisdiction or elsewhere.

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C3.3.2.3 Subcontracting procedures

The main contractor will provide the required materials to the local sub-contractors. The names of all proposed Sub-contractors to be employed by the Contractor must be submitted to the Engineer and the client for approval before they are engaged in any activities on site. Approved subcontractors shall not further subcontract work subcontracted to them. Subcontractors should not communicate directly to the Engineer but via the main Contractor. The sub-contractor and contractor shall make use of CLO for sourcing local labour from the local community

C3.3.2.4 Attendance on subcontractors

Experience Local Contractors will be engaged for the implementation of this project. The Local Sub contractors will be developed without sacrificing the quality of work.

C3.3.2.5 MINIMUM WAGE

C3.3.2.5.1 Requirements

The minimum requirements wage rate for an unskilled Labourer should be **R150** /day or as applicable to the latest gazetted minimum wage rate.

C3.4 CONSTRUCTION

C3.4.1 STANDARD SPECIFICATIONS

The following specifications shall apply for the construction of the Works.

(a) SABS or BS Specifications and Codes of Practice

Wherever any reference is made to the South African Bureau of Standards (SABS) and the British Standards Specification (BSS) in either these Bill of Quantities or the Specification of Materials and Methods to be Used (OOG-001E), this reference shall be deemed to read "SABS or equivalent standard" and BS or equivalent standard" respectively.

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- (b) Various other specifications specified in the Project Specifications.

The applicable standardized specifications for this Contract shall be the following:

SANS 1200 A	:	General
SANS 1200 AB	:	Engineer's Office
SANS 1200 C	:	Site Clearance
SANS 1200 D	:	Earthworks
SANS 1200 DB	:	Earthworks (pipe trenches)
SANS 1200 DK	:	Gabions and Pitching
SANS 1200 G	:	Concrete (structural)
SANS 1200 HA	:	Structural Steelwork (Sundry Items)
SANS 1200 HB	:	Cladding and Sheeting
SANS 1200 HC	:	Corrosion Protection of Structural Steelwork
SANS 1200 L	:	Medium Pressure Pipelines
SANS 1200 LB	:	Bedding (pipes)
SANS 1200 LC	:	Cable ducts
SANS 1200 MM	:	Ancillary Road works

C3.4.2.1 Project Specifications Relating to Standard Specifications

This part of the project specifications deals with matters relating to the standard specifications. Where reference is made in the standard specifications to the project specifications this part shall also contain the relevant information e.g. the requirements where a choice of materials or construction methods are provided for the standard specifications. In certain clauses the standard 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 this part of the project specifications. It also contains some additional specifications and amendments of the standard specifications required for this particular contract. The number of each clause and each payment item in this part of the project specifications refers to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a new payment item, which does not form part of a clause or a payment item in the standard specifications and is included here, is also prefixed by B followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

Clauses and pay items referring to labour intensive methods are prefixed by L in the project specifications. Clauses and pay items referring to emerging contractors are prefixed by E in the project specifications.

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Standard specifications that are applicable to this contract can be seen below. Variations to these standard specifications can be seen in the following section:

PSA	General
PSAB	General - Engineer's Office
PSC	Site Clearance
PSDB	Earthworks (Pipe Trenches)
PSLB	Bedding Pipes
PSG	Concrete (Structural)
PSHA	Structural Steelworks (Sundry Items)
PSHB	Cladding and sheeting
PSL	Medium Pressure Pipelines
PSLC	Cable Ducts

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VARIATIONS AND ADDITIONS TO REQUIREMENTS OF STANDARD SPECIFICATIONS

PSA GENERAL

PSA 1 DEFINITIONS (Clause 2.3a)

Add the following:

Task	A quantified activity or operation.
Daily Task	A task that is required to be completed within a given time.
Task Work	Work paid for as measured against the completed task.
Task Rate	The remuneration for a completed task.
Labour intensive construction	The economic employment of as great a portion of labour as is technically feasible to produce as high a standard of construction as demanded by the specifications and allowed by the funding available, thus the effective substitution of labour for equipment.

(Note: This definition is not Contract specific, but applies to the project as whole. This Contract is a part of such a project.)

PSA 2 INSTRUCTIONS BY THE ENGINEER (Clause 2.3)

Site instructions by the Engineer, addressed to the Contractor at his office on the site, will be numbered consecutively and will be deemed to have been received by the Contractor's Representative unless a break in the sequence of numbers is brought to the notice of the Engineer in writing immediately.

All instructions shall be in writing failing which they shall not constitute an instruction of the Engineer or his delegated assistant.

PSA 3 SPECIFICATION DRAWINGS (Clause 2.7)

Specification Drawings are included in this document as annexures to the Project and Particular Specifications. Where such Specification Drawings depict items and standard structures according to lay-outs and details differing from those shown in the Standardised Specifications, the lay-outs and details shown in the Annexures to the Project and Particular Specifications shall prevail.

PSA 4 MATERIALS (Sub-clause 3.1)

All materials used in the Works shall bear the appropriate official standardisation mark.

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- PSA 5 CONTRACTORS CAMP (Sub-clause 4.2)
- PSA 5.1 RESTRICTIONS ON EMPLOYEE ACCOMMODATION
- No housing is available for the contractor's employees. The contractor shall make his own arrangements to house the employees and transport them to the site.
- PSA 6 BARRICADING AND ACCOMMODATION OF TRAFFIC (Sub-Clause 4.2)
- All open excavations shall be properly demarcated with reflective tape. For safety reasons the contractor may not have more than 300 m of trenching open at a specific time. He shall notify the Engineer a week in advance of his intention to open up any given section of line.
- All vehicular and pedestrian traffic must be accommodated by the Contractor. The contractor should make provision for this in Schedule 1 of the Schedule of Quantities. No claims would be considered for working in half widths or for providing save entrance to individual holdings, or for any other measures deemed necessary for the accommodation of traffic.
- The requirements of Clause 5.1.1.1 of Standardised Specification SABS 1200 D - Earthworks shall apply to "long" trenches as well.
- PSA 7 MEASUREMENT AND PAYMENT (Sub-clause 8.1)
- PSA 7.1 FINAL MEASUREMENT OF WORK
- See Sub-clause 47 (2) of General Conditions of Contract.
- PSA 8 SETTING OUT OF THE WORKS (Sub-clause 5.1)
- In terms of the General Conditions of Contract, Clause 14, regarding setting out, the Contractor shall check the conditions of all reference and level beacons himself and that they have not been disturbed and are true in regard to position and level.
- The Contractor should submit a drawing indicating the disturbed pegs to the Engineer. The Contractor will allow six (6) working days for the re-pegging of missing pegs.
- PSA 9 PROTECTION OF SERVICES
- The Contractor must obtain information regarding existing services from the Local Authority, Telkom and Eskom, before commencing with the Works. The Contractor will be responsible for the protection of all services indicated by the respective authority and services which could reasonably have been foreseen by the Contractor. The sum tendered in the schedule of quantities shall be a time related item in terms of Clause 8.2.1 and will cover the above and all work in terms of Clause 5.2.

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The sums tendered in respect of fixed-charge and value-related items shall not be increased should extension of time be granted for the completion of the Works.

Initial payments in respect of fixed-charge and value-related items (excluding the item for removal of site establishment) will be limited to a combined maximum of 7,5% of the Tender Sum for the Works. The balance of the of fixed-charge and value-related items, if any, will be paid after 50% of the Tender Sum for the Works has been certified for payment.

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PSAB ENGINEER'S OFFICE (SABS 1200 AB)

PSAB 1 NAME BOARDS (Sub-clause 3.1)

Details of the information to be given on the name board will be shown on a drawing to be issued to the successful tenderer.

The Contractor shall provide and erect at an approved position, a name board of sound weatherproof construction indicating:

- (i) the name of the Employer
- (ii) a description of the Works
- (iii) the name of the Civil Consulting Engineer
- (iv) the emblem of the South African Association of Consulting Engineers.

The size of the name board and exact details of the wording of the legend will be given by the Engineer. No sign boards other than those specified above will be permitted on or adjacent to the Works except that:-

- (a) The Contractor may permit each of his Nominated or other contractors to display name boards of not more than 2 m² at the Works Office, and
- (b) the Contractor may signpost access to various work sites, with additional signs of not more than 0,3 m² of approved legend.

All name boards shall be maintained in good order by the Contractor for the duration of the contract.

PSAB 2 OFFICE BUILDINGS (Sub-clause 3.2)

PSAB 2.1 OFFICE BUILDING

Delete the first paragraph and replace with the following:

"The contractor shall supply and furnish an office for the use of the engineer and his representatives. the office shall comprise a single room with a floor area of at least 24 m². the floor to ceiling height of each office shall be at least 2.5 m."

Delete the contents of the Sub-Clause from the start of the third paragraph to the end of the sub-clause and replace with the following:

"The internal fittings and furnishings shall include the following:

- a) One (1) table, 2.5 m long x 1.2 m wide x 0.73 m high
- b) One (1) "L-shaped" desk measuring 1.6 m long on the long side and 1.2 m long on the short side x 0.75 m wide x 0.75 m high with 3 drawers
- c) Eight (8) standard office chairs
- d) One (1) high-back office chair on coasters
- e) One (1) lockable four drawer steel filing cabinet, with keys.
- f) One (1) bookcase, 1.2 m high x 0.8 m wide x 0.3 m deep with four shelves.
- g) One (1) white-board measuring 2 m x 1 m mounted on the wall, complete with eraser and red, blue and black pens
- h) Approved burglar guarding on all windows
- i) Acceptable blinds on all windows
- j) A minimum of three (3) 220/250-volt power points
- k) Two (2) double 55-watt fluorescent light fittings, complete with ballast and tubes

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- l) An air-conditioning unit of 2.2 kW minimum capacity, capable of both cooling and heating, complete with own power source

The Contractor shall provide two covered parking bays 5 m long x 3 m wide in close proximity to the abovementioned office for use by the Engineer and his representatives. The bays shall be suitably gravelled and pathways provided to the offices such that mud-free access is afforded even in times of heavy rain.

The contractor shall supply and equip ablution facilities with a floor area of at least 5 m², an opening window with a glazed area of at least 0.9 m² and a lockable door, containing at least a toilet, a hand wash basin with hot and cold water, a mirror, a single 100-watt incandescent light and a suitable blind on the window, for the exclusive use of the engineer and his representatives in reasonable proximity to his offices.

On completion of the works ownership of the buildings erected by the contractor and their furnishings shall revert to the contractor who shall remove them from the site

PSAB 2.2 SITE INSTRUCTION BOOKS

Throughout the construction period, the Contractor shall supply three carbon triplicate books as Site instruction books.

The first book will be kept on Site by the Engineer's representative to write day-to-day instructions and confirm any verbal information given to the Contractor.

The second book will be for the Contractor's staff to provide the Engineer's Representative with any information regarding the construction of the Works which may be requested and/or for giving notification in writing as required by any of the relevant clauses of the General Conditions of Contract.

The third book shall be used as a daily diary. The Contractor shall record weather, changes in Site staff and equipment, brief description of works, critical material deliveries, visitors and any other pertinent information. The Engineer shall add any notes of comments and both shall then sign that the information is correct.

At least one copy of each Site note issued by either party shall remain in the books. The books shall be mutually accessible.

PSAB 3 SURVEY EQUIPMENT (Sub-clause 5.5)

The Contractor shall provide and maintain the following survey equipment on the site from the commencement to the completion of the Works:

- a. One Theodolite capable of reading to 20 sec. of arc and Tripod.
- b. One self-levelling engineer's level, tripod and level staff (metric).
- c. One steel tape of length 30 m and one tape of 100 m.
- d. Six ranging rods.

In terms of Sub-clause 5.5 one suitable skilled survey assistant shall be made available to the Engineer during working hours. The assistant shall assist in carrying out soil tests and in preparing and clearing concrete test tubes.

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The contractor is to provide valid calibration certificates for all survey equipment.

The Engineer shall not be liable for any loss, damage or breakage to the equipment. The Contractor shall maintain the equipment in good working order and keep it clean throughout the Contract period.

The availability of the survey equipment and assistants will be measured and paid under Schedule 1 of the Schedule of Quantities.

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PSC SITE CLEARANCE

PSC 1 MATERIALS

PSC 1.1 DISPOSAL OF MATERIALS (Sub-clause 3.1)

All surplus material shall be dumped, levelled and spread at the areas, as indicated by the Engineer during the Site Inspection. All haul will be measured as freehaul.

PSC 2 CUTTING OF TREES (Sub-clause 5.2)

PSC 2.1 INDIVIDUAL TREES (Sub-clause 5.2)

The minimum penalty shall be R5 000, 00 per tree.

PSC 3 CLEARING (Sub-clause 5.3 and 8.2.1)

(a) The width or area to be cleared shall be the width or area required by the Contractor for excavation, stockpiling of excavated material and construction activities, subject to the prior approval of the Engineer.

(b) No structures, buildings, huts or other man-made obstructions shall be cleared without the written consent of the Engineer.

The Contractor shall, if required, leave undamaged all obstructions and vegetation further than 2 m from the pipe centre line and 5 meters from a structure. Where obstructions and trees are closer than the aforementioned distances the Engineer shall direct whether these are to be removed or not. In the latter case the Engineer shall decide on the additional compensation (if any) due to the Contractor for not disturbing the obstruction.

(c) All fencing materials shall be preserved for subsequent re-erection to the original standard by the Contractor. All damaged materials shall be replaced by the Contractor at his own cost. Items have been provided in the Bill of Quantity for planned removal and reinstatement of fences.

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PSD EARTHWORKS

PSD 1 CLASSIFICATION FOR EXCAVATION PURPOSES (Sub-clause 3.1)

PSD 1.1 CLASSES OF EXCAVATION (Sub-clause 3.1.2 and 8.3.3 (B))

Delete sub-clauses (d) and (e).

Boulders shall be classified as either Intermediate Excavation or Hard Rock Excavation in terms of Sub-clauses (a) and (b).

Excavated material will not be classified as boulder excavation (Class A or B) for payment purposes.

Only material that cannot be excavated through hand excavation shall be classified according to these sub-clauses.

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PSDB EARTHWORKS (PIPE TRENCHES) (SABS 1200 DB)

PSDB 1 DISPOSAL OF EXCAVATED MATERIAL (Sub-clause 5.2.2.3)

PSDB 1.1 All surplus material from excavations for pipework shall be removed from the site, dumped, levelled and spread at the areas as indicated by the Engineer.

PSDB 1.2 The Contractor will be required to do all soft excavations shallower than 1,0m by hand using as much labour as possible from this region. Liason officer to assist with labour and sub-contractor negotiations and appointments. Under no circumstances will the Contractor be allowed to do excavations by machine at a depth shallower than 1,0m unless specifically agreed with the Engineer.

PSDB 2 TAKING AND TESTING OF SAMPLES (Sub-clause 7.2)

PSDB 2.1 Determination of the standard of compaction achieved shall be carried out in accordance with standard methods of testing materials of the Department of Transport, Division of National Roads, Republic of South Africa.

PSDB 3 PROTECTION OF EXISTING SERVICES (Sub-clause 5.1.2.5)

Before excavation commences, the Contractor shall expose all existing services adjacent to or crossing the specific trenches for inspection by the Engineer. The Contractor will allow 24 hours for any adjustments of the design by the Engineer.

The Contractor will be responsible for the protection of services indicate on the drawings as well as those that could reasonably have been foreseen by the Contractor. Any payments required for a service damaged by the Contractor through a lack of diligent care would be for the Contractor's account.

The Client reserves the right to pay moneys due for such damage, and to subtract these from the Contractor's next payment certificate.

PSDB 4 OVERBREAK ALLOWANCE FOR BLASTING (Sub-clause 5.1.1.3)

Any overbreak in excess of the permissible deviations specified in this document as well as those specified in clause 6, shall be made good by the Contractor at his expense. The Contractor should therefore make provision of this in the relevant items in the schedule of quantities. No claims for additional excavation of blasted material nor for making good of overbreak with strength concrete to the Engineer's instructions shall be considered under this contract.

PSDB 5 CONSTRUCTION

PSDB 5.1 SAFETY AND TRAFFIC CONTROL (CLAUSE D5.1.1 AND D5.1.6)

The Contractor shall control the access by the general public to the Site in collaboration with and as approved by the Engineer.

Where trenches cross roads, the Contractor shall arrange his work so that at least one free flowing traffic lane is available at all times and he shall direct traffic at such points until the full roadway has been reinstated. No excavations across roads shall be left open at night and access to private property shall be maintained at all times.

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PSDB 5.2 EXPLOSIVES (CLAUSE D5.1.1.3)

The Contractor shall use explosives for blasting in connection with the Works only where approved by the Engineer. Such approval, however, shall not relieve the Contractor of his responsibilities in terms of the Contract.

The Contractor shall submit to the Engineer for his approval, before any blasting preparation on Site is commenced, details of his proposed blasting programme, the methods to be used and the precautions to be adopted. The Contractor shall use only moderate charges of explosives at any time and the utmost care shall be taken to avoid unnecessary shattering of rock or disturbance of the ground.

Blasting shall not be permitted in any situation or position where, in the opinion of the Engineer, it is likely to endanger any existing foundations, structures, pipelines, power and telephone lines or other services. In such situations, the rock shall be excavated by drilling and wedging or by other suitable methods other than blasting, as approved by the Engineer.

The prior consent for blasting given by the Engineer shall in no way relieve the Contractor of any of his obligations under this Contract and the Engineer shall have the power to withdraw his consent for blasting and order other means or methods of excavation in rock.

PSDB 5.3 DETECTION, LOCATION AND EXPOSURE OF SERVICES (CLAUSE D5.1.2.2)

If existing services are not indicated on the Drawings, the Contractor shall inform the Engineer of the lack of data concerning existing services and he shall request the Engineer to point out known existing services, before commencing excavation. Should the Contractor fail to do so, he shall rectify and repair any damaged services at his own expense.

PSDB 6 REINSTATE EXISTING SURFACES

a & b) Road Surfaces (Gravel and asphalt)

Where excavations for pipe trenches across existing paved roads are specified by the Engineer the Contractor shall stockpile the existing base and sub-base materials. If necessary the Contractor will be required to supplement the material lost during excavation. The material within 300 mm under the finished road level must be stabilized with 3 % cement and compacted to 97% mod. AASHTO density.

Concrete Surfaces

The Contractor shall repair all concrete surfaces to the original line, depth and level with surface finishes and concrete classes at least to the standard of the existing surfaces.

Paving

The contractor shall repair all existing paving to the original line and level and surface finishes at least to the standard of the existing finishes and with the same or similar paving.

The Contractor shall remove the existing pavement bricks, clean and stack them for re-use when repairing the paving. Compaction under the paving will be measured under compaction in road reserves and procedures should comply with SABS 1200 DB 5.6.2 and 5.7.2.

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PSDB 7 BACKFILLING

PSDB 7.1 DISPOSAL OF SOFT EXCAVATION MATERIAL (Sub-clause 5.6.3)

When it is not possible to dispose of all surplus excavated materials as specified, the surplus shall be transported to an approved site. Written permission should be obtained should material not be spoiled within the free-haul distance.

PSDB 8 SUB-SURFACE DRAINS

Sub-surface drains shall be constructed directly under or next to the streets or under pipelines where as directed by the Engineer to details shown on drawings and shall include for the following:

- (a) Excavation of trenches of 600 mm width and catchpit under normal pipe trenches, adjacent and under roads, backfilling and disposal of excess material.
- (b) Supply and placing of approved permeable material.
- (c) Supply and laying of approved sub-surface drainage pipes of minimum 100 mm Ø, either uPVC or pitch fibre.

Positions of drainage pits will be pointed out by the Engineer on Site to be measured and paid for separately.

Geofabric material will be measured and paid for separately if required.

PSDB 9 MEASUREMENT AND PAYMENT FOR COMPACTION IN ROAD RESERVES (Sub-clause 8.3.3.3)

All trenches across the road reserve will be considered to be subjected to traffic loads unless otherwise instructed by the Engineer.

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PSLB BEDDING (PIPES)

PSLB 1 BEDDING (Sub-clause 3.3)

The classes of bedding applicable to this contract shall be Class C bedding for uPVC pipes. For HDPE pipes it shall be as specified for flexible pipes in Sub-clause 3.3 of SABS 1200 LB.

PSLB 2 BEDDING MATERIALS (Sub-clause 3.4)

Suitable selected bedding material will generally be available from trench excavations along the route. Additional material may be obtained from borrow pits. Written permission must be obtained before importation of material.

PSLB 3 MEASUREMENT AND PAYMENT FOR SUPPLY OF BEDDING MATERIAL (Sub-clause 8.2.2)

All haulage will be considered as freehaul except where prior written permission was given for overhaul by the Engineer.

PSLB 4 BEDDING CRADLE (Sub-clause 2.3)

The bedding cradle shall be all the bedding below the selected fill blanket as shown on the Drawings prepared by the Engineer.

PSLB 5 MAXIMUM TRENCH WIDTHS (Sub-clause 4.1 and 5.2)

Trenches in general shall not exceed the widths laid down in Sub-clause 8.2.3. If trenches exceed the specified width the Contractor shall be liable for the cost of any over break.

PSLB 6 MINIMUM BASE WIDTH (Sub-clause 5.2)

PSLB 6.1 BEDDING

All pipes require bedding.

PSLB 6.2 SIDE ALLOWANCE (Sub-clause 8.2.3)

The minimum base width of a trench for pipes of external diameter less than 125 mm, which can be jointed outside the trench, laid to the requirements of the specification, at a depth of 1,5 m or less, shall be pipe diameter + 300 mm on both sides.

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PSG **CONCRETE (STRUCTURAL)**

PSG1 **SCOPE**

This specification covers the requirements for water retaining structural concrete for civil engineering work.

PSG2.4.1 **Exposure Conditions**

For the purpose of this Specification, Water retaining structures shall be deemed to be classified under clause 2.4.1.3 (severe conditions) as specified in SABS 1200 G unless specified otherwise in the project specification.

PSG3 **MATERIALS**

PSG3.2 **Cement**

PSG3.2.1 **Applicable Specifications**

Delete Clause 3.2.1 and replace with:

"All cement types shall comply with the requirements of:

Common Cements

SANS ENV 197-1. Only CEM1 Portland cement shall be used in structural concrete in this contract."

Cement extenders

SABS 1491: Part I-1989 Ground granulated blast furnace slag

SABS 1491: Part II-1989 Fly ash

SABS 1491: Part III-1989 Condensed silica fume

PSG3.2 .2 **Alternative types of Cement**

Only CEM II B-V shall be used in water retaining structures. The target Fly Ash content shall be 25-30%.

Other types of cementitious material may be used only if specifically approved by the Engineer.

PSG3.2.3 **Storage of Cement**

Delete the last line of Sub-Clause 3.2.3 and replace with:

"Cement for all Strength Concrete used in structural elements shall be stored in weatherproof silos. Cement drawn for use shall be measured by mass. The Contractor shall ensure that cement for Strength Concrete is not stored on Site for longer than six (6) weeks or in accordance with supplier specifications. Copies of all waybills for cement deliveries shall be submitted to the Engineer. Consignments of cement shall be used in the same sequence as that in which they are delivered to site."

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PSG3.4 Aggregates

PSG3.4.1 Applicable Specifications

Delete the “.” At the end of the first sentence and add the following:

“, subject to the following:

- a) The drying shrinkage of both the fine and coarse aggregate (sand) when tested in accordance with SANS Method 836 shall not exceed the following limits:
 - i) For use in water retaining structures and slender column, the shrinkage of both fine and coarse aggregate shall not exceed 125% of that of the reference aggregate.
 - ii) For use in other reinforced concrete structures or elements, the shrinkage of the fine aggregate shall not exceed 175% and that of the coarse aggregate 150% of that of the reference aggregate.
 - iii) For use in mass concrete substructures and unreinforced elements, the shrinkage of both the fine and coarse aggregate shall not exceed 200% of that of the reference aggregate.
- b) The flakiness index of the coarse aggregates, as determined by TMH 1 Method B3, shall not exceed 35.
- c) Aggregates shall not contain any deleterious amounts of organics materials such as grass, roots, timber or other similar materials.
- d) The fineness modulus of the fine aggregate shall not vary by more than ± 0.2 from the approved modulus.”

Add the following :

“Only Dolomitic aggregates (coarse and fine) will be approved for use in concrete utilised on the Works. After approval of the aggregates and prior to commencing production of concrete the Contractor shall ensure a continuous supply of the selected aggregate from the approved source. Any colour or texture variations of exposed concrete due to changes in aggregates during the Contract shall be rectified by the Contractor at his own cost. Any such remedial measures shall be approved by the Engineer before commencement thereof.

The following additional sub-clauses shall be applicable to water retaining structures:

PSG3.4.4 Fine Aggregate

Samples of the proposed fine aggregate shall be submitted to the Engineer for his approval before use.

The Contractor shall submit a sieve grading analysis to the Engineer for approval and if unacceptable, the Contractor shall offer another sample and grading for approval, or may blend aggregate from different sources and submit the blend for approval.

The water demand of the fine aggregate shall not exceed 195 ℓ/m^3 .

Fine aggregate shall be stored on a concrete surface and washed sand shall be allowed to drain for at least 24 (twenty-four) hours before use. The Engineer may require the Contractor to test the sand daily (or more frequently if necessary) for moisture content, impurities and grading before use.

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PSG3.4.5 Coarse Aggregate

The voids ratio of the coarse aggregate shall not exceed 47 % (forty-seven per cent). Single sized aggregates shall be stored on a concrete surface in separate stock piles, according to size. The proportions of the various single sized aggregates required for the various portions of the work shall be submitted by the Contractor for the Engineer's approval.

PSG3.5 Admixtures

PSG3.5.1 Approval of Admixtures Required

Add the following:

"Admixtures, if the use thereof is permitted, shall comply with the following requirements:

- a) Admixtures shall be used only in liquid form and shall be batched in solution in the mixing water by a mechanical batcher capable of dispensing the admixture in quantities accurate to within 2% of the required quantity.
- b) All admixtures shall comply with the requirements of ASTM C494 or AASHTO M194 and shall be of an approved brand and type.
- c) Admixtures shall not contain any chlorides."

PSG3.5.2 Air-Entraining Agents

Add the following:

"Air-entraining agents shall comply with the requirements of ASTM C260 or AASHTO M154 and only used on the written approval of the Engineer"

PSG3.9 Jointing Materials (New clause 3.9)

Insert the following new Clause:

3.9 Jointing Materials

- a) Waterstops shall be a proprietary design consisting of flexible polyvinylchloride with at least the following properties:
 - Tensile strength : 15 MPa (min.)
 - Elongation at break : 250% (min.)
 - Hardness (ASTM D1706) : 70 ±5
 - Cold crack temperature : - 25° C
 - Water absorption (48 hours at 50° C) : 0,5% (max.)
- b) Joint sealer shall be a two-component polyurethane base sealing compound or an equal and approved sealer. The joint sealer shall have a movement tolerance of 25% (min.) and shall be capable of withstanding extension and compression over a wide range of moisture and temperature conditions without deterioration. Two components polyurethane sealers shall comply in all respects with SANS 1077.
- c) Joint filler shall be manufactured from a non-absorbent, closed cell, polyethylene and the filler strips shall be provided with a tear-off cover strip. The joint filler shall comply with AASHTO M153 and shall have a load bearing capacity of 0,2 MPa for 50% compression and a moisture absorption of not more than 3% by volume, all subject to the Engineer's approval."

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PSG4 PLANT

PSG4.5 Formwork

PSG4.5.1 Design

Add the following to the end of Sub-Clause 4.5.1:

"The Contractor shall note that in respect of formwork, he is the "designer" in terms of the OHS Act, 1993 and he shall be fully responsible for the safe design, construction and dismantling of formwork, staging and falsework. In particular, the Contractor shall note the requirements of Section 10 of the Construction Regulations, 2003.

When requested, the Contractor shall submit his designs to the Engineer for approval at least 14 days prior to commencing erecting any formwork, staging or false work. Approval by the Engineer of the Contractor's designs and details shall in no way relieve the Contractor of his responsibilities."

The use of wooden formwork shall not be allowed for the construction of any visible surfaces on any structure. This requirement applies to all walls, columns, walkways and steps.

PSG4.5.2 Finish

Add the following:

Unless otherwise specified, the surface finish of all structural concrete on water-retaining structures shall be Smooth as defined in clause 5.2.1 (b).

"All external corners shall be chamfered by the fitting of fillet strips into the corners of the formwork to form 20mm x 20mm chamfers. Rate for formwork shall include cost of chamfering"

PSG4.5.3 Ties

Delete Sub-Clause 4.5.3 and replace with:

"The types of ties used and their positions shall receive careful attention and be subject to the approval of the Engineer. Ties shall not be left embedded in the concrete closer to the face of the concrete than the minimum specified cover to reinforcement.

Permanent metal ties shall have a minimum cover of 40mm after formwork removal. Tie holes shall be filled with an approved cementitious grout to the same strength as the member concrete. Trial mixes shall be made to arrive at the required working consistency"

PSG5 CONSTRUCTION

PSG5.1 Reinforcement

PSG5.1.2 Fixing

The use of plastic spacer blocks will not be allowed. Concrete spacer blocks, of same mix design as the strength concrete, shall be used.

"The Engineer will inspect the reinforcing after it has been fixed in place, the formwork has been cleaned,

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cover blocks have been positioned, and before concreting commences.
Welding of reinforcing steel will not be permitted."

PSG5.1.3 Cover

In water retaining structures the exposure condition of a reinforcing bar closest to the face in direct contact with water or soil backfilling, shall be classified as severe.

It should be noted that in some water retaining structures only one face of the structural elements will be in contact with water.

The nominal concrete cover is generally 50mm, unless otherwise specified on the Drawings.

The soffit of a slab suspended above the water (e.g. a reservoir roof) will be treated as being in contact with the water for the purpose of determining the cover.

PSG5.2 Formwork

PSG5.2.1 Classification of Finishes

Add the following to paragraph (b):

"After the repair of imperfections, which shall be undertaken immediately on removal of the formwork, all surfaces designated to have a smooth surface finish shall be wetted and rubbed. Rubbing shall be undertaken first with a coarse carborundum stone followed by a smooth carborundum stone, or other similar abrasive until a uniform colour and texture is produced and shall be completed within 24 hours after the removal of the formwork. No cement grout or slurry shall be used other than the cement paste drawn from the green concrete by the rubbing process. The character of the materials used and the care with which forms are constructed and concrete placed are factors in determining the amount of rubbing required."

PSG5.4 Pipes and Conduits

Add the following:

"All pipes and specials which must be installed in floors and walls of structures shall be embedded in concrete during casting. No holes shall be left for later installation unless with written approval of the Engineer. The Contractor shall be responsible for the grouting in all pipe and specials that are installed using the later method and in accordance with clause PSG4.5.3 of the specifications"

PSG5.5 Concrete

PSG5.5.1 Quality

PSG5.5.1.4 Chloride Content

Delete the sub-clause and replace with :

"The amount of chloride ion in concrete expressed as a percentage by mass of the cement shall not exceed 0.20%."

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PSG5.5.1.5 Durability

Delete the sub-clause and replace with :

“The exposure conditions for all water retaining structures, structures below ground etc. shall be considered as being ‘severe’ and for superstructures of buildings as being ‘moderate’, for which exposure conditions the maximum water/cement ratio shall be:

- a) severe: 0.43 – 0.48
- b) moderate : 0.53,

PSG5.5.1.7 Strength Concrete

Delete the contents of the sub-clause and replace with:

“The Contractor shall be responsible for the design of Strength Concrete and shall appoint an approved materials laboratory to prepare and test all Strength Concrete designs on his behalf.

The Strength Concrete to be utilised on the Contract for water retaining structures or where indicated shall be Class 35/19 and shall conform to the following requirements:

- a) The characteristic strength of the mix shall be the highest of the following:
 - i) the specified 28-day characteristic cube compressive strength (i.e. 35 MPa);
 - ii) the characteristic cube compressive strength corresponding to the specified maximum water: cement ratio;
 - iii) the characteristic cube compressive strength corresponding to the specified minimum cement content.
- b) Only dolomitic aggregates (fine and coarse) may be utilised in the mix.
- c) The cement content shall not be less than 400 kg/m³ and not greater than 500 kg/m³.
- d) The water: cement ratio shall be less than 0.48.
- e) The slump shall conform to the requirements stated in of SANS 1200 G Table3.

Mass concrete and minor structures may have lower concrete strength and will be indicated on drawings or instructed by the Engineer.

Before starting with any concrete work on the site, the Contractor shall submit for approval, samples of the constituent materials of the concrete and a statement of the mix proportions which he proposes to use for each class of concrete indicated in the schedule of quantities.

The samples shall be accompanied by evidence that both the constituent materials and the proposed mix comply with the specifications, which evidence shall be in the form of:

- i) A copy of all test results on both the constituent materials and the mix itself, plus a statement regarding the test results, furnish by the approved materials laboratory, or
- ii) An authoritative report on the previous use, experience and performance of both the constituent materials and the proposed mix.

Where any change occurs in the materials sources, aggregate sizes, or any other component of the concrete, the above procedures shall be repeated at the Contractor's cost.

The actual mix proportions used as well as any changes thereto shall be subject to the Engineer's approval, but such approval shall in no way relieve the Contractor of his responsibility for producing concrete with the specified properties.”

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Add the following new sub-clause:

“5.5.1.8 No Fines Concrete.

No fines concrete shall consist of a mix of 50kg cement and 0,30 m³ of approved dolomitic coarse aggregate with a water/cement ratio of approximately 0,46. The aggregate shall be so graded that not more than 10% by mass is retained on a 19mm sieve and not more than 5% by mass passes a 6,7mm sieve.

The quantities of water used shall be just sufficient to form a smooth grout to completely coat all surfaces of the aggregate.

Curing shall be as per Clause 5.5.8 of SANS 1200 G.”

The sheeting found between the no fines drainage layers shall consist of a suitably compounded low-density polyethylene. This lining material shall be welded together on site using a continuous extrusion fusion welding system to ensure totally integrated and homogenous joints, which when tested shall fail neither in shear nor peel test modes, as per Appendix D-4.6 of SANS 1526-1991

(a) Classes of no-fines concrete

No-fines concrete shall be classified by the prefix NF and the size of aggregate to be used. Class NF 19 means a no-fines concrete with a 19 mm nominal size aggregate.

The volume of aggregate per 50 kg of cement for each class of concrete shall be as follows:

Class	Aggregate per 50 kg cement
NF 38	0,33 m ²
NF 19	0,30 m ²
NF 13	0,27 m ²

(b) Batching and Mixing

Cement shall be measured by mass or in full pockets of 50 kg each and aggregate shall be measured by volume in approved measuring boxes or barrows.

The aggregate shall be moist or wetted before the cement is added. Where drum mixers are used, about 50% of the water shall be poured into the drum before the aggregate and cement are loaded. The mixing time in the drum shall be about 45 to 50 seconds.

The quantity of water added shall be just sufficient to form a smooth grout which will adhere to and completely coat each and every particle of aggregate, and which is just wet enough to ensure that, at points of contact of aggregate, the grout will run together to form a small fillet to bond the aggregate together. The mix shall contain no more than 20 litres of water for every 50 kg of cement.

Mixing shall be done in an approved batch-type mechanical mixer, but small quantities may be hand-mixed.

(c) Placing

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No-fines concrete shall be placed in accordance with the procedure approved by the Engineer. It shall be placed in its final position within 15 minutes of having been mixed.

The concrete shall be worked sufficiently to ensure that it will completely fill the space to be concreted and that adjacent aggregate particles are in contact with one another. Excessive tamping or ramming shall be avoided and under no circumstances shall the concrete be vibrated.

(d) Protection

All no-fines concrete shall be protected from the elements and loss of moisture. Protection against loss of moisture shall be accomplished by one or more of the following methods:

- Retaining formwork in place
- Covering exposed surfaces with sacking or other approved material kept continuously wet
- Covering exposed surfaces with plastic sheeting

No-fines concrete placed during cold weather shall be adequately protected against frost for at least 3 days.

PSG5.5.2 Batching

PSG5.5.2.1 Cement

Delete the sub-clause and replace with the following:

“Cement shall only be supplied from bulk storage silos and shall be mass batched to an accuracy of within 2% of the mass required.”

PSG5.5.2.3 Aggregates

Delete the sub-clause and replace with the following:

“The required mass of each aggregate size shall be determined, a correction made for the moisture content of the aggregate and the aggregates mass batched to an accuracy of within 3% of the required mass.”

PSG5.5.5 Placing

Delete Sub-Clause 5.5.5.6 and replace with :

“For closed circuits such as circular or rectangular water retaining structures for which no vertical joints have been detailed on the drawings, work shall commence at one or more points in the circuit and proceed in opposite directions at the same time so that on completion of the circuit the junction or junctions are formed with freshly placed concrete. The height of the lift shall be carefully pre-planned so that the concrete can be placed in one continuous operation over the entire perimeter of the wall. No unauthorised vertical or inclined construction joints of any kind will be permitted in continuous walls.”

Delete the “.” At the end of the first sentence of sub-clause 5.5.5.9 and insert the following:

“and shall be conditional on full compliance with the provisions of Clause PSG3.3.1.4 and confirmation that the durability and water tightness of the component will not be reduced.”

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PSG5.5.6 Compaction

Delete the first sentence of sub-clause 5.5.6.1 and replace with the following:

“The concrete shall be fully compacted by means of mechanical poker vibrators during and immediately after placing, except in concrete floors or pavements where a combination of mechanical poker vibrators and a vibrating screed beam shall be utilised.”

PSG5.5.7 Construction Joints

Delete the contents of Clause 5.5.7 and replace with:

“5.5.7.1 Special Note.

Construction joints are a potential source of weakness in the strength, water tightness and appearance of a structure and they shall be positioned and treated with particular care.

5.5.7.2 Location.

- (a) Construction joints shall be located as shown on the drawings or to the approval of the Engineer. The spacing of joints shall depend on the volume of concrete that can be properly placed in a normal shift.
- (b) Construction joints shall be fixed in advance of the concreting operation.
- (c) In general construction joints shall be positioned at the points of maximum compression, minimum shear and at right angles to the main reinforcement.
- (d) Where smooth shutter finishes are specified the joints shall coincide with the edges of the shutter boards or panels.
- (e) All joints shall be truly vertical or horizontal unless otherwise specified.

5.5.7.3 Emergency Stoppages. If because of an emergency, such as a breakdown of the mixing plant or the onset of unsuitable weather, concreting has to be interrupted, concrete shall be finished off at the place of stoppage in the manner that will least impair the durability, appearance and proper functioning of the element being cast.

5.5.7.4 Vertical Joints. All vertical construction joints where specified shall have a shuttered face. The shuttering shall be fixed firmly in position and slotted to allow continuity of the reinforcing steel without loss of mortar at the joint.

5.5.7.5 Horizontal Joints. Unless otherwise specified or shown on the drawings all horizontal joints shall be formed by striking off the top 25mm of concrete approximately 1 hour after it has been compacted, working to the top of the line formed by the gauge strips specified in sub-clause 5.5.7.6 of PSG5.5.7, which follows.

5.5.7.6 Gauge Strips. To give all joints a straight-line finish where smooth shutter finishes are specified, 40mm x 40mm rebated gauge strips shall be fixed inside the shutters at the joint position and removed before the new concrete is cast.

5.5.7.7 Keyed Joints. Joints in beams and slabs shall have keyed faces to transmit shear.

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- 5.5.7.8 Joints Parallel to Main Reinforcement. These joints shall be subject to the approval of the Engineer and shall be formed only when absolutely necessary. The Engineer may order additional splice bars and other load transfer devices to be provided at the joint. No extra payment shall be made for the additional material or labour if such construction joints are requested by the Contractor.
- 5.5.7.9 Column Joints. These joints shall be treated as in sub-clause 5.5.7.5 of this clause PSG5.5.7 except at joints with over sailing slabs or beams. In this case no perimeter rebate is required on the column and it shall project 25mm into the soffit of the slab or beam when the excess concrete has been struck off as described in sub-clause 5.5.7.5 of this clause PSG5.5.7.
- 5.5.7.10 Shuttering to Joint. To obtain a joint free from projections the shutters for the new concrete shall be tightly fixed to the existing concrete by means of additional bolts, wedges or clamps. In all possible cases the shutters shall overlap the joint and not be disturbed until the new concrete has hardened."
- 5.5.7.11 Before Placing Concrete
- Where the concrete of the previous lift is more than 3 days old, it shall be kept continuously wet for a period of 24 hours before the mortar and fresh concrete is placed.
- On all construction joints the following steps shall be taken after the surface has been prepared and at the most, 30 minutes before placing the concrete:
- (i) Remove all surface water with an air hose and dry sprinkle waterproofing additive (Vandex Premix or similar approved) at 9,8 kg per m².
 - (ii) Place a layer of approximately 10 mm thickness consisting of cement, sand and water mixed in the same proportions as used in the concrete.
 - (iii) Place concrete within 30 minutes.

PSG5.5.8 Curing and Protection

SABS 1200 G Clause 5.5.8 will be deleted for the purpose of this Specification and replaced with the following:

"All concrete other than blinding concrete shall be maintained continuously saturated for at least ten days or as directed on the drawings immediately after placement or after stripping formwork in the case of walls, by methods which shall receive the prior written approval of the Engineer if different from the following:

a) For floors

Ponded water with a minimum depth of 30 mm.

b) For Columns and Walls

Continuously saturated heavy jute sacking or other approved absorbent material maintained in contact with the concrete surface by fastenings spaced at not more than 2 m centres.

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c) For Floors and Columns

Covering the previously saturated surfaces with approved plastic sheets maintained in contact with the concrete surface and with all edges and joints sealed by methods approved by the Engineer.

Where the ambient temperature is below 4°C the curing period of 10 days or as directed on the drawings, will be extended by 72 hours.

Newly cast concrete sections shall not be used for supporting loaded wheel-barrows, monorails, material or scaffolding, etc., until permission is obtained from the Engineer.”

PSG5.5.9 Adverse Weather Conditions

(a) Concreting in cold weather

During cold weather no material having a temperature below 5 °C shall be used for making concrete.

No concrete shall be placed when the ground or air temperature is below 2°C or if the ground or air temperature is likely to fall below 2° C within 6 (six) hours of placing the concrete.

The temperature of placed concrete shall not be allowed to fall below 5 °C until the concrete has attained a strength of at least 5 Mpa, and the Contractor shall be responsible for all the necessary protective measures to ensure this. All concrete that has been damaged by frost or by the formation of ice in the concrete shall be removed and replaced by the Contractor at his own expense.

(b) Concreting in hot weather

During hot weather, the temperature of the concrete, as placed, shall not exceed 30°C. The Contractor shall ensure that the placing of the fresh concrete does not exceed the ambient temperature by more than 5°C. Where necessary this shall be accomplished by shading aggregate stockpiles, shading or insulating water pipes and water storage tanks.

PSG5.5.10 Concrete Surfaces

Delete the contents of Clause 5.5.10 and replace with:

“5.5.10.1 Exposed surfaces of concrete not finished against forms such as horizontal or slightly sloping surfaces shall be brought up to a plane, uniform surface with suitable screed boards.

5.5.10.2 All non-formed concrete surfaces shall be finished to one or more of the following classes of finish:

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- a) Screed Finish. Immediately after being poured the concrete shall be screed with a straight edge working between templates set accurately to line and level. No mortar shall be added to overcome surface irregularities. These shall be made good by re-screeding or by the addition of concrete.
- b) Wood Floated Finish. After screeding to line and level and when the water sheen has disappeared the concrete surface shall be trowelled by hand with a wood float to a uniform consolidated surface free from any trowel marks and uniform in texture and appearance.
- c) Steel Floated Finish. Commence as for (b) and finish with a steel trowel. The final finish shall be done at the correct time; the concrete shall still be sufficiently plastic to take a polish but have hardened sufficiently to prevent drawing water and fine materials to the surface. Any adherence of mortar to the steel trowel indicates that the correct stage has not yet been reached.
- d) Power Floated Finish. Commence as for (b) and after the concrete has hardened sufficiently it shall be power floated only sufficiently to produce a uniform, dense, smooth surface free from trowel marks. Bleed water shall not be reworked into the concrete but shall be allowed to evaporate off or be removed. Dryers in the form of neat cement or rich cement/sand mixtures shall not be used under any circumstances.

5.5.10.3 All non-formed concrete surfaces shall be finished to the tolerances specified for Degree of Accuracy II in terms of SANS 1200 G sub-clause 6.2.3(d), except for the following:

- a) Floors and top of outer walls to the sedimentation, clarifier and thickener tanks, shall be formed to the following tolerances:
 - i) Deviation from specified level: +0 mm; -5 mm
 - ii) Max. deviation under a 3 m straight edge: 3 mm
 - iii) Max. height of localised imperfections: 1 mm
- b) Screed topping to Archimedean screw pump trough which will be formed with the assistance of a tightly drawn wire across the flights of the rotating screw and where a tolerance on the surface of +0 mm; -2 mm is required.
- c) Machine bases and other associated work within and in close proximity to structures housing plant and process equipment shall be finished to Degree of Accuracy I in terms of SANS 1200 G, sub-clause 6.2.3(d).

5.5.10.4 After finishing as specified, an approved proprietary surface hardener capable of withstanding chemical attack shall be applied to the internal surfaces of balancing tanks, digester tanks above top sludge level and any other surfaces identified by the Engineer, in accordance with the manufacturer's recommendations.

Details of the proposed surface treatment products shall be submitted to the Engineer for approval at least 14 days prior to commencing the activity."

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PSG5.5.11 **Watertight Concrete**

Delete the contents of Clause 5.5.11 and insert the following:

“All reinforced concrete structures included in this Contract are water retaining structures and have been designed accordingly. Water retaining structures are subject to the provisions of the following Sub-Clauses:

5.5.11.1 Pipes and Conduits Embedded in Concrete.

Except with the written approval of the Engineer, no pipes other than those shown on the drawings shall be embedded in concrete and the approval of the Engineer for the position of all services to be embedded shall be obtained before concreting commences. The clear space between such pipes and reinforcement shall not at any point be less than

- a) 40mm or
- b) 5mm plus the maximum size of coarse aggregate, whichever is the greater

5.5.11.2 Grouting of Pipes and Specials Through Walls.

Where entry holes for pipes/specials have been provided in walls the Contractor shall be responsible for the grouting in of such pipes/specials, regardless of whether or not these have been supplied by himself.

Before commencing the positioning in holes of any pipes/specials the Contractor shall

- a) remove all shuttering and boxing remaining in the holes;
- b) make any alterations required to the position and shape of the holes;
- c) thoroughly clean the sides of the holes so as to obtain a satisfactory bond surface for the new concrete; and
- d) free all surfaces of the pipes/specials of all coatings, and thoroughly scrape and clean the pipes/specials.

After accurately positioning the pipes/specials in their respective holes, the Contractor shall fix the pipes/specials in the holes.

Immediately before grouting is carried out by the placing of mortar and concrete around the pipes, the surface of the existing concrete shall be saturated with water. All surplus water shall be removed and the surface covered with a layer, approximately 12mm thick, of mortar consisting of 3 parts of concrete sand and 1 part of cement.

The concrete ingredients shall be mixed and placed as dry as possible to obtain a dense, waterproof concrete. Where a watertight seal is required, the concrete shall be carefully worked around the puddle flange, if any, and the pipe barrel or body of the special, and shall be vibrated in layers so as to obviate any falling away from pipe/special surfaces of the concrete already placed. The whole shall, when set, form a dense, homogeneous, and waterproof mass. A spare vibrator with an independent power source shall be kept in readiness to ensure continuity of placing in the event of the breakdown of the duty vibrator.

Smooth formwork that has been suitably strengthened for use with a vibrator shall be provided for facing the concrete around each pipe/special.

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5.5.11.3 Tests for Water tightness.

Water for testing may be final effluent obtained from the adjacent Works.

Concrete work which is required to contain liquid shall not be accepted as complete until it has been proved by test to be watertight.

Neither backfilling around the Works up to original ground level nor banking around structures will be permitted until after the satisfactory completion of the appropriate stages of testing for water tightness in accordance with the provisions set out hereunder.

Water containing structures are to be tested for water tightness at four stages unless otherwise ordered by the Engineer; one at quarter-full depth of water, one at half-full, one at three-quarter-full and one at normal full level. In each case as soon as the water surface is reasonably steady after filling, the water level is to be established and recorded by means of a hook gauge to be provided by the Contractor, and thereafter is to be measured and recorded each successive 24 hours and the results graphed so as to establish a progressive rate of absorption and leakage.

To make allowance for variations caused by evaporation or rainfall in the case of un-roofed structures a watertight open-topped container of at least 2m² plan area by 1m deep 80% filled with water shall be floated on the water and moored. By taking measurements of the water level in the container, the losses or gains due to evaporation or rainfall will be assessed.

If the rate of leakage in the case of roofed structures or after making allowance for evaporation or rainfall in the case of un-roofed structures, at any stage exceeds 2mm per 24 hours at the end of 7 days in the case of the fourth stage, or if damp patches are apparent on the concrete face remote from the contained water, and there is no prospect, in the opinion of the Engineer, of the leakage reducing to tolerable limits, he shall have the right to deem the structure to be not watertight and to notify the Contractor accordingly, who shall take such steps at his own expense and to the approval of the Engineer, as may be considered necessary to achieve water tightness, other than by plastering. In the event of the measures taken by the Contractor proving ineffective in reducing the drop in water level over a period of 7 days to less than 2mm per 24 hours, and/or the apparent dampness externally to limits which are considered tolerable by the Engineer, he shall have the right to order the Contractor to plaster or coat with an approved product the floors and inside faces of walls and the Contractor shall at his own expense carry out this work to the approval of the Engineer.

The water tightness of the roof shall be tested before that of the reservoir itself by water being continuously sprinkled over the roof and in an approved manner so that a film of water is maintained on the surface of the slab. The roof shall be considered watertight if no damp patches are visible on the underside after 48hours of Sprinkling.

On completion of this work and after cleaning out the structure it shall again be tested in the manner specified at the Contractor's cost. If the retest fails to reveal a satisfactory degree of water tightness, the Contractor shall carry out such other measures at his own expense as may be directed by the Engineer.

In the event of leakage being evident at any time during the Maintenance Period, the Engineer before issuing the Final Certificate may call for further testing and rectification as already described, and will have the right to withhold his Certificate until he considers the work to be satisfactory.

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5.5.11.4 Construction Joints

Joints are the concrete at which special measures are taken to achieve subsequent continuity are termed construction joints. Construction joints will be permitted only where shown on the drawings or approved by the Engineer and shall be formed true to line on all formed or exposed surfaces. Horizontal joints shall be formed by casting against a timber or metal former. Recesses shall be formed as detailed on the drawings. Where detailed on the drawings, galvanized metal strips or waterbars shall be cast into the joints. No unplanned construction joints will be allowed. If a breakdown occurs, the contractor shall strip the shuttering as soon as possible and break out all concrete up to the previous planned construction joint.

Except in the case where movement joints are required, the entire joint contact area of the concrete already placed shall be thoroughly roughened by chipping with sharp chipping picks before placing concrete against the surface. This surface will not be accepted unless the coarse aggregate projects 5 mm beyond the surrounding matrix. In this connection approved light pneumatic or electric tools are preferred provided that no structural damage is done to the concrete being chipped: otherwise hand tools are to be used. Chipping shall not be commenced until at least 48 (forty-eight) hours after the concrete was placed.

Alternative methods of preparing the surfaces of construction joints to those given above will be considered. The Contractor shall submit proposed alternative methods of achieving the roughened surface required to the Engineer for approval.

Should the Engineer at any time withhold or withdraw permission for alternative methods to be used then the Contractor shall prepare the surfaces of construction joints in accordance with the above specification.

Immediately before the adjoining concrete is placed, the chipped surface shall be thoroughly cleaned by brushing and washing and then thoroughly wetted.

At the discretion of the Engineer the percentage of coarse aggregate of the mix may be slightly reduced in a layer not exceeding 200 mm in depth immediately above the chipped surface of a horizontal construction joint. Suitable temporary openings shall be left in the shuttering to allow for the removal of sawdust, shavings, nails, debris, etc.

The application of compounds to the surfaces of stop ends at vertical joints to retard the setting of a film of concrete in contact with the stop end will be permitted subject to the Engineer's approval of the compound to be utilized and the Contractor's methods for the application of the same.

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5.5.11.5 Movement Joints

Movement joints shall be formed where shown on the Drawings.

