



basic education

Department:
Basic Education
REPUBLIC OF SOUTH AFRICA



INDEPENDENT DEVELOPMENT TRUST

Contract No.: DOEEC/01/2023/2024

A Tender for Category 3CE/GB or higher CIDB Registered Contractors

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS (LADIMIZULU JPS, MVUMELWANO JSS, MPOZA JSS, ZANEMVULA JSS & JONGINKUNDLA JSS)

LOCATED AROUND MTHATHA, OR TAMBO DISTRICT, EASTERN PROVINCE

Name of Tenderer : _____

NAME OF DULY AUTHORIZED PERSON: _____

ADDRESS : _____

TEL. NUMBER : _____

CELL NUMBER : _____

FAX NUMBER : _____

E-MAIL : _____

CRS NUMBER : _____

CSD NUMBER : _____

ISSUED BY:

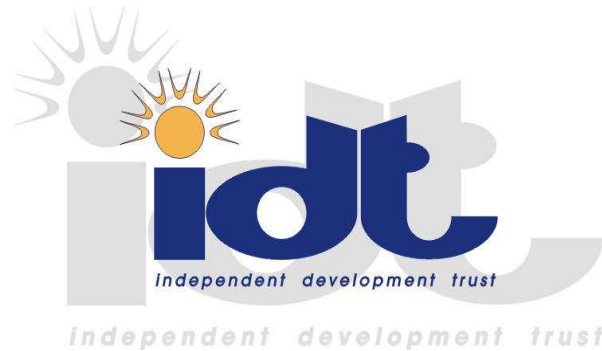
Independent Development Trust

Silverwood House, Bonza Bay Road
Beacon Bay
East London, 5200
Nomnikelo Dyasi
Tel: (043) 711 6024

PREPARED BY:

Mariswe (Pty) Ltd

Clevedon House
2 Clevedon Road
Selborne,
East London, 5201
Wayne Ketteringham
Tel: (043) 721 0186



INDEPENDENT DEVELOPMENT TRUST

The Independent Development Trust on behalf of the National Department of Basic Education hereby invites prospective service providers for the completion of water supply construction projects (Rainwater tanks and stands, elevated water tanks, drinking fountains, boreholes, pump stations, storm water system, etc.). The water programme is a sub-programme of Accelerated Schools Infrastructure Delivery Initiative (ASIDI) water and sanitation programme funded by the National Department of Basic Education.

AT

CLUSTER 1D SCHOOLS (LADIMIZULU JPS, MVUMELWANO JSS, MPOZA JSS, ZANEMVULA JSS & JONGINKUNDLA JSS)

LOCATED AROUND MTHATHA, OR TAMBO DISTRICT, EASTERN PROVINCE

TENDER NO: DOEEC/01/2023/2024

CLOSING DATE: 20 JUNE 2023 @ 11H00

ISSUED

Independent Development Trust

Physical Address,
Silverwood House, Bona Bay Road
Beacon Bay
East London
5200
Contact:
Name: Nomnikelo Dyasi
Telephone: 043 711 6024

PREPARED

MARISWE (Pty) Ltd

Physical Address,
Clevedon House
2 Clevedon Road, Selborne
East London
5240
Contact:
Name: Wayne Ketteringham
Tel: 043 721 0186



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C4	Site Information
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INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

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THE TENDER

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

T1.1 Tender Notice and Invitation to Tender

Completion of ASIDI water supply projects at Cluster 1D schools (Ladimizulu JPS, Mvumelwano JSS, Mpoza JSS, Zanemvula JSS & Jonginkundla JSS).

It is estimated that tenderers should have a CIDB contractor grading of **3CE/GB or higher**

The physical address for **submission** of tender documents is:

INDEPENDENT DEVELOPMENT TRUST OFFICES
Silverwood House, Bona Bay Road
Beacon Bay
East London
5200

Bid Documents which must be completed and submitted are available for download on IDT website: www.idt.org.za/business-opportunities/current-tender-bulletin, iTender, tenders or National Treasury eTender on: www.treasury.gov.za from the **19th May 2023**. All documents must be downloaded and printed by the bidders from the abovementioned sites.

Queries relating to the issues of these documents may be addressed to:

Ms. Nomnikelo Dyasi

Tel No 043 711 6024

E- mail NomnikeloN@idt.org.za

Or

Mr. Wayne Ketteringham

Tel No 043 721 0186

E- mail waynek@mariswe.com

Tender documents to be submitted at the tender box of the IDT office:

INDEPENDENT DEVELOPMENT TRUST OFFICES
Silverwood House, Bonza Bay Road
Beacon Bay
East London
5200

Non-compulsory Clarification Briefing Meeting will take place Virtually via MTeams on the 26th of May 2023 @10:00am. Kindly use the following link to join: Meeting ID: 376 142 125 578 and Passcode: 2XbCEi

The closing date and time for receipt of tenders is **20 June 2023 @ 11h00**.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

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PLEASE NOTE THE FOLLOWING IMPORTANT DATES

- **Non-Compulsory Clarification Meeting: 26 May 2023 @ 10h00**
- **Tender Closing Date: 20 June 2023 @ 11h00**

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INDEPENDENT DEVELOPMENT TRUST

BID NOTICE No: DOEEC/01/2023/2024: 19 May 2023

Note: BID closes on Friday, 20 June 2023 @ 11:00AM

The Independent Development Trust (IDT) on behalf of the Department of Education (DoE) hereby invites prospective service providers to submit bids for the Completion of water supply construction projects located within the Eastern Cape Province listed on the table below:

CIDB tender value range grading as reflected in the Register of Contractors will be used as indicated below:

Cluster	Name of Projects	Town	IDT Project Number	EMiS Number	CIDB Grading	Briefing Meeting	Employer's Agent
1D	Ladimizulu JPS 28,482180 -31,274880	Ugie	DBE01ECAR112	200400349	3CE/GB or higher	A non-compulsory clarification meeting will be held virtually on MSTeams on 26 May 2023 @ 10H00AM	Wayne Ketteringham Mariswe (Pty) Ltd 043 721 0186
	Mvumelwano JSS 28,511120 -31,291390	Ugie	DBE01ECAR115	200400441			
	Mpoza JSS 28,501420 -31,310710	Tsolo & Ugie	DBE01ECAR122	200400649			
	Zanemvula JSS 28,547620 -31,282970	Tsolo	DBE01ECAR105	200401171			
	Jonginkundla JSS 28,607730 -31,272360	Tsolo	DBE01ECAR110	200400297			

A non-compulsory clarification meeting will be held virtually on MSTeams on 26 May 2023 @ 10H00AM.

Kindly use the following MSTeams Link to join: **Meeting ID: 376 142 125 578and Passcode: 2XbCEi**

Bid Documents which must be completed and submitted are available for download on IDT website: www.idt.org.za/business-opportunities/current-tenders or National Treasury eTender on: www.treasury.gov.za from **Friday 19 May 2023**. No bid documents will be sold. All documents must be downloaded and printed by the bidders from the above-mentioned sites.

Bidders shall meet the following compulsory requirements before being evaluated further on functionality, price and specific goals.

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Mandatory Requirements/Documents:

- Required CIDB Grading (**3CE/GB or higher**) equivalent for the works, CIDB grading to be valid & active. JV's to submit consolidated CIDB Grading.
- Valid Letter of Good Standing (Workman's Compensation, COIDA) or FEM Letter of Good Standing. If JV all partners must submit with Compensation for Occupational Injuries and Diseases Act (COIDA) Registration Certificate.
- A detailed CIPC document with ALL the original certified ID's of all directors listed in CIPC within the last 3 months.
- SBD's to be duly completed and signed: - **SBD1, SBD4, SBD6.1, SBD6.2**, under Part 2 (T2.2). All blank spaces must be completed. Bidders to indicate items that are not applicable.
- SBD 6.2 (Fully & Duly Completed and Signed Local content form (SBD 6.2) including all the annexures C, D & E. Bidders must return Annexure C. All blank spaces must be completed. Bidders to indicate items that are not applicable).
- Resolution for signatory.
- Signed joint venture agreement (if applicable).
- Fully completed and signed form of offer and acceptance.
- Fully completed bill of quantities (**Must use BLACK INK only. No erasable inks allowed**).
- Acknowledgement of Record of Addenda.

NB: Failure to comply with any of the above-mentioned requirements will result in automatic disqualification of the bid response.

- If any of the Directors are in the employment of the state, shall result in the disqualification of the bid.**
- If any of its Directors are listed on the register of defaulters, shall result in disqualification of the bid.**
- In case of a bidder, who during the last 10 years has been terminated on previous contracts with the IDT, shall result in disqualification of the bid.**

Non-Mandatory Returnable Documents:

- CSD documents/report (if JV submit both CSDs or for JV)
- Valid Tax Clearance or SARS PIN (if JV each partner to submit either SARS PIN or Valid Tax Clearance Certificates)
- Originally certified SANAS Accredited BBBEE Certificate or original sworn affidavit. Joint Ventures (JV) must submit an original certified copy of a consolidated B-BBEE status level, by a Verification Agency accredited by SANAS, in order to qualify for points for their B-BBEE status level as an unincorporated entity and must Sign the JV agreement.

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Local Production and Content (SBD 6.2)

1. Bidders are hereby notified that the minimum threshold for local production and content for construction materials is tabulated below. Bidders are to identify components relevant for the scope of work bidding for.

Description of Service (Construction Materials)	Stipulated Minimum Threshold
PVC Pipes	100%
Reinforcing bars	100%
Steelwork	100%
Fencing material (security fence, pedestrian gate)	100%
Gutters and Downpipes	100%
Water taps	100%
Fascia boards	100%
Polyethylene water tanks	100%
Water pump	100%
Accessories	100%
HDPE pipes	100%
Electrical cables	100%

2. Bidders are further notified that bids in respect of steel and components for construction must contain a specific bidding condition which states that:
- 2.1 Only locally produced or locally manufactured steel products and components for construction with a stipulated minimum threshold for local production and content will be considered.
- 2.2 If the quantity of steel products and components for construction required cannot be wholly sourced from South African (SA) based manufacturers and/or at the designated local content threshold stipulated in the above table at any time, bidders and the procuring entities should obtain a written exemption from the DTI. The DTI, in consultation with the procuring organ of state and the local industry, will consider the exemption applications on a case-by-case basis.
- 2.3 Bidders must clearly indicate in their bids the quantities to be supplied and the level of local content for each product.
3. The exchange rate to be used for the calculation of local production and content must be the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of bid; and only the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 must be used to calculate local content.
4. The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the formula disclosed in SBD 6.2 inserted in the bid document.

Preferences are offered to Tenderers who have a proven track record in the building industry with special emphasis on similar facilities. Only Tenderers who are competent in the advertised work, will be evaluated on an 80/20 criteria based on the Treasury Regulations of 2022, where functionality will be evaluated as follows:

Criteria Points Allocation

Evaluation Criteria

STAGE 1 – Functionality -

Bidders are to obtain a minimum of 60 points of the total functionality points to be considered for the next stage.

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FUNCTIONALITY AREA	Points
Previous Experience on similar projects	40
References for above listed similar projects	30
Qualifications & CVs (Competency of Key personnel to be deployed on the project)	20
Programme Schedule	10
Total	100 points

Notes:

DESCRIPTION OF FUNCTIONALITY FOR ALLOCATION OF POINTS:

1. **Previous Experience on similar projects (40 points)**

2. **Client Reference (30 points)**

3. **Qualification & Competencies of Key Staff (20 points)**

A. Qualification of Key Staff to be deployed on the project (12 points))

C. Years of Experience of Key Staff (8 points)

4. **Programme Schedule (10 points)**

STAGE 2 – Price and Specific Goals -

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Women	3	6		
Youth	3	6		
People with Disabilities	2	4		
Black	2	4		

Source Documents to be submitted with the Bid or RFQ

*CIPC Document (Company Registration Document will be required for verification (CIPC DOC))

*Woman (Originally Certified ID Document)

*Youth (Originally Certified ID Document)

*People with Disability (Letter from the Dr. Confirming the Disability)

*Black Ownership (Originally Certified ID Document)

INDEPENDENT DEVELOPMENT TRUST**COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS****TENDER NO. DOEEC/01/2023/2024****(Failure to submit will render Bidder scoring Nil points in this regard)****Specific Goals points are allocated as follows:**

Price	80 points
Specific Goals	20 points
TOTAL	100 points

Bidders that do not get a positive response from the IDT within a period of 90 days from the closing date, should understand that their Bids have not been successful.

For enquiries, please contact:

PROVINCE	CLUSTER	CONTACT PERSON FOR ENQUIRIES	CONTACT NUMBERS	EMAIL ADDRESSES
Eastern Cape	1D	Wayne Ketteringham (Technical)	043 721 0186 MARISWE (Pty) Ltd	waynek@mariswe.com
		Nomnikelo Dyasi (SCM)	043 711 6024 IDT	NomnikeloN@idt.org.za

DEPOSIT/RETURN OF BID DOCUMENTS:

- Telegraphic, telephonic, telex, facsimile, electronic and/or late bids will not be accepted
- Requirements for sealing, addressing, delivery, opening and assessment of bids are stated in the Bid Data document
- All bids must be submitted on the official forms – (not to be re-typed)
- Bids will not be opened in public

BID DOCUMENTS MAY BE POSTED TO: N/A	OR	DEPOSITED IN THE BID BOX AT: INDEPENDENT DEVELOPMENT TRUST, PALM SQUARE BUSINESS PARK, SILVERWOOD HOUSE, BONZA BAY ROAD, BEACON BAY, EAST LONDON
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T1.2 Tender Data

The conditions of tender are the Standard Conditions of Tender as contained in Annex F of the CIDB Standard for Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data.

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

The additional conditions of tender are:

Clause number Tender Data for BID NO: DOEEC/02/2023/2024

- F.1.1 The employer is the **Independent Development Trust, Eastern Cape**
- F.1.2 The tender documents issued by the employer comprises:
- Part T1: Tender Procedures**
- T1.1 Tender notice and invitation to tender
- T1.2 Tender data
- T2.1 List of returnable documents
- Part T2: Returnable Documents**
- T2.2 Returnable schedules
- Part C1: Agreements and contract data**
- C1.1 Form of offer and acceptance
- C1.2 Contract data
- C1.3 Form of Guarantee
- C1.4 Adjudicator's appointment
- Part C2: Pricing data**
- C2.1 Pricing instructions
- C2.2 Bills of Quantities
- Part C3: Scope of work**
- C3.1 Description of the Works
- C3.2 Variation Engineering
- C3.3 Procurement
- C3.4 Construction
- C3.5 Management
- C3.6 Amendments to Standard Specifications
- C3.7 Technical and Particular Specifications
- Part C4 : Site information**
- C4 Site information
- Part C5 : Annexures**
- F.1.4 The employer's agent is:
- Name: **Mariswe (Pty) Ltd**
- Address: Clevedon House, 2 Clevedon Road, Selborne, East London, 5201
- Tel: 043 721 0186
- Fax: N/A
- E-mail: waynek@mariswe.com
- F.2.1 Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **Grade 3CE/GB or higher class** of construction work, are eligible to submit tenders.
- Joint ventures are eligible to submit tenders provided that:
- every member of the joint venture is registered with the CIDB;
 - the lead partner has a contractor grading designation in the Grade **3CE/GB** or higher class of construction work; and

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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 **(3CE/GB or higher) Civil Engineering** class of construction work.

F.2.7 There shall be a **non-compulsory clarification meeting to be held Virtually on MTeams on FRIDAY the 26th of MAY 2023 at 10H00AM.**

F.2.12 No alternative tender offers will be considered.

F.2.13.3 Parts of each tender offer communicated on paper shall be submitted as one original (i.e. no copies should be submitted).

F.2.13.5 The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:

Location of tender box: Physical address: -

INDEPENDENT DEVELOPMENT TRUST OFFICES

Silverwood House, Bonza Bay Road
Beacon Bay
East London
5200

Identification details:

Project no: BID No: DOEEC/01/2023/2024

Title: COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

F.2.15 The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender.

Closing date: 20 June 2023

Closing time: 11h00

F.2.15 Telephonic, Telegraphic, Telex, Facsimile or E-mailed tender offers will not be accepted.

F.2.16 The tender offer validity period is **90 (Ninety) days**.

F.2.17 The contract duration is **4 Months** from date of Site Handover.

F.2.23 The tenderer is required to submit with his tender a Certificate of Contractor Registration issued by the Construction Industry Development Board; Compensation of Injury Diseases Act certificate (COIDA) and a valid Tax Clearance Certificate issued by the South African Revenue Services.
Where a tenderer tenders through joint venture formation, such tenderers should include a joint venture agreement duly signed by each partner and stamped by commissioner of oath.

F.3.4 Tenders will not be opened immediately after the closing time, they will be posted on the IDT Website within 7 days of closure.

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F.3.11 Tender offers will only be accepted if the following are submitted

No	Gate Keeper (Compulsory) Criteria	Gate Keeper Criteria Description
1	CIPC Document	Detailed CIPC document with ALL the original certified ID's within a period of 3 months of all directors listed in CIPC.
2	Proof of authority to sign the document must be submitted e.g. company resolution.	Proof of authority to sign the document must be submitted on Company Letterhead e.g. company resolution.
3	Letter of good standing/Copy of registration (COIDA/FEM) from the Department of Labour	Valid Letter of Good Standing (Workman's Compensation, COIDA) or FEM Letter of Good Standing. If JV all partners must submit.
4	CIDB Grading Certificate.	Required valid and active CIDB Grading equivalent for the works. JV's to submit consolidated CIDB Grading.
5	Fully & Duly Completed Detailed Bill of Quantities (BOQ), Written In Black Ink	All items in the original Bill of Quantities must be priced (rates and amounts and totals), written in Ink. No Copies, no correctional fluids, erasable pen or a lead pencil must be used in the BOQ. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties. All blanks spaces to be completed.
6	Consortium / Joint Venture Agreement	If Applicable , JV Agreement signed by all parties of the JV. and signed & stamped by the commissioner of oaths.
7	Duly Completed Form of Offer	Fully & Duly Completed and Signed form of offer and witnessed. All blanks spaces must be completed.
8	Duly completed and signed Invitation to BID, Part A and B (SBD 1)	Fully & Duly Completed and signed Invitation to BID, Part A and B (SBD 1). All blank spaces must be completed. Bidders to indicate items that are not applicable.
9	Bidder's Disclosure (SBD 4)	Fully & Duly Completed and Signed Declaration of Interest Form (SBD 4). All blank spaces must be completed. Bidders to indicate items that are not applicable.
10	Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1)	Fully & Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1). All blanks spaces must be completed. Bidders to indicate items that are not applicable.
11	Duly Completed and Signed Local content form (SBD 6.2)	Fully & Duly Completed and Signed Local content form (SBD 6.2) including all the annexures C, D & E. Bidders must return Annexure C. Annexure D & E to be kept by the bidder for verification/audit upon appointment. All blanks spaces must be completed. Bidders to indicate items that are not applicable. Only locally (South Africa) manufactured product that meet the stipulated minimum threshold for local content will be considered (Preferential Procurement Regulations 2017). A Bid that fails to meet the stipulated threshold for local production and content is unacceptable and will be disqualified.

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12	No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.	No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.
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Instruction notes:

- All blanks spaces must be completed on all the SBD forms.
- Bidders to indicate items that are not applicable to them on all the forms.
- Bidders are advised to fill in the correct information on all the SBD forms.
- Bidders are encouraged to familiarize themselves with the project site in order to assist them in planning, pricing and executing the project.
- All Bidders are required to be registered on CSD (Central Supplier Database) with National Treasury.
- Provide CSD Registration reports with supplier number with the Bid.

4.3.3 Functionality Criteria

Variables	Total Points	Criteria	Description Of Criteria	Points
<u>Functionality Points</u>	100			
Previous Experience on similar scale projects	40	3 or more similar projects and value	Points allocated for proven records of accomplishment based on the similar scale of previous projects executed by tenderer not older than 5 years. • Profile or track record of previous work done which must include relevant projects in nature and value, strictly in the template provided. • Bidders must submit appointment letters and completion certificates for completed projects listed on track record. Failure to submit appointment letter and completion certificates will result in no points being awarded.	40
		2 similar projects and value		25
		1 similar project and value		15
		0 similar project and value		0
References for above listed similar projects	30	3 or more references	• <u>Projects listed under track record are the only ones to be referenced.</u> • Reference must contain Contactable details	30
		2 references		20
		1 reference		10
		0 reference		0

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Variables	Total Points	Criteria	Description Of Criteria	Points
			- Reference letters must be from client (employer) & must indicate the value of project as well as the time frame allocation in completing the project and must be signed and stamped and scored in order to get allocation of points. - Make use of the allocated IDT Reference pages in the tender document only to do referencing. <u>Failure to use IDT reference template will result in no points being awarded</u>	
Qualifications & competencies of key staff	20	Qualification of Key Staff to be deployed on the project	CVs and Original Certified Qualifications of relevant individuals to the project e.g. Project Manager/Contracts Manager, Site Manager/ Agent and Foreman.	12
		Years of Experience of Key Staff		8
Programme schedule	10	Very good	Points allocated for turn-around projects delivery period within the construction period and showing detail scope of work by tenderer/bidder in consideration	10
		Unacceptable		0

Notes:

- Bidders are required to score a minimum point of 60 (60%) for Functionality stated in tender data.
- Bidders who fail to meet the required minimum number of points for functionality stated in the tender data will not be evaluated further.
- Bidders who fail to submit information as per the returnable schedules will not be allocated points.

The functionality will be scored using the following values:

A maximum equal to 100 tender evaluation points will be awarded for quality, sub-divided according to the following:

- 100 points – Quality
 - 40 points – Experience on similar scale projects
 - 30 points – References for above listed similar projects
 - 20 points – Qualifications & CVs (Competency of Key personnel to be deployed on the project)
 - 10 points – Programme Schedule

Experience on similar scale projects:

Value of work evaluation (No points will be allocated for value of works for Transport, Traffic Engineering and all Electrical & Mechanical Projects)

Value of work (3CE/GB)	Rating
3m and above	Very Good
1.1m – 3m	Good
501k – 1m	Satisfactory
251k – 500k	Poor
0 – 250k	Not Considered

Qualifications & Key Personnel

Education	Project Manager/ Construction Manager (List a minimum of 1 for each)	
	Holding a Degree related to the construction Environment	4
	Holding Diploma related to the construction Environment	3
	Holding a Certificate related to the construction Environment	1
	None submission of original certified qualifications	0
Competence	Over 6 Years of experience	2
	Less than 6 Years of experience	1
Site Agent (List a minimum of 1 for each)		
Education	Holding a Degree related to the construction Environment	4
	Holding Diploma related to the construction Environment	3
	Holding a Certificate related to the construction Environment	1
	None submission of original certified qualifications	0
Competence	Over 6 Years of experience	3
	Less than 6 Years of experience	2
Foreman (List a minimum of 1 for each)		
Education	Holding a Degree related to the construction Environment	4
	Holding Diploma related to the construction Environment	4
	Holding a Certificate related to the construction Environment	3
	None submission of original certified qualifications	0
Competence	Over 6 Years of experience	3
	Less than 6 Years of experience	2

Client References

The Tenderer shall provide details of his performance on each of the **previous projects listed in the “Relevant Experience” returnable schedule**. “Client Reference Scorecards” will be completed, signed by each of the respective Clients and principal agents and stamped by both the client and the principal agent for the projects listed in the “Relevant Experience” returnable schedule. Make use of the allocated IDT Reference pages in the tender document only to do referencing. Failure to use IDT reference template will result in no points being awarded.

Contracting Document

The General Conditions of Contract for Construction Works, third edition (2015)

4.3.4. Preferential procurement system

80/20 preferential procurement system to be utilized as per PPPFA 2022. The project is below R50m.

Variables	Total Points	Criteria	Description Of Criteria	Points
<u>Specific Goals</u>	<u>20</u>	Women	Bidders to submit the following documentation for applicable points relative to specific goals to be allocated:	6
		Youth		6
		People with Disabilities		4
		Black		4
			- CIPC Document (Company Registration Document will be required for verification (CIPC DOC) - Woman (Originally Certified ID Document) - Youth (Originally Certified ID Document) - People with Disability (Letter from the Dr.Confirming the Disability) - Black Ownership (Originally Certified ID Document)	
Financial Offer / Price:				
Financial Offer/Price	80	Formula=2 Option 1,A=(1-{p-pm/pm})	Formula used to calculate financial offer/price points	
		Pm=The comparative Price offer of the mean/average quantifying tenderer		
		P=The comparative offer of the tender under consideration		
	100			

T2.1 LIST OF RETURNABLE SCHEDULES

Returnable Schedules required only for tender evaluation purposes (certified copies not older than six months or originals of the following documents):

No	Non Statutory (Non Compulsory) Requirements	Non Statutory (Non Compulsory) Requirements Description
1	Checklist for Tender Submission	Checklist for Tender Submission
2	Details of Tender	Details of Tender
3	Letter of Intent to Provide Security / Guarantee	Letter of Intent to Provide Security/ Guarantee from accredited financial institution
4	Contractor's Health and Safety Declaration	Contractor's Health and Safety Declaration
5	Litigation History	Litigation History – bidder to disclose all the pending litigations against their company
6	Past Projects undertaken by the Tenderer in the last 5 years	Past Completed Projects undertaken by the Tenderer in the last 5 years
7	BBBEE certificate	Points allocated to entities who are contributing towards the empowerment of black people (an Original Sworn Affidavit B-BBEE or SANAS accredited B-BBEE Certificate MUST be submitted with the bid documents before any points can be allocated) Bidders to submit Original Sworn Affidavit B-BBEE or SANAS certified copies not older than 6 months). Joint Ventures / Consortia entities must submit a consolidated B-BBEE certificate from SANAS-Accredited verification agency in order to qualify for points for their B-BBEE status level as an incorporated entity. Sworn affidavits for joint ventures will not be considered.
8	Tenderer's Competence & Performance on Similar Projects	Tenderer's Competence & Performance on Similar Projects
9	Record of Addenda to Tender Documents	Record of Addenda to Tender Documents
10	Proposed amendments and Qualifications	Proposed amendments and Qualifications
11	Method Statement	Method Statement
12	Detailed Construction Programme	Detailed Construction Programme
13	Detailed Cash-Flow	Detailed Cash-Flow
14	Key Personnel	Curriculum Vitae of Key Personnel and Certified Qualifications that are not older than 6 months
15	Proposed Project Organogram	Proposed Project Organogram
16	Detailed Resourcing schedule	Detailed Resourcing schedule
17	Schedule of Plant and Equipment	Schedule of Plant and Equipment
18	Contractor's Safety Record	Contractor's Safety Record
19	Tax Clearance certificate	Submission of valid Tax compliance status form (PIN)

Notes:

1. Tenderers are required to score a minimum points of 60 for Functionality as stated in tender data.
2. Tenderers who fail to meet the required minimum number of points for functionality stated in the tender data will not be evaluated further.
3. Tenderers who fail to submit information as per the returnable schedules will not be allocated points.

T2.2.1 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the “Relevant Experience” returnable schedule. “Client Reference Scorecards” will be completed by each of the respective Clients for the projects listed in the “Relevant Experience” returnable schedule.

The following are to be **completed by the Client / Principal Agent** and is to be supported in each case by a letter of award and the works completion certificate. Either the Client or the Principal Agent must sign and stamp the documents, failure to obtain both signatures and stamps will result in no allocation of points

A. PROJECT NAME and SCOPE OF WORK:

Principal agent:

Client:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Project management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Labour relations					

Any other remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent Firm:

Telephone:

PA Signature:

Date:

Stamp

Client Signature:

Date:

Stamp

T2.2.1 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the “Relevant Experience” returnable schedule. “Client Reference Scorecards” will be completed by each of the respective Clients for the projects listed in the “Relevant Experience” returnable schedule.

The following are to be **completed by the Client / Principal Agent** and is to be supported in each case by a letter of award and the works completion certificate. Either the Client or the Principal Agent must sign and stamp the documents, failure to obtain both signatures and stamps will result in no allocation of points

B. PROJECT NAME and SCOPE OF WORK:

Principal agent:

Client:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Project management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Labour relations					

Any other remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent Firm:

Telephone:

PA Signature:

Date:

Stamp

Client Signature:

Date:

Stamp

T2.2.1 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the “Relevant Experience” returnable schedule. “Client Reference Scorecards” will be completed by each of the respective Clients for the projects listed in the “Relevant Experience” returnable schedule.

The following are to be **completed by the Client / Principal Agent** and is to be supported in each case by a letter of award and the works completion certificate. Either the Client or the Principal Agent must sign and stamp the documents, failure to obtain both signatures and stamps will result in no allocation of points

C. PROJECT NAME and SCOPE OF WORK:

Principal agent:

Client:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Project management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Labour relations					

Any other remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent Firm:

Telephone:

PA Signature:

Date:

Stamp

Client Signature:

Date:

Stamp

T2.2.1 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the “Relevant Experience” returnable schedule. “Client Reference Scorecards” will be completed by each of the respective Clients for the projects listed in the “Relevant Experience” returnable schedule.

The following are to be **completed by the Client / Principal Agent** and is to be supported in each case by a letter of award and the works completion certificate. Either the Client or the Principal Agent must sign and stamp the documents, failure to obtain both signatures and stamps will result in no allocation of points

D. PROJECT NAME and SCOPE OF WORK:

Principal agent:

Client:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Project management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Labour relations					

Any other remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent Firm:

Telephone:

PA Signature:

Date:

Stamp

Client Signature:

Date:

Stamp

T2.2.1 EVALUATION SCHEDULE: CLIENT REFERENCES

The Tenderer shall provide details of his performance on each of the previous projects listed in the “Relevant Experience” returnable schedule. “Client Reference Scorecards” will be completed by each of the respective Clients for the projects listed in the “Relevant Experience” returnable schedule.

The following are to be **completed by the Client / Principal Agent** and is to be supported in each case by a letter of award and the works completion certificate. Either the Client or the Principal Agent must sign and stamp the documents, failure to obtain both signatures and stamps will result in no allocation of points

E. PROJECT NAME and SCOPE OF WORK:

Principal agent:

Client:

Contract Amount:

Contract Duration:

Actual Contract Duration:

Description / Performance	Very poor (1)	Poor (2)	Fair (3)	Good (4)	Excellent (5)
Quality of office administration					
Quality of site management					
Competence of foreman					
Co-operation during contract					
Quality of workmanship					
Quality of materials					
Project management					
Rectification of condemned work					
Tidiness of site					
Adequacy of equipment					
Adequacy of labour force					
Labour relations					

Any other remarks considered necessary to assist in evaluation of the contractor?

.....

Principal Agent Firm:

Telephone:

PA Signature:

Date:

Stamp

Client Signature:

Date:

Stamp

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

Relevant Experience (Returnable schedule)

The Tenderer shall provide details of his performance on each of the previous relevant projects. Failure to complete the table below will result in no points allocated. **No “see attached” will be accepted**

LIST THE FIVE LARGEST PROJECTS COMPLETED BY YOUR FIRM IN THE LAST FIVE YEARS			
<i>Name of Project Completed and Scope of work</i>	<i>Name of Project Manager & Telephone no.</i>	<i>Name of Client & Telephone no.</i>	<i>Value of Project</i>

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

Record of Addenda to tender documents

We confirm that the following communications received from the Employer before the submission of this tender offer, amending the tender documents, have been taken into account in this tender offer:		
	Date	Title or Details
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Attach additional pages if more space is required.

Signed

Date

Name

Position

Identity
number

Tenderer

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

KEY PERSONNEL

The Tenderer shall list below the personnel which he intends to utilize on the Works, including key personnel which may have to be brought in from outside if not available locally.

The bidder to submit the following key person CV's and qualifications that will be allocated unto the project

- Project Manager/ Construction Manager
- Site Agent
- Foreman

If a company does not meet the above minimum requirements, it will be considered high risk.

Provide details of key personnel below

Name and Surname	Position	Qualification	CV attached	Certified certificate attached	No. of years of relevant experience
	Project Manager				
	Site Agent				
	Foreman				

INDEPENDENT DEVELOPMENT TRUST

reserves the right to request the Tender to provide the documentation within 24 hrs failing which it will result in the tenderer not passing the risk assessment.

Signed on behalf of the Tenderer		Date	
----------------------------------	--	------	--

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

SBD 1

PART A
INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (INDEPENDENT DEVELOPMENT TRUST (IDT))					
BID NUMBER:	DOEEC/01/2023/2024	CLOSING DATE: 20 June 2023		CLOSING TIME:	11:00 AM
DESCRIPTION	COMPLETION OF WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
INDEPENDENT DEVELOPMENT TRUST					
PALM SQUARE BUSINESS PARK					
SILVERWOOD HOUSE, BONZA BAY ROAD					
BEACON BAY, EAST LONDON. 5200					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Nomnikelo Dyasi		CONTACT PERSON	Wayne Ketteringham	
TELEPHONE NUMBER	043 711 6024		TELEPHONE NUMBER	043 721 0186	
FACSIMILE NUMBER			FACSIMILE NUMBER	N/A	
E-MAIL ADDRESS	NomnikeloN@idt.org.za		E-MAIL ADDRESS	waynek@mariswe.com	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
SBD 6.1 REQUIREMENT MUST BE COMPLIED TO CLAIM POINTS ON SPECIFIC GOALS					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES ENCLOSE PROOF]		ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	☐ Yes ☐ No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	
QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS					
IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?				☐ YES ☐ NO	
DOES THE ENTITY HAVE A BRANCH IN THE RSA?				☐ YES ☐ NO	
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?				☐ YES ☐ NO	
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?				☐ YES ☐ NO	
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?				☐ YES ☐ NO	
IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.					

PART B

TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED-(NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (SBD7).
2. TAX COMPLIANCE REQUIREMENTS
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

NB: FAILURE TO PROVIDE / OR COMPLY WITH ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.

SIGNATURE OF BIDDER:

.....

CAPACITY UNDER WHICH THIS BID IS SIGNED:

.....

(Proof of authority must be submitted e.g., company resolution)

DATE:

.....

BIDDER'S DISCLOSURE**1. PURPOSE OF THE FORM**

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

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

2. Bidder's declaration

- 2.1 Is the bidder, or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest¹ in the enterprise, employed by the state? **YES/NO**

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

Full Name	Identity Number	Name of State institution

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

- 2.2.1 If so, furnish particulars:

.....

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

YES/NO

- 2.3.1 If so, furnish particulars:

.....

3 DECLARATION

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

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024

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

- 3.1 I have read and I understand the contents of this disclosure;
- 3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;
- 3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium² will not be construed as collusive bidding.
- 3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.
- 3.4 The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
- 3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.
- 3.6 I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

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

I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF

PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND

COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS

DECLARATION PROVE TO BE FALSE.

..... Signature	 Date
..... Position	 Name of bidder

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.

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

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

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

1. GENERAL CONDITIONS

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

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

1.2 **To be completed by the organ of state**
(delete whichever is not applicable for this tender).

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

1.3 Points for this tender (even in the case of a tender for income-generating contracts) shall be awarded for:

- (a) Price; and
- (b) Specific Goals.

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

	POINTS	
PRICE	90	80
SPECIFIC GOALS	10	20
TARGETED GROUP		
Women	3	6
Youth	3	6
People with Disabilities	2	4
Black	2	4
Total points for Price and SPECIFIC GOALS	100	100

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

2. DEFINITIONS

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

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

Where

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

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

3.2.1. POINTS AWARDED FOR PRICE

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

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

Where

P_s = Points scored for price of tender under consideration
 P_t = Price of tender under consideration
 P_{max} = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

- 4.1. In terms of Regulation 4(2); 5(2); 6(2) and 7(2) of the Preferential Procurement Regulations, preference points must be awarded for specific goals stated in the tender. For the purposes of this tender the tenderer will be allocated points based on the goals stated in table 1 below as may be supported by proof/ documentation stated in the conditions of this tender:
- 4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—
- (a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or
 - (b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system, then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Women	3	6		
Youth	3	6		
People with Disabilities	2	4		
Black	2	4		

Source Documents to be submitted with the Bid or RFQ

- *CIPC Document (Company Registration Document will be required for verification (CIPC DOC))
- *Woman (Originally Certified ID Document)
- *Youth (Originally Certified ID Document)
- *People with Disability (Letter from the Dr. Confirming the Disability)
- *Black Ownership (Originally Certified ID Document)

DECLARATION WITH REGARD TO COMPANY/FIRM

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

4.4. Company registration number:

4.5. TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;
- iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –
 - (a) disqualify the person from the tendering process;
 - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
 - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
 - (d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
 - (e) forward the matter for criminal prosecution, if deemed necessary.

.....
SIGNATURE(S) OF TENDERER(S)

SURNAME AND NAME:

DATE:

ADDRESS:

DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

This Standard Bidding Document (SBD) 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.
- 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 –
 - (a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and

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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:

3.

Item	Description of Service	Stipulated Threshold	Minimum
A	PVC Pipes	100%	
B	Reinforcing bars	100%	
C	Steelwork	100%	
D	Fencing material (security fence, pedestrian gate)	100%	
E	Gutters and Downpipes	100%	
F	Water taps	100%	
G	Fascia boards	100%	
H	Polyethylene water tanks	100%	
I	Water pump	100%	
J	Accessories	100%	
K	HDPE pipes	100%	
L	Electrical cables	100%	

3. Does any portion of the services, works or goods 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 at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on www.reservebank.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.

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.thdti.gov.za/industrialdevelopment/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
- (ii) the declaration templates have been audited and certified to be correct.

(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 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

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

The local content percentages for each product has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E.

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

SIGNATURE: _____

DATE: _____

WITNESS No. 1 _____

DATE: _____

WITNESS No. 2 _____

DATE: _____

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Annex D											SATS 1286.2011	
Imported Content Declaration - Supporting Schedule to Annex C												
(D1) Tender No.						Note: VAT to be excluded from all calculations						
(D2) Tender description:												
(D3) Designated Products:												
(D4) Tender Authority:												
(D5) Tendering Entity name:												
(D6) Tender Exchange Rate:	Pula		EUR	R 9,00	GBP	R 12,00						
A. Exempted imported content				Calculation of imported content						Summary		
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Exempted imported value	
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)	
										0		
										0		
(D19) Total exempt imported value										R	-	
											This total must correspond with Annex C - C 21	
B. Imported directly by the Tenderer				Calculation of imported content						Summary		
Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Total imported value	
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)	
										0		
(D32) Total imported value by tenderer										R	-	
C. Imported by a 3rd party and supplied to the Tenderer				Calculation of imported content						Summary		
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Quantity imported	Total imported value	
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)	
										0		
										0		
(D45) Total imported value by 3rd party										R	0	
D. Other foreign currency payments				Calculation of foreign currency payments						Summary of payments		
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange							Local value of payments	
(D46)	(D47)	(D48)	(D49)	(D50)							(D51)	
Signature of tenderer from Annex B				(D52) Total of foreign currency payments declared by tenderer and/or 3rd party								
Date:				(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above						R 0		
											This total must correspond with Annex C - C 23	

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					SATS 1286.2011
Annex E					
Local Content Declaration - Supporting Schedule to Annex C					
(E1)	Tender No.		Note: VAT to be excluded from all calculations		
(E2)	Tender description:				
(E3)	Designated products:				
(E4)	Tender Authority:				
(E5)	Tendering Entity name:				
	Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value	
		(E6)	(E7)	(E8)	
		(E9) Total local products (Goods, Services and Works)		R	-
(E10)	Manpower costs	(Tenderer's manpower cost)		R	-
(E11)	Factory overheads	(Rental, depreciation & amortisation, utility costs, consumables etc.)		R	-
(E12)	Administration overheads and mark-up	(Marketing, insurance, financing, interest etc.)		R	-
				(E13) Total local content	
				R	-
				This total must correspond with Annex C - C24	
Signature of tenderer from Annex B					
	Date:				

THE CONTRACT

C1.1 Form of Offer and Acceptance**Offer**

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

Completion of ASIDI water supply projects at Cluster 1D schools (Ladimizulu JPS, Mvumelwano JSS, Mpoza JSS, Zanemvula JSS & Jonginkundla JSS).

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

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

THE OFFERED TOTAL OF THE PRICES INCLUSIVE OF VALUE ADDED TAX IS:**COST PER SCHOOL:**

School Name	Amount
LADIMIZULU JPS	
MVUMELWANO JSS	
MPOZA JSS	
ZANEMVULA JSS	
JONGINKUNDLA JSS	
Total	

THE FINAL CONTRACT OFFER (COMBINED TOTAL) 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 tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

for the tenderer

Signature Date
 Name Identity number
 Capacity
 (Name and address of organization)

Name and signature of witness

NOTE: Failure of a Bidder to complete and sign this part of the tender form (offer) in full including witnessing will invalidate the tender. Any blank spaces left will invalidate this offer.

SECURITY OFFERED:

- a) the Tenderer accepts that in respect of contracts up to R1 million, a payment reduction of 5% of the contact value (excluding VAT) will be applicable and will be deducted by the Employer in terms of the applicable conditions of contract
- b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below:
- i. cash deposit of 10 % of the Contract Sum. Yes ☐ No ☐
 - ii. fixed performance guarantee of 10% of the contract sum . Yes ☐ No ☐
 - iii. cash deposit of 5% of the Contract Sum and a payment reduction of 5% of the value certified in the payment certificate. Yes ☐ No ☐
 - iv. fixed performance guarantee of 5% of the Contract Sum and a payment reduction of 5% of the value certified in the payment certificate. Yes ☐ No ☐
 - v. If the Contractor fails to select the security to be provided in this Contract, Clause 6.2.2 of General Conditions of Contract, 2015 shall apply. Also, the Employer reserves the right to select the type of security to be provided in this Contract.

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 35 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

The Tenderer elects as its domicilium citandi et executandi in the Republic of South Africa, where any and all legal notices may be served, as (physical address):

.....

Other Contact Details of the Tenderer are:

Telephone No.: Cellular Phone No.:

Fax No.:

Postal address:.....

Banker :..... Branch :.....

Branch Code :..... Account number :.....

Registration No of Tenderer at Department of Labour :

CIDB Registration Number :

Acceptance

By signing this part of this form of offer and acceptance, the employer identified below accepts the tenderer's offer. In consideration thereof, the employer shall pay the contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

- Part C1: Agreements and contract data, (which includes this agreement)
- Part C2: Pricing data
- Part C3: Scope of work.
- Part C4: Site information
- Part C5: Annexures

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

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

The tenderer shall within 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 fulfill any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five 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.

Signature Date

Name Identity number

Capacity

for the Employer INDEPENDENT DEVELOPMENT TRUST
 Palm Square Business Park
 Silverwood House, Bonza Bay Road
 Beacon Bay, EAST LONDON
 5200

Name and signature of witness

Date

Schedule of Deviations**Notes:**

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

1 Subject	
Details	
	
	
	
2 Subject	
Details	
	
	
	
3 Subject	
Details	
	
	
4 Subject	
Details	
	
	
5 Subject	
Details	
	

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

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

For the Tenderer:

Signature:.....Date.....

Name:.....

Capacity:.....

Name and address of organization.....

.....

.....

As witnesses:*Witness 1*

Signature:.....Date.....

Name:.....

Witness 2

Signature:.....Date.....

Name:.....

For the Employer:

Signature:.....Date.....

Name:.....

Capacity:.....

Name of Employer: The Independent Development Trust (IDT)
 Palm Square Business Park
 Silverwood House
 Beacon Bay
 East London, 5241

As witnesses:*Witness 1*

Signature:.....Date.....

Name:.....

Witness 2

Signature:.....Date.....

Name:.....

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Confirmation of Receipt

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

the.....(day)

of(month)

20.....(year)

at(place)

For the Contractor:

.....
Signature

.....
Name

.....
Capacity

Signature and name of witness:

.....
Signature

.....
Name

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C1.2 Contract Data

Part 1: Data provided by the Employer

Conditions of Contract

The **General Conditions of Contract for Construction Works, third edition (2015)** published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685, is applicable to this contract and is obtainable from www.saice.org.za.

The General Conditions of Contract for Construction Works make several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the general conditions of contract.

The Contract Data and General Conditions of Contract shall have precedence over the Drawings, Scope of Work and Standardised Specifications in the interpretation of any ambiguity or inconsistency.

Contract Specific Data

The following contract specific data, referring to the General Conditions of Contract for Construction Works, Third Edition (2015), are applicable to this Contract:

Clause	Data
1.1.1.13	The Defects Liability Period is 6 months .
1.1.1.14	The time for achieving Practical Completion is 4 months , inclusive of the 14 day period referred to in Clause 5.3.2 below, and inclusive of non-working days referred to in Clause 5.8.1 below, but exclusive of special non-working days (Clause 5.8.1).
1.1.1.15	The name of the Employer is Independent Development Trust
1.1.1.16	The name of the Employer's Agent is Mariswe (Pty) Ltd
1.1.1.35	"Drawings" means all drawings, calculations and technical information forming part of the Contract Documents and any modifications thereof or additions thereto from time to time approved in writing by the Employer's Agent or delivered to the Contractor by the Employer's Agent.
1.1.1.36	Letter of Notification" means the letters of formal notification, signed by the Employer, of the decision of the Supply Chain Management Bid Adjudication Committee sent to all tenderers. The notification of the decision does not form part of the Employer's Acceptance of the successful tenderer's Offer and no rights shall accrue.
1.2.1	DELIVERY OF NOTICES The following three additional sub-clauses, covering alternative methods of communication, apply:

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1.2.1.3	Sent by facsimile or email during office hours or otherwise.												
1.2.1.4	Posted to the addressee for certified delivery by the postal Authorities.												
1.2.1.5	Delivered by a courier service and signed by addressee.												
1.2.1.2	The Employer's address for receipt of communications is: <table border="0"> <tr> <td>Physical address:</td><td>Postal address:</td></tr> <tr> <td>Palm Square Business Park</td><td>P O Box 2679</td></tr> <tr> <td>Silverwood House</td><td>Beacon Bay</td></tr> <tr> <td>Beacon Bay</td><td>East London</td></tr> <tr> <td>5241</td><td>5241</td></tr> </table> Telephone No: (043 711 6000) Fax No: (043) 748 5370 Email: NomnikeloN@idt.org.za	Physical address:	Postal address:	Palm Square Business Park	P O Box 2679	Silverwood House	Beacon Bay	Beacon Bay	East London	5241	5241		
Physical address:	Postal address:												
Palm Square Business Park	P O Box 2679												
Silverwood House	Beacon Bay												
Beacon Bay	East London												
5241	5241												
1.2.1.2	The Employer's Agent's address for receipt of communications is: <table border="0"> <tr> <td>Physical address:</td><td>Postal address:</td></tr> <tr> <td>Clevedon House</td><td>Clevedon House</td></tr> <tr> <td>2 Clevedon Road</td><td>2 Clevedon Road</td></tr> <tr> <td>Selborne</td><td>Selborne</td></tr> <tr> <td>East London</td><td>East London</td></tr> <tr> <td>5201</td><td>5201</td></tr> </table> Telephone No: (043) 721 0186 Fax No: N/A Email: waynek@mariswe.com	Physical address:	Postal address:	Clevedon House	Clevedon House	2 Clevedon Road	2 Clevedon Road	Selborne	Selborne	East London	East London	5201	5201
Physical address:	Postal address:												
Clevedon House	Clevedon House												
2 Clevedon Road	2 Clevedon Road												
Selborne	Selborne												
East London	East London												
5201	5201												
2.1.4	The following additional clause applies:- "Without limiting the generality of the afore going, the Schedule of Rates and Prices shall include : (a) The provision and use of all labour, plant, tools instruments, templates, materials, transport and all other appliances that may be required for satisfactorily protecting and efficiently carrying out the works without interruption or delay. (b) The provision and housing of adequate staff and labour force and the provision of false work of every kind and description necessary for the due and proper performance of the Contract. (c) The execution of the Works in orderly and progressive manner until it has been completed. Time being of the essence of the Contract the progressive development of the Works shall be arranged so that the time from the start to the finish of the construction of the said Works shall not exceed the time laid down in the Tender. (d) The inclusion in the tendered rates for all and any of the general liabilities such as Establishment Charges, legal contingencies, regulations, risks or damage, Royalties and all other overhead charges. The submission of a tender shall be considered prima facie evidence that the Contractor has complied with the requirements of this clause and has satisfied himself as to all circumstances and local conditions which may influence or affect his Tender."												

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2.4.3	The following additional clause applies:- In the event of any discrepancy or conflict between any parts of the Contract Documents, the order of precedence shall be as follows: 1. Project Specifications 2. Special Conditions of Contract 3. General Conditions of Contract 4. Conditions of Tender 5. Standardized/Particular Specifications 6. Contract Drawings 7. Schedule of Quantities
3.1.3	The Employer's Agent shall obtain the specific approval of the Employer before executing any of his functions or duties according to the following Clauses of the General Conditions of Contract: 1. Clause 3.2.1 Nomination of Employer's Agent's Representative 2. Clause 3.2.4 Employer's Agent's authority to delegate 3. Clause 5.8.1 Non-working times 4. Clause 5.11.1 Suspension of the Works 5. Clause 5.12.4 Acceleration instead of extension of time
4.5.2	The Occupational Health and Safety Act (Act No. 85 and Amendment Act No. 181) of 1993 and Construction Regulations 2003 will in all respects be applicable to this contract and the Contractor, as Mandatory in terms of clause 1(1) (xxviii) of the Act, shall assume full responsibility for compliance with the Act and the Regulations." (See Clause 5.2 in Part 5 of the Contract).
5.3.1	The documentation required before commencement with the Works Instruction is issued are: 1 Approved Works Permit (In terms with Construction Regulations, 2014, Reg 3 and 5) 2 Initial programme (Refer to Clause 5.6) 3 Security (Refer to Clause 6.2) 4 Insurance (Refer to Clause 8.6) 5 Letter of Good Standing from the Compensation Commissioner (if not insured with a Licensed Compensation Insurer)
5.3.2	The time to submit the documentation required in points 2 to 5 in Clause 5.3.1 above (excluding the approved Works Permit) is 14 days before commencement with the Works.
5.4.3	The Contractor shall bear all costs and charges for special and temporary rights of way required by him in connection with access to the Site.
5.5.1	The Works shall be completed within four(4) Months.
5.6.1	The Contractor shall deliver his <u>final programme of work within 14 days</u> from the Commencement Date.
5.8.1	The non-working days are Sundays. The special non-working days are: (1) All gazetted public holidays falling outside the year end break. (2) The year end break commencing after the 15 December and ending after the first Monday after the 3rd of January.

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5.13.1	The penalty for failing to complete the Works is 0.1% of the contract value per day.
5.14.5.2	The Defects Liability Period is 6 months measured from the date of the Certificates of Completion.
5.16.3	The latent defect period is 10 years.
6.2.1	The Contractor shall deliver to the Engineer, as part of the documentation required commencement with the Works execution in accordance with Clause 5.3.1, at his cost, the type of security for the due performance of the Contract, as selected in the Contract Data.
6.2.2	If the Contractor fails to select the security to be provided or if the Contractor fails to provide the selected security within the time period stated in Clause 5.3.2, or if the performance guarantee shall differ substantially from the pro forma, it shall be deemed that the Contractor has selected a security of 10 per cent retention of the value of the Works.
6.5.1.2.3	The percentage allowances to cover overhead charges for daywork are as follows: • 15% of the gross remuneration of workmen and foremen actually engaged in the daywork; • 15% on the net cost of materials actually used
6.10.1.5	No allowance will be made for work done, or for materials and equipment for which daywork rates have been quoted at tender stage.
6.10.3	The percentage retention on amounts due to the contractor is 10% and the limit on retention is 5% of the Contract Price, unless a 10% guarantee or 10% cash deposit is provided.
8.2.1	From the date of the on which the Site is handed over to the Contractor to the date of the issue of a Certificate of Completion to the date of the issue of a Certificate of Completion, the Contractor shall take full responsibility for the care of the Works and of all Plant intended for incorporation into the Works and materials on site intended for incorporation into the Works; Provided that, if in terms of Clause 5.14.7 the Engineer shall issue a Certificate of Completion in respect of any part of the Works, the Contractor shall cease to be responsible for the care of such part and responsibility therefor shall pass to the Employer.
8.6.1	Insurance to be effected by Contractor.
8.6.1.1.2	The value of plant and materials supplied by the Employer to be included in the insurance sum is NIL
8.6.1.1.3	The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is Nil
8.6.1.2	Special risk insurance issued by SASRIA is required.
8.6.1.3	The limit of indemnity for liability insurance is R 5 000 000.00

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10.3.2	Amicable settlement in terms of Clause 10.4 shall be contemplated for all disputes prior to referring any dispute to arbitration or adjudication.
10.5.1	Dispute resolution shall be by ad hoc adjudication.
10.5.3	1. The Adjudicator shall be paid at the negotiated hourly rate in respect of all time spent upon or in connection with the adjudication including time spent travelling. 2. The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restrict to: (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs (b) Telegrams, telex, faxes and telephone calls (c) Postage and similar delivery charges (d) Travelling, hotel expenses and other similar disbursements (e) Room charges (f) Charges for legal or technical advice obtained in accordance with the procedure. 3. The Adjudicator shall be paid an appointment fee. This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties. 4. Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice. 5. All payments other than the appointment fee (item 3) shall become due 14 days after receipt of invoice thereafter interest shall be payable at 5% per annum above the Reserve Bank base rate for every day the amount remains outstanding.

