PROVINCIAL ADMINISTRATION OF KWAZULU-NATAL
DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

BILLS OF QUANTITIES

with GCC for Construction Works - Second Edition 2010

CONTRACTUAL SECTION

ONE VOLUME APPROACH

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

SCHOOL NAME	WIMS NO.	CONTRACT PERIOD	TYPE OF CONTRACT
SINENHLANHLA PRIMARY SCHOOL	064234	12 Calendar Months	GCC 2010

Project Manager
AECOM
P.O. Box 13320
Cascades
PIETERMARITZBURG
3202
031 204 3800 - Tel Number
N/A - Fax Number
bilal.randeree@aecom.com

Quantity Surveyor
AECOM
P.O. Box 13320
Cascades
PIETERMARITZBURG
3202
031 204 3800 - Tel Number
N/A - Fax Number
neeresh.vijai@aecom.com

Employer:
Head: Public Works
KZN Department of Public Works
Private Bag X 9041
PIETERMARITZBURG
3200
Tel Number: 033 - 8971300
Fax Number: 033 - 8971399

Region:
Regional Manager
KZN Department of Public Works
X9963
LADYSMITH
3370
Tel Number: 036-638 8000
Fax Number: 036-638 8099

Tender No ZNTL03559W
CIDB Grading 5GB or Higher

Project Code: **064234**
Document Date: **07 September 2023**
Contract Period: **12 Calendar Months**

Contracting Party: _____
CIDB Registration number: _____
Central Suppliers Database Registration Number: _____

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

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IMPORTANT NOTICE TO TENDERERS

Any reference to words Tender or Tenderder herein and/or in any other documentation shall be construed to have the same meaning as the words Tender or Tenderer. These forms are for internal and external use for the KZN Department of Public Works, Provincial Administration of KwaZulu-Natal.

"Quality" shall mean totality of features and characteristics of a product or service that bears on the ability of the product or service to satisfy stated or implied needs.

No alternativeTenders will be accepted.

The Total (Including Value Added Tax) on the Final Summary of the Bill of Quantities must be carried to the "Offer" part only of the Form of Offer and Acceptance - T2.21

"Enterprise" shall mean the legal Tendering Entity or Tenderer who, on acceptance of the Offer, would become the contractor"

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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

THE CONTRACT

KWAZULU-NATAL PROVINCE
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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

C1 - AGREEMENT AND CONTRACT DATA

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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

FORM OF OFFER AND ACCEPTANCE

KWAZULU-NATAL PROVINCE
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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

C.1.1 - FORM OF OFFER AND ACCEPTANCE

THE OFFER AND ACCEPTANCE FORM IS BOUND INTO **SECTION 1** (See end of Returnable Documents) OF THIS DOCUMENT AS PART OF THE RETURNABLE DOCUMENTS. ONCE A CONTRACT IS CONCLUDED WITH A SUCCESSFUL TENDERER, THIS PAGE WILL BE REPLACED WITH THE FILLED AND SIGNED OFFER AND SIGN ACCEPTANCE BY THE EMPLOYER AND IT WILL BECOME PART OF THE CONTRACT.

PLEASE SUBMIT THE OFFER AND ACCEPTANCE FORM WITH THE OTHER RETURNABLE DOCUMENTS.

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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

C1.2 - CONTRACT DATA

C 1.2 CONTRACT DATA:
with GCC for Construction Works - Second Edition 2010

CONTRACT DATA FOR:
DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

Tender no: **ZNTL03559W**

The General Conditions of Contract are the clauses contained in the General Conditions of Contract (2010) (Second Edition) published by the South African Institution of Civil Engineering. Copies of these conditions of contract may be obtained through most regional offices of the South African Institution of Civil Engineering, telephone number 011 805 5947 or by visiting their website at www.saice.org.za.

CONTRACT SPECIFIC DATA
The following contract specific data are applicable to this contract:

CONTRACT VARIABLES

This schedule contains all variables specific to this document and is divided into pre-tender and post-tender categories. The pre-tender category must be completed in full and included in the tender documents. Both the pre-tender and post-tender categories form part of this **agreement.**

Spaces requiring information must be filled in, shown as 'not applicable' or deleted but not left blank. Where choices are offered, the non-applicable items are to be deleted. Where insufficient space is provided the information should be annexed hereto and cross referenced to the applicable clause of the schedule. Key cross reference clauses are italicised in *[ ]* brackets.
The Engineer/Principal Agent, in accordance with Clause 1.1.1.16, shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties as described in Clause 3.1.2.

Part 1: CONTRACT DATA PROVIDED BY THE EMPLOYER:

PRE-TENDER INFORMATION

CONTRACTING AND OTHER PARTIES

[1.1.1.15] **Employer:**

Head: Public Works (KZN Department of Public Works: Province of KwaZulu-Natal)

Postal address:
Private Bag X 9041
PIETERMARITZBURG
3200

Tel: ***033 - 8971399*** Fax: ***033 - 8971300***

[1.2.1.2] Physical address:
10 Prince Alfred Street
PIETERMARITZBURG
3200

[1.1.1.16] **Employers Agent 1**
AECOM

Agent's service:
Architect

Postal address:
P.O. Box 13320
Cascades
3202

Tel: ***031 204 3800*** Fax: ***N/A***

Employers Agent 2
AECOM

Agent's service:
Quantity Surveyor

Postal address:
P.O. Box 13320
Cascades
3202

Tel: ***031 204 3800*** Fax: ***N/A***

Employers Agent 3
AECOM

Agent's service:
Structural Engineer

Postal address:
P.O. Box 13320
Cascades
3202

Tel: ***031 204 3800*** Fax: ***N/A***

Employers Agent 4
AECOM

Agent's service:
Civil Engineer

Postal address:
P.O. Box 13320
Cascades
3202

Tel: ***031 204 3800*** Fax: ***N/A***

Tender no:	**ZNTL03559W**
	Employers Agent 5 ***AECOM*** ***Agent's*** service: ***Electrical Engineer*** Postal address: ***P.O. Box 13320*** ***Cascades*** ***3202*** Tel: ***031 204 3800*** Fax: ***N/A***
	PART 1: DATA PROVIDED BY THE EMPLOYER
[1.1.1.13]	**Defects Liability Period** The defects liability period is: **A time measured from the date of the Certificate of Completion.** Defects Liability Period is 12 Months for the whole of the Works
	Latent Defect Period
[5.16.3]	The latent defect period is: 5 years after the Final Approval Certificate
	Documentation required before Commencement of the Works:
[5.3.1]	The documentation required before commencement with the Works execution are;
[4.3]	Health and Safety Plan: The Contractor shall deliver his Health and Safety Plan of the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date.
[5.6]	Initial Programme: The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date.
[6.2]	Guarantee: The Contractor shall deliver his chosen Guarantee (security) for this Works within 14 calendar days after notice from the Employer, prior to the Commencement Date.
[8.6]	Insurance: The Contractor shall deliver his insurance for the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date.
	Cash flow by contractor: The Contractor shall deliver his Cash flow for the Works within 14 calendar days after notice from the Employer, prior to the Commencement Date.
	Priced Bill of Quantity: The Contractor shall deliver his Priced Bill of Quantity within 14 calendar days after notice from the Employer, prior to the Commencement Date.
	Programme: The Contractor is required to submit his Programme of Works in terms of Clause 5.6.1 and 5.3.1 and the Principal Agent is required to approve this within 7 days in terms of Clause 5.6.3
	Other requirements:
[5.3.2]	The time to submit the documentation required before commencement with Works execution is: 14 calendar days
	Non-Working days
[5.8.1]	Non-Working days: **Sundays** Special non- working days: **All Nationally Recognized Public Holidays and the year end break**
[5.8.1]	First Year end break - commences: ***16 Dec 23*** ends on: ***09 Jan 24*** Second Year end break - commences: ***N/A*** ends on: ***N/A*** Third Year end break - commences: ***N/A*** ends on: ***N/A*** Fourth Year end break - commences: ***N/A*** ends on: ***N/A***
	Engineer/Principal Agent to consult with Employer
[3.1.3]	The Engineer shall obtain the specific approval from the Employer before executing any of his functions according to the "Conditions under which Consultants are appointed", or in the event where an employee of the Employer represents the Employer, the relevant General Delegations applicable at the time of executing his/her duties.
	Security
[6.2.1]	The time to deliver the deed of guarantee is Prior to site hand over in terms of clause 5.3.1 and 5.3.2.
[6.2.1]	Please see CONTRACT DATA - below to select Guarantee Option
	Commencement Date Commencement date means the date of Site Hand over that should not occur prior to the tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance.

	*The **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)* *The agreement ("this document") consists of;* *1. Agreement and Conditions of Contract.* *2. Form of Offer and Acceptance.* *3. Contract Data.* *4. Scope of Works.* *5. Site Information.* *6. Drawings & documents referred to in the 1 to 4 above.* *(See Form of Offer and Acceptance)*
[5.3.1]	The contractor shall commence executing the Works within 7 calendar days from the Commencement Date.
[5.4.1]	***Possession of the* site** will be given within 10 calendar days after the **contractor** has fulfilled the conditions (4.3, 5.6, 6.2, 8.6) and received the notification from the Employer of Site Hand Over where the contractor will receive one fully signed copy of the Form of Offer and Acceptance from the **employer.**
[5.6.1]	The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date.
	CONTRACT DETAILS
[1.1.1.33]	***Works*** description: Refer to document C3 – Scope of Work.
[1.1.1.30]	***Site*** description: Refer to document C4 – Site Information.
	Specific options that are applicable to a **State** organ only Where so :
[6.10.6.2]	***1)*** Interest rate legislation: ***(a)*** in respect of interest owed by the **employer**, the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and ***(b)*** in respect of interest owed to the **employer**, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply ***2)*** Lateral support insurance to be effected by the contractor: ***Yes X*** / ***No*** ***3)*** Payment will be made for materials and goods ***Yes X*** / ***No*** ***4)*** Dispute resolution by litigation ***Yes*** / ***No X*** ***5)*** Extended **defects** liability period applicable to the following elements: ***Electrical, Mechanical and Civil work***
[8.6.1.1.2]	The Value of material, supplied by the Employer, and not included in the Contract Price, is: ***R0.00***
[8.6.1.1.3]	The amount to cover Professional Fees, not included in the Contract Price, for repairing damage and loss to be included in the insurance: ***30% of the Contract Price***
[8.6.1.3]	The limit for indemnity for liable insurance is: ***Unlimited***
[6.5.1.2.3]	The percentage allowance to cover overhead charges for contractor and subcontractors, is: ***33.30%***
[1.1.1.14]	**Practical Completion Date** The Practical Completion date is: **A time measured from the Commencement date.**
	For the **works** as a whole: The whole of the works shall be completed within: ***12*** *Months (which shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods).*
[5.5.1]	The date for **practical completion** shall be ***To be determined***
[5.13.1]	The penalty per calendar day shall be : ***0.04% of the Contract Price, rounded to the nearest R10***
	***For the* works** in **sections:** ***The date for* practical completion** from the **commencement date** and the **penalty** per **calendar day:**
	Portion 1:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
	Portion 2:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
	Portion 3:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
	Portion 4:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
	Portion 5:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
	Portion 6:
[5.5.1]	***N/A***
[5.13.1]	***0.04% of the Contract Price, rounded to the nearest R10***
[1.3.2]	***The* law** applicable to this **agreement** shall be that of the: **Republic of South Africa**
[6.10.1.5]	The percentage advance on materials not yet built into the Permanent Works is: ***80.00%***

[6.10.3]	Percentage retention on amounts due to contractor is:	***The Percentage retention is nil. The only security required by the Employer will be such as selected by the Contractor on the Form of Offer and Acceptance and Part 2: CONTRACT DATA PROVIDED BY THE CONTRACTOR, point 2 - Documents, of the Contract Data.***
	Maximum retention is: ***0.00%*** *of the Contract Price*	
[6.8.1]	Notwithstanding anything to the contrary contained in the General conditions of Contract and Preliminaries, this contract could only, when the construction period exceeds 6 months **and** the contract exceeds R1,000,000.00, be subject to a Contract Price Adjustment Factor.	
[6.8.2] *[6.8.3]*	Clause 6.8.2 the last part of the sentence saying *"calculated according to the formula and the conditions set out in the Contract Price Adjustment Schedule."* must be replaced by *"calculated according to the Contract Price Adjustment Provisions (CPAP) Indices Application Manual for use with P0151 indices (Revised 1 January 2013)" as published by Statistics South Africa. The Contract Price Adjustment Provision (CPAP) will be subject to the most recently released indices by Statistic South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works will not accept the submission by Tenderers of lists of additional items."*	
[6.8.2] *[6.8.3]*	Where this contract is a Lump Sum contract, the contract will only be subject to Contract Price Adjustment Provisions (CPAP)(Revised 1 January 2013) where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings only.	
[5.14.5]	***The following clause must be added to clause 5.14.5:***	
	[5.14.5.6] The employers agent shall submit the **final account** within 3 calendar months to the principal agent.	
[10.5]	The determinations of disputes shall be by ARBITRATION ONLY.	
[10.5.3]	The number of Adjudication Board Members to be appointed is: **One**	
[10.9.1]	Replace the last part of the clause with the following: *"..on the application of either party, by the Chairman, or his nominee of the Association of Arbitrators."*	
	Where **CPAP** is applicable, the **contract sum** will be adjusted in accordance with the Contract Price Adjustment Provisions (**CPAP**) as set out in the **CPAP** Indices Application Manual as published by Statistics South Africa, dated 1 January 2013 and any amendments thereto: 1) Glass etc. measured in specialist section Metalwork, will be adjusted in terms of the index for that work group unless specifically stated otherwise in the bills of quantities. 2) In case of uninterruptible power supplies, elevators, escalators and hoists, generating sets, motor-alternator sets and intercommunication systems shall be adjusted in accordance with Work Group 170. 3) Further to clause 3.4.6 of the CPAP Indices Application Manual, the listing of additional items for exclusion by Tenderer's, will not be permitted. ***Alternative Indices:*** **Not Applicable** Details of changes made to the General Conditions of Contract for construction works (2010) Second Edition	
	Clause	
[1.1]	*[1.1.1.5]* **COMMENCEMENT DATE** – means the actual date of Site Hand over that should not occur prior to the Tenderer receiving one fully signed copy of the Offer and Acceptance in terms of the Form of Offer and Acceptance.	
	[5.12.2.2] **ABNORMAL CLIMATIC CONDITIONS** - means conditions over and above what could reasonably be expected for the specific locality where the Works are being executed and include inter alia exessive rain, heat, cold, wind and any other climatic condition that would not normally be experienced during the season that the Works are executed in that area. The South African Weather Service's (http://www.weathersa.co.za) 10 year average climatic conditions statistics would be what could be reasonably expected for the specific locality where the Works are executed.	
	[6.2.1] **CONSTRUCTION GUARANTEE** – means an on demand guarantee at call obtained by the **contractor** from an institution approved by the **employer** in terms of the **employer's** construction guarantee form as selected in the Offer and Acceptance Form and the **contract data.**	
	CONSTRUCTION PERIOD – means the period commencing on the **commencement date** and ending on the date of **due completion date.** This period will be deemed to commence on actual site hand over date to the contractor and end on the date of practical completion and shall include all annual industrial holiday periods, Sundays and public holidays.	
	CORRUPT PRACTICE – means the offer, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.	
	FINAL ACCOUNT - The document prepared by the principal agent, which reflects the contract value of the works at final approval or termination.	
	FRAUDULENT PRACTICE – means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any tenderer and includes collusive practise among tenderers (prior to or after the tender submission) designed to establish tender prices at artificial non-competitive levels and to deprive the tenderer of the benefits of free and open competition.	
	INTEREST – the interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be in terms of the legislation of the Republic of South Africa, and in particular: (a) in respect of interest owed by the **employer,** the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975), will apply; and (b) in respect of interest owed to the employer, the interest rate as determined by the Minister of Finance, from time to time, in terms of section 80(1)(b) of the Public Finance Management Act, 1999 (Act No. 1 of 1999), will apply	
	[1.1.1.16] **ENGINEER/PRINCIPAL AGENT –** means the person or entity appointed by the **Employer** and named in the **Contract Data** as the **Engineer /Principal Agent** to act as agent of the **Employer**. In the event of an Engineer/**Principal Agent** not being appointed, then all the duties and obligations of an Engineer/**Principal Agent** as detailed in the **Contract** shall be fulfilled by a representative of the **Employer** as named in the **Contract Data. (Hereafter referred to as Engineer)**	
	[1.1.1.21] **GENERAL ITEMS -** or preliminaries means items stipulated in the Pricing Data relating to general obligations, site services, facilities and/or items that cover elements of the cost of the work which are not considered as proportional to the quantities of the Permanent Works.	
	[4.4.1] Add the following to the clause 4.4.1: *"The Contract shall only use subcontractors who are duly registered with the CIDB and who has an ACTIVE status at the time of submitting the tender"*	
	[6.2.1] Refer to Offer and Acceptance form for the various options that the contractor may choose from in providing a form of **Guarantee** under "GUARATEE OPTIONS".	
	[6.10.6.2] Replace *"at the prime overdraft rate, as charged by the Contractor's Bank,"* with *"..at the interest rate as determined by the Minister of Justice and Constitutional Development from time to time, in terms of section 1(2) of the Prescribed Rate of Interest Act, 1975 (Act No. 55 of 1975)."* Omit *",on all overdue payments from the date on which the same should have been paid..."* and replace with *" only after 30 calendar days from receiving written notice from the Contractor that the amount is overdue,.."*	

SPECIAL CONDITIONS OF CONTRACT

[5.12.3] Omit clause 5.12.3 and add the following:

"5.12.3. If an extension of time is granted, the Contractor shall be paid such additional time-related General Items, including for special non-working days, if applicable as are appropriate regarding to any other compensation which may already have been granted in respect of the circumstances concerned.The reasons for extension of time that would invoke payment of time related General Items are inter alia;

5.12.3.1 Failure to give possession of the site to the contractor.
5.12.3.2 Making good physical loss and repairing damage to the works where the contractor is not at risk.
5.12.3.3 Contract instructions not occasioned by default by the contractor.
5.12.3.4 Failure to issue construction information timeously or the late issue of a contract instruction following a request from the contractor.
5.12.3.5 Late acceptance by the principal agent of a design undertaken by a selected subcontractor where the contractor's obligations have been met.
5.12.3.6 Suspension or cancellation termination invoked by a nominated or selected n/s subcontractor due to default by the employer or the principal agent.
5.12.3.7 Insolvency of a nominated subcontractor.
5.12.3.8 A direct contractor.
5.12.3.9 Opening up and testing of work and materials and goods where such work is according to in accordance with the contract documents.
5.12.3.10 The execution of additional work for which the quantity included in the bills of quantities is not sufficiently accurate.
5.12.3.11 Late or failure to supply materials and goods for which the employer is responsible.
5.12.3.12 Suspension of the works."

[5.14.5.1] Omit entire clause 5.14.5.1

[5.16.4] Add the following new clause *"5.16.4. Upon the issue of a Final Approval Certificate, unless otherwise provided in the Contract:*
5.16.4.1. The performance Guarantee (if any) shall be returned within 14 days to the guarantor in terms of Clause 7."

[6.2.2] Replace the following *"..it shall be deemed that the Contractor has selected a security of ten percent retention of the value of the Works."* with *"..it shall be deemed that the Contractor has selected a security of a bank or insurance guarantee of 5% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax."*

[6.2.3] Add to clause 6.2.3 the following "*The Contractor shall provide proof of paid-up premium payments to accompany his payment certificate as proof that his performance guarantee has not expired yet. The Contractor will not receive payment without proof of the validity of their performance guarantee.*

[9.3.2.2] Omit *"without prejudice to the exercise of any lien the Contractor may have acquired over the Employer's property."*

Duties and functions of the **Engineer** requiring the specific approval of the **Employer** BEFORE execution of any part of these duties are as follows:

(a) Determinations of contractors claims for extension of time (revision of the contract completion date). All claims for extension of time shall be submitted by the **Engineer,** together with the **Engineer's** recommendations, to the **Employer** for determination. Omit "Engineer" in clause 42.2 and replace with "Employer".

(b) Drawings, instructions or communications of any kind requiring variations of the works and involving EXTRA's shall NOT be given effect by the **Contractor** UNTIL BOTH the "Official Variation Order" and the "Financial Request for Variation Order and Additional Funds" form, as issued by the Department of Public Works, have been approved and signed by the **Employer**.

(c) Insurance policies to be approved by the **Employer** within 21 days of the date of the **Commencement** of the Works.

(d) Any notice of disagreement raised by the **Contractor** or written Dispute Notice given by the **Contractor** to the **Engineer** shall be submitted by the **Engineer**, together with the **Engineer's** recommendations, to the **Employer** for determination.

(e) The issue of the certificate of practical completion, certificate of completion and the final approval certificate shall be signed and submitted by the **Engineer**, to the **Employer** for final approval and signature. The certificates shall not be considered as officially issued until signed by the **Employer**.

MANAGING PROJECT DURATION

(a) The Contractor shall co-ordinate his programme with all other contractors whose work may precede or be executed simultaneously to his own. The Contractor will be called upon to plan and control the project using the Project Evaluation and Review Technique (PERT) or other approved Critical Path Method (CPM) network analysis of his events and activities and those of the dub-contractors in his employ and must co-ordinate his planning with any other contractor employed on the project. A fortnightly project control report will be expected from the Contractor in writing, evaluating any gains or delays against the critical path and he should allow for all costs involved in planning reviewing and updating the programme to the satisfaction of the Principal Agent against this item.

(b) Activity-and total float shall belong to the Employer.

(c) The Contractor shall deliver his programme of work within 10 calendar days after notice from the Employer, prior to the Commencement Date.
It is a condition of this contact that, the contracter submit to the Engineer/principal agent a detailed CPM Programme which shall be to the approval of the Engineer/principal agent. In this regard tenderers are advised to consult with the Engineer/Principal Agent as to the format and requirements of the programme as no claim whatsoever will entertained should the programme fail to meet the requirements of the Engineer/Principal Agent. Failure to submit the programme within the stipulated time may result in the contractor being held in breach of contract.

The approved programme will form the basis of time management of the project and extension of time will not be guaranteed unless the Contractor has strictly complied with this provision.

The programme shall make allowance for rain and the number of rain days allowed within the critical path shall be on the provisions of the clause dealing with inclement weather and claiming for delays in performance in this bill.
Allowance for the above must be made under this item as no claims for failing to comply with this precondition will later be entertained.

INCLEMENT WEATHER AND CLAIMS FOR DELAYS IN PERFORMANCE

(a) The Contract Sum includes a monthly allowance of 3 working days inclement weather during which rainfall exceeds 10mm per day for months as indicated in the Scope of Works. These days shall be reflected on the critical path of the Contractor's programme as specified in MANAGING PROJECT DURATION above.

(b) Claims for delays in performance due to inclement weather shall be calculated separately for each calendar month and for the project as a whole. Delays or gains to the critical path shall be reflected in all revisions of the programme. An extension of time will only be granted where the following conditions are met:

(i) The criteria to be used for WORK stoppages shall be for safety hazards or poor quality of work.
(ii) The Employer's site representative or the Employer's Principal Agent, if the site representative is not available shall be notified when the Contractor stops the work and intends to claim performance delays. The Employer representative shall inspect the situation together with the Contractor and give an immediate decision.