Movement joints shall be formed true to line and shall be thoroughly cleaned of all accretions of concrete or other foreign matter by scraping or other approved means. The surfaces in contact with joint sealing material shall be prepared strictly in accordance with the manufacturer's Specification.

Care shall be taken to ensure that the waterbars are in perfect contact with well compacted void-free concrete throughout, particularly on horizontal joints where special procedures shall be adopted for placing and compacting concrete under the waterbars, to the approval of the Engineer.

5.5.11.6 Waterproofing of Concrete Joints (if specified)

Three different systems of waterproofing (or construction of systems) exist and the appropriate system (or combination) will be applied as specified on the drawings: The three systems are:

- a) Waterproofing with hypalon bandage system
- b) Waterproofing with waterbars
- c) Waterproofing with surface sealants

(i) Hypalon system

Hypalon bandage joint sealing system shall be the Sikadur-Combiflex Hypalon bandage system as supplied by Sika (Pty) Ltd.

The joint shall consist of 2 mm thick Combiflex Hypalon sheeting, 200mm and 250mm wide, as shown on the drawings. The Hypalon sheeting shall have a tensile strength of 6N/mm² and an elongation at failure of not less than 400%.

The Hypalon sheeting shall be bonded to the concrete with Sikadur 31 two component, solvent free, moisture intensive, high viscosity, epoxy paste adhesive.

(ii) Waterbars

Except where otherwise specified waterbars shall be manufactured from virgin polyvinyl chloride complying with BS 2571: latest amendment (Class 3 compounds) and the Tenderer shall provide full details of the composition and properties of the material in the relevant annexure where applicable.

Samples of waterbars shall be submitted for approval and all material subsequently supplied shall be identical in size, shape, colour and quality to the approved sample. The waterbar shall be of uniform cross-section and size and shall have lugs welded at 1m centres on both edges of the waterbar to hold it securely in position during concreting operations.

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It shall be possible for all sizes of waterbar to be turned through a 75mm radius without damage or permanent set to the waterbar.

Joints in waterbars shall be kept to a minimum by the use of the longest possible lengths.

Waterbars shall be held to the required shape, lines, etc, in suitable formwork: site joints shall be bonded as directed by the manufacturer in such a way as to form a continuous watertight seal free from pin holes at any point of the length or width of the strip.

Formwork shall be designed to accommodate the waterbars without subsequent bending and the waterbars shall be adequately supported and protected from damage and sunlight until finally encased in concrete.

Waterbars shall be tested in accordance with BS 2782 and ISO R527.

(iii) Waterproofing with surface sealants

a) General

A groove of dimensions specified shall be formed, where indicated, and sealed by an approved sealant. The sealant shall be non-toxic and shall be either a hand applied bitumen putty sealant or a polysulphide sealant. The type of sealant to be specified on the drawings and the product to be used shall be approved by the Engineer.

b) Bitumen Putty Sealant

All joints shall be clean, dry and free of laitance. The concrete shall be at least four weeks old. The joint surfaces shall then be primed by an ancillary product and the sealant applied as per the suppliers specification. Special precautionary measures shall be taken to acquire a neat finish by covering the face edges of the joint with masking tape before priming. Any excess material will be cut away and finished flush.

c) Polysulphide Sealant

All joints shall be clean, dry and free of laitance. Prime joint face if required – following the suppliers specification. Apply the sealant and finish off flush with the concrete surface.

PSG5.5.12 Concrete in Wet Ground

Add the following:

“The permanent under drainage measures consisting of no fines concrete blankets connecting to a system of drains and which has been detailed for construction below structural floors and wall foundations are required to ensure the long term stability of the structures and to intercept any leakage water in order that prolonged undetected leakage from the structures is prevented from entering the dolomite sub-strata.”

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Delete the contents of Clause 5.5.13 and replace with:

“5.5.13.1 Materials.

Water: Water for grout shall comply with the requirements given in SANS 200 G sub-clause 3.3.

- a) Aggregates: Notwithstanding the requirements of Sub-Clause 3.4.1 of SANS 1200G, the grading of fine (sand) and coarse aggregates shall conform to the grading given in Table PSG2.
- b) Cement: Cement shall be ordinary Portland cement complying with SANS 471.
- c) Admixtures: Admixtures shall comply with the requirements of sub-clause 3.5 of SANS 1200 G and shall have a proven record of satisfactory performance under conditions encountered in the Republic of South Africa.
- d) Proprietary grouting materials: Unless otherwise approved by the Engineer, proprietary grouting material shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

TABLE PSG2: GRADING OF AGGREGATE FOR GROUTS

FINE AGGREGATE (SAND)		COARSE AGGREGATE	
Sieve Size (mm)	% Passing by mass	Sieve Size (mm)	% Passing by mass
9,5	100	9,5	100
4,75	95 – 100	4,75	95 – 100
1,18	45 – 65	2,36	0 – 5
0,3	5 – 15		
0.15	0 – 5		

5.5.13.2 Preparation and Procedures.

- a) Before a machine or structural bedplate is placed on the concrete the following steps shall be carried out:
- b)
 - i) All defective concrete, laitance, dirt, oil, grease, and loose material shall be removed from the concrete foundation by bush-hammering, chipping, or other means until sound clean concrete is obtained. The surface of the foundation shall be scrubbed, but shall not be so rough as to interfere with proper placing of the grout. All foundation bolt sleeves shall be cut out, or cut off flush if the sleeves cannot be removed. The top of the foundation shall be re-shaped if necessary.

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- ii) The underside of each steel base, particularly in the bearing areas, shall be cleaned and any burrs and ragged edges removed before the base is placed in its final location.
- iii) All holding-down bolt sleeves shall be thoroughly cleaned of any materials that may prevent the grout from flowing freely to the bottom of the bolt sockets.
- c) The base shall be properly aligned and levelled and shall be maintained in that position during grouting.
- d) After the machine or structural bedplate has been placed the following precautions shall be observed:
 - i) Shimming shall be kept to a minimum. Steel plates shall be used for packing and shall be ground to the required thickness, where necessary.
 - ii) Before grouting is started all loose dirt, oil, grease, and other foreign matter on the surface of the foundation, the undersides of bedplates, and in the bolt holes shall be removed by means of compressed air or other approved means. The surface of the foundation slab shall be thoroughly saturated with clean water, and all free water shall be removed from the surface and the bolt holes just before the grout is placed.
 - iii) Grouting shall not be carried out until the alignment of all units to be grouted has been checked and approved by the Engineer.
 - iv) Special care shall be taken with grouting in hot or cold weather to ensure proper setting and gain of strength, in the case of proprietary grouting materials, by having ice or hot water available,
 - v) as the case may be, in accordance with the instructions of the manufacturer.
 - vi) Enclosures shall be provided for the grout such that, until it has set its temperature will be in the range 15- 27°C.
 - vii) Shields to protect the grout from the sun and from hot winds shall be provided by the Contractor when so ordered.

5.5.13.3 Formwork.

Formwork for grouting shall comply with the applicable requirements of Sub-Clause 5.2 of SANS 1200 G. Forms shall be caulked where necessary. Adequate clearance between forms and bedplates shall be provided to enable the grout to be worked into place.

5.5.13.4 Mixing (all free-flowing grouts except epoxy grouts). The grout shall be mixed to a homogenous uniform mixture and delivered ready for placing at a temperature between 15°C and 25°C.

The materials and water shall be mixed in a mortar mixer for at least 3 min or, in the case of small jobs only, shall be thoroughly mixed by hand, the entire mass being turned over enough times to ensure even distribution of its components.

The mixing shall be done as close as possible to the place(s) where the grout is placed. No more grout shall be mixed at any one time than can be placed in a period of 20 min. After the grout has been mixed it shall not be re-tempered by the addition of water.

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- 5.5.13.5 Grouting (all free-flowing grouts except epoxy grouts). The grout shall be placed quickly and continuously to avoid the undesirable effects of over-working. (These effects are segregation, bleeding, and breaking-down of initial set.) The method of placement shall be subject to approval. The means of placing the grout shall be such that the grout will completely fill the space to be grouted, will be thoroughly compacted, will be free of air pockets, and will have evenly distributed contact over an area in excess of 80% or, in the case of expanding grout, 95% of the bearing area of the item to be supported. Wherever practicable, grout shall be placed from one side only and where this is not practicable, care shall be taken to ensure that any entrapped air is released.

After the grout has taken its initial set,

- a) The forms shall be removed;
- b) Excess grout shall be so cut away as to leave a smooth and neatly finished job;
- c) Except where the grout is intended to provide resistance to side thrust, all edges shall be trimmed at 45° to the vertical, from the bottom edge of the bedplate; and
- d) All excess grout on or about the bedplates shall be removed.

Damage to paintwork, if any, shall be repaired within 24 hours.

Packing plates, shims, and other levelling devices shall remain in position.

- 5.5.13.6 Dry-Packed Grout (standard dry sand and cement, grout). Dry-packed grout shall have a minimum compressive strength at 28d of 20 MPa. The quantity of water added after placing shall be kept to a minimum consistent with placing conditions, and the cement, sand and, where applicable, pea gravel proportions by mass shall be as follows:

- a) Where the clearance exceeds 25mm: 1 part of Portland cement, 1 part of sand, and 1 part of pea gravel.
Dry-packed grout shall be rammed by means of tamping rods against formwork placed along three sides of the bedplate.

- 5.5.13.7 Non-Shrink Grout with Metallic Aggregate. The manufacturer's instructions shall be observed when non-shrink grout with metallic aggregate is used.
Where the clearance between the bedplate and the foundation is less than 50mm, a sand-based mix shall be used.
Where the clearance exceeds 50mm the engineer may order a mix with a base of sand plus pea gravel to be used.

- 5.5.13.8 Expanding Grout with Powdered Aluminium Additive. The manufacturer's instructions shall be observed when an expanding grout with powdered aluminium additive is used.
Where the clearance between the bedplate and the foundation is less than 25mm, a sand-based mix shall be used.
Where the clearance exceeds 25mm the Engineer may order a mix with a base of sand plus pea gravel to be used.
Each batch shall be mixed for at least 6 min after the powdered aluminium has been added. Where a ready-mixed grout is used, the powdered aluminium shall be added at the placing site and the batch mixed as specified in PSG 3.2.15.4. Grout shall be placed within 45 min after the addition of the powdered aluminium.
The Contractor shall not use powdered aluminium additive when the ambient temperature is below 5°C.

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5.5.13.9 Epoxy Grout (epoxy mortar type only). The manufacturer's instructions shall be observed when an epoxy grout is used.

5.5.13.10 Testing. The Contractor shall, where so ordered, carry out a site test for each grouting procedure and each grouting gang to be used. The tests shall be carried out on a dummy bedplate similar in configuration to that which is to be grouted, but not exceeding 1 m² in area unless otherwise ordered. When the dummy bedplate is dismantled, the underside shall show a minimum grout contact area of 80% with reasonably even distribution of the grout over the surface grouted except that, in the case of expanding grout, the minimum grout contact area shall be 95%. The test shall show evidence of good workmanship and materials and the results shall be to the satisfaction of the Engineer.

The Contractor shall, when so ordered, make standard test cubes from various grout mixtures and subject them to compression tests to determine whether the specified strength has been achieved. Test procedures shall comply with the relevant requirements of Sub-Clause 7.2.1-7.2.3 of SANS 1200 G.

PSG5.5.16 Bonding Fresh Concrete to Old Concrete (New Clause 5.5.16)

Insert the following new Clause:

"5.5.16 Bonding Fresh Concrete to Old

The following methods shall be used:

a) Existing concrete less than 4 hours old:

- i) Horizontal joints: Place original concrete 25mm higher than level of joint and strike off surplus concrete as in Clause PSG 3.3.6. Place fresh concrete.
- ii) Vertical joints: Remove shutter 1 hour to 2 hours after fresh concrete is placed. Carefully roughen surface with wire brush or compressed air to expose coarse aggregate and remove loose material. Place fresh concrete.

b) Existing concrete between 4 hours and 3 days old:

- i) Horizontal joints: After removing 25mm of surplus concrete as described in Clause PSG 3.3.6 brush the old concrete thoroughly with a wire brush to expose the coarse aggregate.

Alternatively use sand blasting. Wash joint with clean water to remove all laitance, dirt and loose particles.

Just before placing fresh concrete apply a thin layer of plastic mortar to the surface of the existing concrete. The mortar shall consist of cement and sand mixed in the proportion contained in the concrete mix i.e. omitting coarse aggregate. The mortar shall still be plastic when the fresh concrete is placed against it.

- ii) Vertical joints : Roughen surface with wire brush to expose coarse aggregate and remove loose material. Alternatively use sand blasting, then treat as for horizontal joint in (b) (i) above.

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- c) Existing concrete more than 3 days old:
 - i) Horizontal joints: As for (b) (i) above and that the construction joint surface shall be kept continuously damp for 24 hours before the plastic mortar and fresh concrete are placed, but no free water shall be visible on the surface prior to placing the mortar.
 - ii) Vertical joints: As for (b) (ii) above and that the construction joint surface shall be kept continuously damp for 24 hours before the plastic mortar and fresh concrete are placed.

d) Adhesives:

Proprietary adhesives may be used for bonding concrete at easily accessible construction joints (e.g. slabs and beams) subject to the approval of the Engineer. The manufacturer's instructions shall be followed by the Contractor. In general the existing concrete shall be prepared as described in Clause (b) (i) above.

PSG5.5.17 Expansion and Contraction Joints (New Clause 5.5.17)

Insert the following new Clause:

"5.5.17 Expansion and Contraction Joints.

a) Location

- i) Expansion and Contraction joints shall be located as shown on the drawings.
- ii) Where smooth shutter finishes are specified the edges of the shutter boards or panels shall coincide with the joints
- iii) All joints shall be truly vertical or horizontal unless otherwise specified.

b) Forming Joints

All expansion and Contraction joints shall have a shuttered face. The shuttering shall be fixed firmly in position; it shall be split as required to accommodate water stops without loss of mortar at the joint.

To obtain a joint free from projections the shutters for the new concrete shall be tightly fixed to the existing concrete. Where possible the shutters shall overlap the joint and not be disturbed until the new concrete has hardened.

Joint recesses are to be formed to the dimensions and shapes indicated on the drawings by means of untreated clean timber with rough sides and so shuttered that the shuttering is rigidly fixed during placing of concrete and can be removed without any timber having to be left in the recesses.

Shuttering shall be left in the joints until these are ready for sealing, whereupon the shuttering shall be removed and the surfaces of the recesses shall be thoroughly cleaned by light hammering with a chipping hammer and wire brushing to remove all laitance and thoroughly cleaned and dried by using compressed air passed through suitable oil and moisture traps, and by heating with a blow-lamp. Care shall be taken not to overheat the concrete.

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c) Construction

- i) Each section of pre-moulded water stop shall be of the maximum practicable length so that the number of end joints will be a minimum. Continuous seals are to be obtained in the field by jointing the water stops by heat fusion using suitable jigs and heating tools. Joints shall develop effective water tightness equal to that of the continuous material and shall permanently develop the full mechanical strength of the parent section and retain its flexibility. Water stops shall be securely and accurately located in position in the shutters before concreting commences. Nails, wires or other fastenings shall be used only in anchoring ribs.
- ii) Concrete around water stops shall be properly placed and compacted to avoid honeycombing. To ensure full contact between the water stop and the concrete around its periphery, concrete in the vicinity of the seal is to be well vibrated and the seal worked up and down by hand to expel entrained air, when the concrete has reached the level of the seal.
- iii) Joint filler (expansion joints only) to the sizes and thicknesses shown on the drawings shall be fixed to the joint face before the ensuing concrete is cast.
- iv) All recesses to receive joint sealer shall first be cleaned as described in (b) of this clause. Thereafter a primer matched to the sealer, shall be applied by brushing it well into the sides of the joint to ensure complete coverage. Where shown on the details or in accordance with the jointing material manufacturer's standard procedures an approved bond breaker shall be inserted into the recess. Sealants shall be tooled into position for complete air-free filling of voids. The surface of the joint shall be smoothed with a clean spatula. To obtain neat straight line joints the adjacent concrete shall be suitably masked.
- v) The preparation and priming of joint surfaces, the mixing of the components of the sealer, the application and tooling shall all be carried out strictly in accordance with the manufacturer's instructions. Priming of joints shall not be commenced before the concrete has set for at least 21 days.
- vi) Sliding joints shall be formed where shown on the drawings. The upper concrete surfaces forming the sliding surface are to be steel trowelled to a smooth and level surface. Only when thoroughly set and dry and prior to the upper layer of concrete being cast thereon, shall these surfaces receive two coats of an approved bituminous paint.

PSG5.5.18 Sterilization of Reservoirs (New Clause 5.5.18)

Insert the following new Clause:

Before a reservoir is sterilised, the roof shall have been tested for water tightness as set out in Clause 5.5.11.3above, and the pipelines serving the reservoir shall have been sterilised. The reservoir shall then be thoroughly cleaned out and washed down with clean water.

The roof and walls shall thereafter be thoroughly sprayed down, using pressurised equipment, and the floors shall be scrubbed with water containing 0,015 g per litre of chloride of lime.

On completion of the sterilisation, the sterilising solution shall be run to waste before the reservoir is filled for testing its water tightness.

Should additional work be required to be done inside the reservoir after the water tightness test has been completed, the reservoir shall be re-sterilised at the Contractor's expense.

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PSG5.6 Pedestals/Foundations and HD bolts for equipment (New clause 5.6)

Insert the following new Clause.

“5.6 PEDESTALS/FOUNDATIONS AND HD BOLTS FOR EQUIPMENT.

The mechanical supply contractor will supply all holding down bolts for all items of plant supplied by themselves, and which are to be fixed in position under this Contract.

The supplier of the plant and equipment will provide all dimensions and other details necessary for the construction of bases, pedestals, HD bolt pockets or the fixing of the bolts. The Contractor shall either form pockets or cast in the bolts as ordered. The items of plant not supplied under this Contract will be aligned and levelled on site by the mechanical supply contractor by means of metal blocks and shims and after the Engineer is satisfied with the alignment and the level of each unit, the Contractor shall grout up the units solidly by filling the voids inside and under the base plate with an approved non-shrink grout.

No screeding of clarifier floors shall be allowed unless with the written approval of the Engineer in which case the Contractor shall consult with the Mechanical Contractor for advice on the proper application method”

All holding down bolts and nuts, other than those used in structures retaining liquid shall be galvanised in accordance with SABS 763.

All holding down bolts and nuts in structures retaining liquid shall be Stainless Steel, Grade 316.

Exposed threads of holdings down bolts shall be adequately protected with grease and sacking and this protection shall be maintained in all portions of the works until they are taken over.

PSG5.7 Pipe work(New clause 5.6)

Insert the following new Clause.

All pipe specials shall be cast in by the Contractor. Special care shall be taken to maintain them in the exact position shown on the drawings and also to render the joints watertight.

For pipework to be cast in at a later stage, square box-outs shall be provided. For pipes with puddle flanges to be cast in, the size of the box-out shall be suitable for the outside diameter of the pipe plus a full size (class 10) flange according to SANS 1123 plus 100mm. For pipes without puddle flanges, the size of the box-out shall be suitable for the outside diameter of the pipe plus 100mm.

Pipework cast into concrete structures shall be done so with a suitable standard non-shrink grout (BASF Masterflow 525, Sika SikaGrout 212 or similar).

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PSG7 TESTS

PSG7.1 Facilities and Frequency of sampling

PSG7.1.1 Facilities

Add the following:

The Contractor shall provide sufficient watertight tanks approximately 400mm deep for the storage of cubes in compliance with SANS Method 863 prior to testing.

The cost of all testing, including the cost of sampling, storage and transport of samples shall be included in the rates tendered for concrete work."

PSG7.3 Acceptance criteria for strength concrete

Add the following:

"Test results obtained from the supplier of ready-mixed concrete will not be accepted for evaluation in terms of sub-clause 7.3, but samples for testing shall be taken of such concrete at the point of placing."

PSG8 MEASUREMENT AND PAYMENT

PSG8.1 Measurement and Rates

PSG8.1.1.2 Delete "or splays over 20 mm x 20 mm" from the first line of paragraph 8.1.1.2.

Add the following to paragraph 8.1.1.2:

"Splays up to and including 25 mm x 25 mm will not be measured separately and will be deemed to be included in the formwork costs."

Add the following new paragraphs:

PSG8.1.1.7 For construction joints at kickers, all additional costs for formwork to edges up to 300 mm high will be deemed to be included in the rates tendered for vertical formwork to sides of walls and will not be measured separately in narrow widths.

PSG8.1.1.8 No formwork will be measured to edges of blinding layers under structures, and the cost thereof (if needed) will be deemed to be included in the rates tendered for concrete in blinding layers.

PSG8.1.1.9 Back-shuttering or formwork to top revealed surfaces of sloping or conical formwork will only be measured to surfaces of over 40° and up to 85° to the horizontal.

PSG8.1.1.10 Formwork to horizontal surfaces in Pump Station, valve chambers, manholes or sumps can either be removed through the manhole cover opening or the Contractor may use permanent formwork at his own cost as no claims in this regard will be considered."

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PSG8.1.2 Reinforcement

Delete sub-clause 8.1.2.2 and replace with the following:

"The masses of all round steel bars are scheduled provisionally in the Schedule of Quantities for all diameters."

Delete "of nominal size 25 mm" from sub-clause 8.1.2.3(a).

PSG8.2 Scheduled Formwork Items

PSG8.2.2 Smooth

Add the following to the description of the payment item:

"The rate include full compensation for producing a smooth finish as specified in SANS 1200 G sub-clause 5.2.1(b) as amended in PSG3.2.1, inclusive of rubbing."

PSG8.4 Scheduled Concrete Items

PSG8.4.4 Unformed Surface Finishes

Delete sub-item (d) and insert the following:

(b) Steel-floated finishes

Add the following sub-item:

"(i) Extra over sub-item (b) for special finishing tolerances to top of outside ringwalls as specified Unit: m²

The quoted rate shall include full compensation for the additional cost of finishing the ringwalls to closer tolerances as specified on the Drawings and in clause PSG 7.1."

"d) Surface hardener or similar treatment..... Unit: m²

The rate shall include full compensation for the procurement, transport, access to the surfaces to be coated, surface preparation, application of a primer consisting of an approved epoxy modified cementitious thixotropic mortar (Sikagard – 720 EpoCem ZA or equivalent) followed by a minimum of 2 coats of a two component solvent free, high build thixotropic epoxy resin coating (Sikagard – 63N or equivalent) which is eminently suitable for the protection of areas particularly prone to chemical attack and which will provide a hard glossy surface finish with a dry film thickness of not less than 300 microns.

The preparation of surfaces and the coating shall be strictly in accordance with the manufacture's printed instructions.

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PSG8.4.7 No-Fines Concrete (new payment item 8.4.7)

Add the following new payment item:

"8.4.7 No-fines Concrete..... Unit: m³

The rate shall include full compensation for all costs relating to the design, production and placing of no-fines concrete as specified in PSG5.5.1.8."

PSG8.7 Grouting

Delete the contents of the payment item and replace with the following:

- "a) Under bases and beds, using:
- i) Cementitious free flowing grout U Unit: m³
 - ii) Dry-packed grout Unit: m³
 - b) HD bolts, etc using and approved epoxy grout Unit: m³
 - c) Voids in walls and floors of thickness less than or equal to 350 mm in water retaining structures, using an approved on-shrink cementitious grout, for an area of:
 - i) less than or equal to 0.25 m² Unit: No
 - ii) greater than 0.25 m² but less than or equal to 1.0 m² Unit: No
 - d) Voids in walls and floors of thickness greater than 350 mm, but less than or equal to 500 mm in water retaining structures, using an approved non-shrink cementitious grout, for an area of:
 - i) less than or equal to 0.25 m² Unit: No
 - ii) greater than 0.25 m² but less than or equal to 1.0 m² Unit: No
 - e) Voids in concrete walls and slabs for pipe work ducts, specials, penstocks, etc, supplied and placed by others, using an approved non-shrink cementitious grout Unit: m³

PSG8.9 Testing for water tightness (New payment item 8.9)

Add the following new payment item:

8.9 Testing for Water Tightness Unit: No

The rate shall include full compensation for undertaking tests for water tightness as specified in sub-clause 5.5.11.3 including all plant, labour, materials and other incidentals.

PSG8.10 Building pipes into concrete work (New payment item 8.10)

"8.10 The rate shall include full compensation for breaking through, installing and grouting pipes into concrete work complete. Unit: No

PSG8.11 Join New Concrete to Existing (New payment item 8.11)

"8.11 Demolish, expose, clean, drill, supply and install steel dowels and apply epoxy bonding compound to join new concrete to existing concrete..... Unit: No

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PSHA: STRUCTURAL STEELWORK (SUNDRY ITEMS)

PSHA3 MATERIALS

PSHA3.1 Structural Steel

Replace the first sentence with

“a) Mild steel shall be Grade 300W complying with SANS 1432

PSHA3.2 Welding Consumables

PSHA3.2.1 Electrodes

Replace the contents of Sub-Clause 3.2.1 with

“Electrodes for mild steel shall comply with the applicable requirements of SANS 455.

PSHA3.3 BOLTS, NUTS AND WASHERS (3.3)

PSHA3.3.1 Bolts and nuts (other than Friction-grip)

Amend sub-clause 3.3.1 as follows:

“Bolts and nuts other than fitted bolts and other than bolts and nuts for friction-grip joints shall comply with the requirements of SANS 135, SANS 136 or SANS 1143 (as applicable) for the type shown on the drawings or scheduled. Nuts shall be of at least the strength grade appropriate to the grade of bolt or other threaded element with which they are used.

Fitted bolts shall comply with the relevant requirements of SANS 136.

Washers for bolts and nuts shall comply with the relevant requirements of SANS 1149.”

PSHA5 CONSTRUCTION

PSHA5.1.2 Shop Details

Replace the first sentence of this clause with:

“The Engineer’s drawings issued for construction purposes are preliminary with regards to structural steel items and the Contractor shall prepare shop drawings of all structural steel items for the Engineers approval.”

Add the following sentence to the end of this clause:

“No payment shall be considered for any structural steel item without shop details being provided and approved by the Engineer in writing.”

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PSHA5.2 Fabrication and Assembly

PSHA5.2.6 Handrails

Substitute the first sentence with the following:

"Handrails shall be of the tube and sphere type similar to Mono weld and shall be manufactured from an approved specialist using grade 304 L stainless steel or hot dipped galvanized steel (heavy duty coating) all as detailed on drawings.

Handrails shall be 1000mm high consisting of a hand rail and knee-rail. Rail steel tubing shall be minimum 34mm diameter and 2.6mm thick.

Stanchions shall be formed as one unit out of minimum 42mm diameter tubing 2.6mm thick steel. Base plates are to be minimum 150mm x 75mm x 12.5mm thick flat bars manufactured to suit top, side or slope mounting. Stanchions are to be spaced maximum 1.5m fixed with M16 bolts and all joints welded."

PSHA5.2.8.1 Prefabricated Open Grid Floors

Add the following:

Open grid flooring shall be of square pattern with 40 x 4mm minimum thickness bearer bars spaced at no more than 40mm centres out of grade 304 L stainless steel or 3CR12 steel.

Frames shall be as scheduled out of 50 x 50 x 5mm thick 3CR12 steel angle. Nett clearance between side bars of the open steel flooring and the vertical leg of the frame or strip shall be 5mm per side. The frames shall be complete with 100 x 40 x 3mm 3CR12 steel anchors fixed at 500mm centres for building the frame into concrete.

Pickling and passivation shall be carried out in accordance with the Standards Corrosion and Painting Specification for Civil Engineering Works.

PSHA5.2.10 Protective Treatment

PSHA5.2.10.1 General

Add the following to new Sub-Clause (5.2.10.1.)

The protective treatment to be used on the surfaces of non-galvanized steelwork is as follows:

1) Fabricator's Yard

Surface Preparation – Mechanical or hand wire brush all steel surfaces to remove loose rust and loose mill scale to a St2 finish to Swedish Standard SIS 05/59/00/1967.

Priming – To the clean steel, apply one coat of an approved red lead based primer to SANS 312, Type II, Grade II. The minimum dry film thickness shall be 40 microns.

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2) On Site Painting

Before Erection – Areas where the prime coating has been damaged during transportation or by any means whatever, shall be repaired as follows :

Rust spots shall be removed by means of a wire brush or emery paper and the surrounding paint which is still intact shall be feathered for a distance of 20mm, beyond the damaged area. Spot priming shall consist of all the coats previously applied and shall overlap the damaged area by 20mm. The steel shall be perfectly clean.

After Erection – Damaged areas shall be repaired in the same way as in the previous paragraph, and spot priming shall consist of all the coats previously applied. As before it should overlap the damaged area by 20mm. The steel shall be perfectly clean.

Intermediate Coat – Apply one coat of an approved general purpose undercoat to give a minimum dry film thickness of 25 microns.

Finishing – Where the steelwork is to be exposed to direct sunlight, one coat of an approved alkyd micaceous structural paint, in colour to suit, provided that a light coloured finish is not required, shall be applied. The dry film thickness shall not be less than 40 microns. The total dry film thickness for the three protective coats shall be not less than 105 microns.

Where steelwork is indoors a decorative high gloss enamel paint, to SANS 630, in colour to suit, shall be applied to give a minimum dry film thickness of 25 microns. In this case, the total dry film thickness for the three protective coats shall not be less than 90 microns.

The finishing treatment to be applied to galvanized surfaces of the items mentioned above consists of one coat of an approved epoxy-tar paint (of the colour ordered) with a minimum dry film thickness of 100 microns. The epoxy-tar shall be applied to the galvanized surfaces only after the latter has been degreased with an approved degreaser, hosed down with fresh water and allowed to dry.

In all cases, particular attention shall be given to the underside of the floor irons, to all edges and cut ends.

ADD THE FOLLOWING

PSHA5.2.11 Weir Plates

Weir Plates are to be made out of 6mm thick 3CR12 steel with M10 stainless steel bolts. The weir plates are to be fixed to concrete using 8mm thick neoprene seals.

PSHA5.2.12 Penstocks

All parts shall be designed for the duty required with a minimum factor of safety of 3 of the working stress of the material. Due consideration for anti-corrosion shall be given in determining the thickness and 100 Newtons shall be the minimum force at each handwheel to raise a gate or open a penstock.

Frames will be out of grade 304 stainless steel with minimum thickness of 3.5mm.

Anti-jamming mechanisms shall be incorporated in all gates assembly and wall mounted gates shall be held uniformly against the side facings of frames by adjustable wedges to provide drop tight closure.

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Penstocks shall only allow water passage through the designed opening and shall be of the level invert type with renewable non-biodegradable seals at invert. Penstocks shall have rising spindles in transparent nylon sleeves. Handwheels shall be cast iron operation directly on head frame or on a grade 304 stainless steel tubular pedestal. Bolts made out of class 304 stainless steel shall be used for fixing penstocks to walls where required. The Contractor shall be responsible for grouting and adjustments of Penstocks for their smooth operation.

PSHA5.2.13 Hand stops

All parts shall be designed for the duty required with a minimum factor of safety of 3 of the working stress of the material. Due consideration for anti-corrosion shall be given in determining the thickness and 2000 Newtons shall be the maximum force required to raise a gate or open a handstop. Where the force required exceeds the 200 Newtons, then the hand stop shall be cut in more than on section, each to handle the maximum 200 Newtons.

Frames and gates will be out of aluminium with minimum thickness of 3.5mm.

All gates shall be guided in frames to provide drop tight closure under all conditions. Handstops shall only allow water passage through the designed opening and frames shall extend to the top of the concrete members concerned. Water leakage through handstops shall be limited to maximum of 1litre/15 minutes. The Contractor shall be responsible supplying and installing handstops including grouting and adjustments of handstops for their smooth operation

PSHA8 MEASUREMENT AND PAYMENT

PSHA8.3 Scheduled Items (8.3)

Add the following to clause 8.3.1

- PSHA8.3.1 (a) Palisade fence (2.1m High).....Unit m
- b) 6m wide double palisade gate with posts and padlock complete as per drawing.....Unit No
- c) 1m wide single palisade gate with posts and padlock complete as per drawing.....Unit No

The rate shall include full compensation for procuring and furnishing all material, including treating, painting, hinges and bolts, welding, delivering to site, padlocks and for installing the gates and fencing complete as specified on the drawings.

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PSHA8.3.2 Handrails

PSHA8.3.2(b) **Handrail assembly complete**.....unit: m

Delete the reference to "details given" and add as specified in clause PSHA5.2.6 (state material to be used)

Rate to include hand and knee rail installation complete

PSHA 8.3.3 Ladders, complete and installed (Drawing number or type and length stated)

Replace this item with the following:

"PSHA 8.3.3 Ladders, complete and installed (Drawing number or type and length stated)

Separate items will be scheduled for grid ladders of different materials, dimensions and height.....Unit: No

The tendered rates shall include full compensation for the cost of supplying the specified or scheduled ladders complete, including welding where applicable."

PSHA 8.3.4 Flooring, Complete and installed with frames (Drawing number stated)

Replace this item with the following:

"PSHA 8.3.4 Flooring. Complete and installed with frames:

(a) Open grid floors..... Unit: m²

(b) Floor plate floors..... Unit: m² or t

(c) Frames and kerbs for flooring..... Unit: m

Separate items will be scheduled for grid floors, floor-plate floors, frames and kerbs of different materials, dimensions, weight and different methods of fixing.

The tendered rates shall include full compensation for the cost of supplying the specified or scheduled types of flooring, frames or kerbing complete, including welding where applicable."

PSHA8.3.6 **Corrosion Protection**

Substitute with the following:

The corrosion protection of sundry steel items shall not be measured separately. The cost shall be included in the rate for the related item.

PSHA8.3.7 Miscellaneous items (New Sub-Clause 8.3.7)

Add the following item:

a) Access covers including frames and bolts,
complete as per drawingUnit: No

b) Access ladders, landings and bolts complete as per
drawings.(different types scheduled separatelyUnit: No

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- c) Supply and install complete with full bore outlets, drainage pipes as detailed on the drawingsUnit: No
- d) Supply and install roof ventilators complete as detailed on the drawingsUnit: No
- e) Supply and install 3CR12 weir plates (state size), and refer to drawingsUnit: No
- f) Supply and install Grade 304L stainless steel penstock (state size of clear opening, height to handwheel, channel or wall mounted),and refer to drawingsUnit: No
- g) Supply and install Aluminium hand stops (state size of clear opening) and refer to drawingsUnit: No

The unit rate shall cover the cost of fabrication and supply complete with all the necessary cleats, brackets, gussets, fasteners, packs and the like, surface preparation and surface treatment delivery to site of all material, erection on site including erection bolts casting in as applicable, all as per drawing or manufacturers specifications."

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WITNESS:

PSHB: CLADDING AND SHEETING

PSHB3 MATERIALS

PSHB3.1 Thickness of Sheeting

Delete Table 1 and replace with the following:

"All sheeting to be either galvanized steel or aluminium steel with the minimum thicknesses shown below.

TABLE 1: MINIMUM THICKNESS OF SHEETING

APPLICATION	MINIMUM THICKNESS (mm)
Roof Sheeting (1) GMS (2) Aluminium	0,6 0,7
Side Sheeting (1) GMS (2) Aluminium	0,6 0,7
Closure Pieces (1) GMS (2) Aluminium	0,6 0,7
Ventilators	0,8
All Other Items Including ridging's, flashings etc., as for sheeting	

PSHB3.2 Steel Sheeting

PSHB3.2.1 Galvanized Steel Sheeting

Delete the sub-clause and replace with the following:

"Galvanized steel sheeting shall be of IBR profile, with a minimum thickness of 0,6mm and shall comply with the requirements of an approved manufacturer's specification. The galvanizing shall comply with the relevant requirements of SANS 150 9364 for Class Z600 coating and shall have been passivated."

PSHB 3.2.2 Pre-painted Galvanized Steel Sheeting

Delete the sub-clause and replace with the following:

"Pre-painted galvanized steel sheeting shall be "Chromadek" of IBR profile, with a minimum thickness of 0.6 mm and shall comply with the requirements of an approved manufactures specification".

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WITNESS:

PSHB5 CONSTRUCTION

PSHB5.1 Responsibility

PSHB5.1.4 Installation Details

Add the following to Sub-Clause 5.1.4

“All sheeting shall be fixed in strict accordance with the approved manufacturer’s recommendations. The side lap shall be not less than two corrugations and the end lap shall not be less than 250mm.”

PSHB5.5 Installation of Sheeting

PSHB5.5.5 Fixing of IBR Sheeting (new sub-clause 5.5.5)

Add the following new sub-clause:

“5.5.5 Fixing of IBR Sheeting. Main structural fasteners shall be fixed at 343mm centres through the narrow flute crowns of each side lap and the centre flute. Side laps shall be fastened at not more than 914mm centres. The manufacturer’s recommendations shall be followed regarding the type of fasteners to be used. All flashings shall be fixed with either the main fasteners or other fasteners recommended by the manufacturers.”

PSHB7 TESTING

PSHB7.1 General

PSHB 7.1 .1 Application

Add the following to the sub-clause:

“For the purpose of these tests, the loads to be applied are the loads specified in Code of Practice SANS 0160 – The General Procedures and Loadings to be adopted for the Design of Buildings.”

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WITNESS:

PSL MEDIUM PRESSURE PIPELINES

PSL3 MATERIALS

PSL3.4 Steel Pipes, Fittings and Specials

PSL3.4.3 Pipes, Fittings and Specials of Nominal Bore over 150 mm

Delete the contents of the sub-clause and replace with the following:

“The Contractor is responsible for preparing detailed dimensioned pipe schedules for the approval of the Engineer prior to the start of fabrication of the pipes, fittings and specials.

The Engineer will supply a general arrangement drawing of each pipeline showing its start and end points as well as its horizontal and vertical alignment together with positions of valves and other specials. The Contractor will be responsible for detailing each individual pipe and pipe special. Site welding shall not be permitted due to its deleterious effect on linings and coatings. All pipes and specials shall be eminently suitable for receiving internal linings as specified.

“All mild steel pipes and fittings, other than screwed and socketed pipes, of diameter greater than 150mm shall be electrical resistance welded complying with SANS 719 grade A and shall have walls of thickness not less than 6mm for pipe diameters up to 300mm and 8mm for pipe diameters above 300mm.

All mild steel pipes and fittings of diameter 150mm and less shall comply with SANS 62.

Before delivery to the site all mild steel pipes, fittings and specials shall be protected against corrosion in accordance with the relevant specification.

Plain ends of pipes and fittings shall be covered and protected against damage while being transported to the site.

Welding and visual examination of mild steel piping shall be carried out in accordance with BS 4871 Part 1, BS 2633 or BS 2571 as appropriate. Dye penetration examination shall be undertaken on not less than 10 % of all welds.”

PSL3.4.4 Fittings and Specials

Delete the sub-clause and replace with the following:

“3.4.4 3CR12 Pipes, Fittings and Specials. Where 3CR12 steel is specified it shall be manufactured by an approved manufacturer. Test certificates and marking shall be as for stainless steel.

3CR12 steel shall be supplied passivated and upon completion of fabrication welds and other areas where the passivation has been removed or damaged and areas discoloured shall be cleaned and pickled using a Nitric and Hydrofluoric acid formulation. After cleaning and pickling all areas shall be thoroughly cleaned with clean water and re-passivated immediately thereafter with a proprietary passivating solution of 10% to 20% Nitric Acid in Aqueous solution as recommended by the material suppliers.

Welding of 3CR12 steel shall be carried out under controlled conditions using stainless steel 309L welding rods or as recommended by the material suppliers. All welds shall be continuous and crevice free. Welders undertaking manual and semi-automatic welding of 3CR12 steel shall be competent artisans meeting the requirements of BS 4871 or BS 4872 Part 1 as appropriate.

Cutting welding and passivating of 3CR12 steel shall be carried out in strict accordance the material suppliers procedures and guidelines.

Wall thicknesses and dimensions generally shall be as for mild steel piping.”

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PSL3.4.5 Stainless Steel Pipework and Fittings (New sub-clause 3.4.5)

Add the following new sub-clause:

“3.4.5 Stainless Steel Pipe work and Fittings. Stainless steel pipes shall be Grade TP 304L or TP 316L as specified.
Welding and visual examination of stainless piping shall be carried out on accordance with BS 4871 Part 1 and BS 2633 as appropriate. Dye penetration examination shall be undertaken on not less than 10 % of all welds.”

PSL3.4.6 Bolts, Nuts and Fasteners (New sub-clause 3.4.6)

Add the following new sub-clause:

“3.4.6 Bolts, Nuts and Fasteners. Bolts nuts and other fasteners for the assembly and installation of fabricated components and standard flanges other than anchor bolts shall be hexagon head type complying with the requirements of SANS 135 with ISO threads of the coarse pitch series. Except where high tensile fasteners are required the material shall be of equal or better corrosion or coating than the items being fastened.
Washers of the same or compatible material as the bolts shall be provided at each nut. The use of multiple washers will not be accepted. Spring washers together with flat washers shall be fitted to all nuts subject to vibration. Bolts shall project not less than 3mm and not more than 8mm from the head of the nuts after tightening. Projections on individual and common flange sets shall be identical.
Bolts, nuts and washes shall be hot dip galvanised as a minimum level of corrosion protection unless stainless steel is specified. Plated nuts, bolts and washers shall not be used on the permanent Contract Works.
High tensile bolts shall only be used when it is essential and shall be coated to a system approved by the Engineer.”

PSL3.4.7 Couplings (New sub-clause 3.4.7)

Add the following new sub-clause:

“3.4.7 Couplings. General purpose flexible couplings for M.S. and 3CR12 pipelines shall be “Viking Johnson” or similar type as approved by the Engineer and manufactured from the same material as the pipes to be coupled. Nuts and bolts shall comply with Sub-clause PSL 1.1.5.
All buried couplings shall be completely wrapped in “Denso” or equal approved mastic impregnated tape after installation and testing.
All exposed couplings shall be coated to the same specification as the pipeline in which they are used.”

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PSL3.4.8 Flanges, Drilling and Jointing Material (New sub-clause 3.4.8)

Add the following new sub-clause:

“3.4.8 Flanges, Drilling and Jointing Material. The dimensions of standard flanges shall comply with the requirements of SANS 1123 unless otherwise specified. Drilling dimensions shall be to SANS 1123 for the working pressure as specified for each application. Interconnecting pipelines between structures: Table 1000/3. Pumping mains and pipelines: Table 1000/3. Interconnecting existing pipelines table to be confirmed on site. Pressure above 16 bar table 1600/3 to be used.
Where flanged valves and meters are required in pipelines, the drilling shall be to Table 1000/3 or other Table to suit the valve or meter supplied.
Flanges for low pressure applications of less than 1000kPa shall be the “slip on” type. Flanges for high pressure applications greater than 1000 kPa shall be “socket weld” type. Material for gaskets on flanged joints shall comply with the requirements of BS 4865 and be cut to the full width of the flange. The material shall be selected to accommodate the maximum conditions of temperature, pressure, and to be compatible with the material conveyed.”

PSL3.7 Pipework for sub soil and underfloor drainage

Pipes for sub soil and under floor drainage shall have a nominal diameter as specified in the Bill of quantities. 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.

To minimise the risk of mineral and / or biochemical clogging of the pervious infiltration zone, the drainage voids in the open structure of the pipe shall have no dimension consistently smaller than 3mm, and to minimise the risk of small aggregate entering the pipe, no dimension consistently larger than 12mm.

PSL3.8 Jointing Material

PSL3.8.4 Loose Flanges.

Substitute the first sentence of the last paragraph with the following:

Bolts and Nuts shall comply with SANS 135

PSL3.9 Corrosion Protection

PSL3.9.2 Steel Pipes

PSL3.9.2.1 Steel Pipes of nominal bore up to 150mm

Add the following:

The requirements of PSL3.9.2.2 shall apply

PSL3.9.2.2 Steel Pipes of nominal bore over 150mm

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Add the following:

All mild steel pipework shall be treated in accordance with L3.9.2.2(b)(2) internally and externally, with a polyamide-cured epoxy system similar and equal to Copon EP2300 or Amercoat 385. The Contractor must furnish the Engineer with test certificates in accordance with PSL7.4
Substitute "250micron" in L3.9.2.2(b)(2) with "300micron"

PSL3.9.5 Joints, Bolts, Nuts and Washers

Substitute with the following:

All joint, bolts, nuts and washers shall be of grade 304 stainless steel, where installed above ground level or below water level. Hot dipped galvanised bolts, nuts and washers shall be used.

PSL3.10 Valves

Delete the contents of the sub-clause and replace with the following:

"Valves that are manually operated shall be to a pattern approved by the Engineer with non-rising spindles complying with the requirements of SANS 664 for working pressures as specified or shown on the Drawings for each application. Where no working pressure is stated, class 10 shall be selected Valve dimensions shall be to SANS 665. The direction of closing shall be clockwise when viewed from above and shall be clearly marked on the hand wheel of each valve. The valve trim shall be Type B-gun metal trim. Valves of the resilient seal type shall be used with dimensions as for standard valves and blade encapsulated in resilient hard rubber or similar synthetic material to the approval of the Engineer. Valve bodies, hand wheels and bonnets shall be manufactured from spheroidal graphite iron complying with the requirements of BS 2789 Grade 420/12 be free from blow holes and carefully fettled after casting. Spindles shall be manufactured from bronze to BS 1400/2782 Grade PB1/CZ 114 or stainless steel to BS 970 Grade EN 57 or equal approved material. Spindle nuts shall be manufactured from bronze and be replaceable. Spindle seals shall be of nitrile rubber 'O-ring' type with bush insert and be provided with an external scraper ring. Replacement of the seals shall be possible with the valve under pressure.
Extension spindles shall be manufactured from stainless steel 304.
Headstocks shall be manufactured from stainless steel 304L or cast iron to a pattern approved by the Engineer."

PSL3.11 Manholes and Surface Boxes

PSL3.11.4 Step irons

Substitute with the following:

Step irons shall consist of polypropylene coated 12mm high tensile steel such as Calcamite or similar installed to manufacturer specifications.

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PSL3.12 Pipeline Markers

Add the following new sub-clause

Pipeline markers shall be installed at the following positions:

- Horizontal bends
- Servitude boundaries of provincial roads and railway lines
- Between horizontal bends and valve chambers where distances in between exceed 300m.

PSL4 PLANT

PSL4.1.1 Transportation

Fittings, specials and valves shall be protected during transportation and handling against damage caused by impact, dropping, etc.

PSL4.1.2 Off-loading and storage

Pipes, fittings and specials shall at no time be laid, stacked or rolled directly onto the ground but shall be supported on suitable padded cradles or other approved material near each end of the pipe, fitting or special. Particular care shall be taken where pipes with fitted couplings are handled or stacked to prevent any pressure on the couplings.

PSL4.1.3 Inspection on delivery

The Contractor shall thoroughly inspect all pipes, fittings and specials delivered to the site.

Materials rejected by the Engineer shall be removed from the site within 30 days and shall be replaced by other approved materials by the Contractor at his own expense.

PSL4.3 Testing

Add the following:

The Contractor must ensure that all test equipment is fully calibrated and in good working condition.

PSL5 CONSTRUCTION

**PSL5.11 Over coating Steel Pipes: System K (New sub-clause 5.11)
Add the following new sub-clause:**

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“5.11 OVERCOATING STEEL PIPES: SYSTEM K. Polyamide cured epoxy (Capon EP 2300) coated pipe work except for buried pipe work shall after erection be over coated with two coats of high gloss polyurethane enamel each with a minimum dry film thickness of 30 microns applied strictly in accordance with PSL 1.2 and the manufacturer’s instructions. The previously painted surfaces shall be abraded to a uniform matt surface and then thoroughly degreased using a degreasing agent approved by the paint manufacturer. After degreasing the surface shall be copiously rinsed with clean water and allowed to dry.”

PSL5.12 Paint Banding of Pipe work (New sub-clause 5.12)

Add the following new sub-clause:

“5.12 PAINT BANDING OF PIPEWORK. Process pipe work after erection and testing and which is exposed above ground or terrace level shall where ordered by the Engineer be colour coded by painting two coats of high gloss polyurethane enamel to form 75mm wide bands around the circumference of the pipe. Pipe work surface shall be prepared to receive the banding in accordance with the paint manufacturers written instructions. Masking tape shall be concentrically applied to ensure neat and straight demarcations between the colours.

PSL5.13 FLEXIBLE CONNECTIONS AT STRUCTURES

Add the following new sub-clause:

In order to avoid damage to rigid pipes entering structures or other chambers caused by differential movement, all pipes built, cast or grouted into structures or other chambers shall be provided with flexible connections to the type details shown on Drawing LD-2 of SABS 1200 LD.

PSL6 TOLERANCES

Delete Sub-clauses 6.1 and 6.

PSL6.3 Alignment Plan and Level

Delete Clause 6.3 and replace with:

“The permissible deviation in plan and level alignment from the designated line of the pipeline shall be $\pm 20\text{mm}$ and $\pm 10\text{mm}$ respectively provided always that the rate of departure from the designated line nowhere exceeds 1 in 600.”

PSL7 TESTING

PSL7.3 Standard Hydraulic Pipe Test

PSL7.3.1.2 Test Pressure

Substitute with the following;

Field test pressure shall be 1.5 times the rated maximum working pressure of the pipe e.g. class 6 uPVC shall be tested to 900kPa

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PSL8 MEASUREMENT AND PAYMENT

PSL8.1 General

Delete Clause 8.1 and replace with:

Excavation and backfilling of trenches will be measured under SANS 1200DB. Corrosion protection and painting of steel and stainless-steel pipe items shall not be measured separately. The price for corrosion protection and painting shall be deemed to be included in the price for the pipe, fitting or special.

PSL8.2 Scheduled items (8.2)

PSL8.2.16 Detailing and supply Steel Pipes and Specials (New payment item 8.2.16 (a) and 8.2.16 (b))

Add the following new payment item:

“8.2.16 (a) Detailing, supply and delivery to site of steel pipes and specials complete with nuts, bolts and gaskets by nominated subcontractor Unit Provisional Sum.

Steel pipes and specials shall be shown, as regards size, wall thickness, position and elevation, on the approved for construction drawings together with coating and any other special requirements.

The actual price paid or due to be paid by the Contractor shall include for the cost of detailing and supplying pipe schedules for approval by the Engineer and the supply on site of the coated pipes and specials complete with jointing materials (gaskets, nuts, bolts washers etc.) It shall also include for quality management, inspection, handling, transporting and stacking on sandbags in a designated storage area on the site. Closure pieces (distance pieces) shall not be manufactured until their dimensions have been ascertained by measurement in the field.

“8.2.16 (b) In respect of overheads, other charges and profit on (a) above, a sum being a percentage rate of the actual price forthe pipes and pipe specials supplied..... Unit: %(percent)

PSL8.2.17 Uplift, Lay, Bed, Joint and Test Pipe work (New payment item 8.2.17)

Add the following new payment item:

“8.2.17 Uplift, Lay, Bed, Joint and Test Pipe workUnit: m
Pipe work supplied and delivered under Sub clause PSL 4.2.1 shall where laid in trenches or on bedding for subsequent covering by embankment, be measured and paid for under this item. The unit of measurement shall be the linear metre. The pipelines will be measured in metres over all lengths as laid, along the centre line including bends, T-pieces, laterals, other specials and valves. Separate items will be scheduled for each nominal diameter. The rate shall include for uplifting from storage, repairing factory applied coatings, transporting and laying in trenches and through openings in concrete work (but excluding concreting up) to line and level and jointing and testing the completed pipeline.”

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PSL8.2.18 Supply Pipe Securing Straps (New payment item 8.2.18)

Add the following new payment item:

- "8.2.18 Supply Pipe Securing StrapsUnit: m
Pipe securing straps shall be supplied and complete in accordance with the drawings and specifications. The straps shall be measured per number of each size and type of strap supplied complete with holding down bolts, washers and neoprene rubber seating strips. Corrosion protection as specified shall be included in the rate."
PSL8.2.19 Uplift, Place in Position on Support Structures, Joint, Test and Paint Steel Pipe work, Including Pipe Specials (New payment item 8.2.19)

Add the following new payment item:

- "8.2.19 Uplift, place in position on support structures, joint, test and paint steel pipe work including pipe specialsUnit: m

Pipe work supplied and delivered under Sub clause PSL 4.2.1 shall, where placed in position to line, level or grades on pipe support structures (support structures measured elsewhere) be measured and paid for under this item. The unit of measurement and the method of measurement shall be as given in Clause PSL 4.2.2. The rate shall include for uplifting from storage, repairing factory applied coatings, transporting, placing in position to line, level or grade including all necessary packing on pipe support structures and through openings in concrete work (but excluding concreting up). The rate shall also include for positioning synthetic rubber pads and for installing and bolting down pipe locating straps.
The rate shall include for bolting up flanges and couplings and for pressure testing. After testing the completed pipeline including all fittings, specials and valves shall be painted with two coats of high gloss polyurethane enamel to System K."