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Part 2: Data provided by the Contractor

The contractor is advised to read ***The General Conditions of Contract for Construction Works, Third Edition, 2015*** published by the South African institution of civil engineering, private bag x200, halfway house, 1685, in order to understand the implications of this data which is required to be completed. Copies of these conditions of contract may be obtained from www.saice.org.za

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

Clause	Data										
1.1.1.9	The name of the Contractor is:										
1.2.1.2	The address of the Contractor is: Address (physical): Address (postal): Telephone: Facsimile: e-mail:										
1.1.1.14	The time for achieving Practical Completion is as stipulated in Clause 1.1.1.14 under Part 1: Data provided by the Employer										
6.2.1	The security to be provided by the Contractor shall be: <table border="1"> <thead> <tr> <th>Type of security</th><th>Contractor's Choice. Indicate "Yes" or "No"</th></tr> </thead> <tbody> <tr> <td>Cash Deposit of 10% of the Contract Sum</td><td></td></tr> <tr> <td>Performance Guarantee of 10% of the Contract Sum</td><td></td></tr> <tr> <td>Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works.</td><td></td></tr> <tr> <td>Performance guarantee of 5% of the Contract Sum plus retention of 5% of the value of the Works.</td><td></td></tr> </tbody> </table>	Type of security	Contractor's Choice. Indicate "Yes" or "No"	Cash Deposit of 10% of the Contract Sum		Performance Guarantee of 10% of the Contract Sum		Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works.		Performance guarantee of 5% of the Contract Sum plus retention of 5% of the value of the Works.	
Type of security	Contractor's Choice. Indicate "Yes" or "No"										
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Performance Guarantee of 10% of the Contract Sum											
Cash deposit of 5% of the Contract Sum plus retention of 5% of the value of the Works.											
Performance guarantee of 5% of the Contract Sum plus retention of 5% of the value of the Works.											
6.5.1.2.3	The percentage allowance to cover overhead charges is%.										
6.8.3	The variation in cost of special materials is:										

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	Special material	Unit on which variation will be determined*		Price for base month ex-factory, excluding transport, labour or any other costs.++
		Containers	Delivered in bulk	
	*State unit in appropriate column ++ When called upon to do so, the contractor shall substantiate the above rates or prices with acceptable documentary evidence from the supplier.			

C1.3 PERFORMANCE GUARANTEE

The performance guarantee is to contain the wording of the pro-forma document included in ***The General Conditions of Contract for Construction Works***, published by the South African institution of civil engineering. Copies of these conditions of contract may be obtained from the South African institution of Civil Engineering, Private Bag x200, Halfway House, 1685, at www.saice.org.za

Herewith a copy of the pro-forma document.

PERFORMANCE GUARANTEE

For use with the General Conditions of Contract for Construction Works, 2015:

GUARANTOR DETAILS AND DEFINITIONS

“Guarantor” means:

Physical Address:

“Employer” means:

“Contractor” means:

“Employer’s Agent” means:

“Works” means:

“Site” means:

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

“Contract Sum” means: The accepted amount inclusive of tax of R

Amount in words:

.....

.....

“Guaranteed Sum” means: The maximum aggregate amount of R

.....

Amount in words:

.....

.....

“Expiry Date” means:

CONTRACT DETAILS

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

1. FIXED PERFORMANCE GUARANTEE

- 1.1 Where a Fixed Performance Guarantee has been selected, the Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
- 1.2 The Guarantor's period of liability shall be from and including the date on which the Performance Guarantee is signed, up to and including the Expiry Date, or the date of issue by the Employer's Agent of the Certificate of Completion of the Works, or the date of payment in full of the Guaranteed Sum, whichever occurs first.
- 1.3 The Employer's Agent and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

2. CONDITIONS APPLICABLE TO VARIABLE AND FIXED PERFORMANCE GUARANTEES

- 2.1 The Guarantor hereby acknowledges that:
 - 2.1.1 Any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.
 - 2.1.2 Its obligation under this Performance Guarantee is restricted to the payment of money.
- 2.2 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 3.2.1 to 3.2.3:
 - 2.2.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Employer's Agent in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 3.2.2;
 - 2.2.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 3.2.1 and the sum certified has still not been paid;
 - 2.2.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 3.2.
- 2.3 Subject to the Guarantor's maximum liability referred to in 1.1 or 2.1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 2.3.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 3.3; or
 - 2.3.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 3.3; and
 - 2.3.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
- 2.4 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 3.2 and 3.3 shall not exceed the Guarantor's maximum liability in terms of 1.1 or 2.1.
- 2.5 Where the Guarantor has made payment in terms of 3.3, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of

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- 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.
- 2.6 Payment by the Guarantor in terms of 3.2 or 3.3 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 2.7 Payment by the Guarantor in terms of 3.3 will only be made against the return of the original Performance Guarantee by the Employer.
- 2.8 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may consider fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
- 2.9 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
- 2.10 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 1.1.2 or 2.2, 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.
- 2.11 This Performance Guarantee, with the required demand notices in terms of 3.2 or 3.3, shall be regarded as a liquid document for the purposes of obtaining a court order.
- 2.12 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrates' Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity

Guarantor's signatory (2)

Capacity

Witness signatory (1)

Witness signatory (2)

C1.4 AGREEMENT IN TERMS OF SECTION 37(2) OF THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT NO. 85 OF 1993)

THIS **AGREEMENT** made between:

.....
(hereinafter referred to as “the Employer”) of the one part, herein represented by:

.....
in his capacity as

AND:

.....
(hereinafter referred to as “the Mandatory”) of the other part, herein represented by:

.....
In his capacity as

.....
and being duly authorized to act as Mandatory on behalf of the Contractor; WHEREAS the Employer is desirous that certain works be constructed, viz

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“Completion of ASIDI water supply projects at Cluster 1D schools (Ladimizulu JPS, Mvumelwano JSS, Mpoza JSS, Zanemvula JSS & Jonginkundla JSS).

and has accepted a tender by the Mandatory for the construction, completion and defects correction 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 on which the site is handed over to the Mandatory by an order in writing from the Employer’s Agent, to either:
 - (a) The date of the final certificate issued in terms of **clause 5.16.1 of the General Conditions of Contract 2015** (hereinafter referred to as “the GCC”), as applicable to this Contract, or
 - (b) The date of termination of the contract in terms of **clause 9** 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;

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- (ii) Section 9: General duties of employers and self-employed persons to persons other than employees;
- (iii) Section 37: Acts or omissions by employees or mandatories; and
- (iv) Sub-section 37(2) relating to the purpose and meaning of this Agreement.

(b) The procedure and safety rules of the Employer as pertaining to the Mandatory and to all his subcontractors.

4. In addition to the requirements of Clause 6.3 of the General Conditions of Contract and all relevant requirements of the Contract, the Mandatory agrees to execute all the works forming part of this Contract and to operate and utilize 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.

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

At For and on behalf of the **EMPLOYER** on
this the day of20.....

SIGNATURE:

.....

CAPACITY:

.....

As witnesses:

Witness 1

Signature:.....Date.....

Name:.....

Witness 2

Signature:.....Date.....

Name:.....

NAMES:

(1)

.....

(2)

.....

At for and on behalf of the **MANDATORY** on
this the day of20.....

SIGNATURE:

CAPACITY:

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As witnesses:

Witness 1

Signature:.....Date.....

Name:.....

Witness 2

Signature:.....Date.....

Name:.....

C1.5 IDT BENEFICIARY RECONCILIATION FORM (BRF)

A : Project Information	 IDT Beneficiary Reconciliation Form (BRF) 										Contractor Stamp/Logo						
	Year _____																
	Programme Name _____ Programme Number _____ Month _____					Project Name _____ Project Number _____ Site name (if applicable) _____											
B : Accountability	<u>CONTRACTOR REPRESENTATIVE</u> Name _____ Signature _____ Date _____ Please print Name and Surname																
	<u>IDT REPRESENTATIVE</u> Name _____ Signature _____ Date _____ Please print Name and Surname																
C : Beneficiary Information	No.	Name	Surname	Gender	New	ID Number								RSA ID	OTHER	No. of Days Worked	Signature
	1																
	2																
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PART C2: PRICING DATA

C2.1 PRICING INSTRUCTIONS

- 1.1 For the purpose 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 specifications or project 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 product of the quantity and the rate Bidded for an item.*

Lump sum : *An amount Bidded 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 any units.*

- 1.2 This bill of quantities forms part of an integral part of the contract documents.

- 1.3 The quantities set out in the bill of quantities are approximate quantities only. The quantities of work finally accepted and certified for payment, and not the quantities given in the bill of quantities, shall be used for determining payments to the Contractor.

The validity of the contract shall in no way be affected by the differences between the quantities in the bill of quantities and the quantities finally certified for payment. Work shall be valued at the rates or lump sums Bidded, subject only to the provisions of the General Conditions Of Contract and the provisions of paragraphs 11 and 12 of this preamble.

- 1.4 Rates and lump sums shall include full compensation for overheads, profits, incidentals, levies, taxes, etc., and for the completed items of work as specified. Full compensation for completing and maintaining, during the maintenance period, all the work shown on the drawings and specified in the specifications and project specifications, and for all the risks, obligations and responsibilities specified in the General Conditions Of Contract, Special Conditions Of Contract and Specifications shall be considered as provided for collectively in the items of payment given in the bill of quantities, except in so far as the quantities given in the bill of quantities are only approximate.

- 1.5 Rates and lump sums shall also be exclusive of Value Added Tax (VAT). The summary of the bill of quantities allows separately for the calculation of an allowance for Value Added Tax (VAT) (output tax in terms of the Bidder). Rates and lump sums shall, however, be inclusive of all other taxes and levies.

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- 1.6 The Bidder must fill in a rate or lump sum for each item where provision has been made for it, even where no quantities are given. Items against which no rate or lump sum has been entered in the Bid will not be paid for when the work is executed, as payment for such work will be regarded as being covered by other rates or lump sums in the bill of quantities.

The Bidder shall fill in a rate against all items where the words "rate only" appear in the amount column. The intention is that, although no work is foreseen under such items, and quantities are consequently not given in the quantity column, the Bidded rates shall apply should work under this item actually be required. Bidders should note the provisions of paragraph 12 of this preamble.

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

The Bidded lump sums and rates shall be valid irrespective of any change in the quantities during the execution of the contract.

- 1.7 The Works as executed will be measured for payment in accordance with the methods described in the contract documents under the various payment items, notwithstanding any custom to the contrary. The nett measurements or mass of the finished work in place shall be taken for payment but excluding any volume or mass of work in excess of that ordered.
- 1.8 The amount of work or the quantities of material stated in the bill of quantities shall not be considered as restricting or extending the amount of work to be done, or quantity of material to be supplied by the contractor.
- 1.9 The stating of quantities of material or amount of work in the bill of quantities shall not be regarded as authorisation for the contractor to order material or to execute the work. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials for, or executing work, or making arrangements in this regard.
- 1.10 The short descriptions of payment items given in the bill of quantities are for the purpose of identifying the items and providing specific details. Reference shall be made, inter alia, to the Drawings, Specifications, Project Specifications, General Conditions Of Contract and Special Conditions Of Contract for more detailed information regarding the extent of the work entailed under each item.
- 1.11 Reference shall be made to Clause 6.6 of the General Conditions Of Contract regarding provisional sums and prime cost sums.
- 1.12 Subject to the conditions stated in paragraph 13 below, the rates and lump sums filled in by the Bidder in the bill of quantities shall be final and binding and may not be adjusted should there be any mistakes in the extensions thereof and in the total sums appearing in the Bid.

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Should there be any discrepancies between the Bid sum and the correctly extended and totalled bill of quantities, the rates will be regarded as being correct, and the Employer shall have the right to make such adjustments to the Bid sum as he may deem necessary in order to reconcile the total of the bill of quantities with the Bid sum. In their own interest Bidders should make doubly sure of the correctness of their Bidded rates, the extensions and the Bid sum. Refer to clause F.2.10.3 Annex F: Standard Conditions of Bid.

- 1.13 A Bid may be rejected if the unit rates or lump sums for some of the items in the bill of quantities are, in the opinion of the Employer, unreasonable or out of proportion, and the Bidder fails, within a period of seven (7) days of having been notified in writing by the Employer to adjust the unit rates or lump sums for such items, to make adjustments, refer to clause F.2.17 Annex F: Standard Conditions of Bid.

- 1.14 The units of measurement indicated in the bill of quantities are metric units.

The following abbreviations are used 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
l	=	litre
kl	=	kilolitre
kg	=	kilogram
t	=	ton (1 000 kg)
%	=	percent
No	=	number
PC sum	=	prime cost sum
Prov sum	=	provisional sum
MN	=	Meganewton
MN-m	=	Meganewton-metre
kN	=	kilonewton

- 1.15 All rates and sums of money quoted in the bill of quantities shall be in rands and whole cents. Fractions of a cent shall be discounted.
- 1.16 The item numbers appearing in the bill of quantities refer to the corresponding item numbers in the Standard Specifications. Item numbers prefixed by the letter B to H refer to payment items which are described or amended under parts B to H of the Construction Specifications.
- 1.17 The schedule titled Calculation Of Bid Sum includes financial provision for payment of contract price adjustment. Actual payments shall be made in terms of Clause 6.1 of the General Conditions of Contract.

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- 1.18 The bill of quantities is to be completed in black ink.
- 1.19 *Those parts of the contract to be constructed using labour-intensive methods have been marked in the Bills of Quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.*
- 1.20 *Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment.*

C2.2 Bills of Quantities

IDT: ASIDI SCHOOLS PROGRAMME

CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Ladumizulu JPS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
1	SANS 1200 A	GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1	8.3.1	Contractual Requirements	Sum	1		R -
	8.3.2	Establish Facilities on the Site:				
1.2	8.3.2.1	<u>Facilities for Engineer</u>				
1.2.1		a) Telephone	Sum	1		N/A
1.2.2		b) Nameboard (1No.)	Sum	1		R -
1.3	8.3.2.2	<u>Facilities for Contractor</u>				
1.3.1		a) Offices and storage sheds	Sum	1		R -
1.3.3		b) Workshop	Sum	1		R -
1.3.3		c) Laboratories	Sum	1		R -
1.3.4		d) Living accommodation	Sum	1		R -
1.3.5		e) Ablution and latrine facilities	Sum	1		R -
1.3.6		f) Tools and equipment	Sum	1		R -
1.3.7		g) Water supplies, electric power and communications	Sum	1		R -
1.3.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.3.9		i) Access (Subclause 5.8)	Sum	1		R -
1.3.10		j) Plant	Sum	1		R -
1.3.11	8.3.3	Other fixed-charged obligations	Sum	1		R -
1.3.12	8.3.4	Removal of the Site Establishment	Sum	1		R -
		<u>Additional Contractual Obligations</u>				
1.3.13		Compilation and submission of Health & Safety Plan	Sum	1		R -
1.3.14		Supply labour with protective clothing and equipment	Sum	1		R -
1.3.15		Preparation of as-built drawings for the entire installation	Sum	1		R -
	8.4	TIME-RELATED ITEMS				
1.4	8.4.1	Contractual Requirements	Sum	1		R -
	8.4.2	Operate and maintain facilities on the Site for duration of construction, except where otherwise stated.				
1.5	8.4.2.1	<u>Facilities for Engineer</u>				
1.5.1		a) Telephone	Prov Sum	1	R 1 000.00	R 1 000.00
1.5.2		b) Nameboard (1No.)	Sum	1		R -
1.5.3		c) Survey assistants	Sum	1		R -
1.6	8.4.2.2	<u>Facilities for Contractor</u>				
1.6.1		a) Offices and storage sheds	Sum	1		R -
1.6.2		b) Workshops	Sum	1		R -
1.6.3		c) Laboratories	Sum	1		R -
1.6.3		d) Living accommodation	Sum	1		R -
Carried Forward						

IDT: ASIDI SCHOOLS PROGRAMME

CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Ladumizulu JPS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
1.6.3		e) Ablution and latrine facilities	Sum	1		R -
1.6.4		f) Tools and equipment	Sum	1		R -
1.6.5		g) Water supplies, electric power and communications	Sum	1		R -
1.6.6		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.6.7		i) Access (Subclause 5.8)	Sum	1		R -
1.6.8		j) Plant	Sum	1		R -
1.6.9	8.4.4	Company and head office overhead costs	Sum	1		R -
1.6.10	8.4.5	Other time-related obligations	Sum	1		R -
1.7		<u>Additional obligations.</u>				
1.7.1		<i>Compliance with Construction Regulations (OHS Act)</i>	Sum	1		R -
1.7.2		<i>Compliance with Environmental good practice</i>				
1.7.2.1		a). Attend to all matters relating to the implementation and compliance of environmental good practice	Sum	1		R -
1.7.2.2		b). Marking out of project work sites.	Sum	1		R -
1.7.2.3		c). Provide and maintain fire fighting equipment.	Sum	1		R -
1.7.2.4		d). Provide and maintain spill control equipment.	Sum	1		R -
1.7.2.5		e). Contractors environmental representative	Sum	1		R -
1.7.3		<i>Compliance with SANS 1921 - 6 Part 6 HIV/AIDS Awareness.</i>				
1.7.3.1		Conduct HIV/AIDS Awareness Programme on site for not less than 90% of the workers inclusive of all direct and indirect costs.	Sum	1		R -
1.7.3.2		Provide and maintain condom dispenser (1No.)	Sum	1		R -
1.7.3.3		Provide and maintain HIV/AIDS awareness posters.	Sum	1		R -
1.7.3.4		Provide information regarding the voluntary testing of construction workers, and counselling, support and care.	Sum	1		R -
1.8	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
1.8.1		CLO	PC Sum	1	R 3 000.00	R 3 000.00
1.8.2		Overheads, Charges and profits on 1.8.1	%		R 3 000.00	R -
1.8.3		Provision of specific seed mix and application to areas for application as directed by the Engineer.	PC Sum	1	R 3 000.00	R 3 000.00
1.8.4		Overheads, Charges and profits on 1.8.3	%		R 3 000.00	R -
1.8.5		Survey of the complete works	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.5		Geotechnical & Contrrete tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.8		Water quality tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.8		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
Carried Forward						

IDT: ASIDI SCHOOLS PROGRAMME

CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Ladumizulu JPS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
	8.7	DAYWORKS				
1.9		Allowance for Labour during normal working hours				
1.9.1		Site manager	hr	9		R -
1.9.2		Foreman	hr	9		R -
1.9.3		Skilled labour	hr	9		R -
1.9.4		Semi-skilled labour	hr	9		R -
1.9.5		Unskilled labour	hr	9		R -
1.9.6		HSEQ Officer	hr	9		R -
1.10		Allowance for Materials	Prov Sum	1	R 3 000.00	R 3 000.00
1.11		Allowance for Plant				
1.11.1		TLB	hr	9		R -
1.11.2		Tipper Truck (6 m³)	hr	9		R -
1.11.3		Plate compactor	hr	9		R -
1.11.4		Water tanker (5000l)	hr	9		R -
1.11.5		Pressure test pump	hr	9		R -
TOTAL CARRIED TO SUMMARY						

IDT: ASIDI SCHOOLS PROGRAMME

CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE

COMPLETION CONTRACT

Ladumizulu JPS

SECTION B: WATER INFRASTRUTURE

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1		GENERAL				
1.1		Inspect the complete works, prior to commencement of works & report to Engineer to agree scope and methodology for the completion of the works	Sum	1		R -
1.2		Test borehole water quality for suitable for drinking purposes	Sum	1		R -
1.3		Commissioning the complete installation after completion of the works	Sum	1		R -
1.4		Cleaning & making good the entire site	Sum	1		R -
2		PIPELINES				
2.1		<u>Sump Pumping Main</u>				
2.1.1		Supply and install precast concrete valve chambers-Type 1220 (Refer to Drawing 25435-108)	No	1		R -
2.1.2		Supply and install 50mm PN16 brass gate Valve inclusive of adaptors and fittings	No	1		R -
2.1.3		Construct erosion control berm (Refer to Drawing Number 25435-108)	No	3		R -
2.1.4		Provisional sum for doing all remaining works in preparation for the pressure testing, as well as completion & commissioning of the pumping main (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.1.5		Sterilize & pressure test pipeline	km	0.3		R -
2.2		<u>Gravity Mains to Sump</u>				
2.2.1		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.2.2		Sterilize & pressure test pipelines	km	0.3		R -
2.3		<u>Reticulation</u>				
2.3.1		Construct drinking water fountain	No	1		R -
2.3.2		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.3.3		Sterilize & pressure test pipelines	km	0.5		R -
3		RAINWATER SUMP				
3.1		Provisional sum for doing all remedial works to concrete bases, plinths & slabs (e.g., application of epoxy coatings, breakout & recast)	Prov Sum	1	R 15 000.00	R 15 000.00
3.2		Provisional sum for doing all preparatory works to commission pumpset (e.g., inspection, testing & close up of electrical cables; connection of pipework)	Prov Sum	1	R 7 500.00	R 7 500.00
3.3		Supply & install submersible pump, complete with controls etc suitable for delivering Q (flow) = 2.9m ³ /h at H (head = 17m)	Sum	1		R -
3.4		Commission complete installation	Sum	1		R -
4		CHLORINATOR				
4.1		Supply & install chlorinator and kiosk	Sum	1		
4.2		Construction of chamber complete with base slab for kiosk and manhole for pipework	Sum	1		
4.3		Supply and installation of pipework & fittings	Sum	1		R -
4.4		Commission chlorination installation	Sum	1		R -
5		FENCING				
5.1		Supply & install fencing	m	20		R -
5.2		Supply & install access gate	No.	1		R -
TOTAL CARRIED TO SUMMARY						

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CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Madumelwano JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
1	SANS 1200 A	GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1	8.3.1	Contractual Requirements	Sum	1		R -
	8.3.2	Establish Facilities on the Site:				
1.2	8.3.2.1	<u>Facilities for Engineer</u>				
1.2.1		a) Telephone	Sum	1		N/A
1.2.2		b) Nameboard (1No.)	Sum	1		R -
1.3	8.3.2.2	<u>Facilities for Contractor</u>				
1.3.1		a) Offices and storage sheds	Sum	1		R -
1.3.3		b) Workshop	Sum	1		R -
1.3.3		c) Laboratories	Sum	1		R -
1.3.4		d) Living accommodation	Sum	1		R -
1.3.5		e) Ablution and latrine facilities	Sum	1		R -
1.3.6		f) Tools and equipment	Sum	1		R -
1.3.7		g) Water supplies, electric power and communications	Sum	1		R -
1.3.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.3.9		i) Access (Subclause 5.8)	Sum	1		R -
1.3.10		j) Plant	Sum	1		R -
1.3.11	8.3.3	Other fixed-charged obligations	Sum	1		R -
1.3.12	8.3.4	Removal of the Site Establishment	Sum	1		R -
		<u>Additional Contractual Obligations</u>				
1.3.13		Compilation and submission of Health & Safety Plan	Sum	1		R -
1.3.14		Supply labour with protective clothing and equipment	Sum	1		R -
1.3.15		Preparation of as-built drawings for the entire installation	Sum	1		R -
	8.4	TIME-RELATED ITEMS				
1.4	8.4.1	Contractual Requirements	Sum	1		R -
	8.4.2	Operate and maintain facilities on the Site for duration of construction, except where otherwise stated.				
1.5	8.4.2.1	<u>Facilities for Engineer</u>				
1.5.1		a) Telephone	Prov Sum	1	R 1 000.00	R 1 000.00
1.5.2		b) Nameboard (1No.)	Sum	1		R -
1.5.3		c) Survey assistants	Sum	1		R -
1.6	8.4.2.2	<u>Facilities for Contractor</u>				
1.6.1		a) Offices and storage sheds	Sum	1		R -
1.6.2		b) Workshops	Sum	1		R -
1.6.3		c) Laboratories	Sum	1		R -
1.6.3		d) Living accommodation	Sum	1		R -
Carried Forward						R 1 000.00

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CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Madumelwano JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						R 1 000,00
1.6.3		e) Ablution and latrine facilities	Sum	1		R -
1.6.4		f) Tools and equipment	Sum	1		R -
1.6.5		g) Water supplies, electric power and communications	Sum	1		R -
1.6.6		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.6.7		i) Access (Subclause 5.8)	Sum	1		R -
1.6.8		j) Plant	Sum	1		R -
1.6.9	8.4.4	Company and head office overhead costs	Sum	1		R -
1.6.10	8.4.5	Other time-related obligations	Sum	1		R -
1.7		<u>Additional obligations</u>				
1.7.1		Compliance with Construction Regulations (OHS Act)	Sum	1		R -
1.7.2		Compliance with Environmental good practice				
1.7.2.1		a). Attend to all matters relating to the implementation and compliance of environmental good practice	Sum	1		R -
1.7.2.2		b). Marking out of project work sites.	Sum	1		R -
1.7.2.3		c). Provide and maintain fire fighting equipment.	Sum	1		R -
1.7.2.4		d). Provide and maintain spill control equipment.	Sum	1		R -
1.7.2.5		e). Contractors environmental representative	Sum	1		R -
1.7.3		Compliance with SANS 1921 - 6 Part 6 HIV/AIDS Awareness.				
1.7.3.1		Conduct HIV/AIDS Awareness Programme on site for not less than 90% of the workers inclusive of all direct and indirect costs.	Sum	1		R -
1.7.3.2		Provide and maintain condom dispenser (1No.)	Sum	1		R -
1.7.3.3		Provide and maintain HIV/AIDS awareness posters.	Sum	1		R -
1.7.3.4		Provide information regarding the voluntary testing of construction workers, and counselling, support and care.	Sum	1		R -
1.8	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
1.8.1		CLO	PC Sum	1	R 3 000.00	R 3 000,00
1.8.2		Overheads, Charges and profits on 1.8.1	%		R 3 000.00	R -
1.8.3		Provision of specific seed mix and application to areas for application as directed by the Engineer.	PC Sum	1	R 3 000.00	R 3 000,00
1.8.4		Overheads, Charges and profits on 1.8.3	%		R 3 000.00	R -
1.8.5		Survey of the complete works	PC Sum	1	R 5 000.00	R 5 000,00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.5		Geotechnical & Contrrete tests	PC Sum	1	R 5 000.00	R 5 000,00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.8		Water quality tests	PC Sum	1	R 5 000.00	R 5 000,00
1.8.8		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
Carried Forward						

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SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
	8.7	DAYWORKS				
1.9		Allowance for Labour during normal working hours				
1.9.1		Site manager	hr	9		R -
1.9.2		Foreman	hr	9		R -
1.9.3		Skilled labour	hr	9		R -
1.9.4		Semi-skilled labour	hr	9		R -
1.9.5		Unskilled labour	hr	9		R -
1.9.6		HSEQ Officer	hr	9		R -
1.10		Allowance for Materials	Prov Sum	1	R 3 000,00	R 3 000,00
1.11		Allowance for Plant				
1.11.1		TLB	hr	9		R -
1.11.2		Tipper Truck (6 m³)	hr	9		R -
1.11.3		Plate compactor	hr	9		R -
1.11.4		Water tanker (5000l)	hr	9		R -
1.11.5		Pressure test pump	hr	9		R -
TOTAL CARRIED TO SUMMARY						

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CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024

SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Madumelwano JSS

SECTION B: WATER INFRASTRUCTURE

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1		GENERAL				
1.1		Inspect the complete works, prior to commencement of works & report to Engineer to agree scope and methodology for the completion of the works	Sum	1		R -
1.2		Test borehole water quality for suitable for drinking purposes	Sum	1		R -
1.3		Commissioning the complete installation after completion of the works	Sum	1		R -
1.4		Cleaning & making good the entire site	Sum	1		R -
2		PIPELINES				
2.1		<u>Sump Pumping Main</u>				
2.1.1		Supply and install precast concrete valve chambers-Type 1220 (Refer to Drawing 25435-108)	No	1		R -
2.1.2		Supply and install 50mm PN16 brass gate Valve inclusive of adaptors and fittings	No	1		R -
2.1.3		Construct erosion control berm (Refer to Drawing Number 25435-108)	No	3		R -
2.1.4		Provisional sum for doing all remaining works in preparation for the pressure testing, as well as completion & commissioning of the pumping main (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.1.5		Sterilize & pressure test pipeline	km	0.3		R -
2.2		<u>Gravity Mains to Sump</u>				
2.2.1		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 10 000.00	R 10 000.00
2.2.2		Sterilize & pressure test pipelines	km	0.3		R -
2.3		<u>Reticulation</u>				
2.3.1		Construct drinking water fountain	No	1		R -
2.3.2		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.3.3		Sterilize & pressure test pipelines	km	0.5		R -
3		RAINWATER SUMP				
3.1		Provisional sum for doing all remedial works to concrete bases, plinths & slabs (e.g., application of epoxy coatings, breakout & recast)	Prov Sum	1	R 15 000.00	R 15 000.00
3.2		Provisional sum for doing all preparatory works to commission pumpset (e.g., inspection, testing & close up of electrical cables; connection of pipework)	Prov Sum	1	R 7 500.00	R 7 500.00
3.3		Supply & install submersible pump, complete with controls etc suitable for delivering Q (flow) = 2.9m ³ /h at H (head = 19m)	Sum	1		R -
3.4		Commission complete installation	Sum	1		R -
4		CHLORINATOR				
4.1		Supply & install chlorinator and kiosk	Sum	1		
4.2		Construction of chamber complete with base slab for kiosk and manhole for pipework	Sum	1		
4.3		Supply and installation of pipework & fittings	Sum	1		R -
4.4		Commission chlorination installation	Sum	1		R -
5		FENCING				
5.1		Supply & install fencing	m	20		R -
5.2		Supply & install access gate	No.	1		R -
TOTAL CARRIED TO SUMMARY						

Mposa JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
1	SANS 1200 A	GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1	8.3.1	Contractual Requirements	Sum	1		R -
	8.3.2	Establish Facilities on the Site:				
1.2	8.3.2.1	<u>Facilities for Engineer</u>				
1.2.1		a) Telephone	Sum	1		N/A
1.2.2		b) Nameboard (1No.)	Sum	1		R -
1.3	8.3.2.2	<u>Facilities for Contractor</u>				
1.3.1		a) Offices and storage sheds	Sum	1		R -
1.3.3		b) Workshop	Sum	1		R -
1.3.3		c) Laboratories	Sum	1		R -
1.3.4		d) Living accommodation	Sum	1		R -
1.3.5		e) Ablution and latrine facilities	Sum	1		R -
1.3.6		f) Tools and equipment	Sum	1		R -
1.3.7		g) Water supplies, electric power and communications	Sum	1		R -
1.3.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.3.9		i) Access (Subclause 5.8)	Sum	1		R -
1.3.10		j) Plant	Sum	1		R -
1.3.11	8.3.3	Other fixed-charged obligations	Sum	1		R -
1.3.12	8.3.4	Removal of the Site Establishment	Sum	1		R -
		<u>Additional Contractual Obligations</u>				
1.3.13		Compilation and submission of Health & Safety Plan	Sum	1		R -
1.3.14		Supply labour with protective clothing and equipment	Sum	1		R -
1.3.15		Preparation of as-built drawings for the entire installation	Sum	1		R -
	8.4	TIME-RELATED ITEMS				
1.4	8.4.1	Contractual Requirements	Sum	1		R -
	8.4.2	Operate and maintain facilities on the Site for duration of construction, except where otherwise stated.				
1.5	8.4.2.1	<u>Facilities for Engineer</u>				
1.5.1		a) Telephone	Prov Sum	1	R 1 000.00	R 1 000.00
1.5.2		b) Nameboard (1No.)	Sum	1		R -
1.5.3		c) Survey assistants	Sum	1		R -
1.6	8.4.2.2	<u>Facilities for Contractor</u>				
1.6.1		a) Offices and storage sheds	Sum	1		R -
1.6.2		b) Workshops	Sum	1		R -
1.6.3		c) Laboratories	Sum	1		R -
1.6.4		d) Living accommodation	Sum	1		R -
Carried Forward						R -

IDT: ASIDI SCHOOLS PROGRAMME
CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024
SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Mposa JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						R -
1.6.5		e) Ablution and latrine facilities	Sum	1		R -
1.6.6		f) Tools and equipment	Sum	1		R -
1.6.7		g) Water supplies, electric power and communications	Sum	1		R -
1.6.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.6.9		i) Access (Subclause 5.8)	Sum	1		R -
1.6.10		j) Plant	Sum	1		R -
1.6.11	8.4.4	Company and head office overhead costs	Sum	1		R -
1.6.12	8.4.5	Other time-related obligations	Sum	1		R -
1.7		<u>Additional obligations</u>				
1.7.1		<i>Compliance with Construction Regulations (OHS Act)</i>	Sum	1		R -
1.7.2		<i>Compliance with Environmental good practice</i>				
1.7.2.1		a). Attend to all matters relating to the implementation and compliance of environmental good practice	Sum	1		R -
1.7.2.2		b). Marking out of project work sites.	Sum	1		R -
1.7.2.3		c). Provide and maintain fire fighting equipment.	Sum	1		R -
1.7.2.4		d). Provide and maintain spill control equipment.	Sum	1		R -
1.7.2.5		e). Contractors environmental representative	Sum	1		R -
1.7.3		<i>Compliance with SANS 1921 - 6 Part 6 HIV/AIDS Awareness.</i>				
1.7.3.1		Conduct HIV/AIDS Awareness Programme on site for not less than 90% of the workers inclusive of all direct and indirect costs.	Sum	1		R -
1.7.3.2		Provide and maintain condom dispenser (1No.)	Sum	1		R -
1.7.3.3		Provide and maintain HIV/AIDS awareness posters.	Sum	1		R -
1.7.3.4		Provide information regarding the voluntary testing of construction workers, and counselling, support and care.	Sum	1		R -
1.8	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
1.8.1		CLO	PC Sum	1	R 3 000.00	R 3 000.00
1.8.2		Overheads, Charges and profits on 1.8.1	%		R 3 000.00	R -
1.8.3		Provision of specific seed mix and application to areas for application as directed by the Engineer.	PC Sum	1	R 3 000.00	R 3 000.00
1.8.4		Overheads, Charges and profits on 1.8.3	%		R 3 000.00	R -
1.8.5		Survey of the complete works	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.5		Geotechnical & Contrrete tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.8		Water quality tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.8		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
Carried Forward						

IDT: ASIDI SCHOOLS PROGRAMME
 CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024
 SCHOOLS WATER SUPPLY INFRASTRUCTURE
 COMPLETION CONTRACT

Mposa JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
	8.7	DAYWORKS				
1.9		Allowance for Labour during normal working hours				
1.9.1		Site manager	hr	9		R -
1.9.2		Foreman	hr	9		R -
1.9.3		Skilled labour	hr	9		R -
1.9.4		Semi-skilled labour	hr	9		R -
1.9.5		Unskilled labour	hr	9		R -
1.9.6		HSEQ Officer	hr	9		R -
1.10		Allowance for Materials	Prov Sum	1	R 3 000,00	R 3 000,00
1.11		Allowance for Plant				
1.11.1		TLB	hr	9		R -
1.11.2		Tipper Truck (6 m³)	hr	9		R -
1.11.3		Plate compactor	hr	9		R -
1.11.4		Water tanker (5000l)	hr	9		R -
1.11.5		Pressure test pump	hr	9		R -
TOTAL CARRIED TO SUMMARY						

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SCHOOLS WATER SUPPLY INFRASTRUCTURE

COMPLETION CONTRACT

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SECTION B: WATER INFRASTRUTURE

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1		GENERAL				
1.1		Inspect the complete works, prior to commencement of works & report to Engineer to agree scope and methodology for the completion of the works	Sum	1		R -
1.2		Test borehole water quality for suitable for drinking purposes	Sum	1		R -
1.3		Commissioning the complete installation after completion of the works	Sum	1		R -
1.4		Cleaning & making good the entire site	Sum	1		R -
2		PIPELINES				
2.1		<u>Sump Pumping Main</u>				
2.1.1		Supply and install precast concrete valve chambers-Type 1220 (Refer to Drawing 25435-108)	No	1		R -
2.1.2		Supply and install 50mm PN16 brass gate Valve inclusive of adaptors and fittings	No	1		R -
2.1.3		Construct erosion control berm (Refer to Drawing Number 25435-108)	No	3		R -
2.1.4		Provisional sum for doing all remaining works in preparation for the pressure testing, as well as completion & commissioning of the pumping main (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.1.5		Sterilize & pressure test pipeline	km	0.5		R -
2.2		<u>Gravity Mains to Sump</u>				
2.2.1		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.2.2		Sterilize & pressure test pipelines	km	0.3		R -
2.3		<u>Reticulation</u>				
2.3.1		Construct drinking water fountain	No	1		R -
2.3.2		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.3.3		Sterilize & pressure test pipelines	km	0.5		R -
3		RAINWATER SUMP				
3.1		Provisional sum for doing all remedial works to concrete bases, plinths & slabs (e.g., application of epoxy coatings, breakout & recast)	Prov Sum	1	R 15 000.00	R 15 000.00
3.2		Provisional sum for doing all preparatory works to commission pumpset (e.g., inspection, testing & close up of electrical cables; connection of pipework)	Prov Sum	1	R 7 500.00	R 7 500.00
3.3		Supply & install submersible pump, complete with controls etc suitable for delivering Q (flow) = 2.9m ³ /h at H (head = 24m)	Sum	1		R -
3.4		Commission complete installation	Sum	1		R -
4		CHLORINATOR				
4.1		Supply & install chlorinator and kiosk	Sum	1		
4.2		Construction of chamber complete with base slab for kiosk and manhole for pipework	Sum	1		
4.3		Supply and installation of pipework & fittings	Sum	1		R -
4.4		Commission chlorination installation	Sum	1		R -
5		FENCING				
5.1		Supply & install fencing	m	20		R -
5.2		Supply & install access gate	No.	1		R -
TOTAL CARRIED TO SUMMARY						R -

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COMPLETION CONTRACT

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
1	SANS 1200 A	GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1	8.3.1	Contractual Requirements	Sum	1		R -
	8.3.2	Establish Facilities on the Site:				
1.2	8.3.2.1	<u>Facilities for Engineer</u>				
1.2.1		a) Telephone	Sum	1		N/A
1.2.2		b) Nameboard (1No.)	Sum	1		R -
1.3	8.3.2.2	<u>Facilities for Contractor</u>				
1.3.1		a) Offices and storage sheds	Sum	1		R -
1.3.3		b) Workshop	Sum	1		R -
1.3.3		c) Laboratories	Sum	1		R -
1.3.4		d) Living accommodation	Sum	1		R -
1.3.5		e) Ablution and latrine facilities	Sum	1		R -
1.3.6		f) Tools and equipment	Sum	1		R -
1.3.7		g) Water supplies, electric power and communications	Sum	1		R -
1.3.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.3.9		i) Access (Subclause 5.8)	Sum	1		R -
1.3.10		j) Plant	Sum	1		R -
1.3.11	8.3.3	Other fixed-charged obligations	Sum	1		R -
1.3.12	8.3.4	Removal of the Site Establishment	Sum	1		R -
		<u>Additional Contractual Obligations</u>				
1.3.13		Compilation and submission of Health & Safety Plan	Sum	1		R -
1.3.14		Supply labour with protective clothing and equipment	Sum	1		R -
1.3.15		Preparation of as-built drawings for the entire installation	Sum	1		R -
	8.4	TIME-RELATED ITEMS				
1.4	8.4.1	Contractual Requirements	Sum	1		R -
	8.4.2	Operate and maintain facilities on the Site for duration of construction, except where otherwise stated.				
1.5	8.4.2.1	<u>Facilities for Engineer</u>				
1.5.1		a) Telephone	Prov Sum	1	R 1 000.00	R 1 000.00
1.5.2		b) Nameboard (1No.)	Sum	1		R -
1.5.3		c) Survey assistants	Sum	1		R -
1.6	8.4.2.2	<u>Facilities for Contractor</u>				
1.6.1		a) Offices and storage sheds	Sum	1		R -
1.6.2		b) Workshops	Sum	1		R -
1.6.3		c) Laboratories	Sum	1		R -
1.6.3		d) Living accommodation	Sum	1		R -
Carried Forward						

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SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
1.6.3		e) Ablution and latrine facilities	Sum	1		R -
1.6.4		f) Tools and equipment	Sum	1		R -
1.6.5		g) Water supplies, electric power and communications	Sum	1		R -
1.6.6		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.6.7		i) Access (Subclause 5.8)	Sum	1		R -
1.6.8		j) Plant	Sum	1		R -
1.6.9	8.4.4	Company and head office overhead costs	Sum	1		R -
1.6.10	8.4.5	Other time-related obligations	Sum	1		R -
1.7		<u>Additional obligations</u>				
1.7.1		Compliance with Construction Regulations (OHS Act)	Sum	1		R -
1.7.2		Compliance with Environmental good practice				
1.7.2.1		a). Attend to all matters relating to the implementation and compliance of environmental good practice	Sum	1		R -
1.7.2.2		b). Marking out of project work sites.	Sum	1		R -
1.7.2.3		c). Provide and maintain fire fighting equipment.	Sum	1		R -
1.7.2.4		d). Provide and maintain spill control equipment.	Sum	1		R -
1.7.2.5		e). Contractors environmental representative	Sum	1		R -
1.7.3		Compliance with SANS 1921 - 6 Part 6 HIV/AIDS Awareness.				
1.7.3.1		Conduct HIV/AIDS Awareness Programme on site for not less than 90% of the workers inclusive of all direct and indirect costs.	Sum	1		R -
1.7.3.2		Provide and maintain condom dispenser (1No.)	Sum	1		R -
1.7.3.3		Provide and maintain HIV/AIDS awareness posters.	Sum	1		R -
1.7.3.4		Provide information regarding the voluntary testing of construction workers, and counselling, support and care.	Sum	1		R -
1.8	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
1.8.1		CLO	PC Sum	1	R 3 000.00	R 3 000,00
1.8.2		Overheads, Charges and profits on 1.8.1	%		R 3 000.00	R -
1.8.3		Provision of specific seed mix and application to areas for application as directed by the Engineer.	PC Sum	1	R 3 000.00	R 3 000,00
1.8.4		Overheads, Charges and profits on 1.8.3	%		R 3 000.00	R -
1.8.5		Survey of the complete works	PC Sum	1	R 5 000.00	R 5 000,00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.5		Geotechnical & Contrrete tests	PC Sum	1	R 5 000.00	R 5 000,00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.8		Water quality tests	PC Sum	1	R 5 000.00	R 5 000,00
1.8.8		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
Carried Forward						

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COMPLETION CONTRACT

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						
	8.7	DAYWORKS				
1.9		Allowance for Labour during normal working hours				
1.9.1		Site manager	hr	9		R -
1.9.2		Foreman	hr	9		R -
1.9.3		Skilled labour	hr	9		R -
1.9.4		Semi-skilled labour	hr	9		R -
1.9.5		Unskilled labour	hr	9		R -
1.9.6		HSEQ Officer	hr	9		R -
1.10		Allowance for Materials	Prov Sum	1	R 3 000,00	R 3 000,00
1.11		Allowance for Plant				
1.11.1		TLB	hr	9		R -
1.11.2		Tipper Truck (6 m³)	hr	9		R -
1.11.3		Plate compactor	hr	9		R -
1.11.4		Water tanker (5000l)	hr	9		R -
1.11.5		Pressure test pump	hr	9		R -
TOTAL CARRIED TO SUMMARY						

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SECTION B: WATER INFRASTRUTURE

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1		GENERAL				
1.1		Inspect the complete works, prior to commencement of works & report to Engineer to agree scope and methodology for the completion of the works	Sum	1		R -
1.2		Test borehole water quality for suitable for drinking purposes	Sum	1		R -
1.3		Commissioning the complete installation after completion of the works	Sum	1		R -
1.4		Cleaning & making good the entire site	Sum	1		R -
2		PIPELINES				
2.1		<u>Sump Pumping Main</u>				
2.1.1		Supply and install precast concrete valve chambers-Type 1220 (Refer to Drawing 25435-108)	No	1		R -
2.1.2		Supply and install 50mm PN16 brass gate Valve inclusive of adaptors and fittings	No	1		R -
2.1.3		Construct erosion control berm (Refer to Drawing Number 25435-108)	No	3		R -
2.1.4		Provisional sum for doing all remaining works in preparation for the pressure testing, as well as completion & commissioning of the pumping main (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.1.5		Sterilize & pressure test pipeline	km	0.3		R -
2.2		<u>Gravity Mains to Sump</u>				
2.2.1		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 10 000.00	R 10 000.00
2.2.2		Sterilize & pressure test pipelines	km	0.3		R -
2.3		<u>Reticulation</u>				
2.3.1		Construct drinking water fountain	No	1		R -
2.3.2		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 7 500.00	R 7 500.00
2.3.3		Sterilize & pressure test pipelines	km	0.2		R -
3		RAINWATER SUMP				
3.1		Provisional sum for doing all remedial works to concrete bases, plinths & slabs (e.g., application of epoxy coatings, breakout & recast)	Prov Sum	1	R 15 000.00	R 15 000.00
3.2		Provisional sum for doing all preparatory works to commission pumpset (e.g., inspection, testing & close up of electrical cables; connection of pipework)	Prov Sum	1	R 7 500.00	R 7 500.00
3.3		Supply & install submersible pump, complete with controls etc suitable for delivering Q (flow) = 2.8m ³ /h at H (head = 18m)	Sum	1		R -
3.4		Commission complete installation	Sum	1		R -
4		CHLORINATOR				
4.1		Supply & install chlorinator and kiosk	Sum	1		R -
4.2		Construction of chamber complete with base slab for kiosk and manhole for pipework	Sum	1		R -
4.3		Supply and installation of pipework & fittings	Sum	1		R -
4.4		Commission chlorination installation	Sum	1		R -
5		FENCING				
5.1		Supply & install fencing	m	20		R -
5.2		Supply & install access gate	No.	1		R -
TOTAL CARRIED TO SUMMARY						

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
1	SANS 1200 A	GENERAL				
	8.3	SCHEDULED FIXED-CHARGE AND VALUE RELATED ITEMS				
1.1	8.3.1	Contractual Requirements	Sum	1		R -
	8.3.2	Establish Facilities on the Site:				
1.2	8.3.2.1	<u>Facilities for Engineer</u>				
1.2.1		a) Telephone	Sum	1		N/A
1.2.2		b) Nameboard (1No.)	Sum	1		R -
1.3	8.3.2.2	<u>Facilities for Contractor</u>				
1.3.1		a) Offices and storage sheds	Sum	1		R -
1.3.3		b) Workshop	Sum	1		R -
1.3.3		c) Laboratories	Sum	1		R -
1.3.4		d) Living accommodation	Sum	1		R -
1.3.5		e) Ablution and latrine facilities	Sum	1		R -
1.3.6		f) Tools and equipment	Sum	1		R -
1.3.7		g) Water supplies, electric power and communications	Sum	1		R -
1.3.8		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.3.9		i) Access (Subclause 5.8)	Sum	1		R -
1.3.10		j) Plant	Sum	1		R -
1.3.11	8.3.3	Other fixed-charged obligations	Sum	1		R -
1.3.12	8.3.4	Removal of the Site Establishment	Sum	1		R -
		<u>Additional Contractual Obligations</u>				
1.3.13		Compilation and submission of Health & Safety Plan	Sum	1		R -
1.3.14		Supply labour with protective clothing and equipment	Sum	1		R -
1.3.15		Preparation of as-built drawings for the entire installation	Sum	1		R -
	8.4	TIME-RELATED ITEMS				
1.4	8.4.1	Contractual Requirements	Sum	1		R -
	8.4.2	Operate and maintain facilities on the Site for duration of construction, except where otherwise stated.				
1.5	8.4.2.1	<u>Facilities for Engineer</u>				
1.5.1		a) Telephone	Prov Sum	1	R 1 000.00	R 1 000.00
1.5.2		b) Nameboard (1No.)	Sum	1		R -
1.5.3		c) Survey assistants	Sum	1		R -
1.6	8.4.2.2	<u>Facilities for Contractor</u>				
1.6.1		a) Offices and storage sheds	Sum	1		R -
1.6.2		b) Workshops	Sum	1		R -
1.6.3		c) Laboratories	Sum	1		R -
1.6.3		d) Living accommodation	Sum	1		R -
1.6.3		e) Ablution and latrine facilities	Sum	1		R -
Carried Forward						R -

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Jonginkundla JSS

SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						R -
1.6.4		f) Tools and equipment	Sum	1		R -
1.6.5		g) Water supplies, electric power and communications	Sum	1		R -
1.6.6		h) Dealing with water (Subclause 5.5)	Sum	1		R -
1.6.7		i) Access (Subclause 5.8)	Sum	1		R -
1.6.8		j) Plant	Sum	1		R -
1.6.9	8.4.4	Company and head office overhead costs	Sum	1		R -
1.6.10	8.4.5	Other time-related obligations	Sum	1		R -
1.7		<u>Additional obligations.</u>				
1.7.1		<i>Compliance with Construction Regulations (OHS Act)</i>	Sum	1		R -
1.7.2		<i>Compliance with Environmental good practice</i>				
1.7.2.1		a). Attend to all matters relating to the implementation and compliance of environmental good practice	Sum	1		R -
1.7.2.2		b). Marking out of project work sites.	Sum	1		R -
1.7.2.3		c). Provide and maintain fire fighting equipment.	Sum	1		R -
1.7.2.4		d). Provide and maintain spill control equipment.	Sum	1		R -
1.7.2.5		e). Contractors environmental representative	Sum	1		R -
1.7.3		<i>Compliance with SANS 1921 - 6 Part 6 HIV/AIDS Awareness.</i>				
1.7.3.1		Conduct HIV/AIDS Awareness Programme on site for not less than 90% of the workers inclusive of all direct and indirect costs.	Sum	1		R -
1.7.3.2		Provide and maintain condom dispenser (1No.)	Sum	1		R -
1.7.3.3		Provide and maintain HIV/AIDS awareness posters.	Sum	1		R -
1.7.3.4		Provide information regarding the voluntary testing of construction workers, and counselling, support and care.	Sum	1		R -
1.8	8.5	SUMS STATED PROVISIONALLY BY THE ENGINEER				
1.8.1		CLO	PC Sum	1	R 3 000.00	R 3 000.00
1.8.2		Overheads, Charges and profits on 1.8.1	%		R 3 000.00	R -
1.8.3		Provision of specific seed mix and application to areas for application as directed by the Engineer.	PC Sum	1	R 3 000.00	R 3 000.00
1.8.4		Overheads, Charges and profits on 1.8.3	%		R 3 000.00	R -
1.8.5		Survey of the complete works	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.5		Geotechnical & Contrrete tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.6		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
1.8.8		Water quality tests	PC Sum	1	R 5 000.00	R 5 000.00
1.8.8		Overheads, Charges and profits on 1.8.5	%		R 5 000.00	R -
Carried Forward						R -

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 COMPLETION CONTRACT

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SECTION A : PRELIMINARY AND GENERAL

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	BILL AMOUNT
Brought Forward						R -
	8.7	DAYWORKS				
1.9		Allowance for Labour during normal working hours				
1.9.1		Site manager	hr	9		R -
1.9.2		Foreman	hr	9		R -
1.9.3		Skilled labour	hr	9		R -
1.9.4		Semi-skilled labour	hr	9		R -
1.9.5		Unskilled labour	hr	9		R -
1.9.6		HSEQ Officer	hr	9		R -
1.10		Allowance for Materials	Prov Sum	1	R 3 000,00	R 3 000,00
1.11		Allowance for Plant				
1.11.1		TLB	hr	9		R -
1.11.2		Tipper Truck (6 m³)	hr	9		R -
1.11.3		Plate compactor	hr	9		R -
1.11.4		Water tanker (5000l)	hr	9		R -
1.11.5		Pressure test pump	hr	9		R -
TOTAL CARRIED TO SUMMARY						R -

IDT: ASIDI SCHOOLS PROGRAMME
CLUSTER 1D: CONTRACT NO.: DoEEC/01/2023/2024
SCHOOLS WATER SUPPLY INFRASTRUCTURE
COMPLETION CONTRACT

Jonginkundla JSS

SECTION B: WATER INFRASTRUTURE

ITEM	PAYMENT REFERS TO	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
1		GENERAL				
1.1		Inspect the complete works, prior to commencement of works & report to Engineer to agree scope and methodology for the completion of the works	Sum	1		R -
1.2		Test borehole water quality for suitable for drinking purposes	Sum	1		R -
1.3		Commissioning the complete installation after completion of the works	Sum	1		R -
1.4		Cleaning & making good the entire site	Sum	1		R -
2		PIPELINES				
2.1		<u>Borehole Pumping Main</u>				
		<i>Donga Crossing (50mm flanged GI pipe encased in concrete)</i>				
2.1.1		Provisional sum for breaking out and removal concrete, as well as preparation of work surface	Prov Sum	1	R 2 500.00	R 2 500.00
	SANS DB - 8.3.2	Excavate in all materials for pipe trenches, backfill, compact, and dispose of surplus material, for trenches up to 600 mm wide.				
2.1.2		Exceeding not exceeding 1.0m deep	m	15		R -
2.1.3		Exceeding 1.0 m but not exceeding 2.0m deep	m	5		R -
2.1.4	SANS L - 8.2.1	Supply, lay & bed 50mm flanged Galvanized Steel pipe, complete with nuts, bolts & washers as per detail Drawing 25435-108 (encasement measured elsewhere)	m	15		R -
	SANS L - 8.2.8	Recover old pipelines				
2.1.5		Old 50mm GI pipe (depth not exceeding 1.0m)	m	15		R -
2.1.6		Old 50m GI pipe (depth greater than 1.0m but not exceeding 1.0m)	m	5		R -
2.1.7	SANS L - 8.2.12	Concrete casing	m³	1.5		R -
2.1.8	SANS L - 8.2.15	Special wrapping in corrosive soil (Denso tape OEA)	m	5		R -
2.1.9	SANS LB - 8.2.1	Provision of bedding from trench excavation	m³	0.5		R -
		<i>Balance of Pumping Main</i>				
2.1.10		Supply and install precast concrete valve chambers-Type 1220 (Refer to Drawing 25435-108)	No	1		R -
2.1.11		Supply and install 25mm PN16 brass gate Valve inclusive of adaptors and fittings	No	1		R -
2.1.12		Construct erosion control berm (Refer to Drawing Number 25435-108)	No	3		R -
2.1.13		Provisional sum for doing all remaining works in preparation for the pressure testing, as well as completion & commissioning of the pumping main (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.1.14		Sterilize & pressure test pipeline	km	0.5		R -
2.2		<u>Gravity Mains to Sump</u>				
2.2.1		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.2.2		Sterilize & pressure test pipelines	km	0.25		R -
2.3		<u>Reticulation</u>				
2.3.1		Construct drinking water fountain	No	1		R -
2.3.2		Provisional sum for doing all works in preparation for the pressure testing, as well as completion & commissioning of the gravity mains (e.g., connections, drainage, neatening, cleaning, markers etc)	Prov Sum	1	R 5 000.00	R 5 000.00
2.3.3		Sterilize & pressure test pipelines	km	0.25		R -
Carried Forward						

Brought Forward						
3		WIND TURBINE				
3.1		Recover existing wind turbine and dispose	Sum	1		R -
3.2		Supply & install wind turbine pumpset, complete with pump & controls etc suitable for delivering Q (flow) = 0.5m ³ /hr at H (head = 118m)				
3.2.1		Submersible pump installed to 104m complete with all pipework and supports	Sum	1		R -
3.2.2		Windturbine (1KW) complete with tower, base, supports and the likes	Sum	1		R -
3.2.3		Controls and wiring complete for pump & turbine	Sum	1		R -
3.4		Commission installation	Sum	1		R -
4		CHLORINATOR				
4.1		Supply & install chlorinator and kiosk	Sum	1		R -
4.2		Construction of chamber complete with base slab for kiosk and manhole for pipework	Sum	1		R -
4.3		Supply and installation of pipework & fittings	Sum	1		R -
4.4		Commission chlorination installation	Sum	1		R -
TOTAL CARRIED TO SUMMARY						

INDEPENDENT DEVELOPMENT TRUST

COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024**SUMMARY OF THE BILL OF QUANTITIES**

Project Name	Section 1	Section 2	Total
	Preliminary & General	Outstanding Works	
LADIMIZULU JPS	R.....	R.....	R.....
MVUMELWANO JSS	R.....	R.....	R.....
MPOZA JSS	R.....	R.....	R.....
ZANEMVULA JSS	R.....	R.....	R.....
JONGINKUNDLA JSS	R.....	R.....	R.....
Total			R.....