1. The stoppage claimed must cause a delay in the Completion Date of work. If the critical activities can proceed and a non-critical activity is delayed due to inclement weather no claims for delay shall be granted.
2. No claims for stoppages less than 2(two) hours per day shall be considered.
3. Claims granted for more than 2 (two) hours, but less than 10 (ten) hour (lunch included) day, shall be added together and expressed as full days.
4. All claims shall be submitted in writing to the Principal Agent within one working day of the actual stoppage.
5. The total delay in performance granted to the Contractor expressed in days shall be added to the contractual Completion Date of each section of the Works. The contractual penalty clause shall only come into effect after this newly arrived date.
6. Total delays (in hours) will be rounded up or down to the nearest integer for the calculation of Working Days. The total hours (including lunch) per Working Day shall be 10 unless otherwise indicated on the Contractor's programme.
7. Where the programmed delays for inclement weather exceed the actual delays incurred the Completion Date(s) will not be adjusted.
8. Where the project includes builder's holidays the programmed durations for inclement weather shall be adjusted pro-rate to the actual Working Days.
9. The total of all monthly delays due to inclement weather shall be calculated in accordance with the example given below:

		Description		Months					Total
				Sept	Oct	Nov	Dec	Jan	
				Hours	Hours	Hours	Hours	Hours	Hours
		Programmed	Rain days	0	30	30	15	15	90
		Actual	Rain days	16	22	35	15	18	106
		Difference		-16	8	-5	0	-3	-16
	8 hrs/day*							Estimated Extension of time - in working days	2

See point 5.2 in the Scope of Works for the specific days the tenderer must allow for in this contract.

Tender no: **ZNTL03559W** **Part 2: CONTRACT DATA PROVIDED BY THE CONTRACTOR:**

POST-TENDER INFORMATION

Note: All information for this section requires consultation with the **Contractor**. The **Engineer/Principal Agent** shall not pre-select any of the alternatives available to the **Contractor.**

1 CONTRACT DETAILS

[1.1.1.9] **Contractor Name:** .....

[1.2.1.2] Postal address:

.....

.....

.....

Tel no ..... Fax no .....

Tax / VAT Registration No: ..... e-mail .....

Physical address:

.....

.....

.....

[1.1.1.10] The accepted **contract price** inclusive of **tax** is R :

.....

[Amount in words]

Payment Of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11)

The preliminaries amounts shall be paid in terms of:		
	***Alternative A**	**Yes**
	****Alternative B**	**N/A**

** Assessed by the Engineer/Principal Agent as an amount prorated to the value of the Work duly executed in the same ratio as the Preliminaries bears to the Contract Price excluding VAT, Preliminary amount, Contingencies and any CPAP.*

*** Calculated from the priced Bill of Quantity/Lump Sum document. The Contractor and the Engineer/Principal Agent shall agree on a division of the priced Preliminaries items into: initial establishment charge, monthly charge and final disestablishment charge.*

If the Contractor and the Engineer/Principal Agent can not agree, within 10 Working Days from the Commencement Date, on such a division then the Engineer/Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows;

10% of the General Items/Preliminaries amount shall not be varied

15% of the General Items/Preliminaries shall only be varied in proportion of the Contract Price to the Contract Sum

75% of the General Items/Preliminaries shall be varied in proportion to the revised Construction Period compared with the initial Construction Period.

Alternative A

Adjustment of Preliminaries (Clause 6.7, 6.8, 6.10 and 6.11)

For the adjustment of Preliminaries both the Contract Sum and the Contract Value (including tax) shall exclude the amount of Preliminaries, all Contingency Sum(s) and any provision for Cost Price Adjustment Provisions:-

- An amount which shall not be varied.

- An amount varied in proportion to the contract value as compared to the Contract Sum.

- An amount varied in proportion to the Construction Period as compared to the initial Construction Period (excluding revisions to the Construction Period to which the Contractor is not entitled) to adjustment of the Contract Value in terms of the agreement.

The Contractor shall provide a breakdown of charges (including tax) within 15 working days of the date of acceptance of tender and, where applicable, an apportionment of Preliminaries per section

If the Contractor and the Principal Agent cannot agree, within ten (10) Working Days from the Commencement Date, on such a division then the Principal Agent shall make a division of the Preliminaries to be incorporated in the valuations for each monthly payment certificate as follows;

10% of the amount shall not be varied

15% varied in proportion of the Contract Value to the Contract Sum

75% varied in proportion to the revised Construction period compared with the initial Construction Period

Sectional Completion : Subdivision of Preliminaries Costs

For the adjustment of preliminaries for sections of the work the value of fixed, value, and time related amounts of the preliminaries for each section is required. The contractor is to provide such information within fifteen (15) working days of taking possession of the site, failing which the categorised preliminaries amounts shall be prorated to the value of each section.

The above shall apply equally for projects where sectional completion was not contemplated at tender stage but subsequently occurred on an adhoc basis during construction of the works as agreed between the client and the employer. The original priced categorised amounts for fixed, value, and time related amounts shall be prorated to the value of each section.

When an extension of time has been granted in terms of the GCC and the preliminaries require to be adjusted accordingly, the pertinent sectional (subdivided) categorised preliminaries amounts shall be utilised, where applicable and not the overall preliminary amounts.

Where sectional completion is required in terms of the agreement, the Contractor shall provide the Principal Agent with the division of the above categorized amounts into sections. Should the Contractor fail to provide such information within the period stipulated the categorized amounts shall be prorated to the value of each section.

YES *yes / no*

or

Alternative B The Contractor shall within 15 working days of the date of possession of the site provide the Principal Agent with a detailed breakdown of Preliminaries amounts for the works as a whole, or per section where applicable, including administrative and supervisory staff charges and for the use of construction equipment in terms of the programme.

NO *yes / no*

The contractor is informed that only option 'A' shall apply

2 DOCUMENTS

Contract documents marked and annexed hereto:

Priced **Bills of Quantities:** **Yes** **No**

Lump Sum document: **:** **Yes** **No**

Guarantee Options:

Not applicable

2.2 DESIGN BRIEF

Not applicable — **YES or NO**

2.3 DRAWINGS — **YES or NO**

See list of drawings/Annexure's attached to this document. — **YES or NO**

2.4 DESIGN PROCEDURES — **YES or NO**

Not applicable

Contract drawings: **Yes** **No**
Other documents**:**

Waiver of the Contractors lien or right of continuing possession is required. **YES**

GUARANTEE OPTIONS

The Tenderer agrees to provide a bank or insurance guarantee in accordance with clause 6.2.3 of the Conditions of the GCC2010 Contract within the period stated in the Contract Data. This guarantee shall be for a sum equal to an amount stated in the Contract Data.

Guarantees submitted must be issued by either an insurance company duly registered in terms of the Insurance Act (Long Term Insurance Act No 52 of 1998 or Short Term Insurance Act No 53 of 1998) or by a bank duly registered in terms of the Banks Act No 94 of 1990, on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

(a) the tenderer accepts that in respect of contracts up to R1 million, a payment reduction of 5% of the contact value will be applicable and will be reduced 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: select one option

(i) cash deposit of 10 % of the Contract Price	
(ii) bank or insurance Performance Guarantee of 10 % of the Contract Price	
(iii) cash deposit of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)	
(iv) bank or insurance guarantee of 5% of the Contract Price and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT)	

NOTE: Where the Tenderer has not selected one of the guarantee options above, the default option will be as if the Tenderer has selected a security of a bank or insurance guarantee of 5% of the value of the Works and a payment reduction of 5% of the value certified in the payment certificate excluding value added tax. - See GCC2010 clause 6.2.2 as amended in Contract Data.

3	**SIGNATURES OF THE CONTRACTING PARTIES**	
	Thus done and signed at……on ……..of……20…..	
	Name of signatory	for and behalf of the **Employer** who by signature hereof warrants
	Capacity of signatory	as Witness.
	Thus done and signed at……on ……..of……20…..	
	Name of signatory	for and behalf of the **Contractor** who by signature hereof warrants
	Capacity of signatory	as Witness.

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

C1.3 - FORM OF GUARANTEE

C1.3 PERFORMANCE GUARANTEE - GCC FOR CONSTRUCTION WORKS (2nd Edition - 2010)

Head: Public Works
KZN Department of Public Works:
Private Bag X 9041
PIETERMARITZBURG
3200

Sir,

ON DEMAND PERFORMANCE GUARANTEE

Tender Number ZNTL03559W	**Project Code 064234**

For use with the General Conditions of Contract for Construction Works, Second Edition, 2010.

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: _____

Physical Address: _____

"Employer" means: The Provincial Administration of KwaZulu-Natal in its Department of Public Works

"Contractor" means: _____

"Engineer" means: _____

"Works" means: **DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**

"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: _____

Amount in Words: _____

"Guaranteed Sum" means: The maximum aggregate amount of: 10% _____
Of Contract Sum

Amount in Words: _____

"Expiry Date" means: _____

CONTRACT DETAILS

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

PERFORMANCE GUARANTEE

1 The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2 The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3 The Guarantor hereby acknowledges that:

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

3.2 its obligation under the Performance Guarantee is restricted to the payment of money.

4 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:

4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of 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 4.2;

4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;

4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum Certified in 4.

5 Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:

5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or

5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and

5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.

6 It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7 Where the Guarantor has made payments in terms of 5, 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 Payment Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.

8 Payment by the Guarantor in terms of 4 or 5 shall be made with seven (7) calendar days upon receipt of the first written demand to the Guarantor.

9 Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.

10 The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.

11 The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.

12 This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.

13 This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.

14 Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Court Act No 32 of 1944, as amended, to this 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) _____

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

PART C2 - PRICING DATA

C2.1 PRICING INSTRUCTIONS GCC FOR CONSTRUCTION WORKS (Second Edition 2010)			
Project title:	**DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**		
Tender no:	**ZNTL03559W**	**Project Code:**	**064234**

C2.1 Pricing Instructions

	Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable") The adjustment of the preliminaries each item priced is to be allocated to one or more of the three categories by insertion of "F", "V", "T" as the case may be against the price in the "rate" column immediately preceding the "amount" column, where "F" denotes a fixed amount (amount not varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount variable in proportion to time.
1	**MASSES AND MEASURING UNITS** These shall be in accordance with the Measuring Units and National Measuring Standards Act No. 76 of 1973 and amendments thereto. The pages of each of these documents are numbered consecutively and before the Tenderer submits his tender he should check the number of pages, and if any are found missing or duplicated, or the figures or writing indistinct, or the documents contain any obvious error, he should apply to the Head : Public Works AT ONCE and have same rectified as no liability whatsoever will be admitted by the Administration in respect of errors in Tender due to the foregoing.
2	**PRICES FOR VARIATIONS** Where prices or quotations for variations are submitted by the Contractor during the currency of the Contract, it is to be clearly understood that these are for the purpose of consideration by the Head : Public Works and that there is no assumption of acceptance. The Contractor will be notified of acceptance of prices or quotations either by insertion of the amount on the variation order or by written intimation.
3	**SCALE** The scale to which the Drawings are made is only to be made use of when no figured dimensions are given either on the Drawings or in the tender documents and the figured dimensions are always to be followed though they may not coincide with the scale of the Drawings, but dimensions where possible are to be taken from the buildings.
4	**PROVISIONAL ITEMS** All items described as "Provisional" shall be used as directed by the Employer and measured and valued or paid for. No work for which "Provisional" items are allowed shall be commenced without written instructions from the Head : Public Works.

5 TIMELY ORDERING OF MATERIALS

The Contractor is warned to place all orders for materials or special articles as early as possible, as he will be held solely responsible for any delay in the delivery of such goods.
Nevertheless this tender is conditional upon no liability being attached to the Contractor if delivery of materials is rendered impossible by reason of any act of the Government.

6 ELECTRICAL LIGHTING, POWER AND WATER REQUIREMENTS

The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Employer.

The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed.

Tenderers are advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.

7 IMPORT PERMITS, DUTIES AND SURCHARGES.

All tenders by means of which imported products are being called for, must use the rate of exchange 14 days prior to the closing date indicated in the tender documents. If this day falls on a weekend or public holiday, the next working day must be used.

Furthermore, Tenderers must submit documentary proof (in the form of a certified copy) from their bank or legally recognised financial institution, clearly indicating what the rate of exchange was 14 days prior to the closing date, as mentioned above.

Together with this, the Tenderer must confirm that the tender price relating to an imported product, was based on the rate of exchange 14 days prior to the closing date as mentioned above.

8 STANDARD SYSTEM OF MEASUREMENT WHERE BILLS OF QUANTITIES FORM PART OF THE TENDER DOCUMENTS

The work executed under this Contract has been measured in accordance with the;

Standard System of Measuring Builders Work (7th Edition)

including all amendments unless descriptions of items indicate a deviation and it shall be understood that the system of measurement which is herein adopted is the only system of measurement which will be recognised in connection with this contract. Any contradictions to this system of measurement contained in the “Model Preambles for Trades 2008” shall be disregarded (unless same have been accommodated in the system of measurement) but applicable rates shall be included for all requirements stated and not measured separately in compliance with this system.

9 PRICING OF ROCK EXCAVATIONS

It is a condition of this tender that should the tenderer elect to price the Rock Excavation included in this tender, the rates must be market related and should be identically priced for the same classification of excavations and not vary for similar billed items in the different sections.

10 BROAD BASED BLACK ECONOMIC EMPOWERMENT

1. It is the deliberate policy of the Provincial Administration of KwaZulu-Natal to foster and to encourage the economic empowerment of Black South Africans. This policy will be implemented without prescription and without prejudicing the principles and the integrity of the Provincial Administration of KwaZulu-Natal. Subject to these constraints and also subject to good business practise and commercial consideration, it is therefore considered appropriate that the Provincial Administration of KwaZulu-Natal should encourage business relationships with companies which actively pursue Affirmative Action and Black Economic Empowerment Programmes.
2. In responding to this tender you are therefore encouraged to devote attention to these two subjects of Affirmative Action and Economic Empowerment. In addition, in considering the appointment of sub-contractors, you are requested to extend the spirit of these policies.
3. The foregoing enunciations of this policy are not intended to be prescriptive nor to preclude any individual or operation from responding to this tender.

11 REGISTRATION ON THE CENTRAL SUPPLIERS DATABASE

1. In terms of the Public Finance Management Act (PFMA), 1999 (Act No 1 of 1999) Section 38 (1) (a) (iii) and 51 (1) (iii) and Section 76 (4) of PFMA National Treasury developed a single platform, The Central Supplier Database (CSD) for the registration of prospective suppliers including the varification functionality of key supplier information.
2. Prospective suppliers will be able to self - register on the CSD website: www.csd.gov.za
3. Once the supplier information has been varified with external data sources by National Treasury a unique supplier number and security code will be allocated and communicated to the supplier. Suppliers will be required to keep their data updated regularly and should confirm at least once a year that their data is still current and updated.
4. Suppliers can provide their CSD supplier number and unique security code to organs of state to view their varified CSD information.

5 Tenderers are required to fill in clearly, legibly, in bold print and black ink their CSD supplier number in the space hereunder:

Name of Supplier	
Central Supplier Database (CSD) Supplier Number:	

12 TAX CLEARANCE REQUIREMENTS

It is a condition of tender that the taxes of the successful tenderer must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the Tenderder's tax obligations. It is a condition of this Offer of Commission that your practice remains in good standing with SARS (South African Revenue Services) in terms of its tax clearance, during the project, which is required to process your payment certificates.

1 In order to meet this requirement tenderers are required to apply via e-filing at any SARS branch office nationally. The Tax Complance Status (TCS) requirements are also applicable to foreign Tenderders / individuals who wish to submit Tenders.

2 SARS will then furnish the Tenderder with a Tax Compliance Status (TCS) PIN that will be valid for a period of 1 (one) year from the date of approval.

3 In tenders where Consortia / Joint Ventures / Sub-contractors are involved, each party must submit a separate Tax Compliance Status (TCS) PIN.

4 Application for Tax Compliance Status (TCS) PIN can be done via e-filing at any SARS branch office nationally or on the website www.sars.gov.za.

5 Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

6 Tax Clearance Certificates may be printed via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

Security PIN Number	
Company / Entity Tax Reference Number	

13 BILLS OF QUANTITIES/LUMP SUM DOCUMENT

The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract documents, the Standard Conditions of Tender, Conditions of Contract, Standard Preambles to all Trades, Specifications, Drawings and all other relevant documentation.

14 VALUE ADDED TAX

The tender price must include for Value Added Tax (VAT). All rates, provisional sums, etc. in the Bills of Quantities must however be net (exclusive of VAT) with VAT calculated and added to the Total Value thereof in the Final Summary.

15 FIXED PRICE CONTRACT

Tenderders are to take note that the contract price adjustments are applicable to this contract.

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

C2.2 - Preliminaries for GCC for Construction works - 2nd Edition 2010

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

BILL NO. 1
C2 .2 PRELIMINARY AND GENERAL

	NOTES	UNIT	QUANTITY	RATE	AMOUNT
i)	The agreement is to be the General Conditions of Contract for Works of Civil Engineering Construction (2010) (Second Edition) , published by the S. A. Institution Of Civil Engineering.				
ii)	The Preliminaries are to be the Construction and management requirements for works contracts - Part 1: General engineering and construction works (SANS 1921-1: 2004 Edition 1) prepared by Standards South Africa and shall be deemed to be incorporated herein.				
iii)	Tenderers are referred to the abovementioned documents for the full intent and meaning of each clause thereof (hereinafter referred to by heading and clause number only) for which such allowance must be made as may be considered necessary.				
iv)	Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading.				
v)	Where any item is not relevant to this specific contract such item is marked N/A (signifying "not applicable").				
vi)	Adjustment of the preliminaries: each item priced, is to be allocated to one or more of the three categories, where "F" denotes a fixed amount (amount not to be varied), "V" denotes an amount variable in proportion to value and "T" denotes an amount in proportion to time.				
vii)	Time (T) related Preliminaries will only be adjusted for omissions or additions, issued by the Employer, or delays caused by the Employer, for which variation and extension of time has been granted. ***See Contract Data*** .				
	SECTION A: GENERAL CONDITIONS OF CONTRACT				
A1	General (clause 1) F:..... V:..... T:.....	Item			
A2	Basis of Contract (clause 2) F:..... V:..... T:.....	Item			
A3	Engineer (clause 3) F:..... V:..... T:.....	Item			
A4	Contractor's General Obligation (clause 4) F:..... V:..... T:.....	Item			
A5	Time and Related Matters (clause 5) - As referred to in the Contract Data under Special Condition of Contract. The Contract Period shall be deemed to include all Non – Working Days, Special Non – Working Days and the year-end Builders Annual Industry Holiday Periods. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
A6	Payment and Related Matters (clause 6)	Item			
	F:..... V:..... T:.....				
A7	Quality and Related Matters (clause 7)	Item			
	F:..... V:..... T:.....				
A8	Risk and Related Matters (clause 8)	Item			
	F:..... V:..... T:.....				
A9	Termination of Contract (clause 9)	Item			
	F:..... V:..... T:.....				
A10	Claims and Disputes (clause 10)	Item			
	F:..... V:..... T:.....				
	SECTION B: SANS 1921-1:2004 (Edition 1): CONSTRUCTION AND MANAGEMENT REQUIREMENTS FOR WORKS CONTRACTS: PART 1				
	Refer to the SCOPE OF WORK for detail requirements:				
B1	Scope				
	F:..... V:..... T:.....	Item			
B2	Normative references				
	F:..... V:..... T:.....	Item			
B3	Definitions				
	F:..... V:..... T:.....	Item			
B4	Requirements for construction and management				
	F:..... V:..... T:.....	Item			
B4.1	General				
	F:..... V:..... T:.....	Item			
B4.2	Responsibilities for design and construction				
	F:..... V:..... T:.....	Item			
B4.3	Planning, programme and method statements				
	F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
B4.4	Quality assurance F:..... V:..... T:.....	Item			
B4.5	Setting out F:..... V:..... T:.....	Item			
B4.6	Management and disposal of water F:..... V:..... T:.....	Item			
B4.7	Blasting F:..... V:..... T:.....	Item			
B4.8	Works adjacent to services and structures F:..... V:..... T:.....	Item			
B4.9	Management of the Works and site F:..... V:..... T:.....	Item			
B4.10	Earthworks F:..... V:..... T:.....	Item			
B4.11	Testing F:..... V:..... T:.....	Item			
B4.12	Materials, samples and fabrication drawings F:..... V:..... T:.....	Item			
B4.13	Equipment F:..... V:..... T:.....	Item			
B4.14	Site establishment F:..... V:..... T:.....	Item			
B4.15	Survey control F:..... V:..... T:.....	Item			
B4.16	Temporary works F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
B4.17	Existing services F:..... V:..... T:.....	Item			
B4.18	Health and safety F:..... V:..... T:.....	Item			
B4.19	Environmental requirements F:..... V:..... T:.....	Item			
B4.20	Alterations, additions, extensions and modifications to existing works F:..... V:..... T:.....	Item			
B4.21	Inspection of adjoining structures, services, buildings and property F:..... V:..... T:.....	Item			
B4.22	Attendance on nominated and selected subcontractors F:..... V:..... T:.....	Item			
	SECTION C: SCOPE OF WORK in accordance with SANS 10403 *(The reference to Clauses refer to Table B.1 of SANS 1921-1:2004)*				
C1	Certification by recognised bodies - CLAUSE 4.4 F:..... V:..... T:.....	Item			
C2	Agrément certificates - CLAUSE 4.5 F:..... V:..... T:.....	N/A			
C3	Other services and facilities - CLAUSE 4.8 F:..... V:..... T:.....	Item			
C4	Recording of weather - CLAUSE 5.2 F:..... V:..... T:.....	Item			
C5	Management meetings - CLAUSE 5.3 F:..... V:..... T:.....	Item			
C6	Daily records CLAUSE 5.6 F:..... V:..... T:.....	Item			
C7	Bond and guarantees - CLAUSE 5.7 F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
C8	Permits - CLAUSE 5.9 F:..... V:..... T:.....	Item			
C9	Proof of compliance with the law - CLAUSE 5.10 F:..... V:..... T:.....	Item			
	SECTION D: SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 (Table A.1)				
D1	Requirements for drawings, information and calculations for which the contractor is responsible CLAUSE 4.1.7 F:..... V:..... T:.....	Item			
D2	The responsibility strategy assigned to the contractor for the works CLAUSE 4.2.1 F:..... V:..... T:.....	Item			
D3	The planning, programme and method statements - CLAUSE 4.3 F:..... V:..... T:.....	Item			
D4	Samples of materials, workmanship and finishes - CLAUSE 4.12.1 F:..... V:..... T:.....	Item			
D5	Fabrication drawings that the contractor is to provide and deliver to the employer - CLAUSE 4.12.2 F:..... V:..... T:.....	Item			
D6	Office for the foreman CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D7	Telephone - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D8	Office for inspector of works - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D9	Telephone in office for inspector of works - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
D10	Sheds - CLAUSE 4.14.3 F:..... V:..... T:.....	Item			
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		UNIT	QUANTITY	RATE	AMOUNT
D11	Provision and erection of signboards - CLAUSE 4.14.6 F:..... V:..... T:.....	Item			
D12	Termination, diversion or maintenance of existing services - CLAUSE4.17.1 F:..... V:..... T:.....	Item			
D13	Services which are known to exist - CLAUSE 4.17.3 F:..... V:..... T:.....	Item			
D14	Detection apparatus - CLAUSE 4.17.4 F:..... V:..... T:.....	Item			
D15	Additional health and safety requirements - CLAUSE 4.18 F:..... V:..... T:.....	Item			
	SECTION E: SPECIFIC PRELIMINARIES Section E contains Specific Preliminary items which apply to this contract except where "N/A" (Not Applicable) appears against the item.				
E1	**PROPRIETARY BRANDED PRODUCTS** The contractor shall take delivery of, handle, store, use apply and/or fix all proprietary branded products in strict accordance with the manufacturers' instruction after consultation with the manufacturer's authorised representative. F:..... V:..... T:.....	Item			
E2	**OVERTIME** Should overtime be required to be worked for any reason whatsoever, the costs of such overtime are to be borne by the Contractor unless the Engineer/Principal Agent has specifically authorised in writing, prior to the execution thereof, that costs for such overtime are to be borne by the Employer. F:..... V:..... T:.....	Item			
E3	**AS BUILT DRAWINGS** The position of construction breaks and the extent of individual concrete pours are to be recorded by the Contractor on the Structural Engineer's drawings and are to be submitted to the Engineer/Principal Agent and the Structural Engineer for their records. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