PSL8.2.20 Cut into existing mains and/or structures (New payment item 8.2.20)

Add the following new payment item:

- "8.2.20 Cut into existing Mains/Structure Unit: No

The cutting into existing mains and structures shall be measured by the number of each type and diameter of pipe cut into. Rate to include for all arrangements with relevant authorities and others affected. Rate to include costs of isolating, cutting into, fitting new, dewatering and protection against ingress of soil, stones and any other undesirable material.

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WITNESS:

PSLC CABLE DUCTS

PSLC1 SCOPE

Add the following:

“1.2 This specification also covers the excavation and backfilling of trenches for the installation of electrical and telecommunications cables not specifically contained in other ducts, where the laying of the cables will be undertaken by other parties.”

PSLC3 MATERIALS

PSLC3.5 Cables (New sub-clause 3.5)

Add the following new sub-clause:

“3.5 CABLES. The supply and laying of bedding and cables for electrical and telecommunication services not contained in ducts shall be undertaken by others and shall not be the responsibility of the Contractor.”

PSLC5 CONSTRUCTION

PSLC5.1 Excavation of Trenches

PSLC5.1.3 Trenches for Cables (New sub-clause 5.1.3)

Add the following new sub-clause:

“5.1.3 Trenches for cables. Trenches for cables not contained within ducts shall be excavated to the widths and depths indicated on the drawings in full compliance with the provisions of SANS 1200 LC, except that:

- a) The contractor shall excavate the trench to the specified width and depth, compact the base of the trench and then hand the trench over to other parties to construct the bedding and lay the cables.
- b) On completion of the laying of the cables and the fill blanket, the trench shall be handed back to the contractor for backfilling, which shall be undertaken using suitable excavated or selected material compacted to a minimum of 93% of modified AASHTO density.

In order to minimise delays to both the contractor and the party responsible for bedding and laying the cables, the contractor shall be required to constantly liaise with the other party regarding access requirements and programming of the works. In particular, the contractor shall familiarise himself with the programmed delay between excavating and backfilling the trench to provide the party laying the cables access.

No claims for delays to either party as a result of poor communication will be entertained”

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PSLC8 MEASUREMENT AND PAYMENT

PSLC8.2 Scheduled items

PSLC8.2.2 Excavation

Delete sub-item (a) and replace with the following:

“a) Excavate in all materials, backfill, compact and dispose of surplus material, for:

- i) Trenches to the widths and depths indicated on the drawings for cable Unit: m³
- ii) Trenches to the widths and depths indicated on the drawings for cable to be laid by others unit: m³

The description of the rates shall be as per the standard payment item SANS 1200 LC, 8.2.2(a), except that the rate for (ii) shall also include full compensation for the delay between the excavation of the trench and the backfilling after the laying of cables by others and for all extra liaison, planning and programming that may be required to undertake the works as specified.”

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C3.4.3 PROJECT SPECIFICATIONS: ADDITIONAL SPECIFICATIONS

The following Particular Specifications are applicable to this Contract and are contained in this document.

- C3.4.3.1 REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT REGULATIONS
- C3.4.3.2 ENVIRONMENTAL MANAGEMENT PLAN
- C3.4.3.3 PROVISION OF STRUCTURED TRAINING
- C3.4.3.4 REQUIREMENTS OF EXTEND PUBLIC WORKS PROGRAMME
- C3.4.3.5 HIV /AIDS REQUIREMENTS
- C3.4.3.6 PK-CORROSION PROTECTION OF STEEL PIPES AND FITTINGS

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C3.4.3.1 OCCUPATIONAL HEALTH AND SAFETY ACT 1993: HEALTH AND SAFETY SPECIFICATION

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C3.4.3.1 OCCUPATIONAL HEALTH AND SAFETY ACT 1993 : HEALTH AND SAFETY SPECIFICATION

C3.4.3.1.1 Introduction

In terms of the Construction Regulation 4(1) (a) of the Occupational Health and Safety Act, No. 85 of 1993, LEKWA LOCAL MUNICIPALITY, as the Client, is required to compile a Health & Safety Specification for any intended project and provide such specification to any prospective tenderer.

The Client's further duties are as in C3.5.1.3.1.1 below and in the Construction Regulations, 2003.

This specification has as objective to ensure that Principal Contractors entering into a Contract with the LEKWA LOCAL MUNICIPALITY achieve an acceptable level of OH&S performance. This document forms an integral part of the Contract and Principal and other Contractors should make it part of any Contracts that they may have with Contractors and/or Suppliers.

Compliance with this document does not absolve the Principal Contractor from complying with minimum legal requirements and the Principal Contractor remains responsible for the health & safety of his employees and those of his Mandataries.

C3.4.3.1.2 Scope

Development of a health & safety specification that addresses all aspects of occupational health and safety as affected by the abovementioned contract work.

The specification will provide the requirements that Principal Contractors and other Contractors will have to comply with in order to reduce the risks associated with the abovementioned contract work that may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable.

C3.4.3.1.3 General Occupational Health & Safety Provisions

(a) Hazard Identification & Risk Assessment (Construction Regulation 7)

(i) Risk Assessments

Annexure 3 contains a list of Risk Assessment headings that have been identified by **LEKWA LOCAL MUNICIPALITY** as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is offered as assistance to Contractors intending to tender.

(ii) Development of Risk Assessments

Every Principal Contractor performing Construction work shall, before the commencement of any Construction work or work associated with the aforesaid Construction work and during such work, cause a Risk Assessment to be performed by a competent person, appointed in writing, and the Risk Assessment shall form part of the OH&S Plan and be implemented and maintained as contemplated in Construction regulation 5(1).

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WITNESS:

The Risk Assessment shall include, at least:

- the identification of the risks and hazards to which persons may be exposed to
- the analysis and evaluation of the risks and hazards identified
- a documented plan of safe work procedures to mitigate, reduce or control the risks and hazards that have been identified
- a monitoring plan and
- a review plan

Based on the Risk Assessments, the Principal Contractor must develop a set of site-specific OH&S rules that will be applied to regulate the OH&S aspects of the construction.

The Risk Assessments, together with the site-specific OH&S rules must be submitted to the **LEKWA LOCAL MUNICIPALITY** before mobilisation on site commences.

Despite the Risk Assessments listed in Annexure 7, the Principal Contractor is required to conduct a baseline Risk Assessment and the aforesaid listed Risk Assessments must be incorporated into the base-line Risk Assessment. The baseline Risk Assessment must further include the Standard Working procedures (SWP) and the applicable Method Statements based on the Risk Assessments

All out-of-scope work must be associated with a Risk Assessment.

(iii) Review of Risk Assessments

The Principal Contractor is to review the Hazard Identification, Risk Assessments and SWP's at each Production Planning and Progress Report meeting as the Contract work develops and progresses and each time changes are made to the designs, plans and construction methods and processes.

The Principal Contractor must provide the Client, other Contractors and all other concerned-parties with copies of any changes, alterations or amendments as contemplated in above.

(b) Legal Requirements

All Contractors entering into a Contract with the **LEKWA LOCAL MUNICIPALITY** shall, as a minimum, comply with the

- Occupational Health & Safety Act and Regulations (Act 85 of 1993). A current, up-to-date copy of the OHS Act must be available on site at all times
- Compensation for Occupational Injuries & Diseases Act (Act 130 of 1993). The principal Contractor will be required to submit a letter of Registration and "good-standing" from the Compensation Insurer before being awarded the Contract. A current, up-to-date copy of the COID Act must be available on site at all times.
- Where work is being carried out on mines' premises the Contractor will have to comply with the Mine Health & Safety Act and Regulations (Act. 29 of 1996) and any other OH&S requirements that the mine may specify. A current, up-to-date copy of the OHS Act must be available on site at all times.

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WITNESS:

(c) Structure and Responsibilities

(i) Overall Supervision and Responsibility for OH&S

- * It is a requirement that the Principal Contractor, when he appoints Contractors (Sub-contractors) in terms of Construction Regulations 5(3), (5), (9), (10) and (12) he includes an OHS Act Section 37(2) agreement: "Agreement with Mandatary" in his agreement with such Contractors.
- * Any OH&S Act (85/1993), Section 16(2) appointee/s as detailed in his/her/their respective appointment forms

(ii) Further (Specific) Supervision Responsibilities for OH&S

The Contractor shall appoint designated competent employees and/or other competent persons as required by the Act and Regulations. Below is a list of identified appointments and may be used to select the appropriate appointments for the current contract:

Ref. Section/Regulation in OHS Act

Batch Plant Supervisor	(Construction Regulation 6(1))
Construction Vehicles/Mobile Plant/Machinery Supervisor	(Construction Regulation 21)
Demolition Supervisor	(Construction Regulation 12)
Drivers/Operators of Construction Vehicles/Plant	(Construction Regulation 21)
Electrical Installation and Appliances Inspector	(Construction Regulation 22)
Emergency/Security/Fire Coordinator	(Construction Regulation 27)
Excavation Supervisor	(Construction Regulation 11)
Explosive Powered Tool Supervisor	(Construction Regulation 19)
Fall Protection Supervisor	(Construction Regulation 8)
First Aider	(General Safety Regulation 3)
Fire Equipment Inspector	(Construction Regulation 27)
Formwork & Support work Supervisor	(Construction Regulation 10)
Hazardous Chemical Substances Supervisor	(HCS Regulations)
Incident Investigator	(General Admin Regulation 29)
Ladder Inspector	(General Safety Regulation 13A)
Lifting Equipment Inspector	(Construction Regulation 20)
Materials Hoist Inspector	(Construction Regulation 17)
OH&S Committee	(OHS Act Section 19)
OH&S Officer	(Construction Regulation 6(6))
OH&S Representatives	(OHS Act Section 17)
Person Responsible for Machinery	(General Machinery Regulation 2)
Scaffolding Supervisor	(Construction Regulation 14)
Stacking & Storage Supervisor	(Construction Regulation 26)
Structures Supervisor	(Construction Regulation 9)
Suspended Platform Supervisor	(Construction Regulation 15)
Tunneling Supervisor	(Construction Regulation 13)
Vessels under Pressure Supervisor	(Vessels under Pressure Regulations)
Working on/next to Water Supervisor	(Construction Regulation 24)
Welding Supervisor	(General Safety Regulation 9)

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WITNESS:

The appointments must be in writing and the responsibilities clearly stated together with the period for which the appointment is made. This information must be communicated and agreed with the appointees.

Copies of appointments must be submitted to the **LEKWA LOCAL MUNICIPALITY** together with concise CV's of the appointees. All appointments must be officially approved by **LEKWA LOCAL MUNICIPALITY**. Any changes in appointees or appointments must be communicated to **LEKWA LOCAL MUNICIPALITY** forthwith.

The Principal Contractor must, furthermore, provide **LEKWA LOCAL MUNICIPALITY** with an organogram of all Contractors that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

Where necessary, or when instructed by the **LEKWA LOCAL MUNICIPALITY** or an Inspector of the Department of Labour, the Principal Contractor must appoint a competent OH&S Officer subject to the approval of the **LEKWA LOCAL MUNICIPALITY**

In addition **LEKWA LOCAL MUNICIPALITY** may require that a Traffic Safety Officer be appointed for any project.

(iii) Designation of OH&S Representatives (Section 18 of the OHS Act)

Where the Principal Contractor employs more than 20 persons (including the employees of other Contractors (sub-contractors) he has to appoint one OH&S Representatives for every 50 employees or part thereof. General Administrative Regulation 6 requires that the appointment OR election and subsequent designation of the OH&S Representatives are executed in consultation with Employee Representatives or Employees. (Section 17 of the Act and General Administrative Regulation 6. & 7)

OH&S Representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

(iv) Duties and Functions of the OH&S Representatives (Section 19 of the OHS Act)

The Principal Contractor must ensure that the designated OH&S Representatives conduct a minimum monthly inspection of their respective areas of responsibility using a checklist and report thereon to the Principal Contractor.

OH&S representatives must be included in accident/incident investigations

OH&S representatives must attend all OH&S committee meetings.

(v) Appointment of OH&S Committee (Section 20 of the OHS Act)

The Principal Contractor must establish an OH&S Committee consisting of all the designated OH&S Representatives together with a number of management representatives that are not allowed to exceed the number of OH&S representatives on the committee and a representative of the Client who shall act as the chairman without a vote. The members of the OH&S committee must be appointed in writing.

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WITNESS:

The OH&S Committee must meet minimum monthly and consider, at least, the following Agenda:

1. Opening & Welcome
2. Present/Apologies/Absent
3. Minutes of previous Meeting
4. Matters Arising from the previous Minutes
5. OH&S Reps Reports
6. Incident Reports & Investigations
7. Incident/Injury Statistics
8. Other Matters
9. Endorsement of Registers and other statutory documents by a representative of the Principal Contractor
10. Close/Next Meeting

(d) Administrative Controls and the Occupational Health & Safety File

(i) The OH&S File (Construction Regulation 5 (7))

As required by Construction Regulation 5(7), the Principal Contractor and other Contractors will each keep an OH&S File on site containing the following documents as a minimum:

- * *Notification of Construction Work (Construction Regulation 3.)*
- * *Copy of OH&S Act (updated) (General Administrative Regulation 4.)*
- * *Proof of Registration and good standing with a COID Insurer (Construction Regulation 4 (g))*
- * *OH&S Programme agreed with the Client including the underpinning Risk Assessment/s & Method Statements (Construction regulation 5 (1))*
- * *Copies of OH&S Committee and other relevant Minutes*
- * *Designs/drawings (Construction Regulation 5 (8))*
- * *A list of Contractors (Sub-Contractors) including copies of the agreements between the parties and the type of work being done by each Contractor (Construction Regulation 9)*
- * *Appointment/Designation forms as per (a)(i) & (ii) above.*
- * *Registers as follows:*
 - * *Accident/Incident Register (Annexure 1 of the General Administrative Regulations)*
 - * *OH&S Representatives Inspection Register*
 - * *Asbestos Demolition & Stripping Register*
 - * *Batch Plant Inspections*
 - * *Construction Vehicles & Mobile Plant Inspections by Controller*
 - * *Daily Inspection of Vehicles. Plant and other Equipment by the Operator/ Driver/User*
 - * *Demolition Inspection Register*
 - * *Designer's Inspection of Structures Record*
 - * *Electrical Installations, -Equipment & -Appliances (including Portable Electrical Tools)*
 - * *Excavations Inspection*
 - * *Explosive Powered Tool Inspection, Maintenance, Issue & Returns Register (incl. cartridges & nails)*
 - * *Fall Protection Inspection Register*
 - * *First Aid Box Contents*
 - * *Fire Equipment Inspection & Maintenance*
 - * *Formwork & Support work Inspections*
 - * *Hazardous Chemical Substances Record*
 - * *Ladder Inspections*
 - * *Lifting Equipment Register*
 - * *Materials Hoist Inspection Register*
 - * *Machinery Safety Inspection Register (incl. machine guards, lock-outs etc.)*
 - * *Scaffolding Inspections*
 - * *Stacking & Storage Inspection*

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WITNESS:

- * *Inspection of Structures*
- * *Inspection of Suspended Platforms*
- * *Inspection of Tunnelling Operations*
- * *Inspection of Vessels under Pressure*
- * *Welding Equipment Inspections*
- * *Inspection of Work conducted on or Near Water*
- * *All other applicable records*

Greater Giyani Municipality will conduct an audit on the OH&S file of the Principal Contractor from time-to-time.

- (e) OH&S Goals & Objectives & Arrangements for Monitoring & Review of OH&S Performance
The Principal Contractor is required to maintain a CIFR of at least 8 (See Annexure 1. to this document: "Measuring Injury Experience) and report on this to **LEKWA LOCAL MUNICIPALITY** on a monthly basis

- (f) Notification of Construction Work (Construction Regulation 3.)

The Principal Contractor must, where the Contract meets the requirements laid down in Construction Regulation 3, within 5 working days, notify the Department of Labour of the intention to carry out construction work and use the form (Annexure A in the Construction Regulations) for the purpose. A copy must be held on the OH&S File and a copy must be forwarded to **LEKWA LOCAL MUNICIPALITY** for record keeping purposes.

- (g) Training, Awareness and Competence

The contents and syllabi of all training required by the Act and Regulations are to be included in the Principal Contractor's OH&S Plan.

- (i) General Induction Training

All members of Contractor's Site management as well as all the persons appointed as responsible for OH&S in terms of the Construction and other Regulations will be required to attend a general induction session by the Client

All employees of the Principal and other Contractors to be in possession of proof of General Induction training.

- (ii) Site Specific Induction Training

The Principal Contractor will be required to develop Contract work project specific induction training based on the Risk Assessments for the Contract work and train all employees and other Contractors and their employees in this.

All employees of the Principal and other Contractors to be in possession of proof of Site Specific OH&S Induction training at all times.

- (iii) Other Training

All operators, drivers and users of construction vehicles, mobile plant and other equipment to be in possession of valid proof of training.

All employees in jobs requiring training in terms of the Act and Regulations to be in possession of valid proof of training as follows:

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WITNESS:

OH&S Training Requirements: (as required by the Construction Regulations and as indicated by the OH&S Specification & the Risk Assessment/s):

- * General Induction (Section 8 of the Act)
- * Site/Job Specific Induction (also visitors) (Sections 8 & 9 of the Act)
- * Site/Project Manager
- * Construction Supervisor
- * OH&S Representatives (Section 18 (3) of the Act)
- * Training of the Appointees indicated above
- * Operators & Drivers of Construction Vehicles & Mobile Plant (Construction Regulation 21)
- * Basic Fire Prevention & Protection (Environmental Regulations 9 and Construction regulation 27)
- * Basic First Aid (General Safety Regulations 3)
- * Storekeeping Methods & Safe Stacking (Construction Regulation 26)
- * Emergency, Security and Fire Co-coordinator

(iv) Awareness & Promotion

The Principal Contractor is required to have a promotion and awareness scheme in place to create an OH&S culture in employees. The following are some of the methods that may be used:

- Toolbox Talks
- OH&S Posters
- Videos
- Competitions
- Suggestion schemes
- Participative activities such as OH&S Safety circles.

(v) Competence

The Principal Contractor shall ensure that his and other Contractors personnel appointed are competent and that all training required to do the work safely and without risk to health, has been completed before work commences.

The Principal Contractor shall ensure that follow-up and refresher training is conducted as the contract work progresses and the work situation changes.

Records of all training must be kept on the OH&S File for auditing purposes.

(h) Consultation, Communication and Liaison

OH&S Liaison between the Client, the principal Contractor, the other Contractors, the Designer and other concerned parties will be through the OH&S committee as contemplated in above.

In addition to the above, communication may be directly to the Client or his appointed Agent, verbally or in writing, as and when the need arises.

Consultation with the workforce on OH&S matters will be through their Supervisors, OH&S Representatives, the OH&S committee and their elected Trade Union Representatives, if any.

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WITNESS:

The Principal Contractor will be responsible for the dissemination of all relevant OH&S information to the other Contractors e.g. design changes agreed with the Client and the Designer, instructions by the Client and/or his/her agent, exchange of information between Contractors, the reporting of hazardous/dangerous conditions/ situations etc.

The Principal Contractor will be required to do Site Safety Walks with **LEKWA LOCAL MUNICIPALITY** at least on a basis to be determined between the two parties.

The Principal and other Contractors will be required to conduct Toolbox Talks with their employees on a weekly basis and records of these must be kept on the OH&S File. Employees must acknowledge the receipt of Toolbox Talks which record must, likewise be kept on the OH&S File.

The Principal Contractors most senior manager on site will be required to attend all **LEKWA LOCAL MUNICIPALITY** OH&S meetings and a list of dates, times and venues will be provided to the Principal Contractor by **LEKWA LOCAL MUNICIPALITY**

(i) Checking, Reporting and Corrective Actions

(i) Monthly Audit by Client (Construction Regulation 1(d))

LEKWA LOCAL MUNICIPALITY will be conducting a Monthly Audit to comply with Construction Regulation 4(1)(d) to ensure that the principal Contractor has implemented and is maintaining the agreed and approved OH&S Plan.

(ii) Other Audits and Inspections by **LEKWA LOCAL MUNICIPALITY**:

LEKWA LOCAL MUNICIPALITY reserves the right to conduct other ad hoc audits and inspections as deemed necessary. This will include Site Safety Walks.

(iii) Conducting an Audit

A representative of the Principal Contractor must accompany **LEKWA LOCAL MUNICIPALITY** on all Audits and Inspections and may conduct his/her own audit/inspection at the same time. Each party will, however, take responsibility for the results of his/her own audit/inspection results.

(iv) Contractor's Audits and Inspections

The Principal Contractor is to conduct his own monthly internal audits to verify compliance with his own OH&S Management system as well as of with this specification.

(v) Inspections by OH&S Representative's and other Appointees

OH&S Representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments e.g. vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

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WITNESS:

(vi) Recording and Review of Inspection Results

All the results of the abovementioned inspections to be in writing, reviewed at OH&S committee meetings, endorsed by the chairman of the meeting and placed on the OH&S File.

(vii) Reporting of Inspection Results

The Principal Contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 2: "SHE Risk Management Report"

(j) Incident Reporting and Investigation

Reporting of Accidents and Incidents (Section 24 and General Administrative Regulation 8 of the OHS Act)
The Principal Contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- * dies
- * becomes unconscious
- * loses a limb or part of a limb
- * is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

OR where:

- * a major incident occurred
- * the health or safety of any person was endangered
- * where a dangerous substance was spilled
- * the uncontrolled release of any substance under pressure took place
- * machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- * machinery ran out of control

to **LEKWA LOCAL MUNICIPALITY** within two days and to the Provincial Director of the Department of Labour within seven days (Section 24 of the Act & General Administrative Regulation 8.) EXCEPT that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both **LEKWA LOCAL MUNICIPALITY** and the Provincial Director of the Department of Labour forthwith by telephone, telefax or E-mail.

The Principal Contractor is required to provide **LEKWA LOCAL MUNICIPALITY** with copies of all statutory reports required in terms of the Act within 7 days of the incident occurring.

The Principal Contractor is required to provide **LEKWA LOCAL MUNICIPALITY** with copies of all internal and external accident/incident investigation reports including the reports contemplated below within 7 days of the incident occurring.

Accident and Incident Investigation (General Administrative Regulation 9)

The Principal Contractor is responsible for the investigation of all accidents/incidents where employees and non-employees were injured to the extent that he/she/they had to be referred for medical treatment by a doctor, hospital or clinic

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WITNESS:

The results of the investigation to be entered into the Accident/Incident Register listed in above.

The Principal Contractor is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) & (c) of the Act and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The Principal Contractor is responsible for the investigation of all road traffic accidents and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

The **LEKWA LOCAL MUNICIPALITY** reserves the right to hold its own investigation into an incident or call for an independent external investigation.

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WITNESS:

C3.4.3.1.4 Operational Control

(a) Emergency Preparedness, Contingency Planning and Response

The Principal Contractor must appoint a competent person to act as Emergency Controller/ Coordinator. The Principal Contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that **LEKWA LOCAL MUNICIPALITY** may have in place.

The Principal Contractor and the other Contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.

(b) First Aid (General Safety Regulation 3)

The Principal Contractor must provide First Aid equipment (including a stretcher) and have qualified First Aider/s as required by General Safety Regulation 3 of the OHS Act.

The Contingency Plan of the Principal Contractor must include the arrangements for speedily and timeously transporting injured/ill person/s to a medical facility or of getting emergency medical aid to person/s that may require it.

The Principal Contractor must have firm arrangements with his other Contractors in place regarding the responsibility of the other Contractors injured/ill employees.

(c) Security

The Principal Contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must include the rule that non-employees will not be allowed on site unaccompanied.

The Principal Contractor must develop a set of Security rules and procedures and maintain these throughout the construction period

(d) Fall Protection (Working in Elevated Positions (Construction regulation 8.)

A pre-emptive Risk Assessment will be required for any work to be carried out above two metres from the ground or any floor level and will be classified as "Work in Elevated Positions".

As far as is practicable, any person working in an elevated position will work from a platform, ladder or other device that is at least as safe as if he/she is working at ground level and whilst working in this position be wearing a single belt with lanyard that will be worn to prevent the person falling from the platform, ladder or other device utilised. This safety belt will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length that the person will not be able to move over the edge.

Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with guard rails at two different heights as prescribed in SABS 085: Code of Practice for the Design, Erection, Use and Inspection of Access Scaffolding.

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Where the requirement in is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer's head at all times and the lanyard must be fitted with a shock absorbing device OR the person must be attached to an approved, by AL, fall arrest system.

Where the requirements are not practicable, a suitable catch net must be erected
Workers working in elevated positions must be trained to do this safely and without risk to health
Where work on roofs is carried out, the Risk Assessment must take into account the possibility of persons falling through fragile material. Skylights and openings in the roof.

(e) Structures (Construction Regulation 9)

The Principal Contractor must ensure that:

- Steps are taken to ensure that no structure becomes unstable or collapses due to construction work being performed on it or in the vicinity of it
- No structure is overloaded to the extent where it becomes unsafe
- He/she has received from the designer the following information:
- Information on known or anticipated hazards relating to the construction work and the relevant information required for the safe execution of the construction work
- A geo-scientific report (where applicable)
- The loading the structure is designed to bear
- The methods and sequence of the construction process
- all drawings pertaining to the design are on site and available for inspection

(f) Formwork & Support Work (Construction Regulation 10.)

- Formwork & Support work (F&SW) must be carried out under the supervision of competent person designated in writing
- F&SW structures must be so designed, erected, supported, braced and maintained that it will be able to support any vertical or lateral loads that may be applied
- No load to be imposed onto the structure that the structure is not designed to carry
- F&SW must be erected in accordance with the structural design drawings for that F&WS and, if there is any uncertainty, the designer must be consulted before proceeding with the erection/use of the F&WS
- All drawings pertaining to the F&SW must be kept available on site
- All equipment used in the erection of F&WS must be checked by a competent person before use
- The foundation or base upon which F&SW is erected must be able to bear the weight and keep the structure stable
- Employees erecting F&SW must be trained in the safe work procedures for the erection, moving and dismantling of F&SW
- Safe access (and emergency escape) must be provided for workers
- A competent person must inspect F&SW structures that have been erected before, during and after pouring of concrete or the placing of any other load and thereafter daily until the F&SW is stripped. The results of all inspections must be recorded in a register kept on site

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- The F&SW must be left in place until the concrete has reached sufficient strength to bear its own weight plus any additional weight that may be imposed upon it and not until the designated competent person has authorised its stripping in writing
- Any damaged F&SW must be repaired/rectified immediately
- Deck panels must be secured against displacement
- The slipping of persons on release agents on deck panels prevented
- Persons health must be protected against the use of solvents, oils or other similar substances

(g) Excavations (Construction Regulation 11.)

Where excavations will exceed 1,5 m in depth the Contractor will be required to submit a Method Statement to LEKWA LOCAL MUNICIPALITY for approval before commencing with the excavation and LEKWA LOCAL MUNICIPALITY will issue a permit to proceed once the Risk Assessment and Method Statement are approved.

- Excavation work must be carried out under the supervision of a competent person who has been appointed in writing
- Before excavation work begins the stability of the ground must be evaluated
- Whilst excavation work is being performed, the contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material
- No person may be required or permitted to work in an excavation that has not been adequately shored or braced or where:
 - the excavation is in stable material or where
 - the sides of the excavation are sloped back to at least the maximum angle of repose measured relative to the horizontal plane
- The shoring or bracing may not be left out unless written permission has been obtained from the appointed competent person and shoring and bracing must be designed and constructed to safely support the sides of the excavation
- Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed excavator
- No load or material may be placed near the edge of an excavation if it is likely to cause a collapse of the trench unless suitable shoring has been installed to be able to carry the additional load
- Any neighbouring building, structure or road that may be affected or endangered by the excavation must be protected from damage or collapse
- Every excavation must be provided with means of access that must be within 6 metres of any worker within the excavation
- The location and nature of any existing services such as water, electricity, gas etc. must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for workers in the excavation
- Every excavation including the shoring and bracing or any other method to prevent collapse must be inspected by the appointed competent person as follows:
 - Daily before work commences
 - After every blasting operation
 - After an unexpected collapse of the excavation
 - After substantial damage to any supports
 - After rain

The results of any inspections must be recorded in a register kept on site

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WITNESS:

- Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced to at least one metre high and as close to the excavation as practicable and
- Provided with warning lights or visible boundary indicators after dark or when visibility is poor
- Upon entering an excavation the requirements of General Safety Regulation 5 must be observed:
 - any confined space may only be entered after the air quality has been tested to ensure that it is safe to breathe and does not contain any flammable mixture or
 - the confined space has been purged and ventilated of any hazardous or flammable gas, vapour, dust or fumes and
 - the safe atmosphere must be maintained or
 - employees have to be using breathing apparatus and wearing a safety harness with a rope with the free end of the rope being attended to by a person outside the confined space, furthermore,
 - an additional person trained in resuscitation must be in full-time attendance immediately outside the confined space and
 - additional breathing and rescue apparatus must be kept immediately outside the confined space for rescue purposes
 - all pipes, ducts etc. that may leak into the confined space to be blanked off sufficiently to prevent any leakage or seepage
 - the employer must ensure that all employees have left the confined space after the completion of work
 - where flammable gas is present in a confined space no work may be performed in close proximity to the flammable atmosphere that may ignite the flammable gas or vapour.

(h) Demolition Work (Construction Regulation 12.)

- Demolition work to be carried out under the supervision of a competent person who has been appointed in writing
- A detailed structural engineering survey of the structure to be demolished to be carried out and a method statement on the procedure to be followed in demolishing the structure to be developed by a competent person, before any demolition may be commenced
- As demolishing progresses the structural integrity of the structure to be checked at intervals as determined in the method statement by the appointed competent person in order to prevent any premature collapse
- Steps must be taken to ensure that where a structure is being demolished:
 - no floor, roof or any other part of the structure is overloaded with debris or material that would make it unsafe
 - precautions are taken to prevent the collapse of the structure when any frame or support is cut or removed
 - shoring or propping is applied where necessary
 - No person must be required or allowed to work under unsupported overhanging material

THE STABILITY OF AN ADJACENT BUILDING, STRUCTURE OR ROAD MUST BE MAINTAINED AT ALL TIMES

- The location and nature of any existing services such as water, electricity, gas etc. must be established before any demolition is commenced with and any service that may be affected by the demolition must be protected and made safe for workers
- Every stairwell in a building being demolished must be adequately illuminated
- Convenient and safe means of access must be provided

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- A catch platform or net must be erected over every entrance to the building or structure being demolished where the likelihood exists of material or debris falling on persons entering and leaving and every other area where the likelihood exists of material or debris falling on persons, must be fenced or barricaded
- No material may be dropped on the outside of the building unless the area into which it is dropped is fenced off or barricaded
- Waste and debris may only be disposed of from a height in a chute with the following design:
 - Adequately constructed and rigidly fastened
 - If inclined >45 degrees enclosed on all four sides
 - Fitted with a gate or control mechanism to control the flow of material that may not freefall down the chute
 - Discharged into a container or a barricaded area
 - Demolition equipment may only be used on floors or slabs that are able to support it
- Asbestos related work must be conducted to the requirements of the Asbestos regulations promulgated under the OHS Act and in particular Asbestos Regulation 21:
 - Demolition of asbestos may only be carried out by a registered (with the Department of Labour) Asbestos Contractor
 - All asbestos materials likely to become airborne must be identified
 - A Plan of Work must be submitted for approval to an Approved Asbestos Inspection Authority (AAIA) (approved by the Department of Labour) 30 days prior to commencement of demolishing work unless the Plan was drawn up by an AAIA and a signed (by all parties) copy must be submitted to the Department of Labour 14 days before commencement of the demolishing

During demolition work:

- all asbestos containing material must be disposed of safely workers must be issued with appropriate PPE and the proper use thereof enforced
- After the demolition has been completed the area/premises must be thoroughly checked to ensure that all asbestos waste has been removed
- No person is allowed to:
 - Use compressed air or permit the use of compressed air to remove asbestos dust from any surface or person
 - Smoke, eat, drink or keep food or beverages in an area not specifically designated for this
 - Apply asbestos by spraying

Lead related work must be conducted to the requirements of the Lead regulations promulgated under the OHS Act

Where demolition work will involve the use of explosives a method statement must be developed by a competent person in accordance with applicable explosives legislation.

(i) Tunnelling (Construction Regulation 13.)

- To be performed in accordance with the Tunnelling Regulations as published under the Mines Health & Safety Act (29 of 1996)
- No person shall enter a *tunnel that has a height dimension less than 800 mm
 - * Definition of Tunnelling: "the construction of any tunnel beneath the natural surface of the earth for the purpose other than the searching for or winning of a mineral

(j) Access Scaffolding (Construction Regulation 14)

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WITNESS:

Access Scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 14 and SA Bureau of Standards Code of Practice, SANS 085 entitled, "The Design, Erection, Use & Inspection of Access Scaffolding.

Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly.

Scaffolding may only be erected, altered or dismantled by a person who has adequate training and experience in this type of work or under the supervision of such a person.

(k) Suspended Platforms & Boatswains Chairs (Construction Regulation 15 & 16)

The Contractor to design, erect, use and maintain suspended platforms in accordance with the requirements of Construction Regulation 15.

Boatswains chairs are to be erected, used maintained and inspected in accordance with the requirements of Construction Regulation 16.

(l) Batch Plants (Construction Regulation 18)

The Contractor to erect, operate and maintain Batch Plants in accordance with the requirements of Construction Regulation 18

Explosive Powered Tools (Construction Regulation 19)

Every Explosive Powered Tools (EPT) must be:

- Provided with a guard around the muzzle to confine flying fragments or particles
- A firing mechanism that will prevent the EPT from firing unless it is pushed against the surface and at right angle (where the EPT is fitted with an intermediate piston between the charge and the nail this requirement is waived)

The Contractor or user must ensure that:

- Only the correct type of cartridge is used
- The EPT is cleaned inspected and cleaned daily before use by an appointed competent person who keeps register with the findings of his inspection and the details of cleaning, service and repairs
- The safety devices are in good working order before the EPT is use
- When the EPT is not being used it is stored in an unloaded condition together with the cartridges in a safe/secure place inaccessible to unauthorised persons
- A warning notice is displayed at the point where the EPT is in use
- The issue and return of cartridges must be by issue/returns register signed by both issuer and user and empty cartridge cases must be returned with unspent cartridges
- Users/operators of the EPT have received the necessary training and has been authorised as competent to use/operate the EPT
- Users/operators must wear the prescribed PPE whilst using/operating the tool

(m) Cranes & Lifting Equipment (Construction Regulation 20)

Cranes and Lifting equipment must be designed and constructed in accordance with generally accepted technical standards and operated, used, inspected and maintained in accordance with the requirements of Driven Machinery Regulation 8 of the OHS Act:

- to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the a table should be used by the driver/operator

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WITNESS:

- each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit
- fitted with a brake or other device capable of holding the MML. This brake or device to automatically prevent the downward movement of the load when the lifting power is interrupted
- fitted with a load limiting device that automatically arrest the lift when
- the load reaches its highest safe position or
- when the mass of the load is greater than the MML
- every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine and where no standard is available the factor of safety must be:
 - chains – 4 (four)
 - steel wire ropes - 5 (five)
 - fibre ropes - 10 (ten)
- every hook or load attaching device must be designed such or fitted with a device that will prevent the load from slipping off or disconnecting
- every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturers prescription or to 110% of the MML
- in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety
- devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person
- all maintenance, repairs, alterations and inspection results must be recorded in a log book
- and each lifting machine must have its own log book.
- no person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by the inspector of the Department of Labour
- every jib crane with an MML of 5 000 kg or more at minimum jib radius must be provided
- with a load indicator or a load lifting limiting device

Lifting Tackle:

- to be manufactured of sound material, well-constructed and free from patent defects
- to be clearly and conspicuously marked with ID number and MML
- factor of safety:

- Natural fibre ropes	-	10(ten)
- Man-made fibre ropes & woven webbing	-	06(six)
- Steel wire ropes – single rope	-	06(six)
- Steel wire ropes – combination slings	-	08(eight)
- Mild Steel chains	-	05(five)
- High tensile/alloy steel chains	-	04(four)
- steel wire ropes must be discarded (not used any further for lifting purposes) when excessive wear and corrosion is evident and must be examined by a competent person every three months for this purpose and the results recorded.

Operator

- Every lifting machine operator must be trained specifically for the type of lifting machine that he/she is operating
- Operators of Jib cranes with a MML of 5 00 kg or more must be in possession of a certificate of training issued by an accredited (by The Department of Labour) training provider.

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Construction Regulation 20:

Where tower cranes (TC) are used:

- account must be taken of the effects of wind force on the structure
- account must be taken of the bearing capacity of the ground on which the TC is to be erected
- the bases for the TC and tracks for rail mounted TC's must be firm and level
- must be erected at a safe distance from excavations
- clear space must be provided and maintained for erection, operation, maintenance and dismantling
- TC operators must be competent to carry out the work safely

TC operators must be in possession of a valid medical certificate testifying that the holder is physically and psychologically fit to work on a TC.

All lifting operations where the lift will exceed 2000 kg must be planned by a competent person and the plan submitted to LEKWA LOCAL MUNICIPALITY for approval and permission to carry out the lift.

(n) Construction Vehicles & Mobile Plant (Construction Regulation 21)

Construction Vehicles and Mobile Plant will be inspected by LEKWA LOCAL MUNICIPALITY prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHS Act and Regulations.

Construction Vehicles and Mobile Plant (CV&MP) to be:

- of acceptable design and construction
- maintained in good working order
- used in accordance with their design and intention for which they were designed
- operated/driven by trained, competent and authorised operators/ drivers. No unauthorised persons to be allowed to drive CV&MP
- operators and drivers of CV&MP must be in possession of a valid medical certificate declaring the operator/drive physically and psychologically fit to operate or drive CV&MP
- provided with safe and suitable means of access
- fitted with adequate signalling devices to make movement safe including reversing
- excavations and other openings must be provided with sufficient barriers to prevent CV&MP from falling into same
- provided with roll-over protection
- inspected daily before start-up by the driver/operator/user and the findings recorded in a register/log book
- CV&MP to be fitted with two head and two tail lights whilst operating under poor visibility conditions
- No loose tools, material etc. is allowed in the driver/operators compartment/cabin nor in the compartment in which any other persons are transported
- CV&MP used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported

No person may ride on a CV&MP except for in a safe place provided for the purpose

The construction site must be organised to facilitate the movement of CV&MP and that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated

CV&MP left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights reflectors or barricades to prevent moving traffic to come into contact with the parked CV&MP.

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In addition CV&MP left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely
Workers employed adjacent or on public roads must wear reflective safety vests

All CV&MP inspection records must be kept in the OH&S File
(o) Electrical Installations (Construction Regulation 22)

The installation of temporary electricity for Construction shall be in accordance with the Construction regulation 22 and the Electrical Installation Regulations.

The Contractor must ensure that:

- existing services are located and marked before construction commences and during the progress thereof
 - where the abovementioned is not possible, workers with jackhammers etc. are protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etc
 - electrical installations and -machinery are sufficiently robust to withstand working conditions on site
 - temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the OH&S File
 - electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept on the OH&S File
 - all temporary electrical installations must be controlled by a competent person appointed in writing
- (p) **Electrical & Mechanical Lock-Out**
An electrical and mechanical lock-out procedure must be developed by the Principal Contractor and submitted to LEKWA LOCAL MUNICIPALITY for approval before construction commences. This lock-out procedure to be adhered to by all Contractors on site
- (q) **Use & Storage of Flammables (Construction Regulation 23)**

The Contractor to ensure that:

- No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present unless adequate precautions are taken
- No flammable is used or applied e.g. in spray painting, unless in a room or cabinet or other enclosure specially designed and constructed for the purpose unless there is no danger of fire or explosion due to the application of adequate ventilation
- The workplace is effectively ventilated. Where this cannot be achieved:
 - Employees must wear suitable respiratory equipment
 - No smoking or other sources of ignition is allowed in the area
 - The area is conspicuously demarcated as "flammable"
- Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with access control measures in place and sufficient fire fighting equipment installed and fire prevention methods practised e.g. proper housekeeping
- Flammables stored in a permanent flammables store are stored so that no fire or explosion is caused i.e.:
 - stored in a locked well-ventilated reasonably fire resistant container, cage or room conspicuously demarcated as "Flammable Store – No Smoking or Naked Lights"

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- the flammables store to be constructed of two-hour fire retardant walls and roof and separated from adjoining rooms or workplaces by means of a two-hour fire retardant fire wall
- Adequate and suitable firefighting equipment installed around the flammables store and marked with the prescribed signs
- All electrical switches and fittings to be of a flameproof design
- Any work done with tools in a flammables store or work areas to be of a non-sparking nature
- No Class A combustibles such as paper, cardboard, wood, plastic, straw etc. to be stored together with Flammables
- The flammable store to be designed and constructed to, in the event of spillage of liquids in the store, to contain the full quantity + 10% of the liquids stored
- A sign indicating the capacity of the store to be displayed on the door
- Only one day's quantity of Flammable is to be kept in the workplace
- Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas
- Metal containers to be bonded to earth whilst decanting to prevent build-up of static
- Welding and other flammable gases to be stored segregated as to type of gas and empty and full cylinders

(r) Working on or Near Water (Construction Regulation 24)

The Principal Contractor must ensure that, where construction work is being carried out over or in close proximity to water:

- Measures are in place to prevent workers from falling into the water and drowning. These measure to include the availability of lifejackets
- Measures are in place to rescue any worker/ that has fallen into the water
- Measures for the timeous warning of flooding are in place

(s) Housekeeping (Construction Regulation 25)

The Contractor to ensure that:

- Housekeeping is continuously implemented
- Materials & equipment are properly stored
- Scrap, waste & debris are removed regularly
- Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to free flow of pedestrian and vehicular traffic
- Waste & debris not to be removed by throwing from heights but by chute or crane
- Where practicable, Construction sites are fenced off to prevent entry of unauthorised persons
- Catch platforms or –nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects
- An unimpeded work space is maintained for every employee
- Every workplace is kept clean, orderly and free of tools etc. that are not required for the work being done materials
- As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials
- The walls and roof of every indoors workplace is sound and leak-free
- Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fences , boarded over or provided with protection to prevent persons from falling

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(t) Stacking & Storage (Construction Regulation 27)

The Contractor/Employer must ensure that:

- A competent person is appointed in writing to supervise all stacking and storage on a construction site
- Adequate storage areas are provided and demarcated
- The storage areas are kept neat and under control
- The base of any stack is level and capable of sustaining the weight exerted on it by the stack
- The items in the lower layers can support the weight exerted by the top layers.
- Cartons and other containers that may become unstable due to wet conditions are kept dry
- Pallets and containers are in good condition and no material is allowed to spill out
- The height of any stack does not exceed 3X the base unless stepped back at least half the depth of a single container at least every fifth tier or
- the approval of an inspector has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead off the stack and no items may overhang)
- The articles that make up a single tier are consistently of the same size, shape and mass
- Structures for supporting stacks are structurally sound and able to support the mass of the stack
- No articles are removed from the bottom of the stack first but from the top tier first
- Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him/her
- Stacks that are in danger of collapsing are broken down and restacked
- Stability of stacks are not threatened by vehicles or other moving plant and machinery
- Stacks are built in a header and stretcher fashion and that corners are securely bonded
- Stepped back at least half the depth of a single container at least every fifth tier
- Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations

(u) Storage of Flammables and Hazardous Chemicals (Hazardous Chemical Substances Regulations)
See (u) above and (v) below.

Fire Prevention and Protection

The Principal Contractor must ensure that:

- The risk of fire is avoided
- Sufficient & suitable storage of flammables is provided
- Sources of ignition is obviated wherever flammable or highly combustible material is present in the workplace e.g.:
 - notices prohibiting smoking is displayed and enforced
 - welding and flame cutting is only allowed under controlled conditions that includes written hot work permits
 - only spark-free hand and power tools are used
 - no grinding, cutting and shaping of ferrous metals are allowed using electrically driven power tools that produces sparks
 - flameproof switches & fittings are to be used in the flammable atmosphere
 - Good housekeeping is maintained to prevent the accumulation of unnecessary combustibles
 - Adequate ventilation is maintained

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- Adequate and suitable fixed and portable fire appliances is provided and maintained in good working order.
- Maintenance must include:
 - Regular inspection by a competent person appointed in writing and keeping a register
 - Annual inspection and service by an accredited service provider
- All employees are instructed in the use of the Fire equipment and know how to attempt to extinguish a fire
- A sufficient number of employees are appointed and trained to act as Emergency Team to deal with fires and other emergencies
- Employees are informed re. emergency evacuation procedures and escape routes
- Emergency escape routes are kept clear at all times
- After evacuation assembly points are demarcated
- Evacuation is practised to ensure that all is evacuated timeously
- Roll-call is held after evacuation to account for all personnel and ensure that no-one has been left behind.
- A clearly audible to all persons on site siren or alarm is fitted

w) Eating, Changing, Washing & Toilet Facilities (Construction Regulation 28)

The following will be the minimum requirements:

Toilets

The provision of Toilets is required in terms of the National Building Regulations and Construction Regulation 28.

Chemical toilets are allowed instead of the water borne Waterage type. Toilets have to be provided at a ratio of 1 toilet per 30 workers

Showers

At least cold water showers of some sort have to be provided to a ratio of 1 shower per 15 workers.

Change Rooms

Some form of screened off changing facility must be provided separately for each sex.

Eating Facility

Some form of shelter from the sun, wind and rain must be provided

Living Accommodation

Where the site is in a remote location and transport home is not readily available, reasonable and suitable living accommodation must be provided.

(x) Personal & Other Protective Equipment (Sections 8/15/23 or the OHS Act)

The Contractor is required to identify the hazards in the workplace and deal with them. He must either remove them or, where impracticable take steps to protect workers and make it possible for them to work safely and without risk to health under the hazardous conditions.

Personal Protective equipment (PPE) should, however, be the last resort and there should always first be an attempt to apply engineering and other solutions to mitigating hazardous situations before the issuing of PPE is considered.

Where it is not possible to create an absolutely safe and healthy workplace the Contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

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It is a further requirement that the said equipment be maintained by the Contractor, that he instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s.

Employees do not have the right to refuse to use/wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other reason, the employee cannot be allowed to continue working under the hazardous condition/s for which the equipment was prescribed but an alternative solution has to be found that may include relocating or discharging the employee.

The Contractor may not charge any fee for protective equipment prescribed by him/her but may charge for equipment under the following conditions:

- Where the employee requests additional issue in excess of what is prescribed
- Where the employee has patently abused or neglected the equipment leading to early failure
- Where the employee has lost the equipment

All employees shall, as a minimum, be required to wear the following PPE on any LEKWA LOCAL MUNICIPALITY projects:

- **Protective overalls**
- **Protective footwear**
- **Protective headwear**
- **Eye/face protection**
-

(y) Portable Electrical Tools & Equipment (Electrical Machinery Regulation 9)

Portable electrical tools and equipment includes every unit that takes electrical power from a 15 amp. plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etc. In addition electrical appliances such as fridges, hotplates, heaters, etc. must be inspected and maintained to the same standards as portable electrical tools and appliances.

The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:

- Regular inspections by a competent person appointed in writing
- Inspection results must be recorded in a register
- Only competent authorised persons are allowed to use portable electrical tools and equipment
- The correct protective equipment is worn/used whilst operating portable electrical tools and equipment

Portable Electrical Tools

- Must be maintained in good condition at all times to prevent an electrical shock to the user
- The main source must incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such
- All equipment must be fitted with a switch to allow for safe & easy starting and stopping

Portable Lights

- Must be fitted with a robust non-hygroscopic non-conducting handle
- Live metal parts/parts which may become live must be protected against contact
- The lamp must be protected by a strong guard
- The cable lead-in must withstand rough handling
- It is suggested that a register be kept for each piece of equipment and findings of regular

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WITNESS:

- inspections must be entered
- Inspections must concentrate on plug, cord, switch and any obvious faults
- When used in wet/damp/metal container conditions, it must be protected as for portable
- electrical tools, above
-

(z) Public Health & Safety (Section 9 of the OHS Act)

The Principal Contractor will be responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes:

- Non- employees entering the site for whatever reason
- The surrounding community
- Passers by to the site

Appropriate signage must be posted to this effect and all employees on site must be instructed on ensuring that non-employees are protected at all times

All non-employees entering the site must receive induction into the hazards and risks and the control measures for these.

(aa) Hazardous Chemical Substances

The Contractor/Employer must ensure that:

- Employees receive the necessary information & training to be able to use and store HCS safely
- Employees obey lawful instructions regarding:
 - the wearing and use of protective equipment
 - the use and storage of HCS
 - the prevention of the release of HCS
 - the wearing of exposure monitoring and measuring equipment
 - the cleaning up and disposal of materials containing HCS
 - housekeeping, personal hygiene and the protection of the environment
 - the Risk Assessments required in terms of Construction Regulation 7 include employee exposure to HCS and that the necessary to protect persons from being detrimentally affected by HCS present or used in the workplace, are taken
 - suppliers provide the necessary information in the form of a Material Safety Data Sheet (MSDS) regarding an HCS required to ensure the safe use and storage of that HCS
 - an up-to-date list is kept on site of HCS's stored and used together with the MSDS's of the said HCS's
- HCS containers are clearly marked as to the contents and main hazardous category e.g. "Flammable" or "Corrosive" and the reference number of the HCS on the list indicated above
- HCS e.g. Asbestos dust is not cleared by the use of compressed air but is vacuumed
- No person eats or drinks in a HCS workplace
- HCS waste is disposed of safely in terms of hazardous waste disposal requirements

(bb) Project/Site Specific Requirements

See Annexure 3

Annexure 1: Measuring Injury Experience

Annexure 2: Executive SHE Risk Management Report

Annexure 3: List of Risk Assessments

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

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ANNEXURE 1: MEASURING INJURY EXPERIENCE

Injury experience has traditionally been measured by the use of a disabling injury frequency rate, the so-called "DIFR". The DIFR is calculated by multiplying the number of disabling injuries by 1 million and dividing by the number of man-hours worked.

Lately the DIFR has been replaced internationally with a DIIR: disabling injury incidence rate. The only difference between the two rates are that the 10 million in the calculation is replaced with 200 000. (200 000 purported to be the number of hours and average person works in a lifetime.)

The use of the two rates above has proved to be somewhat problematical as they are open to manipulation and disabling injuries are often "hidden" by returning the injured employee to the workplace so as not to lose a shift and therefore having to register a disabling injury.

The Construction Industry recently decided to promote the use of a new frequency rate based on the number of compensation injury claims as these are more difficult to hide or manipulate because the reporting of compensable injuries is a legal requirement.

The industry is hoping that adoption of this new measurement of injury experience will enable the industry to monitor itself as far as work related injuries are concerned.

Below follows an explanation of this new rating system.

COMPENSATION INCIDENCE FREQUENCY RATE (CIFR) FORMULA

No. of Compensation Claims X 200 000

*220 man hours X No. of Employees

DEFINITIONS

No. of Compensation

Claims: **The number of claims lodged with the COID insurer for the period under review**

200 000: The fixed factor to align the rate with other rates used internationally

Man-hours Worked

Include: * Hourly Paid Employees
 * Sub-contractors (No. of Employees X *220 each)
 * Staff (No. of Employees X *220 hours each)

220 man-hours: The *average number of hours worked by one employee in one month in the Construction industry.

* Overtime, absence on leave or sick leave, unrecorded after hours' time worked by senior and middle management factored into this average.

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WITNESS:

No. of Employees: The actual or average number of employees employed for the period under review.

2002/03CIFRSystem

ANNEXURE 2: EXECUTIVE SHE RISK MANAGEMENT REPORT

The SAFCEC OH&S committee recently developed the following report in an attempt to standardise on reporting and assist contractors in obtaining a clear picture of their SHE Risk Management performance. It is hoped that clients will also accept this standardised report. Your comments/suggestions for improvement is invited.