CALCULATION OF BID SUM

TOTAL OF THE BILL OF QUANTITIES (SUM 1)	R.....
--	---------------

CONTINGENCIES (10% of Sum 1)

The sum provided here is under the sole control of the Engineer R.....
and may be deducted in whole or in part.

SUB TOTAL (Sum 2)	R.....
--------------------------	---------------

VALUE ADDED TAX

(The Bidder shall add 15% of Sum 2 for VAT) R.....

TENDER SUM CARRIED TO FORM OF OFFER	R.....
--	---------------

Signature _____ Date _____
Name _____ Capacity _____
Bidder _____

C3.1 DESCRIPTION OF THE WORKS

1.1 Employer's objectives

This ASIDI Water Programme is aimed at providing water supplies to schools in and around the OR Tambo District Municipality region in the Eastern Cape Province.

The provision of water infrastructure to targeted schools entails basic level of service to Department of Basic Education's ASIDI standards and includes both groundwater and rainwater harvesting supplies.

The works for this specific Contract entails the completion of works started, but not completed by others at **CLUSTER 1D** schools comprising, **Ladimizulu JPS, Mvumelwano JSS, Mpoza JSS, Zanemvula JSS & Jonginkundla JSS** in the Eastern Cape.

1.2 Overview of the works

Work to be carried out entails the assessment of installed infrastructure and the repair of existing and/or installation of new infrastructure as directed by the Employer's Agent.

1.3 Extent of the works

The major items of outstanding works are described below in general terms, with more details provided on the construction specifications, bill of quantities and tender drawings.

LADIMIZULU JPS

- Complete, pressure test and sterilize rainwater harvesting collection system and gravity mains up to and including the collection sump.
- Test tank water quality.
- Concrete and masonry works (new and repairs) to sump and related structures.
- Supply and install new electrically driven submersible pumpset complete with controls, pipework and the likes.
- Supply & install fencing around the rainwater sump and related infrastructure.
- Complete, pressure test and sterilize pumping main.
- Supply & install new chlorinator, kiosk, manhole and associated pipework.
- Complete, pressure test and sterilize reticulation pipelines
- Commission the entire works.
- Clean site.
- Compilation of as-builts and O&M manuals for the entire works

MVUMELWANO JSS

- Complete, pressure test and sterilize rainwater harvesting collection system and gravity mains up to and including the collection sump.
- Test tank water quality.
- Concrete and masonry works (new and repairs) to sump and related structures.
- Supply and install new electrically driven submersible pumpset complete with controls, pipework and the likes.
- Supply & install fencing around the rainwater sump and related infrastructure.
- Complete, pressure test and sterilize pumping main.
- Supply & install new chlorinator, kiosk, manhole and associated pipework.
- Complete, pressure test and sterilize reticulation pipelines.
- Commission the entire works.
- Clean site.
- Compilation of as-builts and O&M manuals for the entire works

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MPOZA JSS

- Complete, pressure test and sterilize rainwater harvesting collection system and gravity mains up to and including the collection sump.
- Test tank water quality.
- Concrete and masonry works (new and repairs) to sump and related structures.
- Supply and install new electrically driven submersible pumpset complete with controls, pipework and the likes.
- Supply & install fencing around the rainwater sump and related infrastructure.
- Complete, pressure test and sterilize pumping main.
- Supply & install new chlorinator, kiosk, manhole and associated pipework.
- Complete, pressure test and sterilize reticulation pipelines
- Commission the entire works.
- Clean site.

ZANEMVULA JSS

- Complete, pressure test and sterilize rainwater harvesting collection system and gravity mains up to and including the collection sump.
- Test tank water quality.
- Concrete and masonry works (new and repairs) to sump and related structures.
- Supply and install new electrically driven submersible pumpset complete with controls, pipework and the likes.
- Supply & install fencing around the rainwater sump and related infrastructure.
- Complete, pressure test and sterilize pumping main.
- Supply & install new chlorinator, kiosk, manhole and associated pipework.
- Complete, pressure test and sterilize reticulation pipelines
- Commission the entire works.
- Clean site.
- Compilation of as-builts and O&M manuals for the entire works

JONGINKUNDLA JSS

- Repair or replace wind turbine driven borehole pumpset complete with controls, pipework and the likes.
- Test borehole water quality.
- Complete, pressure test and sterilize pumping main.
- Supply & install new chlorinator, kiosk, manhole and associated pipework.
- Demolish existing and construct new drinking fountain.
- Complete, pressure test and sterilization of reticulation pipelines
- Commission the entire works.
- Clean site.
- Compilation of as-builts and O&M manuals for the entire works

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COMPLETION OF ASIDI WATER SUPPLY PROJECTS AT CLUSTER 1D SCHOOLS

TENDER NO. DOEEC/01/2023/2024**1.4 Location of the works**

Cluster 2					
Project Type	Contract	ID	School Name	East	South
Water	1D	1	LADIMIZULU JPS	28.482180	-31.274880
Water	1D	2	MVUMELWANO JSS	28.511120	-31.291390
Water	1D	3	MPOZA JSS	28.501420	-31.310710
Water	1D	4	ZANEMVULA JSS	28.547620	-31.282970
Water	1D	5	JONGINKUNDLA JSS	28.607730	-31.272360

C3.2 ENGINEERING

C3.2.1 Design Services and Activity Matrix

Description	Responsible
Concept, feasibility and overall process	Employer
Basic Engineering and detail layout to tender stage	Employer
Final design to approved for construction stage	Employer
Temporary works	Contractor
Preparation of as-built drawings	Contractor

C3.2.2 Drawings

3.2.2.1 General

The drawings as listed in *Table 2.1* form part of the tender documents and shall be used for tender purposes only. Revised drawings will be issued for construction purposes.

The Contractor will be supplied with an un-reduced paper print of each of the drawings. These prints will be issued free of charge and the Contractor shall make any additional prints he may require at his own cost.

Any information in the possession of the Contractor necessary for the Resident Engineer to complete his as-built drawings shall be supplied to the Resident Engineer before a Certificate of Completion will be issued.

Only figured dimensions shall be used and drawings may not be scaled unless so instructed by the Engineer. The Engineer will supply and figured dimensions, which may have been omitted from the drawings.

The levels given on the structural drawings are subject to confirmation on the site, and the Contractor shall submit all levels to the Engineer for confirmation before he commences any structural construction work. The Contractor shall also check all clearances given on the drawings and shall inform the Engineer of any discrepancies.

3.2.2.2 List of Contract Drawings prepared by Employer

Table 2.1: List of Drawings

DRAWING NO	DESCRIPTION
25435-108	Jonginkundla JSS: Connections of Community Standpipes
25435-109	Site Development Plan : Mvumelwano JSS : Rainwater Harvesting
25435-110	Site Development Plan : Mpoza JSS: Rainwater Harvesting
25435-112	Site Development Plan : Ladimizulu JPS : Rainwater Harvesting
25435-113	Site Development Plan : Zanemvula JSS: Rainwater Harvesting
25435-400 REV 0	Rainwater Harvesting Gutter Downpipe Connection Detail
25435-401	Standpipe Drinking Fountain Soakaway and Details
25435-403-REV 3	Rainwater Harvesting Tank Connection
25435-403	Water Typical Details
25435-404-Rev 0	Proposed Chlorination Detail
25435-406	Road Crossing Pipe Bedding and Concrete Encasement Details
25435-407	Fencing Detail
25435-408	Wind Turbines
25435-409	Brick Valve Chamber Details

3.3 PROCUREMENT

3.1 Preferential procurement procedures

SANS 10396: 2003 and SANS 1914-1 to 6: 2002 are applicable to this Contract, as detailed further in the Tender component of this document.

3.1.1 Requirements for the sourcing and engagement of labour.

3.1.1.1 Labour required for the execution of all labour intensive works shall be engaged strictly in accordance with prevailing legislation and SANS 1914-5, Participation of Targeted Labour.

3.1.1.2 The rate of pay set for this project is as follows:

Description	Daily wage for 8 hour work day (Minimum)	Important Note to Bidders
Unskilled labour	R 120.00	NB: Rates are just a guide Bidders are to check and verify rates used in the area from Local Department Of Labour.
Semi-skilled labour	R 160.00	
Skilled labour	R 190.00	
Supervisor	R 230.00	

3.1.1.3 Tasks established by the contractor must be such that:

- a) the average worker completes 5 tasks per week in 40 hours or less; and
- b) the weakest worker completes 5 tasks per week in 55 hours or less.

3.1.1.4 The contractor must revise the time taken to complete a task whenever it is established that the time taken to complete a weekly task is not within the requirements of 3.1.1.3.

3.1.1.5 The Contractor shall, through all available community structures, inform the local community of the labour intensive works and the employment opportunities presented thereby. Preference must be given to people with previous practical experience in construction and / or who come from households:

- a) where the head of the household has less than a primary school education;
- b) that have less than one full time person earning an income;
- c) where subsistence agriculture is the source of income;
- d) those who are not in receipt of any social security pension income

3.1.1.6 The Contractor shall endeavor to ensure that the expenditure on the employment of temporary workers is in the following proportions:

- a) 25 % women;
- b) 50% youth who are between the ages of 18 and 25; and
- c) 2% on persons with disabilities.

3.1.2 Specific provisions pertaining to SANS 1914-5

3.1.2.1 Definitions

3.1.2.1.1 Targeted labour: Unemployed persons who are employed as local labour on the project.

3.1.2.2 Contract Participation Goal

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- 3.1.2.2.1 The minimum Contract Participation Goal applicable to the Contract is 15%.
- 3.1.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes. The Person / days will be calculated in accordance with Addendum F: Contract Person / Days Calculation Format.
- 3.1.2.3 Terms and conditions for the engagement of targeted labour**
- 3.1.2.3.1 Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts to be signed between the Contractor and workers will be in accordance with the pro-forma contract, attached as Addendum D.
- 3.1.2.3.2 Further to the provisions of clause 5.2 of SANS 1914-5, the Contractor will use the pro-forma attendance register, attached as Addendum E, to record the required information as per said clause.
- 3.1.2.4 Variations to the SANS 1914-5**
- None
- 3.1.2.5 Training of targeted labour**
- 3.1.2.5.1 The Employer will appoint a service provider that will provide training to the workers. The Contractor need not to provide for payment of said service provider.
- 3.1.2.5.2 Workers will receive 2 days training per every 22 working days for the duration of the Contract.
- 3.1.2.5.3 An allowance equal to 100% of the task rate or daily rate shall be paid by the Contractor to workers who attend training, in terms of 3.1.2.5.
- 3.1.2.5.4 Records pertaining to the attendance, progress and performance of trainees will be kept by the Contractor and made available to the Employer monthly. These records shall be attached to the monthly progress payment certificates to the Employer.
- 3.1.2.5.5 The Contractor shall do nothing to dissuade targeted labour from participating in training programmes.
- 3.2 Subcontracting**
- 3.2.1 Scope of mandatory subcontract work**
- As per the mandatory sub-contracting clause, the Contractor must not sub-contract more than 30% of work to Domestic Sub-contractors.
- The Contractor shall without delay enter into contracts with the Domestic Subcontractors as submitted on the returnable schedule and forward a copy of these agreements to the Principal Agent. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.
- The Contractor to take note of item 3.2.2 below
- 3.2.2 Preferred subcontractors / suppliers**
- 3.2.3 Subcontracting procedures**
- See items 3.2.1 and 3.2.2 as well as tender data
- 3.2.4 Attendance on subcontractors**
- Attendance to Domestic Sub-contractors as stated above should be priced under the relevant items in the Preliminaries section of the bills of quantities. Attendance to nominated sub-contractors should be priced under the relevant items in the Provisional Sums section of the bills of quantities.

C3.4 CONSTRUCTION

C3.4.1 Applicable Standards

The standards applicable to this Contract are the SANS 1200 Standardized Specifications detailed below and the variations, amendments and additions to the SANS 1200 Standardized Specifications contained in C3.6, as well as the Technical and Particular Specifications listed below and contained in C3.7 of the document.

C3.4.2 Applicable Standardized Specifications

The Standard Specifications for all associated civil work applicable to this Contract shall be:

1200 A	: General (1986)
1200 AB	: Employer's Agent's office (1986)
1200 C	: Site clearance (1980)
1200 D	: Earthworks (1988)
1200 DB	: Earthworks (Pipe trenches) (1989)
1200 DK	: Gabions and Pitching (1996)
1200 G	: Concrete (Structural) (1982)
1200 GA	: Concrete (Small works) (1982)
1200 L	: Medium-pressure pipe lines (1983)
1200 LB	: Bedding (Pipes) (1983)
1200 LC	: Cable ducts (1981)
1200 LF	: Erf connection (water) (1983)

Reference is made to certain provisions of:

SANS 1921-5	Construction and management requirements for works contracts: Earthworks activities which are to be performed by hand
SANS 1914-5	Targeted construction procurement: Participation of targeted labour

These Specifications are not issued with this volume but are available at the Contractor's expense from Standards South Africa:

Physical Address	Postal Address	Telephone No.	Fax No.	Email Address
1 Dr Lategan Road, Groenkloof PRETORIA	Private bag X191 PRETORIA 0001	012 428-7922	012 344 1568	sales@sabs.co.za

C3.4.3 List of Technical and Particular Specifications

C3.4.3.1 List of Technical Specifications

CC : Fencing and Gates
CE : Water Distribution Networks

C3.4.3.2 List of Particular Specifications

PTS : Water tightness testing and sterilization of water retaining structures
PPSA : General Requirements for Electrical and Mechanical Water
PPSB : Operational Control of Pump Stations
PPSC : Pump Specifications
PPSD : Electrical Specifications

C3.4.4 Plant and Materials

The Contractor is required to provide and/or procure all the requisite plant and materials for the successful completion of the Works.

3.5 MANAGEMENT**3.5.1 MANAGEMENT OF THE WORKS****3.5.1.1 Applicable Standards**

The Contractor is referred to SANS 1921: 2004 parts 1, 2 and 3: Construction and Management Requirements for Works Contracts. These specifications shall be applicable to the Contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Certain aspects however require further attention as described hereafter.

3.5.2 Planning and Programme

The Contractor is required to submit for approval by the Engineer, within the timeframe stipulated in the Contract Data, a programme of works. The programme must be for the full contract period stipulated in the Contract Data and must clearly indicate all the main construction activities, their sequence and the critical path. The Contractor may not proceed with construction activities until such time as the programme has been approved by the Engineer.

The Contractor is required to report on and update the programme on a monthly basis.

The Contractor shall be deemed to have allowed fully in his tendered rates and prices as well as in his programme, for all possible delays due to normal adverse weather conditions and special non-working days as specified in the Contract Data.

The following constraints shall be taken into account in preparing the construction programme:

- a) The Contract time is **3 months**. Plant and personnel requirements to complete the project in the contract period must be incorporated in the Tender.

If during the time for completion of the Works or any extension thereof abnormal rainfall or wet conditions occurs, then the formula below shall be used to calculate separately the delay for each calendar month or part thereof. It shall be calculated each month during the period referred to in Clause 42.1 as the time for the completion of the Works and any extension time in accordance with Clause 42.1 that may have been granted by the Employer, or until the issue date of the certificate of practical completion, whichever is the shorter period. The delay calculated for a given month shall be used to determine the interim extension of time granted for the month. At the end of the applicable period referred to above, the aggregate of the monthly delays will be taken into account for the final determination of the total extension of time for the Contract:

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

If any value of V is negative and its absolute value exceeds Nn, then V shall be taken as equal to minus Nn.

The delay for a part of a month shall be calculated by substituting pro-rata values for the variables in the equation.

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The symbols shall have the following meanings:

V	=	Delays due to rain in calendar days in respect of the calendar month under consideration.
Nw	=	Actual number of days during the calendar month on which a rainfall of Y mm or more per day has been recorded.
Rw	=	Actual rainfall in mm for the calendar month under consideration.
Nn	=	Average number of days in the relevant calendar month (as derived from existing rainfall records provided in the project specifications) on which a rainfall of Y mm or more per day has been recorded.
Rn	=	Average rainfall in mm for the calendar month, as derived from the rainfall records supplied in the project specifications.
X	=	20, unless otherwise provided in the project specifications.
Y	=	10, unless otherwise provided in the project specifications.

The total delay that will be taken into account for the determination of the total extension of time for the Contract shall be the algebraic sum of the monthly totals for the period under consideration. But if the grand total is negative, the time for completion shall not be reduced on account of abnormal rainfall. The total extension of time for any calendar month shall not exceed $(Nc - Nn)$ calendar days, where Nc = number of days calendar days in the month under consideration.

The factor $(Nw - Nn)$ shall be considered to represent a fair allowance for variations from the average number of days during which rainfall equals or exceeds Y mm per day.

The factor $(Rw - Rn) \div X$ shall be considered to represent a fair allowance for variations from the average for the number of days during which rainfall does not equal or exceed Y mm per day, but wet conditions prevent or disrupt work.

This formula does not take into account any flood damage, which could cause further or concurrent delays and which should be treated separately in so far as extension of time is concerned.

Accurate rain gaugings shall be taken at a suitable point on the site daily at 08H00 unless otherwise agreed to by the Engineer, and the Contractor shall, at his own expense, take all necessary precautions to ensure that the rain gauges cannot be interfered with by unauthorised persons.

Information regarding existing rainfall records, if available from a suitable rainfall station near the site, will be supplied in the project specifications, together with calculations of rain delays for previous years in accordance with the above formula. The average of these delays will be regarded as normal rain delays which the Contractor shall accommodate in his programme, and for which no extension of time will be considered.

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CALENDAR MONTH	EXPECTED NUMBER OF WORKING DAYS LOST DUE TO NORMAL RAINFALL	AVERAGE MONTHLY RAINFALL (mm)
January	4	114
February	4	110
March	4	106
April	3	49
May	2	26
June	1	15
July	1	18
August	2	21
September	2	46
October	3	74
November	4	99
December	4	104
TOTAL	34 days	783 mm

3.5.3 Sequence of the Works

Prior to commencing with construction, the Contractor is required to obtain approval from the Engineer, of his intended sequencing of the work.

3.5.4 Methods and procedures

The Contractor is required to undertake all construction activities in an orderly fashion and to maintain the cleanliness of the site during the contract period, to the satisfaction of the Engineer.

The Contractor is required to take note of and comply with the requirements of the Environmental Management Plan contained in this document. Monthly audits will be conducted by others to ensure compliance thereto. During the setting out of the works, guidance should be sought from the Engineer prior to the removal of trees and shrubs.

No blasting operations may be undertaken without the approval of the Engineer. The requisite documentation indicating the competence of the blaster, the approvals of the relevant authorities and the method statement for each blast, are required for approval purposes.

Adequate materials should be available from the site. The Engineer will however indicate as required, the location of suitable borrow pits. These shall be opened and managed in accordance with the requirements of the Environmental Management Plan.

All suitable excess materials may be spread over the trench width. However, no rocks or boulders greater than 0.15m³ or of mass exceeding 25kg, may be placed within 2 m of the centreline of pipeline. Such materials are to be disposed at suitable locations within the freehaul distance.

The Contractor shall pay special attention to the management and disposal of water and stormwater on the site and the conservation of topsoil and the rehabilitation of the site. It is essential that all completed works or parts thereof are kept dry and properly drained. Furthermore, portions of the Works must be completed and suitably rehabilitated before moving onto new portions of the Works.

The Engineer reserves the right to limit the number of working fronts to ensure that the above is adhered to. Claims for delay and for repair of damage caused to the works as a result of the Contractor's failure with the above or to properly manage rain and surface water will not be considered.

The Contractor shall take all reasonable measures to maintain access to properties and a free flow of traffic during the construction of the works. Where it is this required to disrupt access and the free flow of traffic, it must be kept to a minimum, be of short duration and adequate notice and traffic accommodation measures must be provided. Furthermore, the approval of the Engineer must be sought in advance of any planned disruption.

The Contractor is to undertake all reasonable measures to minimize dust, noise, water, waste and other impediments and shall comply with the requirements of the Environmental Management Plan contained in this document.

The Contractor is required to obtain permission from the Engineer prior to working outside normal working hours.

The Contractor will be obliged to comply with the QA system of the Engineer, which dictates the requirements pertaining to inspections required prior to covering works.

3.5.5 Quality plans and control

The Contractor will be solely responsible for the production of work that complies with the Specifications to the satisfaction of the Engineer. To this end it will be the full responsibility of the Contractor to institute an appropriate Quality Assurance (QA) system on site. However, the Contractor will also be required to comply with certain QA systems imposed by the Engineer, concerning to the approval of works o temporary works.

Process Control:

The Contractor shall arrange for all tests required for process control to be done by a laboratory acceptable to and approved by the Engineer.

The Contractor may employ the services of an independent commercial laboratory and must submit the results of tests carried out on materials and workmanship when submitting work for acceptance by the Engineer. The costs for these tests shall be deemed to be included in the relevant rates and no additional payment will be made for testing as required.

Acceptance control:

The process control test results submitted by the Contractor for approval of materials and workmanship may be used by the Engineer for acceptance control. However, before accepting any work, the Engineer may have further control tests carried out by a laboratory of his choice. The cost of such additional tests will be covered by the Employer, but tests that failed to confirm compliance with the specifications, will be for the account of the Contractor.

3.5.6 Environment

The Contractor is required to undertake the construction of the Works in such a manner so as to minimize its impact on the environment. To this end, the Contractor is required to comply with the requirement of the Environmental Management Plan contained in Part 5 of this document.

3.5.7 Other contractors

No other construction works are envisaged to be undertaken during the construction of this Contract.

3.5.8 Testing, completion, commissioning and correction of defects

It is required that the reservoirs and pipelines undergo and comply with the requisite water tightness and pressure tests prior to the connection to any existing works. Only once the Engineer has satisfied himself with the adequacy on the initial tests, will the Contractor be allowed to commission the Works. A method statement for the commissioning of the works will however be required for approval in advance of the commissioning. Relevant acceptance testing will also comply to all pump stations prior to their connection to the rest of the works.

Should any components of the works not meet the requirements of the initial tests, they shall be repaired by the Contractor at his own costs, and be re-tested, prior to the commissioning of the works.

3.5.9 Recording of weather

The Contractor shall erect an effective rainfall gauge on the site and record the daily rainfall figures in a book. Such book shall be handed to the employer's representative for his signature no later than 12 days after rain that is considered to justify an extension of time occurs.

3.5.10 Management meetings

The Employer's Representative and the Contractor shall hold meetings relating to the progress of the works at regular intervals and at other such times as may be necessary. The Contractor shall attend all site meetings and shall ensure that all persons under his jurisdiction are notified timeously of all site meetings should the Employer's Representative require their attendance at such meetings.

The Contractor shall keep on site a set of minutes of all site meetings, daily records of resources (people and equipment employed), a site instruction book, a complete set of contract working drawings and a copy of the procurement document and make these available at all reasonable times to all persons concerned with the contract.

3.5.11 Forms for contract management

It is required that the Contractor submit the requisite progress, plant, labour and other pertinent information on a monthly basis, in the format to be provided by the Engineer, for the management of the contract and reporting to the Client and provincial and national government.

All site instructions are to be recorded in writing in triplicate on pro forma forms to be provided by the Engineer.

3.5.12 Daily records

It is required that a daily site diary of all plant and labour on site, and all details of work performed be maintained on site by the Contractor. Similar documentation will be maintained by the Engineer.

3.5.13 Bonds and guarantees

All bonds and guarantees required to be provided by the Contractor in undertaking his obligations in terms of this Contract, will be held in safe keeping by the Engineer, and returned to the Contractor as required in terms of the Contract.

3.5.14 Health and safety

It is a requirement of this contract that the Contractor provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly or indirectly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2003 issued on 18 July 2003 by the Department of Labour.

For the purpose of this contract the Contractor is required to confirm his status as mandatory and employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act contained in the Agreement and Contract Data.

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Health and Safety Specifications and Plans:

(a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification is included in Part 5 of this document.

(b) Health and Safety Plan

The Contractor shall submit his own documented Health and Safety Plan he proposes to implement for the execution of the work under the contract. His Health and Safety Plan must at least cover the following:

- (i) a proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;
- (ii) pro-active identification of potential hazards and unsafe working conditions;
- (iii) provision of a safe working environment and equipment;
- (iv) statements of methods to ensure the health and safety of subcontractors, employees and visitors to the site, including safety training in hazards and risk areas (*Regulation 5*);
- (v) monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
- (vi) details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 6 and other applicable regulations; and
- (vii) details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2003.

The Contractor's Health and Safety Plan will be subject to approval by the Employer, or amended if necessary, before commencement of construction work. The Contractor will not be allowed to commence work, or his work will be suspended if he had already commenced work, before he has obtained the Employer's written approval of his Health and Safety Plan.

Time lost due to delayed commencement or suspension of the work as a result of the Contractor's failure to obtain approval for his safety plan, shall not be used as a reason to claim for extension of time or standing time and related costs

3.5.15 Unauthorized persons

The Contractor shall keep unauthorized persons from the works at all times. Under no circumstances may any person except guards be allowed to sleep on the building site.

3.5.16 Payment certificates

The Contractor to ensure that the VAT invoice required with each certificate is delivered timeously. The date of the certificate will be that of the date when the certificate is received by the consultant.

The Contractor to ensure timeous submission of all required documentation for the expedient processing of payment certificates, as required by the client, eg BAS entity forms, company registration details, VAT clearance certificates, etc. The Contractor is responsible for such documentation submission.

C3.6 AMENDMENTS TO THE STANDARD SPECIFICATIONS

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PSA: GENERAL

PSA 1 ESSENTIAL CLAUSES

PSA 1.1 QUALITY (sub-clause 3.1)

All materials used in the Works shall bear the SABS mark or an equivalent official standardization mark.

All samples as required in terms of the Specifications shall be delivered to a designated laboratory in East London or the Engineer's site office as directed by the Engineer.

PSA 1.2 SETTING-OUT OF THE WORKS (sub-clause 5.1.1)

The Engineer or his representative will indicate where the reservoirs are to be located, the routes for the rising mains and reticulation and the locations for the standpipes. Thereafter the Contractor will be responsible for all further setting out of the works.

The Contractor shall also be responsible for defining and setting of tasks for the local labour.

PSA 1.3 WATCHING, BARRICADING, LIGHTING AND TRAFFIC CROSSINGS (SUB-CLAUSE 5.2)

Such works shall be undertaken in accordance with the requirements of SANS 1921.

PSA 1.4 DEGREES OF ACCURACY (sub-clause 6.2)

Degree of Accuracy II shall be applicable throughout the Works.

PSA 2 ESSENTIAL DATA

PSA 2.1 PROVISIONAL SUMS (sub-clause 8.5)

Provisional sums have been provided in the Schedule of Quantities for contingency expenditure for unforeseen items of work and for quality assurance tests to be carried out on the instruction of the Engineer.

PSA 3 ADDITIONAL CLAUSES

PSA 3.1 SAFETY

The Contractor shall undertake the Works in terms of the Occupational Health and Safety Act, Act No 85 of 1993 and the requirements of the Construction Regulations of 2003. The Contractor is therefore required to submit an Occupational Health and Safety Plan for approval prior to commencing with the Works.

The Department of Labour is also to be notified of the commencement of the Works and proof of receipt thereof is required prior to commencing with the Works.

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PSAB: ENGINEER'S OFFICE

PSAB 1 ESSENTIAL CLAUSES

PSAB 1.1 ENGINEER'S OFFICE (sub-clause 3.2)
The provision for cooling and heating is not required

PSAB 2 ESSENTIAL DATA

PSAB 2.1 NAMEBOARD (sub-clause 3.1)
Two (2) name boards are required.

PSAB 2.2 OFFICE BUILDING (sub-clause 3.2)
One (1) engineers office complete with chemical toilet and carport is required.

PSAB 2.3 TELEPHONE (sub-clause 4.1)
The Contractor shall provide the Engineer's Representative with R500 per month of
airtime for his exclusive use. The costs thereof shall be deemed to be included in the
rates tendered.

PSAB 2.4 SURVEY ASSISTANTS
2 No. survey assistants are required.

PSAB 3 ADDITIONAL CLAUSES
None.

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PSC SITE CLEARANCE

PSC 1 ESSENTIAL CLAUSES

PSC 1.1 SCOPE (sub-clause 1.1)

Where site clearance is to be undertaken via labour intensive methods, "boulder size up to 0.15m³" shall be replaced with "boulder of mass not exceeding 25kg".

PSC 1.2 CONSERVATION OF TOP-SOIL (sub-clause 5.6)

The Contractor is required to conserve topsoil as required in terms of the Environmental Management Plan contained in Part 5 of this document.

PSC 1.3 LANDSCAPE PRESERVATION AND CONSERVATION OF FLORA (sub-clause 5.7)

The Contractor is to comply with the requirements of the Environmental Management Plan contained in Part 5 of this document.

PSC 2 ESSENTIAL DATA

PSC 2.1 DISPOSAL OF MATERIAL (sub-clause 3.1)

The Contractor shall make his own arrangements for the disposal of cleared material. Disposal sites identified by the Contractor shall be approved by the Engineer and members of the local community.

All trunks and branches of girth exceeding 0.15m shall be stripped of secondary branches, sawn into manually transportable lengths and stockpiled in designated sites within the village. Minor branches in girth not exceeding 0.15m and scrub shall be burnt on site.

PSC 2.2 AREAS TO BE CLEARED AND GRUBBED (sub-clause 5.1)

A strip 1.0 m wide on either side of the centre line of the rising mains shall be cleared.

PSC 2.3 GRUBBING (sub-clause 5.4)

All stumps and matted roots are to be removed to a depth of 600mm below the floor level of the proposed reservoirs.

PSC 3 ADDITIONAL CLAUSES

Nil.

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PSD EARTHWORKS

PSD 1.1 CLASSIFICATION FOR EXCAVATION PURPOSES (sub-clause 3.1)

Where labour intensive construction methods are to be used, the definition of clause 3.1.2 shall not apply and shall be replaced as follows:

- (a) "Soft excavation" shall be that excavation in material, which in the opinion of the Engineer, which can be excavated by means of hand-held tools excluding pneumatic or hydraulic breaking tools.
- (b) "Intermediate excavation" shall be that excavation in material, which in the opinion of the Engineer, requires breaking with hand-held pneumatic or hydraulic tools before removal.
- (c) "Hard Rock excavation" shall be that excavation, which in the opinion of the Engineer, can not be economically removed by pneumatic or hydraulic means and requires blasting or other mechanical breaking before removal.

"Boulder excavation Classes A + B" shall not apply, irrespective of the construction method used. Boulder excavation will be classified on site by the Engineer, as either "Intermediate" or "Hard rock excavation".

PSD 1.2 NEGLIGENCE (sub-clause 5.1.2.4)

The Contractor shall make good at his own expense, and to the approval of the Engineer, any services negligently damaged by the Contractor.

PSD 2 ESSENTIAL DATA

PSD 2.1 SELECTION (subclause 3.3)

The Contractor shall preserve the topsoil, in accordance with the requirements of the Environmental Management Plan, for later use on site.

PSD 2.2 ROAD TRAFFIC CONTROL (sub-clauses 5.1.6)

Appropriate road traffic signs, in accordance with SANS 1921, are required at all pipeline road crossings.

PSD 2.3 EXCAVATION FOR GENERAL EARTHWORKS AND FOR STRUCTURES (sub-clause 5.2.2.1)

Provision shall be made for working space for the reservoir and associated chambers.

PSD 2.4 BORROW PITS (sub-clause 5.2.2.2)

Sites for borrow pits have not been identified. Should borrow pits be required, they will be identified in consultation with the Engineer and shall be opened, managed and closed in accordance with the requirements of the Environmental Management Plan. Where more than 200m³ of material are to be removed from the borrow pit, it is required that the borrow pit be registered with the Department of Minerals and Energy Affairs.

PSD 2.5 DISPOSAL OF SURPLUS MATERIAL (sub-clauses 5.1.4.3 and 5.2.2.3)

No designated disposal sites have been identified. Surplus material excluding rock material, shall be neatly spread, shaped and trimmed across the pipe servitude or disposed of at a site approved by the Engineer. Surplus rock or bolder material shall be disposed of at sites agreed to with the Engineer in accordance with the requirements of the Environmental Management Plan.

PSD 2.6 BACKFILLING OF TRENCHES AND BACKFILLING AGAINST STRUCTURES (sub-clause 5.2.3.2)

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Each layer shall be backfilled at OMC to a density of at least 90% of modified AASHTO maximum density for cohesive soils and 98% for non cohesive soils.

PSD 2.7 TRANSPORT FOR EARTHWORKS (sub-clause 5.2.5)

A free haul distance of 1.0 km shall be applicable to this Contract.

PSD 3 ADDITIONAL CLAUSES

PSD 3.1 CROSS DRAINAGE BERMS

Earth berms of dimensions 0.3m high x 0.3m wide x 2.0 long shall be constructed across the rehabilitated pipe trench in areas of steep slope, as directed by the Engineer.

The drainage berms shall be constructed immediately after having backfilled the pipe trench.

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PSDB EARTHWORKS (PIPE TRENCHES)

PSDB 1 ESSENTIAL CLAUSES

PSDB 1.1 CLASSES OF EXCAVATION (sub-clause 3.1)

Sub-clause 3.1 of SABS 1200 DB shall not apply but shall be replaced by clause PSD 1.1 of the Project Specification.

PSDB 1.2 TRENCH DIMENSIONS

The dimensions of the trench shall be as shown on the drawings.

PSDB 1.3 TRANSPORT OF EARTHWORKS FOR TRENCHES (sub-clause 5.6.8)

A free-haul distance of 1.0 km is applicable to this project.

PSDB 1.4 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL (sub-clause 5.6.3)

Soft and surplus material may be disposed along the trench servitude. Rock and boulder material shall however be disposed at locations agreed with the Engineer and in accordance with the requirements of the Environmental Management Plan.

PSDB 2 ESSENTIAL DATA

PSDB 2.1 EXISTING SERVICES THAT INTERSECT OR ADJOIN A PIPE TRENCH (sub-clause 8.3.5)

No special payment, other than that allowed for in clause 8.8.4 (c) of SABS 1200 A, shall be made for working across or adjacent to and the protection of existing services.

PSDB 2.2 EXCAVATION (sub-clause 8.1.2(c), 8.3.2(a) and 8.3.2 (b))

A class C bedding with a 100mm deep bedding layer below the invert of the pipe is required for all pipe, except HDPE pipe, to be installed as part of this contract. HDPE pipe shall be installed with a class D bedding.

PSDB 3 ADDITIONAL CLAUSES

Nil.

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PSG CONCRETE (STRUCTURAL)

PSG 1 ESSENTIAL CLAUSES

PSG 1.1 ADMIXTURES (subclause 3.5.1)

The use of admixtures will not be permitted in concrete unless an approved materials laboratory approves in writing to the use thereof in the particular application.

Admixtures containing calcium chloride shall not be permitted for use in concrete for water retaining structures.

PSG 1.2 QUALITY (subclause 5.5.1.1)

Strength concrete is required throughout the works. The Contractor shall in good time, provide the Engineer with details of his proposed aggregates and design mix, for approval. Furthermore, an approved materials laboratory shall test and approve the mix, in writing and confirm that the materials used in mix are not subject to alkali-aggregate reaction.

The mix shall be approved by the Engineer after receipt of satisfactory cube test results.

The costs of designing and approving the concrete mix shall be deemed to be included in the rates tendered.

PSG 1.3 DURABILITY (subclause 5.5.1.5)

The base, walls, roof and columns of the concrete reservoirs and all concrete work for foundations shall be considered to be subject to severe exposure conditions but in no instance shall the W/C ratio exceed 0.5. All other concrete used in the works shall be considered to be subject to moderate conditions.

PSG 1.4 CONSTRUCTION JOINTS (subclause 5.5.7.1)

Only horizontal construction joints shall be permitted in the construction of the reservoirs. Construction joints, complete with a centre - bulb water stop, are required between the floor slab and walls of each reservoir. All other construction joints in the reservoirs, required in compliance with subclause 5.5.5.5 of SABS 1200 G, shall be prepared in accordance with subclause 5.5.7.3 (c) of SABS 1200 G.

PSG 2 ESSENTIAL DATA

PSG 2.1 CONCRETE (subclause 3.2.1)

Ordinary Portland cement complying to SABS 471 shall be used in the concrete throughout the works.

PSG 2.2 CLASSIFICATION OF FINISHES (sub-clause 4.5.2 and 5.2.1)

All concrete shall have a smooth finish.

PSG 2.3 STRENGTH CONCRETE (sub-clause 5.5.1.7)

The strength concrete shall be positioned in the works as follows:

Grade	Structure
30/19	concrete reservoirs, foundations/footings, slabs, columns and all other structural concrete.
15/19	mass concrete, pipe encasement and blinding

PSG 2.4 READY-MIX CONCRETE (sub-clause 5.5.3.2)

The production of concrete at a central production facility shall not be permitted without the Engineers prior approval.

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- PSG 2.5 WATERTIGHT CONCRETE (sub-clause 5.5.11)**
All concrete storage reservoirs are water retaining structures and will be subject to the requirements of the watertightness tests detailed in Particular Specification PTS.
- PSG 3 ADDITIONAL CLAUSES**
- PSG 3.1 STORAGE OF CEMENT (sub-clause 3.2.3)**
Cement shall be used in the order in which it is received.
- PSG 3.2 DESIGN (sub-clause 4.5.1)**
No formwork shall be erected without the Engineer's prior approval.
- PSG 3.3 TIES (sub-clause 4.5.3)**
Tie cone recesses shall be plugged with well rammed dry 3:1 mortar within 48 hours of casting the concrete. The surfaces of the recesses shall first be roughened by wire brushing. Where tie cone recesses cannot be plugged within 48 hours of casting, they shall be roughened by scabbing and a wet to dry epoxy shall be applied before plugging the recesses with 3:1 mortar.
- The mortar plugs shall be properly cured.
- PSG 3.4 FIXING (sub-clause 5.1.2)**
- PSG 3.4.1 GENERAL**
Sufficient joints shall be made so that the entire reinforcement cage is rigid and to the satisfaction of the Engineer.
- Tie wire shall not encroach on the specified minimum cover by more than a single strand thickness."
- PSG 3.4.2 SPACERS**
Welding of the reinforcement shall not be permitted.
- Spacers to be used shall be of approved design.
- Where mortar blocks are to be used, they shall be properly shaped so as not to slip out of position and shall be made of the same mix as the mortar of the concrete in which they are to be placed.
- The mortar shall be well compacted by approved means into the moulds and the mortar blocks shall be cured in water for at least 7 days before being fixed in place.
- PSG 3.5 PREPARATION OF FORMWORK (sub-clause 5.2.2)**
Panel joints for formwork shall be horizontal or vertical and arranged to match symmetrically throughout the structure.
- PSG 3.6 COMPACTION (sub-clause 5.5.6)**
The tops of all walls and columns shall be re-vibrated within 3 hours of the concrete having been placed.
- PSG 3.7 ADVERSE WEATHER CONDITIONS (sub-clause 5.5.9)**
If plastic shrinkage cracking occurs, the cracks shall be closed up by re-vibrating the concrete with a poker vibrator within 3 hours of casting. Once the cracks have been closed, the concrete shall be kept thoroughly wet, or covered with plastic sheeting for at least a further 3 hours.

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PSG 3.8 JOINT SEALING MATERIALS

PSG 3.8.1 JOINT FILLERS

Joint filler material shall be of an approved closed-cell polyethylene strip or sheet, having a density of at least 45 kg/m³ and of the thickness indicated on the drawings.

Fillers shall be provided with a tear out strip for forming the specified recess for the sealant, inclusive of the bond breaker, which shall be an approved PVC tape.

PSG 3.8.2 SEALANTS

The primer for the sealant shall be an approved primer fully compatible with the sealing compound specified below and the joint filler specified above.

All elastomeric sealants shall comply with BS 4254 Type A1 and shall have a movement tolerance of 25%.

Sealants shall be 2 part manganese cured polysulphide used strictly in accordance with the manufactures instructions.

The cleaning and sealing of the joints shall be the last construction operation. Rebates shall be cleaned (with all glue and bitumen removed) and approved by the Engineer before filling.

Joint sealants and primers shall be applied strictly in accordance with the manufacturer's instructions. Flow and non-slumping grades shall be used for horizontal and vertical joints respectively.

Batch numbers of any sealant used shall be recorded.

Only workmen experienced in this type of work shall be employed to apply the sealant.

Immediately after the compound is cold, the joint shall be protected against damage until completion of the contract.

PSG 3.8.3 WATERSTOPS

PVC waterstops shall be of approved type and of the widths specified.

PSG 3.9 NO-FINES CONCRETE

No-fines concrete shall be placed in its final position within 15 minutes of having been mixed. Compaction shall be by hand rodding and tamping as directed by the Engineer.

Any no-fines concrete with loose stones or blocked voids or segregated grout shall be removed.

Protection against loss of moisture shall be accomplished by either:

- a) Covering the exposed surfaces with sacking or other approved material, which shall be kept continuously wet for at least 3 days.
- b) Covering the exposed surfaces with plastic sheeting for at least 5 days.

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PSL MEDIUM PRESSURE PIPELINES

PSL 1 ESSENTIAL CLAUSES

PSL 1.1 ABBREVIATIONS (sub-clause 2.4)

add the following:

HDPE : High Density Polyethelene PE80
mPVC : Modified Polyvinyl Chloride

PSL 1.2 STEEL PIPES, FITTINGS AND SPECIALS (sub-clauses 3.4.2 and 3.4.3)

All steel pipes and fittings for reservoirs, irrespective of their diameter, shall be fabricated from plain ended pipes. Screwed flanges and fittings shall not be permitted. The lengths of the pipes shall be as dimensioned on the drawings but shall be verified on site prior to galvanising. No cutting or welding of pipes shall be permitted on site.

PSL 1.3 POLYETHYLENE PIPES (sub-clause 3.7.2)

HDPE pipes shall be of PE80, shall comply with SABS ISO 4427 and shall bear the SAPPMA mark.

PSL 1.4 PVC PIPES (sub-clause 3.7.3)

Add new clause:

All PVC pipes shall be of the spigot and socket joint type with restraining rings and rubber seals and shall comply with the requirements of SABS 966:1 (UPVC) and SABS 996:2 (mPVC). Furthermore, all PVC pipes shall bear the SAPPMA mark.

PSL 1.5 FLANGES AND ACCESSORIES (sub-clause 3.8.3 and 3.8.4)

All flanges shall comply with the requirements of SABS 1123 and all bolts and nuts shall be of the hexagonal lead type and shall comply with SABS 135.

PSL 1.6 COMPRESSION TYPE FITTINGS (sub-clause 3.8.8)

Add new clause:

Fittings for HDPE pipe shall be of the compression type complying with the requirements of ISO 3458, ISO 3459, ISO 3501 and ISO 3503 respectively.

PSL 1.7 JOINTS, BOLTS, NUTS AND WASHERS (sub-clause 3.9.5)

All joints, bolts, nuts and washers shall be hot-dip galvanised in accordance with SABS 763. Electro-plating shall not be accepted.

All bolts shall protrude between 1mm and 6mm above nut, once fastened.

PSL 1.8 CORROSIVE SOILS (sub-clause 3.9.6)

All buried steel pipe shall be treated with a compatible primer, packed with a bitumen-based or tar based mastic and wrapped in an approved plastic tape.

The cost of this work shall be deemed to be included in the rates tendered for the supply and laying of pipes.

PSL 1.9 VALVES (sub-clause 3.10)

Valves shall comply with the requirements of SABS 644 and all gate valves shall be clockwise closing with non rising spindles.

PSL 1.10 DEPTHS AND COVER (sub-clauses 5.1.4.1 and 5.1.4.2)

The depths of cover over pipes shall not be less than 900mm in the case of all bulk mains and 600mm in the case of village reticulation, unless approved by the Engineer.

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PSL 2. ESSENTIAL DATA

PSL 2.1 PIPES OF NOMINAL BORE UP TO 150MM (sub-clause 3.4.2)

All steel pipes for reservoirs shall be coupled by flanges or mechanical coupling (flange adaptors) as detailed on the drawings.

PSL 2.2 DEPTHS AND COVER (sub-clause 5.1.4.1)

The depth of cover shall generally not exceed 1.25m. This depth of cover may however be exceeded at road and river crossings.

PSL 2.3 TEST PRESSURE AND TIME OF TEST (sub-clause 7.3.1)

All bulk mains shall be tested between 1,25 and 1,1 times the allowable working pressure of the pipe, measured at the hydraulically lowest point in the main and shall be tested in the presence of the Engineer. The lowest pressure at any position of the pipe shall be 1,1 times the allowable working pressure.

A hydrostatic test certificates, see pro forma focus in section 8 of this document, shall be completed and duly signed on the successful completion of the pressure test.

PSL 3. ADDITIONAL CLAUSES

PSL 3.1 PIPELINE MARKERS (new clause)

Concrete pipe-line markers, shall be erected at all horizontal changes in direction, valve boxes and on both sides of all road and river crossings at all valve chambers and at intermediate intervals ($\pm 500\text{m}$) as approved by the Engineer.

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PSLB BEDDING (PIPES)

PSLB1 ESSENTIAL CLAUSES

PSLB 1.1 SELECTED GRANULAR AND SELECTED FILL MATERIAL (sub-clauses 3.1 and 3.2)

Notwithstanding the requirements of subclauses 3.1 and 3.2 of SABS 1200 LB, selected granular and selected fill material shall comply with clause PSLB 2.1 of the Project Specification.

Such material will generally be available from the trench excavations and the nearby river- beds.

PSLB 1.2 SUITABLE MATERIAL AVAILABLE FROM TRENCH EXCAVATION (sub-clause 3.4.1)

Notwithstanding the requirement of sub-clause 3.7 of SABS 1200 DB and sub-clause 3.4.1 of SABS 1200 LB, the Contractor shall use selective excavation methods to avoid burying or contaminating material suitable for bedding.

PSLB 1.3 PLACING (sub-clause 5.1.3)

All pipes under road crossings will be placed inside 75 D concrete structured wall HDPe pipe sleeves.

PSLB 1.4 CONCRETE CASING TO PIPES (sub-clause 5.4)

All pipes through river crossing will be encased in 150mm concrete surround.

PSLB 1.5 DISPOSAL OF DISPLACED MATERIAL (sub-clauses 8.1.5 and 8.1.6)

Displaced material shall be disposed off as described in clauses PSD 2.5 and 2.7 and clauses PSDB 1.3 and 1.4 of the Project Specification.

PSLB2 ESSENTIAL DATA

PSLB 2.1 SELECTED GRANULAR AND SELECTED FILL MATERIAL (sub-clauses 3.1 and 3.2)

Notwithstanding the requirements of clauses 3.1 and 3.2 of SABS 1200 LB, no distinction shall be made between selected granular and selected fill material. All material for the bedding of pipes shall comply with the following:

- have a maximum partial size of 19mm,
- have a PI not exceeding 12,
- have less than 30% by mass passing the 0.075mm sieve.

PSLB 2.2 BEDDING (sub-clause 3.3)

All PVC pipes shall be bedded in accordance with a ClassC bedding and all HDPE pipes in accordance with a Class D bedding, except where, in the opinion of the Engineer, the nature of the material in the trench bottom, precludes the use of this bedding type.

PSLB 2.3 PLACING AND COMPACTING: ALL PIPES (sub-clause 5.2 and 5.3)

The bedding material shall be firmly compacted in 100mm layers to 300mm above the crown of the pipe, using hand tools. The tools shall be of such a nature and shape that the tampering action can in no way damage the pipe.

The bedding shall then be compacted by mechanical means before backfilling can commence. Backfilling shall be undertaken in 300 layers by mechanical means.

PSLB 3 ADDITIONAL CLAUSES

Nil.

C3.7 TECHNICAL AND PARTICULAR SPECIFICATIONS

CC FENCING AND GATES

CONTENTS

CC 01	SCOPE
CC 02	STANDARD SPECIFICATIONS
CC 03	OPERATING AND MAINTENANCE MANUALS
CC 04	EXECUTION OF WORK
CC 05	QUALITY STANDARD
CC 06	MATERIALS
CC 07	MAINTENANCE
CC 08	MEASUREMENT AND PAYMENT

CC 01 SCOPE

This specification covers the materials, equipment, methods, and work required for the repair and upgrade of existing water distribution networks. This specification covers the repair and maintenance of fencing and gates.

Where a particular specification has been included in the documents to supplement Technical Specification CC: Fencing and gates, this technical specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence. The Contractor shall at all times adhere to this technical specification, unless otherwise specified in the applicable Particular Specification.

CC 02 STANDARD SPECIFICATIONS

CC 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

- SABS 763 - Hot-dip (galvanised) zinc coatings (other than on continuously zinc-coated sheet and wire) (1988)
- SABS 675 - Zinc-coated fencing wires (plain and barbed) (1993)
- SABS 1373 - Chain-link fencing and its wire accessories (1983)

CC 02.02 OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) shall be adhered to.

CC 02.03 MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

CC 02.04 MUNICIPAL REGULATIONS, LAWS AND BY-LAWS

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All municipal regulations laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

CC 03 OPERATING AND MAINTENANCE MANUALS

No operation and maintenance manuals will be required for fencing and gates.

CC 04 EXECUTION OF WORK

The Contractor shall investigate and inspect all areas of the installation to confirm the extent of the repair work required and shall report to the Engineer. The Engineer will thereafter demarcate any areas to be repaired and shall instruct the Contractor with regard to the repair work to be done.