	SECTION E: SPECIFIC PRELIMINARIES	UNIT	QUANTITY	RATE	AMOUNT
E4	**SITE INSTRUCTIONS** Site Instructions issued on site are to be recorded in triplicate in a Site Instruction book which is to be maintained on site by the Contractor. F:..... V:..... T:.....	Item			
E5	**LABOUR RECORD** At the end of each week the Contractor shall provide the Engineer/Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all sub-contractors on the works each day. F:..... V:..... T:..... *<u>Note</u>: In the event that the contractor fails to satisfy the requirements of this specification, the Employer (Head: Public Works) may apply any of the sanctions provided in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum per calendar day of which the required report has not been submitted.*	Item			
E6	**PLANT RECORD** At the end of each week the Contractor shall provide the Engineer/Principal Agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works. F:..... V:..... T:.....	Item			
E7	**NON CESSION OF MONIES** The Contractor shall not cede nor assign his rights or claims to any monies due or to become due under this contract. F:..... V:..... T:.....	Item			
E8	**SECTIONAL COMPLETION** When it is required that the contract be executed in sections or portions, the tenderer shall allow for all costs in this regard as no claim for additional costs will be entertained. F:..... V:..... T:.....	Item			
E9	**LOCAL LABOUR** It is a general requirement of this contract that persons normally resident in the locality of the works (Local Labour) be given preference for employment on the contract. Provided, however, that should adequate and appropriate Labour not be available within the locality, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ Local Labour. The Contractor shall identify the local community leaders with the purpose of negotiating with them regarding the utilization of Local Labour in the construction process. In this regard, the Contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth. The Contractor shall, in general, maximize the involvement of the local community. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E10	**IMPORT PERMITS AND DUTIES** The responsibility for obtaining the necessary import permits shall rest with the successful Tenderer. No foreign exchange will be arranged or provided by the Administration. Tenderers are to allow in their tenders and pay the ordinary levy imposed on imported items in terms of item 196.10 of Part 8 of Schedule No. 1 of the Customs and Excise Act, 1964 with effect from 1 October 1989. F:..... V:..... T:.....	Item			
E11	**CONTRACT PRICE ADJUSTMENT PROVISIONS (CPAP)** Notwithstanding anything to the contrary contained in the GCC for Construction Works 2010 2nd Edition, this Contract shall only when the Construction Period exceeds 6 months and the Contract sum exceeds R1,000,000,00 be subject to the Contract Price Adjustment Provisions Indices Application Manual for use with P0151 indices (CPAP) (Revised 1 January 2013) as published by Statistics South Africa. Tenderers are advised that with reference to Clause 3.4.6 of the Contract Price Adjustment Provisions (CPAP) Indices Applications Manual, the Head: Public Works ***will not accept the submission by Tenderers of lists of additional items.*** Where this contract is a Lump Sum contract, the contract will be subject to Contract Price Adjustment Provisions (CPAP) only where the contract period equals or exceeds 6 calendar months. The applicable work group shall be WG 180 for domestic buildings or WG 181 for commercial and industrial buildings. F:..... V:..... T:.....	Item			
E12	**EPWP CONDITIONS AND SPECIFICATIONS** **12.1 EMPLOYMENT TARGETS** E12.1 a Employment Targets The contractor needs to provide a realistic estimate on the number of jobs that the project has the potential to create throughout the project duration as the project will be implemented using labour intensive construction methods on elements where it is economical and feasible for this construction method. No of jobs to be created = ……. *[Contractor to fill in an estimated number]* F:..... V:..... T:.....	Item			
	E12.1 b Employment requirements Tenderers are advised that this contract will be subject to the Expanded Public Works Program (EPWP) aimed at alleviating and reducing unemployment. Tenderers must allow for any costs for the employement of unskilled labour as per the requirements of the EPWP program; 1. 60% of unskilled labour to be women 2. 55% of unskilled labour to be youth aged between 18 and 35 years 3. 2% of unskilled labour to be people living with disability 4. 100% Unskilled labour utilised must reside within the boundries of the Municipality Ward where this contract is executed, with preference to the local community closest or at the walking distance to the contract site. Wherever possible local skilled tradesmen are to be employed on this contract with the view to maximize utilization of local resources. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	E12.1 c Labour rate and payment intervals The contractor should ensure that labour rate paid to unskilled local labour is commensurate to the daily task. When determining the rate, consideration should be given to that EPWP beneficiaries are mostly bread winners in their families, as the program intends alleviating poverty. There should also be consideration that the labour rate promotes creation of expanded number of jobs created and person days of work. Contractors should make endeavours to ensure that labourers, particularly unskilled are remunerated on fortnight basis and prior notification be made should there be a shortfall on their wages. The labour rate for local unskilled shall also be determined in consideration of the location of the project, i.e. for projects implemented in urbanized municipalities will not be the same as that for rural municipalities. F:..... V:..... T:.....	Item			
	12.2 LABOUR INTENSIVE CONSTRUCTION METHOD E12.2 a Labour Intensive Construction (LIC) method On site there must a person(s) having competency in managing and implementing LIC methods. *Foreman @ NQF Level 4 the Unit Standard on Implementing LIC methods on site. *Site Agent/ Managers @ NQF level 5 the Unit Standard on Manage Labour-Intensive Skills Programme both must be CETA accredited F:..... V:..... T:.....	Item			
	E12.2 b Labour Intensive Construction Method Those parts of the contract to be constructed using Labour Intensive methods will be marked in the BoQ with letter LI (indicating Labour Intensive) against every item so designated. Such works will only be constructed using method so indicated. Reference to be made to Guidelines for the implementation of Labour Intensive Infrastructure projects under EPWP. "Scope of Work in Respect of Work Relating to the Expanded Public Works Programme (EPWP)" F:..... V:..... T:.....	Item			
	E12.3 RECORD KEEPING 12.3.1 Every employer must keep in the project site office the following minutes of site progress minutes; contractors' monthly site progress reports; accurately recorded attendance register; proof of payment as means to verify authenticity of data in the EPWP Beneficiary form submitted with payment certificates. Copies of submitted EPWP beneficiary data forms should also be kept in the site office. F:..... V:..... T:.....	Item			
	12.3.2 The employer must keep this record for a period of at least three (3) years after the completion of the project in his/her office as the project site office would have been relocated. This should be safely kept for job creation data verifications and periodical audits on projects conducted by National and Provincial Department of Public Works after one (1) or two (2) quarters of submitting captured EPWP Data to the National EPWP coordinating Department. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	E12.4 EPWP REPORTING as per EPWP DATA FORM At the end of each month as part of site progress report and to be attached to every contractors' progress payment certificate; the contractor shall provide the principal agent & Public Works with a written records, as per EPWP data form; which will be reflecting, beneficiaries full name & surname; ID No and job description of labour employed by main contractor and sub-contractors on site. At the end of each month the contractor must submit the following documents to be attached to the Progress payment certificate: 1. EPWP monthly data collection form 2. Worker monthly payment upload 3. Worker monthly proof of payment i.e 3.1 Acknowledgement of receipt of payment or 3.2 Payslips 3.3 Bank statement highlighted the workers paid 4. Worker monthly training form 5. Monthly attendance register 6. Certified copies of ID's (once off) 7. ID size photos (once off) 8. Proof of UIF 9. Proof of COIDA F:..... V:..... T:.....	Item			
	E12.5 EPWP PROMOTION <u>12.5.1 EPWP signage board</u> EPWP Program at the project level shall always be promoted through have the projects signage board that embrace EPWP logo at the bottom, correct measurement for this signage board will be provided by the project leader during the site handing over meeting. the standard "HELVETIVA MEDUIM " letters are to be used . Professional title to be 10 mm above line . Line thickness to be 8 mm thick . Space between bottom of the line and bottom of the lettering below the line has to be 100 mm. Letter sizes are as follows : Helvetica meduim 100 mm black upper case to be for project name and owner . Helvetica meduim 75mm black upper case only to be used for professional titles.Project name and owner shall be black lettering on white background.board sizes are as follows : Board to be minomum 2000mm from ground level and to be constructed from reinforced formed chromadek panels minimum 0,6mm thick chromadek. The contractor is responsible for ensuring that the project board remains neatly and safely erected for the full duration including maintenance period,after which the project board and post are to be dismantled and handed to the client in good order. F:..... V:..... T:.....	Item			
	<u>12.5.2 Branding of labour apparel</u> Contractor & Sub-contractors' labourers shall be provided with EPWP branded Personal Protective Equipment (PPE), reflector vest with EPWP wording at the back is an ideal and cost effective means of promoting program on site. The contractor is then advised to price for both item 17.5.1 and 17.5.2 F:..... V:..... T:.....	Item			
	E12.6 COMMUNITY LIAISON OFFICER (CLO) <u>UTILISATION OF A COMMUNITY LIAISON OFFICER</u> In addition to the requirements of Clause E9, contained in this document; The Contractor shall allow for and pay any and all costs necessary for the engagement of the services of a Community Liaison Officer (CLO) for the full duration of this contract In the interest of providing a sound service to both the community and the Contractor, a CLO may only manage one project at a given time. A CLO will be identified by the local structures of the ward areas and appointed following fair and transparent interviewing process, to be conducted in the presence of local structures and the contractor representative, in order to assist the Contractor in the procurement of any local labour, etc. required for this project. The Contractor is to liaise with the CLO and afford him any assistance needed in ensuring sound working relations with the local community.				

	Key Responsibilities of the CLO are envisaged to include and not necessary be limited to: 1. Assisting local leadership in conducting skills and resources audit which facilitates sourcing labour from within the ward or targeted areas for employment, as required by contractor. 2. Assisting in sourcing labour-only domestic sub-contractors and the procurement of materials from local resources, as required by the contractor. 3. Assisting the contractor by identifying areas of potential conflict and or threats to the project or to stakeholders in the project and recommend appropriate action to the contractor. 4. Assisting contractor and stakeholders in the project in the resolution of any conflict which may arise. 5. Establishing and ensuring that sufficient and open communication channels between the contractor and the work force are maintained. 6. Establish and ensuring that efficient and open communication channels between the contractor and the community are maintained 7. Identifying and reporting to the Contractor regarding issues where communication between stakeholder is necessary, recommend courses of action and facilitate such communications				
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	8. Assisting the Contractor and the work force in the establishment of grievance procedures and necessary recommenda-tion to the Contractor regarding the grievances and solution thereto. 9. Attending to site meetings and project implementation meetings as required by the Contractor and prepare periodic reports as may be required by the Contractor from time to time. 10. Attending to such other duties which are consistent with the functions of a CLO, as may be required by the Contractor from time to time. Tenderers are to price twice the rate of unskilled local labour rate against this item for any and all costs arising out of compliance with the foregoing and in the event of a Tenderer failing to price against this item or making inadequate financial provision against this item for compliance as aforesaid, then no claim for costs or additional cost incurred will be entertained by the Head: Works F:..... V:..... T:.....	Item			
	E12.7 SKILLS DEVELOPMENT ON SITE Contractor in conforming to the object of EPWP that its beneficiaries need to be capacitated with skills that will render them employable in the future. It is then the responsibility of the Contractor that mandatory life skills are provided to 100% of workforce on site and on the job training to labourers from whom the potential for further development has been identified. The latter is not mandatory to all as it covers technical skills. Contractor should also make provision for the possibility that there might be local youth that will need to be placed on the project with an intention to be provided support towards improving their level of competency and productivity. Contractor shall also provide all necessary on-the-job training to targeted labour to enable such labour to master and advance on techniques required to undertake the work in accordance with requirements of the contract in a manner that does not compromise workers health and safety. F:..... V:..... T:.....	Item			
	E12.8 LABOUR ONLY Sub Contracting for local emerging enterprises Tenderer's are advised that this contract is subject to the Expanded Public Works Programme (EPWP) and the following criteria will apply: <u>African Equity Ownership</u> a) The Tenderer is to allow for 5% of the total value of works to be undertaken by a Priority Population Group. This percentage excludes the costs of employing local unskilled labour. The allocation of this percentage from the Project, the screening of people, the selection of skills, will be for the Contractor to adjudicate. b) The Priority Population Group consists of women, youth and disabled people. c) The Contractor is to give first option for prospective PPG's from the surrounding areas of the Project. Should there be insufficient suitable people fitting the criteria of PPG's, the Contractor may hire people from further afield. This is to be done only after consultation with the Department of Works EPWP Co-ordinator and the Community Liaison Officer (CLO). d) A Mentor is to be employed by the Contractor, in consultation with the Department of Works for the purposes of quality control and liaison between the Contractor and the selected PPG's on site. The mentor will be responsible for ensuring an acceptable level of quality workmanship and that such work carried out by the PPG's is executed within the time frames stipulated. In so far as possible, the Contractor is encouraged to expand the PPG's skills, knowledge and performance levels. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	TENDERER'S TO NOTE CONDITIONS a) The contract to be entered into between the Contractor and the PPG's will be a LABOUR ONLY sub-contract. b) The Contractor will be responsible for ensuring that all materials for use by the PPG's in the works are to be on site timeously. The Contractor shall liaise with The Mentor and PPG to determine the nature and extent of materials required and the lead time necessary. c) The Contractor shall be responsible for the overall programming of the Works and he is to allow for monitoring the PPG's programme and progress. d) In conjunction with the Mentor, he is to allow for the supervision and mentoring (where necessary) of the PPG to ensure quality and adherence to standard building practice e) The Contractor is to allow for extra storage facilities on site for the PPG's tools and equipment. f) Basic tools shall be provided by the PPG's and where these are not available; the Contractor will supply him with the necessary tools and equipment and deduct the costs thereof from the interim claims made by the PPG. g) Work requiring specialized tools will be provided free of chargeby the Contractor with the provision that these be returned upon completion of the Work. CO-ORDINATION The Contractor is to co-ordinate the work of all the PPG's, Sub-Contractors and Nominated Sub- Contractors appointed direct by the Employer in such a manner and at all times as will suit the building programme and he is to allow adequate access, for the PPG's, where required, to carry out their work in an efficient manner as no claims for extras in this connection will be entertained. F:..... V:..... T:.....	Item			
	ATTENDANCE The Contractor may allow for attendance upon the PPG's concerned to execute the work. The Contractor is to allow the PPG's the use of any scaffolding belonging to him while it remains so erected on the site. Where scaffolding is necessary for the use by any PPG and the Contractor has not erected any for his own use or has removed same after his own use, the Contractor shall supply sufficient scaffolding to the PPG to be erected and dismantled by the PPG and returned to the Contractor. This attendance upon PPG's to execute the work is to include for the scaffolding provisions as aforesaid and, in addition, is to include for co-operating to the fullest extent with all the parties, attending on off-loading materials, providing suitable storage for tools and materials used by the PPG's, use of general facilities such as latrines, etc., supply and cost of power, lighting, water and the like. F:..... V:..... T:.....	Item			
	E12.9 EPWP CONTRACT FOR LABOUR It is compulsory that shortly after the contractor and or sub contractor has appointed local labour, the employment contract should be signed by both parties, prior to commencement with works on site. The employment contract forms part of the Ministerial Determination or from the regional EPWP officials. Each contract will lapse at the end of each financial year therefore requiring the Contractor to do a renewal of each contract should the need of employment still exist for that particular labourer. F:..... V:..... T:.....				
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
	E12.10 EPWP SCOPE of WORK **Note:** Contractors are to price any item on the Bill of Quantities having below, bearing in mind that they are regarded as main sources of job creation, whether sub contracted or undertaken by the main contractor. Elements on the scope of work where application of Labour Intensive Construction methods as will indicated with letters (LI) are regarded feasible are as follows; i) Excavating trenches for foundations and any other civil works with the depth not more than 1.5 m ii) All masonry works which include concrete mixing on site; brickwork; plastering; screed works; jointing; etc. iii) Painting, Plumbing, Ironmongery; roof cladding; glazing; tilling; carpentry; flooring; waterproofing; etc. F:..... V:..... T:.....	Item			
	Note: It is a general requirement of this contract that persons normally resident in the ward of the works (local labour) be given preference for employment on the contract. Provided, however, that should adequate and appropriate labour not be available within the ward, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ local labour (Local Sub-contractor(s); Skilled; Semi-Skilled and Unskilled). The contractor shall in consultation with the local community leaders with the purpose of negotiating with them regarding the utilization of local resources in the construction process. In this regard, the contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth as well as families declared as most indigent by War on Poverty/ Sukuma Sakhe program profiling process. The contractor should aim, in general, to maximise the involvement of the local community, however workers from other communities should not exceed 20% of all persons working on the project, where local employees possess skills at level of competency that meet contractors requirements. <u>Payment for the labour-intensive component of the works</u> Payment for works identified in the Scope of Work as being labour-intensive shall only be made in accordance with the provisions of the Contract if the works are constructed strictly in accordance with the provisions of the Scope of Work. Any non-payment for such works shall not relieve the Contractor in any way from his obligations either in contract or in delict. <u>Linkage of payment for labour-intensive component of works to submission of project data</u> The Contractor's payment invoices shall be accompanied by labour information for the corresponding period in a format specified by the employer. If the contractor chooses to delay submitting payment invoices, labour returns shall still be submitted as per frequency and timeframe stipulated by the Employer. The contractor's invoices shall not be paid until all pending labour information has been submitted. <u>Applicable labour laws</u> The current Ministerial Determination (also downloadable at <u>www.epwp.gov.za</u>) Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice , shall apply to works described in the scope of work as being labour-intensive and which are undertaken by unskilled or semi-skilled workers. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E13	**HIV/AIDS AWARENESS** Tenderers are to price against the following items for compliance with the SPECIFICATION FOR HIV/AIDS AWARENESS bound into this document (The clauses referred to are those of the Specification for HIV/AIDS)				
E13.1	Provide and maintain a condom dispenser in terms of Clause 5.1a) F:..... V:..... T:.....	Item			
E13.2	Provide and maintain HIV/AIDS awareness posters terms of Clause 5.1b) F:..... V:..... T:.....	Item			
E13.3	HIV /Aids Awareness Programme on Site for not less than 90% of workers inclusive of all direct and indirect costs; Engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme in terms of Clause 5.2.1a) F:..... V:..... T:.....	Item			
E13.4	Arrange for workers to attend the HIV Awareness Programme in terms of Clause 5.2.1b) F:..... V:..... T:.....	Item			
E13.5	**Reporting** Prepare and attach to claims for payment a brief report in terms of Clause 5.3 (see also HIV/STI Compliance Report included with this document). F:..... V:..... T:..... *Note: In the event that the contractor fails to satisfy the requirements of this specification, the employer (Head: Public Works) may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum per calendar day of which the required reports has not been submitted.*	Item			
E14	**OCCUPATIONAL HEALTH AND SAFETY ACT NO. 85 OF 1993** Tenderers are to allow for costs in providing a project specific ' Construction Phase Safety, Health and Environmental Plan' in accordance with "Section 2 - Specification Data associated with SANS 1921-1:2004" clause C4.18 in "Part C3 - Scope of Work" F:..... V:..... T:.....	Item			
E15	**NOTICE BOARD, SITE OFFICE, ETC.** Tenderers are to allow for the provision and removal of a project notice board and a site office in accordance with the Principal Agent's requirements. F:..... V:..... T:.....	Item			
E16	**IMPORTED MATERIALS AND EQUIPMENT** Where imported items are listed in the tender documents, the tenderer shall provide all information called for, failing which the price of any such item, material or equipment shall be excluded from currency fluctuations. (***Refer to T2.14 - Schedule of Imported Materials and Equipment*** . F:..... V:..... T:.....	Item			
E17	**CONTRACT DOCUMENTS** The drawings issues with these Tender documents do not comprise the complete set but serves as a guide only for tendering purposes and for indicating the scope of works to enable the Tenderer to acquaint him with the nature and extent of the works and the manner in which they are to be executed. Should any part of the drawings not be clearly legible to the Tenderer he shall, before submitting his Tender, obtain clarification in writing from the principal agent. F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E18	**GENERAL PREAMBLES** The Document Preambles will be the "ASAQS Model Preambles for Trades – 2008" and is obtainable from the various Regional Office's of the Department of Public Works and shall be read in conjunction with the Bills of Quantities and be referred to for the full descriptions of work to be done and materials to be used.				
	F:..... V:..... T:.....	Item			
E19	**TRADE NAMES** Wherever a Trade Name for any product has been described in the Bills of Quantities the Tenderer's attention is drawn to the fact that any other product of equal quality may be used subject to the written approval of the Principal Agent being obtained prior to the closing date for submission of Tenders.				
	F:..... V:..... T:.....	Item			
E20	**EXISTING PREMISES OCCUPIED** Refer to Scope of Works Part C3 of this Tender Document for information on the occupation of existing buildings.				
	F:..... V:..... T:.....	Item			
E21	**INACCURATE AND DEFECTIVE WORK EXECUTED UNDER PREVIOUS CONTRACT** The contractor shall, after taking possession of the site and before commencing the work, check all levels, liners, profiles and the like and satisfy himself as to the dimensional accuracy of all work executed under the previous contract which may affect his work. Should any inaccurate or defective work be found, the contractor shall immediately notify the principal agent in writing requesting his instructions with regard thereto and afford every facility to those rectifying such inaccurate or defective work.				
	F:..... V:..... T:.....	Item			
E22	**VIEWING THE SITE IN SECURITY AREAS** If the site is situated in a security area and the Tenderder must arrange with the Authorities to obtain permission to enter the site for Tenderding purposes.				
	F:..... V:..... T:.....	Item			
E23	**COMMENCEMENT OF WORKS IN SECURITY AREAS** If the works falls within a security area, the contractor must arrange with the Authorities and give the necessary notices before commencement of the works. Should the contractor fail to make such arrangements, admission to the site may be refused and any additional costs will be for the contractor's account.				
	F:..... V:..... T:.....	Item			
E24	**ENTRANCE PERMITS TO SECURITY AREAS** If the works fall within a security area, the contractor shall obtain entrance permits for his personnel and workmen entering the area and shall comply with all regulations and instructions which may be issued from time to time regarding the protection of persons and property under control of the Authority.				
	F:..... V:..... T:.....	Item			
	Carried forward to collection			R	