EXAMPLE ONLY: ALL INFORMATION IS FICTITIOUS

XYZ construction

*SHE RISK MANAGEMENT REPORT

PERIOD JANUARY TO MARCH 2002

*(SHE = Safety, Health & Environment)

1. Introduction

We hope that this new format of quarterly SHE Risk Management reporting will provide a clear picture of the company's performance as far as occupational health & safety is concerned.

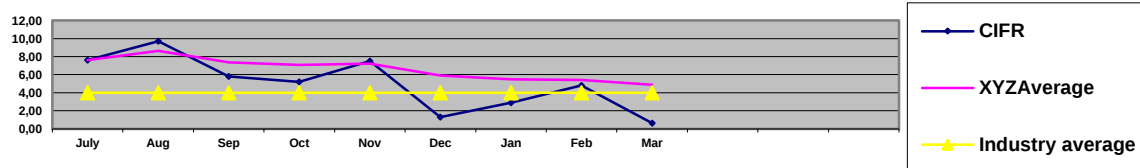
The first quarter of 2002 generally reflected an improvement in injury experience and shows a decline in the number of injuries. Although Building was the only division where there was an increase in compensation claims, figures are still well down from the average 2001 figures. A sub-contractor experienced one fatality.

All divisions are eagerly awaiting the final implementation in May of the new electronic SHE Management system that will make the tools to implement the SHE programme available to all management and supervisory staff.

2. Incident Statistics

3. Compensation Incident Frequency Rate (CIFR)

$$\text{CIFR} = \frac{\text{Total No. of Claims against the Workmen's Compensation Fund} \times 200\,000}{\text{Man-hours worked}}$$



2.

2. Disabling Injury Incidence Rate (DIIR)

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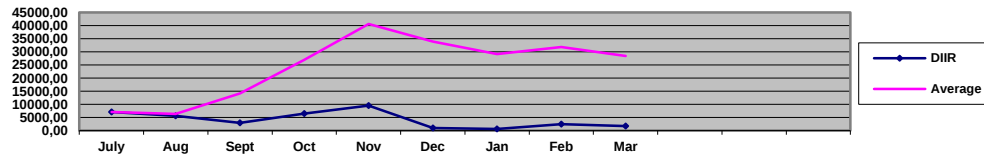
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WITNESS:

DIIR = $\frac{\text{No. Disabling Injuries} \times 200\,000}{\text{Manhours worked}}$



2.3. Other Major Incidents

Three other major incidents were experienced in the period under review:

- 2.3.1. A major trench collapsed at Job. 00123: XYZ Head Office, Bochum: No personnel injured, extensive damage to foundations: 3 days delay.
- 2.3.2. A concrete dumper ran away when its brakes failed. It smashed into the glass façade of the building on Job 00332: McDonalds, Polokwane. The driver jumped off and was not injured. Cost of damage to façade: R45 000.
- 2.3.3. A storage hut on Job 00567: BP Petrol Station, Swartruggens was demolished by fire when the night watchman made a fire inside the storage hut which contained concrete vibrators and levelling machines. Cost of replacing the hut and machines: R30 000

3. RISK AREAS

The following items of concern need priority consideration by management:

- 3.1. New employees must undergo pre-employment medical examinations to:
 - protect XYZ from claims at a later stage
 - ensure that only healthy persons are employed
 - prevent injuries and illness in the workplace
 - enhance XYZ image
- 3.2. Vehicle drivers and plant operators must be instructed to inspect their vehicles daily before start-up using the prescribed checklists to ensure that these are safe to operate and in good condition.

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WITNESS:

4. AUDITS

Three SHE audits were conducted in February and March:

- 4.1. Job 00432: Gillooly's Mall Compliance: 56%(*)
Job 00786: Cullinan Head Office Compliance: 83%(***)
Job 00589: Cleveland Station Compliance: 76%(***)

5. TRAINING

One hundred and forty two employees, representing 7% of employees, attended nine training courses. *Our objective is to train 5,5% of employees quarterly.

Month	No. of Employees Trained	Course	Source
January	26	Induction	Internal
	15	OH&S Reps	Consultant
	3	Crane Drivers	External
February	23	Induction	Internal
	17	OH&S Reps	Consultant
March	43	Induction	Internal
	9	OH&S Reps	Consultant
	3	Bomag Rollers	Supplier
	3	First Aiders	St. John's

6. LEGAL ISSUES

- 6.1. An inspector of the Department of Labour issued an improvement notice on Job 00987: Gillooly's Mall. The notice requires that all scaffolding comply with the SABS standards for the Erection and Maintenance of Access Scaffolding (SABS 085). This is currently being attended to and the inspector will return on 15 April 2002 to ascertain if the notice has been complied with.

8. OCCUPATIONAL AIND OTHER HEALTH MATTERS

8.1. HIV Aids

The proposed SAFCEC clinic will soon be operational and we will then be able to send our employees who have tested positive to the clinic for counselling and eventual treatment when necessary

The mobile clinic saw and tested fifty employee volunteers at 3 sites this month. Eighteen of them tested positive.

8.2. Tuberculosis

The mobile clinic will be calling at Gillooly's Mall and Cleveland Station on 15 and 16 October respectively to screen employees for TB.

8.3. Noise

All suspected noise pollution areas have been tested and the results are awaited. Employees working in areas testing over 85dBa will be issued with suitable hearing protectors.

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WITNESS:

9. ENVIRONMENTAL MEASURES

Inspectors from the Botswana Department of the Environment visited Djwaneng and inspected the site and yard. They gave it a “clean bill of health” and advised that we should increase the dust control measures by spraying roads three times per day instead of the present twice per day.

ANNEXURE 3: LIST OF RISK ASSESSMENTS

- * Clearing & Grubbing of the Area/Site
- * Site Establishment including:
 - Office/s
 - Secure/safe storage for materials, plant & equipment
 - Ablutions
 - Sheltered eating area
 - Maintenance workshop
 - Vehicle access to the site
- * Dealing with existing structures
- * Location of existing services
- * Installation and maintenance of temporary construction electrical supply, lighting and equipment
- * Adjacent land uses/surrounding property exposures
- * Boundary and access control/Public Liability Exposures (NB: the Employer is also responsible for the OH&S of non-employees affected by his/her work activities.)
- * Health risks arising from neighbouring as well as own activities and from the environment e.g. threats by dogs, bees, snakes, lightning etc.
- * Exposure to noise
- * Exposure to vibration
- * Protection against dehydration and heat exhaustion
- * Protection from wet & cold conditions
- * Dealing with HIV/Aids and other diseases
- * Use of Portable Electrical Equipment including
 - Angle grinder
 - Electrical drilling machine
 - Skill saw
- * Excavations including
 - Ground/soil conditions
 - Trenching
 - Shoring
 - Drainage of trench
- * Welding including
 - Arc Welding
 - Gas welding
 - Flame cutting
 - Use of LP gas torches and appliances
- * Loading & offloading of trucks
- * Aggregate/sand and other materials delivery
- * Manual and mechanical handling
- * Lifting and lowering operations
- * Driving & operation of construction vehicles and mobile plant including
 - Trenching machine
 - Excavator

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WITNESS:

- Bomag roller
- Plate compactor
- Front end loader
- Mobile cranes and the ancillary lifting tackle
- Parking of vehicles & mobile plant
- Towing of vehicles & mobile plant
- * Use and storage of flammable liquids and other hazardous substances
- * Layering and bedding
- * Installation of pipes in trenches
- * Pressure testing of pipelines
- * Backfilling of trenches
- * Protection against flooding
- * Gabion work
- * Use of explosives
- * Protection from overhead power lines
 - * As discovered by the Principal Contractor's hazard identification exercise
 - * As discovered from any inspections and audits conducted by the Client or by the Principal Contractor or any other Contractor on site
- * As discovered from any accident/incident investigation.

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WITNESS:

C3.4.3.2

ENVIRONMENTAL MANAGEMENT PLAN

CONTENTS

C3.4.3.2.1	SCOPE
C3.4.3.2.2	DEFINITIONS
C3.4.3.2.3	IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS
C3.4.3.2.4	LEGAL REQUIREMENTS
C3.4.3.2.5	ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS
C3.4.3.2.6	TRAINING
C3.4.3.2.7	ACTIVITIES/ASPECTS CAUSING IMPACTS
C3.4.3.2.8	ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES
C3.4.3.2.9	RECORD KEEPING
C3.4.3.2.10	COMPLIANCE AND PENALTIES
C3.4.3.2.11	MEASUREMENT AND PAYMENT

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C3.4.3.2.1. SCOPE

This environmental management programme (EMP) sets out the methods by which proper environmental controls are to be implemented by the contractor. The duration over which the contractor's controls shall be in place cover the construction period of the project as well as the limited time after contract completion defined by the General Conditions of Contract, and the project specifications, as the defects notification period (maintenance period).

The provisions of this EMP are binding on the contractor during the life of the contract. They are to be read in conjunction with all the documents that comprise the suite of documents for this contract. In the event that any conflict occurs between the terms of the EMP and the project specifications or Record of Decision, the terms herein shall be subordinate.

The EMP is a dynamic document subject to similar influences and changes as are brought by variations to the provisions of the project specification. Any substantial changes shall be submitted to the Roads Agency Limpopo in writing for approval.

The EMP identifies the following:

Construction activities that will impact on the environment.

Specifications with which the contractor shall comply in order to protect the environment from the identified impacts.

Actions that shall be taken in the event of non-compliance.

C3.4.3.2.2. DEFINITIONS

Alien Vegetation: alien vegetation is defined as undesirable plant growth which shall include, but not be limited to, all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations. Other vegetation deemed to be alien shall be those plant species that show the potential to occupy in number, any area within the defined construction area and which are declared to be undesirable.

Construction Activity: a construction activity is any action taken by the contractor, his subcontractors, suppliers or personnel during the construction process as defined in the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7, 1998)

Environment: environment means the surroundings within which humans exist and that could be made up of -

- the land, water and atmosphere of the earth;
- micro-organisms, plant and animal life;
- any part or combination of (i) and (ii) and the interrelationships among and between them; and
- the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental Aspect: an environmental aspect is any component of a contractor's construction activity that is likely to interact with the environment.

Environmental Impact: an impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction activity. An impact may be the direct or indirect consequence of a construction activity.

Record of Decision: a record of decision is a written statement from the Limpopo Department of Economic Development, Environment and Tourism that records its approval of a planned undertaking to improve, upgrade or rehabilitate a section of road and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.

Road Reserve: the road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.

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Road Width: for the purposes of the EMP, the road width is defined as the area within the road reserve i.e. fence line to fence line, but also includes all areas beyond the road reserve that are affected by the continuous presence of the road, e.g. a reach of a water course.

C3.4.3.2.3. IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

The contractor shall identify likely aspects before commencing with any construction activity. Examples of environment aspects include:

- waste generation
- stormwater discharge
- emission of pollutants into the atmosphere
- chemical use operations
- energy use operations
- water use operations
- use of natural resources
- noise generation

Thereafter the contractor shall programme his work in such a way that each cause and effect of a construction activity is also identified and the activity planned so as to prevent any impact from happening. If prevention is not practicable, or in the event of mishap or misapplication, the contractor shall provide plans and measures for the engineer's approval, which will limit and contain the magnitude, duration and intensity of the impact. The contractor shall demonstrate that he/she is capable of carrying out any repair and reinstatement of the damaged environment. These requirements shall be concurrent with the time constraints to produce an approved construction programme according to subclause 8.

Listed below are some environmental impacts that could adversely alter an aspect of the environment through usual construction activities:

Pollution of atmosphere, soil or water

Destruction or removal of fauna and flora and effect on biological diversity

Deformation of the landscape

Soil erosion

Destruction of historical/heritage sites

Effect on the built environment

Effect on agricultural land and wetlands

General good construction practice will play an important role in avoiding the occurrence of an Impact. The contractor's attention is drawn, in this regard, to C1008. Environmental Management of Construction Activities

C3.4.3.2.4. LEGAL REQUIREMENTS

a) General

Construction will be according to the best industry practices, as identified in the project documents. This EMP, which forms an integral part of the contract documents, informs the contractor as to his duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The contractor should note that obligations imposed by the EMP are legally binding in terms of environmental statutory legislation and in terms of the additional conditions to the general conditions of contract that pertain to this project. In the event that any rights and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

b) Statutory and other applicable legislation

The contractor is deemed to have made himself conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

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WITNESS:

C3.4.3.2.5. ADMINISTRATION OF ENVIRONMENTAL OBLIGATIONS

a) Appointment of a Designated Environmental Officer (DEO)

For the purposes of implementing the conditions contained herein, the contractor shall submit to the engineer for approval the appointment of a nominated representative of the contractor as the DEO for the contract. The request shall be given, in writing, at least fourteen days before the start of any work clearly setting out reasons for the nomination, and with sufficient detail to enable the engineer to make a decision. The engineer will, within seven days of receiving the request, approve, reject or call for more information on the nomination. Once a nominated representative of the contractor has been approved he/she shall be the DEO and shall be the responsible person for ensuring that the provisions of the EMP are complied with during the life of the contract. The engineer will be responsible for issuing instructions to the contractor where environmental considerations call for action to be taken. The DEO shall submit regular written reports to the engineer, but not less frequently than once a month.

The engineer shall have the authority to instruct the contractor to replace the DEO if, in the engineer's opinion, the appointed officer is not fulfilling his/her duties in terms of the requirements of the EMP or this specification. Such instruction will be in writing and shall clearly set out the reasons why a replacement is required.

There shall be an approved DEO on the site at all times.

b) Administration

Before the contractor begins each construction activity the DEO shall give to the engineer a written statement setting out the following:

The type of construction activity.

Locality where the activity will take place.

Identification of the environmental aspects and impacts that might result from the activity.

Methodology for impact prevention for each activity or aspect.

Methodology for impact containment for each activity or aspect.

Emergency/disaster incident and reaction procedures.

Treatment and continued maintenance of impacted environment.

The contractor may provide such information in advance of any or all construction activities provided that new submissions shall be given to the engineer whenever there is a change or variation to the original.

The engineer may provide comment on the methodology and procedures proposed by the DEO, but he shall not be responsible for the contractor's chosen measures of impact mitigation and emergency/disaster management systems. However, the contractor shall demonstrate at inception and at least once during the contract that the approved measures and procedures function properly.

c) Good Housekeeping

The Contractor shall undertake "good housekeeping" practices during construction as stated in clause 11.11 of the General Conditions of Contract. This will help avoid disputes on responsibility and allow for the smooth running of the contract as a whole. Good housekeeping extends beyond the wise practice of construction methods that leaves production in a safe state from the ravages of weather to include the care for and preservation of the environment within which the site is situated.

C3.4.3.2.6. TRAINING

The designated environmental officer (DEO) must be conversant with all legislation pertaining to the environment applicable to this contract and must be appropriately trained in environmental management and must possess the skills necessary to impart environmental management skills to all personnel involved in the contract.

The contractor shall ensure that adequate environmental training takes place. All employees shall have been given an induction presentation on environmental awareness. Where possible, the presentation needs to be conducted in the language of the employees.

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WITNESS:

The environmental training should, as a minimum, include the following:

- The importance of conformance with all environmental policies
- The environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Agency's environmental management systems, including emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities.

In the case of permanent staff the contractor shall provide evidence that such induction courses have been presented. In the case of new staff (including contract labour) the contractor shall inform the engineer when and how he/she intends concluding his environmental training obligations.

C3.4.3.2.7. ACTIVITIES/ASPECTS CAUSING IMPACTS

A list of possible causes of environmental impacts that occur during construction activities is given in Table 7/1: Aspects or Activities that Cause Environmental Impacts during Construction Activities, which is to be found at the end of this part. This list is not exhaustive, and shall be used for guideline purposes only.

C3.4.3.2.8 ENVIRONMENTAL MANAGEMENT OF CONSTRUCTION ACTIVITIES

a) Site Establishment

i) Site Plan

The contractor shall establish his construction camps, offices, workshops, staff accommodation and testing facilities on the site in a manner that does not adversely affect the environment. However, before construction can begin, the contractor shall submit to the engineer for his approval, plans of the exact location, extent and construction details of these facilities and the impact mitigation measures the contractor proposes to put in place.

The plans shall detail the locality as well as the layout of the waste treatment facilities for litter, kitchen refuse, sewage and workshop-derived effluents. The site offices should not be sited in close proximity to steep areas, as this will increase soil erosion. Preferred locations would be flat areas along the route. If the route traverses water courses, streams and rivers, it is recommended that the offices, and in particular the ablution facilities, aggregate stockpiles, spoil areas and hazardous material stockpiles are located as far away as possible from any water course as possible. Regardless of the chosen site, the contractor's intended mitigation measures shall be indicated on the plan. The site plan shall be submitted not later than the first site meeting. Detailed, electronic colour photographs shall be taken of the proposed site before any clearing may commence. These records are to be kept by the engineer for consultation during rehabilitation of the site.

ii) Vegetation

The contractor has a responsibility to inform his staff of the need to be vigilant against any practice that will have a harmful effect on vegetation.

The natural vegetation encountered on the site is to be conserved and left as intact as possible. Vegetation planted at the site shall be indigenous and in accordance with instructions issued by the engineer. Only trees and shrubs directly affected by the works, and such others as may be indicated by the engineer in writing, may be felled or cleared. In wooded areas where natural vegetation has been cleared out of necessity, the same species of indigenous trees as were occurring shall be re-established.

The project specification for the rehabilitation of the grass cover shall be strictly adhered to. Any proclaimed weed or alien species that propagates during the contract period shall be cleared by hand before seeding. Fires shall only be allowed in facilities or equipment specially constructed for this purpose. A firebreak shall be cleared and maintained around the perimeter of the camp and office sites.

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WITNESS:

iii) Rehabilitation

The area where the site offices were erected will require rehabilitation at the end of the contract. All construction material, including concrete slabs and braai areas shall be removed from the site on completion of the contract.

iv) Water for human consumption

Water for human consumption shall be available at the site offices and at other convenient locations on site.

All effluent water from the camp / office sites shall be disposed of in a properly designed and constructed system, situated so as not to adversely affect water sources (streams, rivers, pans dams etc). Only domestic type wastewater shall be allowed to enter this drain.

v) Heating and cooking fuel

The contractor shall provide adequate facilities for his staff so that they are not encouraged to supplement their comforts on site by accessing what can be taken from the natural surroundings. The contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

b) Sewage treatment

Particular reference in the site establishment plan shall be given to the treatment of sewage generated at the site offices, site laboratory and staff accommodation and at all localities on the site where there will be a concentration of labour. Sanitary arrangements should be to the satisfaction of project management, the local authorities and legal requirements.

Safe and effective sewage treatment will require one of the following sewage handling methods: septic tanks and soak-aways, dry-composting toilets such as "enviro loos", or the use of chemical toilets which are supplied and maintained by a subcontractor. The type of sewage treatment will depend on the geology of the area selected, the duration of the contract and proximity (availability) of providers of chemical toilets. Should a soak-away system be used, it shall not be closer than 800 metres from any natural water course or water retention system. The waste material generated from these facilities shall be serviced on a regular basis. The positioning of the chemical toilets shall be done in consultation with the engineer.

Toilets and latrines shall be easily accessible and shall be positioned within walking distance from wherever employees are employed on the works. Use of the veld for this purpose shall not, under any circumstances, be allowed. Outside toilets shall be provided with locks and doors and shall be secured to prevent them from blowing over. The toilets shall also be placed outside areas susceptible to flooding. The contractor shall arrange for regular emptying of toilets and shall be entirely responsible for enforcing their use and for maintaining such latrines in a clean, orderly and sanitary condition to the satisfaction of the engineer.

c) Waste Management

The contractor's intended methods for waste management and waste minimisation shall be implemented at the outset of the contract. All personnel shall be instructed to dispose of all waste in the proper management.

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WITNESS:

i) Solid Waste

Solid waste shall be stored in an appointed area in covered, tip proof metal drums for collection and disposal. A refuse control system shall be established for the collection and removal of refuse to the satisfaction of the engineer. Disposal of solid waste shall be at a Department of Water Affairs and Forestry (DWAF) licensed landfill site or at a site approved by DWAF in the event that an existing operating landfill site is not within reasonable distance from the site offices and staff accommodation. No waste shall be burned or buried at or near the site offices, or anywhere else on the site, including the approved solid waste disposal site.

ii) Litter

No littering by construction workers shall be allowed. During the construction period, the facilities shall be maintained in a neat and tidy condition and the site shall be kept free of litter.

Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the contractor shall provide litter collection facilities for later safe disposal at approved sites.

iii) Hazardous waste

Hazardous waste such as bitumen, tar, oils etc. shall be disposed of in a Department of Water Affairs and Forestry approved landfill site. Special care shall be taken to avoid spillage of tar or bitumen products such as binders or pre-coating fluid to avoid water-soluble phenols from entering the ground or contaminating water.

Under no circumstances shall the spoiling of tar or bituminous products on the site, over embankments, in borrow pits or any burying, be allowed. Unused or rejected tar or bituminous products shall be returned to the supplier's production plant. Any spillage of tar or bituminous products shall be attended to immediately and affected areas shall be promptly reinstated to the satisfaction of the engineer.

d) Control at the workshop

The contractor's management and maintenance of his plant and machinery will be strictly monitored according to the criteria given below, regardless whether it is serviced on the site (i.e. at the place of construction activity or at a formalised workshop).

i) Safety

All the necessary handling and safety equipment required for the safe use of petrochemicals and oils shall be provided by the contractor to, and used or worn by, the staff whose duty it is to manage and maintain the contractor's and his subcontractor's and supplier's plant, machinery and equipment.

ii) Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be stored under controlled conditions. All hazardous materials e.g. tar or bitumen binders shall be stored in a secured, appointed area that is fenced and has restricted entry. Storage of tar or bituminous products shall only take place using suitable containers to the approval of the engineer.

The contractor shall provide proof to the engineer that relevant authorisation to store such substances has been obtained from the relevant authority. In addition, hazard signs indicating the nature of the stored materials shall be displayed on the storage facility or containment structure. Before containment or storage facilities can be erected the contractor shall furnish the engineer with details of the preventative measures he proposes to install in order to mitigate against pollution of the surrounding environment from leaks or spillage. The preferred method shall be a concrete floor

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that is banded. Any deviation from the method will require proof from the relevant authority that the alternative method proposed is acceptable to that authority. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that will negatively affect an individual or the environment.

iii) Fuel and Gas Storage

Fuel shall be stored in a secure area in a steel tank supplied and maintained by the fuel suppliers. An adequate bund wall, 110% of volume, shall be provided for fuel and diesel areas to accommodate any leakage spillage or overflow of these substances. The area inside the bund wall shall be lined with an impervious lining to prevent infiltration of the fuel into the soil. Any leakage, spillage or overflow of fuel shall be attended to without delay.

Gas welding cylinders and LPG cylinders shall be stored in a secure, well-ventilated area.

iv) Oil and Lubricant Waste

Used oil, lubricants and cleaning materials from the maintenance of vehicles and machinery shall be collected in a holding tank and sent back to the supplier. Water and oil should be separated in an oil trap. Oils collected in this manner, shall be retained in a safe holding tank and removed from site by a specialist oil recycling company for disposal at approved waste disposal sites for toxic/hazardous materials. Oil collected by a mobile servicing unit shall be stored in the service unit's sludge tank and discharged into the safe holding tank for collection by the specialist oil recycling company.

All used filter materials shall be stored in a secure bin for disposal off site. Any contaminated soil shall be removed and replaced. Soils contaminated by oils and lubricants shall be collected and disposed of at a facility designated by the local authority to accept contaminated materials.

e) Clearing the Site

In all areas where the contractor intends to, or is required to clear the natural vegetation and soil, either within the road reserve, or at designated or instructed areas outside the road reserve, a plan of action shall first be submitted to the engineer for his approval.

The plan shall contain a photographic record and chainage/land reference of the areas to be disturbed. This shall be submitted to the engineer for his records before any disturbance/stockpiling may occur. The record shall be comprehensive and clear, allowing for easy identification during subsequent inspections.

The contractor shall be responsible for the re-establishment of grass within the road reserve boundaries for all areas disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for, or from, road construction has to be stored temporarily or otherwise within the road reserve, or at designated or instructed areas outside the road reserve. This responsibility shall extend until expiry of the defects notification period.

f) Soil Management

i) Topsoil

Topsoil shall be removed from all areas where physical disturbance of the surface will occur and shall be stored and adequately protected. The contract will provide for the stripping and stockpiling of topsoil from the site for later re-use. Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter. Depth may vary at each site. The areas to be cleared of topsoil shall include the storage areas. All topsoil stockpiles and windrows shall be maintained throughout the contract period in a weed-free condition. Weeds appearing on the stockpiled or windrowed topsoil shall be removed by hand. Soils contaminated by hazardous substances shall be disposed of at an approved Department of Water Affairs and Forestry waste disposal site.

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The topsoil stockpiles shall be stored, shaped and sited in such a way that they do not interfere with the flow of water to cause damming or erosion, or itself be eroded by the action of water. Stockpiles of topsoil shall not exceed a height of 2m, and if they are to be left for longer than 6 months, shall be analysed, and if necessary, upgraded before replacement. Stockpiles shall be protected against infestation by weeds.

The contractor shall ensure that no topsoil is lost due to erosion – either by wind or water. Areas to be topsoiled and grassed shall be done so systematically to allow for quick cover and reduction in the chance of heavy topsoil losses due to unusual weather patterns. The contractor's programme shall clearly show the proposed rate of progress of the application of topsoil and grassing. The contractor shall be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil due to his failure to work according to the progress plan approved by the engineer. The contractor's responsibility shall also extend to the clearing of drainage or water systems within and beyond the boundaries of the road reserve that may have been affected by such negligence.

ii) Subsoil

The subsoil is the layer of soil immediately beneath the topsoil. It shall be removed, to a depth instructed by the engineer, and stored separately from the topsoil if not used for road building. This soil shall be replaced in the excavation in the original order it was removed for rehabilitation purposes.

g) Drainage

The quality, quantity and flow direction of any surface water runoff shall be established prior to disturbing any area for construction purposes. Cognisance shall be taken of these aspects and incorporated into the planning of all construction activities. Before a site is developed or expanded, it shall be established how this development or expansion will affect the drainage pattern. Recognised water users / receivers shall not be adversely affected by the expansion or re-development. No water source shall be polluted in any way due to proposed changes.

Streams, rivers, pans, wetlands, dams, and their catchments shall be protected from erosion and from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous or tar products.

The contractor shall submit to the engineer his proposals for prevention, containment and rehabilitation measures against environmental damage of the identified water and drainage systems that occur on the site. Consideration shall be given to the placement of sedimentation ponds or barriers where the soils are of a dispersive nature or where toxic fluids are used in the construction process. The sedimentation ponds must be large enough to contain runoff so that they function properly under heavy rain conditions.

h) Earthworks and Layerworks

This section includes all construction activities that involve the mining of all materials, and their subsequent placement, stockpile, spoil, treatment or batching, for use in the permanent works, or temporary works in the case of deviations. Before any stripping prior to the commencement of construction, the contractor shall have complied with the requirements of sections C1008 (e) and C1008 (g). In addition, the contractor shall take cognisance of the requirements set out below.

i) Quarries and borrow pits

ii)

The contractor's attention is drawn to the requirement of the Department of Minerals and Energy that before entry into any quarry or borrow pit, an EMP for the establishment, operation and closure of the quarry or borrow pit shall have been approved by the Department. It is the responsibility of the contractor to ensure that he is in possession of the approved EMP or a copy thereof, prior to entry into the quarry or borrow pit.

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The conditions imposed by the relevant EMP are legally binding on the contractor and may be more extensive and explicit than the requirements of this specification. In the event of any conflict occurring between the requirements of the specific EMP and these specifications the former shall apply. The cost of complying with the requirements shall be deemed to be included in existing rates in the Bill of Quantities.

ii) Excavation, hauling and placement

The contractor shall provide the engineer with detailed plans of his intended construction processes prior to starting any cut or fill or layer. The plans shall detail the number of personnel and plant to be used and the measures by which the impacts of pollution (noise, dust, litter, fuel, oil, and sewage), erosion, vegetation destruction and deformation of landscape will be prevented, contained and rehabilitated. Particular attention shall also be given to the impact that such activities will have on the adjacent built environment. The contractor shall demonstrate his "good housekeeping", particularly with respect to closure at the end of every day so that the site is left in a safe condition from rainfall overnight or over periods when there is no construction activity.

iii) Spoil sites

The contractor shall be responsible for the safe siting, operation, maintenance and closure of any spoil site he uses during the contract period, including the defects notification period. This shall include existing spoil sites that are being re-entered.

Before spoil sites may be used proposals for their locality, intended method of operation, maintenance and rehabilitation shall be given to the engineer for his approval. The location of these spoil sites shall have signed approval from the affected landowner before submission to the engineer. No spoil site shall be located within 500m of any watercourse. A photographic record shall be kept of all spoil sites for monitoring purposes. This includes before the site is used and after re-vegetation.

The use of approved spoil sites for the disposal of hazardous or toxic wastes shall be prohibited unless special measures are taken to prevent leaching of the toxins into the surrounding environment. Such special measures shall require the approval of the relevant provincial or national authority. The same shall apply for the disposal of solid waste generated from the various camp establishments. The engineer will assist the contractor in obtaining the necessary approval if requested by the contractor.

Spoil sites will be shaped to fit the natural topography. These sites shall receive a minimum of 75mm topsoil and be grassed with the recommended seed mixture. Slopes shall not exceed a vertical: horizontal ratio of 1:3. Only under exceptional circumstances will approval be given to exceed this ratio. Appropriate grassing measures to minimise soil erosion shall be undertaken by the contractor. This will include both strip and full sodding. The contractor may motivate to the engineer for other acceptable stabilising methods. The engineer may only approve a completed spoil site at the end of the defects notification period upon receipt from the contractor of a landowner's clearance notice and an engineer's certificate certifying slope stability. The contractor's costs incurred in obtaining the necessary certification for opening and closing of spoil sites shall be deemed to be included in the Tendered rates for spoiling.

iv) Stockpiles

The contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. However, should temporary stockpiling become necessary, the areas for the stockpiling of excavated and imported material shall be indicated and demarcated on the site plan submitted in writing to the engineer for his approval, together with the contractor's proposed measures for prevention, containment and rehabilitation against environmental damage.

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The areas chosen shall have no naturally occurring indigenous trees and shrubs present that may be damaged during operations. Care shall be taken to preserve all vegetation in the immediate area of these temporary stockpiles. During the life of the stockpiles the contractor shall at all times ensure that they are:

- Positioned and sloped to create the least visual impact;
- Constructed and maintained so as to avoid erosion of the material and contamination of surrounding environment; and
- Kept free from all alien/undesirable vegetation.

After the stockpiled material has been removed, the site shall be re-instated to its original condition. No foreign material generated / deposited during construction shall remain on site. Areas affected by stockpiling shall be landscaped, top soiled, grassed and maintained at the contractor's cost until clearance from the engineer and the relevant Authority is received.

Material milled from the existing road surface that is temporarily stockpiled in areas approved by the engineer within the road reserve, shall be subject to the same condition as other stockpiled materials. Excess materials from windrows, in-situ milling or any detritus of material from road construction activities may not be swept off the road and left unless specifically instructed to do so in the contract drawing or under instruction from the engineer

In all cases, the engineer shall approve the areas for stockpiling and disposal of construction rubble before any operation commences and shall approve their clause only when they have been satisfactorily rehabilitated..

v) Blasting activities

Wherever blasting activity is required on the site (including quarries and/or borrow pits) the contractor shall rigorously adhere to the relevant statutes and regulations that control the use of explosives. In addition, the contractor shall, prior to any drilling of holes in preparation for blasting, supply the engineer with a locality plan of the blast site on which shall be shown the zones of influence of the ground and air shock-waves and expected limits of fly-rock.

The plan shall show each dwelling, structure and service within the zones of influence and record all details of the dwellings/structures/services including existing positions, lengths and widths of cracks, as well as the condition of doors, windows, roofing, wells, boreholes etc. The contractor, alone, shall be responsible for any costs that can be attributed to blasting activities, including the collection of fly-rock from adjacent lands and fields. The submission of such a plan shall not in any way absolve the contractor from his responsibilities in this regard. The contractor shall also indicate to the engineer the manner in which he intends to advertise to the adjacent communities and/or road users the times and delays to be expected for each individual blast.

i) Batching sites

Asphalt plants are considered scheduled processes listed in the second schedule to the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965). Should the use of an asphalt plant be considered on site, the contractor shall be responsible to obtain the necessary permit from the Department of Environmental Affairs and Tourism, regardless of where they are sited.

Crushing plants and concrete batching plants, whether sited inside or outside of defined quarry or borrow pit areas, shall be subject to the requirements of the Department of Minerals and Energy legislation as well as the applicable industrial legislation that governs gas and dust emissions into the atmosphere. Such sites will be the subject of regular inspections by the relative authorities during the life of the project. In addition, the selection, entry onto, operation, maintenance, closure and rehabilitation of such sites shall be the same as for those under section C1008(h)(iii), with the exception that the contractor shall provide additional measures to prevent, contain and rehabilitate against environmental damage from toxic/hazardous substances. In this regard the contractor shall provide plans that take into account such additional measures as concrete floors, bunded storage facilities, linings to drainage channels and settlement dams. Ultimate approval of these measures shall be from the relevant national authority, as shall approval of closure. The engineer will assist the contractor in his submissions to the relevant authority.

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Effluent from concrete batch plants and crusher plants shall be treated in a suitable designated sedimentation dam to the legally required standards to prevent surface and groundwater pollution. The designs of such a facility should be submitted to the engineer for approval.

The contractor shall invite the relevant department to inspect the site within 2 months after any plant is commissioned and at regular intervals thereafter, not exceeding 12 months apart

j) Spillages

Streams, rivers and dams shall be protected from direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and tar or bituminous products. In the event of a spillage, the contractor shall be liable to arrange for professional service providers to clear the affected area.

Responsibility for spill treatment lies with the contractor. The individual responsible for, or who discovers a hazardous waste spill must report the incident to his/her DEO or to the engineer. The Designated Environmental Officer will assess the situation in consultation with the engineer and act as required. In all cases, the immediate response shall be to contain the spill. The exact treatment of polluted soil / water shall be determined by the contractor in consultation with the DEO and the engineer. Areas cleared of hazardous waste shall be re-vegetated according to the engineer's instructions

Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice will be sought for appropriate treatment and remedial procedures to be followed. The requirement for such input shall be agreed with the engineer. The costs of containment and rehabilitation shall be for the contractor's account, including the costs of specialist input.

k) Areas of Specific Importance

Any area, as determined and identified within the project document as sensitive or of special interest within the site shall be treated according to the express instructions contained in these specifications or the approved EMP. The contractor may offer alternative solutions to the engineer in writing should he consider that construction will be affected in any way by the hindrance of the designated sensitive area or feature. However, the overriding principle is that such defined areas requiring protection shall not be changed. Every effort to identify such areas within the site will have been made prior to the project going out to tender. The discovery of other sites with archaeological or historical interest that have not been identified shall require ad hoc treatment.

i) Archaeological Sites

If an artefact on site is uncovered, work in the immediate vicinity shall be stopped immediately. The contractor shall take reasonable precautions to prevent any person from removing or damaging any such article and shall immediately upon discovery thereof inform the engineer of such discovery. The South African Heritage Research Agency (SAHRA) is to be contacted who will appoint an archaeological consultant. Work may only resume once clearance is given in writing by the archaeologist..

ii) Graves and middens

If a grave or midden is uncovered on site, or discovered before the commencement of work, then all work in the immediate vicinity of the graves/middens shall be stopped and the engineer informed of the discovery. The South African Heritage Research Agency (SAHRA) should be contacted and in the case of graves, arrangements made for an undertaker to carry out exhumation and reburial. The employer will be responsible for attempts to contact family of the deceased and for the site where the exhumed remains can be re-interred.

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l) Noise Control

The contractor shall endeavour to keep noise generating activities to a minimum. Noises that could cause a major disturbance, for instance blasting and crushing activities, should only be carried out during daylight hours. Compliance with the appropriate legislation with respect to noise shall be mandatory.

Should noise generating activities have to occur at night the people in the vicinity of the drilling shall be warned about the noise well in advance and the activities kept to a minimum.

m) Dust Control

Dust caused by strong winds shall be controlled by means of water spray vehicles. Dust omission from batching plants shall be subject to the relevant legislation and shall be the subject of inspection by the relevant office of the Department of Minerals and Energy.

n) Alien Vegetation

The contractor shall be held responsible for the removal of alien vegetation within the road reserve disturbed during road construction. This includes, for example, service roads, stockpile areas, stop/go facilities, windrows and wherever material generated for or from road construction has been stored temporarily or otherwise within the road reserve. This responsibility shall extend for the duration of the defects notification period.

C3.4.3.2.9. RECORD KEEPING

The engineer and the DEO will continuously monitor the contractor's adherence to the approved impact prevention procedures and the engineer shall issue to the contractor a notice of non-compliance whenever transgressions are observed. The DEO should document the nature and magnitude of the non-compliance in a designated register, the action taken to discontinue the non-compliance, the action taken to mitigate its effects and the results of the actions. The non-compliance shall be documented and reported to the engineer in the monthly report.

Copies of any record of decision or EMP's for specific borrow pits or quarries used on the project shall be kept on site and made available for inspection by visiting officials from the employer or relevant environmental departments.

C3.4.3.2.10. COMPLIANCE AND PENALTIES

The contractor shall act immediately when such notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints received regarding activities on the construction site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. This record shall be submitted with the monthly reports and a verbal report given at the monthly site meetings.

Any avoidable non-compliance with the above-mentioned measures shall be considered sufficient ground for the imposition of a penalty

THE FOLLOWING PENALTIES SHALL APPLY FOR ENVIRONMENTAL VIOLATIONS:

A) UNNECESSARY REMOVAL OR DAMAGE TO TREES

- 2600MM GIRTH OR LESS : R 5 000 PER TREE
- GREATER THAN 2600MM, BUT LESS THAN 6180MM GIRTH : R10 000 PER TREE
- GREATER THAN 6180MM GIRTH : R30 000 PER TREE
-

b) Serious violations:

- Hazardous chemical/oil spill and/or dumping in non-approved sites. : R10 000 per incident
- General damage to sensitive environments. : R 5 000 per incident
- Damage to cultural and historical sites. : R 5 000 per incident
- Uncontrolled/unmanaged erosion (plus rehabilitation at contractor's cost). : R 1 000 to R5 000 per incident
- Unauthorised blasting activities. : R 5 000 per incident
- Pollution of water sources. : R10 000 per incident

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final.

c) Less serious violations:

- Littering on site. : R1 000 per incident
- Lighting of illegal fires on site. : R1 000 per incident
- Persistent or un-repaired fuel and oil leaks. : R1 000 per incident
- Excess dust or excess noise emanating from site. :R1 000 per incident
- Dumping of milled material in side drains or on grassed areas : R1 000 per incident
- Possession or use of intoxicating substances on site. :R 500 per incident
- Any vehicles being driven in excess of designated speed limits. : R 500 per incident
- Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife : R2 000 per incident
- Illegal hunting. : R2 000 per incident
- Urination and defecation anywhere except in designated areas. : R 500 per incident

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The calculation shall include allied construction activities in the same way as the calculation of reduced payments under section 8200. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

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C3.4.3.2.11. MEASUREMENT AND PAYMENT

"The cost of complying with this specification shall be deemed to be included in the rates tendered for this contract."

Item		Unit
C100.01	Penalty for unnecessary removal or damage to trees for the following diameter sizes	
(a)	2600mm girth or less	number (No)
(b)	Greater than 2600mm, but less than 6180mm girth	number (No)
(c)	Greater than 6180mm girth	number (No)

The unit of measurement shall be the number of trees by diameter size removed unnecessary or damaged. The penalty rates applied shall be those stated in clause C3.5.2.10.

Item		Unit
C100.02	Penalty for serious violations	
(a)	Hazardous chemical/oil spill and/or dumping in non-approved sites	number (No)
(b)	General damage to sensitive environments	
(c)	Damage to cultural and historical sites	number (No)
(d)	Pollution of water sources	number (No)
(e)	Unauthorised blasting activities	number (No)
(f)	Uncontrolled/unmanaged erosion per incident, depending on environment impacts, plus rehabilitation at contractor's cost)	number (No)

The unit of measurement for C100.02 (a) to (f) shall be the number of serious violation incidents. The penalty rates to be applied shall be those stated in clause C3.5.2.10.

Item		Unit
C100.03	Penalty for less serious violations	
•	Littering on site	number (No)
•	Lighting of illegal fires on site	number (No)
•	Persistent or un-repaired fuel and oil leaks	number (No)
•	Excess dust or excess noise emanating from site	number (No)
•	Dumping of milled material in side drains or on grassed areas	number (No)
•	Possession or use of intoxicating substances on site	number (No)
•	Any vehicles being driven in excess of designated speed limits	number (No)
•	Removal and/or damage to flora or cultural or heritage objects on site, and/or killing of wildlife	number (No)
•	Illegal hunting	number (No)
•	Urination and defecation anywhere except in designated	
•	Areas	number (No)

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The unit of measurement shall be the number of less serious violation incidents. The penalty rates applied shall be those stated in clause C3.5.2.10.

The engineer's decision with regard to what is considered a violation, its seriousness and the penalty imposed shall be final. The calculation shall include allied construction activities in the same way as the calculation of reduced payments under section 8200. The imposition of such a penalty shall not preclude the relevant provincial or national authority from applying an additional penalty in accordance with its statutory powers. Any non-compliance with the agreed procedures of the EMP is a transgression of the various statutes and laws that define the manner by which the environment is managed.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression, as it deems fit.

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Table 1: Mechanisms that Cause Environmental Impacts during Construction Activities

CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
Camp Establishment	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Housing, Offices and laboratories	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Accommodation of Traffic	Waste treatment Hazardous waste Water supply Spillage Storage Noise/lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Overhaul	Spillage Storage Noise/lights Dust control	Turning circles Parking areas	Restrict access to sensitive areas	Protection of indigenous vegetation Preserve topsoil	

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CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
	Exhaust fumes Washing waste				
Clearing and grubbing	Waste treatment Hazardous waste Water supply Noise /lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Protection of indigenous vegetation Preserve topsoil	
Drainage	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Borrow pits	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Stockpiling	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

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CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
Mass Earthworks	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Pavement layers	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control	Selection of site Preserve indigenous vegetation Preserve topsoil Demarcate sensitive areas Maintenance of windrows	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Asphalt works / sealing operations	Waste treatment Hazardous waste Water supply Spillage Storage Noise / lights Dust control Smoke control Storage of materials	Selection of site Preserve indigenous vegetation Preserve topsoil Turning circles Parking areas	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	
Ancillary roadworks	Waste treatment Hazardous waste	Selection of site	Selection of site	Preserve indigenous vegetation	

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

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WITNESS:

CONTENTS	ENVIRONMENTAL IMPACTS				
	POLLUTION TYPE	DEFORMATION OF LANDSCAPE	SOIL EROSION	ALIEN VEGETATION	SENSITIVE AREAS (to be completed by compiler)
	Water supply Spillage Storage	Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil	Preserve topsoil Management of weeds	
Structures	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	
Concrete pavements etc	Waste treatment Hazardous waste Water supply Spillage Storage	Selection of site Preserve indigenous vegetation Preserve topsoil	Selection of site Preserve indigenous vegetation Preserve topsoil	Preserve indigenous vegetation Preserve topsoil Management of weeds	

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C3.4.3.3

PROVISION OF STRUCTURED TRAINING

CONTENTS

- C3.4.3.3.1 SCOPE
- C3.4.3.3.2 GENERIC TRAINING
- C3.4.3.3.3 ENTREPRENEURIAL SKILLS TRAINING
- C3.4.3.3.4 MEASUREMENT AND PAYMENT

C3.4.3.3 PROVISION OF STRUCTURED TRAINING

C3.4.3.3.1 SCOPE

This specification covers the requirements for the provision of structured training to be arranged by the contractor over the period of this contract.

C3.4.3.3.2 GENERIC TRAINING

C3.4.3.3.2.1 The contractor shall, from the commencement of the contract, implement a structured progressive training programme.

C3.4.3.3.2.2 The generic training will inter alia comprise, but not be limited to the following subjects:

COURSE DESCRIPTION		ESTIMATED No. OF TRAINEES	ESTIMATED DURATION (DAYS)
1	ROAD SAFETY FOR CONSTRUCTION WORKERS	.....	
2	FLAGMEN	.....	
3	CONCRETE HANDLING, PLACING AND FINISHING	.....	
4	BASIC PIPELAYING AND PLUMBING	.....	

C3.4.3.3.2.3 Training shall be at or by an approved accredited organisation and shall be delivered by suitably qualified and experienced trainers.

C3.4.3.3.2.4 The tenderer shall provide with his tender full details of the structured training programme he intends to implement, which details shall include the following:

- (a) The name of the training institution and programme
- (b) The manner in which the training is to be delivered.
- (c) The numbers and details of the trainers

Such details shall be entered on or attached to Form RDP 6 (E) included herein.

C3.4.3.3.2.5 The contractor shall be responsible for the provision of everything necessary for the delivery of the generic training programme, including the following:

- (a) A suitable venue with sufficient furniture, lighting and power.
- (b) All necessary stationery consumables and study material
- (c) Transport of the students (as necessary)

C3.4.3.3.2.6 Generic training courses shall commence within one month of possession of site and be completed before the end of the contract period.

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C3.4.3.3.2.7 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

C3.4.3.3.2.8 The contractor shall keep comprehensive records of the training given to each student and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each student shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form is illustrated in Part C5 of this document (form RDP 10 (E))

C3.4.3.3.3 ENTREPRENEURIAL SKILLS TRAINING

C3.4.3.3.3.1 Small contractors, subcontractors and the Project Steering Committee (PSC) will be entitled to receive a structured training programme, which will comprise both management skills as well as business development skills.

C3.4.3.3.3.2 The contractor shall closely monitor the performance of all small subcontractors in the execution of their contracts and shall identify all such subcontractors who, in his opinion, display the potential to benefit from structured training as may be provided for in the contract and where required by the engineer, shall make recommendations in this regard. The final list of candidates will be decided between the contractor and the engineer.

C3.4.3.3.3.3 The training will be delivered by trainers who are accredited by the Civil Engineering Training Scheme (CEITS) or other institutions recognised by the Department of Labour. Accredited training refers to both the trainers as well as to the training material.

C3.4.3.3.3.4 The contractor shall facilitate in the delivery thereof, by instructing and motivating the subcontractor regarding attendance and participation therein.

C3.4.3.3.3.5 The contractor shall further make all reasonable efforts to co-ordinate the programming of the subcontractor's work with that of the delivery of the structured training.

C3.4.3.3.3.6 The structured training will comprise out of the following as decided by the Employer:

COURSE DESCRIPTION	ESTIMATED DURATION (DAYS)
1. BASIC BUSINESS PRINCIPLES	To be determined
2. BASIC SUPERVISION	To be determined
3. RUNNING A BUSINESS	To be determined
4. LEGAL PRINCIPLES	To be determined
5. ACHIEVING STANDARDS	To be determined

C3.4.3.3.7 The contractor shall provide with his tender, full details of the structured training programme, which he intends to implement, which details shall include the following:

- (a) The name of the training institution and programme
- (b) The various aspects of each type of training comprised in the programme
- (c) The manner in which the training is to be delivered
- (d) The numbers and details of the trainers to be utilised.

Such details of the proposed entrepreneurial training programme shall be entered on or attached to form RDP 7 (E) of the forms to be completed by the tenderer.

C3.4.3.3.8 The contractor shall be responsible for the provision of everything necessary for the delivery of the entrepreneurial training programme, including the following:

- (a) A suitably furnished venue (if required) with lighting and power.
- (b) All necessary consumables, stationery and study material
- (c) Transport of the subcontractors (as necessary)

C3.4.3.3.9 All entrepreneurial training shall take place within normal working hours.

C3.4.3.3.10 The contractor's training programme shall be subject to the approval of the engineer, and the contractor shall if so instructed by the engineer alter or amend the programme and course content if a need is identified once the contract commences.

C3.4.3.3.11 The contractor shall keep comprehensive records of the training given to each subcontractor and whenever required shall provide copies of such records to the engineer. At the successful completion of each course each subcontractor shall be issued with a certificate indicating the course contents as proof of attendance and completion.

In addition to the above, a monthly return shall be submitted by the contractor. An example of the form to be used is illustrated in Part C5 of this document, (form RDP 11 (E)).

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WITNESS:

C3.4.3.3.4**MEASUREMENT AND PAYMENT****ITEM****UNIT**

Provision for accredited training

(a) Generic skills

Provisional sum

(b) Entrepreneurial skills

Provisional sum

(c) Handling cost and profit in respect of sub-item (a) and (b) above

percentage (%)

(d) Training venue (only if required)

lump sum

The prime cost sums are provided to cover the actual costs (including wages) for attendance of accredited training courses as agreed with the engineer and shall be expended in accordance with the provisions of sub-clause 10.1.2 of the general conditions of contract. The tendered percentage in sub-item E4.1(c) is a percentage of the amount actually spent under sub-items E4.1(a) and (b) which shall include full compensation for the contractor's handling cost, profit, mentoring, record keeping, reporting and all other costs in connection therewith.

The lump sum tendered for E4.1(d) shall include full compensation for the provision of the training venue, for all necessary lighting, power, furniture, stationery, consumables and study material and for transportation of the students to and from the training venue. Payment of the lump sum will be made in two installments as follows:

- (i) The first installment, 75% of the lump sum, will be paid after the contractor has met all his obligations regarding the provision of the training venue as specified.
- (ii) The second and final installment, 25% of the lump sum, will be paid after the provision of all the accredited training as specified in the document.

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WITNESS:

C3.4.3.4

HIV/AIDS REQUIREMENTS

CONTENTS

SH 01	SCOPE
SH 02	DEFINITIONS AND ABBREVIATIONS
SH 03	HIV/AIDS EDUCATION AND TRAINING
SH 04	PROVIDING WORKERS WITH ACCESS TO CONDOMS
SH 05	ENSURING ACCESS TO HIV/AIDS TESTING AND COUNCILLING
SH 06	MONITORING

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WITNESS:

C3.4.3.5 HIV/AIDS REQUIREMENTS

SH 01 SCOPE

This specification contains all requirements applicable to the Contractor for creating HIV/AIDS awareness amongst all of the Workers involved in this project for the duration of the construction period, through the following strategies:

- Raising awareness about HIV/AIDS through education and information on the nature of the disease, how it is transmitted, safe sexual behaviour, attitudes towards people affected and people living with HIV/AIDS, how to live a healthy lifestyle with HIV/AIDS, the importance of voluntary testing and counselling, the diagnosis and treatment of Sexually Transmitted Infections and the closest health Service Providers
Informing Workers of their rights with regard to HIV/AIDS in the workplace
- Providing Workers with access to condoms and other awareness material that will enable them to make informed decisions about sexual practices

SH.02 DEFINITIONS AND ABBREVIATIONS

SH 02.01 DEFINITIONS

Worker: Person in the employ of the Contractor or under the direction or supervision of the Contractor or any of his Sub-contractors, who is on site for a minimum period of 30 days in total.

SH 02.02 ABBREVIATIONS

HIV	:	Human Immunodeficiency Virus
AIDS	:	Acquired Immune Deficiency Syndrome
STI	:	Sexually Transmitted Infection

SH 03 HIV/AIDS EDUCATION AND TRAINING DISPLAYING OF PLASTIC LAMINATED POSTERS AND DISTRIBUTION OF INFORMATION BOOKLETS

The Contractor shall obtain a set of four laminated posters conveying different key messages and information booklets, which are available from all Regional Offices of the Department of Public Works. The above-mentioned posters and information booklets have been prepared to raise awareness and to share information about HIV/AIDS and STI's.

Posters or display stands shall be displayed on site as soon as possible, but not later than 14 days after the date of site handover. Posters shall be displayed in areas highly trafficked by Workers, including toilets, rest areas, the site office and compounds.

SH 04 PROVIDING WORKERS WITH ACCESS TO CONDOMS

The Contractor shall provide and maintain condom dispensers and make both male and female condoms, complying with the requirements of SABS ISO 4074, available at all times to all Workers at readily accessible points on site, for the duration of the contract.

The Contractor may obtain condom dispensers from the Department of Health and condoms may be obtained from the Local Clinic or the Department of Health.