Any fencing work identified either by the Contractor or during inspection by the Engineer shall be carried out on the instruction of the Engineer.

The Contractor shall ensure that the necessary materials, skilled personnel, tools and equipment are available at all times to maintain the prison fence in a state of good repair.

The Engineer shall indicate where new fences are to be erected, or where repairs are necessary.

Wherever an opening has been made in the fence while repairing it, the area shall be guarded by a guard of the User Client. Under no circumstances shall a fence be left open or unattended at any time. Whenever a part of the fence is taken down to repair/replace it, it will be replaced within the same day it has been taken down.

Unless otherwise instructed by the Engineer, similar type fencing material to that in the existing fence line shall be used where fences are to be repaired.

CC 04.01 SCOPE OF WORK

Supply and erect 1.8m high galvanised fence with standard post at 4m cast into concrete blocks consisting of the following features: barbed wire, smooth wire, diamond mesh, tubular standard post, tubular straining post including anchors and corner post including anchors. Supply and fit 1.2m wide pedestrian gate complete with hinges, locking device, posts and padlock.

CC 04.02 CLEARING THE FENCE ROUTE

The fence route shall be cleared over a width of at least 0,5 m on each side of the centre line of the fence and surface irregularities shall be levelled so that the fence will follow the general contour of the ground.

The bottom of the fence shall be located at a uniform distance above the ground line, but no more than 50 mm.

CC 04.03 INSTALLATION OF POSTS AND STANDARDS

Posts shall be accurately set in holes and be provided with concrete bases to the dimensions specified.

Holes shall be dug to their full specified depth.

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Posts shall be firmly planted into the ground at the same spacing as the existing posts or as instructed by the Engineer. The spacing of posts between any two straining posts shall be uniform.

CC 04.04 ERECTING FENCE WIRES

All fencing wire shall be wired to the sides of posts in order to prevent the wires from being displaced or becoming loose. The wire shall be carefully strained and hung without sag, and with true alignment, care being exercised not to strain the wire so tightly that it will break or that end, corner, straining or gate posts will be pulled up.

Each strand of fencing wire shall be securely fastened in the correct position to each post with soft galvanised binding wire.

Splices in the fencing wire shall be permitted if made in the following manner using a splice tool. The end of each wire at the splice shall be carried at least 75 mm past the splice tool and wrapped snugly around the other wire for not less than six complete turns, the two separate wire ends being turned in opposite directions. After the splice tool is removed the space left by it in the splice wire shall be closed by pulling the wire ends together. The unused ends of wire shall be cut close so as to leave a neat splice.

CC 04.05 ERECTING DIAMOND MESH OR WIRE NETTING

Wire netting or diamond mesh shall be stretched against the fence and properly secured to the fencing wire. The diamond mesh or wire netting shall be secured by means of soft binding wire at 1,2 m centres along the top and bottom wires and at 3 m centres along each of the other fencing wires unless otherwise specified.

CC 04.06 CLOSING OPENINGS UNDER FENCES

At ditches, drainage channels or other hollows where it is not possible to erect the fence so that it follows the general contour of the ground, the Contractor shall cover the openings with wire netting or diamond mesh fixed to the fence.

CC 04.07 EXISTING FENCES

Where a new fence joins an existing fence, whether in line or at an angle, the new fence shall be erected with a new straining post positioned at the terminal of the existing fence.

CC 04.08 GATES

Gates shall be hung on gate fittings in accordance with the requirements specified. The gates shall be so erected that they swing in a horizontal plane at right angles to the gateposts, clear of the ground in all positions.

Double swing gates shall not leave a gap of more than 25 mm between them when closed and other gates shall not be further than 25 mm from the gatepost when closed. The clearance below the gates shall not exceed 75 mm with the gates closed.

CC 04.9 ERECTING NEW FENCING MATERIAL

All new material used to replace old material shall be similar to the old material replaced unless a new material is specified by the Engineer.

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CC 05 QUALITY STANDARD

The completed fences shall be plumb, taut, true to line and ground contour, with all posts, standard and stays firmly set.

The Contractor shall, on completion of each section of fence, remove all cut-offs and other loose wire or netting so as not to create a hazard to grazing animals or a nuisance to the owners of the ground.

CC 06 MATERIALS

CC 06.01 POSTS

CC 06.01.01 Steel posts

New posts or posts that need to be replaced shall be of the same type and size as the existing posts. Tubular posts shall be galvanised in accordance with SABS 763 for Class B1 articles or shall be painted as specified and have a minimum wall thickness of 2,00 mm.

Tubular stays shall have a minimal bore of at least 60 mm and a wall thickness of at least 2,00 mm. These stays shall be galvanised as specified In SABS 763 or shall be painted as specified.

CC 06.02 WIRE

CC 06.02.01 Barbed wire

Barbed wire shall comply with the requirements of SABS 675 and shall be one or more of the following types:

- (a) High-tensile grade, oval shaped, single-strand wire, 3,15 mm x 2,50 mm (2,81 mm equivalent diameter), and fully galvanised;
- (b) High-tensile grade, oval shaped, single-strand wire, 2,80 mm x 1,90 mm (2,31 mm equivalent diameter), fully galvanised (first class coating). This wire shall not be used less than 500 mm above ground where there is danger of grass fires;
- (c) Mild-steel grade, double strand, unidirectional twist wire, each strand 2,50 mm diameter, for use at any height above ground. The wire shall be fully galvanised;
- (d) Barbs shall be manufactured from 2,0 mm galvanised wire and shall be spaced at not more than 152 mm.

CC 06.02.02 Barbed tape coil

Barbed tape coil shall comply with the requirements for type A in CKS 592 and shall consist of close-coiled, high-tensile wire with a continuous strip of flat steel barbs (barbed tape) crimped to the wire along the entire length of the wire.

The high-tensile wire shall be Class B galvanized. The barbed tape shall be made of cold-roller carbon steel and galvanized to Class 2450.

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CC 06.02.03 Smooth wire

Smooth wire shall comply with the requirements of SABS 675 and shall be of the types specified below:

- (a) Straining wire shall be 4,0 mm diameter and fully galvanised.
- (b) Fencing wire shall be high-tensile grade, 2,24 mm diameter wire fully galvanised.
- (c) Tying wire shall be 2,50 mm diameter, mild steel, galvanised wire for tying fencing wire to standards and droppers, and 1,60 mm diameter, mild steel, galvanised wire for typing netting and mesh wire to fencing wire.

CC 06.03 DIAMOND MESH

- (a) Diamond mesh (chain-link) fencing shall comply with the requirements of SABS 1373. The edge finish shall be both sides clinched or barbed.
- (b) The nominal diameter of the wire shall be 2,5 mm and the mesh size shall be 64 x 64 mm.
- (c) The wire shall be fully galvanised.

2.1.1.1.1 CC 06.04 WELDED MESH

Wire netting shall be fully galvanised with mild steel wire with a minimum diameter of 1,8 mm and 75 mm mesh.

2.1.1.1.2 CC 06.05 MANUFACTURING TOLERANCES FOR WIRE

The actual diameter of wire supplied shall nowhere be less than the specified diameter by more than the following tolerances:

Specified diameter	Tolerance
1,00 - 1,8 mm	0,05 mm
2,00 - 2,8 mm	0,08 mm
3,15 - 4,0 mm	0,10 mm

CC 06.06 GATES

New gates or gates that need to be replaced shall be the same type and size as existing gates. Gates shall be galvanised in accordance with SABS 763 for class B1 articles or shall be painted as specified.

CC07 MAINTENANCE

CC 08 MEASUREMENT AND PAYMENT

Not applicable.

CC.08.01 CLEARING FENCE ROUTE 1 m WIDE STRIP..... Unit: metre (m)
The unit of measurement for the clearing of the fence route shall be the metre of fence line measured along each fence line.

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The tendered rate shall include full compensation for the clearing of the fence line as specified, including the removal of stones and other obstructions and the disposal as directed of all material resulting from clearing operations.

CC.08.02 SUPPLY AND ERECTION OF NEW FENCING MATERIAL TO REPLACE OLD MATERIAL:

- (a) Barbed wire Unit: metre (m)
- (b) Smooth wire Unit: metre (m)
- (c) Diamond mesh..... Unit: metre (m)
- (d) Wire netting..... Unit: metre (m)
- (e) Barbed tape coil..... Unit: metre (m)
- (f) Posts.....Unit: number
- (g) GatesUnit: number
- (h) Y-standardsUnit: number

The quantity of material used shall be determined by measuring the quantities of individual items of material installed in the completed fence. Clearing of the fence line will be paid for under item CC.01. Removal and disposing of the existing fencing material shall be deemed included in the rate for new material.

The applicable units of measurement are as follows:

- (a) Fencing wire and basked tape coil
The unit of measurement shall be the metre of each type of fencing wire measured in place and between end posts. Binding wire and wire used for bracing and anchoring of posts shall not be measured for payment. Barbed tape coil shall not be measured along the coiled wire but also between end posts.
- (b) Diamond mesh and wire netting
The unit of measurement shall be the square metre of diamond mesh or wire netting and the quantity shall be calculated using the prescribed width and the length between straining posts or gate posts, or the length of strips for covering openings under fences, or the length used for the covering of gates.
- (c) Posts
The unit of measurement shall be the number of posts, as follows:

All straining posts erected in accordance with the maximum specified spacing or such lesser spacing as authorised by the Engineer, all corner and gateposts authorised by the Engineer and all end posts. Gate posts for new gates shall not be measured for payment.
- (d) Gates
The unit of measurement shall be the number of each type of gate repaired or replaced.

CC.08.04 REDRESS, TREAT AND PAINTING OF FENCE Unit: metre (m)

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The unit of measurement for the redressing (tightening, repairing and patching), treating and painting the fence line shall be the metre of fence line measured along each fence line.

The tendered rate shall include full compensation for performing minor repairs, tightening the fence, patching damaged areas, treating the existing fence with an approved rust remover/inhibitor and then applying cold galvanising as specified by the Engineer.

CC.08.05 TREATING AND PAINTING OF POLES Unit: metre (m)

The unit of measurement for the treating and painting of poles shall be the metre of pole as instructed by the Engineer.

(a) For steel posts

The tendered rate shall include full compensation for treating the existing poles with an approved **rust remover/inhibitor** and the applying **cold galvanising** as specified by the Engineer.

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TENDER NO. DOEEC/01/2023/2024

CE WATER DISTRIBUTION NETWORKS

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CE 07	QUALITY ASSURANCE SYSTEM
CE 08	MAINTENANCE TO INSTALLATION SYSTEMS AND REPAIR WORK
CE 09	MEASUREMENT AND PAYMENT

CE 01 SCOPE

This specification covers the materials, equipment, methods, testing and work required for the repair and upgrade of existing water distribution networks at the police station. Such distribution networks may comprise:

- (a) Primary and secondary distribution pipelines
- (b) Valves
- (c) Bulk water meters
- (d) Domestic water meters
- (e) Chambers
- (f) Pumping stations
- (g) Borehole installations
- (h) Reservoirs.

This specification shall form an integral part of the repair and upgrade contract document and shall be read in conjunction with portion 3: Additional Specifications included in this document.

Where a particular specification has been included in the documents to supplement Technical Specification CE: Water distribution networks, this technical specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence. The Contractor shall at all times adhere to this technical specification, unless otherwise specified in the applicable Particular Specification.

CE 02 STANDARD SPECIFICATIONS

CE 02.01 GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

SANS 1200 D	-	Earthworks
SANS 1200 DB	-	Earthworks (pipe trenches)

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SANS 1200 G	-	Concrete (structural)
SANS 1200 L	-	Medium-pressure pipelines
SANS 1200 LB	-	Bedding (pipes)

CE 02.02 **OCCUPATIONAL HEALTH AND SAFETY ACT OF 1993**

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act no 85 of 1993) shall be adhered to.

CE 02.03 **MANUFACTURERS' SPECIFICATIONS, CODES OF PRACTICE AND INSTALLATION INSTRUCTIONS**

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

CE 02.04 **MUNICIPAL REGULATIONS, LAWS AND BY-LAWS**

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

CE 03 **OPERATING AND MAINTENANCE MANUALS**

The Contractor shall at the start of the Contract be given all available as-built information and operating and maintenance manuals.

The Contractor shall be responsible for the compilation of an inventory list and operating and maintenance manuals.

This shall be done in accordance with Additional Specification SB: Operating and Maintenance manuals.

CE 04 **EXECUTION OF REPAIR WORK**

CE 04.01 **GENERAL**

The Contractor shall investigate and inspect all areas of the installation to confirm the extent of the repair work required and shall report to the Engineer. The Engineer will thereafter demarcate any areas to be repaired and shall instruct the Contractor with regard to the repair work to be done.

All repair work shall be executed using approved materials and equipment suitable to the systems and/or installations they serve.

All materials and equipment shall comply fully with the requirements as specified for each installation.

The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all additional and particular specifications included in this document.

All new equipment, materials and systems shall be furnished with a written guarantee with a defects liability period of 12 months from date of completion of repair work. These guarantees shall be furnished in favour of the Department of Basic Education. On completion of the required and specified repair work the systems, installations and equipment shall be commissioned and handed over if the satisfaction of the Engineer has been obtained.

Repair work items for the water distribution systems shall be categorised under the following headings:

- (a) Repair of existing pipelines

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- (b) Cleaning of existing pipelines
- (c) Repair of fittings
- (d) Repair of existing structures.

CE 04.02 REPAIR OF EXISTING PIPELINES

This section covers the requirements for the repair of the water distribution pipelines for defects such as pipe breaks and leakage for distribution pipelines.

CE 04.02.01 General

Repair work to the water distribution system is detailed in the Particular Specification and may include but not be limited to the following:

- (a) Replacement of damaged, broken, leaking, corroded surface and underground pipework and fittings;
- (b) Replacement of damaged, broken and missing manhole covers and frames;
- (c) Repair work to damaged manholes;
- (d) Initial unblocking and clearing of all water distribution pipes and manholes;
- (e) Repair and upgrading of the water distribution system where necessary;
- (f) Introduction of additional connections to the water distribution system;
- (g) Removal of unauthorised connections;
- (h) Reinstatement and making good of walls, concrete, road surfaces, etc, to an approved acceptable level where any repair, upgrade and/or service work has been executed;
- (i) Video surveying of all underground drainage pipework to establish root ingress, damaged pipework, fat build-up, blockages, incorrect falls, sagging and as-built information. This survey shall be utilised to establish the extent of repair and upgrade work to be executed;
- (j) Test pipe system for leakage;
- (k) Repair, replace and service valves, which shall include new gaskets, gland packings, seals, bolt and nuts, etc;
- (l) Where valves do not close properly, all these valves shall be refurbished, descaled and if necessary replaced;
- (m) Repair, clean and service all strainers, including the replacement of strainer elements where corroded and installation of new gaskets;
- (n) Repair, service, test and readjust pressure-reducing valves. Pressure gauges are to be recalibrated and checked. Up and downstream pressures are to be logged. Downstream pressure has to be adjusted to an acceptable level, taking into account the allowable working pressure of the system and its components;
- (o) Repair, service and check the proper functioning of all non-return valves;
- (p) Repair, service, readjust and calibrate all safety and expansion relief valves;
- (q) Repair, service and clean out all air release valves and vacuum breakers;
- (r) Repair, service and log readings of water meters including cleaning of integral strainers;
- (s) Water storage tanks are to be emptied, cleaned out, repaired, sealed and put back into operation. Ball float and/or filling valves to these tanks are to be serviced and repaired where required;
- (t) Water pipes are to be sampled for corrosion and scaling. The Engineer will evaluate the actions to be followed if the outcome of this sampling requires attention;
- (u) Water supply has to be sampled and chemically analysed for the suitability to the systems and materials it serves;
- (v) Pressure test and sterilise repaired new installation and equipment;
- (w) Reinstatement and making good of walls, tiling, floors, concrete, finishes, holes, chases, surfaces, etc, to an acceptable level where repair, upgrade and/or service work have been executed.

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CE 04.02.02 Construction

The Engineer will indicate the pipeline sections in need of repair and shall instruct the Contractor with regard to the repair work to be done.

(a) Excavation

The width of the excavation shall be sufficient to allow the proper laying, bedding and backfilling of the pipelines. The width of the excavation for each type and size of pipeline shall be as set out in SANS 1200 DB.

The depth of the excavation for each type and size of pipeline shall depend on site conditions and the amount by which the excavation is to exceed the proposed level of the invert of the pipeline and shall be sufficient to allow the type and thickness of bedding material instructed by the Engineer.

Where excavation is to be carried out through asphalt premix or concrete, the asphalt/concrete shall be cut neatly and vertically with approved sawing equipment before the asphalt/concrete is removed.

Cutting, breaking out and replacing of concrete pavements will be paid under Subclause CA.02.

Excavations shall extend such that, where possible cut in may be reduced by lifting adjacent pipes.

(b) Classification of excavation

All excavations shall be classified as follows for payment purposes:

(i) Hard material

Material which cannot be excavated except by drilling and blasting or with the use of pneumatic tools or mechanical breakers and boulders exceeding 0,10 m³ shall be classified as hard material.

Where more than 40% of any material (by volume) consists of boulders each exceeding 0,10 m³ in size, the material shall be classified as hard material.

(ii) Soft material

All material not classified as hard material shall be classified as soft material.

Notwithstanding the above classification, all material excavated from previously constructed fills, subgrades and subbases shall be classified as soft material.

(c) Disposal of excavated material

Where excavated material does not comply with the requirements for backfilling material as specified or is surplus to backfilling requirements, such excavated material shall be removed from the site.

Material suitable for use in the works, however, shall be used as prescribed.

(d) Removal of damaged pipelines

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Where indicated by the Engineer damaged sections of pipelines shall be completely removed and replaced.

(e) Pipe couplings

Repair sections will be joined, utilising existing pipe sockets and collars where possible.

Repair couplings shall be used with the approval of the Engineer.

(f) Laying of mPVC pipelines

New sections of mPVC pipelines shall be laid on a granular bed suitable for flexible pipelines as directed by the Engineer. The inside of the pipes shall be smooth and without any displacement and all pipes shall be laid true to line and level with a minimum slope of 2% or as directed by the Engineer.

Refer to SANS 1200 LB: Bedding (pipes), for the specification on bedding.

(g) Laying of asbestos cement, concrete or galvanised mild steel pipelines

New sections of the pipelines shall be laid on class A or B bedding as directed by the Engineer. The inside of the pipes shall be smooth and without any displacement and all pipes shall be laid true to line and level with a minimum slope of 2% or as directed by the Engineer.

Refer to SANS 1200 LB: Bedding (pipes), for the specification on bedding.

(h) Rock foundation

Where rock, shale or hard material is encountered on the bottom of excavations a bed of fine material as required for class B bedding shall be placed before laying the pipe.

(i) Concrete encasement

Where instructed by the Engineer pipes shall be encased in concrete. All such encasing shall be done in accordance with the Engineer's instructions and sufficient allowance shall be made for movement joints.

(j) Extension of existing pipelines

Where existing pipelines require extension or where damaged sections are replaced the new sections shall be placed at the same grade and, where they join the existing service, at the same level as the existing pipeline.

Existing chambers or other structures which may obstruct any new work shall be demolished and removed. The demolition and reconstruction of new structures shall be paid for under the relevant sections in the specification.

(k) Construction in existing roads

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Road crossings shall either be constructed utilising sufficient provision of bypass roads or utilising the half width of the road. At all times a through route shall be maintained for all traffic.

(l) Repairing of leaks

Where leaks occur at pipe sockets or collars the affected section shall be cut from the pipeline and repaired using repair couplings.

Where obvious leaks occur due to displaced sealing rubbers, the rubbers shall be replaced if the replacement can be done economically by lifting adjacent pipes.

(m) Replacement of pipes damaged by exposure to extensive ultraviolet light

Pipes damaged as a result of excessive exposure to sunlight shall be replaced where indicated by the Engineer.

CE 04.02.03 **Quality standard**

Pipelines shall be laid at even gradients within the points of correction, to the satisfaction of the Engineer and the applicable specifications.

CE 04.02.04 **Materials**

Materials and equipment to be used for repair items shall be suitable and/or adaptable to the existing installation and shall comply with the following:

(a) Supercast cast-iron pipes and fittings

Supercast cast-iron pipes can be used for underground and above ground installations. Plain-ended cast-iron pipes and fittings shall be used, manufactured from 150, Grade A, grey iron in accordance with SANS 1034. Fittings and pipes shall be free of pinholes, blowholes, blemishes, flash and foundry sand and have a smooth bore. All pipes and fittings shall be sand blasted and coated on the inside and outside by submersion in a corrosion inhibiting oxide primer or bitumen paint.

The pipes and fittings shall be joined by means of stainless steel neoprene couplings as supplied by the manufacturer's of the pipe system. The coupling shall be installed according to the manufacturer's specification and is to be tightened with a torque wrench to a torque of 6,8 Nm.

(b) mPVC pipe and fittings under ground

mPVC pipes and fittings can be used for above ground installations.

For pipe sizes larger than 160 mm diameter, mPVC pressure pipe to SANS 966 shall be used with prefabricated mPVC bends and junctions. Prefabrication shall be done by means of hot-air welding of fittings to be covered with three layers of fibreglass reinforced lining over welded sections. The resin to be used shall be as specified by the manufacturer for usage with PVC. Bends shall be manufactured out of 3 to 4 sections per bend. Pipe joints shall be done by means of couplings fixed with solvent cement for PVC piping. This joint shall be reinforced with a fibreglass lining of three layers.

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Piping is to be supported and bracketed with properly sized and designed brackets consisting of two half sections clamped over the pipe and hung with two hanger rods.

Pipes are to be pressure tested in sections as specified in this specification.

(c) Prefabricated galvanised steel piping and fittings above ground

Prefabricated galvanised steel piping can be used for above ground rainwater drainage systems. The pipe to be used shall be plain-ended medium gauge uncoated pipe to SANS 62, galvanised to SANS 763. All fittings are to be manufactured out of the same material, welded with flanged ends or rolled ends to fit clambon fittings. Fittings are only to be galvanised after manufacturing. All joints are to be either flanged or equipped with clambon couplings. All fittings and junction to be 45° sections.

The pipe system must be properly secured and bracketed at regular intervals with correctly sized and designed galvanised brackets.

Pipes are to be pressure tested in sections as specified in this specification.

(d) HDPE pipe and fittings

HDPE pipes and fittings can be used for underground installations where specified. Pipes shall be plain ended and only HDPE bends and fittings shall be used. Jointing of pipes and fittings shall be done by butt welding, electro-sleeve couplings and/or flanged joints. Pipes and fittings shall only be installed by approved installers and the Contractor shall furnish a certificate to this effect.

Pipes are to be pressure tested in sections as specified in this specification

(e) Galvanised steel pipe installations

- (i) All galvanised steel pipes shall be medium gauge mild steel screwed and socketed pipes to SANS 62 and shall be normalised and marked as such by the manufacturer. Pipes shall be hot-dipped galvanised to SANS 763.
- (ii) All fittings shall be malleable cast-iron fittings to SANS 509 and galvanised to SANS 763.
- (iii) All 80 diameter and larger pipes shall be joined with Class 16 flanged couplings to SANS 1123/1600. The bolts, nuts and spring washers to be used on these joints shall be cadmium plated.
- (iv) In pipe ducts and elsewhere pipes shall be fixed onto walls, soffits, etc, with approved type of supports, holderbats, clamps, etc. Brackets shall be designed to structurally support and fix the pipe system and shall have enough clearance from walls, soffits, etc, to insulate hot-water pipes and maintain equipment.
- (v) Pipes shall be supported according to the manufacturer's specifications with approved brackets at the following maximum intervals:

NORMAL SIZE (mm)	HORIZONTAL (metre)	VERTICAL (metre)
15 dia to 20 dia	1 200	1 830
32 dia to 40 dia	1 830	2 450
50 dia to 150 dia	2 450	3 050

- (vi) Pipes shall be installed in such a manner as to prevent airlocks. A minimum rise of 1:250 shall be maintained to high points, which shall be fitted with suitable air release valves.

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- (vii) All pipes shall be marked according to SANS 0140 or as specified by the Engineer. All surface pipes shall be painted.
 - (viii) Pipes shall be installed flush unless otherwise instructed by the Engineer.
 - (ix) Provision shall be made for thermal contraction and expansion.
 - (x) The type of pipe joint compound shall be approved by the Engineer and used sparingly with good quality hemp. For pipes larger than 80 mm diameter a jointing compound such as Epidermix 32 shall be used.
 - (xi) Any pipes buried shall have at least 900 mm cover and be coated and wrapped to SANS 11 17 and tested in the presence of the Engineer.
 - (xii) All exposed hot-water pipes shall be lagged as specified.
 - (xiii) All pipework and fittings shall be pressure tested and sterilised as specified.
 - (xiv) Valves shall be installed on all branch pipes and ball-o-stop valves on all connectors to basin pillar cocks, sink mixers, cistern type WCs and other fittings.
 - (xv) Approved type expansion bellows shall be installed where required for expansion and contraction to prevent excessive stain on fittings and pipe joints.
- (f) mPVC underground pipe installations
- (i) mPVC piping shall conform to SANS 966 with rubber ring type joints.
 - (ii) All bends shall be mPVC type fittings with rubber ring joints.
 - (iii) All other fittings such as T-pieces, reducers, flanges, etc, shall be bitumen-dipped cast iron rubber ring jointed fittings to SANS 546.
 - (iv) No solvent weld type fittings will be allowed.
 - (v) All cast iron fittings shall be coated and wrapped to SANS 1117.
 - (vi) All pipes shall be laid on a 100 mm sand-bedding cradle and covered with 300 mm sand before backfilling.
 - (vii) All backfilling shall be to the Engineer's specification and approval.
 - (viii) Pipe trenching and bedding shall be as follows:

AREA	MINIMUM COVER	BEDDING TYPE	MAIN FILL
Vehicle traffic	1 100	Flexible pipe bedding as per SANS 1200 LB	Soilcrete
Under surface bed	600		Soilcrete
Other areas	900		90% of modified AASHTO density

- (ix) All thrust blocks shall be cast between the pipe and the undisturbed trench material.
 - (x) No concrete shall come into direct contact with the mPVC pipe. At the thrust blocks the bend shall be wrapped with Densopol 80 HT Tape or approved equivalent.
 - (xi) DPE pipe connections to mPVC pipes up to 50 mm diameter can be done by means of SG iron manufactured saddles with the appropriate gaskets and cadmium-plated bolts and nuts.
 - (xii) All pipe crossings under traffic areas shall be backfilled with soilcrete and compacted as specified.
 - (xiii) All pipework shall be pressure tested with all joints uncovered, to the satisfaction of the Engineer.
 - (xiv) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.
- (g) HDPe underground pipe installations
- (i) HDPe piping shall be Type 4 HDPe pipe to SANS 533.

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- (ii) All fittings shall be of Plasson compression type, conforming to ISO/DIS 3458.
- (iii) All pipes shall be laid on a 100 mm sand bedding cradle and covered with 300 mm of sand of selected material.
- (iv) All backfilling shall be to the Engineer's specification and approval.
- (v) Pipe trenching and bedding shall be as follows:-

AREA	MINIMUM COVER	BEDDING TYPE	MAIN FILL
Vehicle traffic	1 100	Flexible pipe bedding as per SANS 1200 LB	Soilcrete
Under surface bed	600		Soilcrete
Other areas	900		90% of modified AASHTO density

- (vi) No concrete shall come into direct contact with the HDPE pipe. At these points the fittings shall be wrapped with a Densopol 80 HT tape or approved equivalent.
- (vii) All pipe crossings under traffic areas shall be backfilled with soilcrete and compacted as specified.
- (viii) All pipework shall be pressure tested with all joints uncovered to the satisfaction of the Engineer.
- (ix) Suitably sized air release valves built into valve chambers shall be installed at all high points of the pipeline.

(h) Valves

- (i) Gate valves underground in valve chambers to connect to mPVC piping (65 mm NB and larger)

Gate valves are to be equipped with non-rising spindle, spherical graphite iron body to SANS 936 Grade 42, cast-iron nitrile butadine rubber-covered gate, stainless steel spindle, nitrile butadine rubber O-rings and seals, cast iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valve shall conform to SANS 664 and/or 665 and shall be capable of withstanding a working pressure of 1 600 kPa.

The valve shall be fitted with a square key spindle top to close the valve in a clockwise direction and socket ends to SANS 665 to fit into mPVC Class 12 pipe and installed to detail.

- (ii) Gate valves underground in valve chamber to connect to HDPE piping

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valve shall conform to SANS 776 Class 125. The valve shall be able to withstand a working pressure of 1 600 kPa. The valve shall be fitted with a hand wheel on an extended spindle shaft of 700 mm to close in a clockwise direction and installed to detail.

- (iii) Gate valves above ground for temperatures up to 40 °C to connect to steel piping (65 mm NB and larger)

Gate valves to be equipped with non-rising spindle, spherical graphite iron body to SANS 936 Grade 42, cast-iron nitrile butadine rubber-covered gate, stainless steel spindle, nitrile butadine rubber O-rings and seals, cast iron bonnet and gunmetal thrust collar to BS 1400 LG2.

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The valve shall conform to SANS 664 and/or 665 and shall be capable of withstanding a working pressure of 1 600 kPa.

The valves shall be fitted with flanged ends to SANS 1123/1600, hand wheel to close the valve in a clockwise direction and installed in an upright position or sideways to a maximum 90° from upright.

- (iv) Gate valves above ground for temperatures above 40 °C to connect to steel piping (65 mm NB and larger)

Gate valve shall be equipped with non-rising spindle, spherical graphite iron body to SANS 963 Grade 42, cast-iron gate, gunmetal seat and gate rings, high-tensile bronze spindle, cast-iron bonnet and gunmetal thrust collar to BS 1400 LG2.

The valve shall conform to SANS 665 and shall be capable of withstanding a working pressure of 1 600 kPa and a temperature of 90 °C.

The valve shall be fitted with flanged ends to SANS 1123/1600, hand wheel to close the valve in a clockwise direction and installed in an upright position or sideways to a maximum 90° from upright.

- (v) Gate valves above-ground to fit to copper pipes (65 mm NB and larger)

Gate valves shall be equipped with non-rising spindle, gunmetal bronze or dezincified brass body, gunmetal or dezincified brass gate, graphite asbestos packing in the gland.

The valve shall be fitted with a hand wheel to close in a clockwise direction and installed in an upright position or sideways to maximum 90° from upright.

The valve shall be equipped with flanges to SANS 1123/1600, hand wheel to close the valve in a clockwise direction and installed in an upright position or sideways to a maximum 90° from upright.

- (vi) Gate valves above-ground for temperatures up to 100 °C (up to 50 mm NB)

The gate valves shall be of the dezincified brass type with brass gate, brass body, non-rising spindle and BSP threaded socket ends. The valve shall conform to SANS 776-1965 Class 125.

The valve shall be able to withstand a working pressure of 1 600 kPa.

The valve shall be equipped with a hand wheel to close in a clockwise direction.

The valve shall be installed in an upright position or sideways to a maximum 90° from upright and shall be so placed with other fittings to be removable without cutting the pipework.

- (vii) Ball-O-Stop valves (15 mm diameter - 25 mm diameter)

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This valve shall be a full-way ballcock type with BSP threaded ends. This valve shall conform to SANS 1056 Part 3, 1985, shall be rated for a test pressure of 2 000 kPa, and shall be chrome-finished where exposed.

(viii) Angle regulating valves

This valve shall be a 15 mm diameter chromium-plated angle regulating valve with a 350 mm chromium-plated copper tube and cap nuts where required.

(i) Strainers

(i) Strainers for connection to steel or mPVC pipes (65 mm NB and larger)

These strainers shall be of the Y-type with cast-iron body, stainless steel or bronze strainer element and shall be equipped with flanged ends to SANS 1123/1600. The whole size of the strainer element shall be maximum 1 mm diameter and be removable without dismantling of pipework. The strainer shall be suitable for a temperature of up to 90 °C at a 1 000 kPa pressure rating and installed with the element facing downwards or a maximum of 45° sideways.

(ii) Strainers for connection to steel and copper pipes (up to 50 mm NB)

The strainers shall be of the Y-type with bronze or dezincified brass body, stainless steel strainer element and must be equipped with BSP threaded socket ends. The whole size of the strainer element shall be maximum 0,8 mm diameter. The strainer shall be suitable for a temperature of up to 90 °C at a pressure rating of 1 000 kPa and installed with the element facing downwards or a maximum of 45° sideways.

(j) Non-return valves

(i) Non-return valves for cold water (65 mm NB and larger)

The non-return valve shall be of the spring-loaded dual flap plate type fitted between two flanges (wafer).

The non-return valve shall be equipped with a cast-iron body, aluminium bronze plates, stainless steel springs and neoprene seals on the plates. The valves shall be suitable for a working pressure of 1 000 kPa.

(ii) Non-return valves for hot water (up to 100 mm diameter) and cold water (up to 50 mm NB)

The non-return valve shall be of the spring-loaded piston type, with bronze or dezincified brass body, stainless steel spring and bronze disc with neoprene seal fitted with BSP threaded socket ends. The valve shall be suitable for a working pressure of 1 000 kPa and a temperature of up to 90 °C. All valves shall be installed as to be removable without extensive pipework removal.

(k) Air release valves and vacuum breakers

(i) Double orifice double-acting air release valves with sizes from 50 mm B to 200 mm NB

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The air release valve shall be fitted with small and large orifice. The air release valve shall be fitted with a cast-iron or stainless-steel body, stainless steel or fibreglass balls, integral shut-off valve and flanged ends to SANS 1123/1600. The valve shall be equipped with an anti-shock facility.

The valve shall be suitable for maximum pressure of 1 600 kPa.

- (ii) Single orifice air release valves for main water lines with sizes from 25 mm NB to 50 mm NB

The air release valve shall be fitted with a small orifice, cast-iron or stainless-steel body, fibre glass or stainless-steel ball float and BSP threaded inlet.

When the valve is installed a shut-off valve shall be installed on the inlet side. The valve shall be equipped with an anti-shock facility.

The valve shall be suitable for maximum pressure of 1 600 kPa.

- (iii) Single orifice double purpose air release valves for domestic water lines up to 15 mm NB

The air release valves shall be fitted with a stainless-steel float, brass or cast steel body with an integral shut-off valve fitted.

The valve shall be capable to withstand a working pressure of 1 000 kPa at 110 °C.

- (iv) Vacuum breaker up to 40 mm diameter

The vacuum breakers shall be fitted with neoprene seal, spring-loaded disc in a dezincified brass or bronze body. The valve shall seal watertight and shall be designed to withstand a working pressure of 1 000 kPa and a temperature of 90 °C.

- (l) Pressure-reducing valves

- (i) Combination pressure reducing stations

Where a high peak flow can occur as well as a small flow and the small flow is out of the range of the large pressure-reducing valve, a small pressure-reducing valve shall be installed in parallel with the large pressure-reducing valve. The two pressure-reducing valves in parallel shall be set according to the manufacturer's specification.

- (ii) Large pressure-reducing valves (65 mm NB and larger)

The pressure reducing valve shall be equipped with a cast iron body, neoprene-nylon reinforced diaphragm, bronze seal disc washer, stainless steel shaft and flanged ends. The valve shall be pilot operated and shall be designed to handle high flows at a minimum head loss.

The valve must be adjustable to handle a wide range of incoming pressure at a constant downstream pressure.

The valve shall be equipped with flanged ends to SANS 1123/1600.

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(iii) Small pressure-reducing valves (15 mm NB - 50 mm NB)

The pressure-reducing valve shall be equipped with brass body, balanced single seat and integral strainer. The valve shall be able to handle a wide range of incoming pressure while the downstream pressure stays constant with maximum inlet pressure of 1 000 kPa and a maximum water temperature of 40 °C.

The valve shall be equipped with BSP male threaded brass union couplings.

(m) Water meters

(i) Combination water meters

Where high peak flow as well as a low flow can occur, and the low flow is out of the registration range of large water meter, a small diameter water meter shall be installed in parallel with the large water meter to cater for the low flows with integral automatic change-over valves. These valves shall be designed to have a minimum pressure drop at the operating point.

(ii) Water meters (50 mm NB and larger)

These water meters shall be of the dry type with all gears and transmission and roller counters in a dry head, and shall be equipped with flanged ends to SANS 1123, cast-iron body with high quality corrosion proof coating. The meter must be protected from magnetic fields and sealed to prevent tampering with adjustments. The meter must be able to work up to a pressure of 1600 kPa under a maximum water temperature of 40 °C. The scale of meter must be in cubic metre (m³) and equipped with needle indicators reading in litres. The accuracy of the meter shall be not less than 98%.

The meters shall be installed with leading and trailing lengths of pipes to the manufacturer's specification.

(iii) Water meters (up to 50 mm NB)

The meter shall be of the volumetric rotary piston type with brass body equipped with union couplers. The meter reading must be in kilolitres. The meter shall have an accuracy of not less than 98%. The meter must be able to operate up to a water pressure of 1000 kPa at a water temperature of 40 °C.

The meters shall be installed with leading and trailing lengths of pipes to the manufacturer's specification.

CE 05 DRILLING OF BOREHOLES

The Engineer shall in writing indicate or provide co-ordinate positions for the borehole positions.

The contractor shall sub-contract a drilling contractor for the drilling of one or two boreholes; yield testing and a laboratory for water quality testing.

In the event of the installation or equipping of borehole not being successful or completed because it does not give enough yield, the Engineer shall in writing instruct

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the Contractor to remove all its personnel or employees from the site and lock the site and provide security until further notice from the Engineer.

CE.05.01 Payment – Drilling of Borehole

The provisional sum shall include the drilling, yield testing and laboratory water quality testing of two boreholes. Should the first borehole be successful the contractor will be paid a pro-rata amount for all reasonable expenses incurred.

CE.05.02 Payment – Removal of Personnel

The provisional sum shall include the removal and bringing back of personnel and provision of security for this duration.

CE 06 TESTS AND INSPECTIONS ON COMPLETION OF REPAIR WORK

Except where otherwise provided in the Contract, the Contractor shall provide all labour, materials, power, fuel, accessories and properly calibrated and certified instruments necessary for carrying out such tests. The Contractor shall make arrangements for such tests and he shall give at least 72 hours notice to the Engineer, in writing, prior to commencement of the test.

In the event of the plant or installation not passing the test, the Employer shall be at liberty to deduct from the Contract price all reasonable expenses incurred by the Employer or the Engineer attending the repeated test.

Whenever any installation or equipment is operated for testing or adjusting as provided for above, the Contractor shall operate the entire system for as long a period as may be required to prove satisfactory performance at all times in the occupied space served by that system for up to twenty-four hours a day continuously until the system is handed over.

The Contractor shall provide all labour and supervision required for such operation and the Employer may assign operating personnel as observers, but such observation time shall not be counted as instruction time.

After complete installation of the system all equipment shall be tested, adjusted and readjusted until it operates to the satisfaction and approval of the Engineer.

The Contractor shall submit certificates of tests carried out to prove the quality and proper functioning of all equipment and also certificates to be obtained from all relevant authorities and statutory bodies, etc.

CE 07 QUALITY ASSURANCE SYSTEM

The Contractor shall institute an approved quality assurance (QA) system which shall be submitted to the Employer or Engineer for approval. The records of this QA system shall be kept throughout the duration of the Contract and be submitted to the Engineer at regular intervals as required.

CE 08 MAINTENANCE TO INSTALLATION SYSTEMS AND EQUIPMENT
[Note: There is no maintenance in terms of this contract]

CE 09 MEASUREMENT AND PAYMENT

CE.01 WATER DISTRIBUTION PIPELINES

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- CE.01.01** **Repair of existing pipelines** Unit: metre (m)
The unit of measurement shall be per metre length of pipe replaced. In each case the Contractor shall agree on the length of pipe to be replaced and the method of coupling the pipes.
- The tendered rate shall include full compensation for cleaning and grubbing, excavation, removal of existing pipeline, dealing with water logged conditions, provision of bedding and additional backfill, logging and backfilling of replacement pipeline, finishing, repair of kerbs, road surfaces, accommodation of traffic, excavation in all materials, removal of unsuitable material from the trench, disposal of surplus materials.
- Separate items will be scheduled for house connections and distribution pipes.
- The provision of the materials will be measured separately under CE 01.02.
- CE.01.02** **Provision of materials**
- (a) Pipelines Unit: metre (m)
- The unit of measurement shall be the metre of pipe replaced.
- (b) Fittings Unit: number
- The unit of measurement shall be the number of fittings installed.
- The tendered rates shall include full compensation for all transport to the place of installation, storage, labour costs.
- Separate pay items shall be listed for the pipe materials and fittings per diameter and class.
- CE.01.03** **Replacement of manhole covers, grid inlets and the like**
- (a) SANS 558 Type 4 - covers, grids, etc. only:
- (i) Maximum dimension up to 300 mm Unit: number
- (ii) Maximum dimension 301 mm - 600 mm Unit: number
- (iii) Maximum dimension 601 mm - 900 mm Unit: number
- (iv) Maximum dimension over 900 mm Unit: number
- (b) SANS 558 Type 4 - frames only for covers, grids, etc:
- (i) Maximum dimension up to 300 mm Unit: number
- (ii) Maximum dimension 301 mm - 600 mm Unit: number
- (iii) Maximum dimension 601 mm - 900 mm Unit: number
- (iv) Maximum dimension over 900 mm Unit: number
- (c) SANS 558 Type 2A - covers, grids, etc. only:
- (i) Maximum dimension up to 300 mm Unit: number
- (ii) Maximum dimension 301 mm - 600 mm Unit: number
- (iii) Maximum dimension 601 mm - 900 mm Unit: number
- (iv) Maximum dimension over 900 mm Unit: number
- (d) SANS 558 Type 2A - frames only for covers, grids, etc:
- (i) Maximum dimension up to 300 mm Unit: number
- (ii) Maximum dimension 301 mm - 600 mm Unit: number

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- (iii) Maximum dimension 601 mm - 900 mmUnit: number
(iv) Maximum dimension over 900 mmUnit: number

The unit of measurement shall be the number of covers or frames installed. The classification of the size of each cover or frame will be based on the nominal dimensions of the unit and not on the actual dimensions.

The tendered rates shall include full compensation for procuring, furnishing and placing the new covers, grids and/or frames. The tendered rates shall also include full compensation for removing and disposing of the damaged covers, grids and/or frames from the site.

CE.01.04

Repair of corrosion protection

Corrosion protection of pipes with diameters of:

- (a) Up to 100 mm dia Unit: metre (m)
(b) 101 to 200 mm dia Unit: metre (m)
(c) 201 to 300 mm dia Unit: metre (m)
(d) 301 to 400 mm dia Unit: metre (m)

The unit rate of measurement shall be meter length of pipe painted with corrosion protection in accordance with Specification LB: Corrosion protection.

The tendered rate shall include full compensation for preparation of pipe fittings, application of corrosion protection and curing of corrosion protection.

Separate items shall be scheduled for different types of pipework.

CE.02

REPAIR OF FIRE WATER PIPE RETICULATION NETWORK

Measurement and payment items from CE 01, CE 03, CE 04 and CE 05 will be utilised for work done on the external fire water pipe reticulation. Additional payment items for specialist fittings shall be paid under Specification JC.

CE.03

CLEANING OF PIPELINE

CE.03.01

Cleaning of deposits in pipeline by mechanical means for pipes of diameters of:

- (a) Up to 100 mm dia Unit: metre (m)
(b) 101 to 200 mm dia Unit: metre (m)
(c) 201 to 300 mm dia Unit: metre (m)
(d) 301 to 400 mm dia Unit: metre (m)

CE.03.02

Scouring of pipeline to remove trapped debris for pipes of diameters of:

- (a) Up to 100 mm dia Unit: metre (m)
(b) 101 to 200 mm dia Unit: metre (m)
(c) 201 to 300 mm dia Unit: metre (m)
(d) 301 to 400 mm dia Unit: metre (m)

The unit of measurement shall be metre length of pipe cleaned or scoured.

The unit rate of measurement for item CA.03.01 shall include full compensation for the emptying of the pipeline, cleaning, refilling and reporting on the condition of the pipe

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after cleaning. The rate shall also include the disposal of waste material in and appropriate manner.

The unit of measurement for item CA.03.02 shall include full compensation for the scouring of the pipeline and refurbishing of the pipeline. The unit of measurement shall be the total length of filled pipeline from which the water is scoured. The length shall be agreed with the Engineer prior to scouring.

The provision of additional scour points shall also be included in the rate.

CE.04 REPAIR OF FITTINGS

CE.04.01 Servicing of valvesUnit: number
The unit of measurement shall be the number of valves serviced.

The tendered rate shall include full compensation for cleaning, removing rust, scale or other solids from surfaces or moving parts, proper greasing of all moving parts, preparation for corrosion protection coating and painting of valves.

Separate items will be listed in the Schedule of Quantities for different types and sizes of equipment.

CE.04.02 Recondition valvesUnit: number
The unit of measurement shall be the number of valves reconditioned.

The tendered rate shall include full compensation for dismantling, cleaning, removing rust, removing scale or other solids from surfaces and moving parts, replacing components such as hinges, spindles, hard wheels or gates, swing axles, swing gates, replacing or repair of seals, skimming of seal surfaces, proper greasing of all moving parts, preparation for corrosion protection, painting or any other action or cost necessitated to recondition a valve to a perfect functional drop tight condition.

Separate items will be listed in the Schedule of Quantities for different types and sizes of equipment.

CE.04.03 Decommission and remove valvesUnit: number
The unit of measurement shall be the number of valves decommissioned and removed.

The tendered rate shall include full compensation for all labour and equipment required to decommission and remove valves, such as installation of temporary isolating valves or blank flanges, removal of unserviceable valves, loosening and removal of bolts and nuts, or any other related action required. Excavation to exposed partially buried valves shall also be included in the rate.

Separate items will be scheduled in the Schedule of Quantities for different types and sizes of valves.

CE.04.04 Repair of house connectionsUnit: number
The unit of measurement shall be the number of house connections repaired.

The tendered rate shall exclude the provision of new fittings measured under CE. 01.02 but shall otherwise include full compensation for appurtenant fittings, excavation, backfilling and other necessary work to repair existing house connections.

All connections to the distribution pipelines, up to a diameter of 32 mm shall be measured as "house connections".

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CE.05 REPAIR OF STRUCTURES

CE.05.01 Demolition and removal of damaged existing structures

- (a) Plain concreteUnit: cubic metre (m³)
- (b) Reinforced concreteUnit: cubic metre (m³)
- (c) BrickworkUnit: square metre (m²)
- (d) Precast concrete manhole sectionsUnit: number

The unit of measurement for CE.05.01(a) and (b) shall be the cubic metre of existing material demolished, determined from 70 % of the rated cubic metre capacity of the truck used to remove the material.

The unit of measurement for CE.05.01(c) and (d) shall be the square metre length of brickwork and the number of precast concrete manhole sections.

The tendered rates shall include full compensation for all labour, equipment and tools for removal of the damaged sections, trimming the bedding and for loading, transporting and disposing of the material. Excavation and backfill shall also be included for constructing the precast concrete manholes inclusive of all work required to complete the work as shown on the drawings.

The reinstatement of damaged sections shall be paid for under the relevant items for constructing new structures.

CE.05.02 Overhaul on material for haul in excess of 1,0 km

- (a) Excavated material to spoil.....Unit: cubic metre kilometre (m³-km)
- (b) Existing structures demolished.....Unit: cubic metre kilometre (m³-km)

The unit of measurement shall be the cubic metre of loose material hauled in excess of 1,0 km, measured according to the rated capacity of the truck used, multiplied by the average overhaul distance. All trucks shall be fully loaded to their rated capacity.

The tendered rate shall include full compensation for hauling the material in excess of the free-haul distance.

CE.05.03 Repair of structures

- (a) BrickworkUnit: square metre (m²)
- (b) ConcreteUnit: cubic metre (m³)
- (c) Precast concrete manhole sectionsUnit: number

The unit of measurement shall be the cubic metre of brickwork or concrete constructed.

The tendered rate shall include full compensation for the provision of materials, transport, preparation and placing of foundations, labour and all other associated work to complete the work required.

Separate items will be scheduled for specific installations.

CE.05.04 Marker posts.....Unit: number

The unit of measurement shall be the number of marker posts installed.

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The tendered rate shall include full compensation for the manufacture and installation complete as shown on the drawings.

CE.05.05 Sample testing

(a) Extract sample to determine lime deposition, corrosion and general condition for pipes of:

- (i) Up to 100 mm diaUnit: number
- (ii) 101 to 200 mm dia.....Unit: number
- (iii) 201 to 300 mm dia.....Unit: number
- (iv) 301 to 400 mm dia.....Unit: number

The unit rate of measurement shall be the number of sample tests carried out.

The tendered rate shall include full compensation for cutting into pipe and extraction of sample, visual inspection and reporting on condition of pipe. The tendered rate shall also include full compensation for the appropriate disposal of the sample and for the repair of the section pipeline.

Compensation for provision of new pipes and fittings, shall be measured under CE 01.

CE.06 TESTS AND INSPECTIONS OF REPAIR WORK

CE.06.01 Pressure testing

(a) Pressure test pipeline in sections of pipes with diameter of:

- (i) Up to 100 mm dia Unit: metre (m)
- (ii) 101 to 200 mm dia..... Unit: metre (m)
- (iii) 201 to 300 mm dia..... Unit: metre (m)
- (iv) 301 to 400 mm dia..... Unit: metre (m)

The unit of measurement shall be the metre length of pipe tested.

The tendered rate shall include full compensation for isolation of test section, filling of section with water, testing for required duration and reporting on performance of pipes, the provision of any additional water shall also be included in the rate. The rate shall also include the provision of all equipment, labour and supervision necessary for the completion of the pressure test.

CE.06.02 Provision of equipment for visual inspection of underground pipeline network

Unit: lump sum

The tendered sum shall include full compensation for the provision of suitable equipment, such as torches, lights and mirrors, etc, to enable a basic visual inspection of the pipeline network.

PARTICULAR SPECIFICATIONS**PTS WATERTIGHTNESS TESTING AND STERILISATION OF WATER RETAINING STRUCTURES****PTS 1 SCOPE**

This specification covers the special requirements for the hydrostatic testing and sterilisation of pressed steel and reinforced concrete water retaining structures.

PTS 2 WATERTIGHTNESS TESTING**PTS 2.1 General**

The completed structure shall be watertight. The certificate of completion shall not be issued until such time as the above has been achieved to the satisfaction of the Engineer.

All loose material, dirt and foreign matter shall be removed from the structure before the watertightness test commences.

PTS 2.2 Concrete Structures

Testing shall not commence sooner than 14 days after the structure has been completed.

Water shall be let in slowly (in steps of 300 mm increments of height) into the structure.

Should any noteworthy leak be observed during the filling, the structure shall immediately be emptied and the leak traced and repaired to the satisfaction of the Engineer, whereafter the test may be resumed.

The structure shall then remain full for a period of not less than two weeks to allow the concrete to absorb the water. The water levels at the start and end of this initial filling period shall be recorded and made available to the Engineer.

The structure shall then be refilled to the full capacity height and allowed to stand undisturbed for three days. The above procedure shall be repeated until such time as the drop in water level does not drop by more than 10 mm in the three day period and there is no other indication of leakage.

The Engineer reserves the right to re-test the water retaining structures before the end of the maintenance period. Should any structure fail the watertightness test, the Contractor shall again at his own expense rectify the leakage.

PTS 2.3 Pressed Steel Structures

Nil.

PTS 3. STERILISATION**PTS 3.1 All potable water retaining structures shall be sterilised**

If raw water is used for the watertightness test, then the structure shall be sterilised after the test.

If potable water is used for the test, sterilisation shall occur before the test. In the event of the structure failing the watertightness test, the structure shall be re-sterilised after the remedial work has been completed.

The inside surfaces of the structure shall first be cleaned to remove all loose material, dirt and foreign matter.

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The surfaces shall then be washed down by a chlorine solution. This shall be achieved by filling the structure with water to a depth not exceeding 300 mm. Calcium hypochlorite shall be added as the water enters the structure, at a rate of 150 grams per 1m³ of water, to ensure thorough mixing.

All personnel engaged with this work shall be fitted with the required safety equipment. The chlorine solution shall then be drained to waste.

The standards applicable It may be necessary for the contractor to work within confined areas. No additional payment will be made for work undertaken in restricted areas. The method of construction in confined areas will depend largely on the contractor's constructional plant. The contractor shall however note that measurement and payment will be in accordance with the specified cross-sections and dimensions irrespective of the method used to achieve these cross-sections and dimensions. Tendered rates and amounts shall be deemed to include full compensation for any special equipment and construction methods or for any difficulty encountered in working in confined areas and narrow widths, and at/or around obstructions. No extra payment will be made nor will any claim for additional payment be considered on account of these difficulties.

PTS 4. DELIVERY/CARTING OF WATER TO THE SCHOOL

PTS 4.1 Water Quality

The quality of water being delivered or carted to the school for drinking should generally comply with SANS 241:2005 and should be of acceptable standard with regards to turbidity, colour, pH, calcium, magnesium and iron among other SANS 241:2005 parameters.