		UNIT	QUANTITY	RATE	AMOUNT
E25	**SECURITY CHECK OF PERSONNEL** The principal agent may require the contractor to have his personnel and workmen, or a certain number of them, security classified. In the event of the principal agent requesting the removal of a person or persons from the works for security reasons, the contractor shall do so forthwith and shall thereafter ensure that such person or persons are denied access to the works and the site and/or to any document or information relating to the works. F:..... V:..... T:.....	Item			
E26	**PROHIBITION ON TAKING PHOTOGRAPHS** In terms of article 119 of the Defence Act, 44 of 1957, it is prohibited to sketch or to take photographs of any military site or installation or any building or civil works thereon or to be in possession of a camera or other apparatus used for taking photographs, except when authorised thereto by or on behalf of the Minister. The same prohibition is also applicable to all Correctional Institutions in terms of article 44.1(e) of the Correctional Services Act 8 of 1959. F:..... V:..... T:.....	Item			
E27	Management of Water Water for Construction purposes must be obtained from alternative water sources (i.e. supply other than water that is produced and distributed by a regulated water service authority from a licenced water treatment works for human consumption), eg dams, rivers, boreholes, springs, rainwater harvesting, recycled sewerage water,etc. The alternative water source shall not be of an inferior quality / standard than that required for construction purposes. The client reserves the rigfht through his agents to test such supplies or request certificates confirming the grade and nature of the water supply. Relevant knowledge of the respective area will be an advantage.				
	Carried forward to collection			R	

SECTION 1

SUMMARY – PRELIMINARY & GENERAL

Collection	Page No.	Amount	
	1	R	
	2	R	
	3	R	
	4	R	
	5	R	
	6	R	
	7	R	
	8	R	
	9	R	
	10	R	
	11	R	
	12	R	
	13	R	
	14	R	
	15	R	
	16	R	
Carried forward to Final Summary		R	

Section No. 1
Preliminary & General
Summary

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

PART C2.3 BILL OF QUANTITIES

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 1				
	EARTHWORKS (PROVISIONAL)				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.104 for Haylett formula purposes				
	SUPPLEMENTARY PREAMBLES				
	User Note				
	The following are typical examples of descriptions of "nature of ground".				
	Carting away of excavated material				
	Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site.				
	Testing				
	Prices for filling are to include for all necessary density tests in accordance with SANS 1200.				
	Note: Under no circumstances will the contractor be paid for overblast of excavations. Quantities are measured and paid net and the contractor is to make allowance for this in his rate if deemed necessary.				
	Carried to Collection			R	

	EXCAVATION, FILLING, ETC.				
	Excavate in earth not exceeding 2 m deep:				
1	Trenches including thickening.	m3	77		
2	Pit latrine.	m3	307		
	Excavation in earth not exceeding 2 m deep below reduced level (reduced level not exceeding 2 m below ground level):				
3	Under floors.	m3	53		
4	Trenches.	m3	23		
	Back excavation of vertical sides of excavation in earth for working space including backfilling compacted to 98% Mod. AASHTO density:				
5	Not exceeding 0.50 m deep for placing and removing formwork to walls, etc., 200 mm away from excavated face.	m2	85		
6	Exceeding 0.50 m and not exceeding 1.50 m deep for placing and removing formwork to walls, etc., 200 mm away from excavated face.	m2	335		
7	Exceeding 1.50 m and not exceeding 3.00 m deep for placing and removing formwork to walls, etc., 200 mm away from excavated face.	m2	40		
	Extra over trench and hole excavations in earth for excavation in:				
8	Soft rock material.	m3	41		
9	Hard rock material.	m3	20		
	Extra over back excavation in earth for working space for excavation in soft rock material:				
10	Not exceeding 0.50 m deep for placing and removing formwork to walls, etc., 200 mm away from excavated face.	m2	8		
	Carried to Collection			R	

11	Exceeding 0.50 m and not exceeding 1.50 m deep for placing and removing formwork to walls, strip footing, etc., 200 mm away from excavated face.	m2	33		
12	Exceeding 1.50 m and not exceeding 3.00 m deep for placing and removing formwork to walls, strip footing, etc., 200mm away from excavated face.	m2	4		
	Extra over back excavation in earth for working space for excavation in hard rock material:				
13	Not exceeding 0.50 m deep for placing and removing formwork to walls, etc., 200 mm away from excavated face.	m2	4		
14	Exceeding 0.50 m and not exceeding 1.50 m deep for placing and removing formwork to walls, strip footing, etc., 200 mm away from excavated face.	m2	17		
15	Exceeding 1.50 m and not exceeding 3.00 m deep for placing and removing formwork to walls, strip footing, etc., 200 mm away from excavated face.	m2	2		
	Extra over all excavations for carting away:				
16	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	424		
	Risk of collapse of excavations:				
17	Sides of trenches and holes excavations not exceeding 1.50 m deep.	m2	275		
18	Sides of trenches and hole excavations exceeding 1.50 m deep.	m2	213		
	Keeping excavations free of water:				
19	Keep excavations free of water (other than subterranean water).		Item		
	Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 98% Mod AASHTO density:				
20	Backfilling to trenches, etc.	m3	33		
	Carried to Collection			R	

	Earth filling obtained from the excavations and/or prescribed stock piles on site stabilised with 8% cement per volume, compacted to 98% Mod AASHTO density:				
21	Backfilling to trenches, etc.	m3	106		
	G5 Earth filling supplied by the Contractor and brought to site and compacted to 98% Mod AASHTO density:				
22	Under floors, steps, pavings, etc.	m3	61		
	Compaction of surfaces:				
23	Compaction of ground surface under floors, etc., including scarifying for a depth of 150 mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density.	m2	263		
	SOIL POISONING				
	Apply Chlordane or Aldrin soil insecticides in strict accordance with manufacturer's instruction and SABS 1164-1165 respectively, mixed with water and applied at the rate of not less than 5 litres of solution per m² uniformly over the whole surface.				
24	Under floors, etc., including forming and poisoning shallow furrows against foundation walls, etc., filling in furrows and ramming.	m2	408		
	Carried to Collection			R	

Section No. 1

Bill No. 1

Earthworks (Provisional)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	47		
	48		
	49		
	50		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount

BILL NO. 2

CONCRETE, FORMWORK AND REINFORCEMENT

NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.

NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.110 for Haylett formula purposes.

SUPPLEMENTARY PREAMBLES

Cost of tests

All concrete is to be tested in accordance with SANS 2001-CC1 and shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the principal agent. The testing shall be undertaken by an independent firm or institution nominated by the contractor to the approval of the principal agent.

Formwork

Descriptions of formwork shall be deemed to include use and waste only (except where described as "left in" or "permanent"), for fitting together in the required forms, wedging, plumbing and fixing to true angles and surfaces as necessary to ensure easy release during stripping and for reconditioning as necessary before re-use

Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Carried to Collection R

	UNREINFORCED CONCRETE				
	15MPa/19mm concrete:				
1	Blinding.	m3	19		
2	Threshold.	m3	0.2		
	VIBRATED REINFORCED CONCRETE				
	25MPa/19mm concrete:				
3	Strip footings.	m3	40		
4	Pit surface bed.	m3	13		
5	Concrete aprons, channels, etc., cast in panels against excavated surfaces including thickening.	m3	13		
	30MPa/19mm Vibrated reinforced concrete:				
6	Ramp	m3	2		
7	Pit base slab.	m3	17		
8	Surface bed on waterproofing.	m3	28		
	TEST BLOCKS				
9	Allow for all necessary concrete test cubes size 150 x 150 x 150mm cast from batches of concrete set of three, made, stored, cured and tested in accordance with SANS 2001-CC1, including use of approved cube moulds, transporting to an approved testing laboratory for testing, paying all charges and submitting reports to the Structural Engineer.	Sets	60		
	CONCRETE SUNDRIES				
	Finishing top surfaces of concrete smooth with a wood float:				
10	Surface beds, slabs, etc.	m2	330		
	Carried to Collection			R	

11	Thresholds.	m2	2		
	FORMWORK				
	NOTE: Unless otherwise stated herein, all items in this section shall be deemed to fall into Work Group No. 111 for Haylett formula purposes.				
	ROUGH FORMWORK (DEGREE OF ACCURACY II)				
	Rough formwork to sides:				
12	Strip footings (Provisional).	m2	114		
13	Edge not exceeding 300 mm high.	m	367		
	SMOOTH FORMWORK (DEGREE OF ACCURACY I)				
	Smooth formwork to sides:				
14	Edges, risers, ends and reveals not exceeding 300mm high or wide.	m	98		
	PERMANENT FORMWORK				
	Rough formwork to soffits:				
15	Soffit of slab not exceeding 200mm thick propped exceeding 1.5m and not exceeding 3.5m.	m2	86		
	MOVEMENT JOINTS, ETC.				
	Saw cut joints:				
16	3mm Wide x 40mm deep saw cut joints in top of concrete.	m	47		
	Expansion joints:				
17	10mm Joints not exceeding 300mm high or wide	m	59		
18	20mm Closed cell polythylene joint filler (Jointex or other approved)	m	59		
	Carried to Collection			R	

19	6mm Closed cell polythylene joint filler (Jointex or other approved)	m	3		
	REINFORCEMENT (PROVISIONAL)				
	NOTE: Unless otherwise stated herein, all items in this section shall be deemed to fall into Work Group No. 114 for Haylett formula purposes.				
	High tensile and mild steel reinforcement to structural concrete work:				
20	Various diameter reinforcing bars.	t	6.570		
	Fabric reinforcement:				
21	Type 193 fabric reinforcement in surface beds, rib and block slabs, etc.	m2	103		
22	Type 617 fabric reinforcement in surface beds, rib and block slabs, etc.	m2	260		
	Carried to Collection			R	

Section No. 1

Bill No. 2

Concrete, Formwork and Reinforcement

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	52		
	53		
	54		
	55		
Carried Forward to Summary of Section No. 1		R	

Item No			Quantity	Rate	Amount
	BILL NO. 3				
	PRECAST CONCRETE				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No.112 for Haylett Formula purposes.				
	All precast/prestressed concrete shall be in accordance with SANS 2001-CC1.				
	PRECAST CONCRETE.				
	Precast concrete slab for toilet pedestal:				
1	470 x 600 x 150mm Thick reinforced slab including 250mm diameter opening.	No	27		
	Precast concrete slab for toilet cover slab:				
2	2130 x 375 x 100mm Thick concrete slab with 20 x 20mm chamfer around top edge, including ref 193 mesh, two 10mm diameter galvanised continuous threaded lifting bars with bolt and nut to end of bars and with 50 x 50 x 5mm thick galvanised plate with 12mm diameter hole drilled in the centre for 10mm handle bar to slide through and secured through the slab using 15mm pipe sleeve, including all necessary formwork.	No	2		
	Carried to Collection			R	

3	1750 x 375 x 100mm Thick concrete slab with 20 x 20mm chamfer around top edge, including ref 193 mesh, two 10mm diameter galvanised continuous threaded lifting bars with bolt and nut to end of bars and with 50 x 50 x 5mm thick galvanised plate with 12mm diameter hole drilled in the centre for 10mm handle bar to slide through and secured through the slab using 15mm pipe sleeve, including all necessary formwork.	No	2		
4	1115 x 375 x 100mm Thick concrete slab with 20 x 20mm chamfer around top edge, including ref 193 mesh, two 10mm diameter galvanised continuous threaded lifting bars with bolt and nut to end of bars and with 50 x 50 x 5mm thick galvanised plate with 12mm diameter hole drilled in the centre for 10mm handle bar to slide through and secured through the slab using 15mm pipe sleeve, including all necessary formwork.	No	27		
5	1100 x 375 x 100mm Thick concrete slab with 20 x 20mm chamfer around top edge, including ref 193 mesh, two 10mm diameter galvanised continuous threaded lifting bars with bolt and nut to end of bars and with 50 x 50 x 5mm thick galvanised plate with 12mm diameter hole drilled in the centre for 10mm handle bar to slide through and secured through the slab using 15mm pipe sleeve, including all necessary formwork.	No	12		
6	1045 x 375 x 100mm Thick concrete slab with 20 x 20mm chamfer around top edge, including ref 193 mesh, two 10mm diameter galvanised continuous threaded lifting bars with bolt and nut to end of bars and with 50 x 50 x 5mm thick galvanised plate with 12mm diameter hole drilled in the centre for 10mm handle bar to slide through and secured through the slab using 15mm pipe sleeve, including all necessary formwork.	No	8		
	Prefabricated pre-stressed concrete ribs:				
7	220 x 100mm Pre-stressed concrete rib in lengths not exceeding 5m.	m	10		
8	Ditto, but in lengths exceeding 5m and not exceeding 7,5m.	m	19		
	Carried to Collection			R	

Section No. 1

Bill No. 3

Precast Concrete

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	57		
	58		

Carried Forward to Summary of Section No. 1 R

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 4				
	MASONRY				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.116 for Haylett Formula purposes.				
	SUPPLEMENTARY PREAMBLES				
	Bagged and sealed walls				
	Walls in two skins described as "bagged and sealed" shall be deemed to include having the outer face of the inner skin bagged with 1:6 cement and sand mixture and sealed with two coats bitumen emulsion waterproofing coating.				
	Face bricks				
	Bricks shall be ordered timeously to obtain uniformity in size and colour.				
	Pointing				
	Descriptions of recessed pointing to fair face brickwork and face brickwork shall be deemed to include square recessed, hollow recessed, weathered pointing, etc.				
	All masonry shall be in accordance with SANS 2001-CM1.				
	Carried to Collection			R	

	FOUNDATIONS (PROVISIONAL)				
	Corobrik NFX bricks (14MPa nominal compressive strength) in class II mortar 1:3 cement and sand mortar:				
1	One-brick walls.	m2	280		
	SUPERSTRUCTURE				
	Corobrik NFP bricks (14MPa nominal compressive strength) in class II mortar including bagging in 1:3 cement and sand mixture mortar:				
2	One-brick walls.	m2	387		
3	Half-brick walls.	m2	235		
	BRICKWORK SUNDRIES				
	Bagging of 1:3 cement and sand mixture:				
4	On outer face of inner skin of brick wall to receive bitumen paint (elsewhere measured).	m2	417		
	Brickwork reinforcement:				
5	75 mm Wide reinforcement built in horizontally.	m	770		
6	150 mm Wide reinforcement built in horizontally.	m	2 061		
	Turning pieces:				
7	230 mm Wide turning piece to lintels, etc.	m	41		
	Air bricks:				
8	229 x 152 mm Air vermin proof air bricks built into facebrick wall.	No	12		
	Carried to Collection			R	

	FACE BRICKWORK				
	Corobrik® Firelight Satin FBX facebrick, bedded and jointed in Class II mortar and pointed with square recessed vertical and horizontal ruled joints:				
9	Extra over NFX brickwork for face brickwork in foundations (Provisional).	m2	39		
10	Extra over NFP brickwork for face brickwork in stretcher bond.	m2	385		
11	Half-brick wall faced on one side.	m2	27		
12	Labour and material in brick-on-edge cill 170mm wide sloping and slightly projecting on and including cement mortar bed and pointing on top and 110mm high face.	m	33		
13	Labour and material in brick-on-edge lintel course 115mm wide and 115mm high and pointing on face and 115mm wide projecting soffit.	m	69		
	FIBRE CEMENT WINDOW CILLS				
	'Everite Nutec' fibre cement cills or other approved complete with fixing lugs and self tapping screws:				
14	150 mm Wide x 12 mm thick internal cill (Product No. 031-509).	m	33		
	Carried to Collection			R	

Section No. 1

Bill No. 4

Masonry

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	60		
	61		
	62		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 5				
	WATERPROOFING				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 120 for Haylett formula purposes.				
	DAMP PROOFING OF WALLS AND FLOORS				
	One layer of 375 micron "Consol Plastic Brikgrip DPC" embossed damp proof course:				
1	In walls.	m2	38		
	Two layers of 375 micron "Consol Plastic Brikgrip DPC" embossed damp proof course:				
2	Under slab where slab sits on brickwork.	m	108		
	Two coats of "Brixeal" or other approved bitumen waterproofing compound:				
3	On outer face of inner skin of brick walls.	m2	371		
	One layer of 250 micron "Consol Plastics Gunplas USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure sensitive Tape":				
4	Under surface beds, walkways, etc.	m2	408		
	Carried to Collection			R	

	JOINT SEALANTS				
	Polysulphide sealant to manufacturer's specification (with suitable bond breaker chord):				
5	Seal joint with approved joint sealant with backing cord bond breaker strip.	m	47		
	Two part polyurethane sealant sealant to manufacturer's specification:				
6	20 x 15mm Approved joint sealant including rounding aris to 3mm radius.	m	59		
	Thioflex polyurethane 600 sealant sealant to manufacturer's specification:				
7	6 x 6mm Approved joint sealant.	m	3		
	Approved silicone pointing:				
8	Between steel door frames and walls.	m	179		
	Carried to Collection			R	

Section No. 1

Bill No. 5

Waterproofing

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	64		
	65		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 6				
	ROOF COVERINGS				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.124 for Haylett Formula purposes.				
	NOTE: All roof covering to be installed to manufacturers detail and applicable SANS codes. All roof sheeting shall be laid under a 5 year written guarantee for site workmanship and watertightness.				
	PROFILED METAL SHEETING AND ACCESSORIES				
	0,50 mm Chromadek or other approved ISQ550 Z200 galvanised metal IBR profile roof sheeting at 17.5 degrees fixed to intermediate timber purlins:				
1	Roof covering with pitch not exceeding 25 degrees fixed to timber purlins at maximum 1200 mm centres with a minimum of 50mm sheeting projection beyond purlins at eaves.	m2	235		
2	Extra over IBR metal roof covering for OPAL Glass fibre reinforced polyster (weight 2,4kg/m²) roof sheeting fixed with 65 mm galvanised Tek screws and newway seals in alternate sheets between galvanised metal sheet.	m2	94		
3	Sondor or other approved corrugated polycloser under ridge capping.	m	199		
4	Sondor or other approved corrugated polycloser at beamfilling.	m	68		
	Carried to Collection			R	

	0,50 mm Chromadek or other approved, Colomate finished galvanised metal ridge cap with ridge closer to manufacturer's specification:				
5	0.5 mm Galvanised metal ridge cap with ridge closer to Manufacturer's specifications.	m	50		
	ROOF AND WALL INSULATION				
	Sisalation® 420 Heavy industrial grade reinforced aluminium foil insulation double sided, heavy grammage reflective foil laminate incorporating eight layers of aluminium foil, reinforcing scrim, Kraft paper and polyethylene, tested for conformance with SANS 1381-4:2009 , with a Class 1 fire rating in accordance with SANS 10177 - 3:2005 and BS 476 part 5, 6 and 7, drawn tautly across rafters and secured to each rafter with 38mm x 3,2mm x 1100mm hardboard counter batten strips positioned flush with the bottom edge of the material thus leaving 150mm overlap exposed at the top for the next layer and 150mm overlap thereafter on each 1250mm width roll:				
6	Insulation laid taut over rafters and under purlins (at approximately 1250mm centres) including galvanised steel straining wires.	m2	235		
	Carried to Collection			R	

Section No. 1

Bill No. 6

Roof Coverings

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	67		
	68		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 7				
	CARPENTRY AND JOINERY				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No 126 for Haylett Formula purposes				
	SUPPLEMENTARY PREAMBLES				
	Roof Trusses:				
	The following is applicable in respect of plate nailed roof trusses:				
	Trusses are at maximum 1000mm centres. Roof covering is 0,50mm colomate galvanised metal IBR on timber purlins.				
	The dimensions in the descriptions of the trusses are nominal and actual measurements are to be obtained from the Architect and/or on site before design or fabrication commences.				
	Joinery:				
	Descriptions for the following joinery fittings, etc., shall be deemed to include all ironmongery, metalwork, paint finishes, laminated finishes, etc., and for assembling and installing complete.				
	Carried to Collection			R	

	ROOFS ETC				
	Sawn softwood:				
1	38 x 114 mm Wall plate.	m	100		
2	50 x 76 mm Gable trimmer batten.	m	67		
	Roof trusses:				
3	Roof construction to double pitched roof with gable ends with total girth 8.9m x 5.8m (measured on plan) with 600mm wide overhang on the eaves side and 400mm overhang on the gable side all in accordance to the Architects Specifications all including trusses, permanent bracing, gangboarding etc. (3M3F1D)	No	1		
4	Roof construction to double pitched roof with gable ends with total girth 7.34m x 5m (measured on plan) with 600mm wide overhang on the eaves side and 400mm overhang on the gable side all in accordance to the Architects Specifications all including trusses, permanent bracing, gangboarding etc. (6B)	No	1		
5	Roof construction to double pitched roof with gable ends with total girth 7m x 6m (measured on plan) with 600mm wide overhang on the eaves side and 400mm overhang on the gable side all in accordance to the Architects Specifications all including trusses, permanent bracing, gangboarding etc. (6G)	No	1		
6	Roof construction to double pitched roof with gable ends with total girth 10.3m x 6m (measured on plan) with 600mm wide overhang on the eaves side and 400mm overhang on the gable side all in accordance to the Architects Specifications all including trusses, permanent bracing, gangboarding etc. (12G)	No	2		
7	Roof construction to double pitched roof with gable ends with total girth 6.13m x 5m (measured on plan) with 600mm wide overhang on the eaves side and 400mm overhang on the gable side all in accordance to the Architects Specifications all including trusses, permanent bracing, gangboarding etc. (3R1T)	No	1		
	Roof sundries:				
8	Two coats of ABE Provonite to wrot timbers at eaves.	m2	11		
	Carried to Collection			R	

	EAVES, VERGES, ETC.				
	"Everite Nutec" medium density plain fibre-cement boards:				
9	12 x 225 mm Thick fascia (Product no. 041-202) with aluminium H-profile fascia joiners (Product no.685-195) including drilling for and fixing with hot dip galvanised drive screws and washers.	m	99		
10	80 x 200 mm Moulded socketless barge board (Everite 521-731) with aluminium H-profile barge joiners.	m	67		
	DOORS, ETC.				
	TDM hardwood BB door hung to steel frame:				
11	40 x 813 x 2032 mm High SA Pine sub frame with double top and bottom rails, tongue and groove boarding in V-Joint rail, 20 x 150 mm middle ledge, 20 x 225 mm bottom ledge and 20 x 110 mm braces.	No	9		
	Wrot Salinga door hung to timber stile:				
12	32mm Medium duty hardboard faced door size 813 x 1800mm high.	No	40		
	FRAMED, FRAMES, ETC.				
	Wrot Saligna:				
13	60 x 50mm Rebated and angle rounded frame bolted to wall with heads of bolts sunk and pelleted	m	195		
	Carried to Collection			R	