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WITNESS:

At least one male and one female condom dispenser and a sufficient supply of condoms, all to the approval of the Representative/Agent, shall be made available on site within 14 days of site hand over. Contractors should note that arrangements to obtain condoms from the Department of Health Clinics prior to site hand over may be necessary, to ensure that condoms are available within 14 days of site handover. Condoms shall be made available in areas highly trafficked by Workers, including toilets, the site office and compounds.

SH 05 ENSURING ACCESS TO HIV/AIDS TESTING AND COUNSELLING FACILITIES AND
TREATMENT OF SEXUALLY TRANSMITTED INFECTIONS (STI)

The Contractor shall provide Workers with the names of the closest Service Providers that provide HIV/AIDS testing and counselling and Clinics providing Sexually Transmitted Infection (STI) diagnosis and treatment. Information on these Service Providers and Clinics must be displayed on a poster of a size not smaller than A1 in an area highly trafficked by Workers

SH 06. MONITORING

The Contractor shall grant to the Representative/Agent reasonable access to the construction site, in order to establish that the Contractor complies with his obligations regarding HIV/AIDS awareness under this contract

The Contractor must report problems experienced in implementing the HIV/AIDS requirements to the Representative/Agent

The attached SITE CHECKLIST (SCHEDULE A) shall be completed and submitted at every construction progress inspection to the Representative/Agent.

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C3.5 MANAGEMENT

C3.5.1 MANAGEMENT MEETINGS

The following meetings will be required as minimum for the management of the contract.

- (a) Monthly client site meeting (using standard agenda for management control).
- (b) Technical meetings as required for each phase of the work.
- (c) Monthly safety meetings in terms of the OHS requirements.
- (d) Weekly progress meetings

C3.5.2 QUALITY CONTROL

Contractor to supply details of quality plan and procedures. These shall include:

- Accommodation of traffic.
- Inspection and test plans.
- Approval process.
- Hold-points.
- Milestones.

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PART C4: SITE INFORMATION

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C4.2	LOCALITY PLAN	254

C4.1 SITE INFORMATION

C4.1.1 Material site investigation

No detail material site investigation was conducted.

C4.1.2 Benchmarks

Bench marks have been placed as iron pegs in concrete along the route of the pipes.

C4.1.3 Working Drawings

Working drawings and other information will also be made available to the successful tenderer.

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C4.2 LOCALITY PLAN



PART C5: ANNEXURES

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C5.1 PROFORMA DOCUMENTS

The following is a list of proforma documents and examples that are required to be completed by the successful Tenderer.

C5.1.1	EXAMPLE OF ABE DECLARATION AFFIDAVIT	257
C5.1.2	FORM RDP 9(E) : CONTRACT EMPLOYMENT REPORT	259
C5.1.3	FORM RDP 10(E) : EMPLOYMENT OF SUPERVISORY STAFF REPORT	260
C5.1.4	FORM RDP 11(E) : GENERIC TRAINING REPORT	261
C5.1.5	FORM RDP 12(E) : ENTREPRENEURIAL TRAINING REPORT	262
C5.1.6	FORM RDP 13(E) : ENGINEERING TRAINING REPORT	263
C5.1.7	FORM RDP 14(E) : COMMUNITY LIAISON MEETING REPORT	264

C5.1.1 EXAMPLE OF ABE DECLARATION AFFIDAVIT

(facsimiles will be provided by the Employer to be completed by ABEs)

1. Name of firm :
 Postal address :
 Telephone no. : Fax no
 Contact person :
 VAT registration no. :
2. Type of firm (tick as appropriate)
 - Partnership.....
 - One person business/sole trader.....
 - Close corporation: registration no.....
 - Date of registration.....
 - Company: registration no.....
 - Pty Ltd: registration no.....
3. Principal Business Activities:.....
4. Service/work to be performed on this contract:
5. Participation in this contract
 - as a Sub-contractor Yes/No
 - in a Joint Venture Yes/No
 - with main contractor Yes/No
 - with a sub-contractor Yes/No
6. List all partners, proprietors and shareholders:

Name	ID. No.	Citizen of RSA Yes/No	PDI status Yes/No	%owned

7. List the last four contracts/assignments completed by your firm. If required, a separate sheet may be used and attached to this page. Reference may be called from the Employers of the projects listed.

PROJECT AND WORK PERFORMED	EMPLOYER (NAME, ADDRESS, TEL, FAX)	VALUE OF Rands

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Notes to Tenderer:

Under column 1 state the assignment or contract (e.g. Contract XYZ0103): Construction of rural roads) and follow this with the work carried out (e.g. construction of pipe culverts).

Under column 2, if it was a sub-contract give the required details of the employer for the main contract and also of the Contractor who employed you.

Under column 3 give the value of the main contract (if any and if known) and also the value of the work carried out by you.

8. Declaration

I,, being duly authorised to sign on behalf of the firm, affirm that the PDI equity in this business is as stated above and that the information furnished is true and correct.

Signature.....

Name (print).....

Date.....

Signed on behalf of (print name).....

Address.....

Telephone no.....

Commissioner of Oath.....

Date.....

Note: In the case of Company a certificate of authority for signatory must be provided.

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EXAMPLE

C5.1.2 FORM RDP 9(E) : CONTRACT EMPLOYMENT REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON EMPLOYMENT ON THE ABOVE CONTRACT FOR THE MONTH OF _____ 2005										
NAME OF COMPANY OR FIRM AND VENDOR NUMBER	AGE OF COMPANY OR FIRM	EMPLOYMENT GROUP	EMPLOYMENT							
			MALE	FEMALE	TOTAL	PERSON/HOURS			VALUE (RAND)	
						MALE	FEMALE	TOTAL	MALE	FEMALE
		Unskilled (US)								
		Semi-Skilled (SS)								
		Skilled (SK)								
		Lab.Tech (LT)								
		Surveyor (SUR)								
		Eng. Tech (ET)								
		Engineer (EN)								
		Admin (AD)								
		Others (o)								
TOTALS										
GRAND TOTALS										

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C5.1.3 FORM RDP 10(E) : EMPLOYMENT OF SUPERVISORY STAFF REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON THE EMPLOYMENT OF SUPERVISORY STAFF ON THE ABOVE CONTRACT FOR THE MONTH OF 2005				
POSITION HELD	NAME	PDI	NON-PDI	TOTAL
Site Agent				
Senior Materials Technician				
Senior Surveyor				
Earthworks Surveyor				
Compaction Supervisor				
Surfacing Supervisor				
Structures Supervisor				
Others: - List				
TOTALS				

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WITNESS:

EXAMPLE

C5.1.4 FORM RDP 11(E) : GENERIC TRAINING REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON GENERIC TRAINING ON THE ABOVE CONTRACT FOR THE MONTH OF 2005										
DATES OF TRAINING COURSES		EMPLOYER OF TRAINEE		NAME OF TRAINING INSTITUTE OR IF IN-HOUSE WRITE IH	ATTENDANCES				TOTAL COST OF TRAINING PER TYPE OF TRAINING	
					NUMBER ATTENDING		CERTIFICATES AWARDED			
START	FINISH	NAME	VENDOR NO.		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
TOTAL										
TOTAL ALL TRAINEES										

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BIDDER _____ LLM _____

INITIAL: AUTHORIZED SIGNATORY/IES: 1..... INITIAL: LLM

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WITNESS:

EXAMPLE

C5.1.5 FORM RDP 12(E) : ENTREPRENEURIAL TRAINING REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON ENTREPRENEURIAL TRAINING ON THE ABOVE CONTRACT FOR THE MONTH OF									2005	
DATES OF TRAINING COURSES		EMPLOYER OF TRAINEE		NAME OF TRAINING INSTITUTE OR IF IN-HOUSE WRITE IH	ATTENDANCES				TOTAL COST OF TRAINING PER TYPE OF TRAINING	
					NUMBER ATTENDING		CERTIFICATES AWARDED			
START	FINISH	NAME	VENDOR NO.		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE

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WITNESS:

EXAMPLE

C5.1.6 FORM RDP 13(E) : ENGINEERING TRAINING REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON ENGINEERING TRAINING ON THE ABOVE CONTRACT FOR THE MONTH OF										2005	
DATES OF TRAINING COURSES		EMPLOYER OF TRAINEE		NAME OF TRAINING INSTITUTE OR IF IN-HOUSE WRITE – IH	ATTENDANCES				TOTAL COST OF TRAINING PER TYPE OF TRAINING		
					NUMBER ATTENDING		CERTIFICATES AWARDED				
START	FINISH	NAME	VENDOR NO.		MALE	FEMALE	MALE	FEMALE	MALE	FEMALE	
TOTAL TOTAL ALL TRAINEES											

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INITIAL: LLM

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WITNESS:

EXAMPLE

C5.1.7 FORM RDP 14(E) : COMMUNITY LIAISON MEETING REPORT

CONTRACT NO. DTS 19/2021/2022

REPORT ON COMMUNITY LIAISON MEETINGS ON THE ABOVE CONTRACT FOR THE MONTH OF 2005						
DATE OF MEETING	COMPANY/FIRM OR ORGANISATION RESPONSIBLE FOR ARRANGING THE MEETING		NUMBER OF COMMUNITY MEMBERS PRESENT	DURATION OF MEETING (hours)	TOTAL COST OF THE MEETING	COMMENTS
	NAME	VENDOR NO.				

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C5.2 LIST CONTRACT DRAWINGS

The following is a list of contract drawings included in a separate volume entitled "Part C5.2: Contract Drawings."

DRAWING NO.	REV	DRAWING DESCRIPTION
KIESER-01	00	LIST OF DRAWING
KIESER-02	00	LOCALITY LAYOUT
KIESER-03	00	EXISTING KIESER STREET RESERVOIR FACILITIES
KIESER-04	00	GENERAL LAYOUT PLAN
KIESER-05	00	RESERVOIR PLAN SECTION AND DETAILS
KIESER-06	00	RESERVOIR UNDERFLOOR DRAIN LAYOUT AND DETAILS
KIESER-07	00	INLET AND OUTLET CONNECTION DETAILS SHEET 01 OF 02
KIESER-08	00	INLET AND OUTLET CONNECTION DETAILS SHEET 02 OF 02
KIESER-09	00	REINFORCEMENT DETAILS FOR RESERVOIR WALLS AND MANHOLES
KIESER-10	00	REINFORCEMENT DETAILS FOR RESERVOIR FLOOR AND ROOF SLAB PLAN LAYOUT
KIESER-11	00	300KL ELEVATED STEEL TANK PLAN VIEW AND BENDING SCHEDULE
KIESER-12	00	300KL ELEVATED STEEL TANK PLAN SECTION AND CONNECTION DETAILS
KIESER-13	00	EARTHWORK PLAN LAYOUT AND SECTION
KIESER-14	00	FENCE LAYOUT PLAN LAYOUT AND DETAILS
KIESER-15	00	PIPE BEDDING DETAILS
KIESER-16	00	THRUST BLOCK DETAILS
KIESER-17	00	VALVE CHAMBER DETAILS AND HYDRANT DETAILS
KIESER-18	00	STORMWATER DETAILS SHEET 01 OF 02
KIESER-19	00	STORMWATER DETAILS SHEET 02 OF 02
KIESER-20	00	NAMBE COARD DETAILS

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM.....

2.....

WITNESS:

APPENDIX B: TYPES OF INFRASTRUCTURE WHICH ARE SUITABLE FOR CONSTRUCTION USING LABOUR INTENSIVE METHODS

B.1 Demolition works

The following operations may be constructed using labour-intensive construction methods:

1. Demolition of old pumpstation
2. Laying of pipelines, fittings in all materials.
3. Casting of manhole bases and benching for all manholes

B.2 Haul of Material

Where the haul of any material exceeds 200m, consideration should be given to the use of local resources for transporting material. This includes the use of animal-drawn vehicles and small trailer combinations utilising locally sourced tractors. All loading and off-loading can be done by hand.

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM.....

2.....

WITNESS:

ANNEXURE B: C5.2 CONTRACT DRAWINGS

Contract No: DTS 19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER
RESERVOIR AND PRESSURE TOWER

BIDDER

LLM

INITIAL: AUTHORIZED SIGNATORY/IES: 1.....

INITIAL: LLM.....

2.....

WITNESS:

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SANS 1200 A : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
A	SANS 1200 A	SECTION A : PRELIMINARY AND GENERAL				
A.1	8.3	FIXED-CHARGE ITEMS				
A.1.1	8.3.1	Contractual Requirements	Sum	1		
	8.3.2	Establish Facilities on the Site :				
		a) Facilities for Engineer (SANS 1200 AB)				
A.1.2		Offices: 1 furnished room with a telephone and 1 name-boards	Sum	1		
		b) Facilities for Contractor				
A.1.3		Offices and storage sheds	Sum	1		
A.1.4		Workshops	Sum	1		
A.1.5		Laboratories	Sum	1		
A.1.6		Living accommodation	Sum	1		
A.1.7		Ablution and latrine facilities	Sum	1		
A.1.8		Tools and equipment	Sum	1		
A.1.9		Water supplies, electric power and communications	Sum	1		
A.1.10		Dealing with water (Subclause 5.5)	Sum	1		
A.1.11	8.3.3	Other fixed-charge obligations	Sum	1		
A.1.12	8.3.4	Remove Engineer's and Contractor's Site establishment on completion	Sum	1		
A.1.13	8.8.2	Deal with traffic and maintain road (or accommodation of traffic)	Sum	1		
A.2	8.4	TIME-RELATED ITEMS				
A.2.1	8.4.1	Contractual Requirements	month	12		
	8.4.2	Operate and maintain facilities on the Site:				
	8.4.2.1	a) Facilities for Engineer for duration of construction (SANS 1200 AB)				
A.2.2		Offices: Furnished room with telephone and one name board	month	12		
A.2.3		Survey assistants and material	month	12		
	8.4.2.2	b) Facilities for Contractor for duration of construction, except where otherwise stated				
A.2.4		Offices and storage sheds	month	12		
A.2.5		Workshops	month	12		
A.2.6		Laboratories	month	12		
A.2.7		Living accommodation	month	12		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SANS 1200 A : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
A.2.8		Ablution and latrine facilities	month	12		
A.2.9		Tools and equipment	month	12		
A.2.10		Water supplies, electric power and communications	month	12		
A.2.11		Dealing with water (Subclause 5.5)	month	12		
A.2.12		Access (Subclause 5.8)	month	12		
A.2.13	8.4.3	Supervision	month	12		
A.2.14	8.4.4	Company and head office overhead costs	month	12		
A.2.15	8.4.5	Other time-related obligations	month	12		
A.3	8.5	SUMS STATED PROVISIONALLY BY ENGINEER				
A.3.1		Remuneration of Health and Safety Agent	Prov. Sum	1	240000.00	
A.3.2		Remuneration of Health and Safety Representative	Prov. Sum	1	75000.00	
A.3.3		Remuneration of Community Liaison Officer(CLO) including transport, cellphone and overtime	month	12	7500.00	
A.3.4		Allow for testing and commissioning of new sewer networks, rising mains and pumps	Prov. Sum	1	125000.00	
A.3.5		Provision for the relocation of services or structures as directed by Engineer	Prov. Sum	1	55000.00	
A.3.6		Overheads,charges and profit on item A.3.1 to A.3.05	%	585 000		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SANS 1200 A : PRELIMINARY AND GENERAL

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
A.4	PSA 8.4.1	COVID-19 RISK & MITIGATION PLANS				
A.4.1		Appointment of Covid-19 Compliance Officer (CCO) for the duration of the project	month	12		
		Provision for supplying the following equipment and materials on site as required by the Government to prevent the spread of Covid-19				
A.4.2		a) GS320 Handheld Infrared Digital Laser Thermometer	No.	2		
A.4.3		b) Handsfree Sanitiser Stands	No.	2		
A.4.4		c) 5x10litre bottle of 70% alcohol sanitiser per month	No.	120		
A.4.5		d) 5x10litre surface disinfectant cleaner per month	No.	60		
A.4.6		e) FFP1 surgical face masks for labourers and visitors per 100 pack	No.	7 200		
A.4.7		f) Surgical gloves per 100 pack	No.	52 800		
A.4.8		g) Fumigation services when required	Sum	1		
A.4.9		h) Dust-proof oil-splash mask/Transparent mask	No.	3 600		
A.4.10		i) Isolation room size: 2.8m long x 2.4m wide	No.	1		
A.4.11		j) iBlow10 no contact breathalyser for industry and law enforcement	No.	2		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SANS 1200 C : SITE CLEARANCE

[illegible]

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION C : EARTHWORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
C	SANS 1200 DA	SECTION C : EARTHWORKS				
C.1		EXCAVATION				
C.1.1	8.3.1	Remove topsoil to nominal depth 150 mm, stockpile, and maintain	m ²	8 190		
C.2		BED PREPARATION				
C.2.1		Bed preparation and compaction to 93% Mod AASHTO density	m ³	8 190		
C.3		BULK EXCAVATION				
C.3.1	8.3.2	Excavate in all materials below reservoir , select , stockpile and use material to construct backfill around reservoir compacted in 150mm layers to 95% Mod AASHTO density and place within freehaul distance for :	m ³	16 380		
C.3.2		Excavate in all materials below reservoir , select , stockpile and use material to construct backfill around reservoir compacted in 150mm layers to 97% Mod AASHTO density and place within freehaul distance for :	m ³	16 380		
C.3.3		Excavate in all materials below reservoir , and dispose of with freehaul distance of 0.5km	m ³			
	8.3.3(b)	Extra-over items for excavation in:				
C.3.4		Intermediate material	m ³	720		
C.3.5		Hard rock material	m ³	480		
C.3.6		Boulder material, Class A	m ³	145		
C.3.7		Boulder material, Class B	m ³	96		
	8.3.3(a)	Excavate for founds in all materials and place within freehaul distance for:				
C.3.8		Elevated Tank Foundation	m ³	2 048		
C.3.9		Reservoir Foundation within platform	m ³	4 095		
	8.3.3(b)	Extra-over items .4.1 and .4.2 for excavation in:				
C.3.10		Intermediate material	m ³	307		
C.3.11		Hard rock material	m ³	184		
C.4	8.3.4	IMPORT MATERIAL				
C.4.1		To complete terraces : from borrow pits	m ³	1 720		
C.4.2		To complete terraces : from commercial sources (Prov)	m ³	4 013		
C.4.3		Opening up and closing down of designated borrow pit	Sum	1		
C.4.4		Deal with overburden	m ³	1 720		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION C : EARTHWORKS

[illegible]

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION D : PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
D		SECTION D : PIPEWORK				
D.1	SANS 1200 DB	PIPE TRENCHES				
D.2		EXCAVATION				
	8.3.2(a)	Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes up to 125 mm diam. for total trench depth:				
D.2.1		Exceeding 0,0 m but not exceeding 1,0 m	m	60		
D.2.2		Exceeding 1,0 m but not exceeding 2,0 m	m	227		
D.2.3		Exceeding 2,0 m but not exceeding 3,0 m	m			Rate Only
	8.3.2(a)	Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes over 125mm and up to 400mm diam. for total trench depth:				
D.2.4		Exceeding 0,0 m but not exceeding 1,0 m	m	133		
D.2.5		Exceeding 1,0 m but not exceeding 2,0 m	m	403		
D.2.6		Exceeding 2,0 m but not exceeding 3,0 m	m	20		
	8.3.2(b)	Extra-over incl. for (prov):				
D.2.7		Intermediate excavation	m ³	253		
D.2.8		Hard rock excavation	m ³	136		
		Excavation by hand where ordered by the Engineer				
D.2.9		Soft excavation	m ³	324		
D.2.10		Intermediate excavation	m ³	139		
D.2.11		Hard rock excavation	m ³	7		
D.2.12		Backfill stabilized with 5% cement where directed by the Engineer	m ³	49		
D.2.13		Soilcrete backfill where directed by the Engineer	m ³	49		
D.2.14	8.3.2(b)	Excavate and dispose of unsuitable material from trench bottom (Provisional)	m ³	231		
		EXCAVATION. ANCILLARIES Make up deficiency in backfill material (Provisional)				
D.2.15	8.3.3.1(a)	from other necessary excavations on site	m ³	500		
D.2.16	8.3.3.1(c)	by importation from commercial or off-site sources selected by the Contractor	m ³	500		
D.3	PSD 8.3.3	SUPPLY ONLY OF BEDDING BY IMPORTATION				
		From other necessary excavations:				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION D : PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
D.3.1		Bedding Cradle	m ³	200		
D.3.2		200mm layer compacted selected fill blanket (Class I)	m ³	221		
D.3.3		300mm layer of consolidated selected backfill (Class II)	m ³	331		
		From borrow pits:				
D.3.4		Bedding Cradle	m ³	200		
D.3.5		200mm layer compacted selected fill blanket (Class I)	m ³	221		
D.3.6		300mm layer of consolidated selected backfill (Class II)	m ³	331		
		From commercial sources:				
D.3.7		Bedding Cradle	m ³	200		
D.3.8		200mm layer compacted selected fill blanket (Class I)	m ³	221		
D.3.9		300mm layer of consolidated selected backfill (Class II)	m ³	331		
D.3.10		200mm layer of 19mm Aggregate	m ³	221		
D.4	8.3.3.4	OVERHAUL				
D.4.1		Overhaul (provisional)	m ³ .km	250		
D.5		EXCAVATION FOR VALVE CHAMBERS IN BULK PIPELINE				
	PSD 8.3.2	Excavate in all materials and dispose or place in embankment as ordered for:				
D.5.1		depth not more than 1,0m	m ³	1		
D.5.2		depth not more than 2,0m	m ³	3		
D.6		EXISTING SERVICES				
	8.3.5	Services across and in trenches				
	PSDB ...	Location				
D.6.1		Supply or hire of specialist equipment for the detection of a particular service	Sum	1		
D.6.2		The use of equipment in item 142.4.1	h	40		
D.6.3		Excavate by hand in soft material to expose ... service...	m ³ / daywk	71		
	PSDB ...	Dealing with services				
	8.3.5(a)	Services that intersect a trench				
D.6.4		Cables	No.	5		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION D : PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
D.6.5		Water mains up to 300 mm diam.	No.	10		
D.6.6		Stormwater pipes up to 600mm diam.	No.	3		
	8.3.5(b)	Services that adjoin a trench				
D.6.7		Cables	m	25		
D.6.8		Water mains up to 300 mm diam.	m	25		
D.6.9		Stormwater pipes up to 600mm diam.	m	5		
D.7		PARTICULAR ITEMS				
	8.3.4	Temporary Works: Control water inflow from the ground to trench or any source, trench depth of not more than 4,0m and width not more than 2,0m				
D.7.1		Provide equipment or hire equipment	Sum	1		
D.7.2		Operate and maintain	Days	160		
D.7.3		Remove equipment	Sum	1		
D.8	SANS 1200 L	MEDIUM-PRESSURE PIPELINES				
D.9		PIPELINE				
	8.2.1	MPVC pipes Class 16: Supply, handle, lay, and bed Class A with couplings, test				
D.9.1		315mm diam.	m	50		
D.9.2		200mm diam.	m			Rate Only
D.9.3		110mm diam.	m			Rate Only
	8.2.1	Steel pipes Class 16 : Supply, handle, lay complete with couplings				
D.9.4		200mm diam.	m	445		
D.9.5		110mm diam.	m	162		
D.9.6		Extra-over item for fabrication, supplying, handling, transporting, fixing, laying, jointing, bedding and testing pipe fittings and specials complete with couplings or welding, as specified	Sum	1		
D.10	SANS 1200 L	SPECIALS AND FITTINGS				
	8.2.2	Supply, lay, and bed, joint, incl cut pipes to length where required pipe specials complete with couplings				
		Bends mPVC Class 16 Plain-ended incl couplings				
D.10.1		315mm diam. 90 deg.	No.			Rate Only
D.10.2		200mm diam. 90 deg.	No.			Rate Only
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION D : PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
D.10.3		110mm diam. 90 deg.	No.			Rate Only
D.10.4		75mm diam. 90 deg.	No.			Rate Only
		mPVC Reducing Tees plain-ended incl couplings				
D.10.5		315 x 200	No.	1		
D.10.6		200 x 110	No.			Rate Only
D.10.7		110 x 75	No.			Rate Only
		mPVC Tees plain-ended incl couplings				
D.10.8		315 x 315	No.	1		
		200 x 200	No.			Rate Only
D.10.9		100 x 110	No.	1		
		Bends Steel Class 16 Plain-ended incl couplings				
D.10.10		315mm diam. 90 deg.	No.			Rate Only
D.10.11		200mm diam. 90 deg.	No.	1		
D.10.12		110mm diam. 90 deg.	No.	3		
D.10.13		75mm diam. 90 deg.	No.			Rate Only
		Steel Reducing Tees flanged incl bolts and packing				
D.10.14		315 x 200	No.	1		
D.10.15		200 x 110	No.	2		
D.10.16		110 x 75	No.			Rate Only
		Steel Tees flanged incl bolts and packing				
D.10.17		200 x 200	No.	1		
D.10.18		110 x 110	No.	1		
		Hydrant Tees CI incl. couplings				
D.10.19		75 x 75	No.	1		
	8.2.3	VALVES Supply, in valve box or install on concrete support, joint, incl cut pipes where necessary, test,(non-) rising spindle				
		Flanged gate valves				
D.10.20		200mm diam.	No.	1		
D.10.21		110mm diam.	No.	1		
D.10.22		75mm diam.	No.			Rate Only
		Flanged scour valves				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION D : PIPEWORK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
D.10.23		200mm diam.	No.	1		
D.10.24		110mm diam.	No.	1		
		Flanged non-return valves				
D.10.25		200mm diam.	No.	1		
D.10.26		110mm diam.	No.	1		
D.10.27		75mm diam.	No.			Rate Only
		WPD Water Meter flanged both ends				
D.10.28		200mm dia.	No.	1		
D.10.29		110mm dia.	No.	1		
		Fire hydrant including double flanged distance piece between hydrant and tee				
D.10.30		75mm dia.	No.	1		
D.11		ANCILLARIES				
	8.2.11	Anchor/Thrust blocks and pedestals				
		Concrete				
D.11.1		Strength concrete: 25 MPa/19mm	m ³	50		
D.11.2		Strength concrete: 30 MPa/19mm	m ³	18		
D.11.3		Formwork: Rough	m ²	38		
		Reinforcement				
D.11.4		Mild steel bars	t	1		
D.11.5		High-tensile steel bars	t	1		
D.11.6		High-tensile welded mesh reinforcement	m ²	57		
D.12	8.2.13	VALVE CHAMBERS AND MANHOLES:				
D.12.1	8.2.14	Valve chamber - Dwg No.	No.	6		
D.12.2		Hydrant chamber - Dwg No.	No.	1		
D.13		STANDPIPES				
D.13.1		Type 1 - Dwg No.	No.	1		
D.14		MUNICIPAL CONNECTION				
D.14.1		Connection to existing water main	No.	1		
D.14.2		Connection to existing pumping mains	No.	3		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION E : 0.3ML ELEVATED STEEL TANK

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
E		SECTION E : 0.3ML ELEVATED STEEL TANK				
E.1		ELEVATED STEEL TANK				
		Nominated Sub-Contractor to be appointed for the supply and erect elevated tank. Sub-Contractor to carry out the following operation as applicable - design,prepare drawings, check design calculations,provide an Engineer certificate,manufacture, supply , deliver , install, paint, finish items, commssion, test, and attend to defects for :				
E.1.1		0.3ML Hot dipped galvanised sectional bolted water storage scaffolding tank including a tank & mechanical level indicator, excluding pipework, valves, civil works , foundataion, holding down bolts and offloading	No.	1		
E.1.2		Overhead charges & profit on above	%	0		
E.1.3		Supply and install base plate	No.	9		
E.1.4		Supply and install holding down bolts & nuts (M24) and cast in concrete	No.	40		
E.1.5		Pipework including valves for Inlet ,outlet ,scour and overflow	Sum	1		
E.1.6		Test structure for water tightness ; Allow for filling of tank once with clean water	Sum	1		
E.1.7		Disinfect/Sterilise storage tank,Supply 150g of Calacium Hypochloride per cubic metre of water	Sum	1		
E.1.8		Lightning protection for elevated tank	Sum	1		
E.2	SANS 1200 G	CONCRETE (STRUCTURAL)				
E.3	8.1.3	CONCRETE				
	8.4.2	Blinding layer in 20 MPa/19 mm concrete				
E.3.1		75 mm minimum thickness	m ²	19		
		Strength concrete: 30 MPa/19mm				
E.3.2		Foundation	m ³	92		
	PSG 8.4.5	Extra over for aggregate of dolomitic origin in concrete mixes:				
		Coarse aggregate in:				
E.3.3		25Mpa/19mm and 30Mpa/19mm	m ³	51		
		Water tightness under the chambers				
		Fine aggregate in:				
E.3.4		25Mpa/19mm and 30Mpa/19mm	m ³	42		
E.4	8.4.6	CEMENT				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION E : 0.3ML ELEVATED STEEL TANK

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19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
F		SECTION F : 5.0ML RC SERVICE RESERVOIR				
	SANS 1200 G	CONCRETE (STRUCTURAL)				
F.2	8.1.3	CONCRETE				
	8.4.2	Blinding layer and mass concrete to footings in class 15/20				
F.2.1		50 mm minimum thickness	m ²	109		
	8.4.3	Strength concrete: 30 MPa/19mm				
F.2.2		Reservoir foundation, floor slab, roof slab	m ³	380		
		Strength concrete: 35 MPa/19mm				
F.2.3		Reservoir wall	m ³	380		
F.2.4		Strength concrete: 10 MPa/19mm	m ³	208		
F.2.5		No fines concrete layer 75mm thick topped with strength plaster	m ³	340		
F.3	8.1.1	FORMWORK				
	8.2.2	Smooth vertical plane to:				
F.3.1		Reservoir walls	m ²	3 500		
		Smooth horizontal plane to:				
F.3.2		Reservoir roof	m ²	2 100		
F.3.3		Rectangular formwork for columns	m ²	3 600		
F.3.4		Conical formwork for column heads	m ²	4 000		
	8.2.6	Box out holes , form voids , rectangular , through concrete 250mm thick for area up to				
F.3.5		0.25m ² up to 550 diameter	No.	6		
		Box out holes , form voids , rectangular , through concrete 175mm thick for manhole covers				
F.3.6		600 x 900mm	No.	6		
F.4	8.1.2	REINFORCEMENT				
		Mild steel bars				
F.4.1	8.1.2.2	Various diameters	t	20		
	8.3.1	High-tensile steel bars				
F.4.2	8.1.2.2	Various diameters	t	20		
	8.3.2	High-tensile welded mesh reinforcement				
F.4.3		Type reference 617 in standard sheets	m ²	3 961		
F.5	8.4.4	UNFORMED SURFACE FINISHES				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						R0,00
		Wood-floated finish (see PSG 7.1)				
F.5.1		Circular RC Reservoir	m²	1 413		
		Steel-floated finish (see PSG 7.2)				
F.5.2		Circular RC Reservoir	m²	1 413		
		Special surface finish (see PSG 7.4)				
F.5.3		Top of outside ringwalls as specified	m²	1 413		
F.6		CONCRETE TEST				
F.6.1		Concrete compressive strength tests on 150mm concrete cubes . The rate shall include for storing, packing ,dispatching to approved Laboratory and for having the cube tested for compressive strength	No.	300		
F.7	PSG 8.10	TESTING FOR WATER TIGHTNESS				
F.7.1		Circular RC Reservoir	Sum	1		
F.8	PSG 8.14	CAST IN PIPE WITH OR WITHOU PUDDLE FLANGE				
		300 mm to 500 mm nominal bore:				
F.8.1		Circular RC Reservoir	No.	3		
F.9	PSG 8.2a & 8.2.6	JOINTS				
		250mm wide butyl rubber strip applied as specified to:				
F.9.1		Horizontal floor contraction joints	m	210		
F.9.2		Horizontal floor /wall construction joints , including 20mm wide expansion joints on reservoir including 20mm bitumen impregnated softboard	m	210		
F.9.3		Preparation of horizontal wall construction joints at 1.5m c/c	m	210		
F.9.4		250mm wide , 2 layers 'jay 6' bituminous emulsion reinforced with B1 or MU14 intermediate layer on horizontal wall construction joints	m	314		
F.9.5		Seal outside wall footing with suitable vertical sealant	m	314		
F.9.6		Supply and placing of 250 micro metre PVC lining	m²	7 850		
F.10		SUNDRIES				
		Supply and installation and or fixing of equipment and Fixtures				
F.10.1		Roof ventilators	No.	1		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
F.10.2		Manhole frame and cover type 9E (900 x 600mm)	No.	1		
F.10.3		Outside steel ladder as per detail on drawing	No.	1		
F.10.4		Internal 3CR12 ladder as per detail on drawing	No.	1		
F.10.5		50mm dia uPVC PIPE ducts placed in resrvoir walls	m	150		
F.10.6	PSG11 & 12	Supply and install laminated elastomeric bearing pads as by Freyssinet 150 x 120 x 35mm thick in 60 degree shore hardness natural rubber compound	No.	1		
F.10.7		Supply and install water level indicator as per drawing	No.	1		
F.10.8		Disinfect structure ; Supply 150g of Calacium Hypochloride per cubic metre of water	Sum	1		
F.10.9		Scrubbing down walls and columns of reservoir	Sum	1		
F.10.10		Supply and place 19mm stone 75mm thick on roof	Sum	1		
F.11		UNDER FLOOR DRAINAGE				
F.11.1		Supply , lay subsoil drain pipes	m	314		
F.11.2		No-fines concrete encasing of subsoil drain pipes	m ³	100		
F.12		PIPE SPECIALS CAST IN STEEL FITTINGS				
		Supply and install steel fittings to conform to the requirements of BS 534 and to the dimensions as shown on drawing : Grade A steel t= 6.0 Corrosion protection as specified. Flanges to Table 1000/3				
F.13		STEEL BENDS				
F.13.1		300mm dia medium radius 90° bend , flanged both ends (StB1)	No.	1		
F.13.2		300mm dia medium radius 90° bend , both ends plain (StB2)	No.	1		
F.13.3		300mm dia medium radius 90° bend , flanged both ends (StB4)	No.	1		
F.14		STEEL BELLMOUTH		1		
F.14.1		300 x 500mm dia 200mm long both ends plain ended (BM1)	No.	1		
F.14.2		300 x 500mm dia 200mm long both ends plain ended (BM2)	No.	1		
F.14.3		300 x 550mm dia 200mm long both ends plain ended (BM3)	No.	1		
F.15		STEEL STRAIGHT PIPE SPECIALS				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
F.15.1		300mm dia, 1460mm long flanged one end only (SP1)	No.	1		
F.15.2		300mm dia, 840mm long flanged one end only (SP2)	No.	1		
F.15.3		300mm dia, 440mm long both ends plain ended (SP3)	No.	1		
F.15.4		300mm dia, 490mm long both ends plain ended (SP4)	No.	1		
F.15.5		300mm dia, 700mm long both ends flanged (SP5)	No.	1		
F.15.6		300mm dia, 700mm long flanged one end only (SP9)	No.	1		
F.15.7		300mm dia, 690mm long flanged one end only (SP10)	No.	1		
F.15.8		300mm dia, 390mm long both ends plain ended (SP11)	No.	1		
F.15.9		250mm dia, 800mm long both flanged (SP12)	No.	1		
F.15.10		250mm dia, 750mm long both flanged (SP13)	No.	1		
F.16		STEEL TEES		1		
F.16.1		300 x 200mm dia , branch and one flanged (T1)	No.	1		
F.16.2		300 x 200mm dia , all ends flanged (T1)	No.	1		
F.17		STEEL REDUCERS				
F.17.1		300 x 250mm dia , reducer,180mm long, small end flanged (R1)	No.	1		
F.18		3CR12 FITTINGS				
F.18.1		3CR12 fittings to conform to the dimensions as shown on drawing t=5.0mm	No.	1		
F.19		3CR12 BENDS				
F.19.1		300mm dia ,long radius 90° bend , both ends plain ended (StB3)	No.	1		
F.20		3CR12 BELLMOUTH				
F.20.1		300 x 500mm dia , 200mm long ,both ends plain ended (BM2)	No.	1		
F.21		3CR12 STRAIGHT PIPE SPECIALS				
F.21.1		300 x 500mm dia , 890mm long ,flanged on one end only (SP6)	No.	1		
F.21.2		300 x 500mm dia , 790mm long ,flanged on one end only (SP7)	No.	1		
F.21.3		300 x 500mm dia , 5550mm long ,flanged on one end only (SP8)	No.	1		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
F.22		VALVES				
F.22.1		300mm dia , class 10 reflux valve ,flanged (RV1)	No.	1		
F.22.2		200mm dia , class 10 RSV valve ,flanged (V1)	No.	1		
F.22.3		300mm dia , class 10 RSV valve ,flanged (V2)	No.	1		
F.22.4		300mm dia , class 10 RSV valve ,flanged (V3)	No.	1		
F.22.5		250mm dia , class 10 RSV valve ,flanged (V4)	No.	1		
F.22.6		200mm dia , Vent -O-Mat RBX 1601Air Release valve Flanged (AV1)	No.	1		
F.23		COUPLINGS				
F.23.1		300mm dia , straight VJ coupling (VJ1)	No.	1		
F.23.2		300mm dia , VJ flange adaptor (VJFA1)	No.	1		
F.23.3		250mm dia , VJ flange adaptor (VJFA2)	No.	1		
F.24	SANS 1200 LE	STORMWATER DRAINAGE				
F.25	1200 DA	EXCAVATION				
	8.3.2	Excavate in all materials and backfill or place embankment for:				
F.25.1		Open Channel Drain	m³	114		
F.26	SANS 1200 G	CONCRETE				
	8.4.3	Strength concrete: 25 MPa/19mm				
		Cast insitu open v-drain with a berm to depth:				
F.26.1		Exceeding 0 m³ but not exceeding 250m³	m³	86		
F.26.2		Exceeding 251m³ but not exceeding 500m³	m³	76		
F.27	8.1.1	FORMWORK				
F.27.1	8.2.2	Rough	m²	760		
F.28	8.1.2	REINFORCEMENT				
	8.3.2	High-tensile welded mesh reinforcement				
F.28.1		Type reference 193 in standard sheets	m²	760		
F.29	8.4.4	UNFORMED SURFACE FINISHES				
F.29.1		Wood-floated finish (see PSG 7.1)	m²	285		
F.30	SANS 1200 DK	STONE PITCHING				
	8.2.5	Plain pitching for outlet				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION F : 5.0ML RC SERVICE RESERVOIR

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19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION G : PUMPING EQUIPMENT

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
G	PS PI	SECTION G : PUMPING EQUIPMENT				
G.1		PUMPING EQUIPMENT				
		Supply and delivery of pressure pumps and pumping equipment, couplings, pump and pipe fittings including pump base frame and all anillary equipment				
G.1.1		Reservoir Pump to deliver Q= 116l/sec when H= 33.2m,as per secification and drawing details.	No.	2		
G.1.2		Tank Pumps to deliver Q= 3.5l/sec when H=6.0m,as per secification and drawing details	No.	2		
		Installation of pressure pumps and and pumping equipment,couplings, pump and pipe fittings including pump base frame and all anillary equipment				
G.1.3		Reservoir Pump fittings diameter of 200mm as per secification and drawing details.	No.	2		
G.1.4		Tank Pump fittings diameter of 200mm as per specification and drawing details.	No.	2		
		Testing and Commissioning of pressure pumps and and pumping equipment,couplings, pump and pipe fittings including pump base frame and all anillary equipment				
G.1.5		Reservoir Pump to deliver Q= 116l/sec when H= 33.2m,as per secification and drawing details.	No.	2		
G.1.6		Tank Pumps to deliver Q= 3.5l/sec when H=6.0m,as per secification and drawing details	No.	2		
G.2		PUMP HOUSE				
G.2.1		Rehabilitation of the pump house, the works include and not limited to painting, water proofing, glassing, installing doors, frames and window frames and other building works	Sum	1		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION H : ELECTRICAL WORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
H	PS PS	SECTION M : ELECTRICAL WORKS				
H.1	SANS 1200 DB	PIPE TRENCHES				
	8.3.2(a)	Excavate in all materials for trenches backfill, compact, and dispose of surplus/unsuitable material, for pipes: 200 mm diam. for total trench depth:				
H.1.1		Exceeding 0,0 m but not exceeding 1,0 m	m	250		
H.1.2		Exceeding 1,0 m but not exceeding 2,0 m	m	60		
H.2		LT DISTRIBUTION				
		Supply & Install Electrical distribution boards as specified and as per the detail line diagrams complete with doors, frames, sub-frames, chassis, fixtures, fittings, with spare space and including all switching equipment.				
H.2.1		(a) Pumhouse	No.	1		
H.3		POWER - GENERAL PURPOSE OUTLETS				
		Supply & Install Conduit placed in position for casting into concrete or screed, for building or chased into concrete or brickwork and for surface mounted in ceiling void including bending, threading, jointing, short lengths, draw boxes, couplings, bends, tees and saddles.				
H.3.1		(a) 20mm	m	180		
H.3.2		(b) 25mm	m	80		
H.4		ROUND BOXES				
		Round conduit boxes as specified placed in position for casting into concrete, built or chased into brickwork or surface mounted including lock-nuts and bushes.				
H.4.1		(a) 50mm round boxes	No.	10		
H.5		WALL BOXES				
		Wall boxes as specified placed in position for casting into concrete, built or chased into brickwork including lock-nuts and bushes.				
H.5.1		(a) 100 x 50 x 50mm	No.	3		
H.5.2		(b) 100 x 100 x 50mm	No.	5		
H.6		BLANK COVERS.				
H.6.1		(a) 100 x 100mm	No.	3		
H.7		DRAW WIRE.				
H.7.1		Supply and Install 1.5mm galvanised draw wire pulled into sleeve / conduit	m	80		
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION H : ELECTRICAL WORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
H.8		CONDUCTORS.				
		600/1000V grade PVC insulated stranded copper conductors drawn in conduit. Supply and Install the following conductors.				
H.8.1		(a) 2.5mm ² PVC cable	m	340		
H.8.2		(b) 4.0mm ² PVC cable	m	390		
H.8.3		(c) 6.0mm ² PVC cable	m	190		
		Bare stranded copper earth conductors drawn in conduit.				
H.8.4		(a) 2.5mm ²	m	890		
H.8.5		(b) 4mm ²	m	130		
H.9		APPLIANCES.				
		Apparatus complete with cover plates fixed in flush boxes in the position as indicated on the drawings, draw boxes measured somewhere else				
H.9.1		(a) 16 Ampere round 3-pin 250 V grade, Single switched socket outlet	No.	25		
H.9.2		(b) 16 Ampere round 3-pin 250 V grade, red Single Double switched socket outlet with flat earth	No.	5		
H.9.3		(c) 16 Ampere round 3-pin 250 V grade, red Single Double switched socket outlet with flat earth on power skirting	No.	3		
H.9.4		(d) 16 Ampere 250 V grade, single lever One way light switch	No.	20		
H.9.5		(e) 15 Ampere Photo cell fitted in bulkhead fitting.	No.	3		
H.9.6		(f) 40 Ampere 2 Pole Stove Isolator isolator.	No.	1		
H.10		LUMINARIES.				
		Installed and mounted to round boxes in brickwork or ceiling including all fixings, brackets, supports, connectors, connections and lamps.				
H.10.1		Type A (2x58w Fluo Open Channel)	No.	10		
H.10.2		Type B1 (2x18w Weather Proof Bulkhead Lights)	No.	3		
H.10.3		Type B2 (2x18w Round Bulkhead Lights)	No.	1		
H.11		EARTHING, BONDING AND LIGHTING PROTECTION.				
		Earth and bond the complete electrical installation per building in compliance with SANS Code of Practise.				
Total Carried Forward						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION H : ELECTRICAL WORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
Brought Forward						
H.11.1		Supply 16mm ² stranded bare copper earth conductor.	m	80		
H.11.2		Supply and Install 16mm ² 1500mm long "Cadweld" copper coated earth electrodes, complete with clamp, driven into ground.	No.	4		
H.11.3		Supply and Install terminations of 16mm ² stranded bare copper earth conductor to roof sheeting and earthing electrodes including all fixing accessories.	No.	4		
H.11.4		Allow amount for Bonding of entire installation including all fixing accessories.	No.	1		
H.11.5		The complete Earthing and Lightning Protection installation for the building	No.	1		
H.12		BUILDING ENTRY SLEEVES.				
H.12.1		Supply, deliver, store and install where specified on drawings the following sleeves, inclusive of loading and off-loading.	m	20		
H.12.2		50mm dia. Kabelflex Sleeves for power cable	No.	1		
H.13		TESTING AND COMMISSIONING.				
H.13.1		Test and commission the complete installation as per the Distribution Standard and issue all the necessary test certificates	No.	1		
H.14		EXTERNAL LIGHTING				
		Supply and Install Complete of the following:				
H.14.1		3m high light mast complete with 6 way Bracket Galvanised including Spike	No.	1		
H.14.2		Excavation and Concrete Mast Foundation Class 30/19	m ³	45		
H.14.3		Electrical Installation inside Mast including Earthing with 2 x 1.2m earth spikes	No.	1		
H.14.4		600W LED floodlights complete with Lamp including Aiming of lights	No.	3		
H.14.5		Charges for hiring of Crane Truck	No.	1		
H.15		MAINTENANCE KIT				
H.15.1		Portable Hand-winch complete with cable	No.	1		
H.16		TESTING AND COMMISSIONING				
H.16.1		Test and commission the complete installation as per the Distribution Standard and issue all the necessary test certificates	No.	1		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION I : FENCING

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
I	PS PA	SECTION I : FENCING				
I.1	8.3.2(a)	BOUNDARY FENCING				
I.1.1		Remove and dispose of damaged section of the boundary fece	m	240		
I.1.2		Supply and erection of new fencing (to match existing fence)	m	240		
		Rehabilitation of the Existing Fence				
I.1.3		Fixing damaged section of the fence	m	117		
		Fence Painting (first and second coating with green paint)	m	450		
I.2		GATES				
		Supply and install new vehicle gate				
I.2.1		2400 high x 6000mm wide sliding gate, 76 x 76 galvanised posts	No.	1		
I.3		FOUNDATION				
		Excavation in all material for galvanised post foundation				
I.3.1		600mm x 450mm x 450mm	m ³	9		
		Extra over 0.3 for Excavation in				
I.3.2		Intermediate material	m ³	6		
I.3.3		Hard material	m ³	4		
I.4		CONCRETE				
I.4.1		Blinding layer in 15 MPa/19 mm concrete	m ³	1		
		Strength concrete: 25 MPa/40mm				
I.4.2		Footings - 600mm x 450mm x 450mm	m ³	2		
I.5		SUNDRY ITEMS				
I.5.1		Drilling and blasting of holes for post and anchors	No.	13		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SECTION J : DAYWORKS

ITEM NO	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT (RANDS)
J		SECTION J : DAYWORKS				
J.1		PLANT HIRE: WORK RATE ON SITE				
		a) Tipper truck (specify capacity)				
J.1.1		i) 6 cu.m (small)	hours	260		
		b) Wheel loader (specify type)				
J.1.2		i) 2,1 cu.m (small)	hours	260		
		d) Crawler excavators (specify model/mass/kw)				
J.1.3		i) Model CX160c/17300kg/92,2kw (small)	hours	200		
		f) Self propelled vibrating rollers (smooth drum) (specify mass)				
J.1.4		i) Mass_____kg (medium)	hours	120		
J.1.5		ii) Mass_____kg (large)	hours	120		
		g) Water tanker (specify capacity)				
J.1.6		i) Capacity_2500litre (small, towable)	hours	160		
J.2		MISCELLANEOUS: WORK RATE ON SITE				
		a) Welding unit (specify ampere)				
J.2.1		i) _____Amp (medium)	hours	30		
		b) Mobile generator set (specify KVA)				
J.2.2		i) _____KVA (large)	hours	150		
J.3		PLANT HIRE: TRANSPORT COST TO AND FROM SITE				
		a) Distance shall be measured one way only. Tendered rates shall include for transport both to and from site.				
J.3.1		Low bed (suitable for the largest piece of equipment above)	km	300		
		a) Tipper truck				
J.3.2		ii) 10 cu.m (medium)	km	50		
J.3.3		iii) 12 cu.m (large)	km	50		
J.3.4		c) LDV	km	50		
Total Carried Forward To Summary						

19/2021/2022: UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 - CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
SCHEDULE OF QUANTITIES

SUMMARY OF SECTIONS		
SECTION	DESCRIPTION	AMOUNT (RANDS)
A	PRELIMINARY AND GENERAL	R
B	SITE CLEARANCE	R
C	EARTHWORKS	R
D	PIPEWORK	R
E	0.3ML ELEVATED STEEL TANK	R
F	5.0ML RC SERVICE RESERVOIR	R
G	PUMPING EQUIPMENT	R
H	ELECTRICAL WORKS	R
I	FENCING	R
J	DAYWORKS	R
Total Carried Forward To Summary Of Schedules		R

LEKWA LOCAL MUNICIPALITY



UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2 CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER CONTRACT No. DTS 19/2021/2022 TENDER DRAWINGS

ISSUED TO:

PMU MANAGER
LEKWA LOCAL MUNICIPALITY
P.O Box 66
STANDERTON
2430
Tel: 017 620 6000
Fax: 017 634 8019

PREPARED BY:

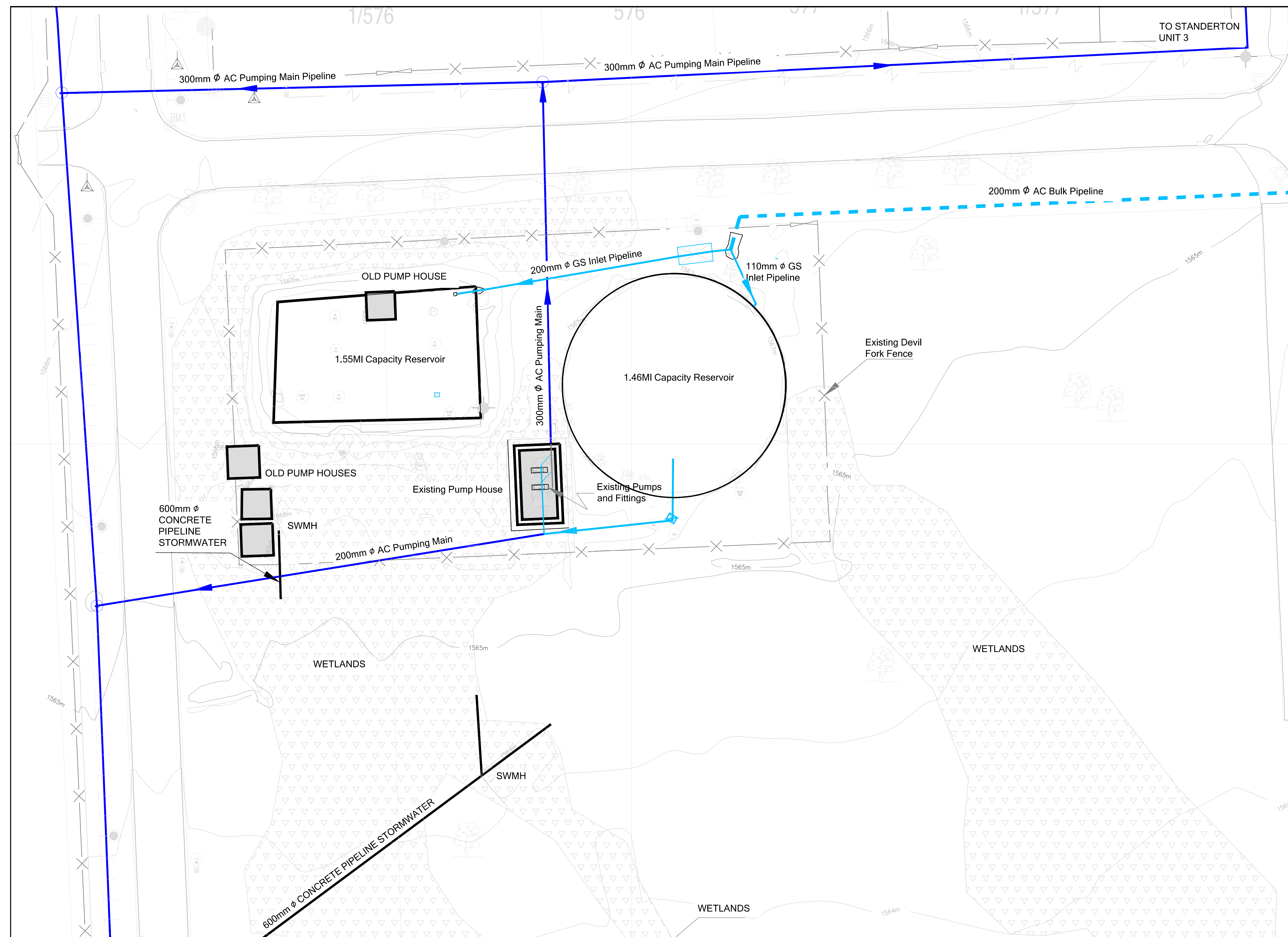
TMS CONSULTING ENGINEERS & PROJECT MANAGEMENT
39A Emhke Street
P o Box 603
Nelspruit
1201
Tel: 013 752 8478
Fax: 013 752 2903
email: info@tmsconsulting.co.za



UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2 CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
CONTRACT No. DTS 19/2021/2022
TENDER DRAWINGS
LIST OF DRAWINGS

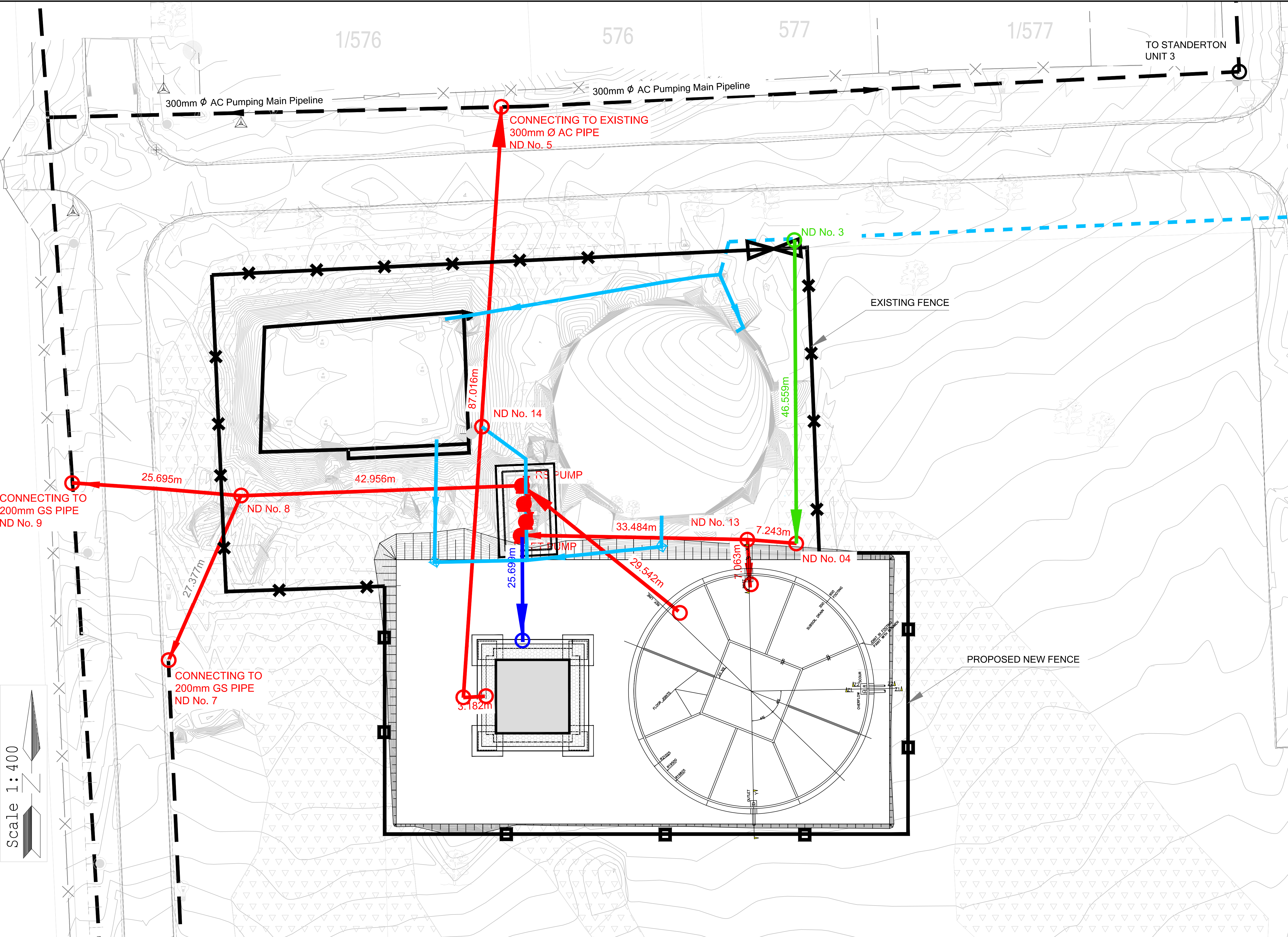
DRAWING No.	DESCRIPTION
KIESER-01	LIST OF DRAWINGS
KIESER-02	LOCALITY LAYOUT
KIESER-03	EXISTING KIESER STREET RESERVOIRS FACILITIES
KIESER-04	GENERAL LAYOUT PLAN
KIESER-05	RESERVOIR PLAN SECTION AND DETAILS
KIESER-06	RESERVOIR UNDERFLOOR DRAIN LAYOUT AND DETAILS
KIESER-07	INLET AND OUTLET CONNECTION DETAILS SHEET 01 OF 02
KIESER-08	INLET AND OUTLET CONNECTION DETAILS SHEET 02 OF 02
KIESER-09	REINFORCEMENT WALL AND MANHOLE
KIESER-10	REINFORCEMENT FLOOR AND ROOF SLAB PLAN LAYOUT
KIESER-11	300ki ELEVATED STEEL TANK PLAN VIEW AND BENDING SCHEDULE
KIESER-12	300ki ELEVATED STEEL TANK PLAN SECTION AND CONNECTION DETAILS
KIESER-13	EARTHWORK PLAN LAYOUT AND SECTIONS
KIESER-14	FENCE LAYOUT PLAN AND DETAILS
KIESER-15	PIPE BEDDING DETAILS
KIESER-16	THRUST BLOCK DETAILS
KIESER-17	VALVE CHAMBER DETAILS AND HYDRANT DETAILS
KIESER-18	STORMWATER DETAILS SHEET 01 OF 02
KIESER-19	STORMWATER DETAILS SHEET 02 OF 02
KIESER-20	NAME BOARD DETAILS

					DESIGNED BY	TGS	 39A Ehmke Street P o Box 603 Nelspruit 1200 Tel: 013 752 8478 Fax: 013 752 2903 email: info@tmsconsulting.co.za		 LEKWA LOCAL MUNICIPALITY.	PROJECT DESCRIPTION	UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER	PROJECT No	DTS 19/2021/2022	TYPE OF DESIGN	UPGRADING
					CHECKED BY	CTP				DRAWING NAME	LIST OF DRAWINGS	SCALE	4:1	DRAWING NO.	KIESER-01
					DRAWN BY	TGS									
00	MAY 2022	TENDER STAGE	TGS	TGS	CHECKED BY	CTP									
REV No	DATE	REVISION	CONSULT	DIR				CONSULTING ENGINEER	DATE						



<u>LEGEND:</u>	
	Bulk Pipeline
	Water Pipelines
	Pumping Main Pipeli
	315mm Ø PVC-m Pipeline
	200mm Ø PVC-m Pipeline
	110mm Ø PVC-m Pipeline
	Stormwater Pipeline
	Stormwater Manhole
	Gate
	Fenceline
	Low Voltage Powerline
	Medium Voltage Powerline
	Cadastral Boundary
	Outside Boundary
	Watermeter
	Wetland
	Road sign
	Sign Board
	Lamp Post
	Water Tap
	Shack
	Stay Wire
	Electrical Pole
	Building
	Gravel Road
	Paving
	Waste Bin
	Culvert
	Edge of Stream
	Benchmark
	Fire Hydrant
	Inspection Eye
	Tree

						DESIGNED BY	TGS	 39A Ehmke Street P o Box 603 Nelspruit 1200 Tel: 013 752 8478 Fax: 013 752 2903 email: info@tmsconsulting.co.za	_____ CLIENT	_____ DATE	 LEKWA LOCAL MUNICIPALITY.	PROJECT DESCRIPTION	UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER	PROJECT No DTS 19/2021/2022	TYPE OF DESIGN UPGRADING
						CHECKED BY	CTP		_____ CONSULTING ENGINEER	_____ DATE		DRAWING NAME	EXISTING KIESER STREET RESERVOIR FACILITIES	SCALE 4:1	DRAWING NO. KIESER-03
						DRAWN BY	TGS								
						CHECKED BY	CTP								
00	MAY 2022	TENDER STAGE			TGS	TGS									
REV No	DATE	REVISION			CONSULT	DIR									



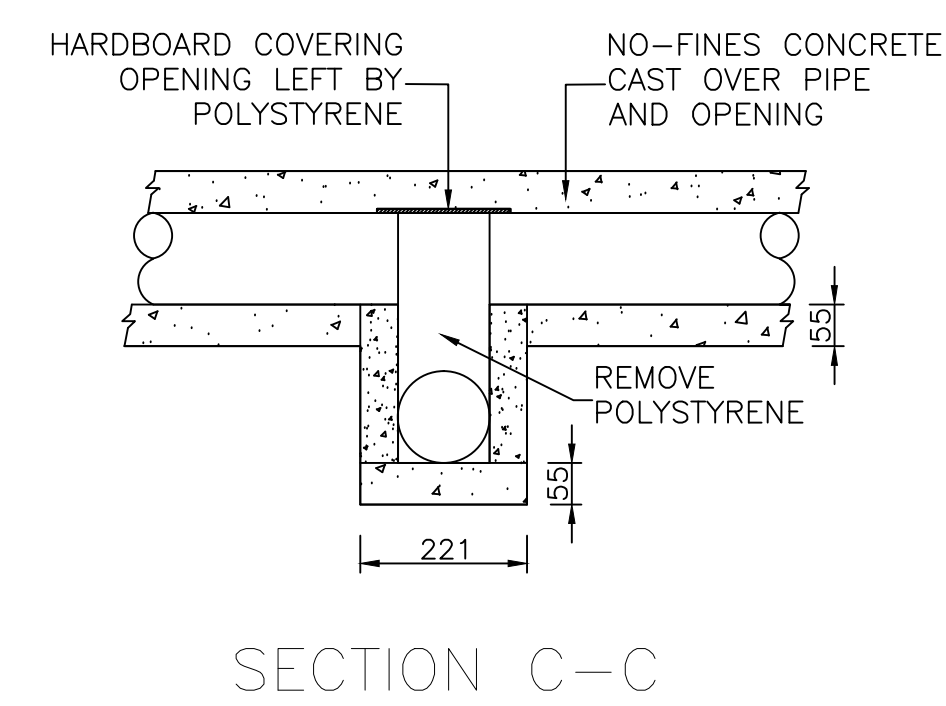
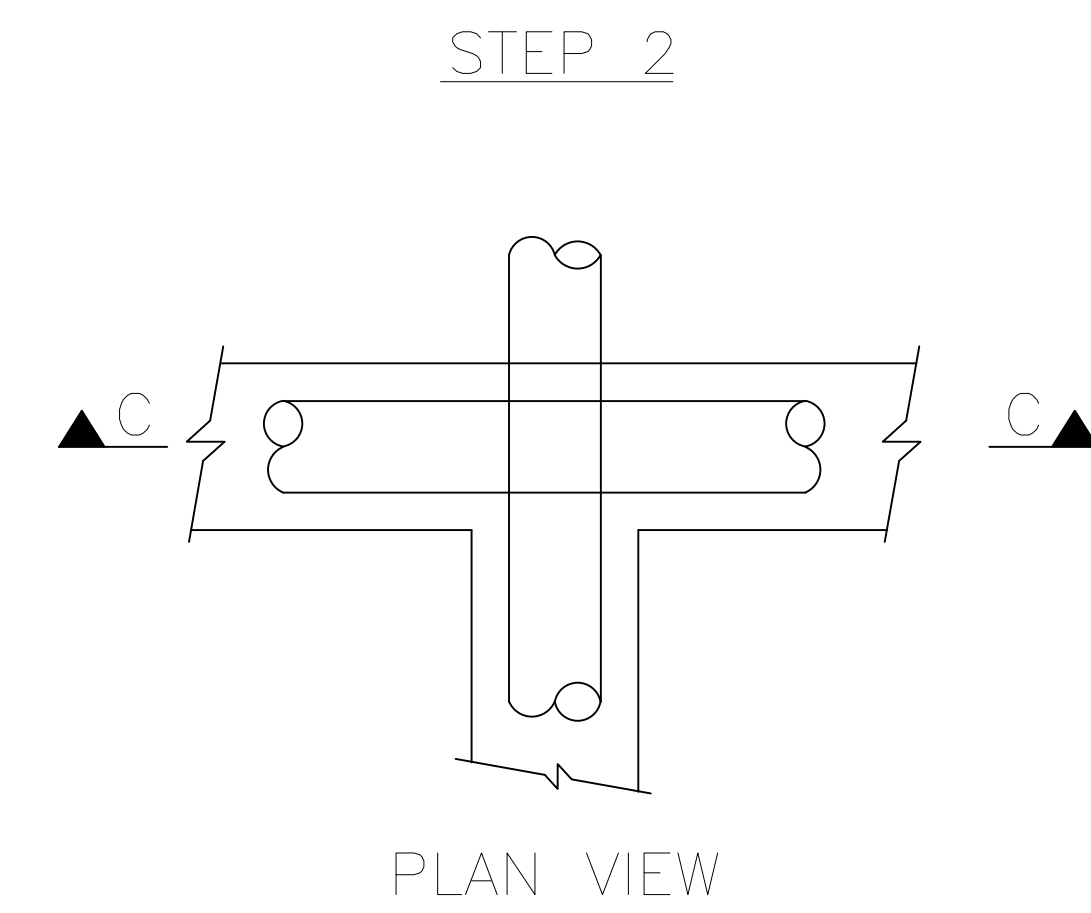
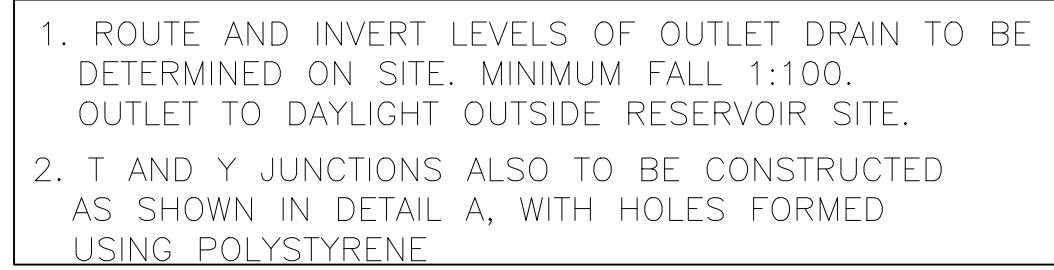
1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS
2. ALL DIMENSIONS ARE IN MILLIMETERS U.N.O. ALL LEVELS & DIMENSIONS TO BE CHECKED & CONFIRMED ON SITE.

1. ALL CONCRETE CONSTRUCTION SHALL BE PERFORMED TO SANS 12000
2. ALL CONCRETE SHALL BE 30 MPA AT 28 DAYS U.O.S.
3. BLINDING CONCRETE TO BE 15 MPA MIN
4. ALL EXPOSED CORNERS TO HAVE 20MM CHAMFER
5. ALL REINFORCEMENT TO LAP WITH MIN 50 DIAMETERS U.O.S
6. REINFORCEMENT DIMENSIONS ARE ACCORDING TO SANS 28
7. ALL CONCRETE SHALL BE PROPERLY CURED FOR AT LEAST 7 DAYS U.O.S.

[illegible]

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A cross-sectional diagram of a floor assembly around a drain. The diagram shows a 30 MPa concrete floor slab on top of a 10 MPa no-fines concrete layer. Below the no-fines concrete is a 15 MPa concrete base. A circular drain opening is shown in the center, with a 100 mm diameter. The total width of the concrete base is 221 mm. The diagram is labeled with material strengths and dimensions.

30 MPa CONCRETE FLOOR SLAB

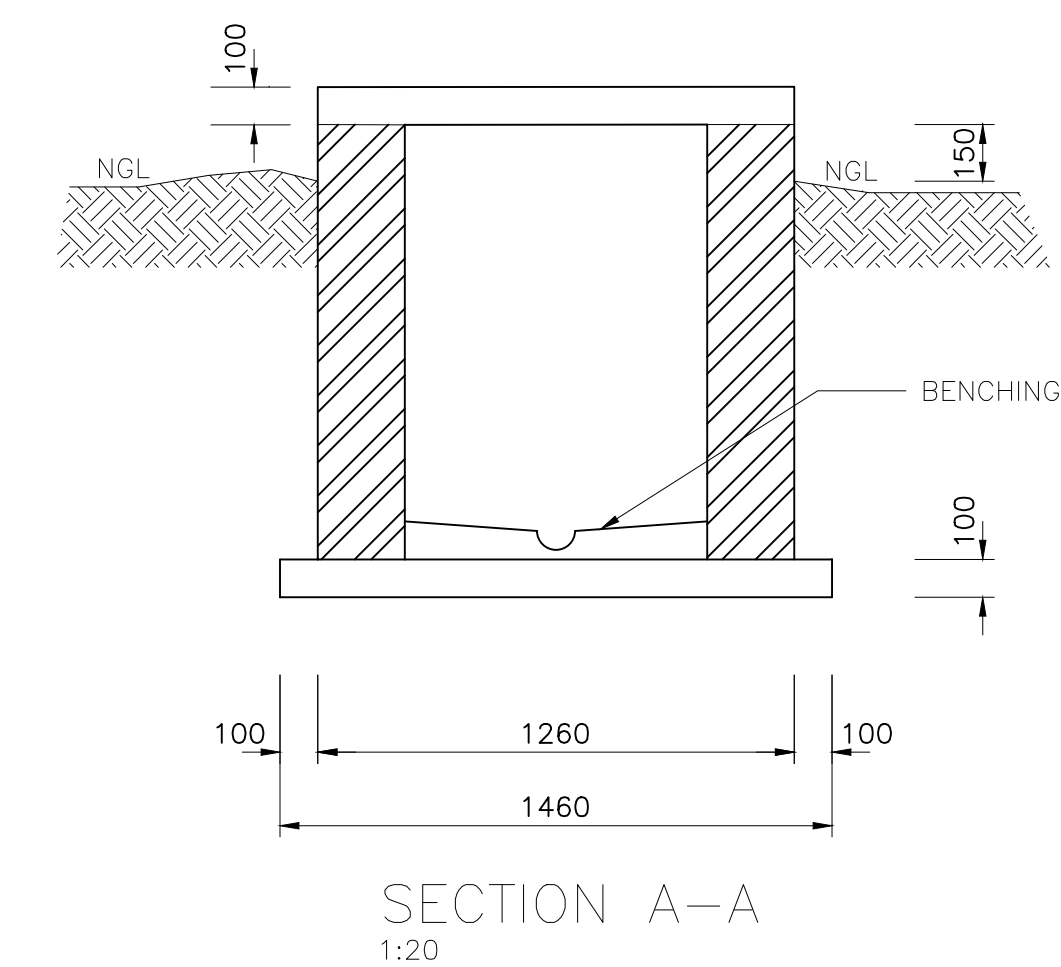
10 MPa NO-FINES CONCRETE

15 MPa CONCRETE

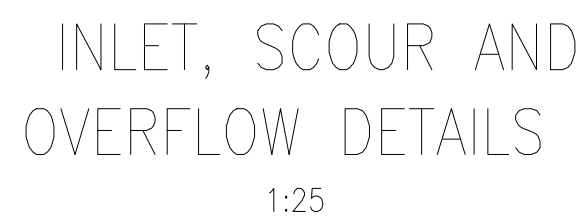
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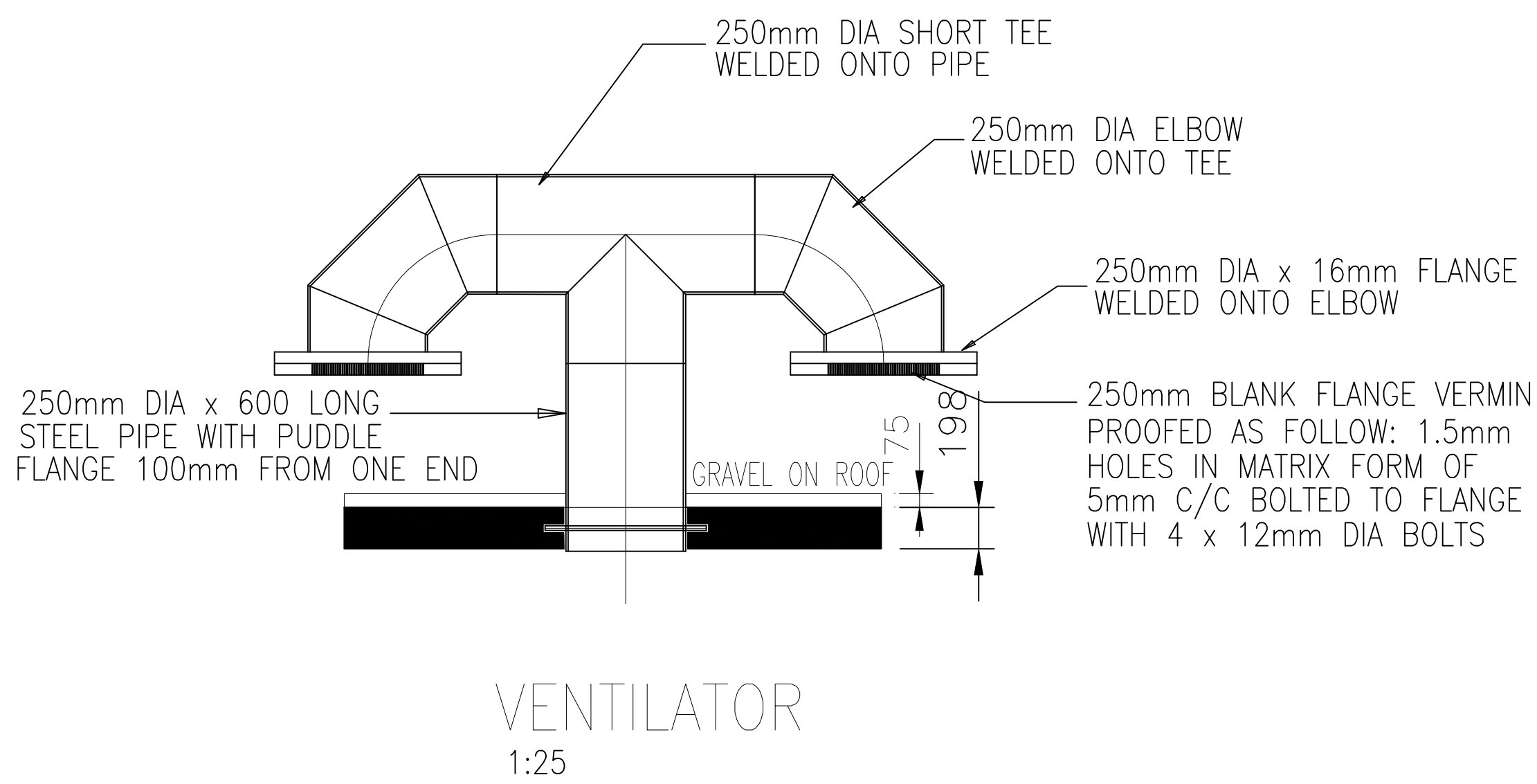
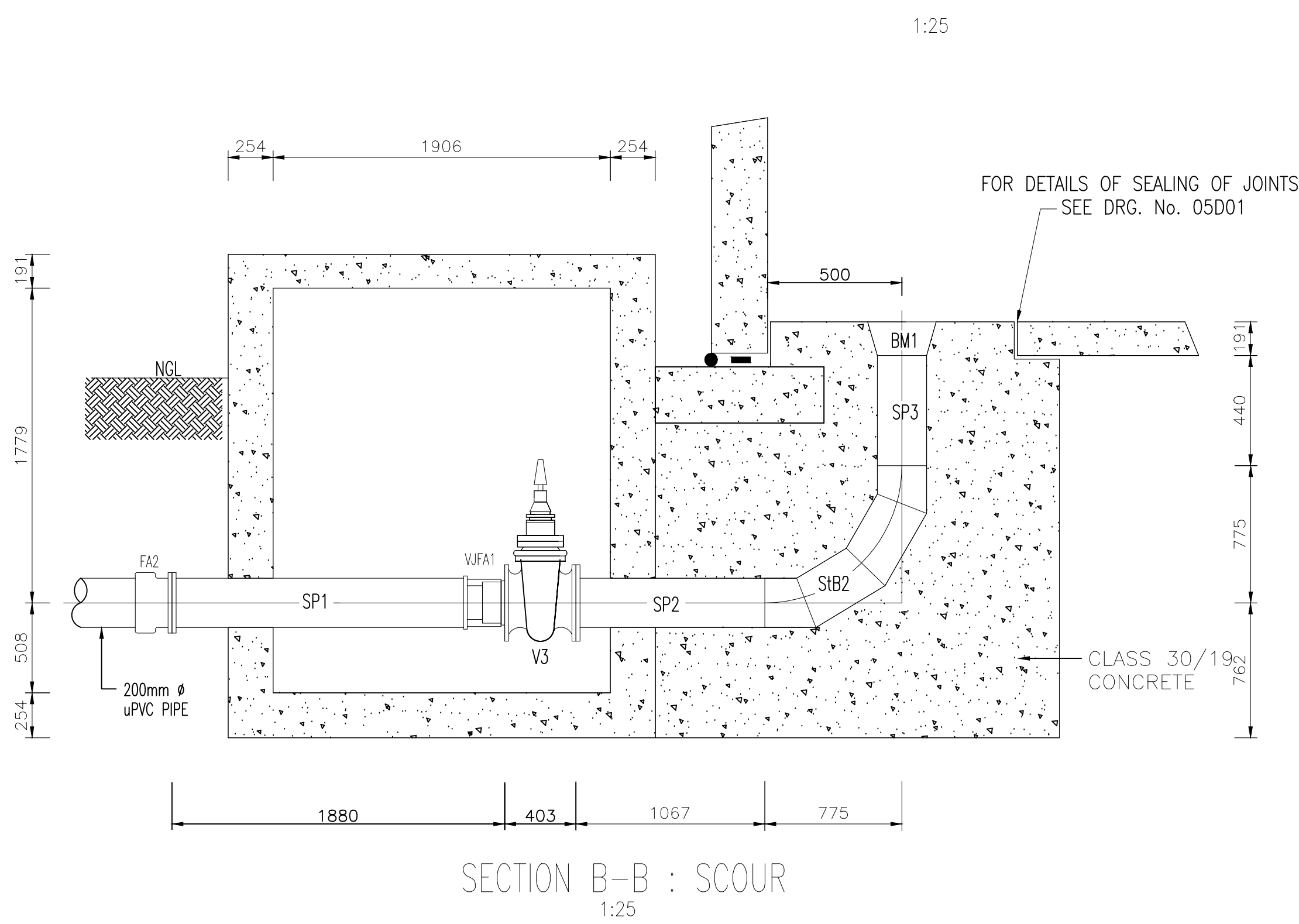
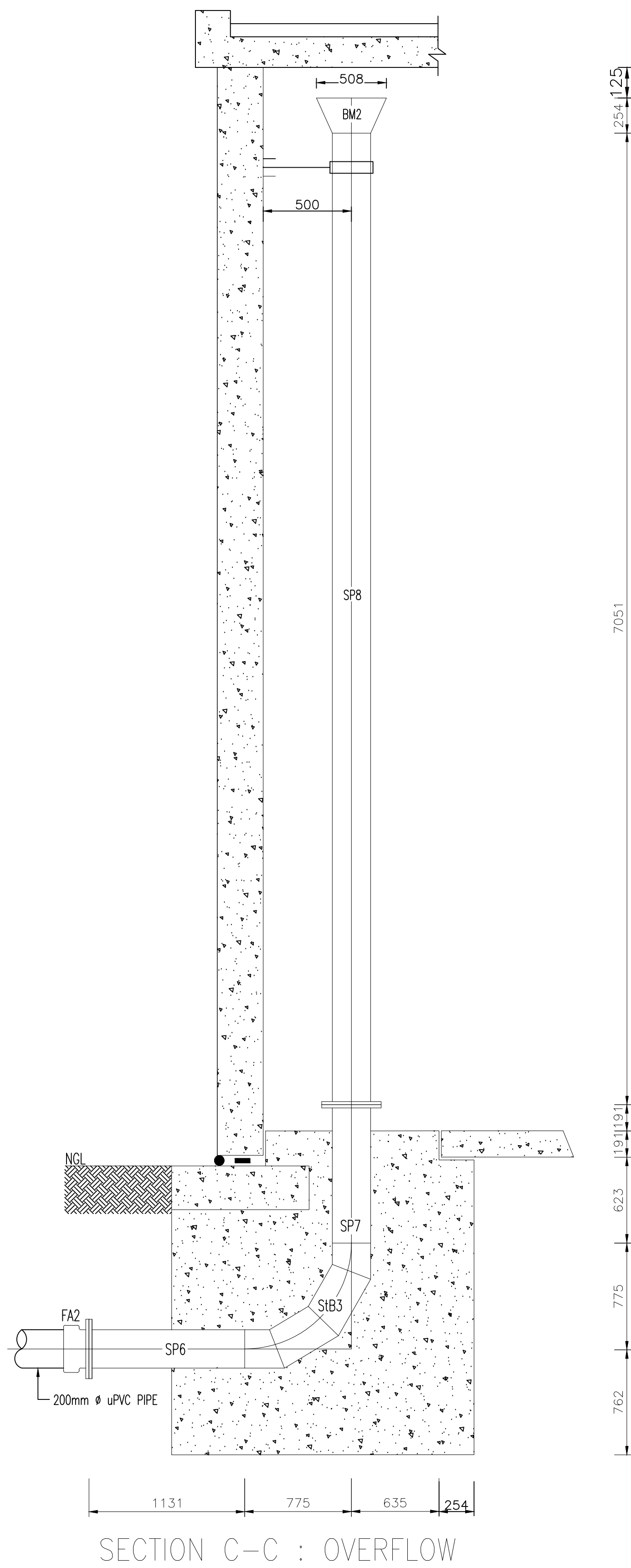
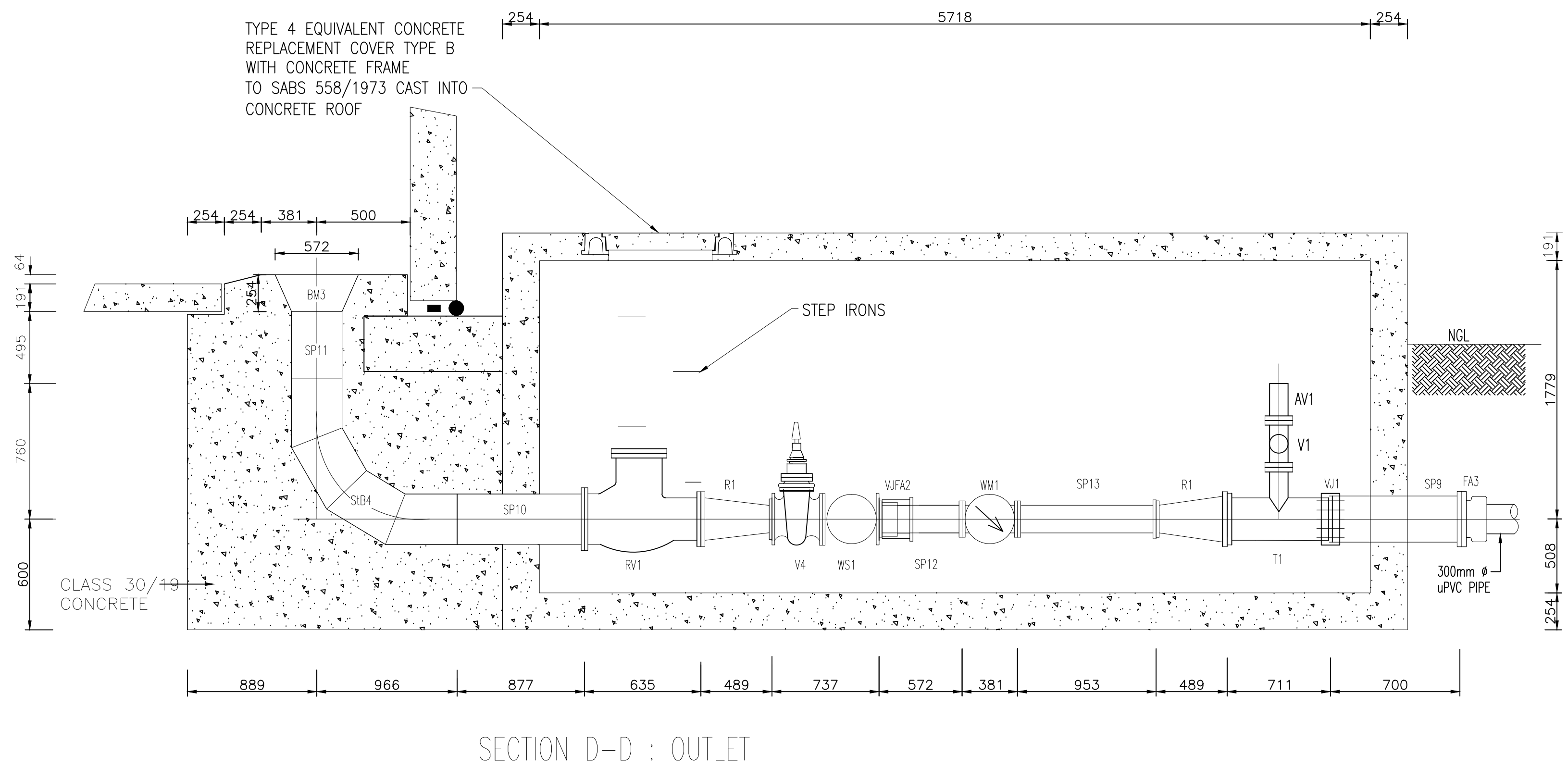
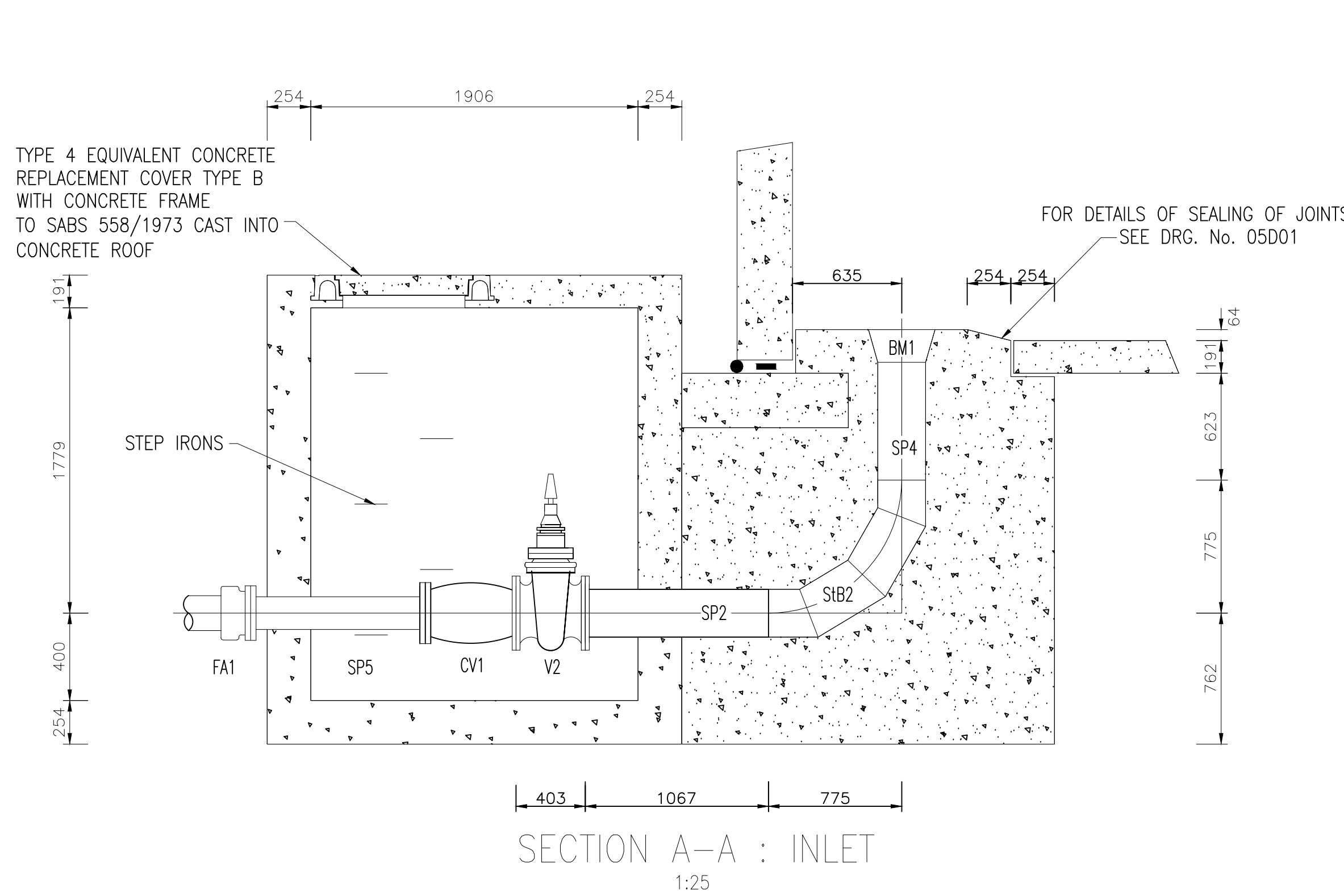
221

TYPICAL SECTION OF UNDER FLOOR DRAIN

[illegible]

1. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS
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[illegible]



FITTING LIST	
ITEM	DESCRIPTION
AV1	100mm DIA VENT-O-MAT RBX1601 AIR RELEASE VALVE, FLANGED
BM1	250x450mm BELLMOUTH, 200mm LONG, BOTH ENDS PLAIN ENDED (STEEL)
BM2	200x400mm DIA BELLMOUTH, 200mm LONG, BOTH ENDS PLAIN ENDED, (3CR12)
BM3	300x450mm DIA BELLMOUTH, 200mm LONG, BOTH ENDS PLAIN ENDED (STEEL)
CV1	250mm DIA CLASS 10 CONTROL VALVE, FLANGED
FA1	250mm DIA FLANGE ADAPTOR FOR COUPLING TO uPVC PIPE (CAST IRON)
FA2	200mm DIA FLANGE ADAPTOR FOR COUPLING TO uPVC PIPE (CAST IRON)
FA3	200mm DIA FLANGE ADAPTOR FOR COUPLING TO uPVC PIPE (CAST IRON)
RV1	200mm DIA CLASS 10 REFLEX VALVE, FLANGED
SP1	200mm DIA PIPE, 1460mm LONG, FLANGED ONE END ONLY (STEEL)
SP2	200mm DIA PIPE, 840mm LONG, FLANGED ONE END ONLY (STEEL)
SP2	250mm DIA PIPE, 840mm LONG, FLANGED ONE END ONLY (STEEL)
SP3	200mm DIA PIPE, 440mm LONG, BOTH ENDS PLAIN ENDED (STEEL)
SP4	250mm DIA PIPE, 490mm LONG, BOTH ENDS PLAIN ENDED (STEEL)
SP5	250mm DIA PIPE, 800mm LONG, BOTH ENDS FLANGED (STEEL)
SP6	200mm DIA PIPE, 890mm LONG, FLANGED ONE END ONLY (3CR12)
SP7	200mm DIA PIPE, 790mm LONG, FLANGED ONE END ONLY (3CR12)
SP8	200mm DIA PIPE, 5550mm LONG, FLANGED ONE END ONLY (3CR12)
SP9	300mm DIA PIPE, 700mm LONG, FLANGED ONE END ONLY (STEEL)
SP10	300mm DIA PIPE, 690mm LONG, FLANGED ONE END ONLY (STEEL)
SP11	300mm DIA PIPE, 390mm LONG, BOTH ENDS PLAIN ENDED (STEEL)
SP12	150mm DIA PIPE, 450mm LONG, FLANGED ONE END ONLY (STEEL)
SP13	150mm DIA PIPE, 750mm LONG, BOTH ENDS FLANGED (STEEL)
SIB1	200mm DIA STANDARD MEDIUM RADIUS 90° BEND, FLANGED ONE END ONLY (STEEL)
SIB2	200mm DIA STANDARD LONG RADIUS 90° BEND, BOTH ENDS PLAIN ENDED (STEEL)
SIB2	250mm DIA STANDARD LONG RADIUS 90° BEND, BOTH ENDS PLAIN ENDED (STEEL)
SIB3	200mm DIA STANDARD LONG RADIUS 90° BEND, BOTH ENDS PLAIN ENDED (3CR12)
SIB4	300mm DIA STANDARD LONG RADIUS 90° BEND, BOTH ENDS PLAIN ENDED (STEEL)
R1	300mm x 150mm REDUCER BOTH ENDS FLANGED (STEEL)
T1	300x100mm DIA T-PIECE, BRANCH AND ONE END FLANGED (STEEL)
V1	100mm DIA CLASS 10 RSV VALVE, FLANGED
V2	250mm DIA CLASS 10 RSV VALVE, FLANGED
V3	200mm DIA CLASS 10 RSV VALVE, FLANGED
V4	150mm DIA CLASS 10 RSV VALVE, FLANGED
VJ1	200mm DIA VIKING JOHNSON COUPLING
VJF1	200mm DIA VIKING JOHNSON FLANGE ADAPTOR (STEEL)
VJF2	150mm DIA VIKING JOHNSON FLANGE ADAPTOR (STEEL)
WM1	150mm WATER METER DOUBLE FLANGED WEINECKE COSMOS WPD 150
WS1	150mm WATER METER DOUBLE FLANGED WEINECKE COSMOS STRAINER WPD-F DN 150

GENERAL NOTES

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00	MAY 22	TENDER STAGE	TSG	TSG	
No	DATE	REVISION	CONSULT	DIR	DATE

GERT SIBANDE DIST MUN DATE

CONSULTING ENGINEER DATE



39A Emhke Street
P o Box 603
Nelspruit
1200
Tel: 013 752 8478
Fax: 013 752 2903
email: info@tmsconsulting.co.za

DESIGNED BY	TGS
CHECKED BY	CTP
DRAWN BY	TGS
CHECKED BY	CTP



LEKWA LOCAL MUNICIPALITY

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

INLET & OUTLET CONNECTION DETAILS - SHEET 2

SCALE

1:25

FILE No

—

PROJECT No

DTS 19/2021/2022

MUNICIPALITY

LEKWA LOCAL MUNICIPALITY

ROAD No

—

TYPE OF DESIGN

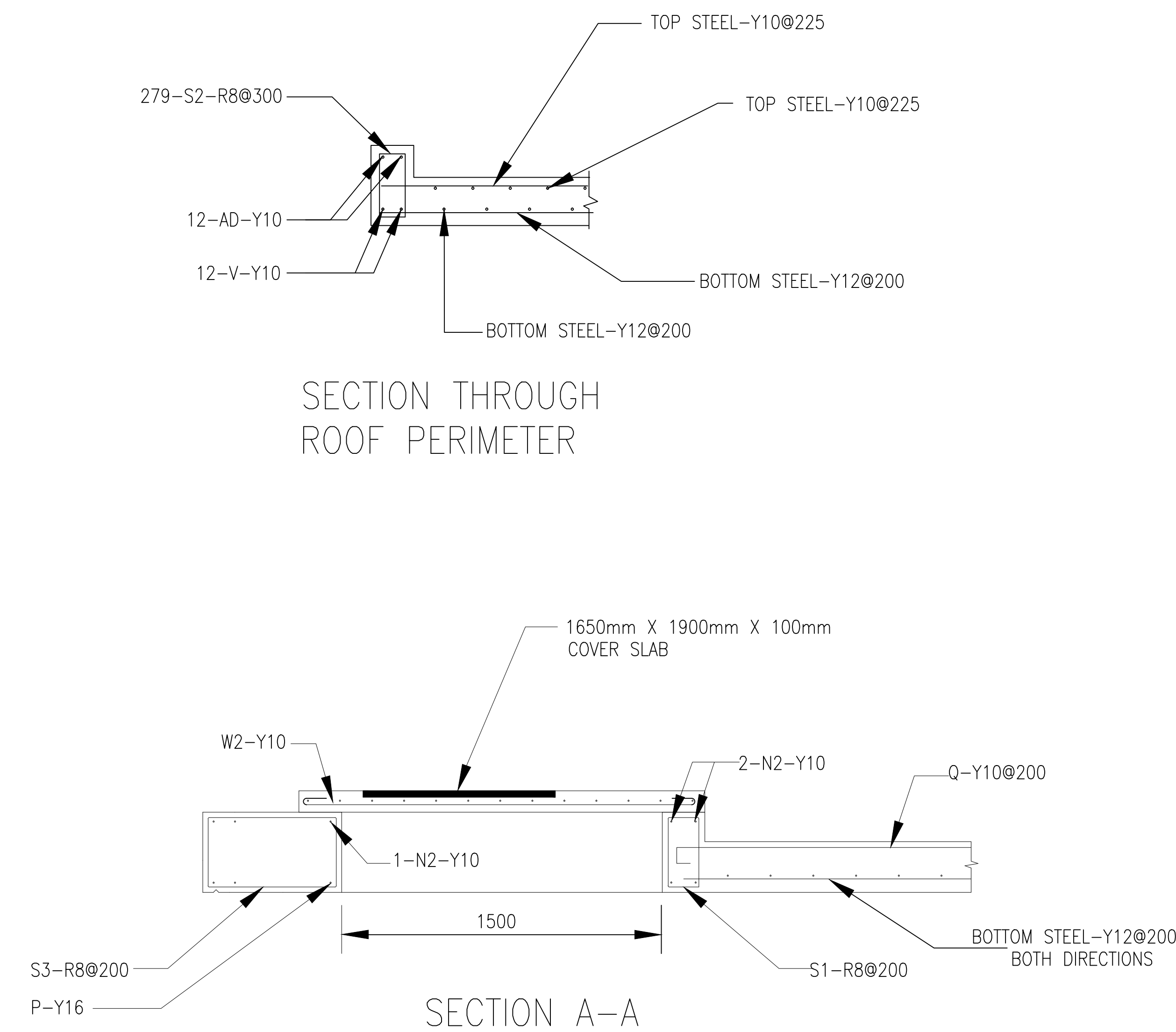
UPGRADING

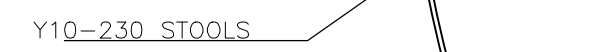
PLAN No

KIESER-08

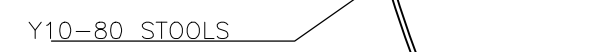
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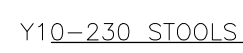
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ROOF BOTTOM STEEL
SCALE 1:50



ROOF TOP STEEL
SCALE 1:50



FLOOR REINFORCEMENT
SCALE 1"=5'



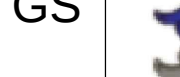
SECTION THROUGH FLOOR REINFORCEMENT DETAIL

AC SHAPE CODE 99

						SCALE 1:50
00	MAY 22	TENDER STAGE	TSG	TSG		
No	DATE	REVISION	CONSULT	DIR	CONSULTING ENGINEER	DATE



39A Emhke Street
P o Box 603
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1200
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Fax: 013 752 2903
email: info@tmsconsulting.co.za

DESIGNED BY	TGS	
CHECKED BY	CTP	
DRAWN BY	TGS	
CHECKED BY	CTP	



LEKWA LOCAL MUNICIPALITY

UPGRADING OF THE STANDERTON BULK WATER
SUPPLY SYSTEM PHASE 2- CONSTRUCTION OF
KIESER RESERVOIR AND PRESSURE TOWER

FLOOR & ROOF SLAB REINFORCEMENT DETAILS

SCALE

1:50

FILE No

PROJECT N0

DTS 19/2021/2022

MUNICIPALITY

LEKWA LOCAL MUNICIPALITY

ROAD No.

—

TYPE OF DESIGN

UPGRADING

PLAN No.