PTS 4.2 Testing of Water

Prior to carting of water to the school for drinking the Contractor shall identify a reliable source of water and notify the Engineer for approval. Once the source has been approved two samples shall be taken for testing and analysis by an accredited laboratory.

The Contractor can only start carting water to the school for drinking, once the results have been submitted and approval received from the Engineer.

The above shall apply should the contractor desire to change the source of water supply for any reason(s).

PTS 4.3 Payment

The Contractor shall be paid for transportation or carting of drinking water to the school once a week for a period of twelve (12) months including a once-off payment for sampling and testing of water.

PTS 4.4 Penalties

The Contractor shall be penalised for any non-delivery of drinking water to the school at a price which will cost the school to provide its own water. Non-delivery for a period of two (2) weeks will result to termination of the contract.

The Contractor shall be penalised for delivering untested water to the school at a price which will cost the school to provide its own water including sampling and testing.

PPSA GENERAL REQUIREMENTS FOR ELECTRICAL AND MECHANICAL WORKS

PPSA 1 SCOPE

The clauses in this particular specification shall apply wherever electrical or mechanical equipment are installed on a project, unless they are superseded by the detailed requirements in other sections of the Project Specification.

Wherever, electrical and mechanical equipment are to be installed on a project, the scope of the work for this portion of the work shall include the design, supply, installation, commissioning and the upholding during the maintenance period of such equipment.

PPSA 2 DESIGN

PPSA 2.1 GENERAL

A high-quality standard is required to ensure reliability, long life, trouble free operation, efficient, ease of maintenance and operation and neatness.

All plant and equipment shall be of robust construction and the design shall, as applicable, be based on:

- the full range of duties which can be reasonably anticipated;
- the power and torque transmitted by the driver system under full load and stalled conditions;
- the maximum pressure or vacuum which can be produced by pumps, blowers and compressors under all conditions including blocked or closed inlet and outlet circuits;
- conservative service and safety factors based on approved standards or laid down in the printed specifications of reputable and approved manufacturers;
- a safety margin of at least 20% in addition to any service or safety factors which apply;
- twenty four hour per day operation;
- a minimum life of 100 000 hours before repair or major part replacement;
- prevention of serious damage from normal operational problems such as blockages, blinding, jamming, seizure, malfunction and, as far as is practical, mal-operation, if these occurrences cannot be avoided by good design.

Machines with non-overloading characteristics shall be selected wherever possible; i.e. motors shall be sized so that they cannot be overloaded by the driven machine.

PPSA 2.2 FAIL SAFE OPERATION AND PROTECTIONS

Where damage can occur from normal operations, or from other foreseeable problems, plant, equipment and systems must be designed to fail safe i.e. must return to a safe condition in the event of failure, malfunction, mal-operation or overload where no further damage can be done.

PPSA 2.3 MOVING PARTS

The following general requirements apply not only to machines but to all equipment with moving parts such as headstocks, extension spindles, swivelling davits, heavy duty hinges, pivots and the like: -

All rotating or swivelling shafts, pins and the like, shall be adequately supported, guided and restrained by lubricated or self-lubricating bearings, collars and/or bushes.

- Swivelling joints on linkages and the like shall be of the "universal" or fork and rod type with bearings or bushes fitted to the eyes or forks.
- On abrasive applications, abrasion resistant materials and slow speed operation shall be utilised.
- All applications associated with waste or raw (untreated) water shall be regarded as corrosive and materials of construction shall be selected to suit.

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- Susceptibility to fatigue failure shall be minimised by proper design and manufacturing procedures. In particular, changes in section shall be "radiused" and care must be taken to avoid the use of welded components in areas of fluctuating stress.
- The locking of nuts and pins in position shall be done to the approval of the Engineer.
- Wearing parts shall be designed for interchangeability and ease of removal and replacement.

PPSA 2.4 ARRANGEMENT AND MOUNTING

The arrangement and general design shall take the following requirements into consideration: -

- Lifting eyes, lugs, hooks, etc. shall be provided on heavy and large items to facilitate handling.
- Castings or fabrications shall have machined pads for seating and be mounted on either soleplates or baseplates as appropriate.
- Where accurate alignment is required, positioning pins and/or jacking screws shall be provided.
- The needs of operation and maintenance including neatness, access, working space, safety, cleaning, adjustment, handling, assembly, alignment, disassembly, removal, etc. shall be taken into account.
- With plant and equipment to be mounted on or against concrete or brick structures built by others, provision shall be made for adjustment in the mechanical design. Any special accuracy requirements must be specified on the Contractor's Drawings.

PPSA 2.5 SAFETY

Safety shall be an all-important and overriding consideration and proper attention shall be paid to this aspect at the design and installation stage. The regulations of the Occupational Health and Safety Act, Act 85 of 1993, as amended, shall be strictly observed and the following must also be noted: -

- Hazards must be avoided or guarded. Nip points shall be guarded; sharp corners shall be rounded off; operating handles, supports and protrusions shall be kept clear of access ways; and so forth.
- The Contractor's Drawings and specifications shall clearly specify the structural requirements of the Works and the Contractor shall be responsible for covering all unsafe gaps and openings left in structures after installation.
- Moving parts shall be properly guarded to the satisfaction of the Engineer.
- An emergency stop button shall be installed in a convenient position next to each machine. In addition, trip wires which will stop the driving motor when pulled shall be provided along the accessible side/s of moving conveyor belts, chains and the like irrespective of operating speed and irrespective of guards provided.
- Where, in the opinion of the Engineer, an installation is not safe, the Contractor shall remedy such defect at his own cost to the satisfaction of the Engineer.

PPSA 3 INSTALLATION

All equipment shall be installed according to the manufacturer's specifications.

Furthermore, the following requirements shall apply:

- When complete, the installations shall be of a neat and workmanlike appearance, solidly and evenly supported, true to line and level and in proper working order;
- The Contractor shall provide and install all holding down bolts, supports, hangers, brackets etc. required to support and fix the equipment;

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- The Contractor shall undertake all the grouting of the equipment installed under this contract;
- The use of more than three (3) shims in the alignment of the equipment shall not be permitted;
- Fastener threads shall be coated with a nickel based anti-seize compound before assembly.

PPSA 4 GUARDS

All moving or revolving components of machinery shall be completely covered by guards complying in all respects to the Occupational Health and Safety Act of 1993 as amended.

Furthermore, guards shall comply with the following:

- Be neatly and rigidly constructed and fixed and shall not vibrate or cause noise during operation;
- Be constructed of expanded metal or similar approved mesh where belt drives are used. The openings shall not permit a circular object of 10 mm diameter or larger to penetrate;
- Mesh shall not be acceptable where chain guards are used;
- Shall be easily removable for maintenance purposes;
- Shall allow for adjustments;
- Shall be hot dip galvanised.

PPSA 5 STARTING, SITE TESTING AND COMMISSIONING

The Contractor shall start and test all installed equipment to ensure that it is operating in accordance with the specified requirements. The Engineer must witness all tests and all adjustments shall be made during this period.

The Contractor shall train the operational staff in starting, operating, stopping and undertaking routine maintenance of the installation.

Before starting any installation, the Contractor shall undertake all the necessary checks to ensure that the installation has been correctly carried out and that the equipment has been cleaned, correctly aligned, lubricated and is in all respects ready to start with safety.

The Engineer, and where applicable the sub-contractor, shall be present whenever an installation is started.

PPSA 6 INSTALLATION, OPERATION AND MAINTENANCE MANUALS

Four (4) copies of the Installation, Operation and Maintenance Manual shall be provided for each installation, prior to the commissioning of the installation.

The manuals shall be of a standard acceptable to the Engineer and shall be bound between plastic protective covers and shall contain *inter alia*, the following:

- A description of the equipment installed, as per the technical data schedules, and shall include the details of the name, manufacturer, model number, size and performance data;
- Operating instructions supported by drawings, flow diagrams and sketches;
- Dimensional arrangement and layout drawings;
- A comprehensive lubricating schedule;
- A comprehensive routine maintenance schedule;
- A comprehensive spares list;
- Electrical wiring diagrams.

PPSA 9 PAYMENT

All costs incurred by the Contractor in complying with the requirements of this specification shall be deemed to be included in the rates tendered.

PPSB OPERATIONAL CONTROL OF PUMP STATIONS**PPSB 1 GENERAL**

The pumpstation shall have its own local motor control panel. Provision shall however be made for communications to a remote central control room. No control, other than to initiate a shut-down, shall be possible from the Remote Control Room.

Certain specified information shall be displayed at the local control panel and shall be made available for transmission to the Remote Control Room. Communications to the Remote Control Room will however be installed by others.

Once the operating instruction has been initiated by the operator, control of the pump motors shall be governed by the control system.

The Motor Control Panel will be fitted with a Rotary change over switch and a four pin welding plug for emergency generator supply.

PPSB 2 OPERATIONAL BASIS**PPSB 2.1 General:**

The pump station will deliver potable water from a receiving reservoir located adjacent to the station, to a remote reservoir, via a single rising main.

The installation shall comprise of a duty and a standby pump set.

Each installation shall be able to operate in the following modes:

- Manual Operator controlled;
- Load Automatic Pressure switch and time clock controlled;
- Remote automatic Telemetry controlled.

Automatic Mode is the normal mode of operation, whilst Manual Mode is for use during testing and maintenance work.

The selection of the mode of operation shall be via an Off, Manual, Auto selector switch.

PPSB 2.2 Automatic Control:

Local and Remote Automatic control of individual and/or combinations of duty pumps, as required to deliver the design flows, shall be available from the pump control panel. Selection of duty pump sets shall be via a selector switch, which shall make provision for alternating duty operation.

The starting and stopping of each individual pump set shall be governed by water levels in the respective reservoirs.

In Automatic Mode, the control system shall operate on the following basis:

Local Automatic:

The duty pump set shall start when in Automatic mode and continue to pump until one of the following conditions occur:

- The receiving reservoir is full (stop initiated by signal from pressure switch);
- The water level in the delivery reservoir drops below a pre-determined level (stop initiated by signal from float switch);
- Operator intervention; or
- A trip condition occurs.

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The duty pump set will restart after a given time (adjustable), as determined via a time clock.

Remote Automatic:

The duty pump set shall start when called to do so via a signal from a remote telemetry transmitter (water below a pre-determined level in the receiving reservoir).

The duty pump set will continue to operate until one of the following conditions occur:

- Water level at or above a pre-determined level in the receiving reservoir (receipt of signal from a remote transmitter);
- Signal from the pressure switch;
- The water level in the delivery reservoir drops below a pre-determined level (stop initiated by signal from float switch);
- Operator intervention; or
- A trip condition occurs.

The duty and standby arrangement of the pump motors shall alternate (flip flop) after each duty cycle.

A facility for disabling a pump set and its auxiliary equipment for maintenance and repair work at the pump control panel shall be provided.

PPSB 2.3 Manual Control:

Manual control of individual pump sets shall be available from the pump control panel. When in Manual Mode, all pumps shall be shut-down automatically and shall not be allowed to re-start automatically until back in Automatic Mode.

Operation of individual pump sets shall be via separate start and stop switches. The operation of more than one pump in Manual Mode shall be possible.

A facility for disabling pump motors and its auxiliary equipment for maintenance purposes shall be provided together with emergency stops for each pump motor.

All system protection must remain functional whilst in Manual Mode.

PPSB 2.4 Trip Conditions:

The following trip conditions, which shall contribute to the switching off of the electrical supply to a pump motor, shall exist:

- Operation of an emergency stop;
- On command from the Remote Control Room;
- A signal from the back-up low level float switch or the no-flow switch; and
- Single phasing, earth fault and over or under voltage.

Upon a trip condition, the local alarm shall be activated and a signal sent to the Remote Control Room.

The trip conditional shall only be overridden by the local operator.

PPSB 2.5 Control Valves:

All isolation valves shall be wedge gate valves and shall be manually actuated. All non-return valves are to be flanged swing check valves.

PPSB 3 MONITORING

The following items are to be monitored, displayed and alarmed (where applicable):

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- Pump available
- Pump running
- Pump trip (alarm)
- Level of receiving reservoir in increments e.g. 25%, 50%, 75%, 100%
- Level of supply reservoir in increments e.g. 25%, 50%, 75%, 100%
- Voltage / amps;
- Power demand (individual and combined); and
- Flow / instantaneous and totalized.

PPSB 4 PUMP CONTROL PANEL

The panel shall comply with the requirements of the Electrical Specification. It shall be compartmentalized and be designed for ease of operation and access to internal equipment.

Control of all pump motors and ancillary equipment functions shall be available at the control panel. The following shall be included on each control panel:

- Operation mode selection;
- Pump selection;
- Pump available;
- Pump start;
- Pump stop;
- Pump running;
- Open / close circuit breaker for main incoming supply;
- Motor Amps;
- Motor kW;
- Pump motor amps and running hours; and
- Alarm / trip conditions if active.

PPSC PUMP SPECIFICATION**PPSC 1 DEFINITIONS**

- 'l/s' means litres per second
- 'pump' means the pump of a pump set
- 'pump set' means one pump, its associated motor and ancillary equipment
- 'masl' means metres above sea level
- 'suction head' means the head as defined in BS 5316 and
- 'delivery head' the method of determining these heads shall be, as far as practicable, as laid down in BS 5316 Class B testing
- 'total head'
- 'NPSH' means Net Positive Suction Head as defined in ISO 2548 and measured in metres

PPSC 2 TYPE AND ARRANGEMENT OF PUMPS

The pumps to be supplied shall be suitable for conveying potable water and should be arranged as shown on the drawings issued.

PPSC 3 PUMP DUTIES

The pumps are to be designed to have the best efficiency point at the duty points specified and must be suitable for efficient sustained operation over the pump total head and rate of the flow ranges specified therein.

The pump motors shall comply with requirements of the Electrical Specification and must have at least the following reserve on the continuous rated power requirement.

0-5 kW 50%

5-10 kW 30%

10-30 kW 20%

The pumps to be supplied under the Contract shall be works tested in accordance with BS 5316 Class B, ISO 2548, ISO 9906 or other internationally recognised specification to be stated on the Tenderers offer.

PPSC 4 PUMP SET CHARACTERISTIC CURVES

The Tenderer shall submit with his tender, the following characteristic curves for each pump:

1. Pump total head characteristics
2. Impellor size
3. Pump power input characteristics
4. Pump efficiency characteristics
5. Nett positive suction head requirements

This information is to be presented to cover the normal operating speed or speed ranges of the pump, and is to be plotted against pump output in litres per second from 10 to 120 percent of the duty point flow rate.

The pump unit should preferably have a non-overloading characteristic. In the event of power demand increasing with flow rate beyond the specified duty flow rate, full information is to be submitted with the Tender.

The Tenderer is also to submit in the technical schedules the specific speed (Type Number as defined in BS 5316) at the best efficiency point.

PPSC 5 PERFORMANCE TESTS AT WORKS**PPSC 5.1 Performance Tests**

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After the pump set has been completed in all its parts and finished with every necessary detail, a series of performance tests are to be carried out at the Contractor's works or at the test bay of the South African Bureau of Standards to ascertain whether the work can be accepted. The Contractor is required to provide test certificates certifying that the performance of the pumpsets is in accordance with the relevant standard specifications to be stated on the certificate.

PPSC 5.2 Performance Test Outputs

The test will be conducted in order to determine the electric power demand, the delivery rate at the rated head at the conditions listed, to assess cavitational behaviour. Each official acceptance test will be carried out at a system head as close as possible to the head specified at duty point.

The measured power demand will be calculated if the pumps are not tested at the rated head. Such calculations are to be presented to the Engineer for approval prior to acceptance and delivery of the pumpset to site.

PPSC 5.3 Performance Tests Acceptance Criteria

If the performance tests prove that:

- The delivery rate of a pump set at the specified total head and designed speed falls short of the quantity specified at the designed duty by more than two (2) percent.
- The electric power demand of the pump drive exceeds the guaranteed power demand by more than four (4) percent at the rated pump duty.
- The motor rated shaft output power is less than fifteen (15) percent above the shaft power required by the pump when delivering the rated quantity at rated head.

The Employer shall have the option of rejecting the pump set and the Contractor shall take steps to immediately carry out such modification as may be necessary to make the pump set comply with the specification or, failing this, to replace the pump set.

PPSC 6 RESPONSIBILITY FOR ACCEPTANCE TESTS AND GUARANTEES

It is the responsibility of the Contractor to conduct the tests and to provide the requisite support documentation.

PPSC 7 QUALITY OF FLUID TO BE HANDLED

The pumps are to be suitable to handle potable water.

PPSC 8 SUCTION CONDITIONS

The pumps are to be suitable for cavitation free operation over the full range of operating conditions from 10 % to 120 % of duty point flow rate.

PPSC 9 IMPELLORS

Impellers shall be made of a corrosion resistant material of an approved grade. Details of materials are to be furnished with the Tender.

The impeller castings shall be free from blowholes or other significant defects. Plugging or welding of defective castings may be permitted after examination and approval by the Engineer. Repair work done without approval will be cause for rejection.

All fluid passages are to be polished to a smooth finish. Fluid passages which cannot be machined are to be ground and hand-filed to a template.

PPSC 10 CRITICAL SPEED AND BALANCE

Each rotating element shall have a suitable margin of safety between its critical speed and the running speed. The critical speed shall be at least 20 % higher than the highest running speed.

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Rotating elements shall be accurately balanced, statically and dynamically with the drive coupling fitted.

PPSC 11 PUMP CASING, BEARINGS AND FITTINGS

The pumps shall be provided with casings made in cast iron or aluminium, dependent on the stresses corresponding to the required test pressure. The pump casings shall be tested to a pressure of at least 1.5 times the maximum possible working pressure and the proposed test pressures shall be stated in this section.

The materials proposed for the pump casings shall be fully described in this section in respect of mechanical and chemical properties. Repair work done without approval shall be cause for rejection.

Through-bolting for the purpose of blanking the castings at the gland housings for pressure test purposes will not be permitted.

The casing shall be free of any internal projections or cavities and top and bottom halves shall be matched on the flange faces.

Suction and delivery branches of each pump shall have a cut made inside the bore when the flanges are being faced to ensure that the branches are concentric and to the correct dimensions.

Ball and roller bearings with oil bath lubrication are preferred and shall be selected to have a B10 life of 100 000 hours. The oil reservoirs shall have sufficient capacity to ensure continuous operation without undue temperature rise.

All bearings shall be designed to function without overheating or damage if the pump runs in reverse.

Adequate provision shall be made to prevent damage to bearings by any stray electric current which may be produced in the pump shaft.

Adequate provision shall be made for cooling of the bearings. All cooling water pipework, valves and fittings shall be of compatible materials. The waterside of the cooler tube assembly shall be hydraulically tested after installation has been completed to 3 times the maximum working pressure. Test pressures shall be maintained for 30 minutes and shall be witnessed by the Engineer.

Any cooling water piping, filters, valves, oil pumps etc., necessary for the safe operation of the bearings or the motor(s) shall be provided under this contract.

PPSC 12 PUMP FLANGES

Pump flanges are to be drilled in accordance with SANS 1123 unless otherwise specified. If the Tenderer wishes to offer equipment having flange drillings different from the above, he shall note this point specifically and state the drilling standard which he proposes to offer.

PPSC 13 DESIGNATION AND INFORMATION PLATES

Each pump is to be provided with a plate giving substantial information of the pump and shall be securely fastened to the pump casing in an easily visible position and clearly and indelibly marked with the following details:

- Marker's name, serial number and order number;
- Client's contract number
- Year of manufacture
- Duty of pump l/sm head atrpm

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- Mass of complete pump in kg

PPSC 14 PUMP SET PROTECTION DEVICES

The pump sets are to be provided with the following equipment:

- Over-load Protection
- Over and under voltage Protection
- Surge Protection
- Mercury float switch (Starting and Stop pump sets)
- Pressure switch (stop pump set)
- No-flow switch (stop pump set).
- Timer

PPSC 15 VIBRATION LIMITS

The required vibration velocity limit of the pumpset when operated at full speed over the full pump discharge head curve shall not exceed 4 mm/s.

PPSC 16 ESTIMATED PUMP DUTY SPECIFICATIONS

- | | | |
|-----------------------------|---|--------------------------------------|
| • Type | : | Electrically driven submersible pump |
| • No. | : | 01 |
| • Fluid | : | Potable water |
| • Design Flow | : | 1 l/s |
| • Total static head | : | 202 m |
| • Delivery pipeline | : | 63mm (PVC) |
| • Total pipeline length | : | 500 m |
| • Calculated TMH | : | 214 metres |
| • Specified duty conditions | : | 1 x duty pump set |
| • Expected velocity range | : | 0,7 – 1,5 m/s |
| • Pump size | : | 4kW |
| • Control methodology | : | As set per timer |

PPSC 17 PERFORMANCE TESTING OF PUMPING PLANT ON SITE

On completion of the installation of the pump sets, the Contractor shall test the pumps in the presence of the Engineer.

Each pump will be individually tested over its whole range of delivery. Where pumps operate in parallel, tests shall be carried out to check these operating conditions.

Should the tests prove that the pumps do not meet specification the Employer shall have the option of rejecting the pump set and the Contractor shall take steps immediately to carry out such modifications as may be deemed necessary to allow for the pump set to comply with the specification, or failing this, to replace the pump set.

PPSD ELECTRICAL SPECIFICATION**PPSD 1.1 MOTOR CONTROL PANELS**

The electrical distribution boards are to be manufactured by a reputable company, with relevant experience in the manufacturing of electrical distribution boards, control panels, etc. Approval of the manufacturing company should be obtained from the Engineer prior to the placing of any orders / commencement of Works.

Detailed wiring diagrams and shop (manufacturing) drawings of the proposed electrical distribution board is to be submitted to the Engineer for approval, prior to manufacture.

Approval of the wiring diagrams and shop (manufacturing) drawings by the Engineer does not remove any responsibility from the contractor to ensure the completeness and compliance of the distribution board.

The contractor shall ensure that the respective electrical distribution boards are constructed to fit into the spaces provided, that sufficient space is allowed for the cable ends and termination thereof and that the board is provided with an architrave and a hinged lockable door. All electrical distribution boards shall have a protection rating of no less than IP55.

All gland plates, as well as top or side plates used for the termination of cables shall be easily removable to facilitate the drilling and punching of holes. Panels (fascia) and cover plates are to be fixed to the framework by means of "Quicklock" or other similar captive fasteners. Self-tapping screws or dome nuts will not be accepted. Panels (fascia) and cover plates are to be fitted with chrome plated handles to facilitate removal.

Where applicable, the front panels of normal supply, standby power supply and uninterruptible power supply sections shall be painted in distinctive colours, namely :

- ☐ External : White
- ☐ Normal supply : Light Orange, colour B26 of SABS 1091
- ☐ Standby power supply : Signal Red, colour A11 of SABS 1091
- ☐ Un-interruptible power supply : Dark Violet, colour F06 or Olive Green, colour H05 of SABS 1091

PPSD 1.2 Conduit and Conduit Accessories

Conduit for the general lighting and small power installations shall be PVC type conduit. Wherever, the conduit installation is exposed, or surface mounted, galvanised conduit shall be utilised.

Conduit accessories shall be galvanised conduit type in accordance with SANS 162, 763 and 1007 respectively.

The conduit and conduit accessories shall comply fully with the applicable SABS specifications as set out below and the conduit shall bear the mark of approval of the South African Bureau of Standards.

- ☐ Plain-end metallic conduit and accessories: SANS 1065, Parts 1 and 2
- ☐ Non-metallic conduit and accessories: SANS 950

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The Specialist Sub-contractor shall ensure that conduit installation shall, wherever possible, be installed within the ceiling voids / roof space. Wherever necessary, the services shall be chased, or cast into, the concrete slabs and brick walls.

Should flush mounting not be practical (or possible), the Contractor shall obtain prior approval from the Engineer, for the installation of surface mounted conduit and / or accessories. If approved, surface mounted conduits shall be installed using galvanised spacer brackets, allowing a clear space of 25 mm. Conduit accessories shall be mounted on similar brackets, ensuring an aesthetic installation.

PPSD 1.3 Conductors

All low voltage single core conductors shall be of the PVC insulated type with stranded copper conductors, rated at 600 V general service duty and manufactured to SANS 1507 - 1990.

The colour coding for the PVC insulation shall be red, white and blue for phases, black for neutral and green and / or yellow for earth.

No openly installed (i.e. surface mounted) "surfix" or twin and earth will be permitted unless otherwise authorised by the Engineer prior to installation.

No single core conductors will be permitted on open channels and cable ladders.

The drawing in of more than two circuits per conduit shall not be allowed.

PPSD 1.4 Lighting Installation

Light outlet points shall be installed generally in positions as indicated. They shall be as symmetrical as possible within the area in which they are fitted. Cognisance must be taken of the finishes and structural components to avoid clashes of services.

Ceiling mounted fluorescent fittings shall be secured to the concrete ceiling by means of expansion bolts, or "Hilti" fixings, and to the ceiling boards by means of galvanised "Butterfly" expansion nuts.

The Specialist Sub-contractor is to include in the Tender Price the provision of fixing additional branderling where needed.

Light switches shall be a fully modular system comprising a strong, universal steel support frame, an easy clip-on assembly and a white screwless cover plate i.e. Mosaic™ product range, or Lumex Clipsal S2000 series, or Crabtree Diamond Range, etc.

Light switches, unless otherwise indicated, shall be installed at 1 400 mm AFFL, and shall be installed generally in positions as indicated.

The light switches, and associated outlets, shall be of the same type and manufacture as the flush-mounted and the power skirting / flush floor / under-screed small and large power, telephone and data outlets.

All lamp types shall be guaranteed for the full duration of the guarantee period and / or the stipulated lamp life, as stated by the lamp Manufacturers, whichever is the greater.

Ballasts of fluorescent type fittings shall bear of the electronic type, and shall bear the relevant SANS mark.

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The Contractor shall, upon completion of the Contract, issue to the Employer, for their maintenance purposes, the spare lamps as specified in the Schedule of Quantities.

Photo-electric daylight switches shall be supplied and installed in accordance with Part 5 of this Tender Document.

PPSD1.5 Earthing System

The earthing system shall comply with SANS 0142 - 1987 and shall comprise a continuous main copper earth bar together with connections to all items of electrical, electronic and mechanical equipment.

Bonding of the earth system to metal work in buildings, concrete reinforcing, roofs or pipework, etc. shall also be supplied under this contract.

The clamping surfaces of all connections shall be properly tinned to prevent oxidation.

Where earthing conductors are run on walls or vertical surfaces they shall be secured by "stand-off" bolted saddles at intervals not exceeding 1 268 mm.

Earth electrodes to be supplied and installed under this contract shall consist of 16 mm diameter extensible molecular bonded copper clad steel rods 1 800 mm long, complete with coupling and terminal. These electrodes must comply with SANS 0163 - 1985.

The Contractor shall be responsible for the supply and installation of the required earthing system.

PPSD1.6 Surge Protection System

All electrical distribution boards are to be fitted with surge protection, as is required by the relevant regulations.

The Contractor shall be responsible for the supply and installation of the required surge protection equipment.

PPSD1.7 Lightning Protection System

A provisional sum has been allowed in the Schedules of Quantities for the lightning protection system, to be undertaken by a Contractor.

The Engineer shall prepare detailed design drawings for the required lightning protection system.

The Engineer shall, in consultation with the Specialist Sub-contractor, invite tenders from prospective Specialist Sub-contractors, for the required lightning protection system.

The Contractor shall be responsible for the liaison with and co-ordination of the Specialist Sub-contractor appointed for the lightning protection system.

General

Earthing systems to protect buildings against lightning shall be in accordance with SANS 03 - 1985, as amended.

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The components of the lightning protection system shall be installed such that they are not visible; surface mounting of the components shall be kept to an absolute minimum and only where absolutely necessary.

Roofs

Metallic roof sections shall be connected to down conductors to form the overall air termination network, and metallic gutters and drainpipes shall be bonded to this.

Non-metallic (e.g. concrete) sections of roofs shall be fitted with edge or ridge conductors of coastal quality aluminium alloy, which shall be bonded to steel reinforcing by means of bimetallic bonding terminals.

These conductors shall be supported by suitable cleats or clamps, which must allow for thermal expansion. The mounting thereof shall be such as to prevent corrosion due to direct contact with the concrete.

The air termination network shall be connected to the ground earth electrodes by down conductors.

Parts of the building, e.g. chimneys protruding above the general level of the roof shall be protected either by lightning masts or edge conductors, connected to the air termination network.

Down Conductors

The concrete reinforcing, steel columns or similar metal work in the walls of the building shall normally be used as down conductors, connected to the air termination network ground electrode systems through bonding terminals.

Where connected to reinforcing, these terminals shall be cast into the concrete and the reinforcing bars shall be bonded together with mild steel wire prior to casting the concrete.

Where separate external copper or aluminium down conductors are used these shall be bonded to the metal structure of the building to prevent flashing puncturing the concrete or brickwork.

There shall be a minimum of two down conductors (maximum spacing 30 m of building perimeter) preferably located at opposite building corners.

Down conductors shall be connected to the ground system with (if aluminium, bimetallic) bonding terminals 500 mm above ground level.

These terminals shall also be useable as test terminals. The down conductor shall be sleeved below the terminal to a depth of 400 mm below ground level by PVC pipe fixed to the building wall.

Ground Earth Electrodes

The steel reinforcing in the foundation of the building shall be bonded to the ground electrode system.

The steel reinforcement of the building foundation slab shall be earthed by means of driven or pre-drilled rods prior to casting of the concrete. The reinforcing bars shall be bonded together with mild steel wire.

The ground earth electrode shall consist of a trench earth around the building with a single 70 mm² copper conductor or 25 mm x 3 mm strip, buried at a minimum depth of

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1 000 mm not more than 1 000 from the building, unless necessary to increase locally to avoid pipes or other fixtures.

The conductor shall be buried in riddled earth to improve conductivity.

The earth resistance of the ground electrode shall not exceed 30 ohms when isolated from the rest of the low voltage electrical system and down leads and shall be supplemented as necessary with driven molecular bonded copper clad steel rods manufactured to SABS 0163 - 1985.

PPSD1.8 Telemetry/GPRS Equipment

The telemetry/GPRS will send alarms and data to a control room where the operation and the security of the four Sewer Pump station can be monitored 24 hours a day. The system will monitor electric fencing, tamper switches, stopping, starting and trip out on the four system.

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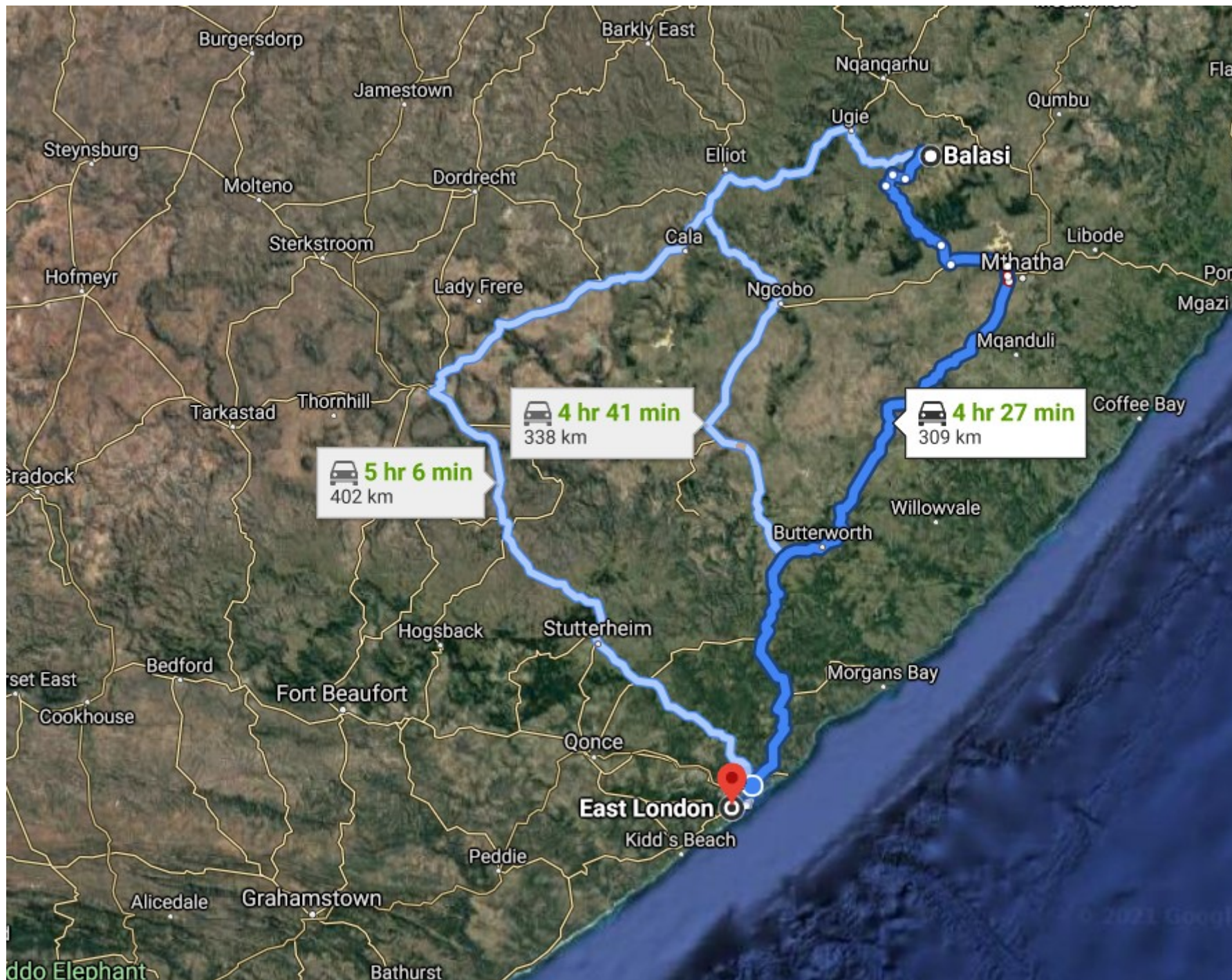
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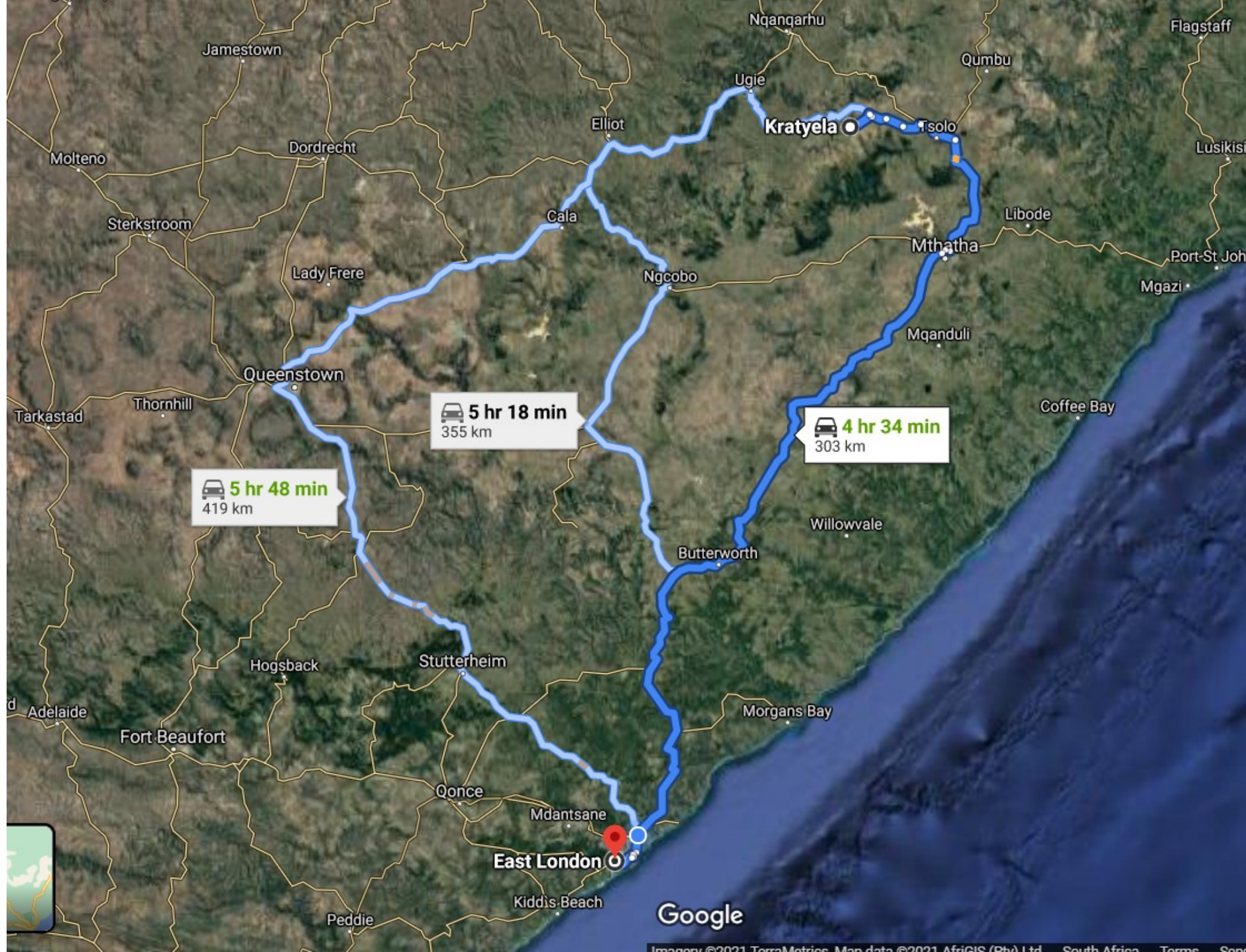
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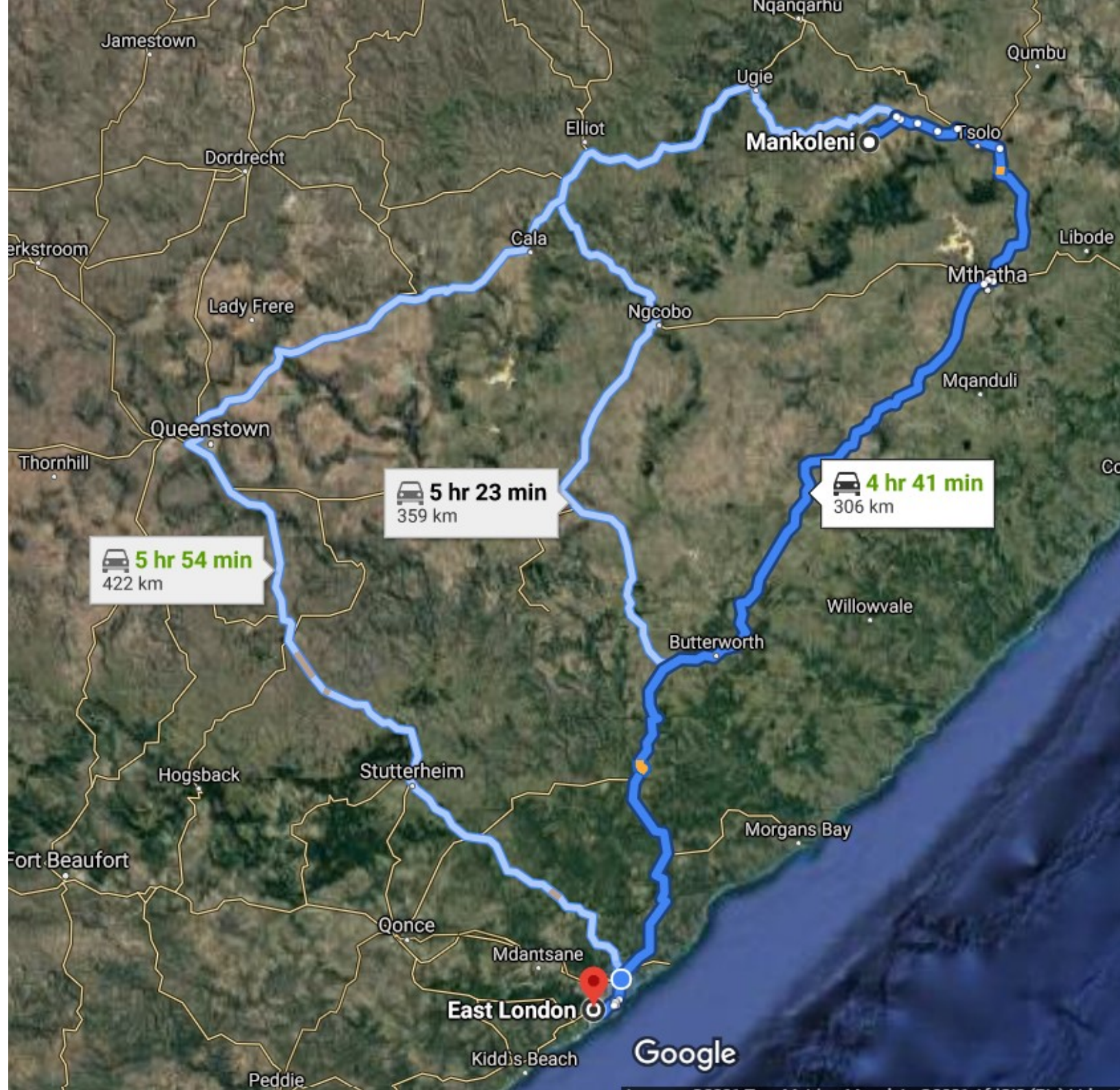
C4 Site Information

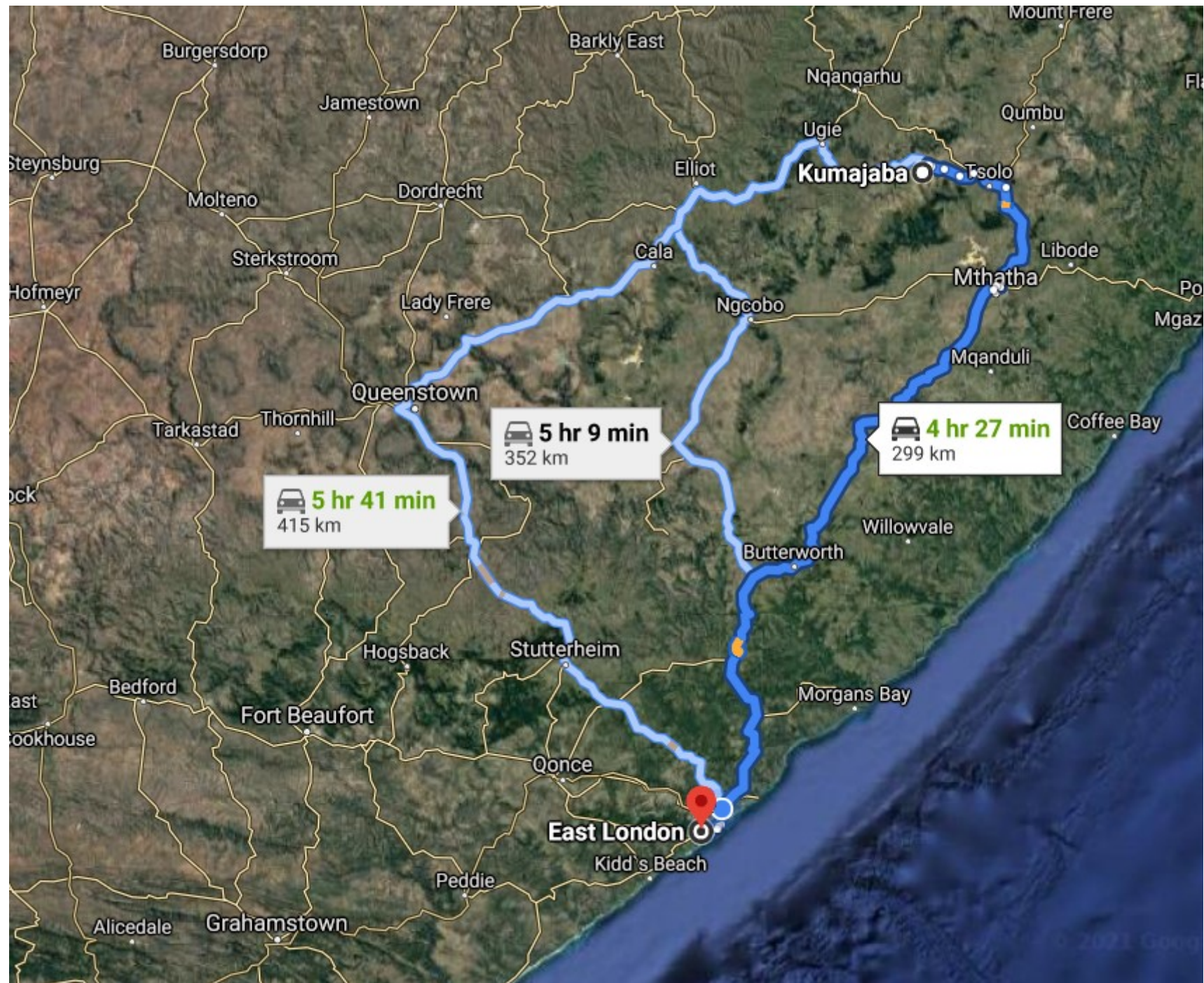
Cluster 1D					
Project Type	Contract	ID	School Name	East	South
Water	1D	1	LADIMIZULU JPS	28.482180	-31.274880
Water	1D	2	MVUMELWANO JSS	28.511120	-31.291390
Water	1D	3	MPOZA JSS	28.501420	-31.310710
Water	1D	4	ZANEMVULA JSS	28.547620	-31.282970
Water	1D	5	JONGINKUNDLA JSS	28.607730	-31.272360

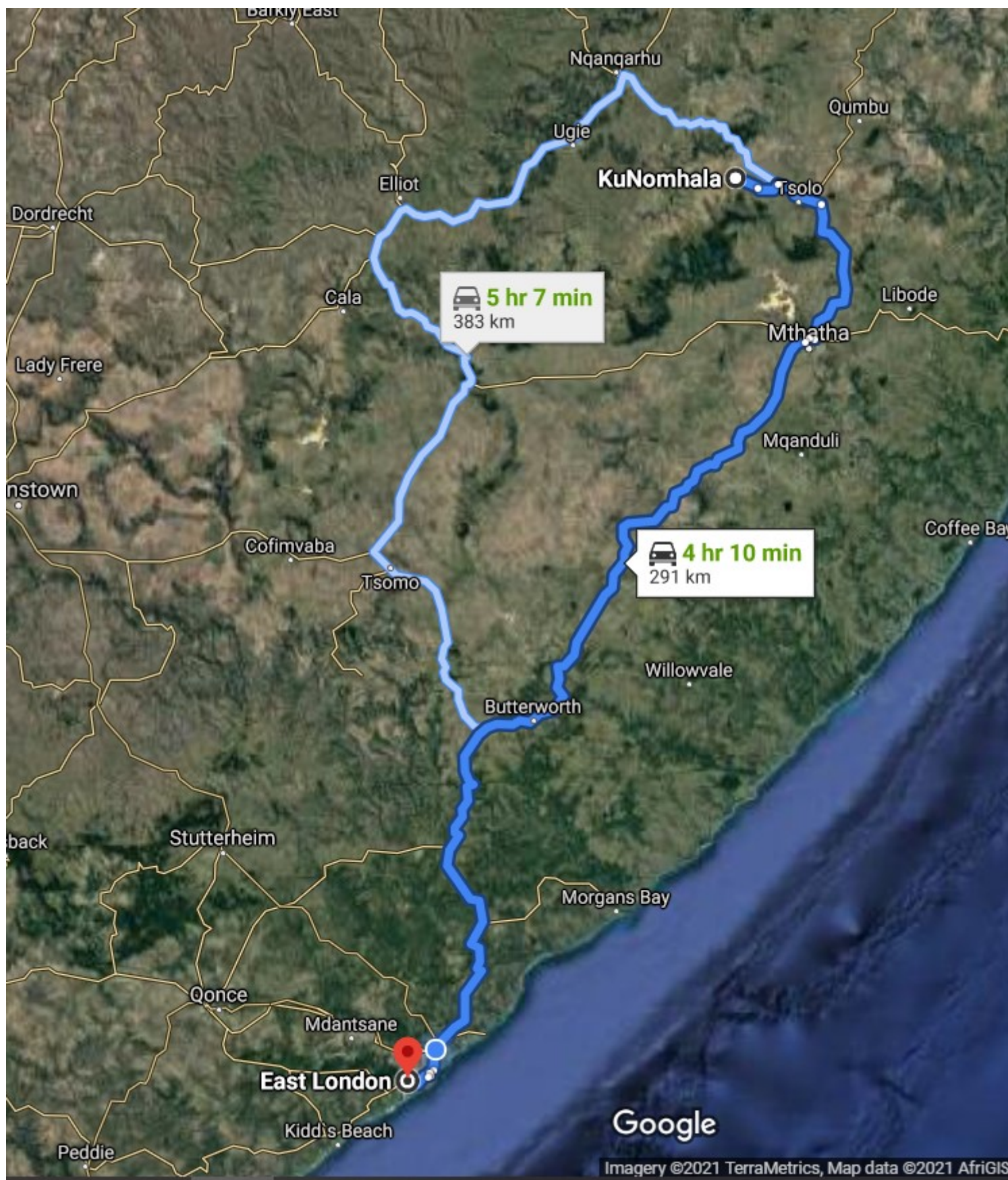
All other site information is indicated on the drawings.











ANNEXURE A

Environmental Management Plan

PEM: ENVIRONMENTAL MANAGEMENT PLAN

PEM.1 PURPOSE

The purpose of the EMP is to encourage good management practices through planning and commitment with respect to environmental issues, and to provide rational and practical environmental guidelines to minimise disturbance of the natural environment.

PEM.2 RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT

The contractor will be responsible for environmental control on site during construction and the maintenance period. The construction activities will be monitored by an independent environmental specialist and audited against the EMP.

PEM.3 TRAINING AND INDUCTION OF EMPLOYEES

The contractor has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes sub-contractors, casual labour, etc.).

PEM.4 COMPLAINTS REGISTER AND ENVIRONMENTAL INCIDENT BOOK

Any complaints received by the project team from the community will be recorded. The complaint will be brought to the attention of the site manager.

All complaints received will be investigated and a response given to the complainant within 28 days.

All environmental incidents occurring on the site will also be recorded.

PEM.5 ENVIRONMENTAL SAFETY

The management of impacts associated with various categories of concern is discussed as separate topics, indicated below.

PEM.5.1 Soil

- (a) Topsoil should be temporarily stockpiled, separately from (clay) subsoil and rocky material, when areas are cleared. If mixed with clay sub-soil the usefulness of the topsoil for rehabilitation of the site will be lost.
- (b) Stockpiled topsoil should not be compacted and should be replaced as the final soil layer. No vehicles are allowed access onto the stockpiles after they have been placed.
- (c) Stockpiled soil should be protected by erosion-control berms if exposed for a period of greater than 14 days during the wet season. The need for such measures will be indicated in the site-specific report.
- (d) Topsoil stripped from different sites must be stockpiled separately and clearly identified as such. Topsoil obtained from sites with different soil types must not be mixed.
- (e) Topsoil stockpiles must not be contaminated with oil, diesel, petrol, waste or any other foreign matter, which may inhibit the later growth of vegetation and micro-organisms in the soil.
- (f) Soil must not be stockpiled on drainage lines or near watercourses without prior

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consent from the Project Manager.

- (g) Soil should be exposed for the minimum time possible once cleared of invasive vegetation, that is the timing of clearing and grubbing should be co-ordinated as much as possible to avoid prolonged exposure of soils to wind and water erosion. Stockpiled topsoil must be either vegetated with indigenous grasses or covered with a suitable fabric to prevent erosion and invasion by weeds.
- (h) Limited vehicular access is allowed across rocky outcrops and ridges.
- (i) All cut and fill surfaces need to be stabilized with appropriate material or measures when major civil works are complete.
- (j) Erosion and donga crossings must be dealt with as river crossings. Appropriate soil erosion and control procedures must be applied to all embankments that are disturbed and destabilized.
- (k) All equipment must be inspected regularly for oil or fuel leaks before it is operated. Leakages must be repaired on mobile equipment or containment trays placed underneath immobile equipment until such leakage has been repaired.
- (l) Soil contaminated with oil must be appropriately treated and disposed of at a permitted landfill site or the soil can be regenerated using bio-remediation methods.
- (m) Runoff must be reduced by channelling water into existing surface drainage system.

PEM.5.2 Water

- (a) Adequate sedimentation control measures must be instituted at any river crossings when excavations or disturbance of a riverbanks or riverbeds takes place.
- (b) Adequate sedimentation control measures must be implemented where excavations or disturbance of drainage lines of a wetland may take place.
- (c) All fuel, chemical, oil, etc spills must be confined to areas where the drainage of water can be controlled. Use appropriate structures and methods to confine spillages such as the construction of berms and pans, or through the application of surface treatments that neutralise the toxic effects prior to the entry into a water course.
- (d) Oil absorbent fibres must be used to contain oil spilt in water.
- (e) During construction through a wetland, the majority of the flow of the wetland should be allowed to pass downstream.
- (f) Vehicular traffic across wetland areas must be avoided.
- (g) No dumping of foreign material in streams, rivers and/or wetland areas is allowed.
- (h) The wetland area and/or river must not be drained, filled or altered in any way including alteration of a bed and/or, banks, without prior consent from the DWAF. The necessary licenses must be obtained in terms of Section 21 and 22 of the National Water Act, 36 of 1998 from DWAF.
- (i) No fires or open flames are allowed in the vicinity of the wetland, especially during the dry season.
- (j) No swimming, washing (including vehicles and equipment), fishing or related activity is

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permitted in a wetland or river without written permission from the Project Manager.