Section No. 1

Bill No. 7

Carpentry and Joinery

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	70		
	71		
	72		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 8				
	IRONMONGERY				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No 132 for Haylett Formula purposes.				
	SUPPLEMENTARY PREAMBLES				
	Finishes to ironmongery:				
	Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list:				
	CH - Chromium plated.				
	AS - Anodised silver.				
	SC - Satin chromium plated.				
	HINGES, BOLTS, ETC				
	"Union"				
1	100 x 75mm Medium duty brass butt hinge.	Pairs	40		
2	50 x 25mm LD polished barrel bolt or similar approved.	No	40		
	Carried to Collection			R	

	CATCHES, CABIN HOOKS, ETC.				
	Stainless steel:				
3	150mm Cabin hook solid chrome, Code 276SC10150BP.	No	8		
	LOCKS				
	"Dorma"				
4	D036S Europrofile cylinder sash lock ss.	No	9		
	"Union"				
5	47mm Padlock code: MG47	No	8		
	HANDLES				
	"Dorma"				
6	CB30 Lever handle on rectangular Euro cylinder back plate 61cm centres.	No	9		
	LETTERS, NAMEPLATES, ETC.				
	"7 YEAR" Green Vinyl on white 0,6mm thick Cromodeck sheeting. 4 x 4mm diameter holes must be provided by the signage manufacturer. Install to exterior walls according to the elevation, with minimum 50mm long brass screws with washers and standard 10mm wall plug, into brick walls.				
7	180 x 180mm Female Symbol	No	6		
8	180 x 180mm Disabled Symbol	No	1		
9	180 x 180mm Male Symbol	No	4		
	BATHROOM FITTINGS				
	"Franke"				
10	Stainless steel toilet roll holder plugged and screwed to wall with stainless steel screws Franke BS677.	No	27		
	Carried to Collection			R	

	"Buchel"				
11	B-2111 Surface mounted soap dispenser, vertical tank is santin-finish stainless steel.	No	18		
	Carried to Collection			R	

Section No. 1

Bill No. 8

Ironmongery

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	74		
	75		
	76		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 9				
	METALWORK				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.136 for Haylett formula purposes				
	SUPPLEMENTARY PREAMBLES				
	Descriptions:				
	Descriptions of bolts shall be deemed to include nuts and washers.				
	Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.				
	Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described.				
	Galvanising must comply to: SANS 121-ISO 1461 & SANS 32-EN 10240 and SANS 14713-ISO 14713 for Hot Dip galvanising on iron and steel articles.				
	Door frames:				
	Pressed steel door frames shall be supplied with one pair of 100mm galvanised steel loose pin hinges.				
	Galvanised steel windows:				
	Windows shall be provided with polished brass fittings.				
	Carried to Collection			R	

	Only window openings shall be fitted with horizontal 8mm square burglar bars at maximum 150mm centres. Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built-in.				
	GALVANISED WELDED GATES, ETC.				
	Galvanised mild steel gate and frame:				
1	850 x 2250mm Hot dip galvanized steel security gate to be made up with 20mm steel tubing and to be fixed to the wall with 2 x 8mm raw bolts per hinge to typical gate detail.	No	8		
	GALVANISED PRESSED STEEL DOOR FRAMES				
	1,2 mm Rebated frames suitable for one-brick walls:				
2	Frame for door 813 x 2032 mm high.	No	9		
	GALVANISED STEEL WINDOWS				
	Galvanised steel windows with 8 mm burglar bars to opening sashes:				
3	Window type 4-BH (W01), 889 x 457 mm high including approved standard brass fittings complete with window.	No	13		
4	Window type NE1 (W02), 533 x 654 mm high including approved standard brass fittings complete with window.	No	40		
	Carried to Collection			R	

Section No. 1

Bill No. 9

Metalwork

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	78		
	79		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 10				
	PLASTERING				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No 142 for Haylett formula purposes.				
	SUPPLEMENTARY PREAMBLES				
	Testing of sand/cement screeds:				
	Testing to be done by an accredited independent testing specialist, or by the provision of independently certified test date to demonstrate compliance with the Specification as set out below.				
	Testing to include both light tap and heavy weight impact using a 4kg mass in compliance with the BRE screed tester requirements.				
	Maximum indentation not to exceed 3mm.				
	Alternative substrate testing methods may be put forward for consideration and acceptance by the Principal Agent.				
	All test results to be provided in Microsoft Excel format with unique numbers and the positions of tests referenced and indicated on a floor plan (floor plan to be provided by Principal Agent.).				
	In all instances of results failing to comply as determined by the Principal Agent, additional tests to prove final compliance will be for the account of the contractor.				
	Carried to Collection			R	

	EPOXY				
	2-Part Epoxy primer Sikafloor 161 with grey colour 2-Part Epoxy roller and seal coat. Sikafloor 264 over as per manufacturer's specification.				
1	On floors and landings.	m2	208		
2	Skirtings 60mm high.	m	148		
	SCREEDS				
	Cement and sand (3:1) steel trowelled on concrete:				
3	25mm Thick on floors and landing.	m2	208		
4	25mm Thick on thresholds.	m2	1		
	INTERNAL PLASTER				
	Cement plaster on brickwork:				
5	On walls.	m2	887		
6	On narrow widths.	m2	16		
	15mm Thick impermeable plaster mixed with silacite sealing agent on brickwork:				
7	On pit latrine walls.	m2	227		
8	Plastic air-vent.	No	12		
	Carried to Collection			R	

Section No. 1

Bill No. 10

Plastering

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	81		
	82		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 11				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.148 for Haylett formula purposes.				
	PLUMBING				
	RAINWATER GOODS				
	"Marley Streamline" uPVC:				
1	110 mm Half-round PVC gutters fixed by brackets laid to falls, fixed to fibre cement fascia (elsewhere measured).	m	99		
2	Extra over 110 mm half-round for stopped ends.	No	24		
3	Extra over 110 mm half-round gutters for outlet to suit 75 mm diameter pipe.	No	12		
4	75 mm Diameter PVC pipe laid to fall into water tank as per Architect's drawing.	m	158		
5	Extra over 75 mm diameter for offset bends.	No	24		
6	Extra over 75 mm diameter downpipe for shoe.	No	25		
	Carried to Collection			R	

	SANITARY FITTINGS				
	"Atlas Plastics"				
7	Pit VIP 200 pedestal c/w flap and incorporated seet Code 222 AP.	No	27		
8	Bambi VIP long-drop Pan c/w flap (a long-drop tolet designated specially for chidren) Code 627AP.	No	3		
9	Bowl urinal c/w brackets Code 507AP.	No	5		
10	Christy wash hand basin with splashback Code 383AP or other equal and approved polyethylene wash hand basin size 570 X 395mm, colour granite. Fixed to wall on cast iron brackets. Installation heights - 500mm off finished floor for grade "R" and 820mm for primary and secondary.	No	18		
	"Vaal"				
11	Vaal Aquasave vitreous china low level suite (750151) pan, 6 litre SISO cistern and flushpipe with double flab seat.	No	12		
12	Vaal Springbok 7031 ceramic fireclay basin with two tapholes, chainstay and anti-theft plug, fitted on two cast iron brackets 8118Z0 and silicone seal between basin and tile.	No	6		
	TRAPS, ETC.				
	"Atlas Plastics"				
13	Waterless urinal fitting and waste Code 496AP.	No	5		
	"Marley"				
14	50mm PVC traps as "Marley ETPA10".	No	18		
	"Cobra Watertech"				
15	32mm Basin waste union including plug and chain as Cobra Watertech 303.	No	24		
16	32 x 40mm Chromium plated bottle trap as Cobra Watertech 340 with 342 tail pipes, cap nut, wall flange and joints to fittings.	No	6		
	Carried to Collection			R	

	TAPS, VALVES, ETC.				
	"Cobra Watertech"				
17	15mm Pillar taps (111-15) fitted with restiction washer, one taphole stopper.	No	24		
18	15mm Brass fullway wheelhead gate valve as Cobra 1003/125.	No	18		
19	15mm Fullway ballcock (1075-15).	No	18		
	VENT PIPES, ETC				
	Black PVC UV stabilized vent pipes manufactured by SWAN plastics or other approved:				
20	110mm Vent pipe, including 110mm DPI plastics PVC holderbats or other approved screwed to walls.	m	151		
	Extra over black PVC UV stabilized vent pipe for fittings:				
21	110mm Sockets for 110mm PVC vent valve, to be cut off and used to fix 55% black shade cloth over vent pipe (elsewhere measured).	No	42		
22	55% Black shade cloth to top of vent pipe (elsewhere measured).	No	42		
23	110mm DPI plastic PVC single socket, to be cast into slab for 110mm vent pipe (elsewhere measured).	No	42		
24	130mm Long 110mm pipe, to be PVC welded to socket to form hole through slab.	No	42		
	Sundries:				
25	Provide all necessary apparatus, water, etc., for and test the whole of the Sanitary Plumbing to the satisfaction of the Architect and Local Authority and replace any defective work free of charge and leave perfect.		Item		
	Carried to Collection			R	

SANITARY PLUMBING

NOTE: Unless otherwise stated herein, all items in this section shall be deemed to fall into Work Group No. 146 for Haylett formula purposes.

Rigid unplasticized PVC soil and vent pipes and fittings:

26	50mm Pipe fixed to walls, ceilings, roofs, floors, slabs etc., laid in filling or in and including chase in brickwork or concrete.	m	12		
27	50mm Pipe	m	215		
28	110mm Pipe fixed to walls, ceilings, roofs, floors, slabs etc., laid in filling or in and including chase in brickwork or concrete.	m	18		
	Extra over uPVC pipes for:				
29	50mm Bend.	No	64		
30	110mm Bend.	No	24		
31	50mm Junction.	No	29		
32	110mm Junction.	No	12		
33	50mm Inspection bend.	No	29		
34	110mm Inspection bend.	No	12		
35	50mm Inspection junction.	No	16		
36	110mm Inspection junction.	No	12		
37	110mm Inspection reducing junction.	No	12		
38	110mm Vent valve.	No	12		
39	110mm Pan connector.	No	12		

Carried to Collection R

	WATER SUPPLIES				
	Copper piping to SABS 460 Class 2 hard drawn with gunmetal or capillary fittings:				
40	15mm Pipe fixed to walls, ceilings, roofs, floors, slabs etc. laid in filling or in and including chase in brickwork or concrete.	m	63		
41	22mm Pipe fixed to walls, ceilings, roofs, floors, slabs etc. laid in filling or in and including chase in brickwork or concrete.	m	108		
42	Extra over copper pipe for 15mm fittings.	No	120		
43	Extra over copper pipe for 22mm fittings.	No	120		
	TANKS, ETC.				
	Polyethylene water tanks to ablutions:				
44	2500 litre Low profile JoJo water tank, or other approved, with 75mm diameter inlet at top for downpipe from gutter to be inserted and 50mm overflow outlet and 25mm outlet at base of tank including access hatch on top fitted with vermin-proof vent, and including 4mm galvanised wire looped double to top of tank and anchored to top of slab as per detail with Y10 rod bending code 83 cast into slab at all four corners, including 15mm standard garden hose to isolate wire and prevent damage to tank or other approved holding down material secured around tank and to concrete pedestal.	No	6		
45	3mm Thick galvanised plate with and including 23mm hole to be bolted onto edge of concrete slab with 2 x 8mm raw bolts.	No	6		
46	20mm Cobra 541 or other approved tank locking tap fitted to a 22mm extension pipe with barrel nipple and galvanised socket.	No	6		
	PEDESTAL				
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No. 104 for Calculation of Contract Price Adjustments on the Haylett Formula.				
	Excavation in earth not exceeding 2m deep:				
47	Holes.	m3	22		
	Carried to Collection			R	

	Excavation in earth not exceeding 2m deep from the reduced level:				
48	Trenches.	m3	1		
	Extra over excavation in earth for excavation in:				
49	Soft rock material.	m3	3		
50	Hard rock material.	m3	1		
	Extra over all excavations for carting away:				
51	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	28		
	Risk of collapse of excavation:				
52	Sides of trench and hole excavations not exceeding 1,5m deep.	m2	74		
	Keeping excavation free of water:				
53	Keeping excavation free from mud, water and all other than from subterranean sources.		Item		
	Earth filling supplied by the Contractor and brought to site and compacted to 98% Mod AASHTO density:				
54	G6 material under floors.	m3	22		
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No. 110 for Calculation of Contract Price Adjustments on the Haylett Formula.				
	20MPa/19mm Vibrated reinforced concrete:				
55	Raft foundation including beams.	m3	13		
	25MPa/19mm Vibrated concrete:				
56	Surface bed.	m3	7		
	Carried to Collection			R	

	20Mpa/19mm Vibrated reinforced concrete stormwater channels laid in not exceeding 2080mm long panels to falls and finished smooth to non-slip finish Class U2 wood float finish on all exposed faces, including all ground preparations, formwork, type 193 fabric reinforcement and construction joints sealed with polysuphide sealing compound:				
57	600mm Wide x 130mm thick extreme (80mm average thick V-stormwater channel).	m	80		
58	Extra over 600mm wide V- drain for 900 x 600mm wide channel for corner junction.	No	6		
59	Extra over 600mm wide V- drain for 600 x 600mm wide channel for junction.	No	6		
60	Extra over 600mm wide V- drain for 600mm wide channel for corner junction.	No	18		
	Test blocks:				
61	Allow for all necessary concrete test cubes size 150 x 150 x 150mm cast from batches of concrete set of three, made, stored, cured and tested in accordance with SANS 2001-CC1, including use of approved cube moulds, transporting to an approved testing laboratory for testing, paying all charges and submitting reports to the Structural Engineer.	Sets	12		
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No. 111 for Calculation of Contract Price Adjustments on the Haylett Formula.				
	Unformed finishes Class U2 - wood float finish:				
62	On surface beds.	m2	37		
	Formwork Class F1 - ordinary finish:				
63	Edges, risers, ends and reveals not exceeding 300mm high or wide.	m	59		
	Carried to Collection			R	

	Isolation joints with 13mm bitumen impregnated softboard between vertical concrete surfaces and brickwork:				
64	13mm Joints not exceeding 300mm high.	m	59		
	"Thioflex 600" polysulphide sealing compound including backing strip, bond breaker, primer, etc.:				
65	13 x 13mm Isolation joints between floors and brickwork including raking out joint filler as necessary.	m	59		
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No. 114 for Calculation of Contract Price Adjustments on the Haylett Formula.				
	Galvanised Bars:				
66	10mm Diameter galvanised bars high tensile steel U shaped bent approximately 920mm girth and cast into concrete slab.	t	0.024		
	Fabric Reinforcement				
67	Type 193 fabric reinforcement in surface beds, rib and block slabs, etc.	m2	37		
68	Type 395 fabric reinforcement in surface beds, rib and block slabs, etc.	m2	37		
	NOTE: Unless otherwise stated herein, all items in this Bill shall be deemed to fall into Work Group No. 116 for Calculation of Contract Price Adjustments on the Haylett Formula.				
	Brickwork of NFX bricks (14 MPa nominal compressive strength) in class II mortar:				
69	One brick walls including wire ties (7 per square metre - laid staggered).	m2	21		
	Brickwork of NFP bricks (14 MPa nominal compressive strength) in class II mortar:				
70	One brick walls including wire ties (7 per square metre - laid staggered).	m2	26		
	Carried to Collection			R	

	Corobrik® (Lawley-Gauteng) 20-30 MPa Montana Traventine FSB clay facebrick, bedded and jointed in Class II mortar and pointed with flush vertical and flush horizontal joints and perpends, suitable for exposure zones 1-2:				
71	Extra over NFX brickwork for face brickwork in foundations (provisional).	m2	5		
72	Extra over NFP brickwork for face brickwork.	m2	26		
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 142 for Haylett formula purposes.				
	Cement mortar:				
73	All round supporting water tank.	m3	3		
	Carried to Collection			R	

Section No. 1

Bill No. 11

Plumbing and Drainage (Provisional)

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	84		
	85		
	86		
	87		
	88		
	89		
	90		
	91		
	92		
Carried Forward to Summary of Section No. 1		R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 12				
	GLAZING				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.150 for Haylett formula purposes				
	GLAZING				
	Glazing to steel fixed with putty:				
1	4mm Sandblasted glass in panes not exceeding 0,5m².	m2	20		
	MIRRORS				
	6mm Silver backed mirror (polished edges) fixed with 4 off dome capped mirror screws:				
2	300 x 600mm high.	No	25		
	Carried Forward to Summary of Section No. 1			R	

Item No		Unit	Quantity	Rate	Amount
	BILL NO. 13				
	PAINTWORK				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No 152 for Haylett formula purposes.				
	SUPPLEMENTARY PREAMBLES				
	Proprietary items or materials:				
	Proprietary items or materials where specified are to be of the brand specified - or other approved - by the Head: Public Works.				
	PAINTWORK, ETC., TO NEW WORK				
	ON PLASTER				
	Prepare, prime with one coat Dulux Trade alkali-resistant primer, one coat Dulux trade universal undercoat and two finishing coats of dulux pearglo weatherguard paint:				
1	On internal walls.	m2	902		
	ON METAL				
	Prepare and apply two coats of bituminous emulsion:				
2	On backs of steel door frames.	m2	10		
	Carried to Collection			R	

	Prepare and apply one coat calcium plumbate primer, one coat undercoat and two coats alkyd enamel paint:				
3	On window frames.	m2	39		
	ON WOOD				
	Prepare and apply pink wood primer:				
4	On backs of frames, linings, etc. not exceeding 300mm wide.	m	195		
	Prepare, one coat primer, one undercoat and two coats of gloss enamel:				
5	On doors.	m2	172		
6	On rails, skirtings, etc., not exceeding 150mm girth.	m	195		
	ON FIBRE CEMENT				
	Prepare, prime with alkali-resistant primer and two finishing coats of acrylic emulsion paint:				
7	Fibre-cement fascia and barge boards.	m2	44		
8	Fibre-cement sills not exceeding 300 mm width.	m	33		
	Carried to Collection			R	

Section No. 1

Bill No. 13

Paintwork

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	95		
	96		
Carried Forward to Summary of Section No. 1		R	

Item No			Quantity	Rate	Amount
	BILL NO. 14				
	EXTERNAL WORKS				
	NOTE: The Bills of Quantities document forms part of and must be read and priced in conjunction with all the other documents forming part of the contract document, the Standard Conditions of Tender, Conditions of Contract, Model Preambles for Trade 2008, Specifications, Drawings and all other relevant documentation.				
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.146 for Haylett formula purposes				
	DEMOLITIONS, ETC.				
	Demolishing and removing:				
1	Single storey ablution block with flat roof and 32 m² on plan and 2510 mm extreme high at eave comprising concrete surface bed, one-brick external walls, half-brick internal walls and corrugated iron roof coverings on timber rafters.	No	1		
	The following in existing septic tank, pit latrines, etc:				
2	Remove sludge, dispose to a dumping area to be located by the specialist Contractor for the Truck capacity of 3000 - 7000 Litre	TRIP	1		
	SITE CLEARANCE, ETC.				
	Site clearance:				
3	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc.	m2	656		
	Carried to Collection			R	

	BULK EARTHWORKS, FILLING, ETC.				
	Open face excavation in earth over sloping site not exceeding 2m deep:				
4	Excavate to reduce levels (Cut).	m3	71		
	Extra over bulk excavation in earth for excavation in				
5	Extra for excavation in soft material.	m3	7		
6	Extra for excavation in hard material.	m3	4		
	Imported earth filling type G7 supplied by the Contractor compacted in maximum 200mm thick layers to 93% Mod. AASHTO density, over site to form platforms and berms				
7	Imported earth filling type G7 supplied and carted onto site by the Contractor, spread, levelled, watered, consolidated and compacted to 95% Mod AASHTO dry density, over site to form platforms and berms	m3	84		
	Extra over all excavations for carting away:				
8	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	71		
	STORMWATER CHANNELS				
	The following is in respect to each respective Ablution Blocks concrete apron and channels:				
9	Excavate in earth not exceeding 2m deep.	m3	26		
10	Extra over excavation for excavating in soft rock material.	m3	4		
11	Extra over all excavations for surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	26		
12	Earth filling supplied by the Contractor, 150mm G5 material compacted to 98% Mod AASHTO denisty.	m3	17		
13	Soil insecticide to bottoms and sides of earth channel.	m2	128		
	Carried to Collection			R	

14	Type 193 fabric reinforcement in surface beds, pavings, etc.	m2	111		
15	Concrete Class 25MPa/19mm in earth channel.	m3	9		
16	3mm Wide x 20mm deep saw cut joints in top of concrete.	m	37		
17	Polysulphide sealant to manufacturer's specification (with suitable bond breaker chord).	m	37		
18	Unformed finishes Class U2 wood float finish to concrete channel.	m2	111		
19	Formed finish Class II rough formwork to edges not exceeding 300mm high.	m	444		
	25Mpa/19mm Vibrated reinforced concrete V-drain channel laid in not exceeding 2000 mm long alternative panels with expansion joints at 10 m intervals (every 5th panel) to falls and finished smooth to non-slip finish Class U2 wood float finish on all exposed faces, including construction joints sealed with polysuphide sealing compound:				
20	Excavate in earth not exceeding 2m deep.	m3	12		
21	Extra over excavation for excavating in soft rock material.	m3	1		
22	Extra over all excavations for surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	12		
23	10MPa/19mm Concrete blinding.	m3	4		
24	25MPa/19mm vibrated concrete in V-drains.	m3	8		
25	Compaction of ground surface under floors, etc., including scarifying for a depth of 150 mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density.	m2	80		
26	Ref. 193 fabric reinforcement in surface beds, pavings, V-drain, etc.	m2	80		
27	Unformed finishes Class U2 wood float finish to concrete channel.	m2	80		
	Carried to Collection			R	

28	Rough formwork (degree of accuracy II) to sides and edges not exceeding 300 mm high.	m	154		
29	Extra over 1000 mm wide V-drain channel for bend.	No	2		
30	Extra over 1000 mm wide V-drain channel for dressing at to meeting Reno Mattress (elsewhere).	No	1		
31	Extra over 1000 mm wide V-drain for crossing path, constructed with 1360 x 1000 x 50 mm thick medium duty galvanised grid, grid to be set in position with R 8 stirrup hooks and concrete poured over, including 100 mm thick polywood expansion joint on both sides.	No	1		
32	Allow for all necessary concrete test cubes size 150 x 150 x 150 mm cast from batches of concrete set of three, made, stored, cured and tested in accordance with SANS 2001-CC1, including use of approved cube moulds, transporting to an approved testing laboratory for testing, paying all charges and submitting reports to the Structural Engineer.	Sets	3		
	RENO MATTRESS				
	The following in 1 No. of 2000 x 1000 x 300 mm Deep Reno Mattress for energy Dissipation:				
33	Excavation not exceeding 2 m deep.	m3	1		
34	Extra over excavation for carting away the surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	1		
35	2000 x 1000 x 300 mm Deep reno mattress for energy dissipation (stormwater scour protection).	m3	1		
36	Allow for risk of collapse to sides of trench excavations not exceeding 1,5m deep.	m2	2		
37	Compaction of ground surface under floors, etc., including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 93% Mod AASHTO density.	m2	2		
38	Grade 3 Geotextile or similar approved to be laid below and along the sides of the reno mattress.	m2	4		
	Carried to Collection			R	

	WATER RETICULATION				
39	Excavation not exceeding 1m deep for drain trenches.	m3	33		
40	Backfilling to drain trenches compacted to 95% Mod. AASHTO density.	m3	33		
	PN12.5 HDPE Pressure pipe SABS 4427 PE100:				
41	50 mm Diameter pipe in trenches (trenches elsewhere measured).	m	50		
	Extra over PN12.5 HDPE Pressure pipe for fittings:				
42	50 mm Bend.	No	4		
43	50 mm Junction.	No	2		
44	50 mm End cap.	No	2		
	Sundries:				
45	Extra over excavation in earth for pipe trenches, chambers, etc. for excavation in soft rock material.	m3	3		
46	Extra over excavation in earth for pipe trenches, chambers, etc., for excavation in hard rock material.	m3	2		
	Thrust Blocks:				
47	25 MPa/19 mm Unreinforced concrete in thrust blocks cast against sides excavations, including all excavations, formworks, etc.	m3	0.1		
	Testing:				
48	Provide all necessary apparatus, water, etc., for and test the whole of plumbing installation as required to the satisfaction of the Employer and the Local Authority, and replace any defective work free of charge and leave perfect.		Item		
	Carried to Collection			R	

CONCRETE WALKWAYS

NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 104 for Haylett formula purposes.