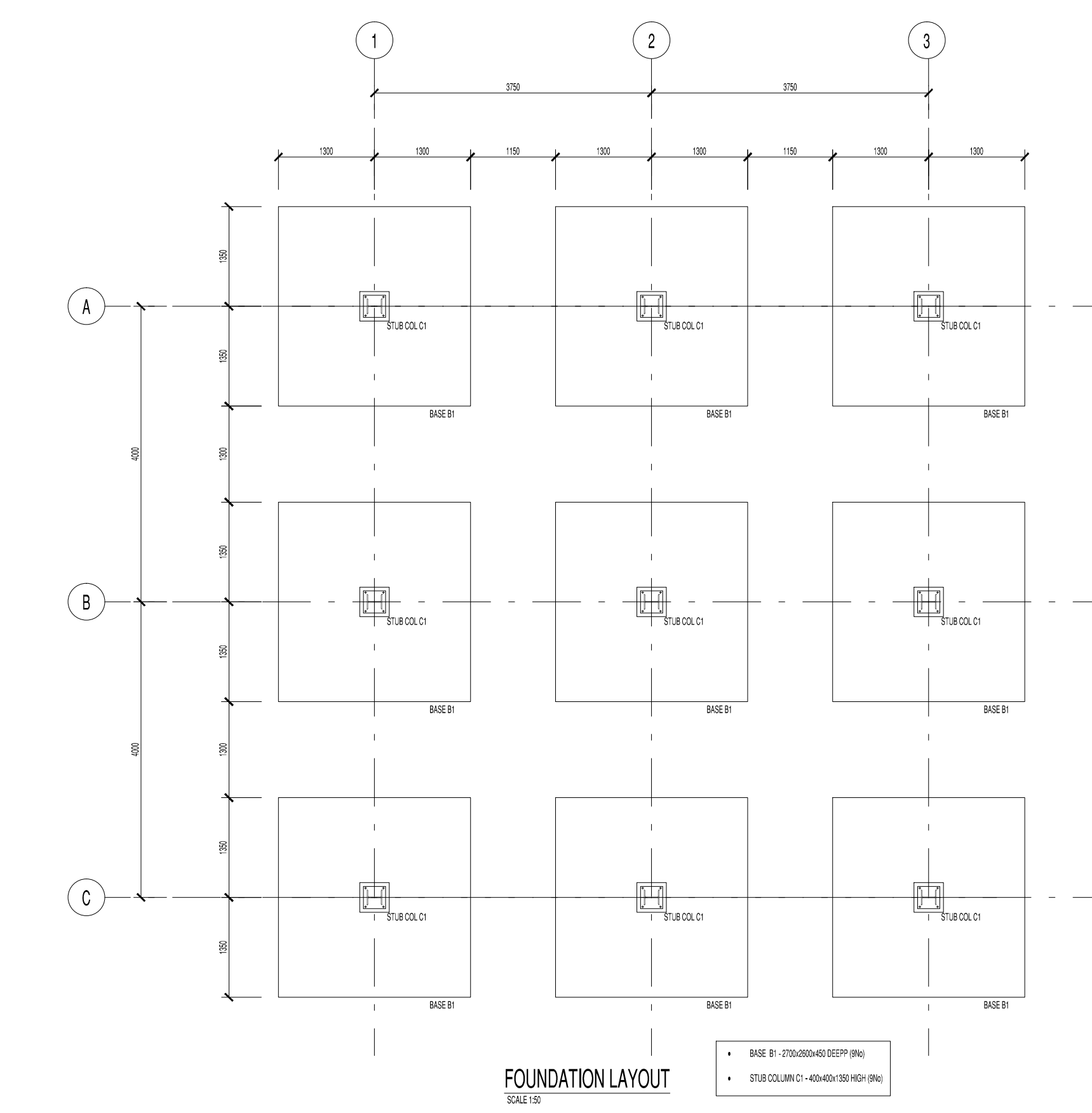
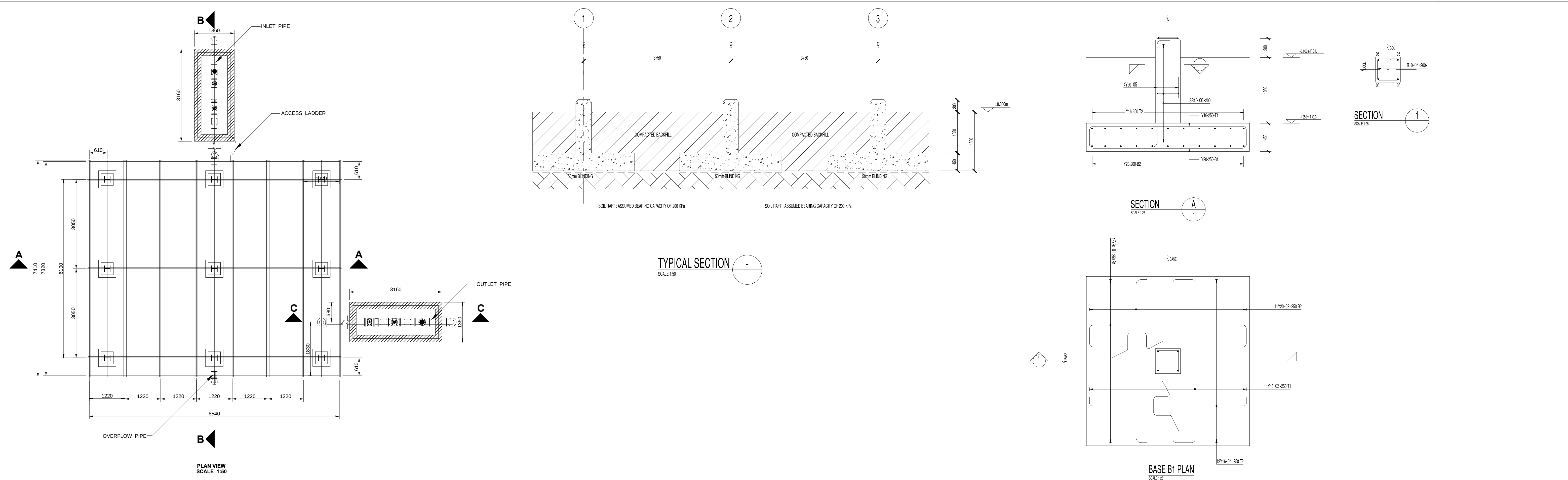
KIESER-10

GENERAL NOTES

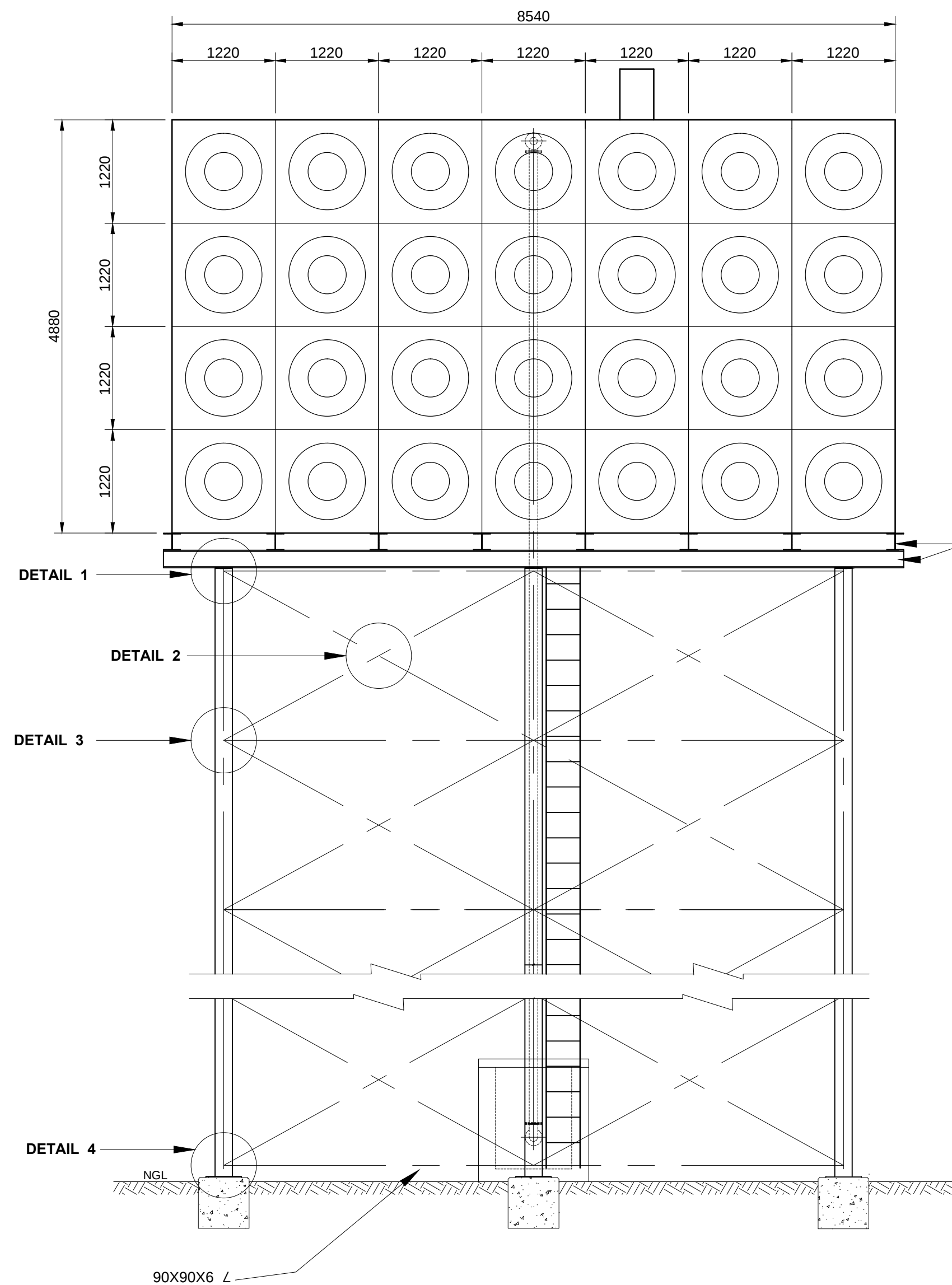
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CONCRETE

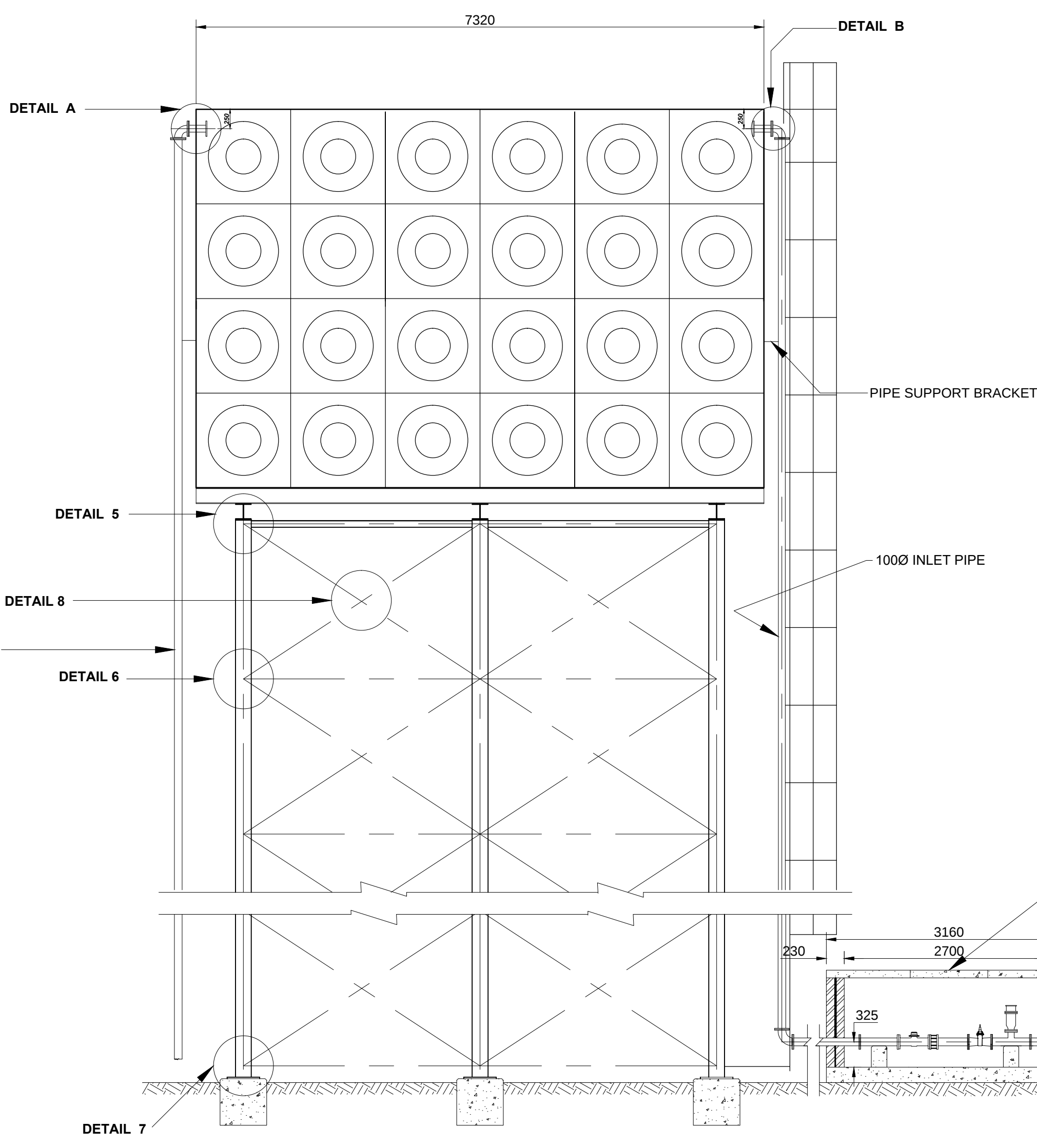
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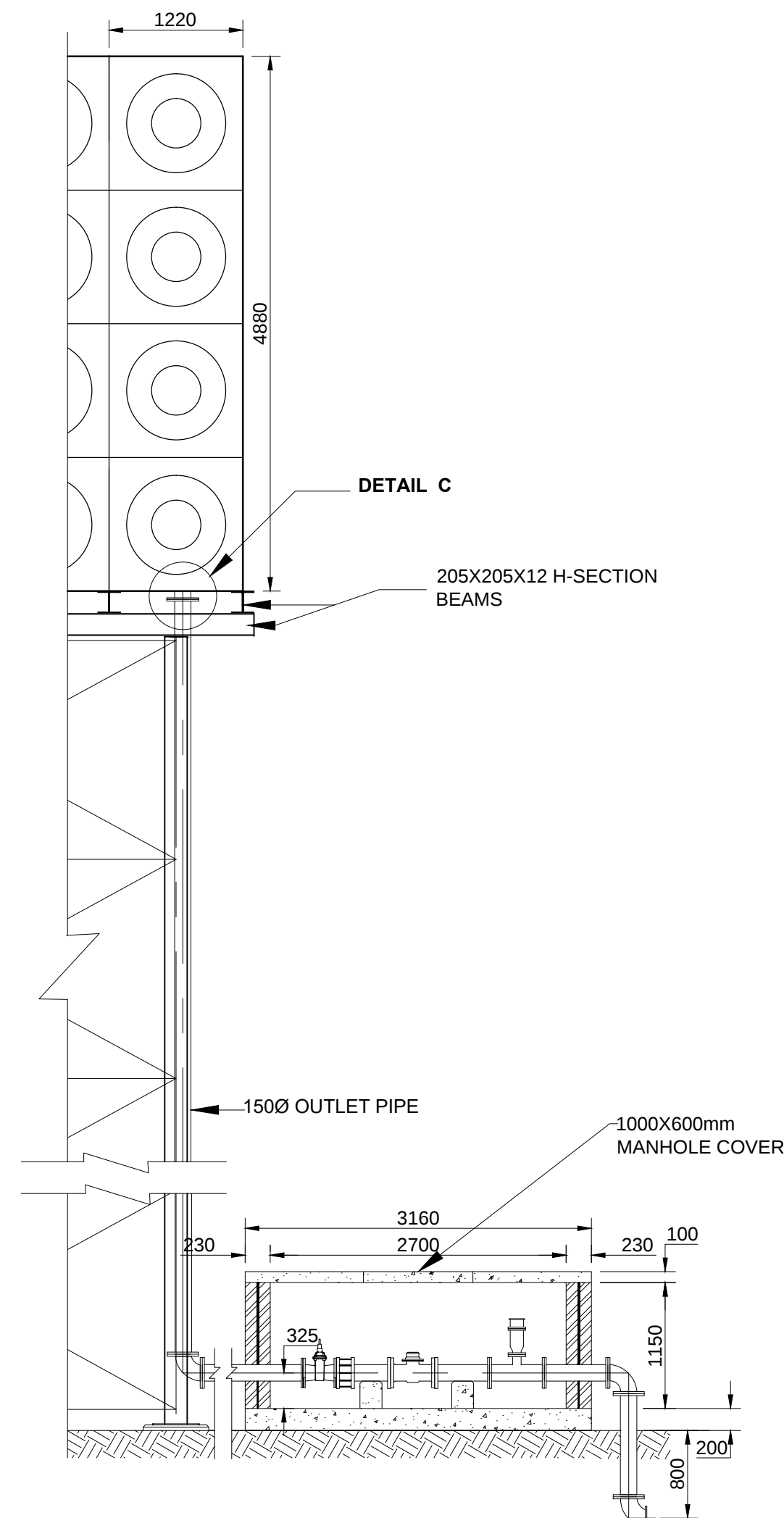
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			9	11	Y20	2900	99	02	35	2600					708
			9	11	Y16	3750	99	03	55	300	350	2600	350	[300]	586
			9	12	Y16	2750	108	04	35	2490					469
			9	4	Y20	2100	36	05	54	200	1690	[300]			186
			9	9	R10	1500	81	06	60	340	340				75
			9	6	Y16	1400	54	07	83	300	310	300	300		119
	6	8	10	12	16	20	25	32	40	TOTAL					
R			75												75
Y					1174	1853									3027
TOTAL			75		1174	1853									3102



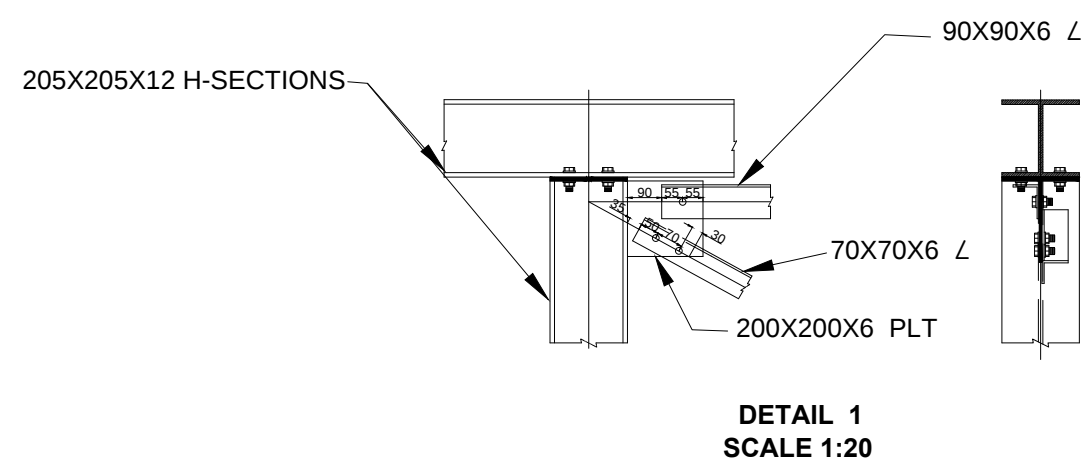
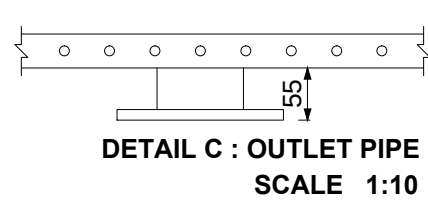
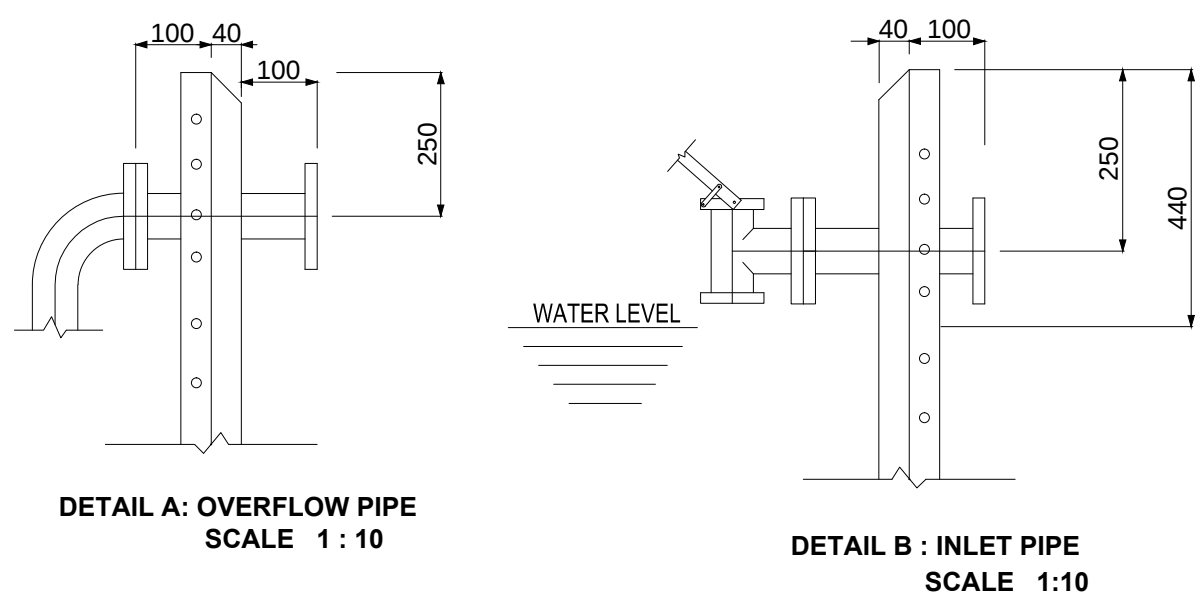
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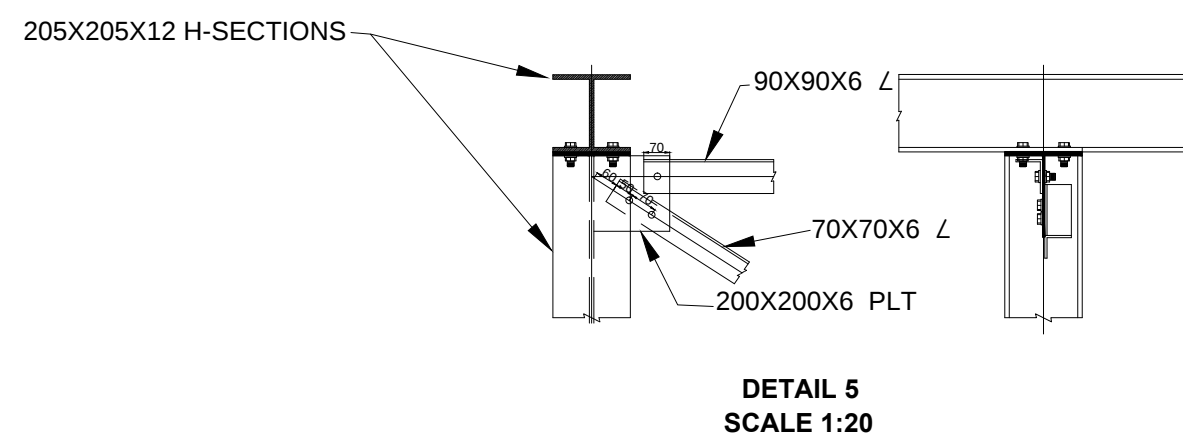
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SCALE 1:50



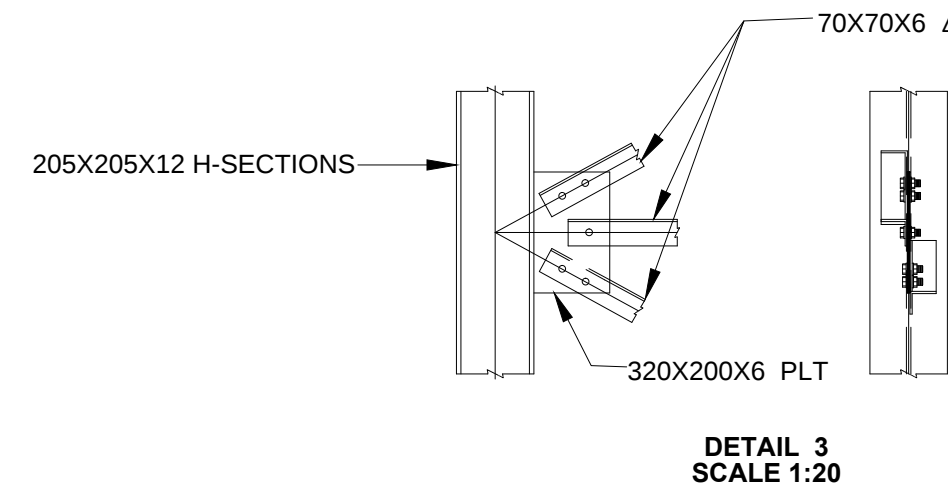
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SCALE 1:50



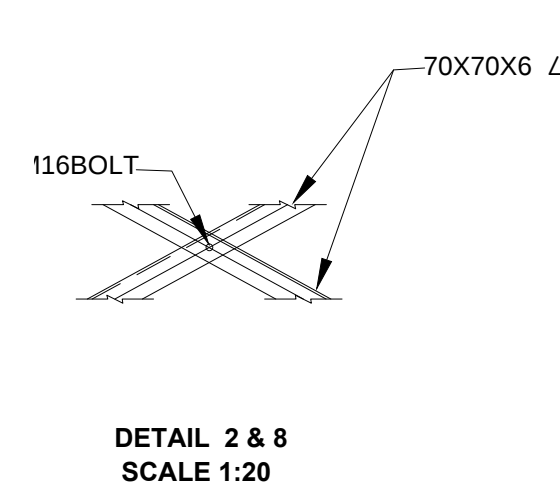
DETAIL 1
SCALE 1:20



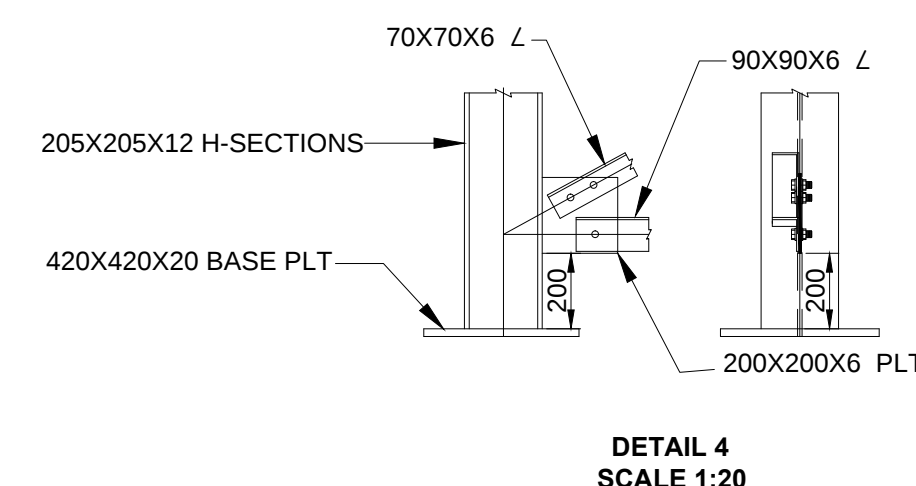
DETAIL 5
SCALE 1:20



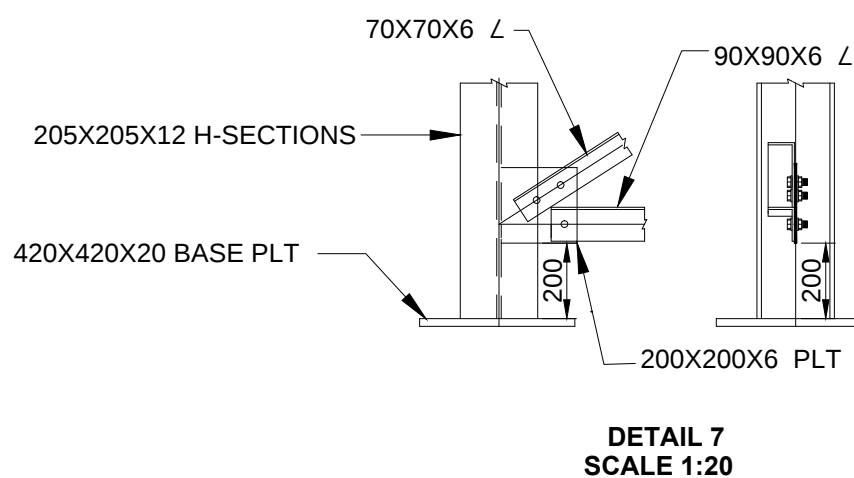
DETAIL 3
SCALE 1:20



DETAIL 2 & 8
SCALE 1:20



DETAIL 4
SCALE 1:20



DETAIL 7
SCALE 1:20

REV NO	DATE	REVISION	CONSULT	DIR
00	MAY 2022	TENDER STAGE	TGS	TGS

DESIGNED BY	TGS
CHECKED BY	CTP
DRAWN BY	TGS
CHECKED BY	CTP



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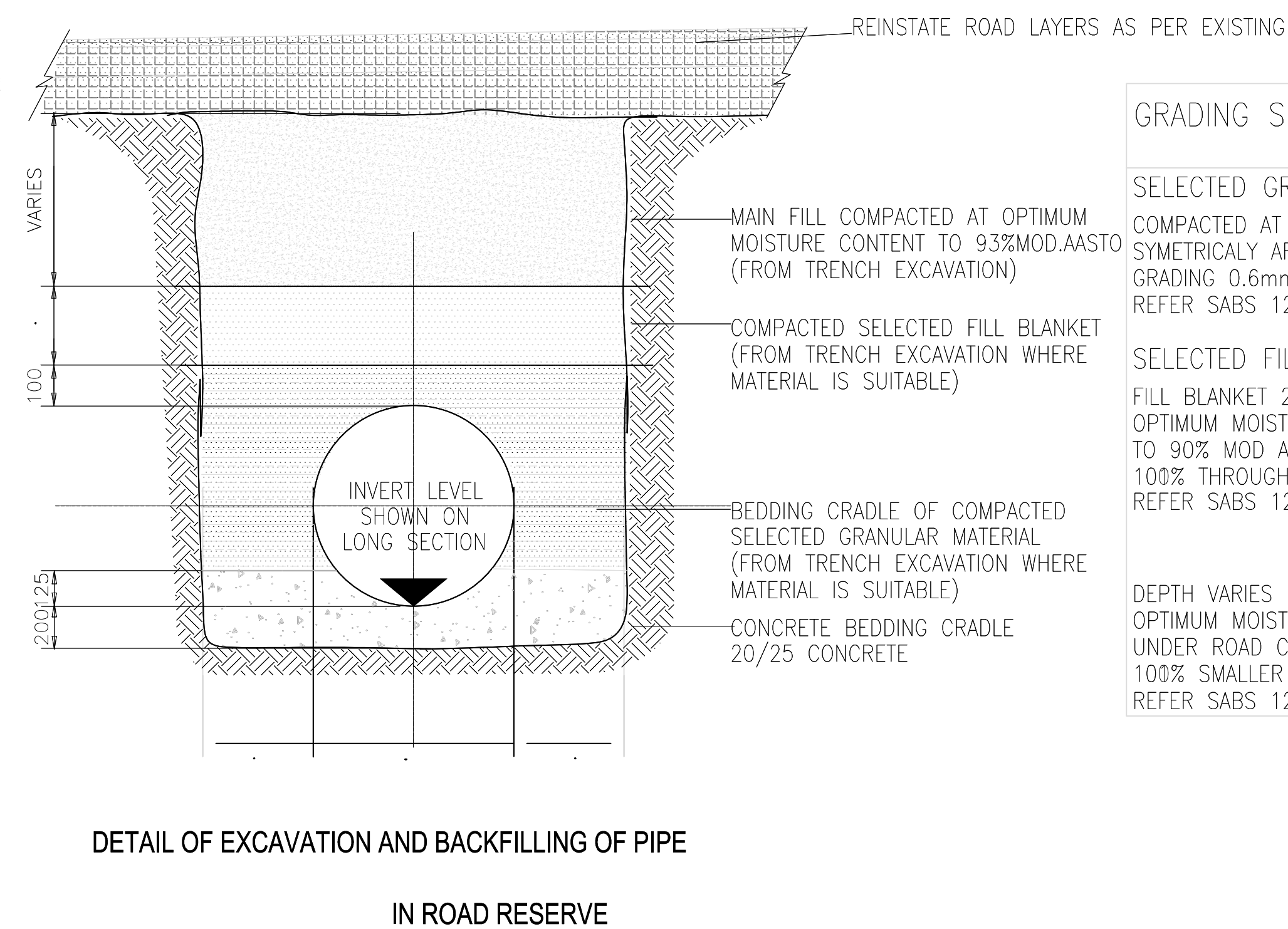
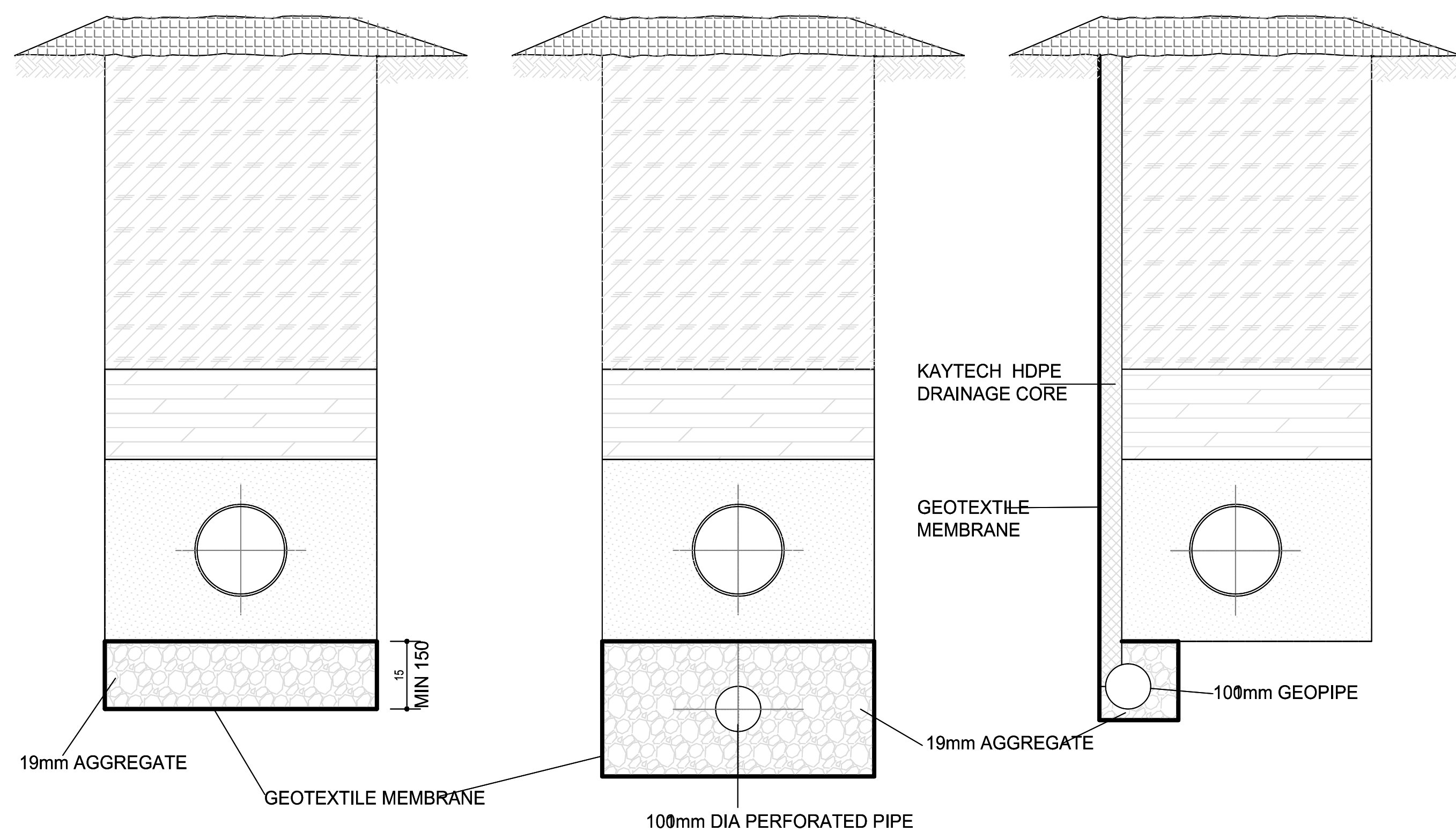
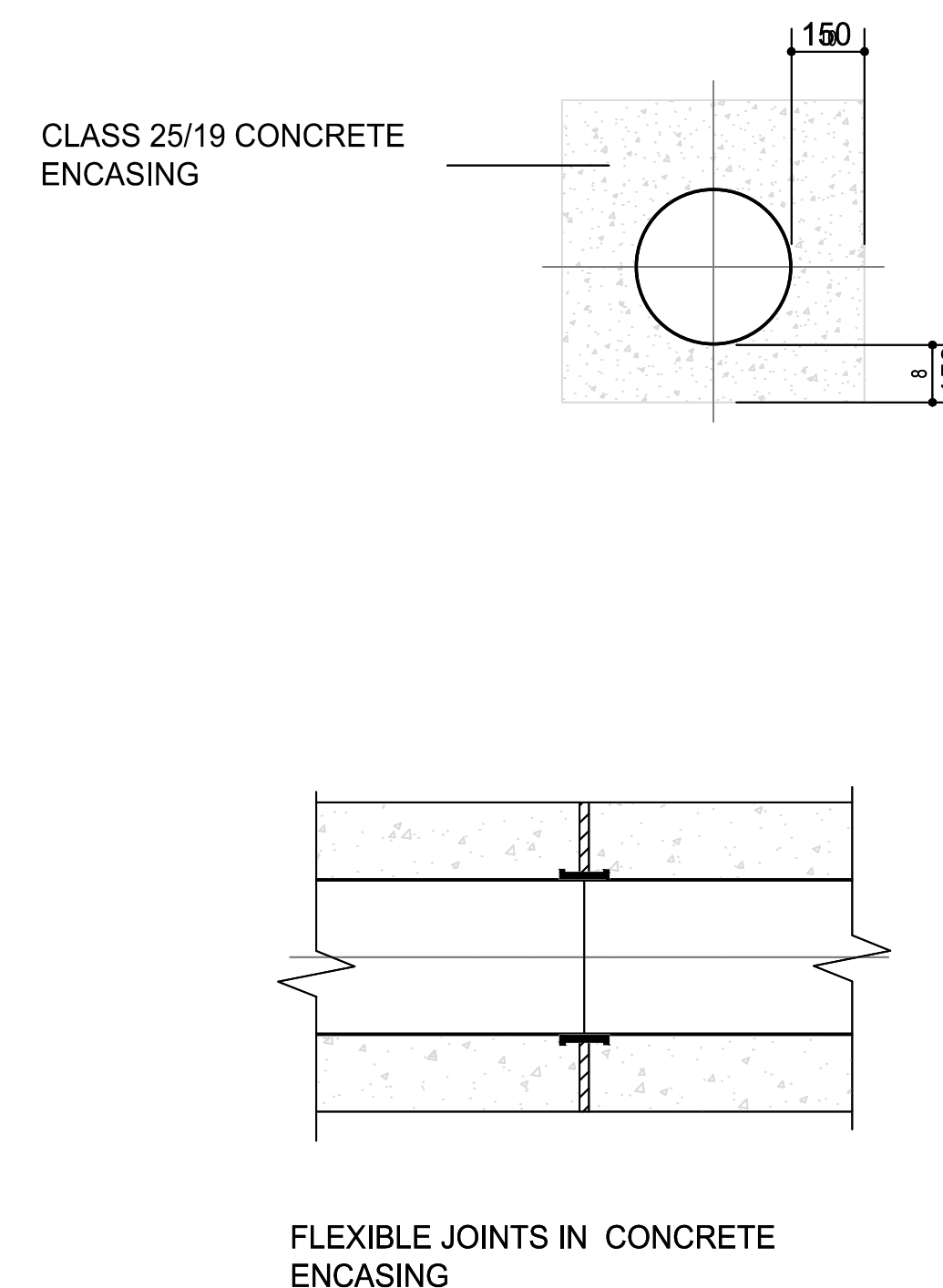
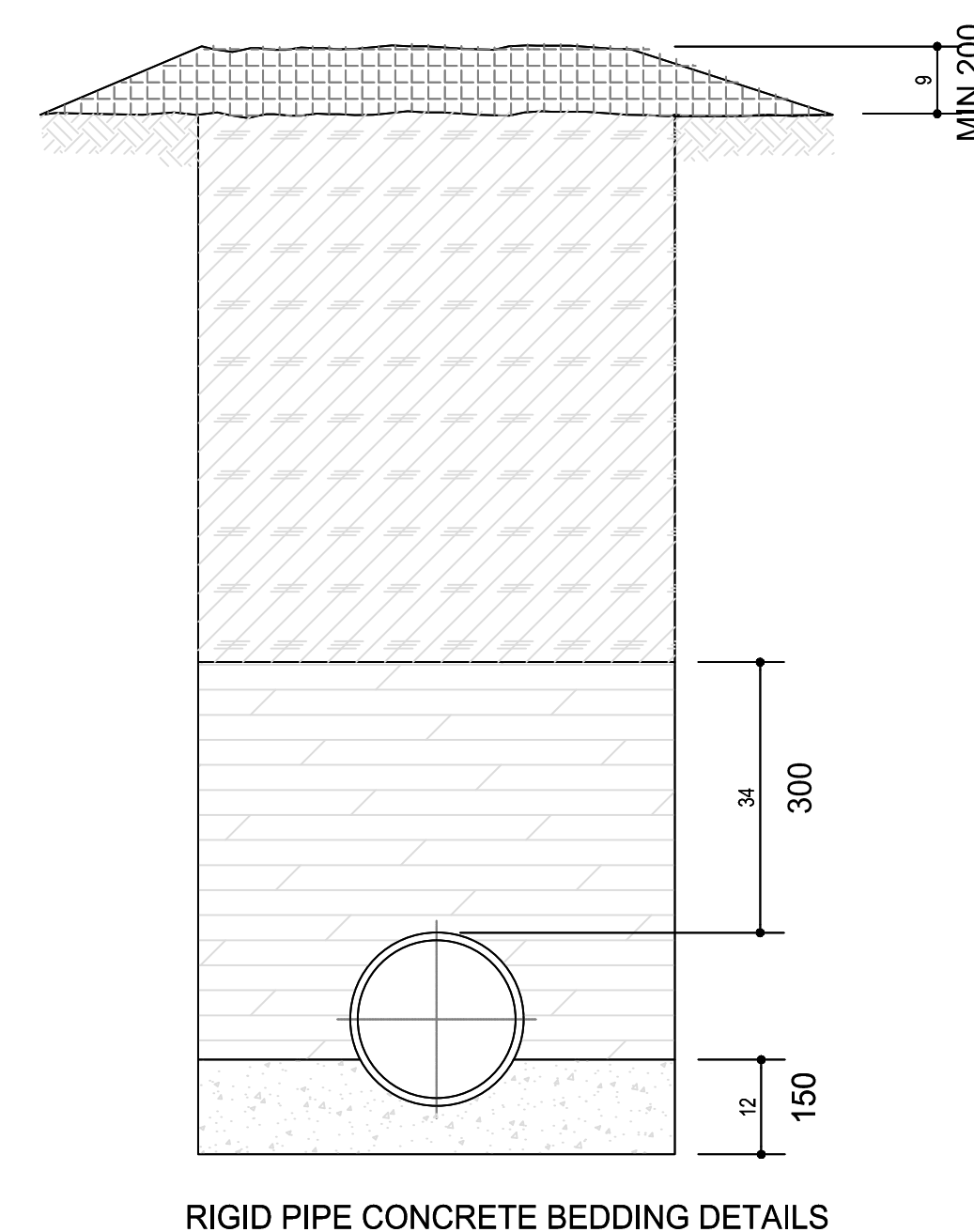
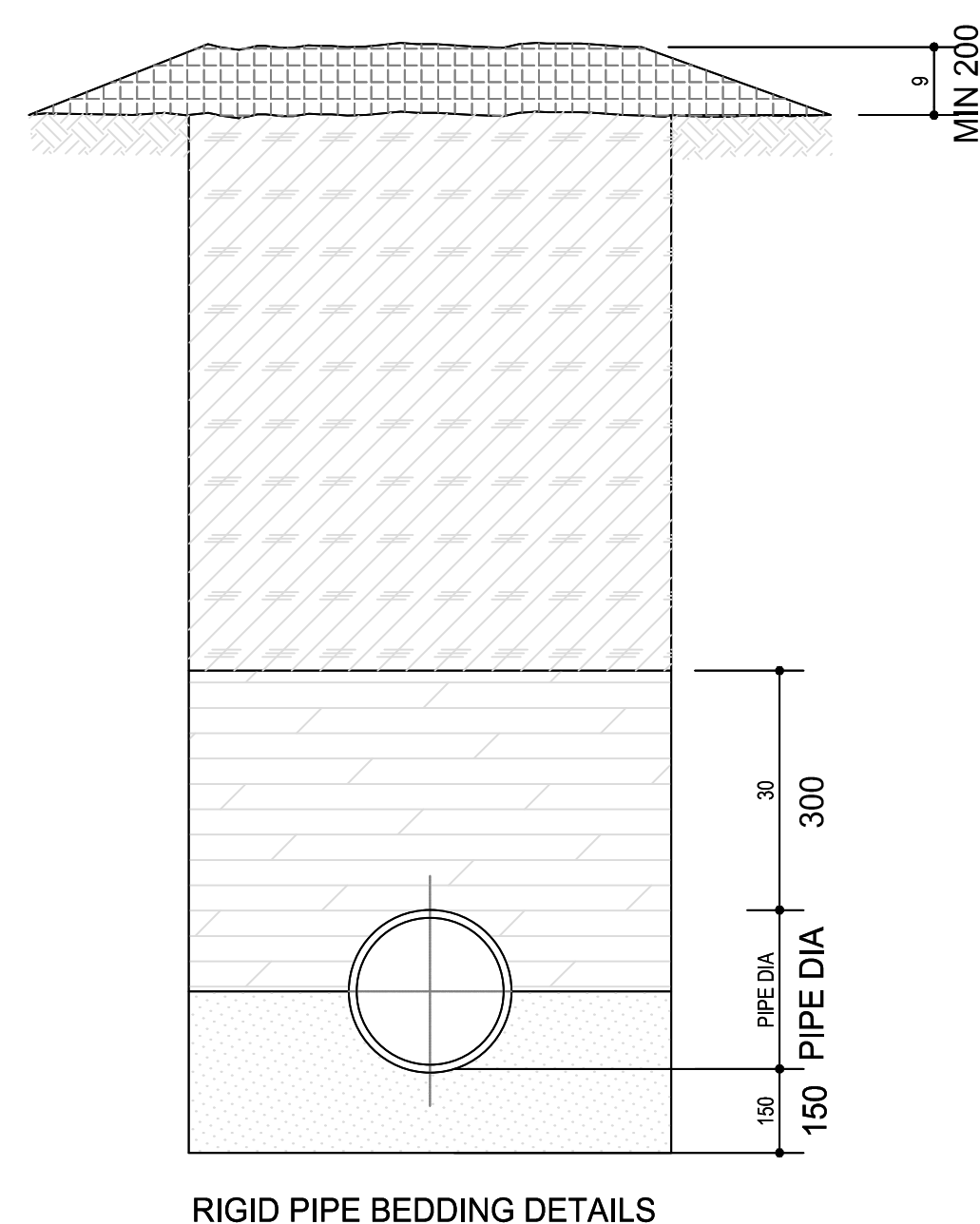
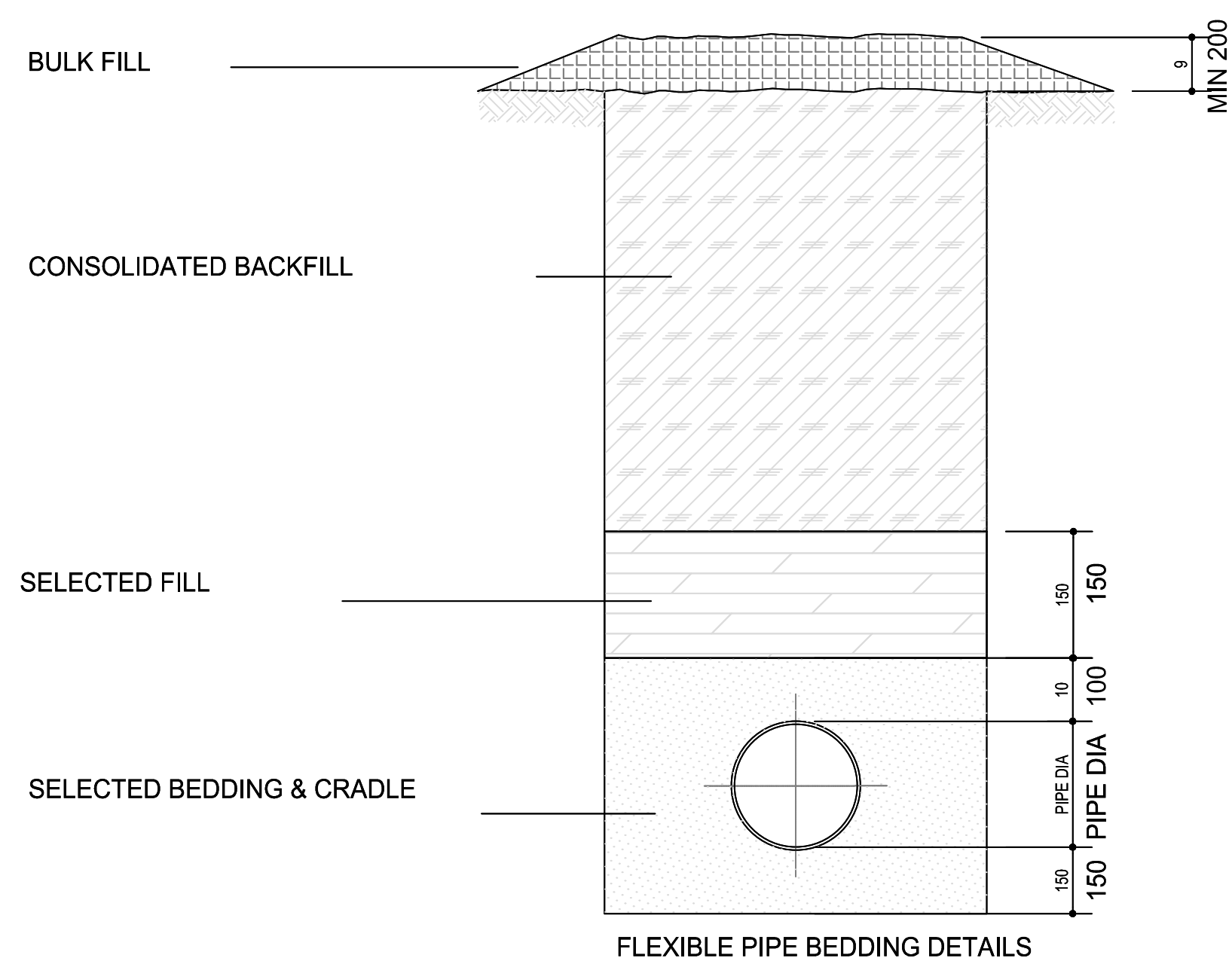
CLIENT	DATE
CONSULTING ENGINEER	DATE



LEKWA LOCAL MUNICIPALITY.