- (k) Disturbances to nesting, breeding and roaming sites of animals in or adjacent to wetland areas must be minimized.

PEM.5.3 Air

- (a) Speed limits must be implemented in all areas, including public roads and private property to limit the levels of dust pollution.
- (b) Dust must be suppressed on access roads and construction sites during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that must not result in the generation of run-off.
- (c) The site-specific investigation will quantify the impact of dust on nearby wetlands, rivers and dams in terms of sedimentation. Mitigation measures identified during the site specific study must be implemented.
- (d) The Contractor must notify the Principal of all schools within 50m of the site of proposed activities. The Principal must in turn ensure that children with allergies and respiratory ailments take the necessary precautionary measures during the construction period. The Contractor must ensure that construction activities do not disturb school activities e.g. dust clouds may reduce visibility affecting sports activities.
- (e) Waste must be disposed of, as soon as possible at a municipal transfer station, skip or on a permitted landfill site. Waste must not be allowed to stand on site to decay, resulting in malodours.
- (f) Noise control measures must be implemented. All noise levels must be controlled at the source. All employees must be given the necessary ear protection gear. IAP's must be informed of the excessive noise factors.
- (g) The Contractor must inform all adjacent landowners of any after-hour construction activities and any other activity that could cause a nuisance e.g. the application of chemicals to the work surface. Normal working hours must be clearly indicated to adjacent land owners.
- (h) No loud music is allowed on site and in construction camps.
- (i) No fires are allowed if smoke from such fires will cause a nuisance to IAP's.

PEM.5.4 Social and Cultural

- (a) Access by non-construction people onto any construction sites must be restricted. The Contractors activities and movement of staff must be restricted to designated construction areas only.
- (b) The Contractors crew must be easily identifiable due to clothing, identification cards or other methods.
- (c) Rapid migration of job seekers could lead to squatting and social conflict with resident communities and increase in social pathologies if not properly addressed. The Contractor must ensure that signs indicating the availability of jobs are installed.

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- (d) Criteria for selection and appointment (by the Contractor) of construction labour must be established to allow for preferential employment of local communities. The Local Authority must be actively involved in the process of appointing temporary labourers.
- (e) Sub-Contractors and their employees must comply with all the requirements of this document and supporting documents e.g. the Contract document that applies to the Contractor. Absence of specific reference to the sub-contractor in any specification does not imply that the sub-contractor is not bound by this document.
- (f) No member of the construction workforce is allowed to wander around private property, except within the immediate surroundings of the site.
- (g) The Contractor must provide suitable sanitation facilities for site staff. Sanitation provided during the construction phase should be managed so that it does not cause environmental health problems. The use of the surrounding veld for toilet purposes is not permitted under any circumstance.
- (h) The Contractor must arrange for all his employees and those of his sub-contractors to be informed of the findings of the environmental report before the commencement of construction to ensure:
 - A basic understanding of the key environmental features of the work site and environments, and
 - Familiarity with the requirements of this document and the site specific report.
- (i) Supervisory staff of the Contractor or his sub-contractors must not direct any person to undertake any activities which would place such person in contravention of the specifications of this document, endanger his/her life or cause him/her to damage the environment.
- (j) The demand for construction materials and supplies will have an effect on the local economy. This impact can be optimised by sourcing and purchasing materials locally and regionally wherever possible, insofar as the material complies with the design specification.
- (k) The Contractor must maintain a detailed complaints register. This must be forwarded, together with solutions, to the authorities when requested.

PEM.5.5 Aesthetics

- (a) Scenic Quality

Damage to the natural environment must be minimized.

Trees and tall woody shrubs must be protected from damage to provide a natural visual shield. Excavated material must not be placed on such plants and movement across them must not be allowed, as far as practical.

The clearing of all sites must be kept to a minimum and surrounding vegetation must, as far as possible, be left intact as a natural shield.

No painting or marking of natural features must be allowed.
- (b) All above ground structures could be treated or painted to blend in with the natural environment.
- (c) Cut and fill areas, river and stream crossings and other soil stabilisation works must

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be constructed to blend inwith the natural environment.

- (d) Natural outcrops, rocky ridges and other natural linear features, must not be bisected. Vegetation on such features must, as far as possible, not be cut unless absolutely necessary for construction.
- (e) Excavated material must be flattened (not compacted) or removed from site. No heaps of spoil material must be left on site once the Contractor has moved to a new construction site.
- (f) Any complaints from interest groups regarding the appearance of the construction site must be recorded and addressed promptly by the Contractor.

PEM.5.6 Archaeology and Cultural Sites

- (a) All finds of human remains must be reported to the nearest police station.
- (b) Human remains from the graves of victims of conflict, or any burial ground or part thereof which contains such graves and any other graves that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from the South African Heritage and Resource Agency (SAHRA).
- (c) Work in areas where artefacts are found must cease immediately.
- (d) Under no circumstances must the Contractor, his/her employees, his/her sub-contractors or his/her sub-contractors' employees remove, destroy or interfere with archaeological artefacts. Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the National Heritage Resources Act, 25 of 1999.
- (e) A fence at least 2 m outside the extremities of the site must be erected to protect archaeological sites.
- (f) All known and identified archaeological and historical sites must be left untouched.
- (g) Work in the area can only be resumed once the site has been completely investigated. The Project Manager will inform the Contractor when work can resume.

PEM.5.7 Flora

- (a) All suitable and rare flora and seeds must be rescued and removed from the site. They must be suitably stored, for future use in rehabilitation.
- (b) The felling and/or cutting of trees and clearing of bush must be minimised.
- (c) Bush must only be cleared to provide essential access for construction purposes.
- (d) The spread of alien vegetation must be minimized.
- (e) Any incident of unauthorised removal of plant material, as well as accidental damage to priority plants, must be documented by the Contractor.

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- (f) Woody vegetative matter stripped during construction must either be spread randomly throughout the surrounding veld so as to provide biomass for other micro-organisms and habitats for small mammals and birds, or it may be stockpiled for later redistribution over the reinstated topsoiled surface. No vegetative matter must be burnt or removed for firewood other than those removed during the grubbing and clearing phase. Such vegetation can be made available to the local inhabitants to be used as firewood.
- (g) No tree outside the footprint of the Works area must be damaged.

PEM.5.8 Fauna

- (a) No species of animal may be poached, snared, hunted, captured or wilfully damaged or destroyed.
- (b) Snakes and other reptiles that may be encountered on the construction site must not be killed unless the animal endangers the life of an employee.
- (c) Anthills and/or termite nests that occur must not be disturbed unless it is unavoidable for construction purposes.
- (d) Disturbances to nesting sites of birds must be minimized.
- (e) The Contractor must ensure that the work site is kept clean and free from rubbish, which could attract pests.

PEM.5.9 Infrastructure

- (a) The relevant authorities must be notified of any interruptions of services, especially the Local Municipality, National Road Agency, Spoornet, TELKOM and ESKOM. In addition, care must be taken to avoid damaging major and minor pipelines and other services.
- (b) The integrity of property fences must be maintained.
- (c) No telephone lines must be dropped during the construction operations, except where prior agreement by relevant parties is obtained. All crossings must be protected, raised or relocated as necessary.
- (d) All complaints and/or problems related to impacts on man-made facilities and activities must be promptly addressed by the Contractor and documented.
- (e) Storage Facilities
 - Proper storage facilities should be provided for the storage of oils, grease, fuels, chemicals and hazardous materials.
 - The Contractor must ensure that accidental spillage does not pollute soil and water resources.
 - Fuel stock reconciliation must be done on all underground tanks to ensure no loss of oil, which could pollute groundwater resources.
 - Cement must be stored and mixed on an impermeable substratum.
- (f) Traffic Control

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All reasonable precautions must be taken during construction to avoid severely interrupting the traffic flow on existing roads, especially during peak periods.

Before any work can start the Local Traffic Department must be consulted about measures to be taken regarding pedestrian and vehicular traffic control.

(g) Access Roads

The Contractor and the affected landowner must collaborate on the planning and construction of new access routes and the repair or upgrading of existing routes.

Access to the site must be controlled such that only vehicles and persons directly associated with the work gains access to the site.

Temporary access roads must not be opened until required and must be restored to its former state as soon as the road is no longer needed.

(h) Batching Plants

Concrete must be mixed only in an area demarcated for this purpose. All concrete spilled outside this area, must be promptly removed by the Contractor and taken to a permitted waste disposal site. After all concrete mixing is complete, all waste concrete must be removed from the batching area and disposed of at an approved dumpsite. Stormwater must not be allowed to flow through the batching area. Water laden with cement must be collected in a retention area for evaporation and not allowed to escape the batching area. Operators must wear suitable safety clothing.

(i) Chemical toilet facilities should be managed and serviced by a qualified company. No disposal or leakage of sewerage should occur on or near the site.

(j) Blasting

Blasting must not endanger public or private property.

Noise mufflers and/or soft explosives must be used to minimize the impact on animals.

All the provisions of the Explosives Act, 26 of 1956 and the Minerals Act, 50 of 1991 must be complied with.

The Contractor must take measures to limit flyrock.

PEM.5.10Safety

- (a) Measures must be taken to prevent any interference that could result in flashover of power lines due to breaching of clearances or the collapse of power lines due to collisions by vehicles and equipment.
- (b) Measures must be taken during thunderstorms to protect workers and equipment from lightning strikes.
- (c) All tall structures must be properly earthed and protected against lightning strikes.

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- (d) The process of excavation and back filling must be carried out as a sequential process following one another as quickly as possible. Excavations must only remain open for a minimum period of time and during this time they must be clearly demarcated. If excavations place the public at risk these sites must be fenced.
- (e) The residents directly affected by open trenches must be notified of the dangers. This will be done during the site-specific phase.

PEM.5.11Waste

PEM 5.11.1Solid Waste

- (a) Littering on site and the surrounding areas is prohibited.
- (b) Clearly marked litterbins must be provided on site. The Contractor must monitor the presence of litter on the work sites as well as the construction campsite.
- (c) All bins must be cleaned of litter regularly.
- (d) All waste removed from site must be disposed at a municipal/permitted waste disposal site.
- (e) Excess concrete, building rubble or other material must be disposed of in areas designated specifically for this purpose and not indiscriminately over the construction site.
- (f) The entire works area and all construction sites must be swept of all pieces of wire, metal, wood or other material foreign to the natural environment.
- (g) Contaminated soil must be treated and disposed of at a permitted waste disposal site, or be removed and the area rehabilitated immediately.
- (h) Waste must be recycled wherever possible.

PEM 5.11.2Liquid Waste

- (a) The Contractor must maintain mobile toilets on site.
- (b) The Contractor must provide adequate and approved facilities for the storage and recycling of used oil and contaminated hydrocarbons. Such facilities must be designed and sited with the intention of preventing pollution of the surrounding area and environment.
- (c) All vehicles must be regularly serviced in designated area within the Contractors camp such that they do not drip oil.
- (d) All chemical spills must be contained and cleaned up by the supplier or professional pollution control personnel. Run-off from wash bays must be intercepted.

PEM 5.11.3Hazardous Waste

- (a) No hazardous materials must be disposed of in the veld or anyplace other than a registered landfill for hazardous material. Hazardous waste must be stored in containers with tight lids that must be sealed and must be disposed at an appropriately permitted hazardous waste disposal site. Such containers must not be used for purposes other than those originally designed for.
- (b) The Contractor must maintain a hazardous material register.

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PEM.5.12 Rehabilitation and Site clearance

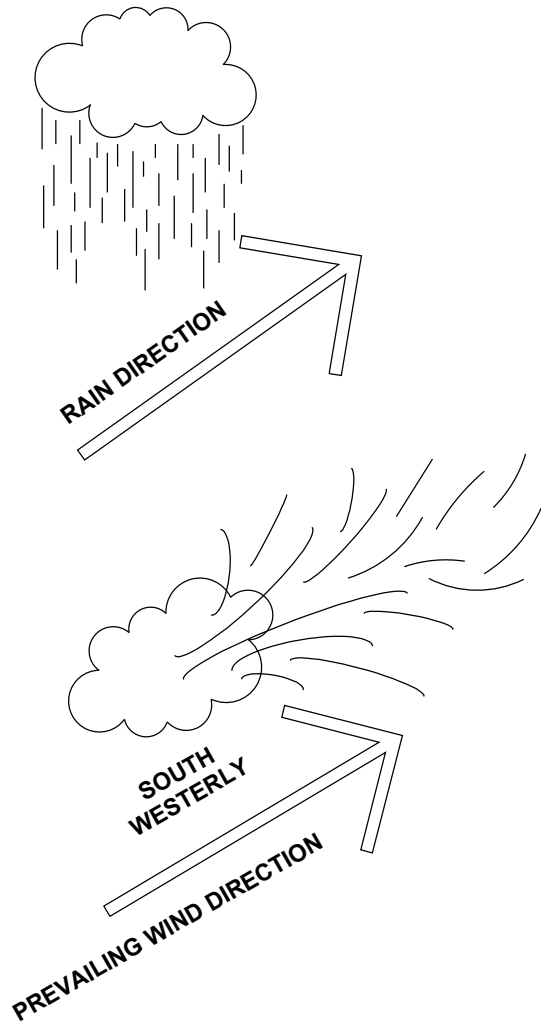
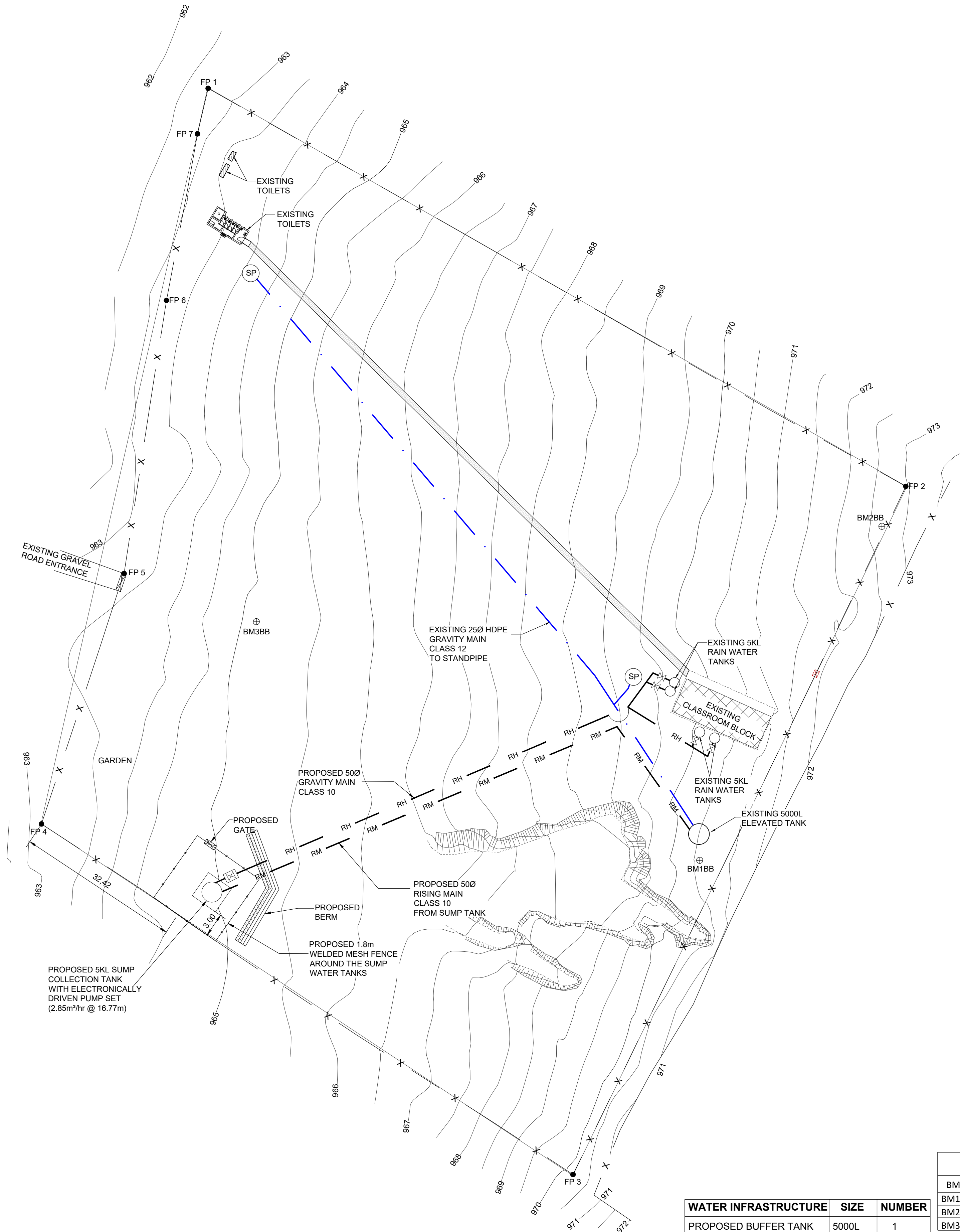
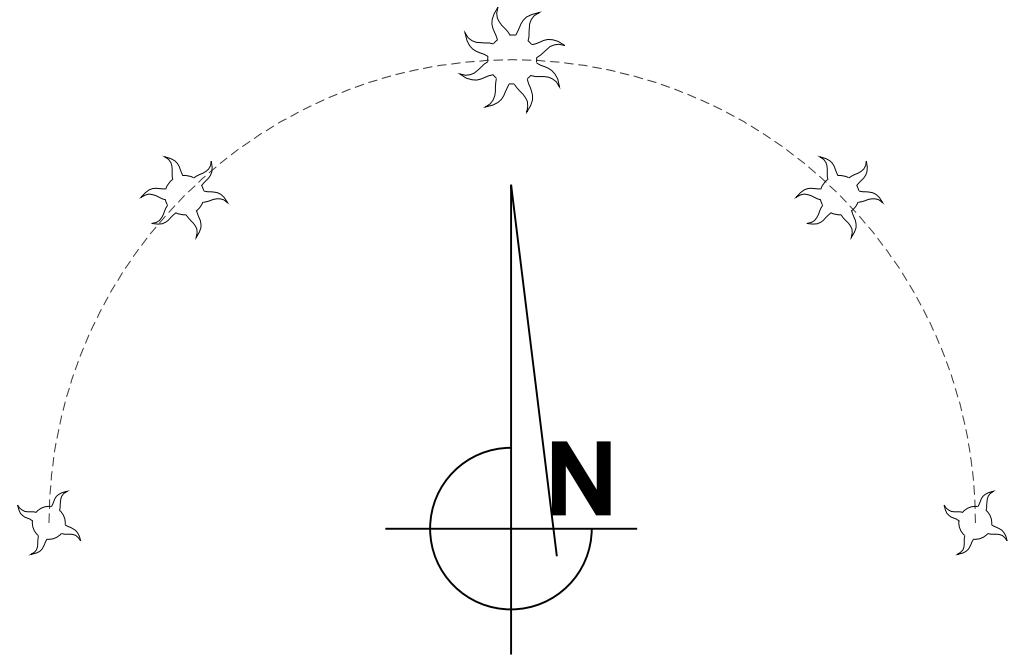
- (a) When all major construction activities are completed, the site must be inspected to determine site-specific rehabilitation measures. This may be considered as unplanned work e.g. soil rehabilitation due to oil spills.
- (b) All temporary buildings and foundations, equipment, lumber, refuse, surplus materials, waste, construction rubble fencing and other materials foreign to the area must be removed.
- (c) If waste products cannot be recycled they must be disposed of at a permitted landfill site.
- (d) All drainage deficiencies including abandoned pit latrines and waste pits must be corrected.
- (e) Cut and fill areas must be restored and re-shaped.
- (f) The area must be restored to its natural vegetation condition using indigenous trees, shrubs and grasses as directed by a grassland and/or rehabilitation expert.
- (g) Borrow pits must be re-shaped into even slopes and surfaces to blend with the natural terrain and topsoil must be replaced.
- (h) The grass mix, shrubs and trees used for rehabilitation must be compatible with the species identified in the site-specific investigation.
- (i) Areas compacted by vehicles during construction must be scarified to allow penetration of plant roots and the regrowth of natural vegetation.

PEM.6 MEASUREMENTS AND PAYMENT

No additional payment will be made to the Contractor to comply with the above actions as it will be deemed to be included in the rates tendered.

ANNEXURE B

Drawings



WATER INFRASTRUCTURE	SIZE	NUMBER
PROPOSED BUFFER TANK	5000L	1
EXISTING ELEVATED TANK	10000L	1
EXISTING STANDPIPES	N/A	2
EXISTING WATER TANKS	5000L	4

PROVISIONAL FENCE CO-ORDS		
FP 1	-49154.997	3461279.270
FP 2	-49016.796	3461358.070
FP 3	-49082.721	3461494.312
FP 4	-49188.000	3461424.908
FP 5	-49171.647	3461375.330
FP 6	-49163.252	3461321.259
FP 7	-49157.104	3461288.285
APPROX. AREA = 20 504.674m²		

BENCH MARK COORDINATES			
BM#	Y	X	Z
BM1BB	- 49 057,63	3461 432,11	970,62
BM2BB	- 49 021,54	3461 365,99	972,67
BM3BB	- 49 145,43	3461 384,87	965,16

SCHOOL COORDINATES	
EAST	SOUTH
-49053.9311	3461391.7873

SCHOOL ENROLMENT SCHEDULE 2013			
BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
34	33	4	67

SCHOOL ENROLMENT SCHEDULE 2017			
BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
-	-	-	42

NOTES

ALL SITE CONDITIONS, BUILDINGS AND FEATURES INDICATED ARE TO BE CHECKED ON SITE BEFORE WORK COMMENCES. DRAWING NOT TO BE SCALED. REFER TO DIMENSIONS AS SHOWN

DRAWING NOT TO BE SCALED - REFER TO APPROX. DIMENSIONS AS SHOWN.

EXISTING BUILDINGS TO BE DEMOLISHED ONLY AFTER COMPLETION OF CONSTRUCTION OF NEW BUILDINGS

LEGEND

- EXISTING BUILDING REMAINS. NO WORK TO BE DONE.
- MINIMAL REPAIRS AND RENOVATIONS REQUIRED.
- MAJOR REPAIRS AND RENOVATIONS REQUIRED.
- DEMOLISH EXISTING BUILDING AND REPLACE WITH NEW.
- REMAINS OF EXISTING DEMOLISHED BUILDING.
- PROPOSED GRAVITY MAIN - 500 HDPE CLASS 10
- PROPOSED RISING MAIN - 500 HDPE CLASS 10
- EXISTING GRAVITY MAIN TO EXISTING STANDPIPES
- ROOF OVERHANG
- EXISTING ELEVATED WATER TANK
- EXISTING STAND PIPE
- PROPOSED ISOLATING VALVE

ASSOCIATED REFERENCE DRAWING

FIELD	DESCRIPTION	DRAWING NUMBER	REV.	DATE

KEY: A = ARCHITECT; C = CIVIL; S = STRUCTURAL; M = MECHANICAL; E = ELECTRICAL; L = LANDSCAPE

No.	DATE	REVISIONS	CHK'D
0	JAN 2021	ISSUED FOR TENDER	WSK
1	JULY 2018	RAINWATER HARVESTING, ISSUED FOR APPROVAL	SGR

NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED	F.KUMIRAI	22 Jan 2021	A1
DRAWN	D.M.DICKSON	22 Jan 2021	SCALE 1:500
VERIFIED	W.S.KETTERINGHAM	22 Jan 2021	STATUS LEGEND A = APPROVAL I = INFORMATION C = CONSTRUCTION AB = AS BUILT
VALIDATED	S.FONGOQA	22 Jan 2021	

CLIENT



IMPLEMENTING AGENT TECHNICAL SUPPORT



IDT
Palm Square Business Park
Silverwood House
Bonza Bay Road
Beacon Bay
5241
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Fax: (043) 748-5471



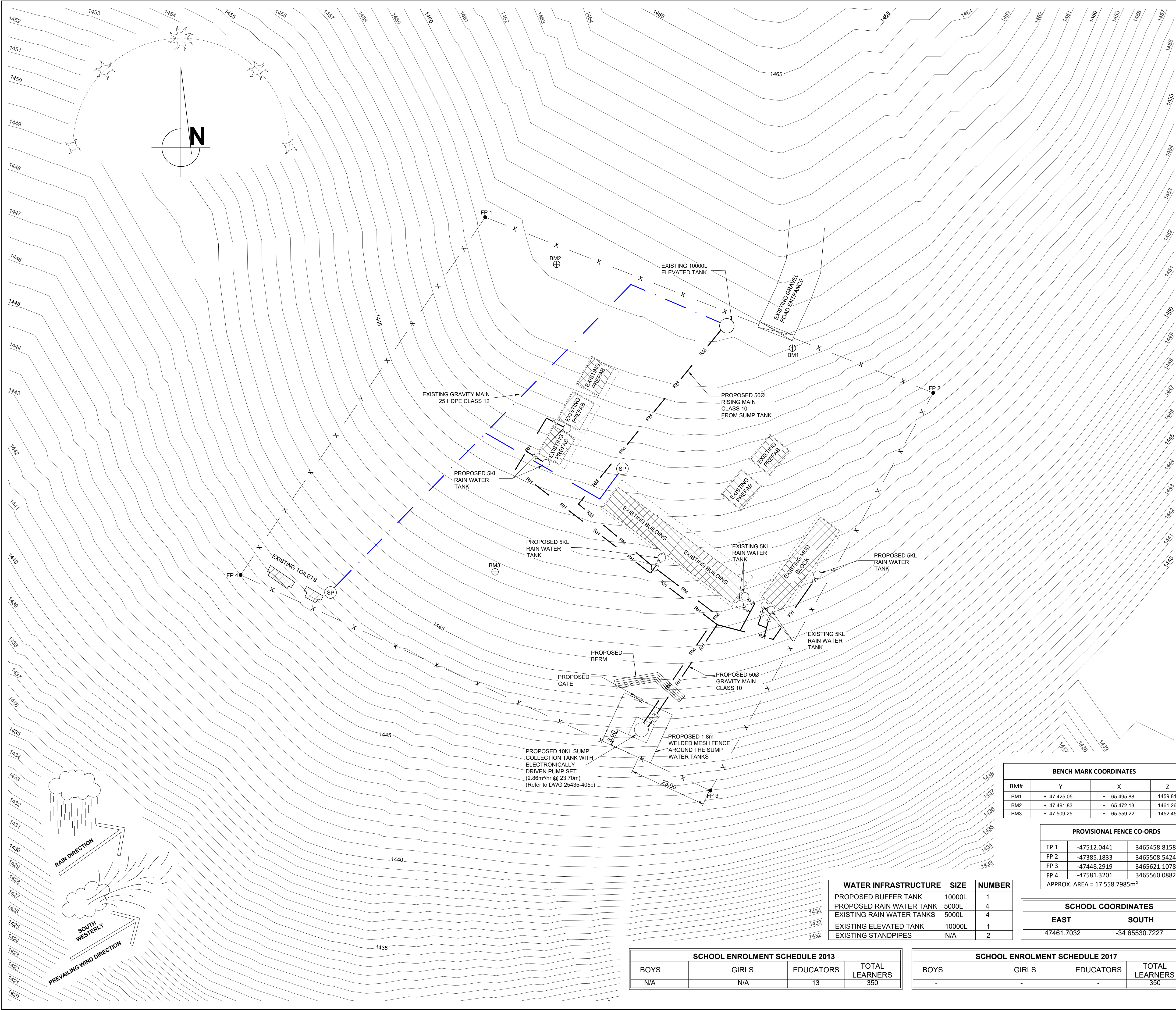
MARISWE (PTY) LTD
PO BOX 19276
Tecombe, 5214
Tel: 043 721 0186
Fax: 043 721 0288
Email: eastondon@mariswe.com

PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI)
CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS

DRAWING TITLE
SITE DEVELOPMENT PLAN
LADUMIZULU JP SCHOOL

SCOPE
WATER SUPPLY PROJECT
CLUSTER 1C -RAINWATER HARVESTING

EMS NUMBER	DRAWING NUMBER	STATUS	REVISION
200400349	25435-112	T	0



NOTES

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- PROPOSED RISING MAIN - 500 HDPE CLASS 10
- EXISTING GRAVITY MAIN TO EXISTING STANDPIPES
- ROOF OVERHANG
- EXISTING ELEVATED WATER TANK
- EXISTING STAND PIPE
- PROPOSED ISOLATING VALVE

ASSOCIATED REFERENCE DRAWING

FIELD	DESCRIPTION	DRAWING NUMBER	REV.	DATE

KEY : A = ARCHITECT; G = CIVIL; S = STRUCTURAL; M = MECHANICAL; E = ELECTRICAL; L = LANDSCAPE

0	JAN 2021	ISSUED FOR TENDER		WSK
1	JULY 2018	RAINWATER HARVESTING. ISSUED FOR APPROVAL		SGR
No.	DATE	REVISIONS	CHK'D	

	NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED	F.KUMIRAI		22 Jan 2021	A1
DRAWN	D.M.DICKSON		22 Jan 2021	SCALE AS SHOWN
VERIFIED	W.S.KETTERINGHAM		22 Jan 2021	STATUS LEGEND A = APPROVAL I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS BUILT
VALIDATED	S.FONGODA		22 Jan 2021	

CLIENT



basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

IMPLEMENTING AGENT TECHNICAL SUPPORT



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Palm Square Business Park
Silverwood House
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Fax: (043) 748-5471



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MARISWE (PTY) LTD
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Email : eastbondon@mariswe.com

PROJECT
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CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS

DRAWING TITLE
SITE DEVELOPMENT PLAN
MPOZA JS SCHOOL

SCOPE
WATER SUPPLY PROJECT
CLUSTER 1C - RAINWATER HARVESTING

DBE DRAWING NUMBER	STATUS	REVISION
200400649	T	0

BENCH MARK COORDINATES			
BM#	Y	X	Z
BM1	+ 47 425.05	+ 65 495.88	1459.81
BM2	+ 47 491.83	+ 65 472.13	1461.26
BM3	+ 47 509.25	+ 65 559.22	1452.45

PROVISIONAL FENCE CO-ORDS		
FP 1	-47512.0441	3465458.8158
FP 2	-47385.1833	3465508.5424
FP 3	-47448.2919	3465621.1078
FP 4	-47581.3201	3465560.0882
APPROX. AREA = 17 558.7985m²		

SCHOOL COORDINATES	
EAST	SOUTH
47461.7032	-34 65530.7227

WATER INFRASTRUCTURE	SIZE	NUMBER
PROPOSED BUFFER TANK	10000L	1
PROPOSED RAIN WATER TANK	5000L	4
EXISTING RAIN WATER TANKS	5000L	4
EXISTING ELEVATED TANK	10000L	1
EXISTING STANDPIPES	N/A	2

SCHOOL ENROLMENT SCHEDULE 2013			
BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
N/A	N/A	13	350

SCHOOL ENROLMENT SCHEDULE 2017			
BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
-	-	-	350



NOTES

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- PROPOSED RISING MAIN - 500 HDPE CLASS 10
- EXISTING GRAVITY MAIN TO EXISTING STANDPIPES
- ROOF OVERHANG
- EXISTING ELEVATED WATER TANK
- EXISTING STAND PIPE
- PROPOSED ISOLATING VALVE

ASSOCIATED REFERENCE DRAWING

FIELD	DESCRIPTION	DRAWING NUMBER	REV.	DATE

KEY: A = ARCHITECT, C = CIVIL, S = STRUCTURAL, M = MECHANICAL, E = ELECTRICAL, L = LANDSCAPE

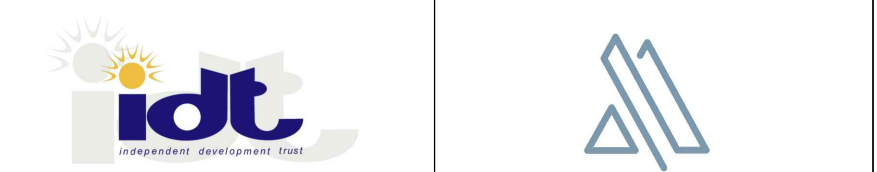
No.	DATE	REVISIONS	CHK'D
0	JAN 2021	ISSUED FOR TENDER	WSK
1	JULY 2018	RAINWATER HARVESTING, ISSUED FOR APPROVAL	SGR

NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED F. KUMIRAI		22 Jan 2021	A1
DRAWN D. M. DICKSON		22 Jan 2021	SCALE AS SHOWN
VERIFIED W. S. KETTERINGHAM		22 Jan 2021	STATUS LEGEND A = APPROVAL I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS BUILT
VALIDATED S. FONGOGA		22 Jan 2021	

CLIENT



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Email: eastlondon@mariswe.com

PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI)
CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS

DRAWING TITLE
SITE DEVELOPMENT PLAN
ZANEMVULA JS SCHOOL

SCOPE
WATER SUPPLY PROJECT
CLUSTER 1C - RAINWATER HARVESTING

DBE DRAWING NUMBER	STATUS	REVISION
200401171	25435-113	T 0

PROVISIONAL FENCE CO-ORDS

FP 1	-43098.581	3462463.105
FP 2	-43046.865	3462496.960
FP 3	-43022.714	3462512.225
FP 4	-43009.565	3462521.344
FP 5	-43039.997	3462590.069
FP 6	-43051.819	3462613.768
FP 6	-43073.700	3462654.065
FP 6	-43164.931	3462569.417
FP 6	-43144.641	3462539.328
FP 6	-43130.583	3462517.281
FP 6	-43114.273	3462489.310
APPROX. AREA = 15 544.128m ²		

BENCH MARK COORDINATES

BM#	Y	X	Z
BM1Y	- 43 136,45	3462 594,56	1012,82
BM2Y	- 43 107,58	3462 481,95	1013,32
BM3Y	- 43 034,82	3462 568,13	1001,34

SCHOOL COORDINATES

EAST	SOUTH
-43084.0749	3462605.0493

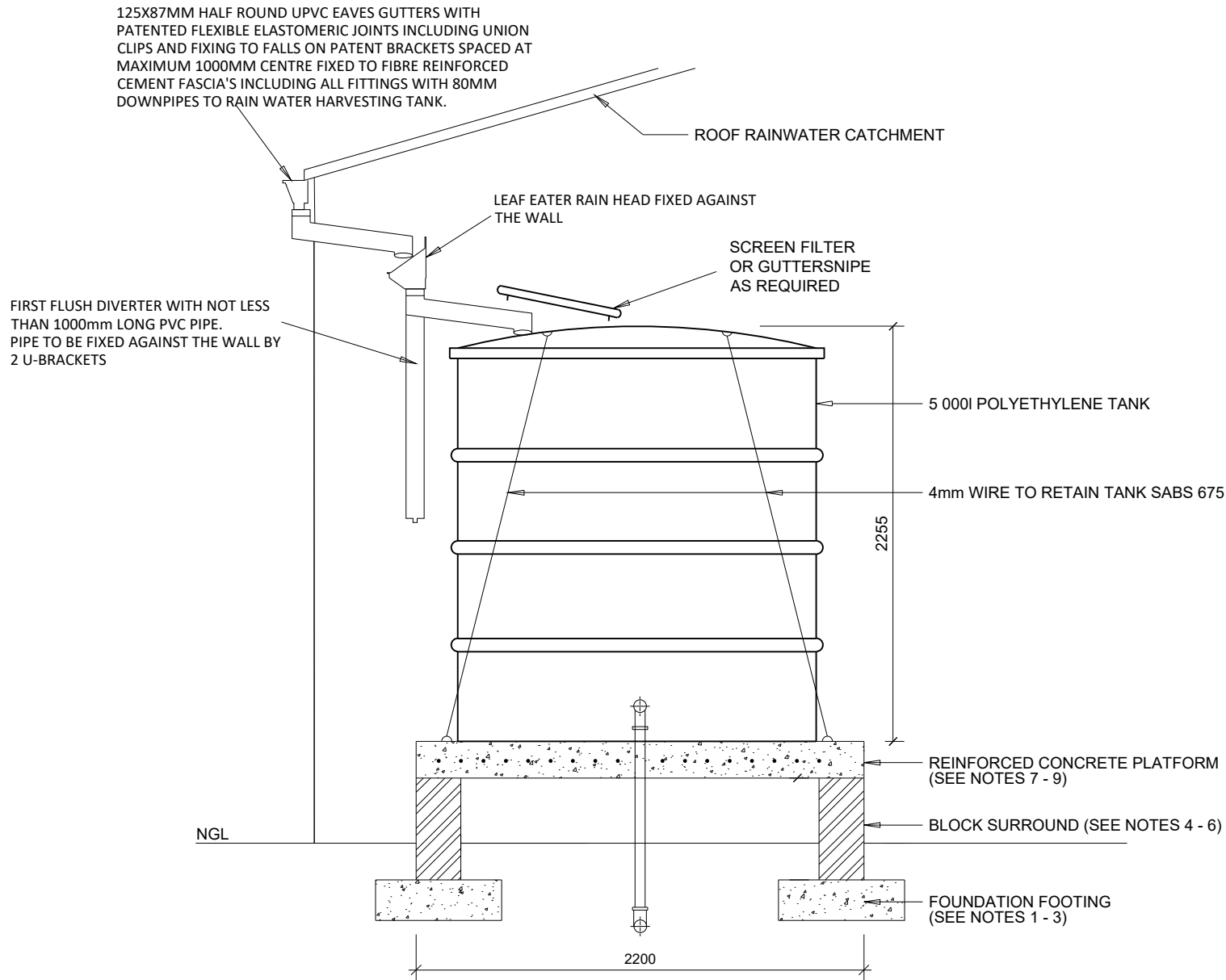
SCHOOL ENROLMENT SCHEDULE 2017

BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
-	-	-	208

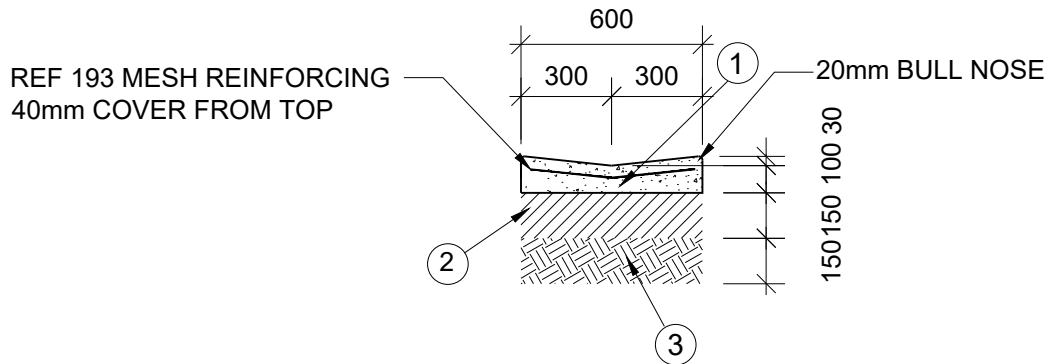
SCHOOL ENROLMENT SCHEDULE 2013

BOYS	GIRLS	EDUCATORS	TOTAL LEARNERS
138	153	11	291

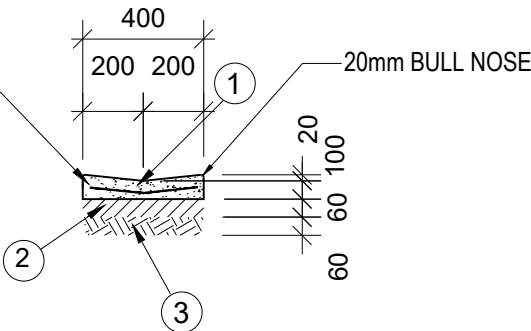
WATER INFRASTRUCTURE	SIZE	NUMBER
PROPOSED BUFFER TANK	10000L	1
PROPOSED RAIN WATER TANK	5000L	1
EXISTING RAIN WATER TANKS	5000L	5
EXISTING ELEVATED TANK	10000L	1
EXISTING STANDPIPES	N/A	2



RAINWATER HARVESTING GUTTER DOWNPIPE CONNECTION DETAIL
SCALE 1:30



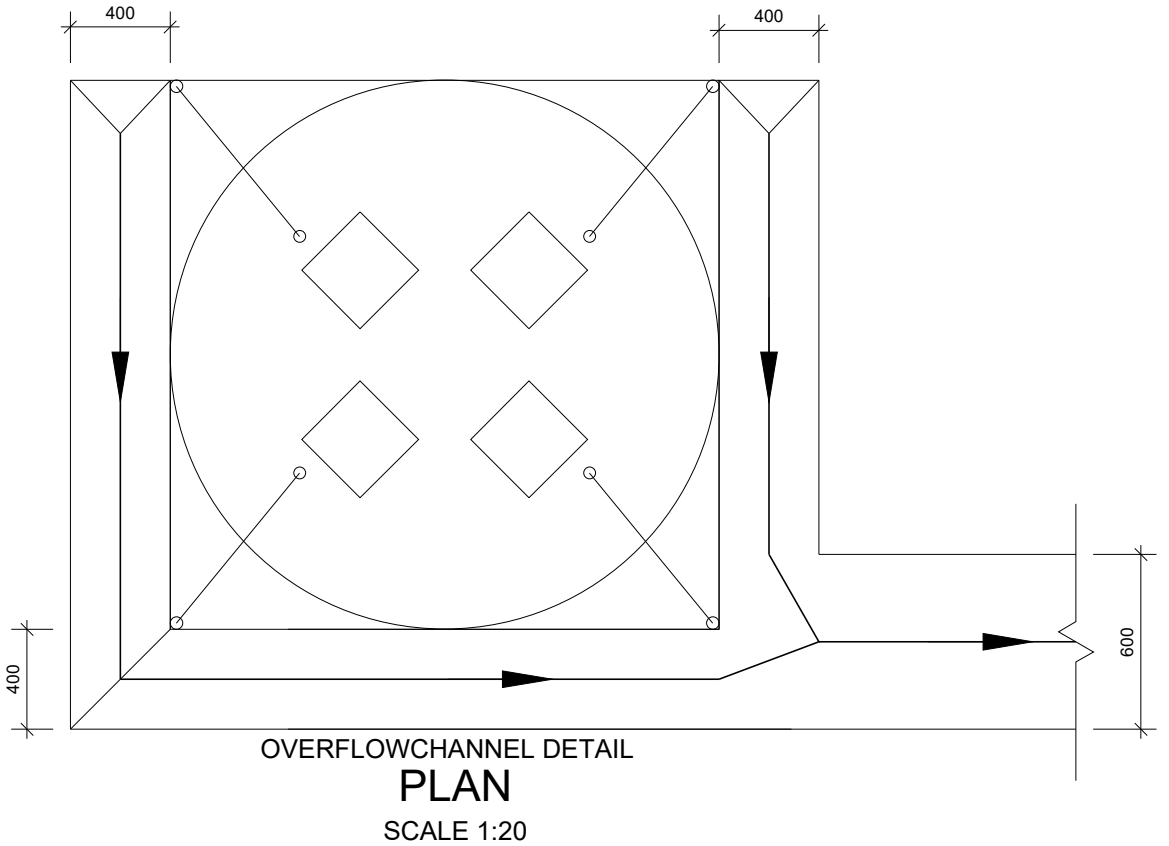
REF 193 MESH REINFORCING
40mm COVER FROM TOP



- NOTES:**
- ① CONCRETE GRADE 20/19 CONCRETE V-DRAIN
 - ② 150mm G7 QUALITY BASE MATERIAL COMPACTED TO 98% MOD. AASHTO DENSITY.
 - ③ RIP IN- SITU AND RECOMPACT TO 93% MOD. AASHTO DENSITY.
 - ④ CONSTRUCT CHANNEL IN MAXIMUM 1.5m ALTERNATING PANELS WITH PLAIN CONSTRUCTION JOINTS

NOTES:

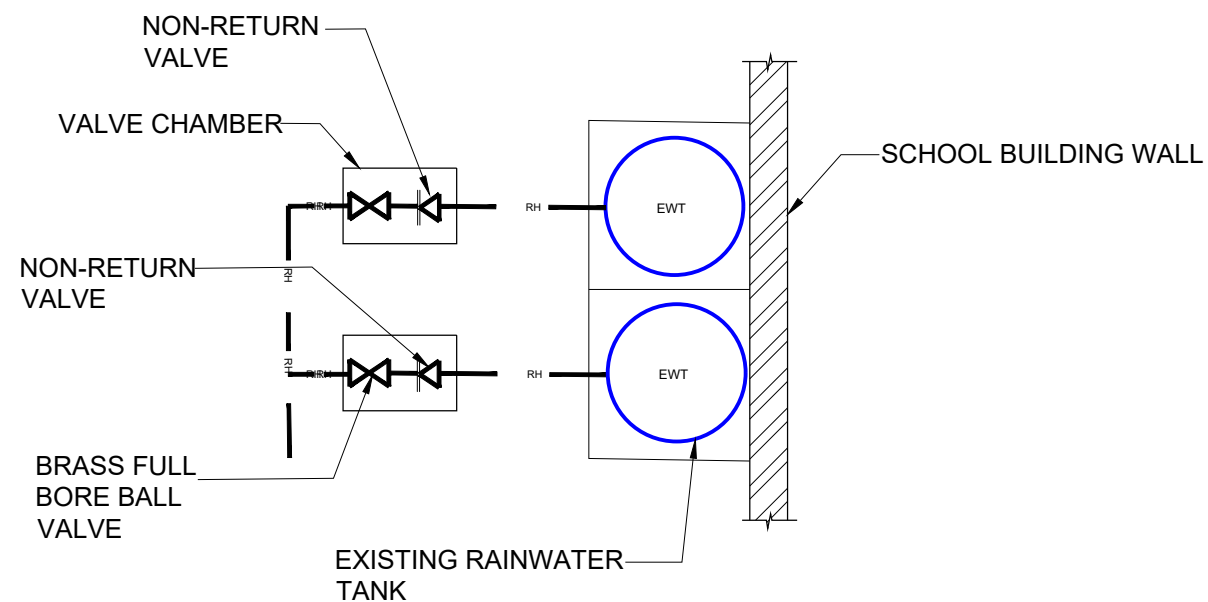
1. INVESTIGATE SOIL AND GROUND CONDITIONS AND CONSTRUCT PLATFORM TO SUIT CONDITIONS.
2. ENSURE FOOTING IS ON SOLID, UNDISTURBED GROUND.
3. REMOVE TOPSOIL AND EXCAVATE STRIP FOOTING TO A MINIMUM DEPTH OF 500mm BELOW BASE OF TOPSOIL.
4. FOOTING TO BE AT LEAST 600mm WIDE x 200mm DEEP.
5. CONSTRUCT CONCRETE BLOCK SURROUND OF 9" BLOCKS (455mm x 220mm x 220mm EACH BLOCK) TO HEIGHT ABOVE GROUND AT LEAST 500mm.
6. FILL CONCRETE BLOCKS WITH CONCRETE.
7. RAISED BLOCK SURROUND TO BE INFILLED WITH APPROPRIATE HARD-PACKED BACKFILL MATERIAL (NOT TOPSOIL).
8. 100mm THICK REINFORCED CONCRETE SLAB TO BE CAST STRADDLING BLOCK SURROUND.
9. REINFORCE WITH 100mm STEEL MESH AT 50mm DEPTH.
10. PLATFORM SIZED TO FIT SELECTED TANK.