Excavation in earth not exceeding 2m deep:

49	To reduce levels.	m3	51		
50	Trenches from the reduced level.	m3	6		

Extra over trench and hole excavations in earth for excavation in:

51	Soft rock material.	m3	6		
52	Hard rock material.	m3	3		

Extra over all excavations for carting away:

53	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the Contractor.	m3	55		

Risk of collapse of excavations:

54	Sides of trench excavations not exceeding 1,5m deep.	m2	94		

Earth filling obtained from the excavations and/or prescribed stock piles on site compacted to 98% Mod AASHTO density:

55	Backfilling to trenches, etc.	m3	2		

Filling supplied by the contractor under concrete walkways, etc.:

56	Earth filling (G7) quality material supplied by the Contractor and brought to site and compacted to 93% Mod AASHTO density material under floors.	m3	24		

Carried to Collection R

	Compaction of surfaces:				
57	Compaction of ground surface under floors, etc., including scarifying for a depth of 150mm, breaking down oversize material, adding suitable material where necessary and compacting to 90% Mod AASHTO density.	m2	169		
	Apply Chlordane or Aldrin soil insecticides in strict accordance with manufacturer's instruction and SABS 1164-1165 respectively, mixed with water and applied at the rate of not less than 5 litres of solution per m² uniformly over the whole surface.				
58	Soil insecticide under floors, etc., including forming and poisoning shallow furrows against foundation walls, etc., filling in furrows and ramming.	m2	169		
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No.110 for Haylett formula purposes.				
	10MPa/19mm Mass concrete:				
59	Concrete blinding.	m3	9		
	25MPa/19mm Vibrated reinforced concrete:				
60	Vibrated reinforced 25MPa/19mm stone concrete surface beds cast in panels.	m3	14		
61	Edge thickening.	m3	8		
	Test blocks:				
62	Allow for all necessary concrete test cubes size 150 x 150 x 150mm cast from batches of concrete set of three, made, stored, cured and tested in accordance with SANS 2001-CC1, including use of approved cube moulds, transporting to an approved testing laboratory for testing, paying all charges and submitting reports to the Structural Engineer.	Sets	3		
	Unformed finish:				
63	Finishing top surfaces of concrete smooth with a wood float float to walkways.	m2	141		
	Carried to Collection			R	

	NOTE: Unless otherwise stated herein, all items in this section shall be deemed to fall into Work Group No. 111 for Haylett formula purposes.				
	Rough formwork to sides (Degree of Accuracy Class II):				
64	Rough formwork to sides of edges, risers, ends and reveals not exceeding 300 mm high or wide.	m	188		
	Saw cut joints:				
65	6 mm Wide x 40 mm deep saw cut joints in top of concrete.	m	72		
	Expansion joints:				
66	10 mm Bitumen impregnated softboard between horizontal concrete surface not exceeding 300 mm high.	m	12		
	NOTE: Unless otherwise stated herein, all items in this section shall be deemed to fall into Work Group No. 114 for Haylett formula purposes.				
	Fabric reinforcement:				
67	Type 193 fabric reinforcement in surface beds, etc.	m2	169		
	NOTE: Unless otherwise stated herein, all items in this bill shall be deemed to fall into Work Group No. 120 for Haylett formula purposes.				
	Approved UV Resistant polysulphide sealant				
68	10 x 10 mm In Expansion joints, top 10 mm of softboard to be raked out and filled with approved UV resistant polysulphide sealant.	m	12		
69	6 x 40 mm In saw cut joint.	m	72		
	FENCING AND GATES				
	The following in galvanised steel security fencing 1.50m high:				
70	Level and prepare surface of ground along line of fence by excavating or filling as necessary.	m	60		
	Carried to Collection			R	

71	50 x 50 x 2.5mm Galvanised "weldmesh" 1,5m high fixed to post with 2.5mm galvanised binding wire, mechanically strain between straining posts and/or gate and corner posts.	m	60		
72	50mm Diameter x 2.8mm galvanised steel intermediate post, set vertical with bottom 750mm of post set below ground in 300 x 300 x 700mm deep mass insitu concrete 15MPa base including excavation, backfill, cart away, ramming and compacting, soil poison, etc., (Post set a 3m intervals along fence line).	No	20		
73	50mm Diameter x 2.8mm galvanised steel stay pole bolted to straining posts (elsewhere measured) with 200 x 200 x 6mm base plate cast in 450 x 760 x 600mm 15MPa concrete base, including excavation, backfill, cart away, ramming and compacting, soil poison, etc.	No	12		
74	100mm Diameter x 3mm galvanised steel straining posts with 300 x 300 x 6mm base plate cast including 450 x 450 x 700mm 15MPa concrete base including bolts, excavation, backfill, cart away, ramming and compacting, soil poison, etc.	No	2		
75	100mm Diameter x 3mm galvanised steel corner posts with 300 x 300 x 6mm base plate cast including 450 x 450 x 700mm 15MPa concrete base including bolts, excavation, backfill, cart away, ramming and compacting, soil poison, etc.	No	4		
	Galvanised Gates:				
76	Standard 1.5 x 1.35m wide galvanised steel single pedestrian gate complete with hinges and bolts to each, barrel bolt to take padlock (elsewhere measured), as well as vertical extension 600mm long and 4 tying holes for barbed at both sides of gate fixed to posts (elsewhere measured).	No	1		
	Padlocks:				
77	63mm Brass five pin tumbler padlock with two keys.	No	1		
78	Locking chain 600mm long with 50mm links.	No	1		
	Carried to Collection			R	

Section No. 1

Bill No. 14

External Works

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	98		
	99		
	100		
	101		
	102		
	103		
	104		
	105		
	106		
Carried Forward to Summary of Section No. 1		R	

Item No			Quantity	Rate	Amount
	BILL NO. 17				
	ELECTRICAL INSTALLATION				
1	LV Cable Supply and Install 2c x 4mm2 CU 0,6/1kV PVC/ECC/PVC Cable (SANS1507) run in trench or Ceiling void, Including all LV glands, lugs and terminations	m	105		
2	LV Cable Supply and Install 1c x 2.5mm2 CU 0,6/1kV Insulated House Wire (red/black/green) (SANS 1507-2) run in conduit	m	425		
3	Trenching soft sand, cable bedding and sifted compacted backfill to 98% MOD ASTM, with cable marker tape 400mm (w)x 650mm (d) in accordance with detail	m	72		
4	Supply and Install 50mm Flexible Corrugated HDPE double walled Cable Conduit (SANS 61386-24) incl, adaptors, endcaps, bends, tees, draw wire and all other reltated accessories	m	72		
5	Supply and Install 20mm PVC Conduit fixed into Brick or Dry Wall or Cast into Concrete incl fixings, adaptors, unions, endcaps, bends, tees, draw wire and all other reltated accessories	m	142		
6	Supply and Install 20mm Galvanized Bosal Conduit fixed into Brick or Dry Wall or Cast into Concrete incl fixings, adaptors and unions and draw wire	m	15		
7	Supply Luminaire Type E as per Luminaire Schedule	No	21		
8	Install Luminaire Type E as per Luminaire Schedule including trailing cable, all accessories, fixings, labeling, commissioning and performance testing	No	21		
9	Supply Luminaire Type G as per Luminaire Schedule	No	10		
10	Install Luminaire Type G as per Luminaire Schedule including trailing cable, all accessories, fixings, labeling, commissioning and performance testing	No	10		
	Carried to Collection			R	

11	Supply and Install Photo cell IP 65 rated with adjustable lux level Plastic UV restistant housing	No	4		
12	Supply and Install PVC Wall box (4x4)100mm x 100mm Box incl cover platesurface mounted wall	No	5		
13	Supply and Install 1L (1/2W) Switch (SANS60669-1) in Galv. 100mm x 50mm Box Recessed Wall Mounted	No	7		
14	Supply and install 1 x new CBI 10A - C2, QF-1(13), 6kA CB - Feeding light circuits in ablution "BLOCK 8G, 3M3F1D, 8B & 4R1T"	No	1		
	Commissioning, As Builts, QA, Training, OEM Manuals etc				
15	Compliance Certificate LV Distribution Board Installation in accordance with SANS 10142-1 - secondary distribution D/B 0-12 Feeder Circuits		Item		
16	Commissioning of Entire Installation in accordance with Requirments as specified		Item		
17	Markup of As Built Documentation for Handover to Engineer in accordance with Requirments as specified		Item		
	Carried to Collection			R	

Section No. 1

Bill No. 15

Electrical Installation

COLLECTION

	Page No		Amount
Total Brought Forward from Page No.	108		
	109		
Carried Forward to Summary of Section No. 1		R	

SECTION SUMMARY - Sinenhlanhla Primary School

Bill No		Page No	Amount
1	Earthworks (Provisional)	51	
2	Concrete, Formwork and Reinforcement	56	
3	Precast Concrete	59	
4	Masonry	63	
5	Waterproofing	66	
6	Roof Coverings	69	
7	Carpentry and Joinery	73	
8	Ironmongery	77	
9	Metalwork	80	
10	Plastering	83	
11	Plumbing and Drainage (Provisional)	93	
12	Glazing	94	
13	Paintwork	97	
14	External Works	107	
15	Electrical Installation	110	
	Carried to Final Summary		R

Sinenhlanhla Primary School
WATER AND SANITATION PROGRAMME FOR SCHOOLS
60608216 - PRINCIPAL BUILDING AGREEMENT

FINAL SUMMARY

Section No		Page No		Amount
1	Sinenhlanhla Primary School	111		
	Sub-Total		R	
	Total Carried to Cluster Final Summary		R	

WATER AND SANITATION PROGRAMME FOR SCHOOLS
60608216 - PRINCIPAL BUILDING AGREEMENT

Mar 23

Cluster No. UTH-09
Wims No. 064234

CLUSTER FINAL SUMMARY

Section No		Page No	Amount
1	Sinenhlanhla Primary School- Preliminaries	44	
2	Sinenhlanhla Primary School- Builders Work	112	
3	Sinenhlanhla Primary School- Health and Safety	TO BE INCLUDED IN PRELIMINARIES	
	Sub-Total		
	Add: Value Added Tax (15%)		
	Total Carried to Form of Offer and Acceptance T2.21		

WATER AND SANITATION PROGRAMME FOR SCHOOLS

60491906 - PRINCIPAL BUILDING AGREEMENT

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

PART C3. SCOPE OF WORKS

C3.1 SCOPE OF WORKS
GCC FOR CONSTRUCTION WORKS (Edition 2 of 2010)

Scope of Works complied in accordance with SANS 10403 where reference is made to this part of SANS 1921-1:2004

Project title:	**DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**		
Tender no:	**ZNTL03559W**	**Project Code:**	**064234**

SECTION 1

1 EXTENT OF THE WORKS

1.1 EMPLOYERS OBJECTIVES

This project is part of the Department of Public Works (DoPW) Schools Water and Sanitation Programmes. The Employer's Objectives are to provide healthy, hygienic and appropriate ablution facilities at schools in the KwaZulu-Natal province.
The objective of this project is construct new ablution facilities at Sinenhlahla P

1.2 OVERVIEW OF THE WORKS

This project involves the construction of four new ablution facilities comprising 18 seats, 5 urinals and 11 wash hand basin at Sinenhlahla P.

1.3 EXTENT OF THE WORKS

The project will consist of the following major components:
•Cut and fill operations to form new building platforms with a total volume of 70.5 m3
•Preparation of new building platform/s with a total footprint of 656m2
•Excavations for pits.
•Construction of five pits
•Shallow foundations
•Construction of four new ablution facilities with a total footprint of 562 m2
o3M3F1D facility comprising 5 seats, 2 urinals and 3 wash hand basin
o6G facility comprising 6 seats and 4 wash hand basin
o6B facility comprising 3 seats, 3 urinals and 2 wash hand basin
o3R1T facility comprising 4 seats and 4 wash hand basin
•Construction of 50 metres of new water reticulation
•Construction of stormwater control measures such as berms and open drains
•Construction of 94 metres of walkways and ramps
•Installation of 50 metres of fencing and 1 number of gates for the Grade R ablutions
The works will also include:
•Installation of all fixtures including toilets, urinals, hand basins and fittings associated with the works for the new ablution facilities as highlighted above
•Reinstatement of paved areas removed or damaged during construction
•Demolition of old ablution facilities
•Filling old pits/septic tanks after demolition of buildings
•Disposal of excavated material
•Rehabilitation of construction area
•Provision of temporary ablution facilities for the exclusive use of learners and staff at the school

1.4 LOCATION OF THE WORKS

The project is situated at Sinenhlahla P. The school is located 26.6 kilometres from north of Ladysmith in the Uthukela District of KwaZulu-Natal. The coordinates of the school are 28º 21' 48.1" S and 29º 44'56.8" E. Unfettered access to the site cannot be guaranteed at all times as the school will remain operational for the duration of the project.

1.5 TEMPORARY WORKS

All temporary work to comply with the Occupational Health and Safety Act (Act 85 of 1993). Special care should be taken to barricade all excavations and fence off the project site where appropriate.
The contractor is specifically alerted to the fact that the Works are situated within the school grounds and precautions must be taken to ensure the safety of all learners and staff

2 ENGINEERING

2.1 EMPLOYER'S DESIGN

Not applicable

2.2 DESIGN BRIEF

Not applicable

2.3 DRAWINGS

See list of drawings/Annexure's attached to this document.

2.4 DESIGN PROCEDURES

Not applicable

3 PROCUREMENT

3.1 PREFERENTIAL PROCUREMENT PROCEDURES

This tender will be subject to the implementation of the Preferential Procurement Regulations, 2017 pertaining to the Preferential Procurement Policy Framework Act, Act Number 5 of 2000 and the relevant Supply Chain Management Legislation and the KwaZulu-Natal Supply Chain Management Policy Framework published by the KwaZulu-Natal Provincial Treasury. Tenderders are referred to www.kzntreasury.gov.za for access to the relevant documents.
Tenderders are advised to familiarize themselves with the contents of the KwaZulu-Natal Supply Chain Management Policy Framework regarding Preference Point Systems, evaluation of tenders appeals and other matters.

3.2 RESOURCE STANDARD PERTAINING TO TARGETED PROCUREMENT

NOTE : This project will be adjudicated as not exceeding R 50,000 000,00

3.3 SCOPE OF MANDATORY SUBCONTRACT WORK

Not applicable

3.4 PREFERRED SUBCONTRACTORS/SUPPLIERS

Not applicable

3.5 SUBCONTRACTING PROCEDURES

Not applicable

4 CONSTRUCTION

4.1 APPLICABLE SANS 2001 STANDARDS FOR CONSTRUCTION WORKS

The Contractor is referred to the "Model Preambles to Trades - 2008", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification for full descriptions of materials and methods referred to in these Bills of Quantities/Lump Sum documents, insofar as they apply. The Contractor is advised to study the "Standard Preambles to all Trades", any "Supplementary Preambles", the Electrical Specifications and Mechanical Specification, before pricing Bills of Quantities/Lump Sum documents.

Where the description in the Bills of Quantities/Lump Sum documents differ from those in the Standard Electrical Specifications, the descriptions in the Bills of Quantities/Lump Sum documents are to apply. No claim whatsoever will be allowed in respect of errors in pricing due to brevity of description of items in the Bills of Quantities/Lump Sum documents which are fully described when read in conjunction with the relevant Preambles and/or Specifications. Suppliers of materials and the like, whose quality systems apply with one or more of the SABS/SANS ISO 9000 Series should be used whenever possible in the absence of a particular SABS/SANS Specification Standard Mark.

Wherever the words "shall be deemed to be included in the description", "shall be stated" or other words having the same effect, appear in the Standard System, it shall be deemed that all descriptions in these Bills of Quantities/Lump Sum documents incorporated such inclusions and statements whether specifically stated or not.

The Contractor is hereby informed that where SABS/SANS Specifications are referred to in these Bills of Quantities/Lump Sums documents and Specifications thereto, then ONLY the Specification of Work Clauses will apply. The method of measurement and payment clauses will NOT apply to this Contract.

The Contractor is hereby informed that risk of collapse and keeping excavations free from water (excluding subterranean water) generally are deemed to be included in the descriptions unless accommodated in the system of measurement. Please refer to the Geotechnical Investigation report when included at the end of these tender documents.

Whenever reference is made to "Sub-Contractor", "Nominated Sub-Contractor" or the like in the specifications included or referred to in these Bills of Quantities/Lump Sums documents, it shall be deemed to mean "Contractor" as defined.

4.2 APPLICABLE NATIONAL AND INTERNATIONAL STANDARDS

See above 4.1

4.3 PARTICULAR / GENERIC SPECIFICATIONS

The Contractor is referred to the following documents whether attached to this document or not:

SPECIFICATION	PAGES
Specification for HIV/AIDS Awareness (CIDB)	HIV1 TO HIV3
Specific Construction, Safety, Health and Environmental Plan	
Model Preambles for Trades 2008	1 to 49
General Electrical Specification	E/1 to E/20
Lightning Protection Installation	LP/1 to LP/6

4.4 CERTIFICATION BY RECOGNIZED BODIES

Only contractors registered with the Electrical Contracting Board of South Africa in accordance with the Regulations of the Occupational Health and Safety Act will be accepted and permitted to do work under this contract.

4.5 AGRÉMENT CERTIFICATES

Not applicable

4.6 PLANT AND MATERIAL PROVIDED BY THE EMPLOYER

Not applicable

4.7 SERVICES AND FACILITIES PROVIDED BY THE EMPLOYER

Not applicable

4.8 OTHER SERVICES AND FACILITIES

The Contractor shall provide any artificial lighting which may be necessary or required for the proper execution of the works, and provide electric power and water required by all Sub-Contractors, Nominated Sub-Contractors and Sub-Contractors appointed directly by the Administration.
The Contractor shall give all notices and pay all fees in connection with temporary electrical and water connections and shall connect temporary Electrical and Water meters for and pay for all current and water consumed.
The Contractor is advised that the permanent light fittings and water points of any kind installed in the Works are not to be used to provide temporary lighting and supplement water requirements for construction purposes.

5 MANAGEMENT

5.1 APPLICABLE SANS 1921 STANDARDS

Tenderders are referred to
SECTION 2 : SPECIFICATION DATA ASSOCIATED WITH SANS 1921-1:2004 IN THIS DOCUMENT

5.2 RECORDING OF WEATHER

The Contractor shall keep record of abnormal climatic conditions to facilitate the adjudication of claims for extension of the contract period.

The Contractor shall allow in his programme for the following number of days for rain days (rain > 10mm per day) as per the table below:

CURRENT YEAR			YEAR + 1	YEAR + 2
January	*w/days*		3	3
February	*w/days*		3	3
March	*w/days*		3	3
April	*w/days*		3	3
May	*w/days*		3	3
June	*w/days*		3	3
July	*w/days*		3	
August	*w/days*		3	
September	*w/days*		3	
October	*w/days*		3	
November	*w/days*		3	
December	*w/days*	3	3	

5.3	**MANAGEMENT MEETINGS** In order to facilitate the smooth functioning of the Works and to ensure the closest co-operation between all the parties concerned, the Employer will call for regular meetings to be held on the site, at which a senior member of the Contracting firm and the General Foreman of the Works will always be required to be present. In addition to the above, other persons will be required to attend these meetings as and when their presence is necessary, e.g., Consultants in all disciplines, representatives of the various Sub-Contractors, etc. Proper minutes of these meetings will be kept by the Employer\Principal Agent and copies will be circulated to all persons attending the meetings and to others who need to be kept informed.
5.4	**FORMS FOR CONTRACT ADMINISTRATION** The Employer shall provide all necessary forms.
5.5	**ELECTRONIC PAYMENTS** The Contractor shall provide all required information to the Employer to facilitate electronic payments upon request.
5.6	**DAILY RECORDS** The Contractor shall keep daily records of people and equipment employed as well as a site diary in respect of work performed on the site. At the end of each week the Contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number and description of tradesmen and labourers employed by him and all Sub-Contractors on the works each day. At the end of each week the Contractor shall provide the Principal Agent with a written record, in schedule form, reflecting the number, type and capacity of all plant, excluding hand tools, currently used on the works.
5.7	**BONDS AND GUARANTEES** The Contractor shall within 10 calendar days after receiving notice from the Engineer and prior to 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.
5.8	**PAYMENT CERTIFICATES** Requirements will be in accordance with the Employers prescriptions.