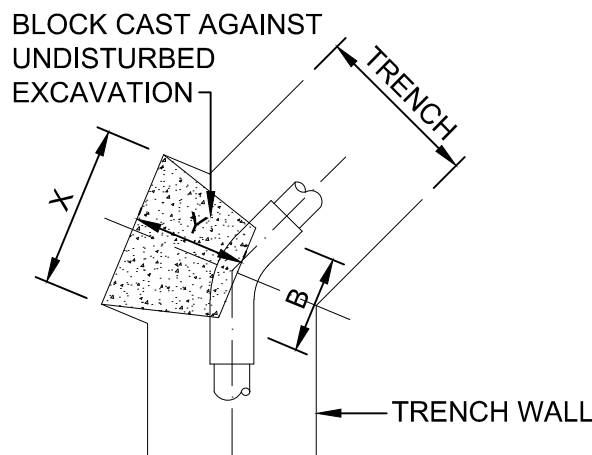
PROJECT DESCRIPTION	UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM PHASE 2: CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER
DRAWING NAME	300KL ELEVATED STEEL TANK PLAN SECTIONS AND CONNECTION DETAILS

PROJECT No	DTS 14/1/2/10	TYPE OF DESIGN	UPGRADING
SCALE	4:1	DRAWING NO.	KIESER-12

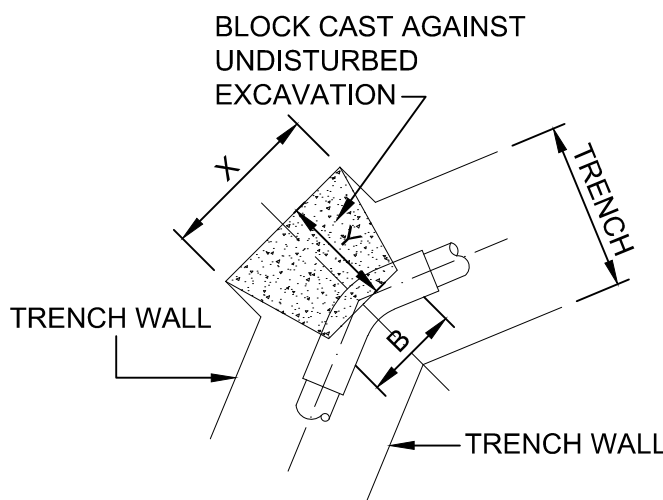


GRADING SPECIFICATION OF MATERIALS	
SELECTED GRANULAR MATERIAL IN BEDDING CRADLE	COMPACTED AT OPTIMUM MOISTURE CONTENT 100mm LAYERS SYMETRICALLY AROUND PIPE TO 90% MOD AASHTO DENSITY GRADING 0.6mm TO 19mm, PI<10, CF<0.4 REFER SABS 1200 DB&LB
SELECTED FILL BLANKET MATERIAL	FILL BLANKET 200mm THICK COMPACTED AT OPTIMUM MOISTURE CONTENT IN 100mm LAYERS TO 90% MOD AASHTO DENSITY 100% THROUGH 30mm SIEVE, PI<6 REFER SABS 1200 DB&LB
DEPTH VARIES – COMPACTED IN 150mm LAYERS AT OPTIMUM MOISTURE CONTENT TO 93% MOD AASHTO DENSITY UNDER ROAD CROSSINGS 100% SMALLER THAN 150mm, PI<12, CBR>15 REFER SABS 1200 DB&LB	

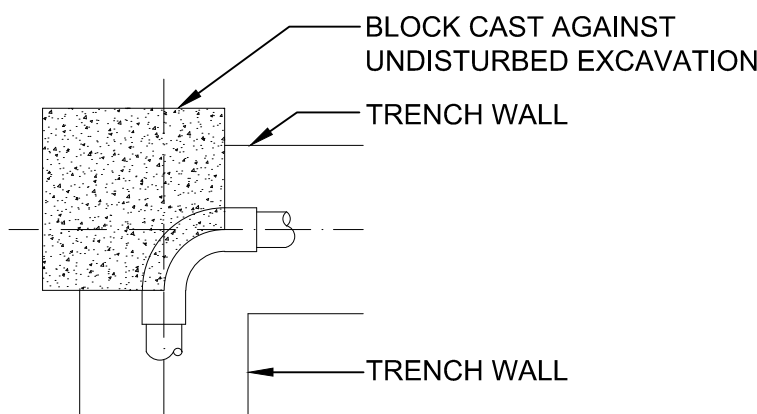
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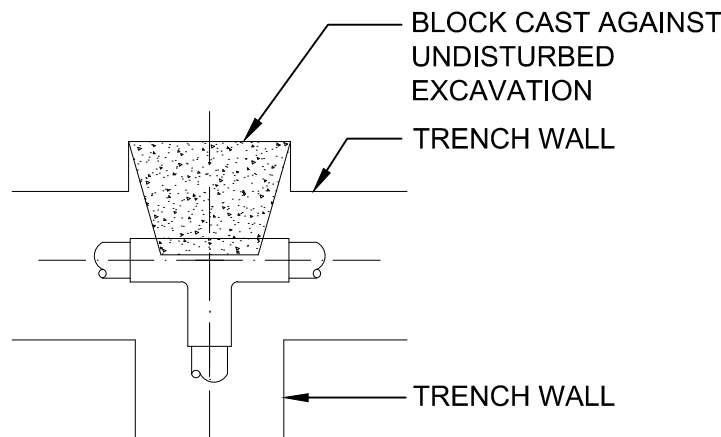
THRUST BLOCK FOR 45° BEND							
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	DIMENSIONS (mm)				AREA PROVIDED m²	VOL m³
		B	Z	X	Y		
75	0.061	301	401	401	350	0.160	0.049
110	0.109	301	501	501	375	0.250	0.075
160	0.245	301	501	501	401	0.250	0.080
201	0.435	301	601	801	401	0.480	0.132
250	0.680	350	650	1101	450	0.715	0.212
301	0.979	401	701	1401	501	0.980	0.315
301+	SEE NOTE 5						



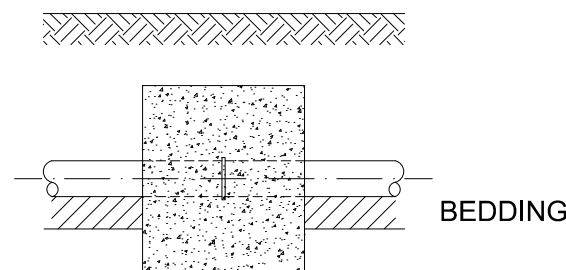
THRUST BLOCK FOR 22.5° BEND							
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	DIMENSIONS (mm)				AREA PROVIDED m²	VOL m³
		B	Z	X	Y		
75	0.031	301	401	401	350	0.160	0.049
110	0.055	301	501	501	375	0.250	0.075
160	0.124	301	501	501	401	0.250	0.080
201	0.220	301	601	601	401	0.360	0.108
250	0.344	350	650	650	450	0.423	0.146
301	0.496	401	701	801	501	0.560	0.210
301+	SEE NOTE 5						



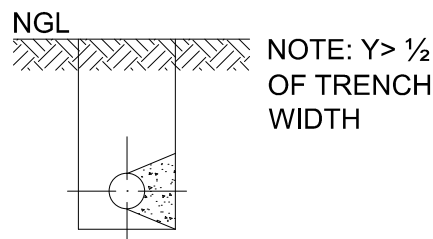
THRUST BLOCK FOR 90° BEND						
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	DIMENSIONS (mm)			AREA PROVIDED m²	VOL m³
		Z	X	Y		
75	0.078	401	350	350	0.140	0.049
110	0.139	501	380	375	0.190	0.072
160	0.314	501	650	401	0.330	0.211
201	0.576	601	1010	401	0.601	0.601
250	0.871	650	1450	450	0.910	1.274
301	1.225	701	1801	501	1.260	2.268
301+	SEE NOTE 5					



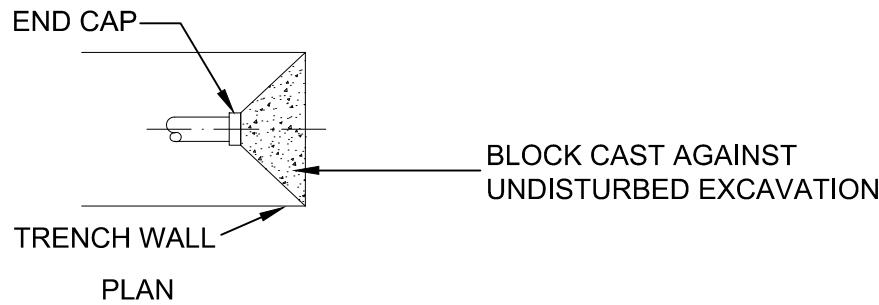
THRUST BLOCK FOR TEE-PIECE							
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	DIMENSIONS (mm)				AREA PROVIDED m²	VOL m³
		B	Z	X	Y		
75	0.079	150	401	1401	350	0.160	0.039
110	0.141	201	501	501	375	0.250	0.066
160	0.318	301	501	701	401	0.350	0.101
201	0.565	301	601	1010	401	0.601	0.156
250	0.883	350	650	1401	450	0.910	0.256
301	1.272	401	701	1901	501	1.330	0.403
301+	SEE NOTE 5						



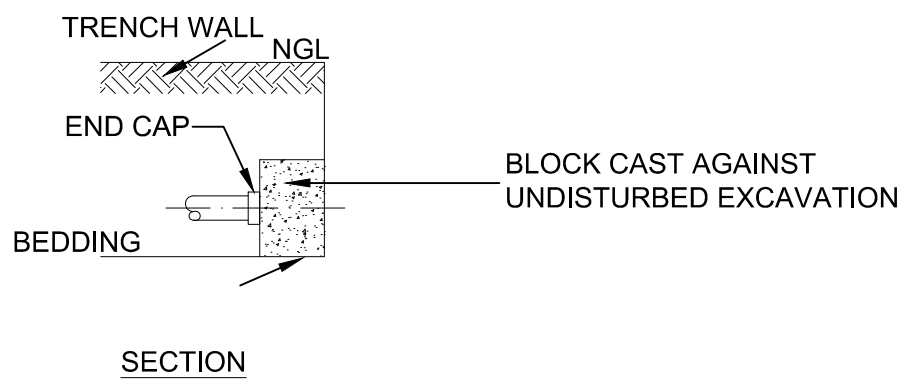
THRUST BLOCK FOR PUDDLE FLANGE							
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	TRENCH WIDTH mm	DIMENSIONS (mm)			AREA PROVIDED m²	VOL m³
			X	Y	Z		
75	0.078	475	875	501	575	0.410	0.25
110	0.139	501	901	501	601	0.420	0.27
160	0.312	550	950	701	650	0.450	0.42
201	0.555	601	1010	701	901	0.740	0.61
250	0.867	650	1250	101	950	0.950	0.14
301	1.250	701	1501	1010	1010	1.250	1.43
301+	SEE NOTE 5						



75 AND 110mm Ø PIPES



160 AND 201mm Ø PIPES



250 AND 301mm Ø PIPES

THRUST BLOCK DEAD END							
NOMINAL PIPE DIAMETER Ø mm	AREA REQUIRED m²	DIMENSIONS (mm)				AREA PROVIDED m²	VOL m³
		B	Z	X	Y		
75	0.078	75	301	475*	201	0.140	0.017
110	0.139	101	301	501*	201	0.150	0.018
160	0.312	150	601	550*	201	0.330	0.063
201	0.555	201	950	601*	201	0.570	0.076
250	0.867	250	701	1250	501	0.880	0.263
301	1.248	301	750	1701	701	1.280	0.525
301+	SEE NOTE 5						



LEKWA LOCAL MUNICIPALITY.

PROJECT DESCRIPTION

UPGRADING OF THE STANDERTON BULK WATER SUPPLY SYSTEM
PHASE 2: CONSTRUCTION OF KIESER RESERVOIR AND PRESSURE TOWER

DRAWING NAME

THRUST BLOCK DETAILS

PROJECT No

DTS 19/2021/2022

TYPE OF DESIGN

UPGRADING

SCALE

4:1

DRAWING NO.

KIESER-16

GENERAL NOTES:

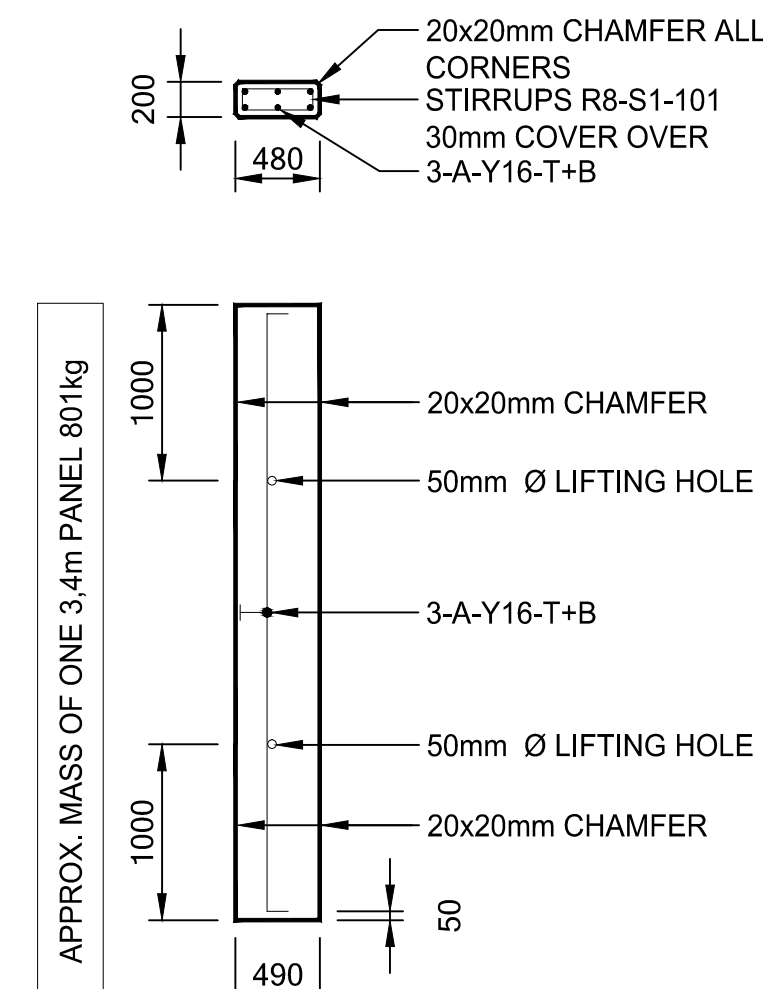
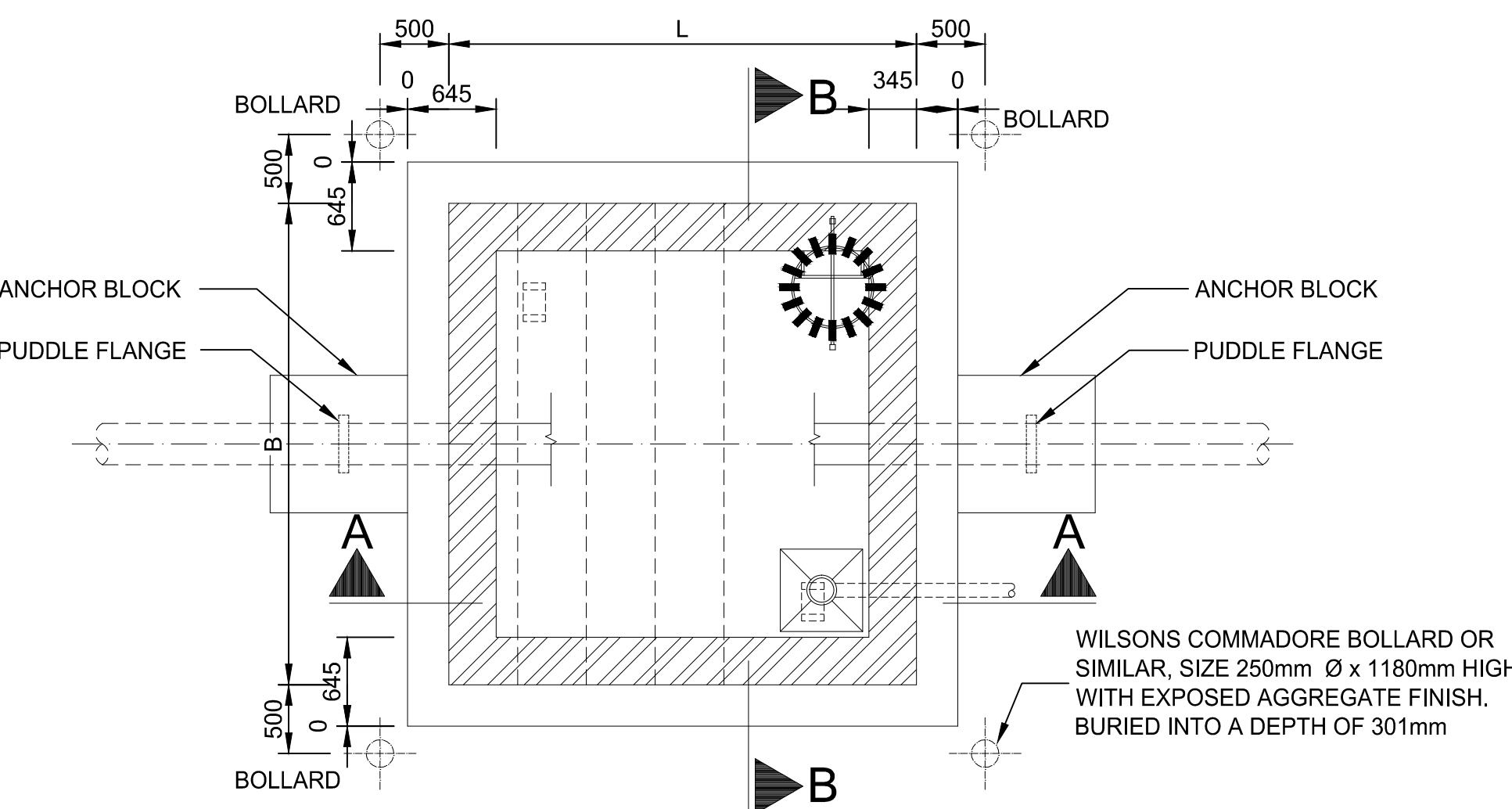
1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED)
3. DO NOT SCALE FROM THESE DRAWINGS.
4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2015 AND THE STANDARD COT DETAIL DRAWINGS.
6. THIS DRAWING MUST BE READ IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, SERIES 3 & 4 AND WATER AND SANITATION GUIDELINE.
7. FINAL POSITION OF SERVICES TO BE DETERMINED ON SITE.

SPECIFICATION NOTES:

CONCRETE THRUST BLOCKS

1. THRUST BLOCK DIMENSIONS ON THIS DRAWING ARE ONLY APPLICABLE IF UNDER THE FOLLOWING CONDITIONS:
 - UNDISTURBED SAND-GROUND MIXTURES OR DENSE UNIFORM SAND WITH A BEARING CAPACITY OF AT LEAST 150kPa.
 - UNSUBMERGED CONDITIONS
 - MAXIMUM INTERNAL PIPE PRESSURE OF 18 Bar.IF THE CONTRACTOR IS NOT IN A POSITION TO IDENTIFY THE ABOVE CONDITIONS, USE SHALL BE MADE OF AN ENGINEERING GEOLOGIST OR ENGINEER
2. CONCRETE PUDDLE FLANGES 25/19
OTHER 15/19
3. HALF THE DEPTH OF THE THRUST BLOCK TO BE PLACED BELOW THE PIPE AXIS.
4. KEEP CONCRETE AWAY FROM THE COUPLINGS AND THE PIPE JOINTS.
5. THRUST BLOCKS FOR PIPE Ø LARGER THAN 301mm & HIGHER TEST PRESSURES THAN 18 Bar SHALL BE DESIGNED BY THE ENGINEER.

1. THRUST BLOCK DIMENSIONS ON THIS DRAWING ARE ONLY APPLICABLE UNDER THE FOLLOWING CONDITIONS:
 - UNDISTURBED SAND-GROUND MIXTURES OR DENSE UNIFORM SAND WITH A BEARING CAPACITY OF AT LEAST 150KPa
 - UNSUBMERGED CONDITIONS.
 - MAXIMUM INTERNAL PIPE PRESSURE OF 18 Bar.
- IF THE CONTRACTOR IS NOT IN A POSITION TO IDENTIFY THE ABOVE CONDITIONS, USE SHALL BE MADE OF AN ENGINEERING GEOLOGIST OR ENGINEER.
- IN ALL OTHER CONDITIONS THE ACTUAL IN-SITU BEARING PRESSURE SHALL BE CALCULATED AND THE THRUST BLOCK DESIGNED BY THE ENGINEER.
2. CONCRETE: 25/19
3. HALF THE DEPTH OF THE THRUST BLOCK TO BE PLACED BELOW THE PIPE AXIS.
4. KEEP CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. THRUST BLOCKS FOR PIPE Ø LARGER THAN 301mm & HIGHER TEST PRESSURES THAN 18 BAR SHALL BE DESIGNED BY THE ENGINEER.



(MUST BE ADJUSTED FOR OTHER SIZES)											
NO. EACH	TOTAL NO.	SIZE	MARK	LENGTH	SHAPE	A	B	C	D		
FIXED SLAB											
8	8	Y16	A	3550	38	150	3301			A	B
4	4	Y16	B	2550	38	150	2301		A	B	
17	17	Y10	D	1301	20	1301				A	
3	3	Y10	E	401	20	401				A	
2	2	Y20	F	1501	20	1501				A	
LOOSE PANELS (4 OF)											
6	24	Y16	A	3550	38	150	3301			A	B
34	136	R8	S1	1301	60	140	430			A	B

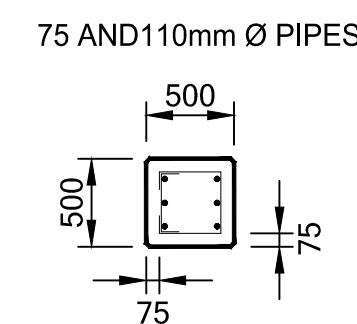
- SOIL DENSITY = 1801kg/m³
- SOIL I_{active} = 0,4
- MAX WATERTABLE = 1,0m BELOW NGL.
- LIVELOAD
 - VEHICLE ON ROOF < 4501kg GVM
 - le 6kPa LL OR
 - 2 x 14x18m PL 1,0m APART
- SAFE BEARING PRESSURE OF GROUND > 101kPa.

1. ALL MATERIAL AND WORKMANSHIP MUST COMPLY WITH THE REQUIREMENTS OF THE LATEST RELEVANT SABS REQUIREMENTS.
2. ALL DIMENSIONS ARE IN MILLIMETRES. (UNLESS OTHERWISE SPECIFIED)
3. DO NOT SCALE FROM THESE DRAWINGS.
4. ALL DIMENSIONS MUST BE CHECKED AND APPROVED ON SITE.
5. ALL CONSTRUCTION TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR MUNICIPAL CIVIL ENGINEERING WORKS, THIRD EDITION 2015 AND THE STANDARD COT DETAIL DRAWINGS.

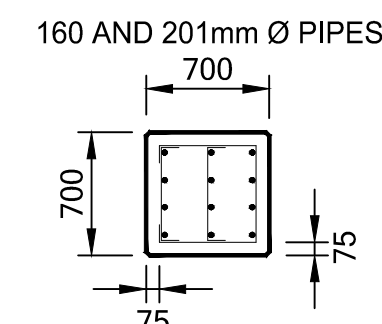
1. BRICKWORK TO BE IN ACCORDANCE WITH SANS 0164: PART 1 1980.
2. CLASS II MORTAR TO BE USED, (1 CEMENT CEM, 1.5 SAND)
3. BRICKS TO HAVE A CHARACTERISTIC COMPRESSIVE STRENGTH OF 14MPa.
4. CONCRETE FOR SLABS TO BE CLASS 25/19.

- SOIL DENSITY = 1801kg/m³
- SOIL γ_{active} = 0,4
- MAX WATERTABLE = 1,0m BELOW NGL
- LIVELOAD
 - VEHICLE ON ROOF < 4501kg GVM
 - 10 GPa LL OR
 - 2 x 14kN PL 1,0m APART
- SAFE BEARING PRESSURE OF FOUNDATION > 101kPa.

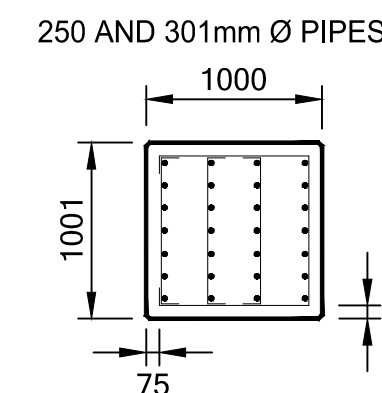
THRUST BLOCK THICKNESS = 501x501mm
HORIZONTAL STEEL : Y10 @ 201
VERTICAL STEEL : 2 LAYERS Y10 @ 201



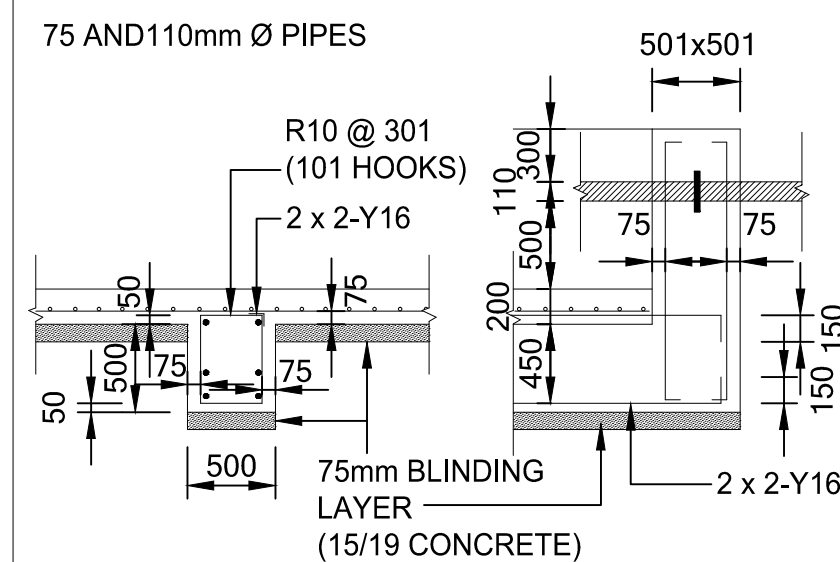
THRUST BLOCK THICKNESS = 701x701mm
HORIZONTAL STEEL : Y12 @ 201
VERTICAL STEEL : 3 LAYERS Y12 @ 201



THRUST BLOCK THICKNESS = 1010x1010mm
HORIZONTAL STEEL : Y12 @ 150
VERTICAL STEEL : 4 LAYERS Y12 @ 150



REINFORCEMENT DETAILS FOR BEAMS



NOTE: MINIMUM SPLICE ON Y16 = 1010mm
ALL HOOKS = 101mm

(IN TERMS OF CLAUSE 9 (2) OF THE CONSTRUCTION REGULATIONS 2013)

NOTES:

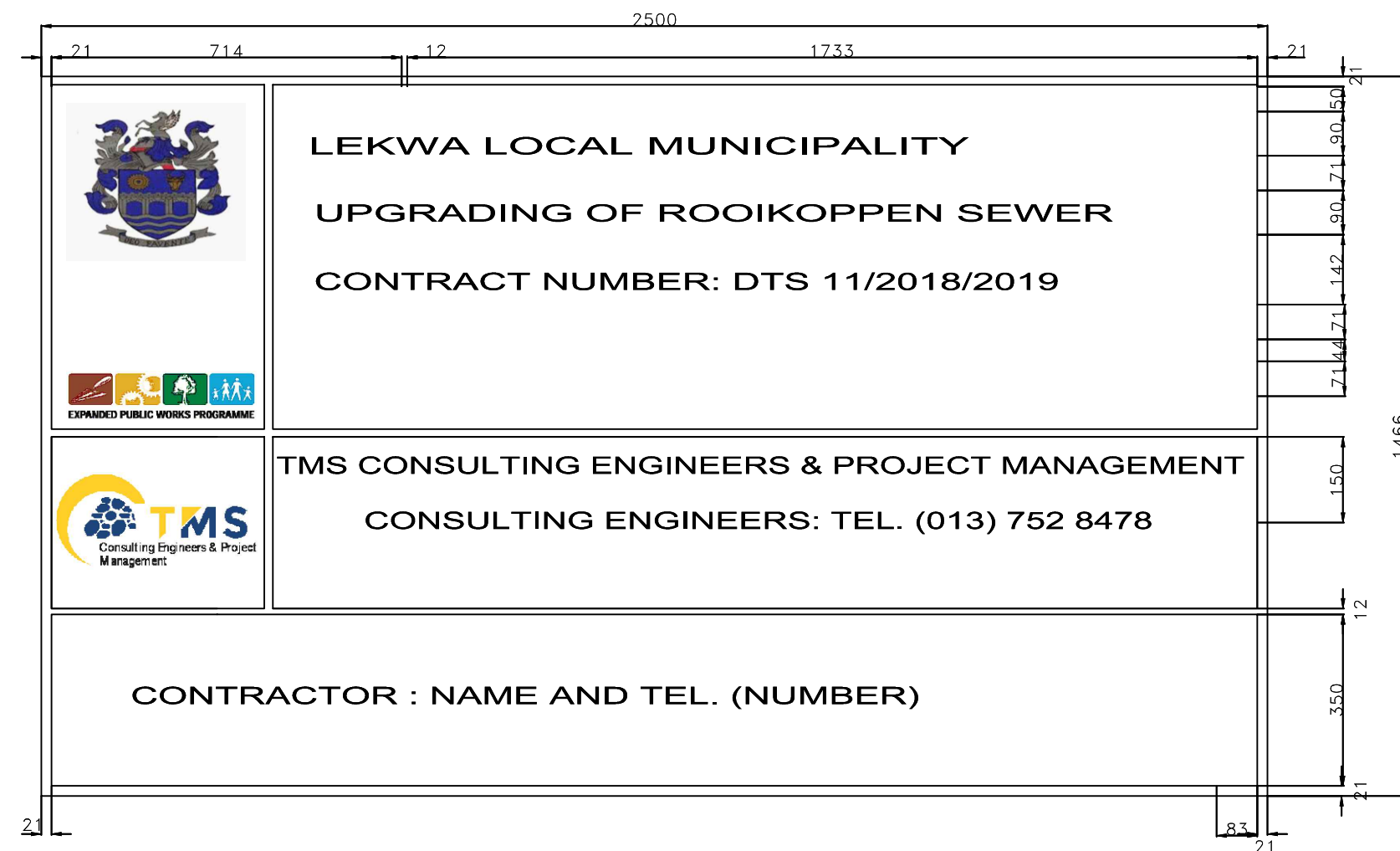
1. METHOD STATEMENTS REQUIRED FOR BLASTING AND DEMOLITION OF STRUCTURES, (CLAUSE 11.3)(k)
2. INPUT FROM COMPETENT PERSON REQUIRED FOR STABILITY OF EXCAVATIONS, (CLAUSE 11.3)(b)

[illegible]

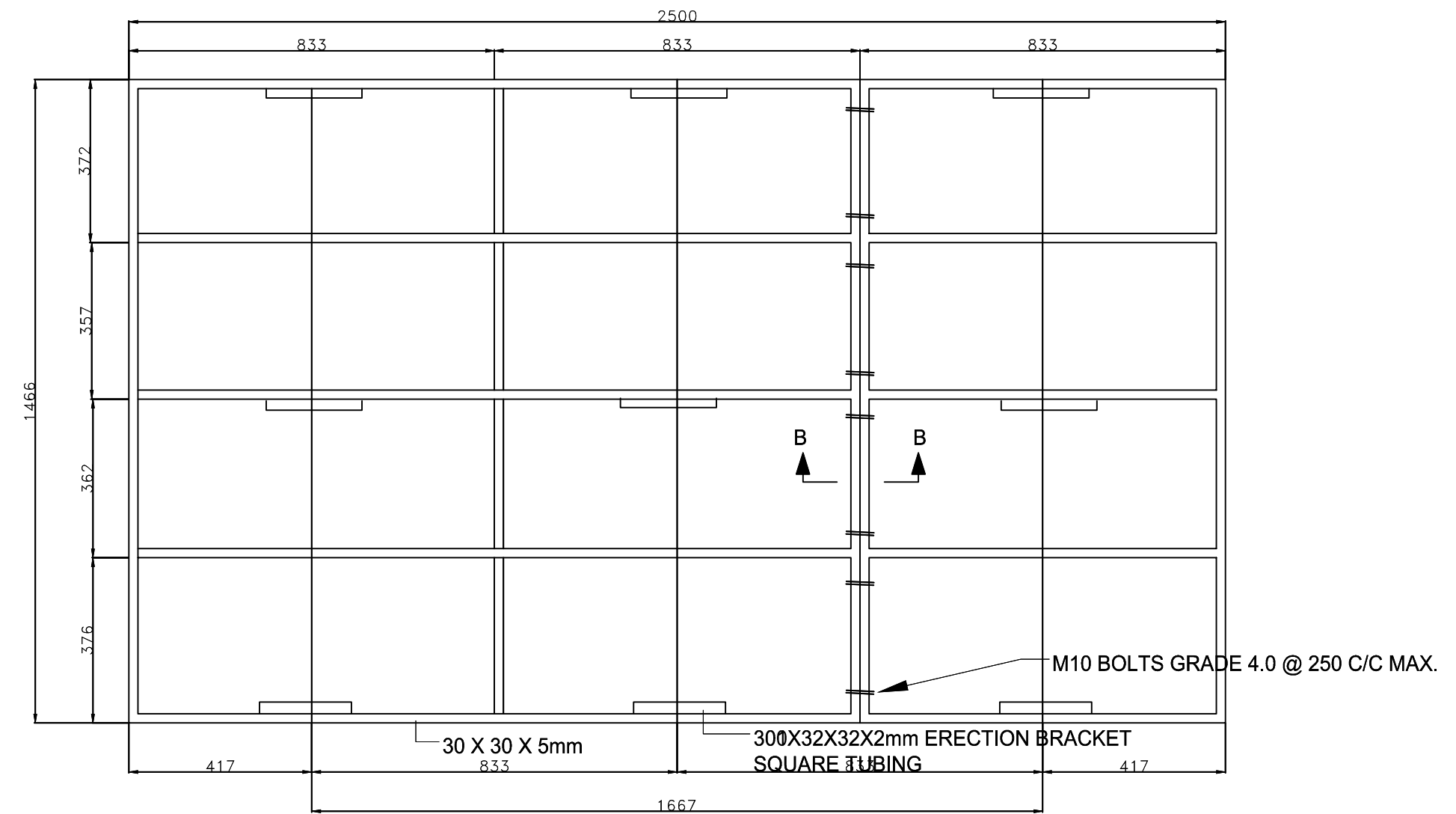


1. NEW INLET AND OUTLET STRUCTURES MAY ONLY BE CONSTRUCTED WHERE INSTRUCTED BY THE ENGINEER.
2. THE UPPER LEVEL OF THE FILL ALWAYS PASSES AT A POINT 50mm BELOW THE TOP OF THE HEAD WALL.
3. WHERE MORE THAN ONE CONCRETE PIPE CULVERT IS BUILT INTO THE SAME HEADWALL, THE SPACING BETWEEN THE CENTRE OF THE PIPES SHALL BE $ID+2t_w+450mm$.
4. WHERE THE TOP OF THE HEAD WALL IS LESS THAN 501mm BELOW THE SHOULDER BREAKPOINT, THE TOP OF THE WALL SHALL BE CONSTRUCTED AT THE SAME LONGITUDINAL GRADIENT AS THAT OF THE ROAD.
5. FOR SKEW PIPE CULVERTS THE HEADWALL SHALL BE PARALLEL TO THE CENTRE LINE OF THE ROAD.
6. PRECAST CONCRETE BLOCKS AND STONE PITCHING TO BE PROVIDED WHERE INSTRUCTED BY THE ENGINEER.
7. EXTENT OF PITCHING TO BE INSTRUCTED BY THE ENGINEER
8. ALL CONCRETE TO BE 20Mpa.

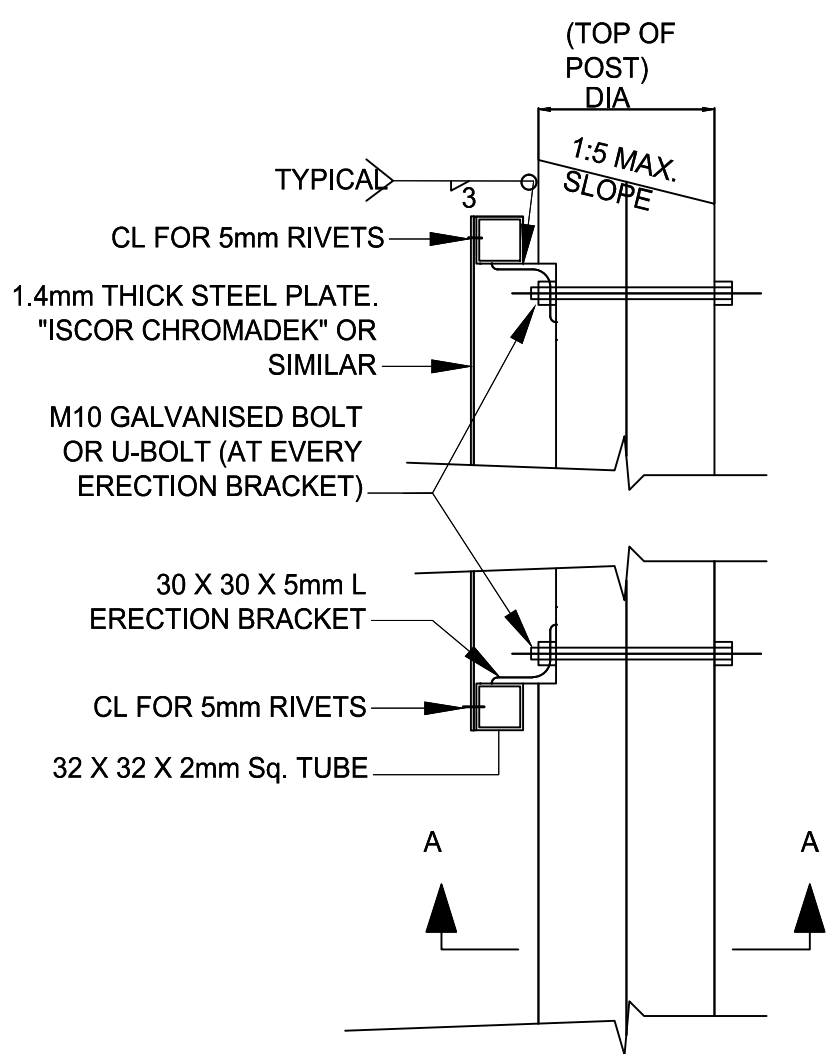
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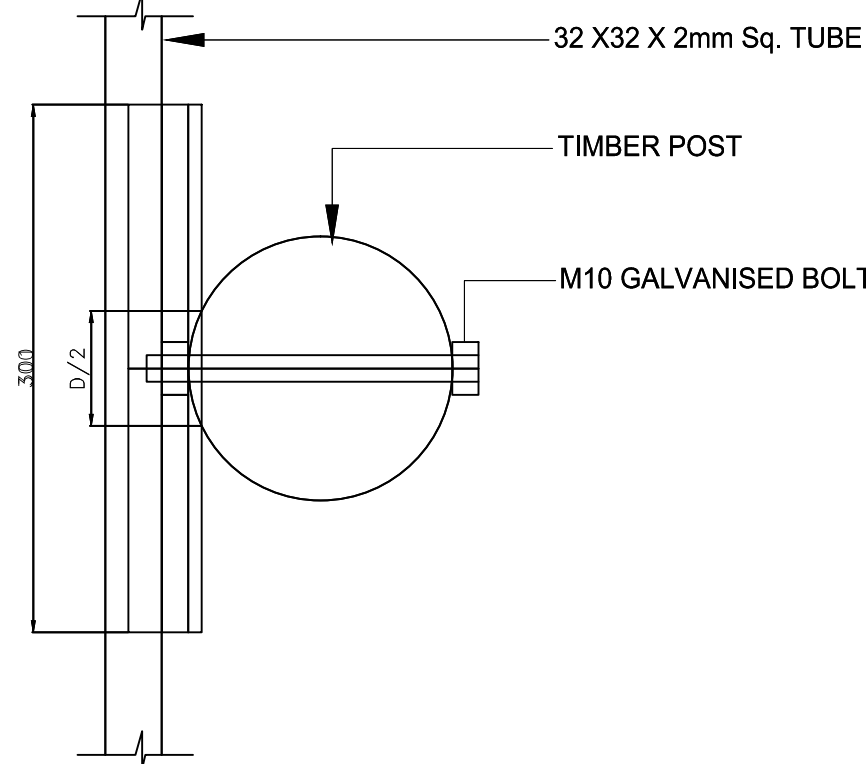
FRONT ELEVATION
1:10



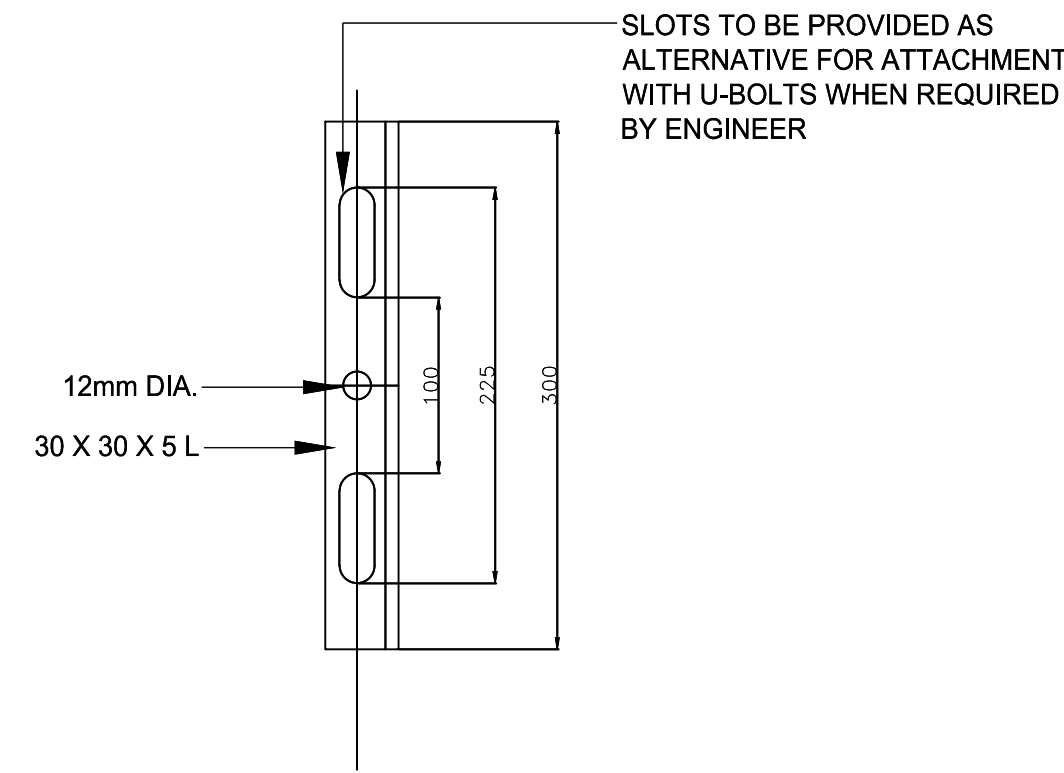
REAR SIDE BRACING
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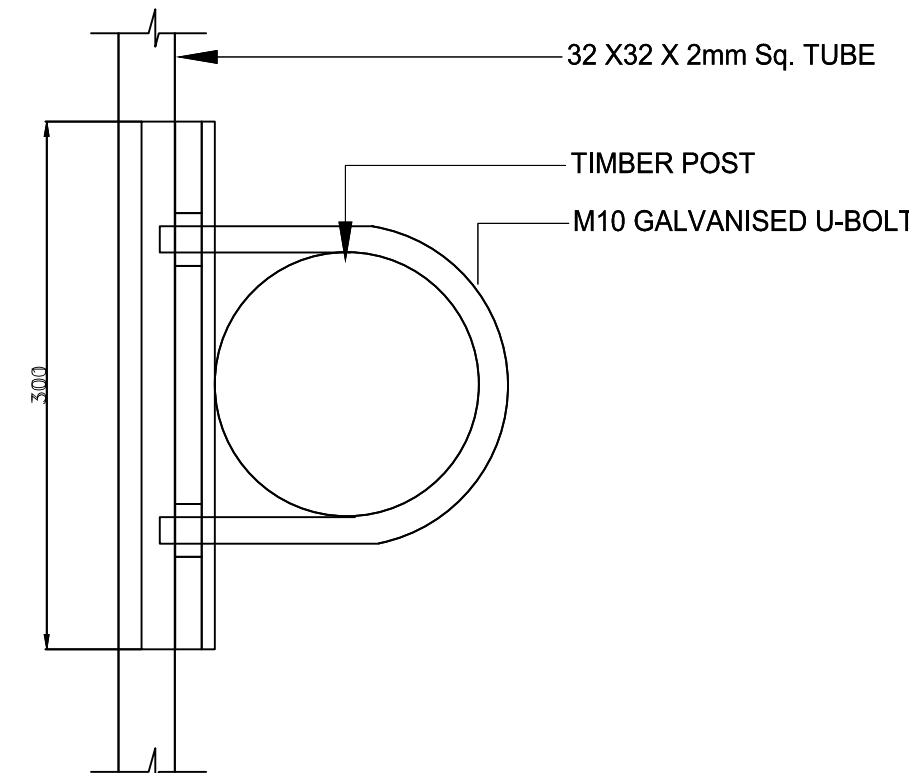
SIDE ELEVATION
NTS



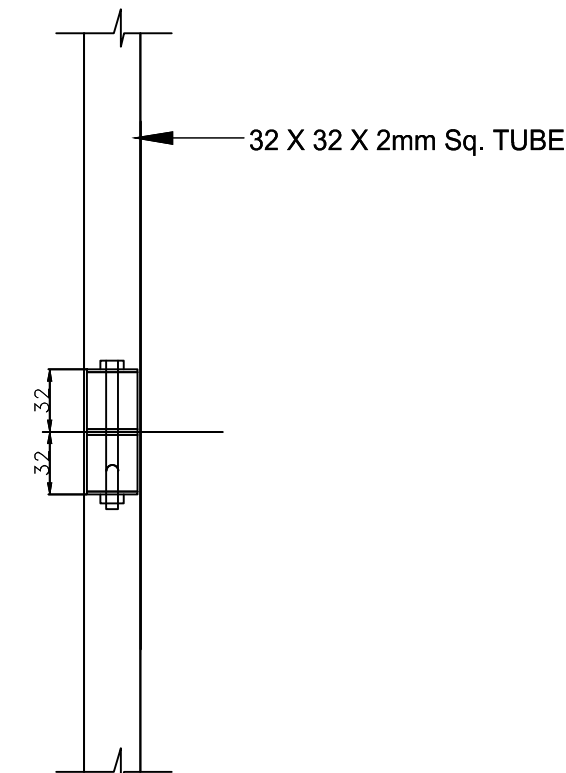
SECTION A-A
NTS



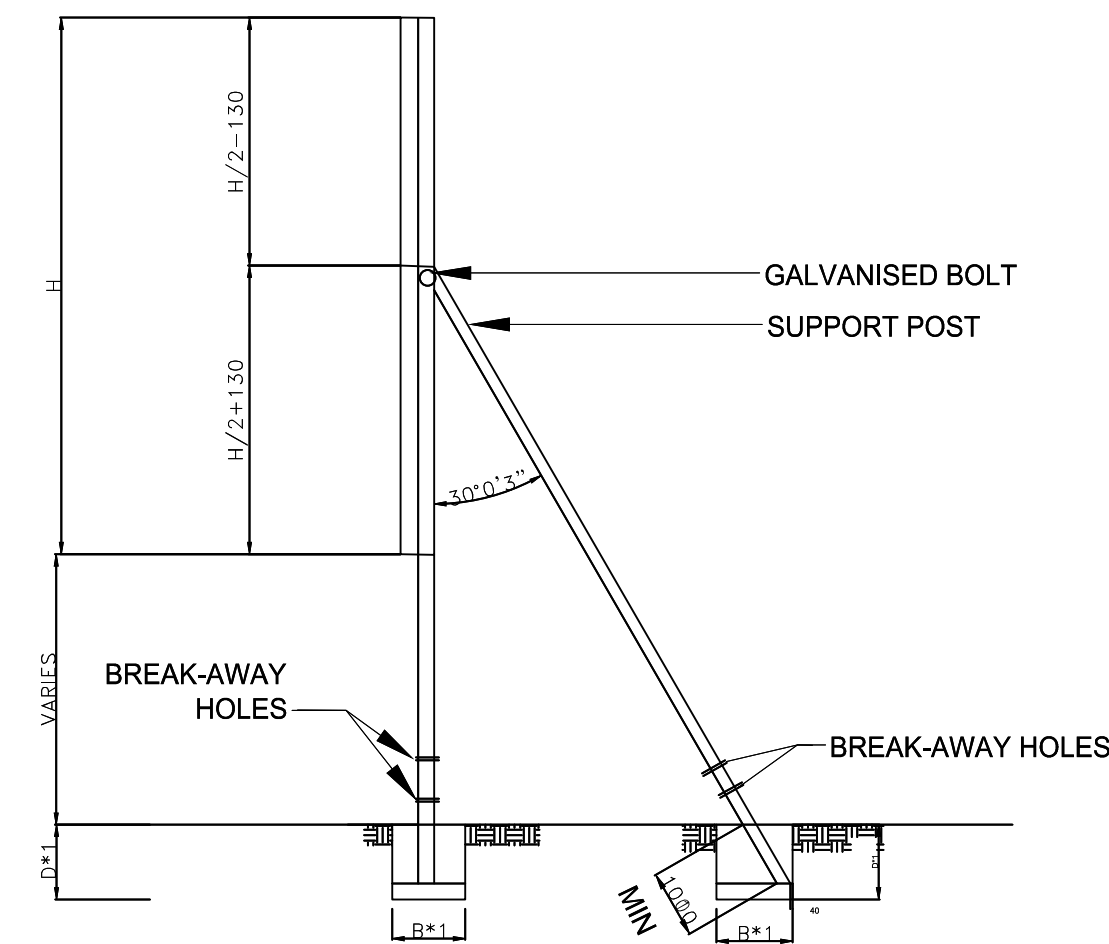
ELEVATION OF
ERECTION BRACKET
NTS



SECTION A-A
(WITH U-BOLT)
NTS



SECTION B-B (AT JOINT OF SIGN)
NTS

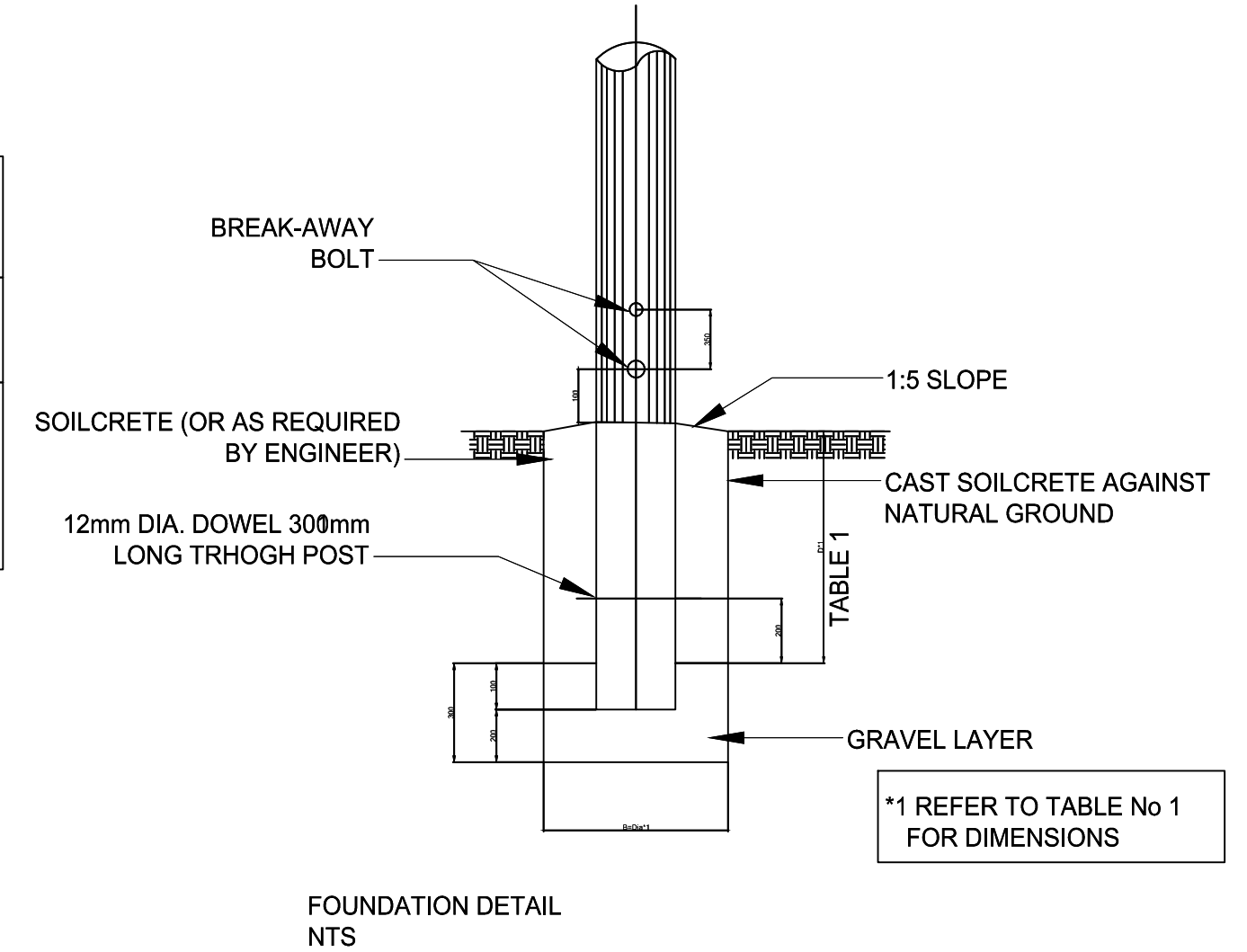


SIDE ELEVATION OF ROAD SIGN
NTS

TABLE 1: DETERMINATION OF POSTS AND FOOTINGS				
ERECTION DETAILS				
TYPE OF POST	UPRIGHT STAY D	B(DIA)		
TIMBER POST AND STAY	100mm	80mm	800mm	850mm
TIMBER POST	180mm	-	1000mm	1450mm
HOLLOW SECTION STEEL POST	100mm x 4mm	-	1000mm	1450mm

- NOTES:
- EMBLEM:
1. ALL EMBLEMS TO BE DISPLAYED IN FULL COLOUR ON A SEMI MATT BACKGROUND.
- LETTERS AND NUMBERS:
2. DESCRIPTION: MATT-BLACK, SERIES DIN B LETTERS AND NUMBERS ON A SEMI MATT SMOKE-GREY BACKGROUND.
- BORDERS:
3. BORDER: GREEN NON REFLECTORIZED.
- QUANTITY:
4. TWO SIGN BOARDS, SHALL BE ERECTED AT POSITIONS AS DETERMINED BY THE ENGINEER.
- DESCRIPTION:
5. DESCRIPTION OF WORK (NUMBER OF KILOMETRES AND TYPE OF WORK, eg. "13.5 km RECONSTRUCTION OF ROAD 2654," DESCRIPTION START CENTERED ON THE LEFT-HAND SIDE AND THE FIRST 105mm-DIMENSION BELOW "NORTHERN"
6. SAFCEC EBLEM ONLY IF CONTRACTOR IS A MEMBER OTHERWISE BLANK.
7. NEW SAACE LOGO TO BE OBTAINED FROM SAACE, JOHANNESBURG.

DETERMINATION OF BREAK-AWAY HOLES	
POLE DIA (mm)	HOLE DIA (mm)
< 140	NONE
141 - 170	40
171 - 200	50
201 - 225	65



FOUNDATION DETAIL
NTS

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