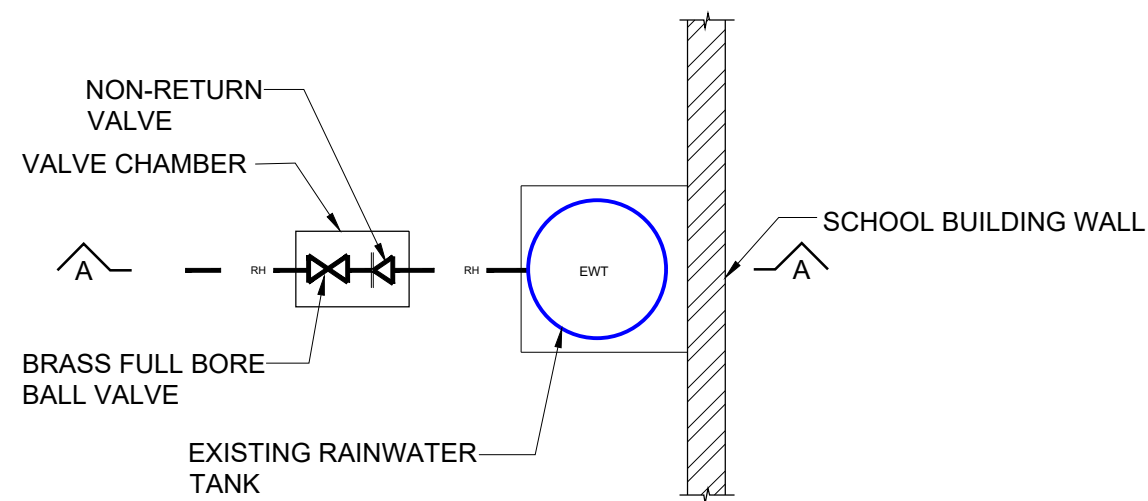
 MARISWE IMPROVING LIVES ENGINEERING SOLUTIONS	MARISWE (PTY) LTD PO BOX 19276 Tecoma , 5214 Tel : 043 721 0186 Fax : 043 721 0288 Email : eastlondon@mariswe.com	Project ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE CONSTRUCTION OF WATER INFRASTRUCTURE AT SCHOOLS IN THE EASTERN CAPE PROVINCE. COMPLETION WORKS	Designed: F. KUMIRAI Drawn: D.DICKSON Checked: W.S.K Scale: N.T.S. (A3) Sheet: 1 of 1 Date: JAN 2021 Drawing No. (Rev.) 25435-400-REV 0
		Description RAINWATER HARVESTING GUTTER DOWNPIPE CONNECTION DETAIL	



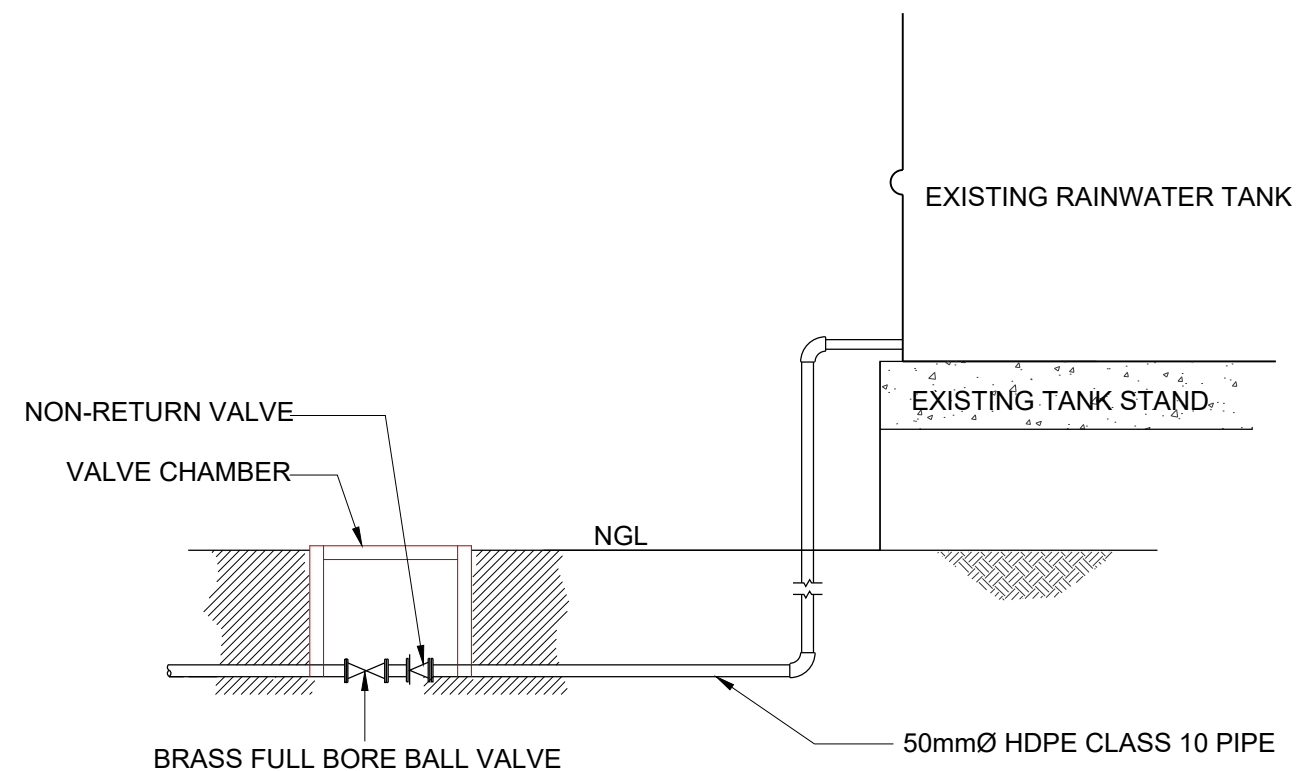
DBE DRAWING NUMBER				
EMS NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
-	C	25435-401	T	0



VALVE CHAMBER FOR TWO TANKS
N.T.S



VALVE CHAMBER FOR ONE TANK
N.T.S



SECTION A-A
N.T.S

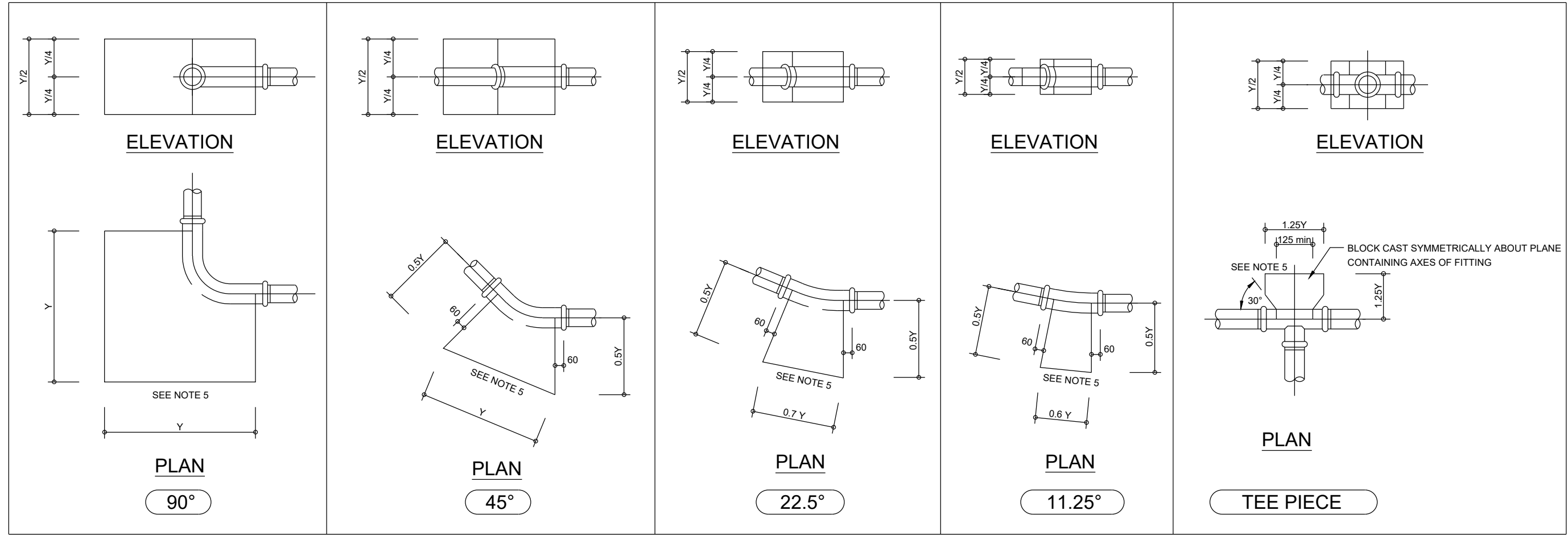


MARISWE (PTY) LTD
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Project
**ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE
CONSTRUCTION OF WATER INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS**

Description
RAIN WATER HARVESTING TANK CONNECTION

Designed: F. KUMIRAI
Drawn: D.DICKSON
Checked: W.S.K
Scale: N.T.S. (A3)
Sheet: 1 of 1
Date: JAN 2021
Drawing No. (Rev.)
25435-402-REV 0

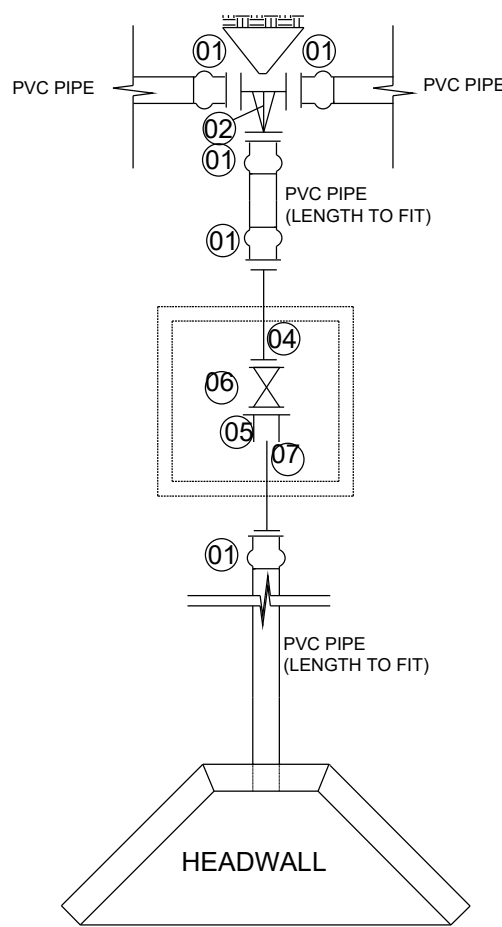


MINIMUM VALUE OF 'Y' (METRES)																
OPERATING PRESSURE (MPa)	0.6				1.2				1.6				2.0			
BEND ANGLE	90° BEND + TEE	45°	22.5°	11.25°	90° BEND + TEE	45°	22.5°	11.25°	90° BEND + TEE	45°	22.5°	11.25°	90° BEND + TEE	45°	22.5°	11.25°
NOMINAL DIAMETER OF PIPE (mm)	50	0.40	0.40	0.40	0.40	0.50	0.45	0.40	0.40	0.60	0.55	0.45	0.40	0.65	0.60	0.50
	75	0.55	0.50	0.45	0.45	0.75	0.65	0.60	0.50	0.85	0.75	0.70	0.55	0.95	0.85	0.75
	90-110	0.80	0.70	0.65	0.55	1.05	0.90	0.85	0.70	1.20	1.05	1.00	0.80	1.30	1.15	1.10
	125	0.85	0.85	0.85	0.85	1.05	0.90	0.85	0.85	1.20	1.00	1.00	0.85	1.35	1.15	1.10
	150	0.9	0.9	0.9	0.9	1.25	1.05	0.95	0.90	1.40	1.15	1.10	0.90	1.55	1.30	1.25
	200	1.20	1.00	1.00	1.00	1.60	1.30	1.30	1.00	1.80	1.45	1.45	1.15			
	250	1.45	1.10	1.10	1.10	1.60	1.30	1.20	1.10							
	300	1.50	1.20	1.20	1.20	1.80	1.50	1.45	1.20							

PIPELINE THRUST BLOCK DETAILS

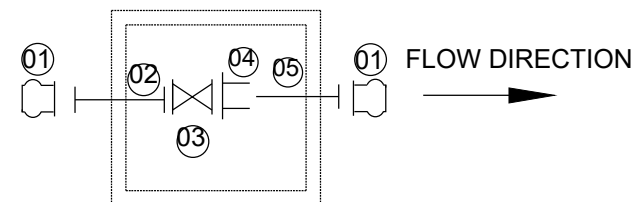
NOTE 5: CONCRETE THRUST BLOCK TO BE CAST AGAINST COMPACTED IN-SITU MATERIAL

GENERAL SCOUR VALVE INSTALLATION DETAILS FOR PVC PIPES (IN PLAN)



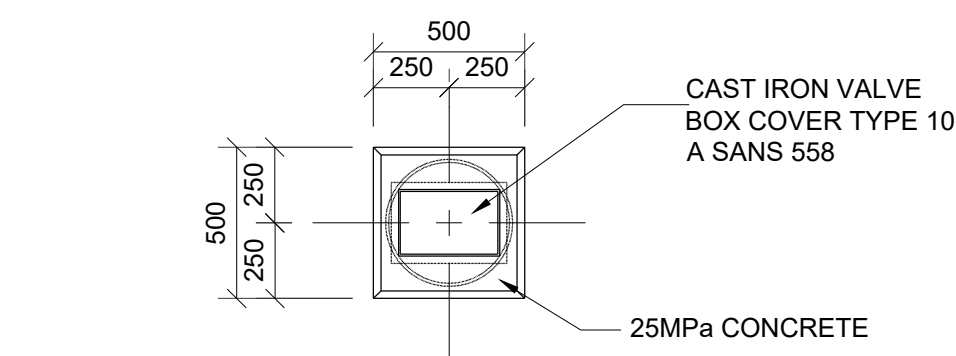
1. ALL STEEL PIPING TO BE IN ACCORDANCE WITH SANS 62 MEDIUM HOT DIPPED GALVANISED TO PROVIDE A MINIMUM MASS OF ZINC COATING OF 650 g/sq m IN ACCORDANCE WITH SANS 763-1977 CLAUSE 4.3.1 TABLE 2. ALL BURRIED PIPES TO BE TAPE-WRAPPED
2. GALVANISING DAMAGED BY WELDING, HANDLING OR TRANSPORT SHALL BE DONE BY CLEANING THE AREA AND APPLYING TWO COATS OF ZINC-RICH PRIMER GIVING A DRY FILM THICKNESS (DFT) OF AT LEAST 100 MICRON AND CONTAINING AT LEAST 94% ZINC IN DRY FILM.
3. PVC PIPING TO BE IN ACCORDANCE WITH SANS 966 : 1998 PART 1 OR 2 (PVC)
4. HDPE PIPING TO BE IN ACCORDANCE WITH SANS ISO 4427 PE 100 PN10 ALL FITTINGS TO BE COMPRESSION TYPE PN16
5. VALVES TO BE IN ACCORDANCE WITH SANS 664 (CLOCKWISE CLOSING FOR DMs)
6. FLANGES TO BE IN ACCORDANCE WITH SANS 1123
7. ALL CONCRETE TO BE GRADE 30/19

GENERAL ISOLATING VALVE INSTALLATION DETAILS FOR PVC PIPES (IN PLAN)

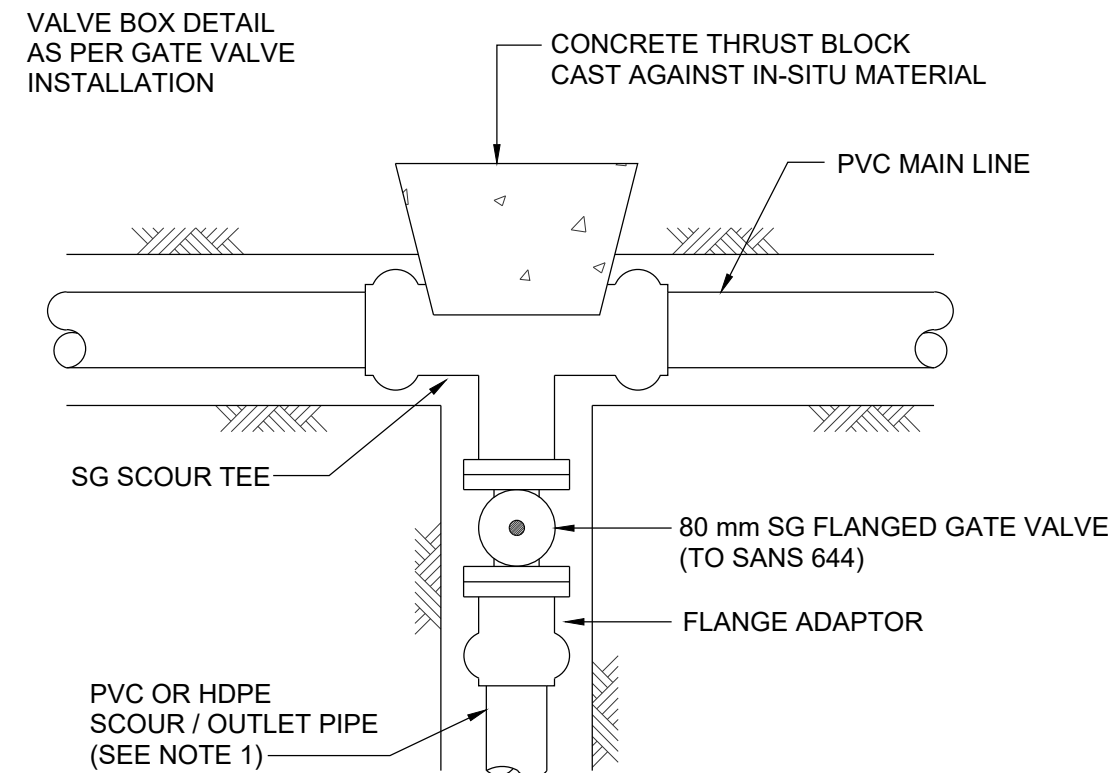
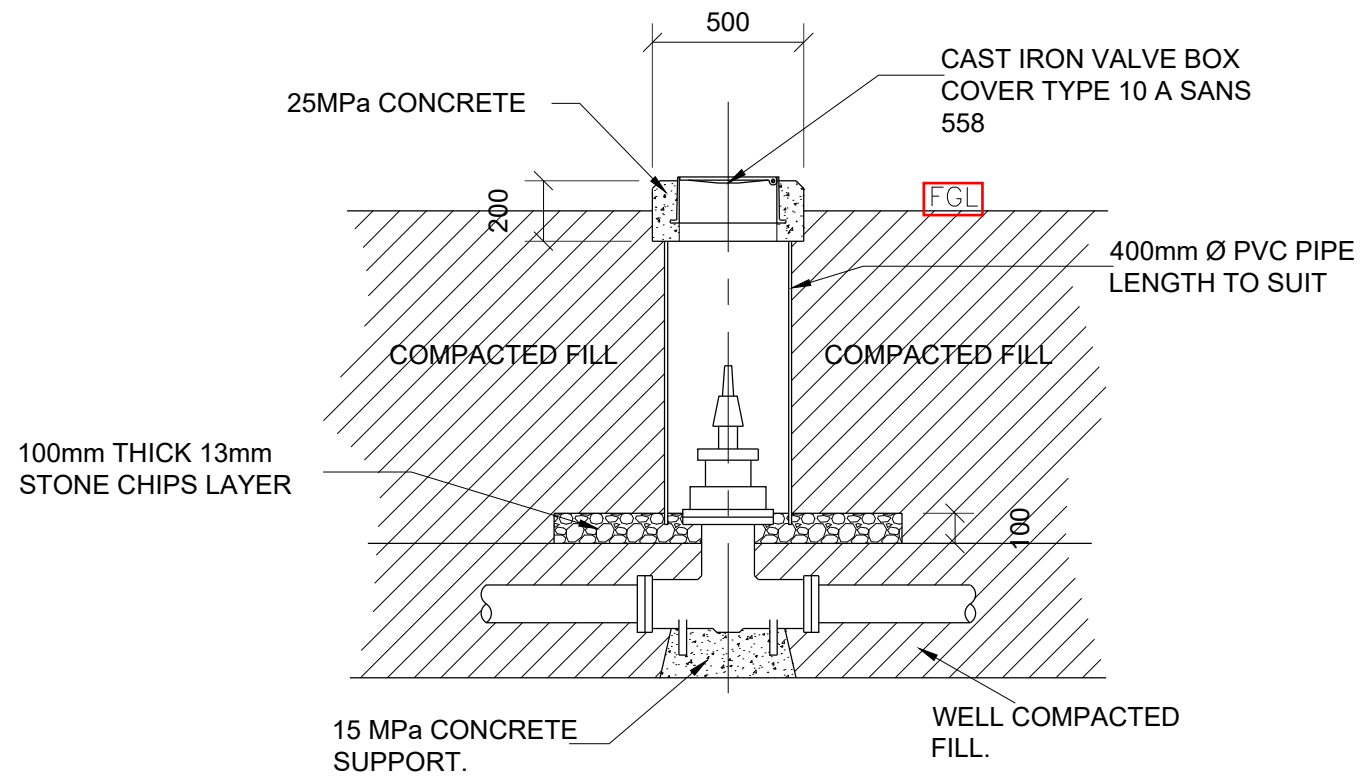


MARK	SIZE	No.	DESCRIPTION	SYMBOL
01	ø	2	FLANGE ADAPTOR FOR PVC PIPES	
02	ø	1	GMS FLANGED SPOOL PIECE (1000 mm LONG)	
03	ø	1	RESILIENT SEAL GATE VALVE, FLANGED	
04	ø	1	FLANGED ADAPTOR FOR STEEL PIPE	
05	ø	1	GMS SPOOL PIECE 1000mm LONG, ONE END FLANGED, OTHER END PLAIN	

MARK	SIZE	No.	DESCRIPTION	SYMBOL
01	ø	2	FLANGE ADAPTOR FOR PVC PIPES	
02	ø	1	REDUCING TEE TO FIT	
04	ø	1	GMS FLANGED SPOOL PIECE (1000 mm LONG)	
05	ø	1	FLANGED ADAPTOR FOR STEEL PIPE	
06	ø	1	RESILIENT SEAL GATE VALVE, FLANGED	
07	ø	1	GS SPOOL PIECE 1000mm LONG, ONE END FLANGED, OTHER END PLAIN	



PLAN ON COVER SLAB



PLAN MAIN PIPE BARREL 50 OR 75mm Ø N.T.S.

No.	DATE	REVISIONS	CHK'D
0	JAN 2021	ISSUED FOR TENDER	WSK

IMPLEMENTING AGENT	TECHNICAL SUPPORT
 IDT Palm Square Business Park Silverwood House Bonza Bay Road Beacon Bay 5241 Tel: (043) 711-6000 Fax: (043) 748-5471	 MARISWE (PTY) LTD PO BOX 19276 Tecoma , 5214 Tel. : 043 721 0186 Fax : 043 721 0288 Email : eastlondon@mariswe.com

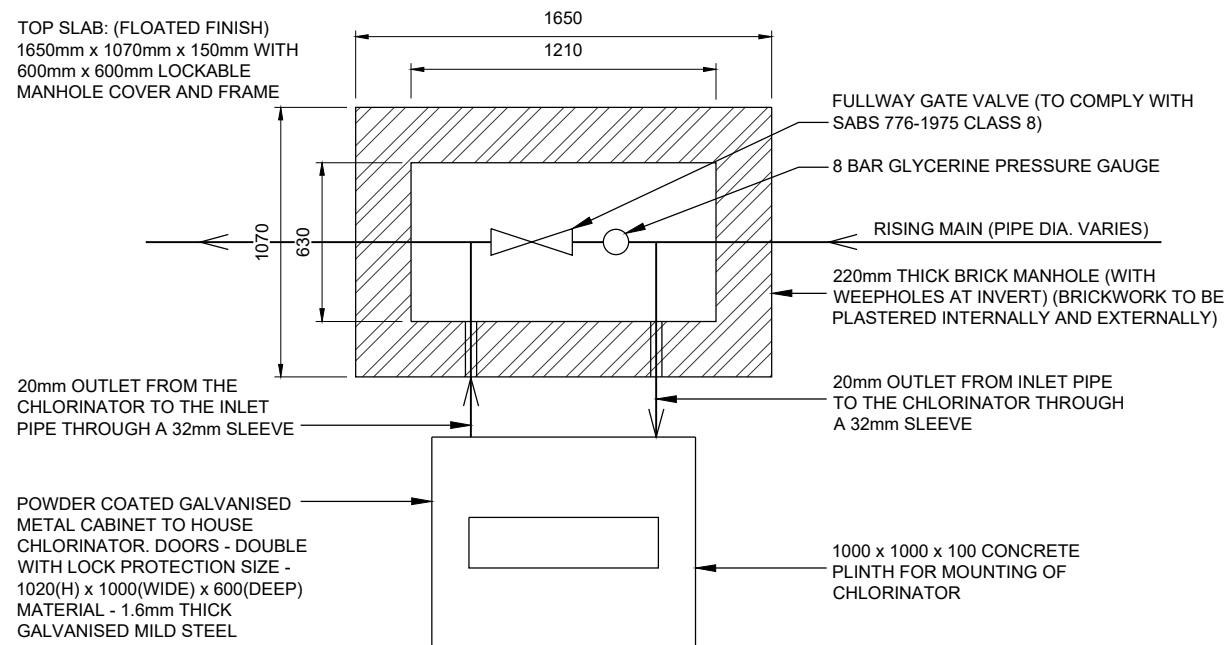
NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED F. KUMIRAI		21 JAN 2021	A1
DRAWN D. DICKSON		21 JAN 2021	SCALE AS SHOWN
VERIFIED W. S. KETTERINGHAM		21 JAN 2021	STATUS LEGEND I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS BUILT
VALIDATED S. FONGOGA		21 JAN 2021	

CLIENT
 basic education Department: Basic Education REPUBLIC OF SOUTH AFRICA

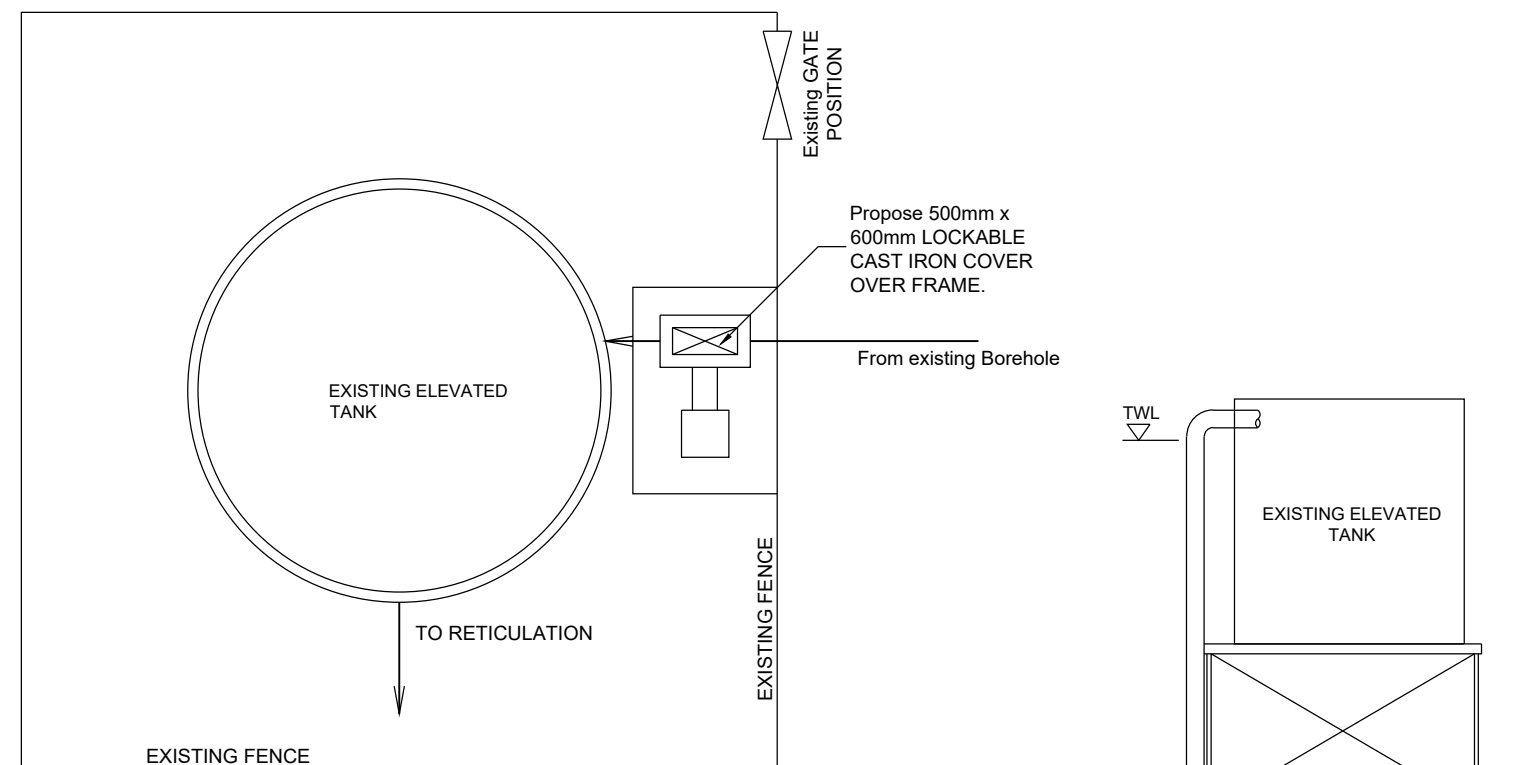
PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI) CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE AT SCHOOLS IN THE EASTERN CAPE PROVINCE. COMPLETION WORKS

DRAWING TITLE
WATER TYPICAL DETAILS

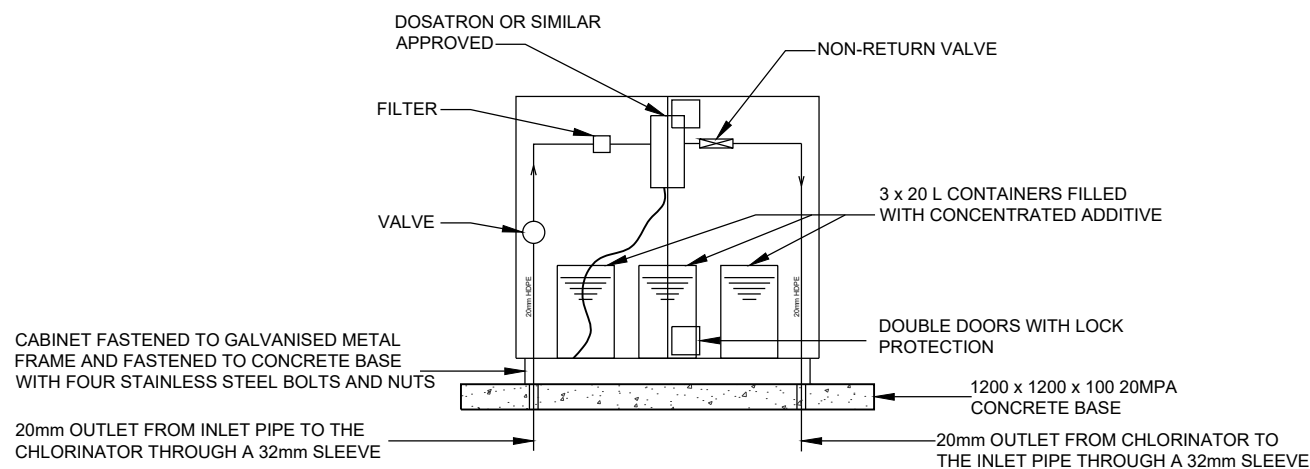
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-	C	25435-403	T	0



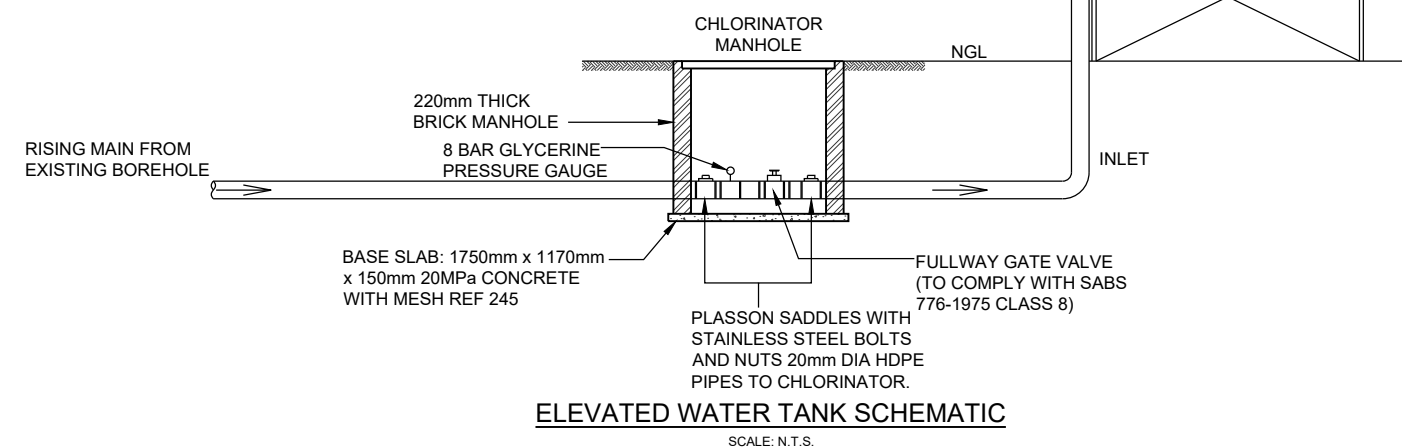
TYPICAL ARRANGEMENT FOR INLINE CHLORINATOR
NTS



PLAN VIEW
NTS



TYPICAL SECTION THROUGH CHLORINATING UNIT
NTS



ELEVATED WATER TANK SCHEMATIC

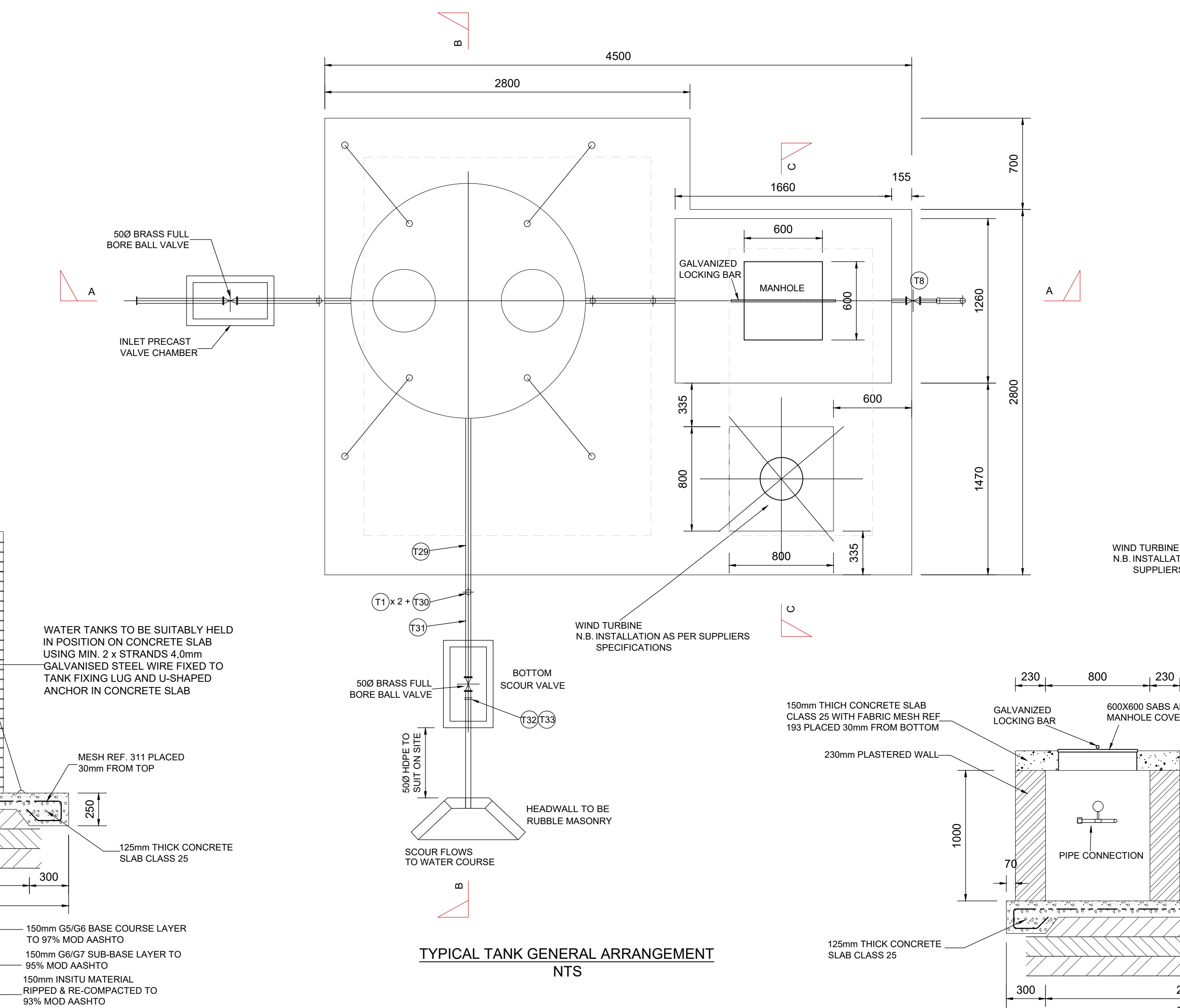
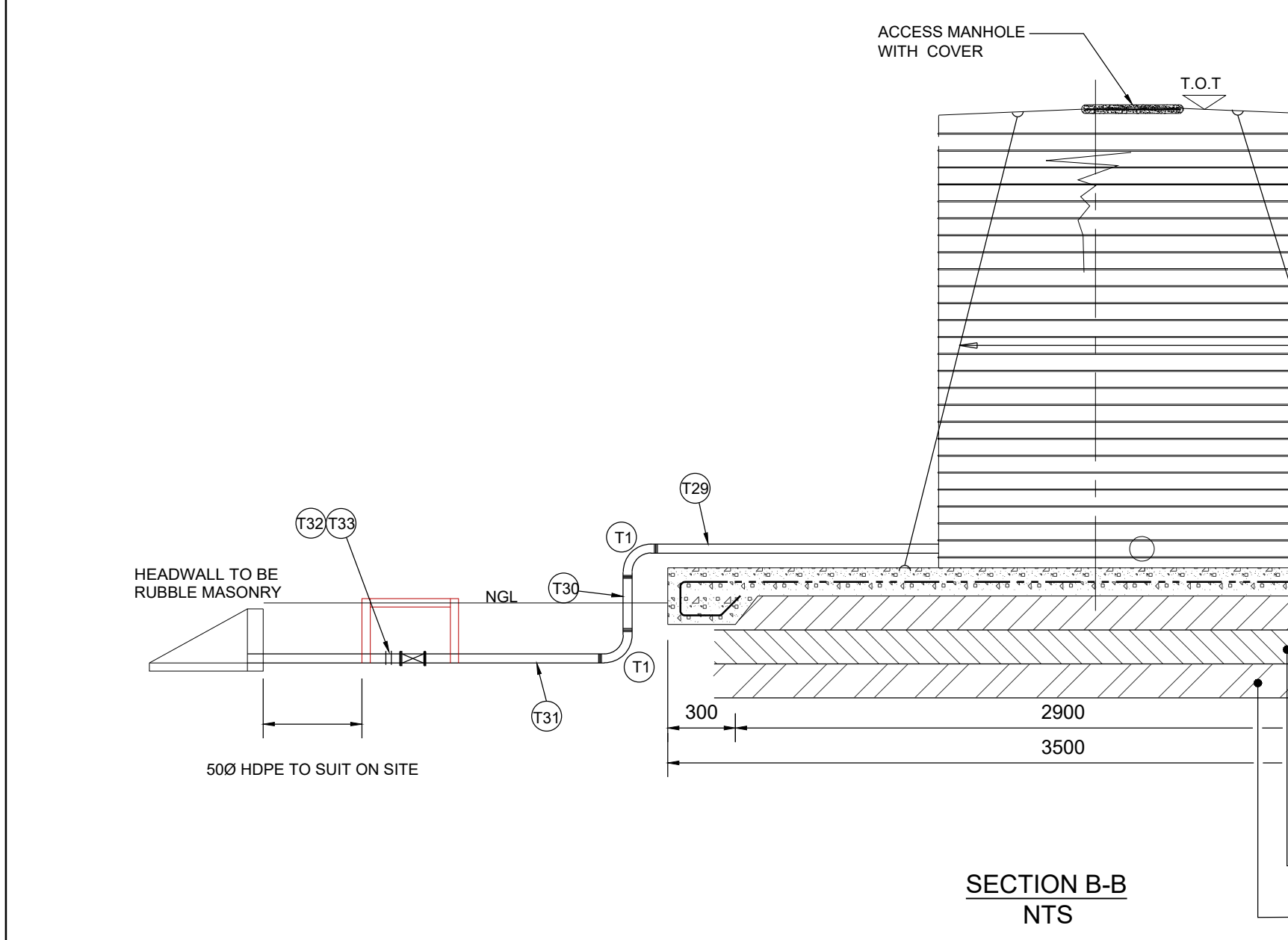


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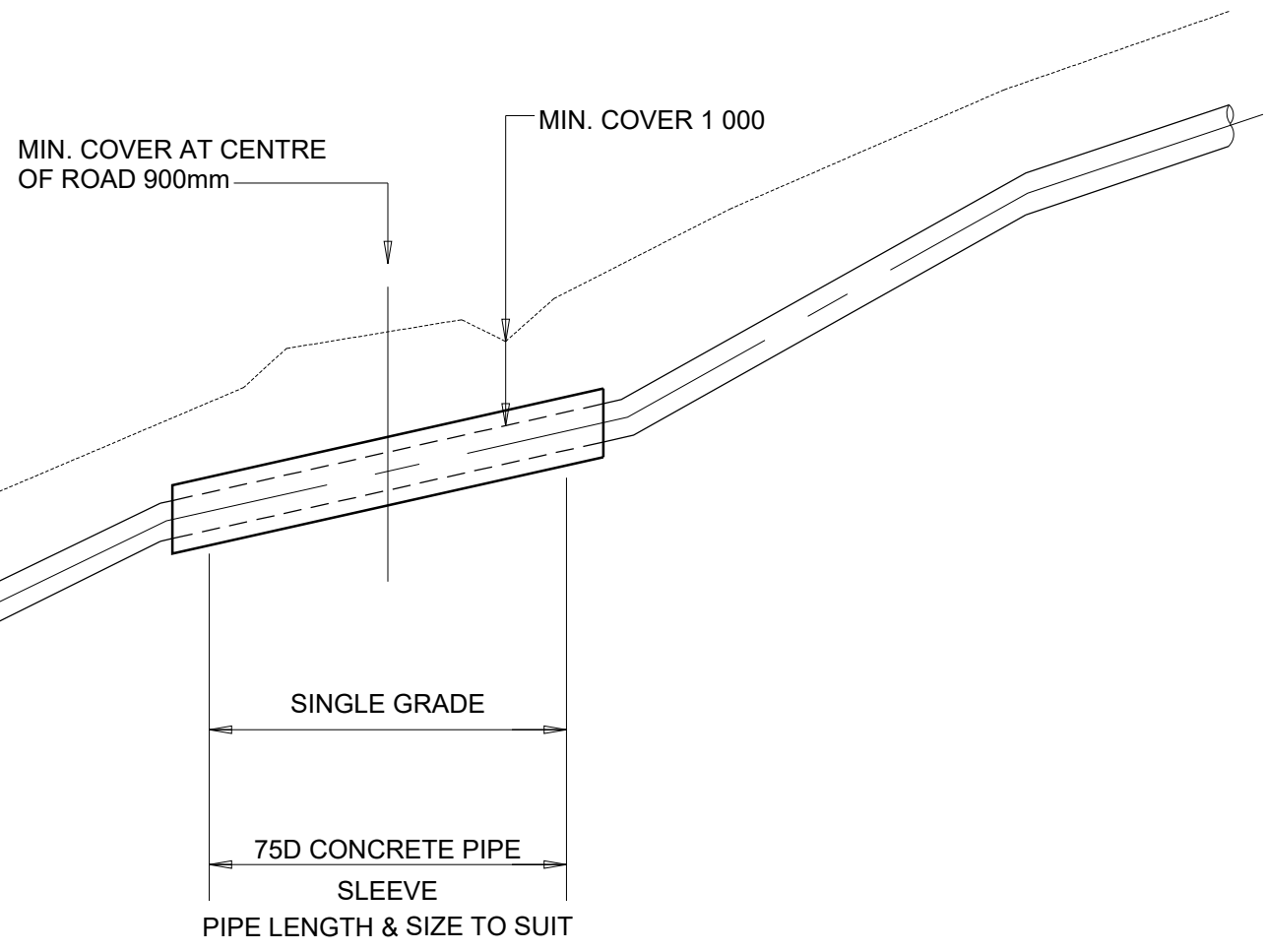
Project
**ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY
INITIATIVE CONSTRUCTION OF WATER INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS**
Description
PROPOSED CHLORINATION DETAIL

Designed: F. KUMIRAI
Drawn: D.DICKSON
Checked: W.S.K
Scale: N.T.S. (A3)
Sheet: 1 of 1
Date: JAN 2021
Drawing No. (Rev.)
25435-404-REV 0

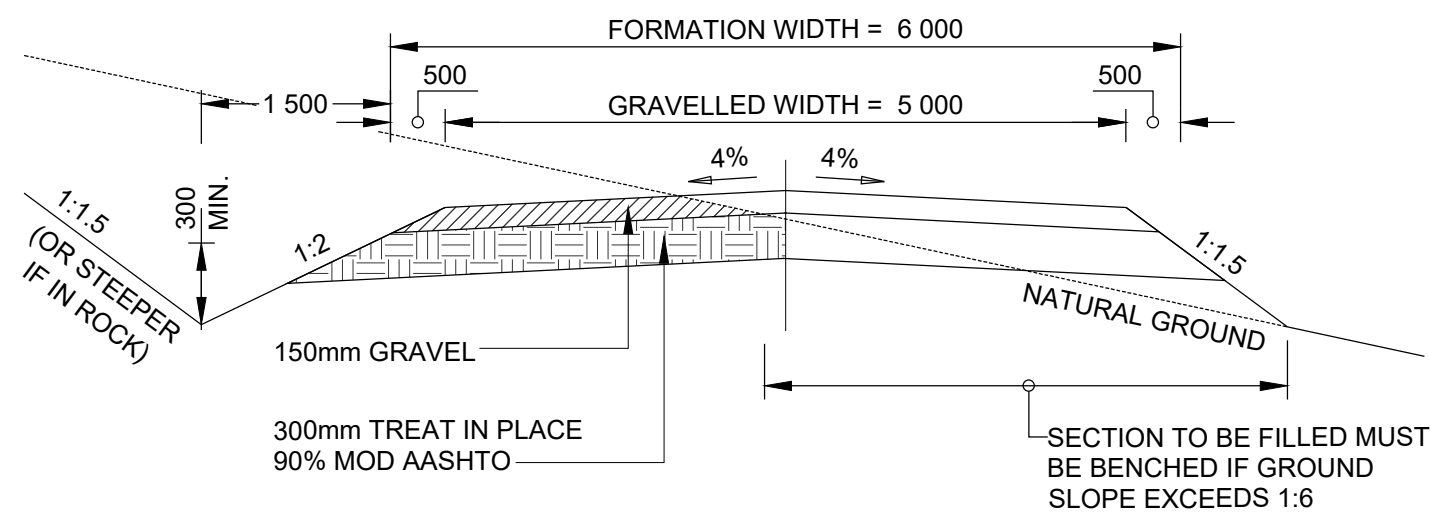
C:\AP\5435-404-AS\DWG\ISD\25435-404-Elevated tank, fencing, chlorination.dwg 08/12/2022 12:55:47

FOR ZWILLER USE SPS ONLY

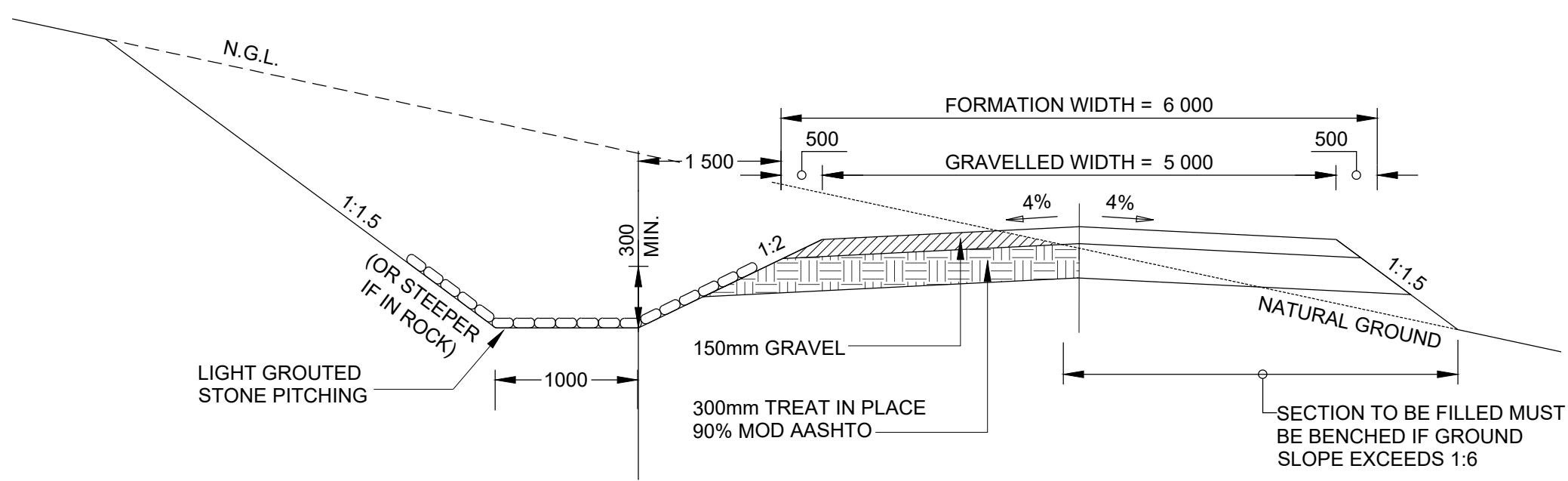
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TYPICAL ROAD CROSSING
N.T.S.



FLAT SLOPES

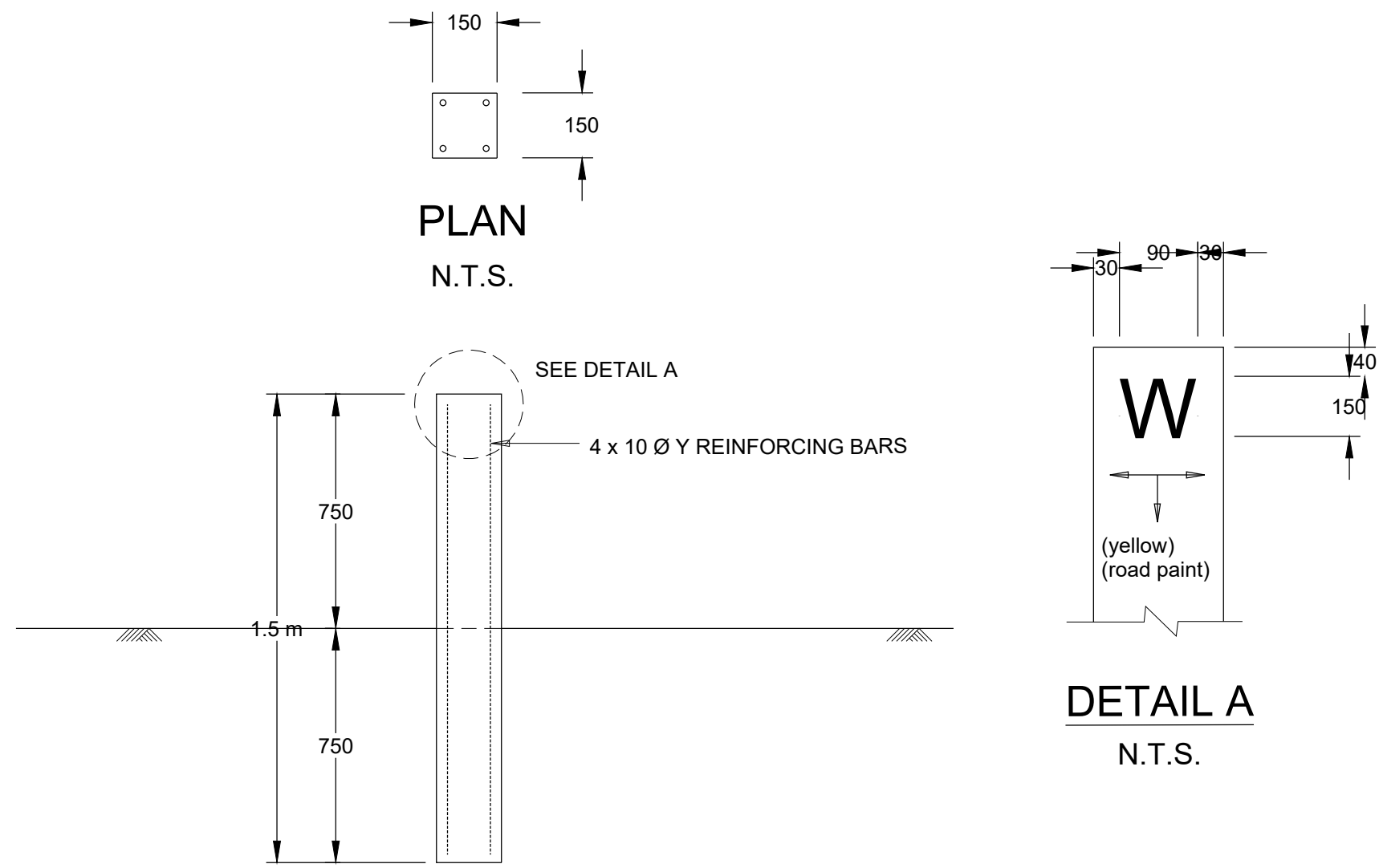


STEEP SLOPES

STANDARD ROAD CROSS-SECTIONS
N.T.S.

NOTES:

1. PIPEWORK UNDER THE ROAD TO BE BACKFILLED WITH CEMENT-STABILISED IMPORTED SELECTED GRANULAR MATERIAL.
2. CAVITY BETWEEN PIPES TO BE FILLED WITH 1% SAND/ MORTAR MIX.
3. ONCE THE PIPE IS PULLED THROUGH THE SLEEVE, THE ENDS OF THE SLEEVE IS TO BE PLUGGED WITH GEOMEMBRANE AND FILLED, WITH SAND/ MORTAR MIX.
4. LOCATIONS FOR SLEEVES TO BE APPROVED BY ENGINEER

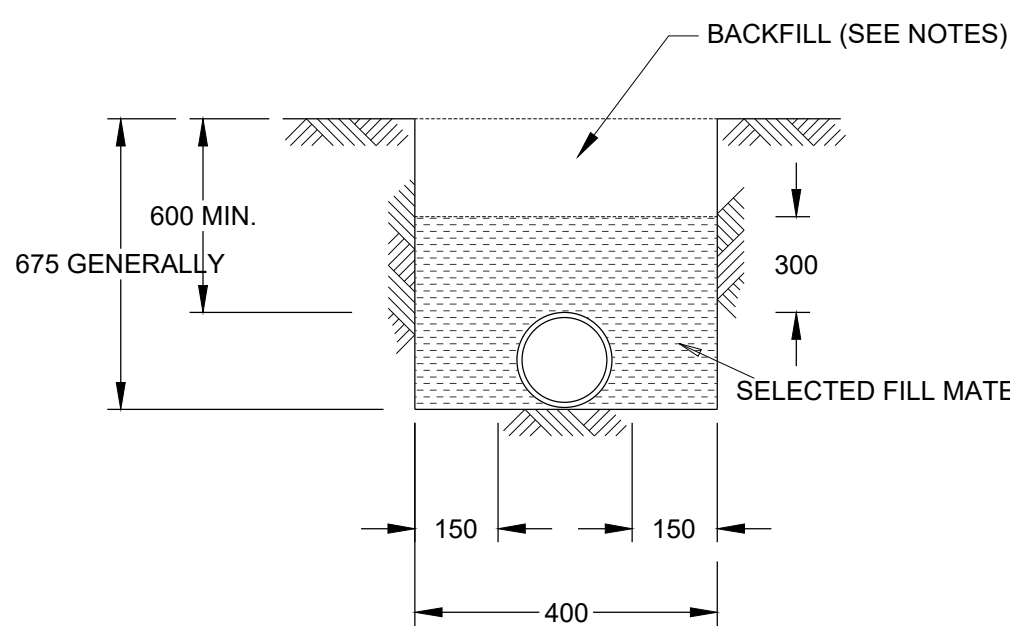


ELEVATION
N.T.S.