5.9	**PERMITS** The Contractor is advised that, in the case of an existing building or institution, all security measures in force will remain in operation and he must acquaint himself and his Employees with them as he and his Employees will at all times be subject to these measures. The Contractor will on no account extend his operations beyond the confines of the building site as indicated by the Employer and must ensure that all his Employees are made aware of these limits. Any Employee disregarding this instruction and found outside the limit of the building site without authority, shall be redeployed immediately and shall not again be employed on this Contract. The Contractor will be responsible for ensuring that this instruction is strictly enforced and must provide and remove upon completion or when directed, such other necessary temporary barriers, fences, etc., as may be required and is to allow opposite this item for any charges he may wish to make in this connection. The Employer will accept no responsibility whatsoever for damage to or the loss of plant, materials, etc., from the site.
5.10	**PROOF OF COMPLIANCE WITH THE LAW** The following certificates must be provided before first delivery is taken: - HIV/STI Report (Bound into this document) - Electrical Compliance Certificate - Plumbing Compliance Certificate - Lightning Certificate - Soil Protection Certificate - Concrete test and cube certificates - Waterproofing Guarantee certificates - TR1 and TR2 prefabricated roof truss certificates - Soil compaction certificates - Electrical and Mechanical test certificates - Plumbing and drainage pressure test certificates - Fire Compliance Certificate - Entomology Certificate - SANS 10400-A:2010 compliance certificates - Latest National Building Regulation
5.11	**INSURANCE PROVIDED BY THE EMPLOYER** Not Applicable

SECTION 2

SPECIFICATION DATA ASSOCIATED WITH SANS 1921-2004

Clause Numbers	
4.1.7	**The requirements for drawings, information and calculations for which the Contractor is responsible are:**
	Prefabricated roof trusses design must be submitted for approval 30 days prior to erections.
4.2.1	**The responsibility strategy assigned to the Contractor for the works is:**
	Strategy A
4.2.2	**The structural engineer is:**
	Aecom Engineers
4.2.3	**Drawings & other info are to be submitted in accordance with the contractors programme**
	N/A
4.3	**The planning, programme and method statement are to comply with the following:**
	N/A
4.12.1	**Samples of materials**
	The work is to be executed with materials of the best specified and in the most substantial and workmanlike manner under the inspection of the Employer and to his satisfaction. The Contractor shall furnish, without delay, such samples as called for or may be called for by the Employer, who may reject all materials or workmanship not corresponding with the approved sample. The samples of materials, workmanship and finishes that the Contractor is to provide and deliver to the employer are: - Tile sample. - Brick sample. - Light fitting sample. - Screed panel 2m x 2m impact test. - Tested trial mix to be approved by the Engineer.
4.12.2	**Fabrication drawings that the contractor is to provide to the employer are:**
	None

4.12.3	**Office accommodation, equipment, accommodation for site meetings and other facilities for use by the employer and his agents are:**
	OFFICE FOR FOREMAN
	Provide, erect, maintain and remove at completion a suitable temporary office for the Contractor or his Foreman, perfectly secured, lighted and ventilated and having a desk with drawers.
	TELEPHONE
	The Contractor shall provide a telephone on the site for the use of the Contractor and all Sub-Contractors for the duration of the Contract, and must make the necessary application for connection, give all notices and pay all fees, rentals and charges for the service and also for all calls.
	OFFICE FOR INSPECTOR OF WORKS
	Provide, erect, maintain and remove at completion a well constructed temporary office for the Inspector of Works not less than 4 x 3 m on plan and 3 m high to eaves to the approval of the Employer. The office shall be constructed of wood framing covered externally with corrugated iron or corrugated asbestos and with a lean-to roof covered with the same material as the external wall covering. The office shall be lined internally with soft board or other approved material and a ceiling shall be provided of the same material as the internal lining. A suspended wood floor shall be provided and is to finish not less than 300 mm above the ground level. A lockable door and a window, which provides adequate light and ventilation, shall be fitted. An office constructed of 115 mm thick brick-work and provided with a screeded concrete floor and roofed and ceiled as above described may be accepted as an alterative but prior permission of the Employer will be necessary before construction of such an office is commenced and his requirements shall be stated and fulfilled by the Contractor. The office shall be fitted in an approved manner with a sloping topped desk of height and length suitable for the laying out and studying of drawings, a desk or table with not less than two lock-up drawers, shelves, seating and wash-stand, and the Contractor shall provide all necessary attendance.
	TELEPHONE IN OFFICE FOR INSPECTOR OF WORKS
	The Contractor shall arrange for the installation of a lockable telephone in the Office for the Inspector of Works for the duration of the Contract. The Contractor will be required to make the necessary application for connection and give all notices on behalf of the Employer. The Employer will, however, be responsible for the direct payment of all fees, rentals and other charges by Telkom for the service for the Inspector of Works and for all calls made from this telephone.
	SHED
	Provide, erect, maintain and remove at completion, ample temporary sheds for the proper storage of materials and for the use of the workmen, and remove when no longer required.
4.14.6	**The requirement for provision and erection of signboards are:**
	Supply, erect, maintain and remove at completion a painted notice board, size overall 2800 x 2345 mm high sign written to detail as Drawing No. T9506 which drawing is available from offices of the Department of Public Works. Only the official notice board is to be displayed on the site and no Sub-Contractor's boards will be permitted. The Contractor, at his own cost, may provide a board on which all sub-contract firms' names may be sign written. The notice board is to be to the approval of the Employer and is to be maintained in first class condition and placed where directed at the entrance to the site and remain there for the duration of the Contract.

4.17.1	**Requirement for the termination, diversion or maintenance of existing services:**
	Should the Contractor come in contact with any underground cables or pipes during excavations, immediate notification must be made to the Employer and all work in the vicinity of such cables, pipes, etc., shall cease until authority to proceed has been obtained from the Employer. Should the Contractor damage underground cables or pipes resulting in a disruption of services to an existing institution such damage shall be repaired immediately.
4.17.3	**Services which are known to exist on the site:**
	Investigate and provide detail drawings.
4.17.4	**Requirement for detection apparatus**
	None
4.18	**ADDITIONAL HEALTH AND SAFETY REQUIREMENTS ARE:**
	By the submission of a tender, any Tenderder will, if awarded the contract to which this tender document relates, be deemed to be the mandatory as envisaged by Section 37 (2) of the Act. As a mandatory the successful Tenderder will be deemed to be the “principal contractor” and an employer in his/her/their own right with duties as prescribed in the Act and accordingly will be deemed to have agreed to be solely responsible for ensuring that in connection with the service to which this tender document relates, all work will be performed and machinery and plant used in accordance with the Act. Should the Contractor, for whatever reason be unable to perform as required by the Act, the Contractor undertakes to inform the Employer accordingly. Tenderders are advised that it is a Condition of this Tender that a 'Construction Phase Safety, Health and Environmental Plan' specifically relates to the project for which tenders are being submitted and must be prepared by the Tenderder and submitted with the other tender documents at the time of tender. Failure to do so Tenderders are therefore advised to study the 'Construction Safety, Health and Environmental Specification' which is issued as part of this tender document, the Model Preambles to Trades - 2008, any project Specification included in this tender document and any and all drawings which are referred to and issued as part of this tender document before preparing their own project specific 'Construction Phase Safety, Health and Environmental Plan' . Tenderders are also advised that such a plan which is submitted with a tender but is incomplete or considered inadequate by the Employer or his Representative will invalidate the tender. The Contractor will be deemed to have satisfied himself with his obligations in terms of the Act and to have allowed for all costs arising from compliance with the Act as no claim for extra costs arising from compliance with, and obligations in terms of the Act will be entertained.
4.22	**WORK BY NOMINATED AND SELECTED SUBCONTRACTORS COMPRISE:**
	[Provide list of applicable contractors]

C3.2 - SPECIFICATION FOR HIV/AIDS AWARENESS

1 Scope

This generic specification contains requirements applicable to the reduction of the risk of transfer of the HIV virus between and among construction workers and the local community through the following four strategies:

a) raising awareness about HIV/AIDS;

b) providing construction workers with access to condoms;

c) HIV counselling, testing and referral services; and

d) Sexually Transmitted Infection diagnosis and treatment.

2 Normative references:

The following standard contains provisions that, through reference in this text, constitute provisions of this standard:

SANS 4074 ISO 4074, *Condom Rubbers*

3 Definitions and Abbreviations

3.1 Definitions

Construction Worker: all persons in the employ of the contractor or in the employ of any of the subcontractors contracted by the contractor.

Local Community: the communities local to the site which are most likely to have contact with the construction worker and, in particular, sex workers in those communities.

Service provider: the natural or juristic person recognised by the South African Department of Health as specialist in conducting Aids Awareness Programmes.

3.2 Abbreviations

STI: Sexually transmitted infection

HIV: Human Immunodeficiency Virus

AIDS: Acquired Immune Deficiency Syndrome

4 Objectives

The objectives are to:

a) reduce the risk of transfer of the HIV virus between and among construction workers and the local community;

b) raise awareness amongst construction workers and the local community of the risk of infection with the HIV virus;

c) promote early diagnosis; and

d) assist affected individuals to access care and counselling.

5 Requirements

5.1 General requirement

The contractor shall, in order to satisfy the objectives stated in 4:

a) make condoms complying with the requirements of SABS ISO 4074 available to all construction workers at readily accessible points on the site, suitably protected from the elements, for the duration of the contract;

b) either place and maintain HIV/AIDS awareness posters of size of not less than A1 in areas which are highly trafficked by construction workers, or provide construction workers with a pamphlet, in languages largely understood by construction workers, which

c) encourage voluntary HIV/STI testing;

d) provide information concerning counselling, support and care of those that are infected services; and

e) comply with the requirements of 5.2.

The **provisions** *of* **5.1 c)** *and d) do not apply to* **this contract.**

5.2 HIV awareness programme

5.2.1 The contractor shall:

a) engage a qualified service provider as described in the scope of works to conduct an HIV Awareness Programme which is structured to achieve the outcomes stated in 5.2.3 for contract workers as soon as a construction workers camp is established and populated or, where no such camp is established, within two weeks of the commencement of a significant portion of the works and at subsequent intervals, if any, provided for in the scope of works; and

b) arrange for, provide a suitable venue, and instruct all construction workers to attend the HIV Awareness Programme and notify the Employer's Representative of the date, time and venue whenever a session with construction workers is conducted.

Note: The National Department of Public Works maintains a list of qualified service providers.

5.2.2 The contractor shall do nothing to dissuade construction workers from attending such an HIV Awareness Programme and shall take all reasonable steps to ensure that a minimum of 90% of construction workers engaged in the works attend such a programme, when it is conducted.

5.2.3 The outcomes of the HIV Awareness Programme shall as a minimum, result in contract workers exposed to such a programme being able to:

a) communicate the existence of problems of HIV and be able to outline the consequences of transmission of HIV to or from the local community;

b) recall and communicate the mode of HIV transmission and preventative measures including the proper use of the condom.

The HIV/ Aids awareness programme described in 5.2 is to be repeated at four month intervals throughout the duration of the contract. (Four times in total, including the initial one at the start of the contract)

5.3 Reporting

5.3.1 The contractor shall prepare and attach to his claims for payment a brief report which outlines how the actions taken by the contractor in the period for which payment is claimed satisfy the requirements and a schedule which lists the names, identity numbers, trade / occupation and name of employer of all construction workers exposed to the programme (see **HIV/STI Compliance Report**).

5.3.2 The employer's representative shall certify the report and schedule described in 5.3.1 whenever a claim for payment is issued to the employer.

Note: In the event that the contractor fails to satisfy the requirements of this specification, the employer (Head: Public Works) may apply any of the sanctions provided for in the contract. Sanctions may include the application of a financial penalty of .04% of the Contract Sum.

The *HIV /Aids* awareness programme *described* in 5.2 shall in addition *be conducted* for the benefit *of* the local community on two occasions in the community centre nearest to the building site. The contractor shall be *responsible* for inviting identifiable community-based *institutions and organisations, churches, and schools to participate in the* programme.

C3.3 - HIV/STI COMPLIANCE REPORT

Pro-forma reporting format in terms of the SPECIFICATION FOR HIV/AIDS AWARENESS

Project Code:	064234		
Payment Claim number:		Period covered by payment claim:	

1. Distribution of condoms (briefly describe where and how condoms are distributed).

2. Posters / pamphlets (briefly describe where posters were placed / how pamphlets were distributed).

3. Voluntary testing (briefly describe the actions taken / information provided to promote testing).

4. Counselling, support and care (summarise information provided).

5. HIV awareness programme (briefly describe action).

6. Schedule of construction workers exposed to the HIV awareness programme.

Name	Identity number	Trade / occupation	Name of employer

I hereby declare the above to be a true reflection of actions taken to ensure compliance with the specification.

For Contractor:

Name: _____

Signature: _____

Date: _____

Employer's representative:

Name: _____

Signature: _____

Date: _____

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

PART C4. SITE INFORMATION

C4.1 SITE INFORMATION
GCC FOR CONSTRUCTION WORKS (2 Edition of 2010)

Project title:	**DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**		
Tender No.	**ZNTL03559W**	**Project Code:**	**064234**

C4.1 Site Information

C4.1 GENERAL

(a) The nature of ground is assumed to be loose, sandy material, possibly interspersed with soft and hard rock.

(b) The site is an existing, operational school. Extreme care must be taken to ensure that construction areas are kept secure and not accessible to students.

(c) The Tenderer is to note that various blocks that are currently in use, are required to be worked on. Planning and co-ordination therefore will be required by the Contractor to ensure that school activities are not interrupted, and under no circumstances will the Contractor be allowed to utilize any occupied buildings for any purpose other than the renovation of that building.

C4.2 GEOTECHNICAL INVESTIGATION REPORT

(a) Attached in the document. Refer to Annexures

KWAZULU-NATAL PROVINCE
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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

PART C5 - DRAWINGS / ANNEXURES

C5.1 - LIST OF DRAWINGS/ANNEXURES

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

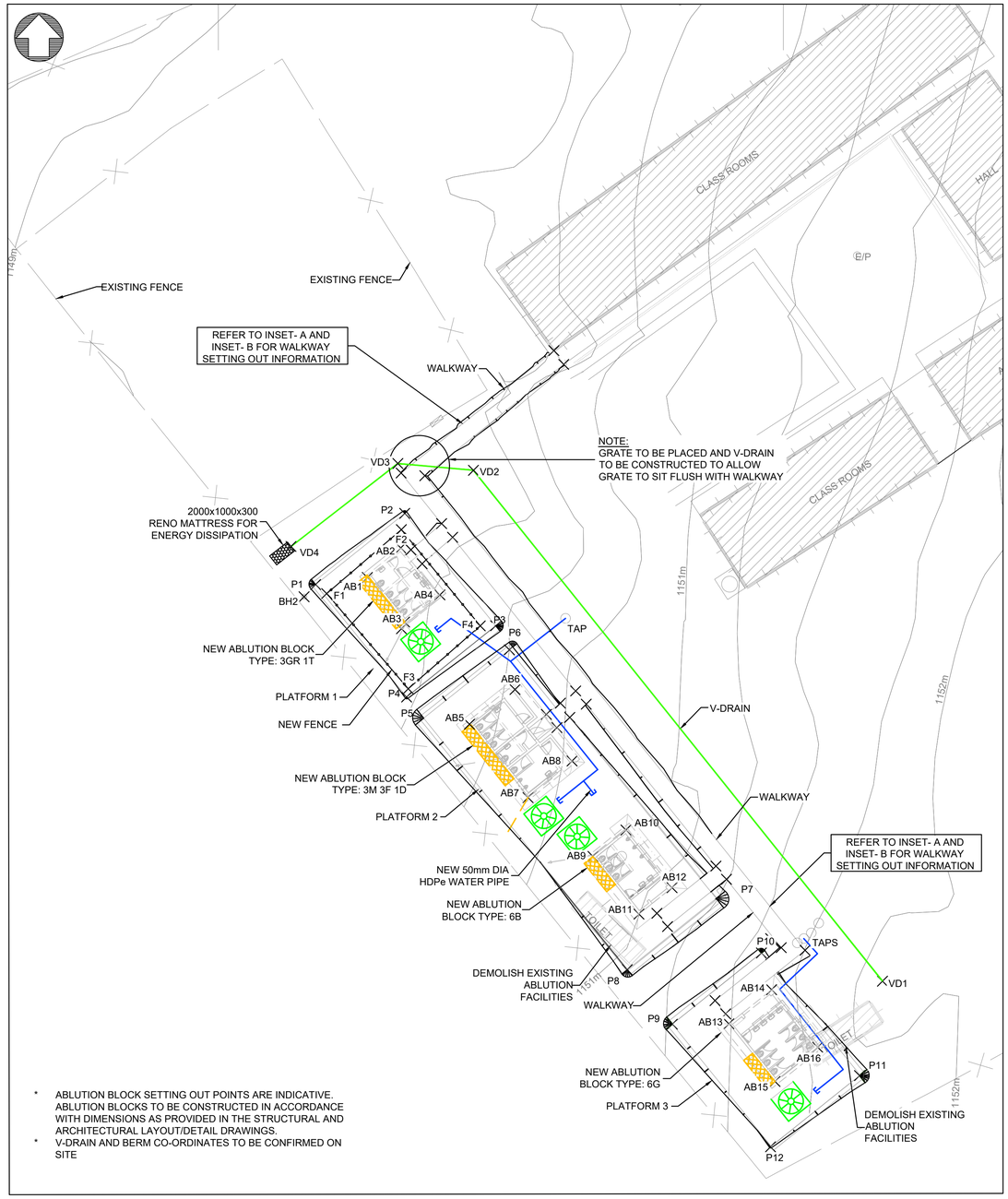
Tender No.:	**ZNTL03559W**	**Project Code:**	**064234**

(Where drawings/annexure's are issued, document compilers must insert the following paragraph and list the applicable drawings/annexure's below.)

The following drawings/annexure's shall be issued during the Tender period to form part of the tender documentation. Where applicable, drawings/annexure's could be re-issued to the Contractor at commencement of the construction phase.

DRAWING NO	**DESCRIPTION**
60491906 02 UT09 C AC - 001 T 01	NEW ABLUTION FACILITIES SETTING OUT DETAILS
60491906-01-0000-A-AF-200-T-1	3 MALE + 3 FEMALE TEACHER & 1 DISABLED ABLUTION BLOCK (DRY)
60491906-01-0000-A-AF-201-T-1	3 MALE + 3 FEMALE TEACHER & 1 DISABLED ABLUTION BLOCK DETAILS (DRY)
60491906-01-0000-A-AF-450-T-1	6 BOYS ABLUTION BLOCK (DRY)
60491906-01-0000-A-AF-451-T-1	6 BOYS ABLUTION BLOCK DETAILS (DRY)
60491906-01-0000-A-AF-500-T-1	6 GIRLS ABLUTION BLOCK (DRY)
60491906-01-0000-A-AF-501-T-1	6 GIRLS ABLUTION BLOCK DETAILS (DRY)
60491906-01-0000-A-AF-911-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK FLOOR PLANS DRY
60491906-01-0000-A-AF-912-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK ELEVATIONS - SHEET 1 DRY
60491906-01-0000-A-AF-913-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK ELEVATIONS - SHEET 2 DRY
60491906-01-0000-A-AF-914-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK INTERNAL ELEVATIONS - SHEET 1 DRY
60491906-01-0000-A-AF-915-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK INTERNAL ELEVATIONS - SHEET 2 DRY
60491906-01-0000-A-AF-916-T-1	GRADE R + 1 TEACHERS ABLUTIONS BLOCK DETAILS DRY
60491906-01-0000-A-AF-917-T-0	GRADE R & 1T- SLAB DETAIL (PIT COVER)
60491906-01-0000-A-ED-001-T	GRADE R SANWARE SCHEDULE (DRY) PROGRAMME FOR SCHOOLS
60491906-01-0000-A-ED-001-T	SANITARY SCHEDULE (DRY)
60491906-01-0000-A-EF-001-T	FINISHES SCHEDULE
60491906-01-0000-S-AC-210-T	3 MALE, 3 FEMALE, 1 DISABLED ABLUTION BLOCK DRY - RAFT PLAN LAYOUTS
60491906-01-0000-S-AD-210-T	3 MALE, 3 FEMALE, 1 DISABLED ABLUTION BLOCK DRY - RAFT REINFORCEMENT LAYOUTS & SCHEDULES
60491906-01-0000-S-BA-210-T	3 MALE, 3 FEMALE, 1 DISABLED ABLUTION BLOCK DRY - RAFT SECTIONS AND DETAILS
60491906-01-0000-S-AC-160-T	3 GRADE R, 1 TEACHER ABLUTION BLOCK DRY - RAFT PLAN LAYOUTS
60491906-01-0000-S-AD-160-T	3 GRADE R, 1 TEACHER ABLUTION BLOCK DRY - RAFT REINFORCEMENT LAYOUTS & SCHEDULES
60491906-01-0000-S-BA-160-T	3 GRADE R, 1 TEACHER ABLUTION BLOCK DRY - RAFT SECTIONS AND DETAILS
60491906-01-0000-S-AC-460-T	6 BOYS ABLUTION BLOCK DRY - RAFT PLAN LAYOUTS
60491906-01-0000-S-AD-460-T	6 BOYS ABLUTION BLOCK DRY - RAFT REINFORCEMENT LAYOUT & SCHEDULES
60491906-01-0000-S-BA-460-T	6 BOYS ABLUTION BLOCK DRY - RAFT SECTIONS AND DETAILS
60491906-01-0000-S-AC-510-T	6 GIRLS ABLUTION BLOCK DRY - RAFT PLAN LAYOUTS
60491906-01-0000-S-AD-510-T	6 GIRLS ABLUTION BLOCK DRY - RAFT REINFORCEMENT LAYOUTS & SCHEDULES
60491906-01-0000-S-BA-510-T	6 GIRLS ABLUTION BLOCK DRY - RAFT SECTIONS AND DETAILS
60491906-01-0000-E-AF-830-T	3M3F1D LIGHTING LAYOUT
60491906-01-0000-E-AF-840-T	3R1T LIGHTING LAYOUT
60491906-01-0000-E-AF-890-T	6B LIGHTING LAYOUT
60491906-01-0000-E-AF-900-T	6G LIGHTING LAYOUT
60491906 02 UT09 E AC - 001 T 0	NEW ABLUTION FACILITIES
60491906-01-0000-T-DA-801-T	STANDARD DETAILS TYPICAL DETAILS SHEET 1
60491906-01-0000-T-DA-802-T	STANDARD DETAILS TYPICAL DETAILS SHEET 2 OF 2
60491906-01-0000-T-DA-803-T	STANDARD DETAILS SEWER SHEET 1
60491906-01-0000-T-DA-804-T	STANDARD DETAILS SEWER SHEET 2
60491906-01-0000-T-DA-805-T	STANDARD DETAILS SEWER SHEET 3
60491906-01-0000-T-DA-806-T	STANDARD DETAILS SEWER SHEET 4
60491906-01-0000-T-DA-807-T	STANDARD DETAILS SEWER SHEET 5
60491906-01-0000-T-DA-808-T	STANDARD DETAILS WATER SHEET 1
60491906-01-0000-T-DA-809-T	STANDARD DETAILS WATER SHEET 2
60491906-01-0000-T-DA-810-T	STANDARD DETAILS WATER SHEET 3
60491906-01-0000-T-DA-811-T	STANDARD DETAILS WATER SHEET 4
60491906-01-0000-T-DA-812-T	STANDARD DETAILS STORMWATER SHEET 1
60491906-01-0000-T-DA-813-T	STANDARD DETAILS STORMWATER SHEET 2
60491906-01-0000-T-K-001-T	SPECIFICATIONS

ANNEXURES	
Annexure 1	Model Preambles for Trades 2008
Annexure 2	General Electrical Specifications
Annexure 3	Lightning Protection Specifications
Annexure 4	Map of Tender submission location
Annexure 5	Geotechnical Investigation Report (If applicable)
Annexure 6	Joint Venture Agreement
Annexure 7	Health and Safety Specification and Bill of Quantities
Annexure 8	Builders Lien Agreement
Annexure 9	Additional Specification - EPWP
Annexure 10	EPWP - BOQ
Annexure 11	Scope of Works - EPWP
Annexure 12	EPWP Employment Contract
Annexure 13	Attendance Register - Infrastructure and Other projects
Annexure 14	EPWP Data Collection tool for Phase 3 system

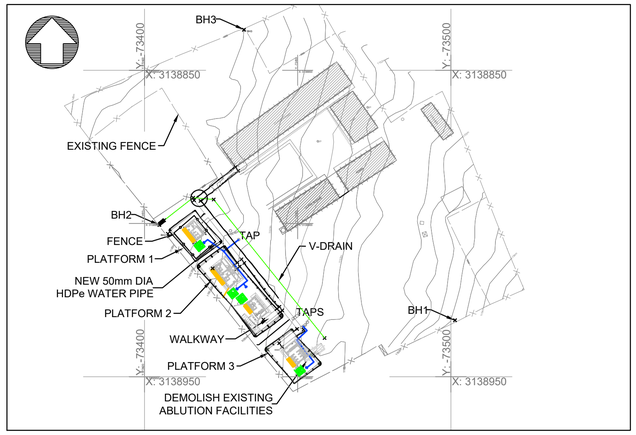


* ABLUTION BLOCK SETTING OUT POINTS ARE INDICATIVE. ABLUTION BLOCKS TO BE CONSTRUCTED IN ACCORDANCE WITH DIMENSIONS AS PROVIDED IN THE STRUCTURAL AND ARCHITECTURAL LAYOUT/DETAIL DRAWINGS.