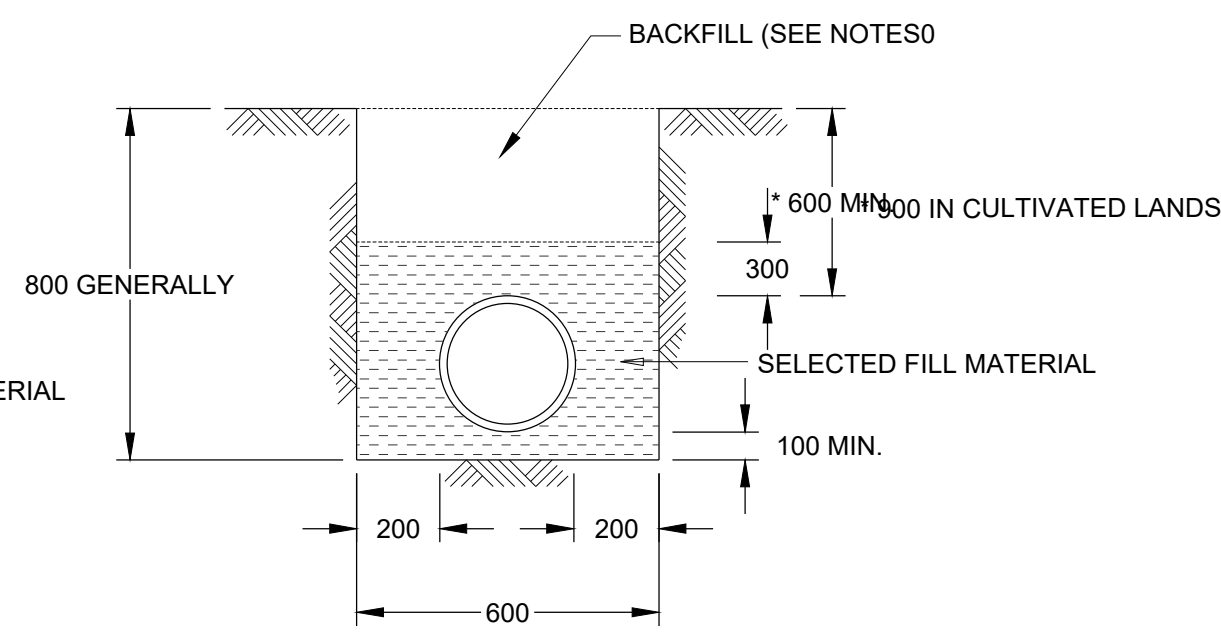
CONCRETE PIPE MARKER DETAILS

NOTES:

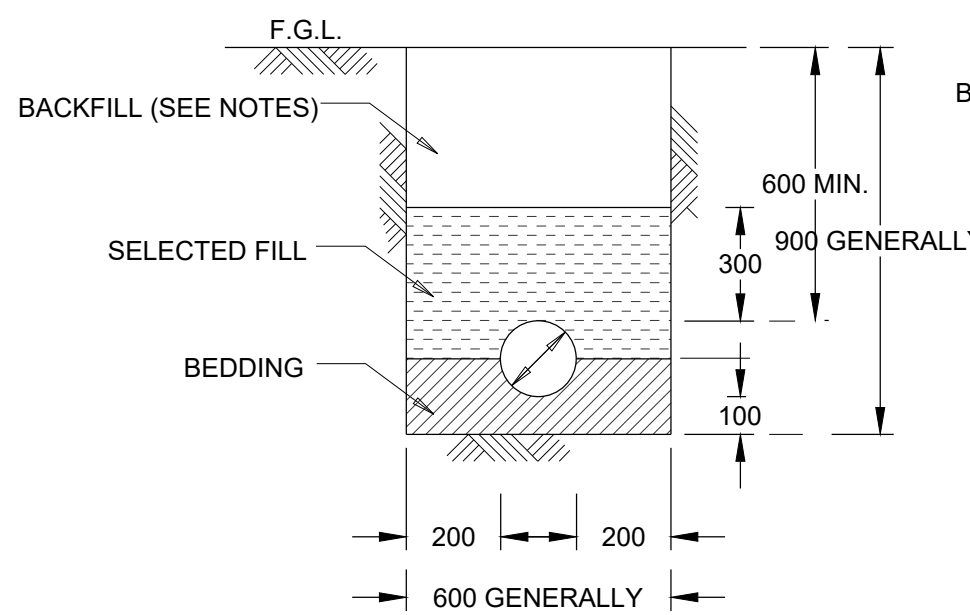
1. THE MARKER SHALL BE INSTALLED AT A ONE METER OFFSET FROM THE PIPELINE CENTRE, WITH THE PIPE BETWEEN THE MARKER AND ROAD.
2. THE LABEL ON THE MARKER MUST BE ON THE UPSTREAM SIDE OF THE MARKER AND THE SIDES OF THE MARKER PARALLEL TO THE PIPE CENTRE



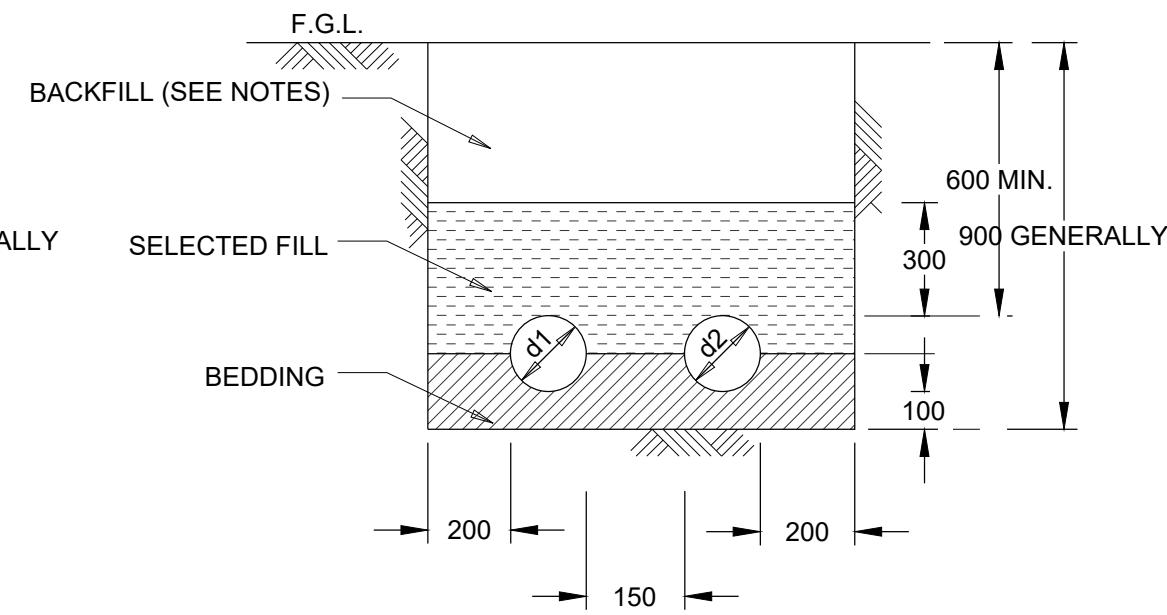
BEDDING DETAILS
FOR HDPE PIPES
N.T.S.



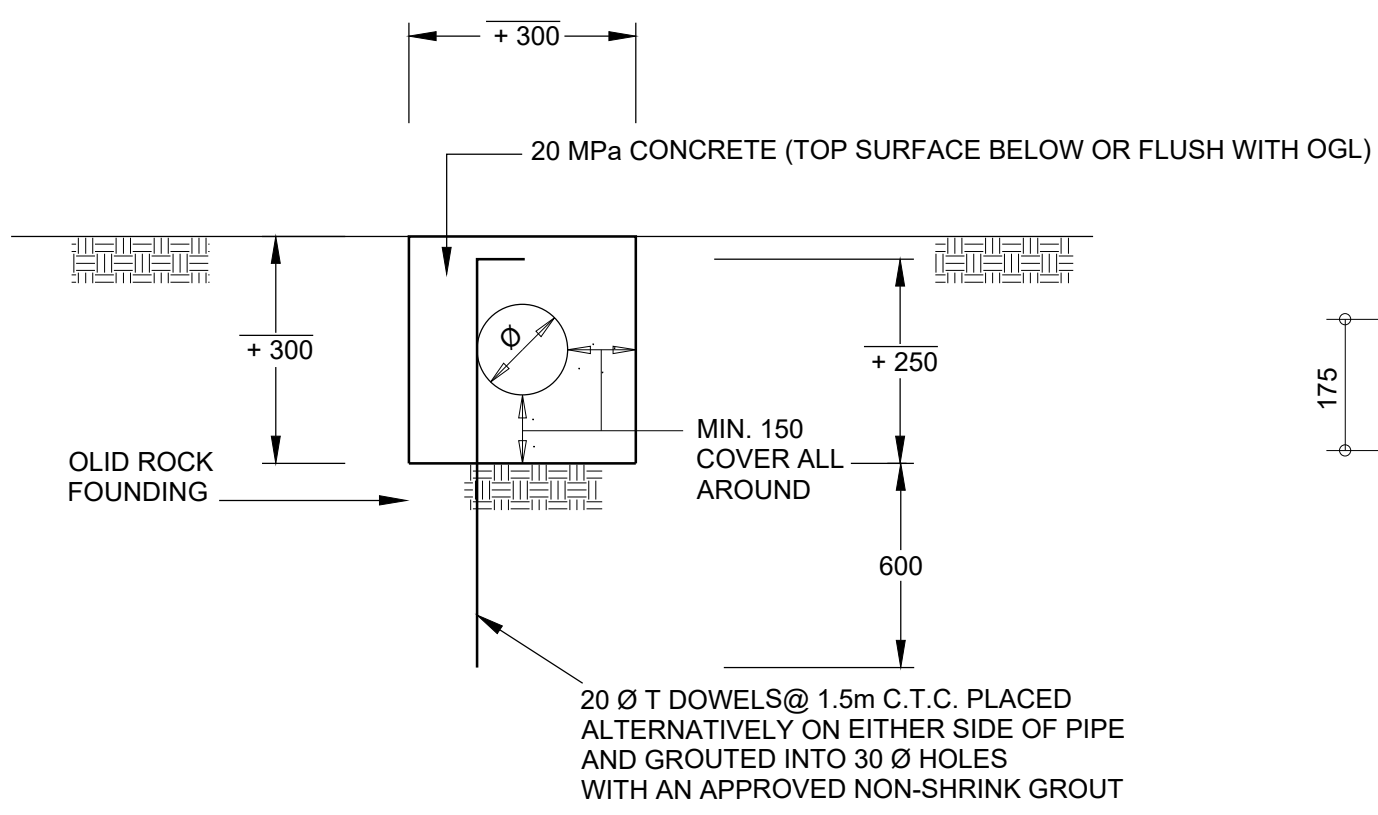
BEDDING DETAILS
FOR RETICULATION PVC PIPES
N.T.S.



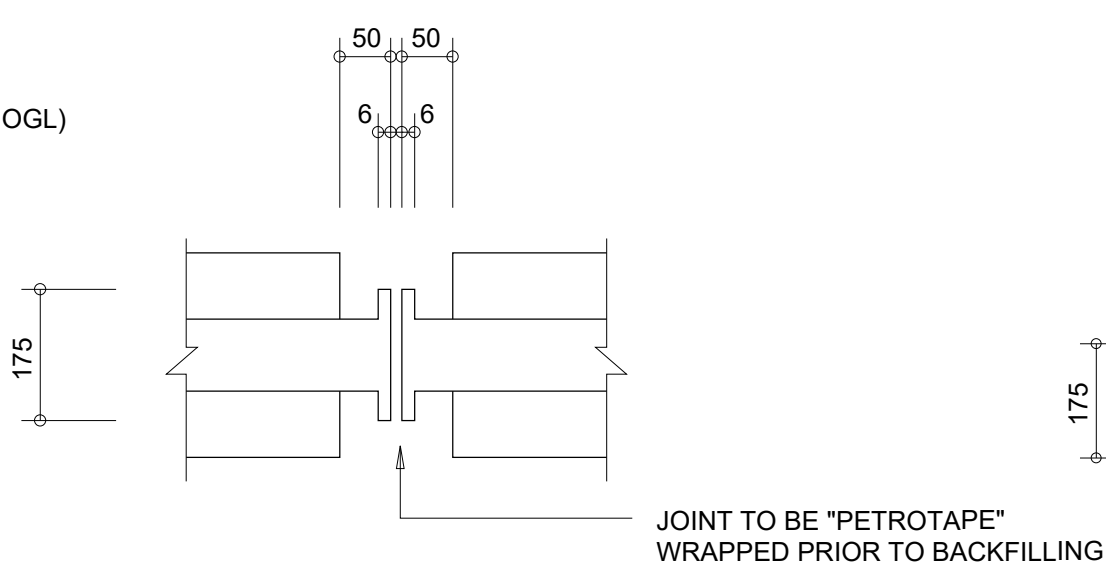
BULK MAINS
BEDDING DETAIL (mPVC PIPES)
N.T.S.



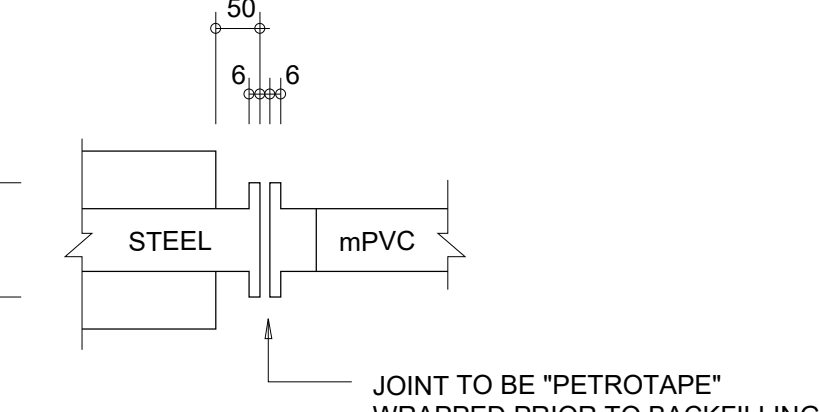
BEDDING DETAILS FOR TWO OR MORE
PIPES IN ONE TRENCH
N.T.S.



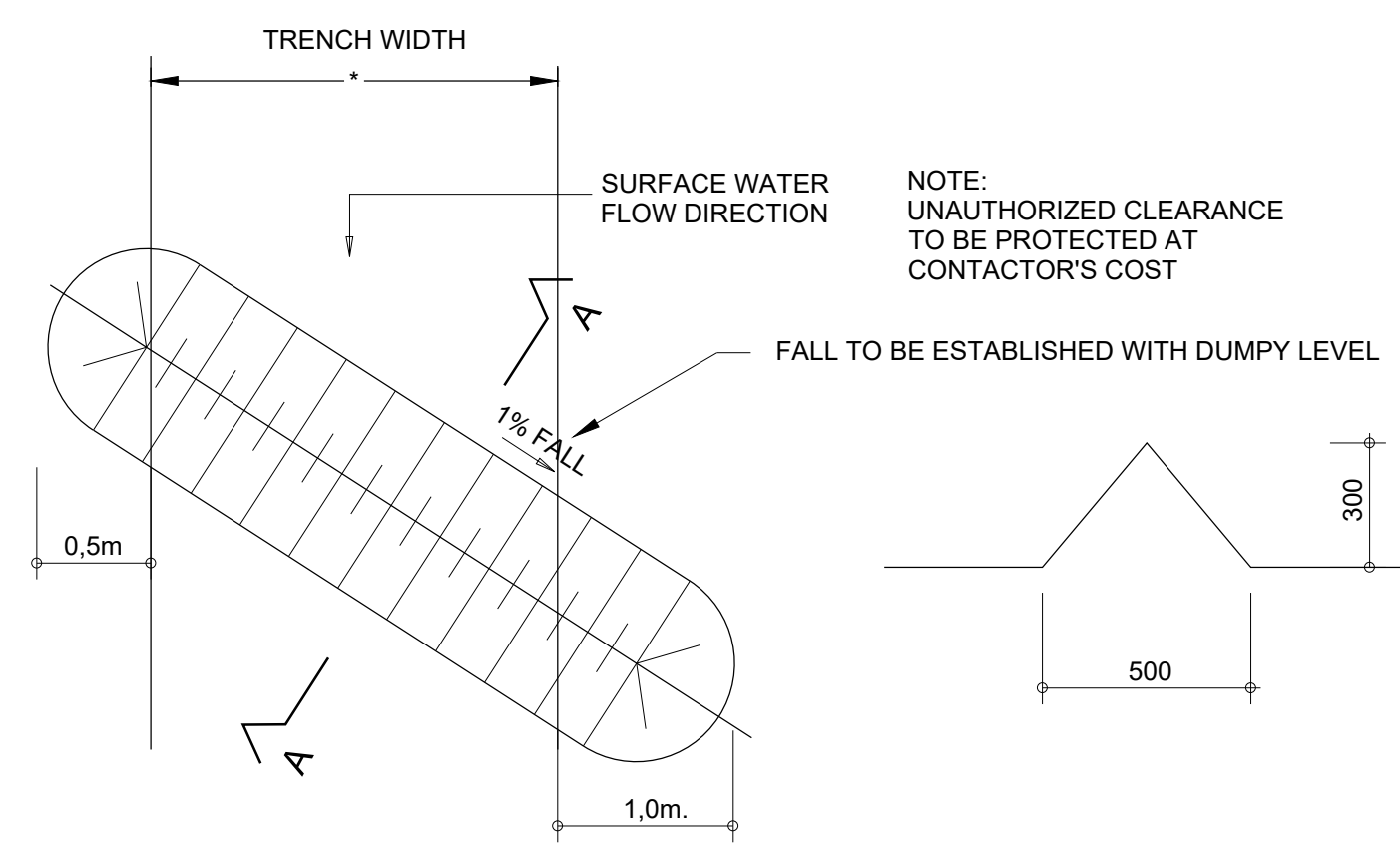
CROSS SECTION
N.T.S.



LONGITUDINAL SECTION
N.T.S.



LONGITUDINAL SECTION
N.T.S.



PLAN ON EROSION CONTROL BERM
N.T.S.

SECTION AA
N.T.S.



NOTES:

1 EXCAVATION AND BACKFILL.

ALL ENVIRONMENTAL SPECIFICATIONS ARE TO BE ADHERED TO IN RESPECT OF TOPSOIL, CONSERVATION, TRENCHING, EROSION CONTROL AND VEGETATION ETC.

2 TRENCH NOTES.

MATERIALS

1.1 SELECTED GRANULAR MATERIAL. Selected granular material shall be material of a granular, non-cohesive nature that is angularly graded between 0.6mm and 10mm, is free-draining, and has a compability factor (as determined by the test given in Section LB of Part 3 of SABS 9120) not exceeding 0.4 or such other value as is laid down in the project specification.

1.2 SELECTED FILL MATERIAL. Selected fill material shall be material that has a PI not exceeding 6 and that is free from vegetation and from lumps and stones of diameter exceeding 30mm.

1.3 BEDDING. Bedding for rigid pipes shall be of Class B and bedding for flexible pipes shall be of Class A bedding and select fill material. Bedding cradles for Class B bedding shall be of selected granular material. The material for the selected fill blanket shall in all cases comply with the requirements of 1.2.

ASSOCIATED REFERENCE DRAWING

FIELD	DESCRIPTION	DRAWING NUMBER	REV.	DATE

KEY : A = ARCHITECT; C = CIVIL; S = STRUCTURAL; M = MECHANICAL; E = ELECTRICAL; L = LANDSCAPE

0	JAN 2021	ISSUED FOR TENDER		WSK
No.	DATE	REVISIONS		CHK'D

	NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED	F.KUMIRAI		22 Jan 2021	A0
DRAWN	D.M.DICKSON		22 Jan 2021	SCALE AS SHOWN
VERIFIED	W.S.KETTERINGHAM		22 Jan 2021	STATUS LEGEND A = APPROVAL I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS-BUILT
VALIDATED	S.FONGOQA		22 Jan 2021	

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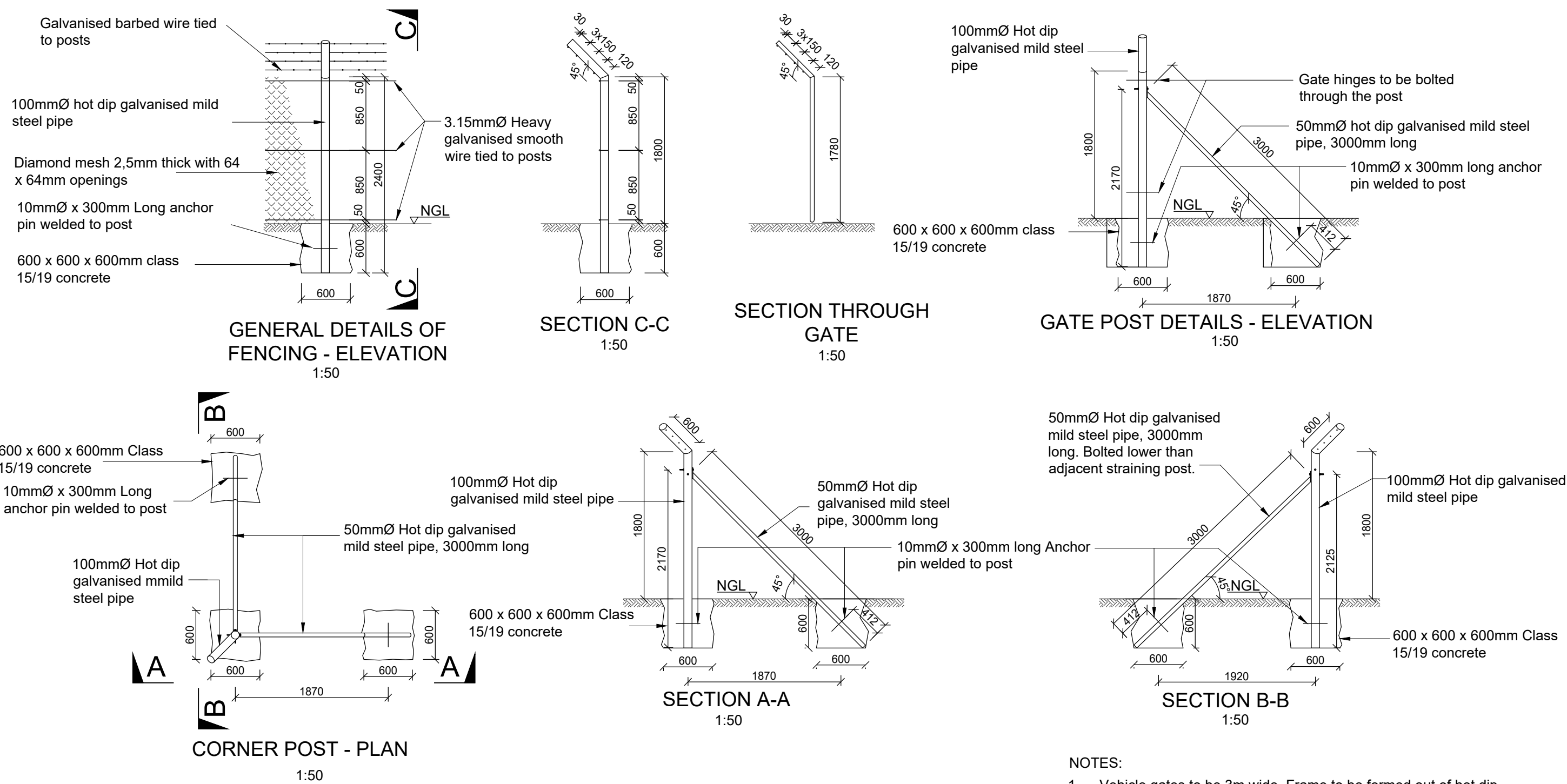
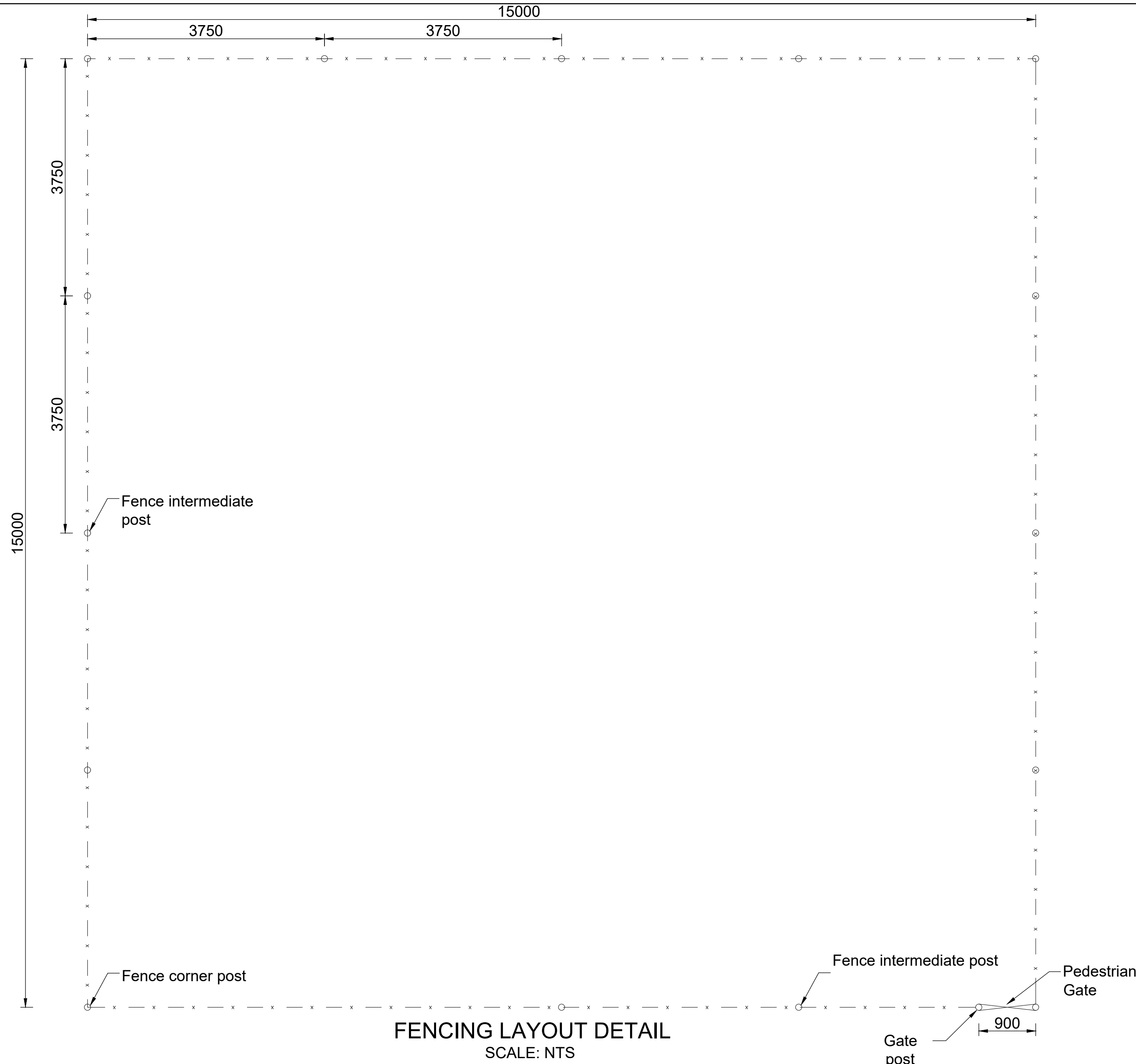
basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

IMPLEMENTING AGENT	TECHNICAL SUPPORT
 IDT Palm Square Business Park Silverwood House Bonza Bay Road Beacon Bay 5241 Tel: (043) 711-6000 Fax: (043) 748-5471	 MARISWE (PTY) LTD PO BOX 19276 Tecom, 5214 Tel.: 043 721 0186 Fax : 043 721 0288 Email : eastlondon@mariswe.com

PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI)
CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE AT SCHOOLS IN THE EASTERN CAPE PROVINCE. COMPLETION WORKS

DRAWING TITLE
ROAD CROSSING, PIPE BEDDING AND CONCRETE ENCASEMENT DETAILS

DBE DRAWING NUMBER			
EMS NUMBER	DRAWING NUMBER	STATUS	REVISION
	25435-406	T	0



- NOTES:
1. Vehicle gates to be 3m wide. Frame to be formed out of hot dip galvanised pipes. Gate to be covered with diamond mesh.
 2. Pedestrian gates to be 900mm wide. Frame to be formed out of hot dip galvanised pipes. Gate to be covered with diamond mesh.
 3. All gates to be equipped with a locking bolt mechanism.
 4. All posts are to be sealed by welding a steel cap over the opening at the top.

ASSOCIATED REFERENCE DRAWING

FIELD	DESCRIPTION	DRAWING NUMBER	REV.	DATE
C	ROADS AND STORMWATER TYPICAL DETAILS	25435-2	01	2019/05/03

KEY : A = ARCHITECT; C = CIVIL; S = STRUCTURAL; M = MECHANICAL; E = ELECTRICAL; L = LANDSCAPE

0	JAN 2021	ISSUED FOR TENDER	WSK
1	AUG 2018	ISSUED FOR APPROVAL	SGR
No.	DATE	REVISIONS	CHK'D

	NAME	SIGNATURE	DATE	SHEET SIZE
DESIGNED	F.KUMIRAI		22 Jan 2021	A1
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VERIFIED	W.S.KETTERINGHAM		22 Jan 2021	STATUS LEGEND A = APPROVAL I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS BUILT
VALIDATED	S.FONGOQA		22 Jan 2021	

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TECHNICAL SUPPORT

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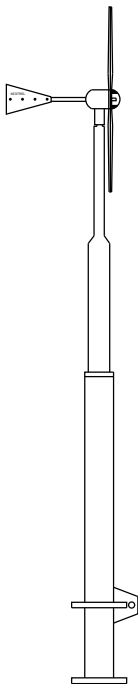
PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI)
CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE
AT SCHOOLS IN THE EASTERN CAPE PROVINCE.
COMPLETION WORKS

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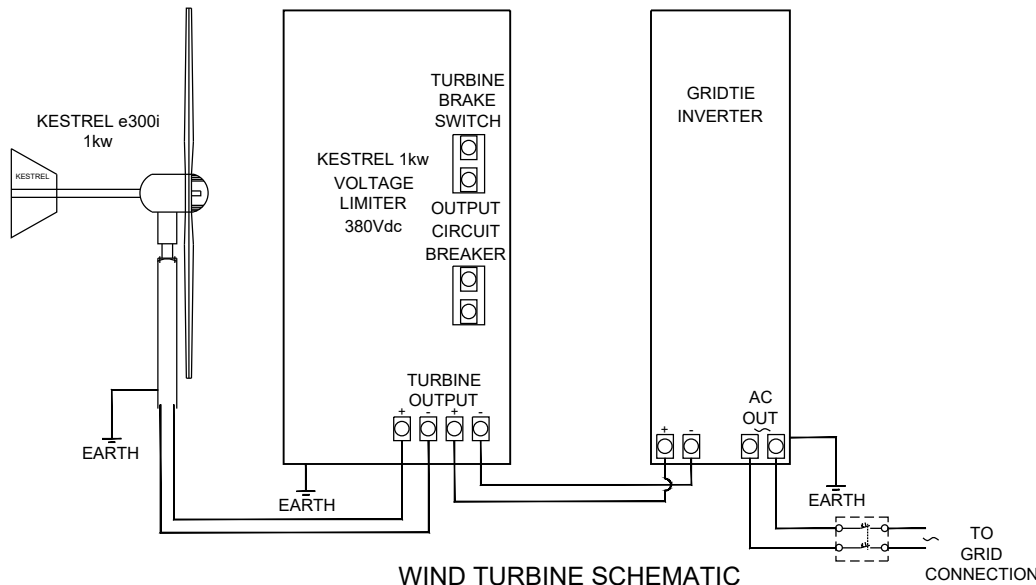
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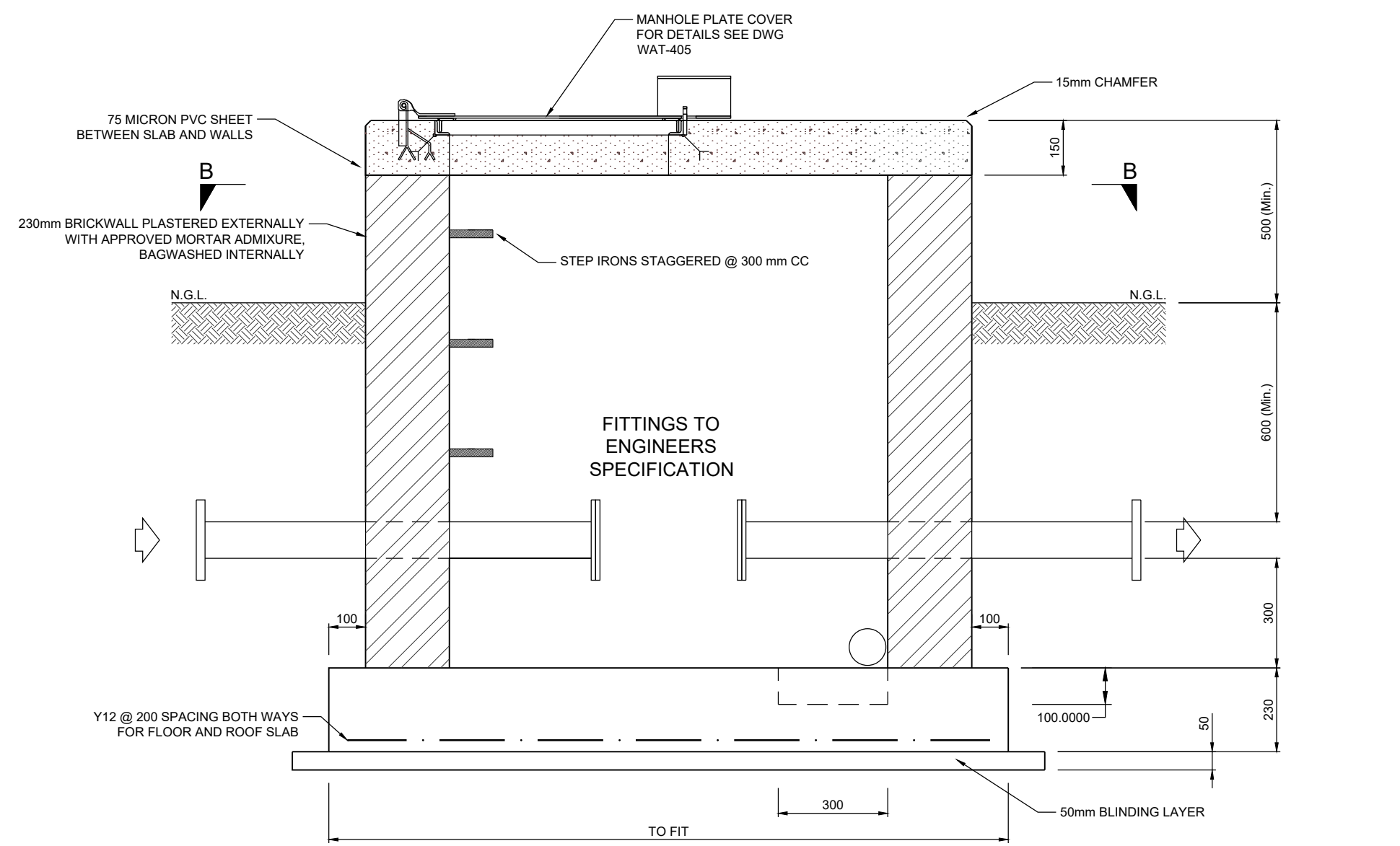
MONOPOLE TOWER
N.T.S



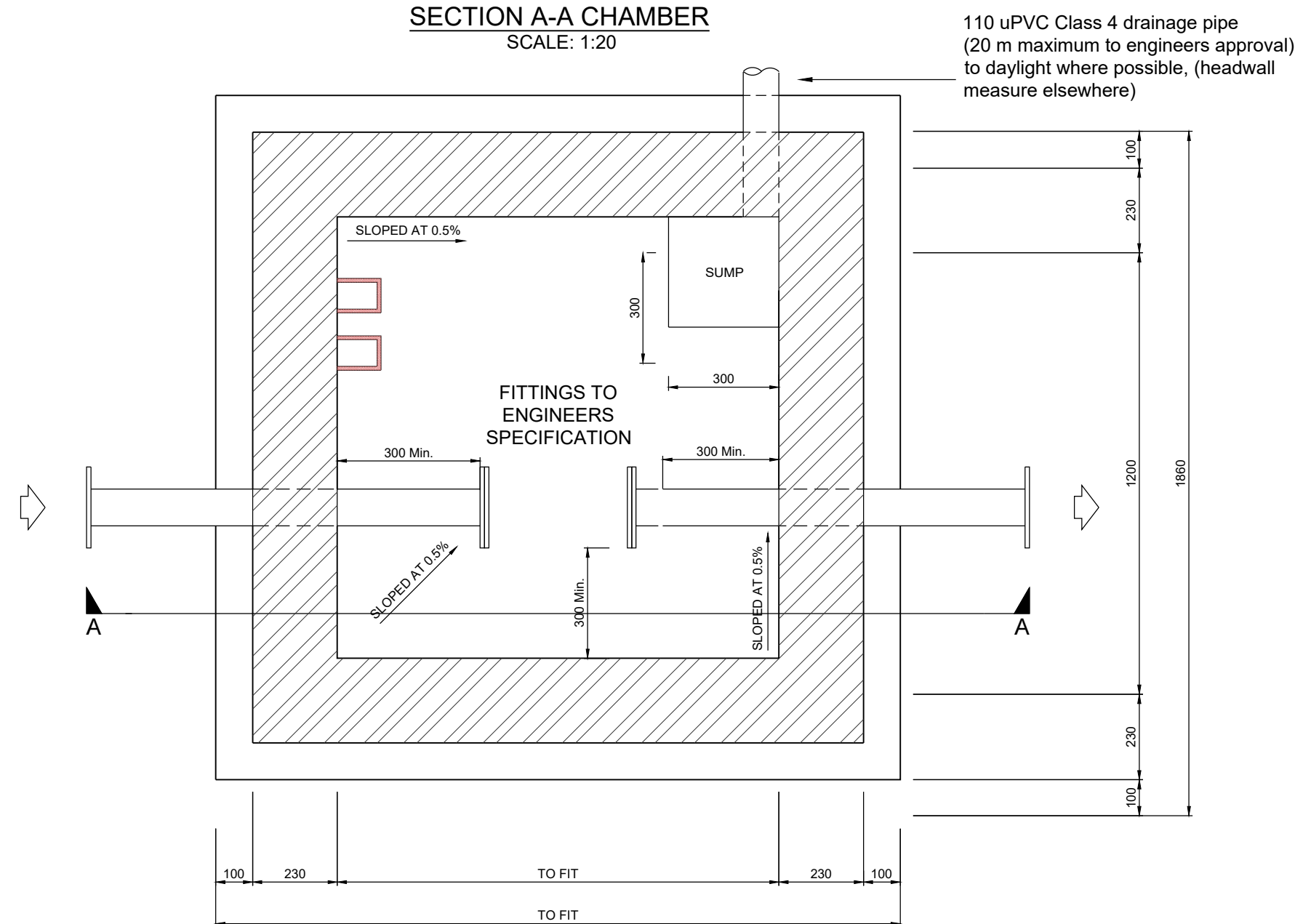
WIND TURBINE SCHEMATIC
N.T.S

FOR ZWELISILE SP ONLY

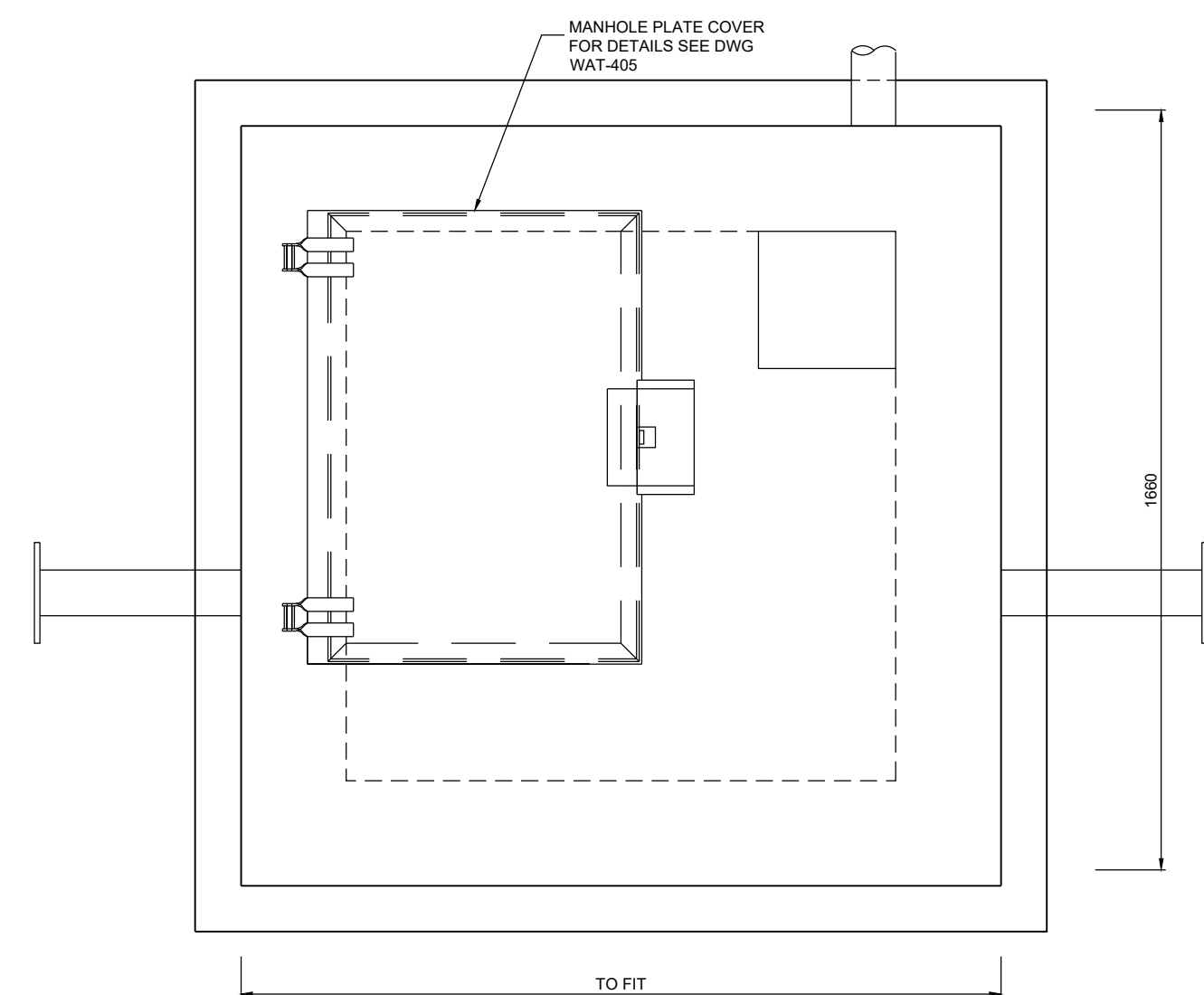
CLIENT  basic education Department: Basic Education REPUBLIC OF SOUTH AFRICA K:\Data\Admin\Logos\ASIDI\ASIDI.bmp		Project Accelerated Schools Infrastructure Delivery Initiative (ASIDI) Construction of Water Infrastructure at Schools in the Eastern Cape Province. COMPLETION WORKS			NAME	SIGNATURE	DATE	SHEET SIZE A3		
				DESIGNED	F.KUMIRAI		21 JAN 2021			
				DRAWN	D.DICKSON		21 JAN 2021	SCALE AS SHOWN		
				VERIFIED	W.K.KETTERINGHAM		21 JAN 2021	STATUS LEGEND I = INFORMATION T = TENDER C = CONSTRUCTION AB = AS BUILT		
				VALIDATED	S.FONGOQA		21 JAN 2021			
IMPLEMENTING AGENT IDT Palm Square Business Park Silverwood House Bonza Bay Road Beacon Bay 5241 Tel: (043) 711-6000 Fax: (043) 748-5471 K:\Data\Admin\Logos\IDT\IDT.bmp		TECHNICAL SUPPORT MARISWE (PTY) LTD PO BOX 19276 Tecoma , 5214 Tel. : 043 721 0186 Fax : 043 721 0288 Email : eastlondon@mariswe.com K:\Data\Admin\Logos\Mariswe\Mariswe.jpg		Drawing Title WIND TURBINES		DBE DRAWING NUMBER				
						EMS NUMBER	DRAWING NUMBER		STATUS	REVISION
						-	25435-408		T	0



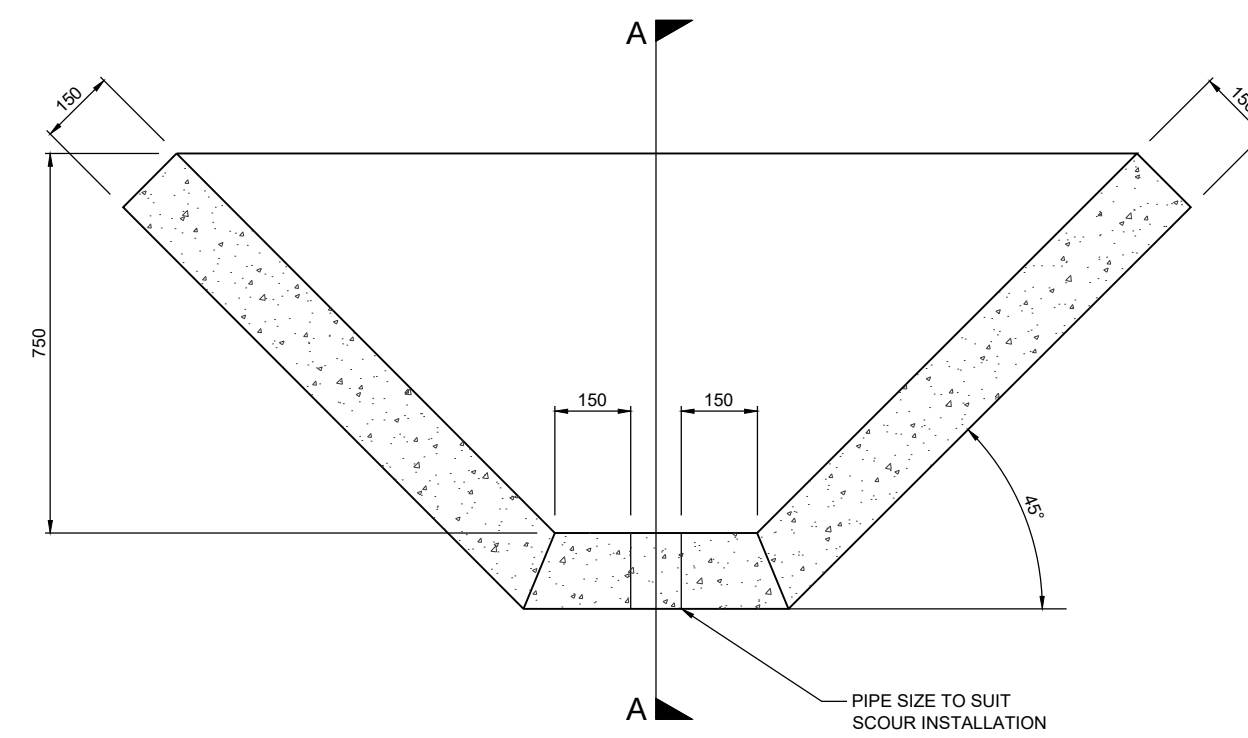
SECTION A-A CHAMBER
SCALE: 1:20



SECTION B-B
SCALE: 1:20

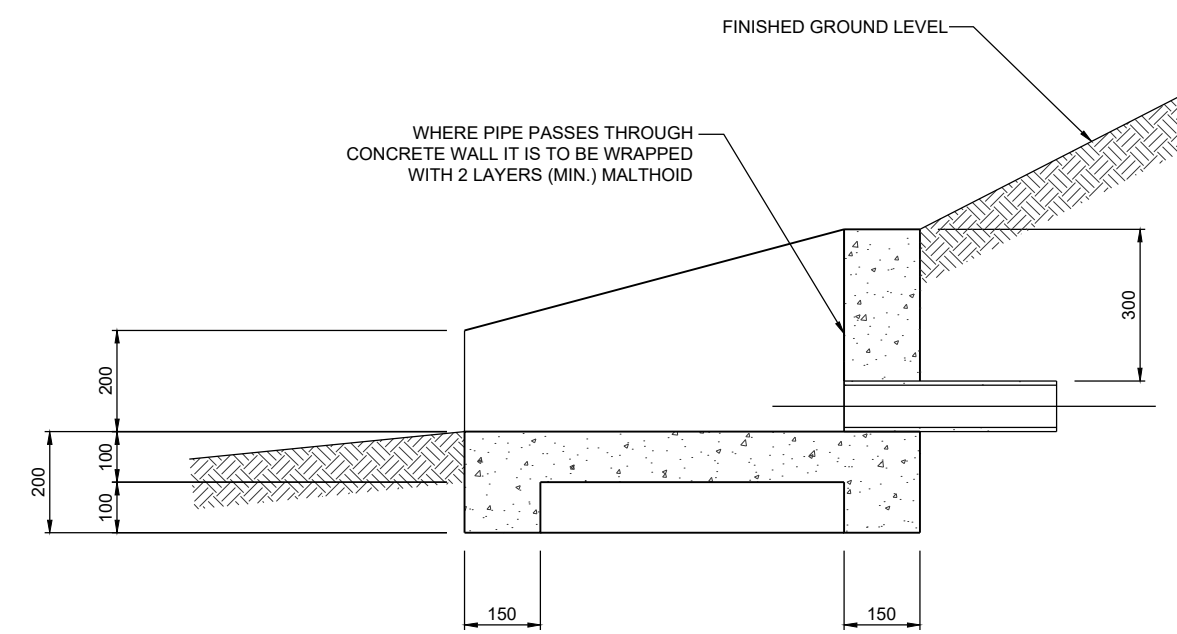


PLAN ON ROOF SLAB OF AIR VALVE CHAMBER
SCALE: 1:20



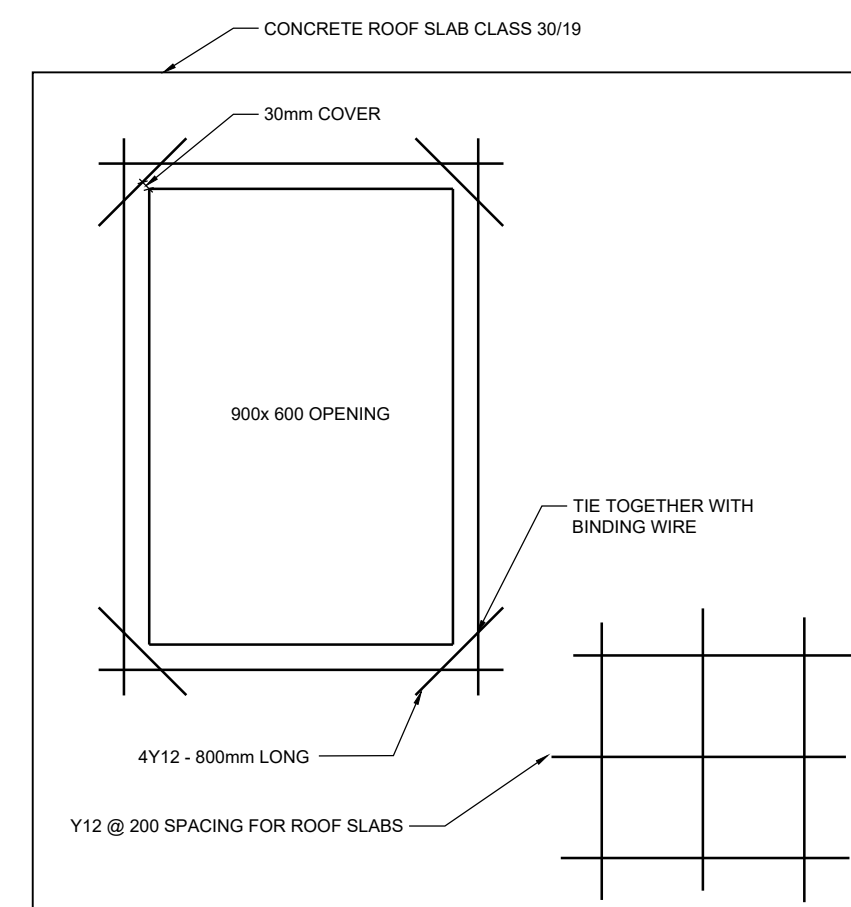
TYPICAL HEADWALL DETAIL FOR SCOUR OUTLET

PLAN
SCALE 1:20



TYPICAL HEADWALL DETAIL FOR SCOUR OUTLET

SECTION A-A
SCALE 1:20



DETAIL OF STEEL IN ROOF SLAB FOR VALVE CHAMBER
SCALE 1:20

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DRAWN: D. DICKSON		21 JAN 2021	SCALE: AS SHOWN
VERIFIED: W. S. KETTERINGHAM		21 JAN 2021	STATUS LEGEND: I = INFORMATION, T = TENDER, C = CONSTRUCTION, AB = AS BUILT
VALIDATED: S. FONGOGA		21 JAN 2021	

CLIENT
 basic education Department: Basic Education REPUBLIC OF SOUTH AFRICA

PROJECT
ACCELERATED SCHOOLS INFRASTRUCTURE DELIVERY INITIATIVE (ASIDI) CONSTRUCTION OF WATER AND SANITATION INFRASTRUCTURE AT SCHOOLS IN THE EASTERN CAPE PROVINCE. COMPLETION WORKS

DRAWING TITLE
BRICK VALVE CHAMBER DETAILS

DBE DRAWING NUMBER				
EMS NUMBER	DISCIPLINE	DRAWING NUMBER	STATUS	REVISION
-	C	25435-409	T	0