* V-DRAIN AND BERM CO-ORDINATES TO BE CONFIRMED ON SITE

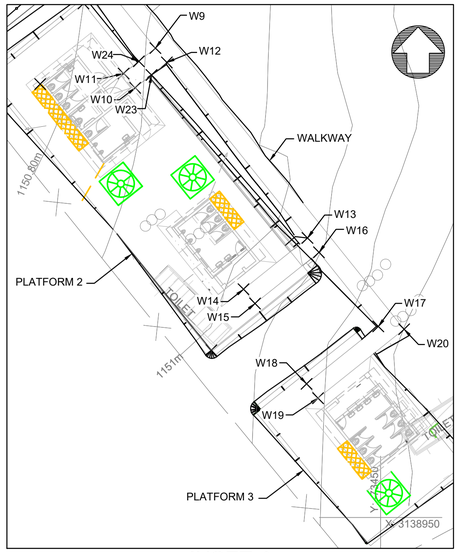
SINENHLANHLA PRIMARY SCHOOL PLATFORM 1, 2 & 3

SCALE 1:250



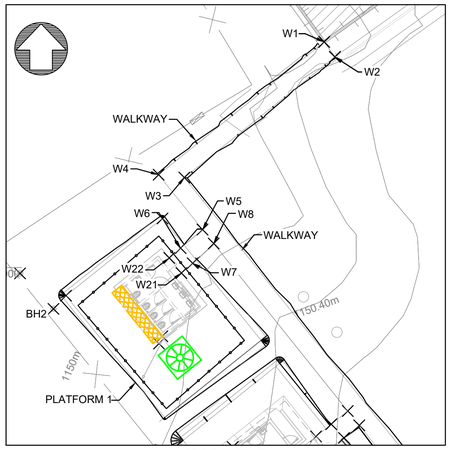
KEY PLAN

N.T.S.



INSET-A

N.T.S.



INSET-B

N.T.S.

ABLUTIONS*

POINT	Y	X
AB1	-73413.187	3138901.664
AB2	-73416.145	3138899.047
AB3	-73416.477	3138905.602
AB4	-73419.607	3138903.201
AB5	-73422.225	3138914.639
AB6	-73426.256	3138911.572
AB7	-73427.408	3138921.134
AB8	-73431.302	3138917.895

ABLUTIONS*

POINT	Y	X
AB9	-73433.147	3138926.340
AB10	-73436.068	3138924.004
AB11	-73437.225	3138931.440
AB12	-73440.146	3138929.104
AB13	-73445.180	3138941.153
AB14	-73448.958	3138938.128
AB15	-73449.263	3138946.250
AB16	-73453.040	3138943.225

WALKWAY

POINT	Y	X	Z
W1	-73429.691	3138881.588	1150.281
W2	-73430.630	3138882.758	1150.281
W3	-73418.282	3138892.652	1150.100
W4	-73416.174	3138892.420	1150.000
W5	-73419.736	3138896.867	1150.000
W6	-73417.881	3138898.502	1150.150
W7	-73418.863	3138899.728	1150.150
W8	-73420.674	3138898.037	1150.220
W9	-73431.617	3138911.700	1150.731
W10	-73429.964	3138914.945	1150.760
W11	-73429.027	3138913.774	1150.760
W12	-73432.556	3138912.869	1150.730
W13	-73444.031	3138927.194	1150.760
W14	-73438.812	3138931.374	1150.760
W15	-73439.750	3138932.545	1150.760
W16	-73444.968	3138928.364	1150.760
W17	-73449.807	3138934.405	1151.600
W18	-73443.955	3138939.092	1151.600
W19	-73444.896	3138940.267	1151.600
W20	-73451.916	3138934.637	1151.600
W21	-73418.037	3138900.446	1150.150
W22	-73417.046	3138899.211	1150.150
W23	-73431.305	3138913.894	1150.760
W24	-73430.272	3138912.778	1150.760

PLATFORM 1 SETTING OUT DATA

POINT	Y	X	Z
P1	-73408.612	3138902.289	1150.150
P2	-73416.493	3138895.992	1150.150
P3	-73424.538	3138905.934	1150.150
P4	-73416.664	3138912.238	1150.150

PLATFORM 2 SETTING OUT DATA

POINT	Y	X	Z
P5	-73418.173	3138914.104	1150.760
P6	-73426.054	3138907.807	1150.760
P7	-73444.062	3138930.060	1150.760
P8	-73436.187	3138936.364	1150.760

PLATFORM 3 SETTING OUT DATA

POINT	Y	X	Z
P9	-73440.122	3138941.226	1151.600
P10	-73448.003	3138934.929	1151.600
P11	-73456.741	3138945.727	1151.600
P12	-73448.866	3138952.031	1151.600

BENCHMARKS

POINT	Y	X	Z
BH1	-73501.343	3138931.569	1153.588
BH2	-73404.865	3138900.475	1149.806
BH3	-73432.423	3138836.787	1150.319

FENCE

POINT	Y	X
F1	-73409.591	3138903.087
F2	-73416.195	3138897.428
F3	-73416.807	3138911.507
F4	-73423.173	3138905.941

V-DRAIN

POINT	Y	X	Z
VD1	-73458.725	3138937.319	1151.958
VD2	-73422.576	3138892.177	1149.970
VD3	-73415.890	3138891.578	1149.895
VD4	-73404.339	3138900.539	1149.744

EARTHWORKS VOLUMES

NAME	CUT TO FILL (m3)	IMPORTED FILL (m3)	CUT TO SPOIL (m3)
PLATFORMS	70.5	83.706	5.46
WALKWAY	6.35	0	1.62
TOTAL	76.85	83.706	7.08

REF. DRG. NO	REFERENCE DRAWING DESCRIPTION

ISO A1 841mm x 594mm

Last Plotted: 2023/05/23 14:06:48
Filename: C:\USERS\MOKUHLE\DOWNLOADS\60491906-02-UT09-C-AC-001_T_01.DWG

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PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

LEGEND:

- EXISTING WATER LINES
- EXISTING SEWER LINES
- PROPOSED WATER LINES
- PROPOSED SEWER LINES
- PROPOSED STORMWATER
- JOJO TANK
- PROPOSED FENCELINE
- EXISTING FENCELINE
- RETAINING WALL
- PROPOSED PITS

NOTES

1. FOR GENERAL NOTES; REFER TO STANDARD DETAILS.
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
	11.11.2022	INITIAL ISSUE	
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	Z. CENYA	N/A
DRAWN BY	S. SIKHONDE	N/A
DESIGNED CHECKED BY	K. VUKEKA	N/A
DRAWING CHECKED BY	M. MTHEMBU	N/A

APPROVAL CONSULTANT

NAME D. PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

UTHUKELA DISTRICT
SINENHLANHLA PRIMARY SCHOOL
EMIS No. 500266511
NEW ABLUTION FACILITIES
SETTING OUT DETAILS

DISCIPLINE

CIVIL INFRASTRUCTURE

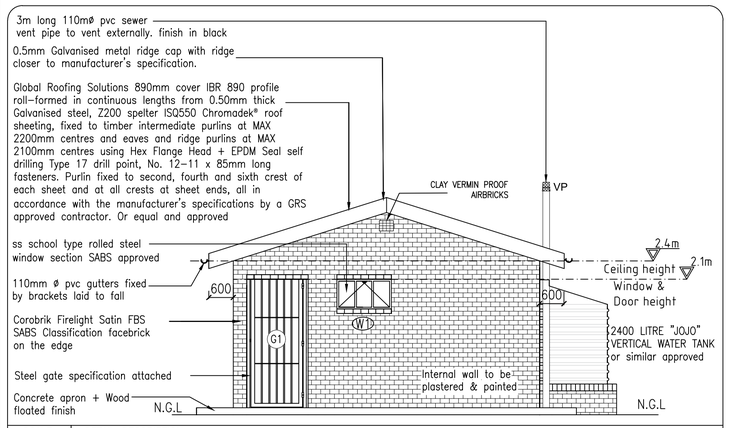
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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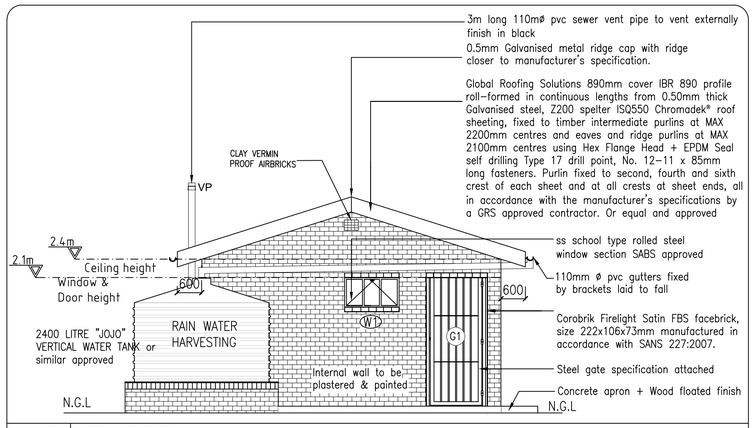
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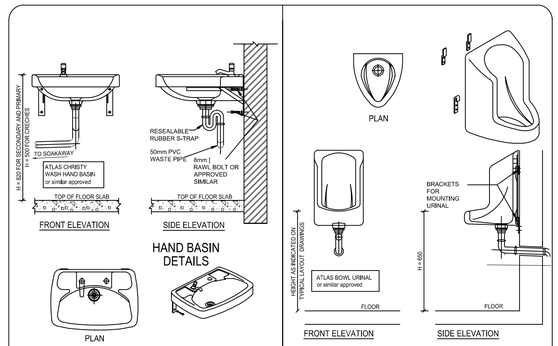
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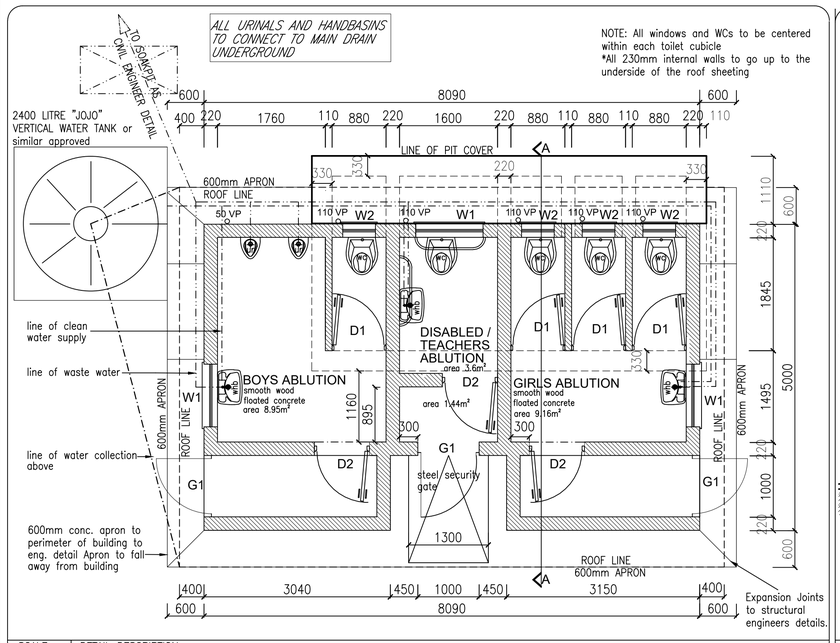


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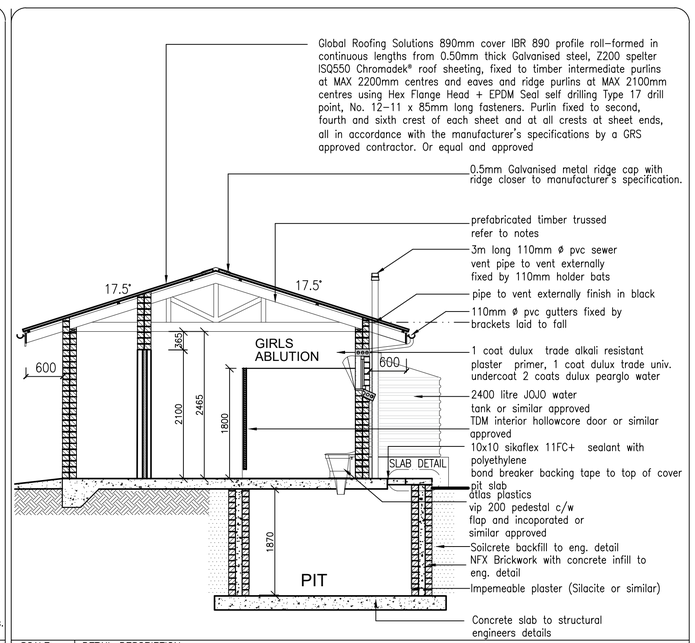


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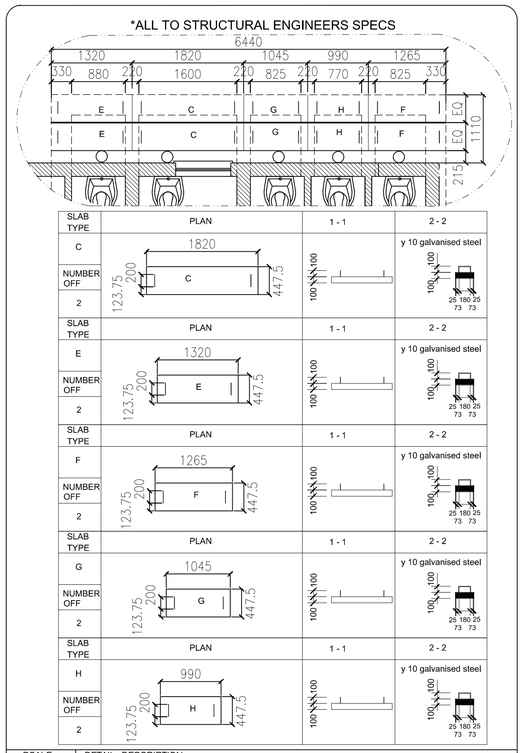
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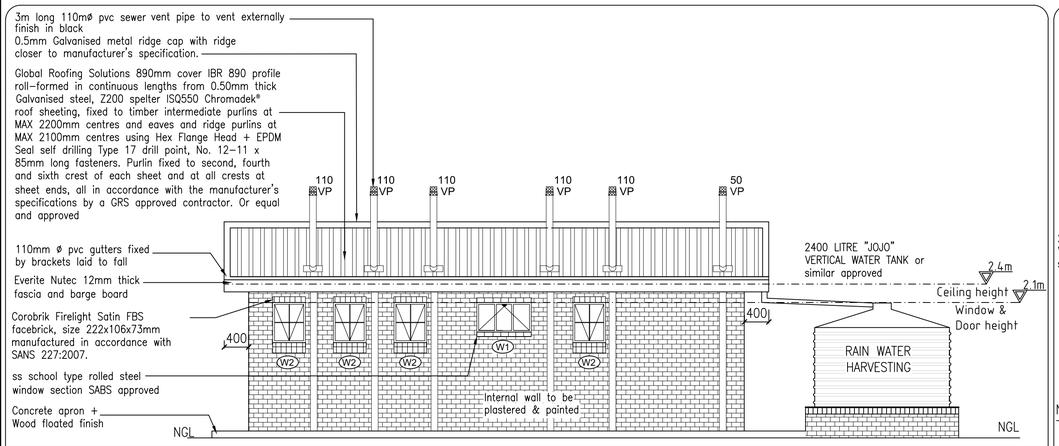
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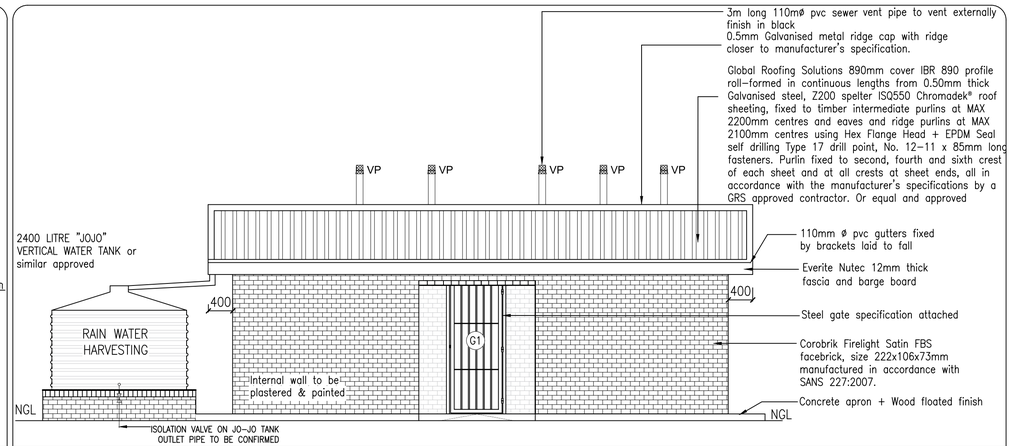
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1:50	SECTION A-A



SCALE:	DETAIL DESCRIPTION.
1:100	SLAB DETAIL (PIT COVER)



SCALE:	DETAIL DESCRIPTION.
1:50	BACK ELEVATION



SCALE:	DETAIL DESCRIPTION.
1:50	FRONT ELEVATION

TENDER PURPOSES ONLY

AECOM

CONSULTANT

DURBAN
Ridgeview Building, 3rd Floor, 1 Nokwe Avenue Ridgeside, Umhlanga Ridge
PO BOX 56, Durban, 3630
Kwa-Zulu Natal, South Africa
+27 (0) 31 204 3800 tel +27 (0) 31 204 3818 fax
www.aecom.com Reg No. 1968/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING:
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3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.09.30	ISSUED FOR TENDER	FR
	2019-09-19	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME	D. NOETZOLD	DATE	2022.09.30
PROF REG. No.	21510	SIGNATURE	

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

3 MALE + 3 FEMALE TEACHERS & 1
DISABLED ABLUTION BLOCK DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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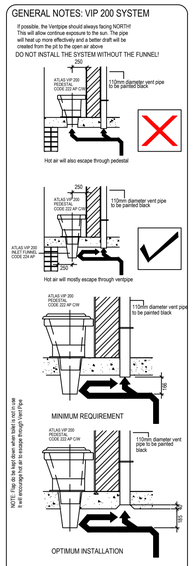
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SCALE As Indicated

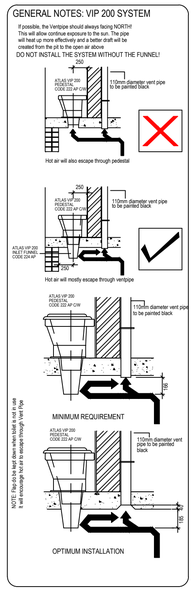
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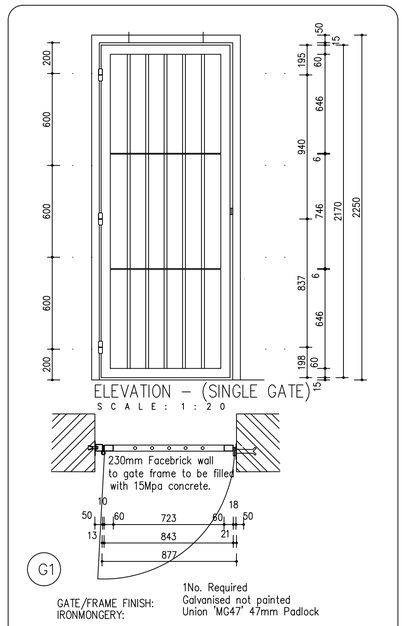
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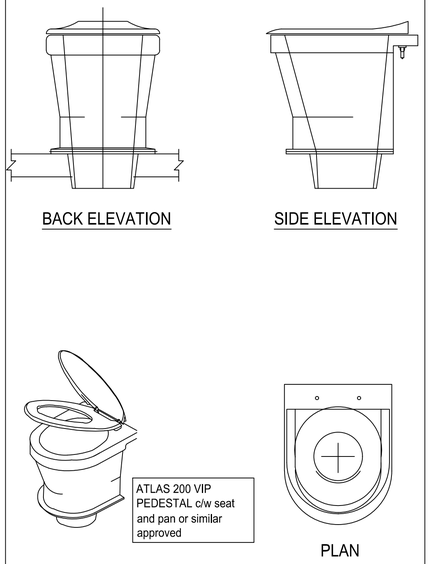
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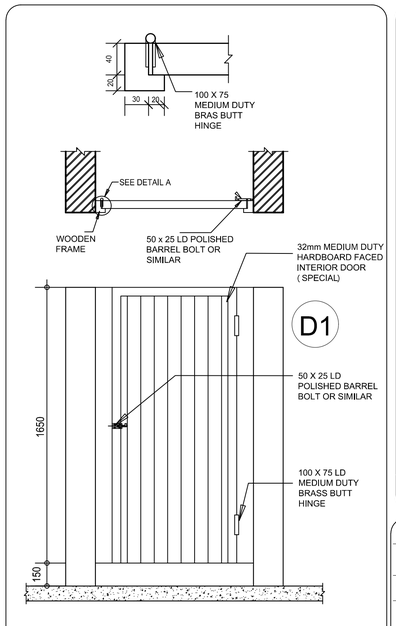
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NTS	VIP 200 SYSTEM & SIGNAGE



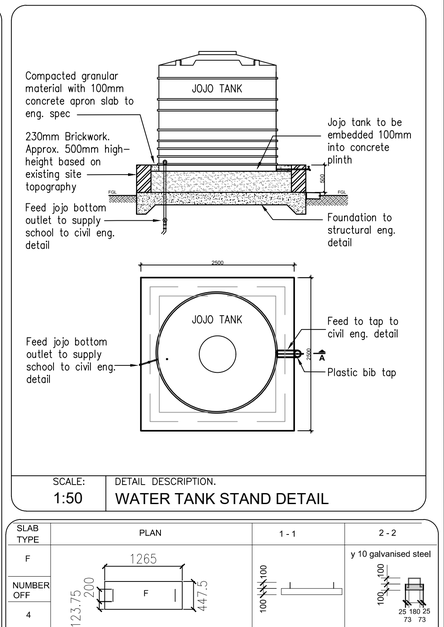
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1:20	GATE(G1) DETAILS	x1



SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:10	WC DETAIL	x3

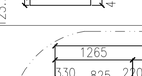
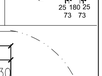


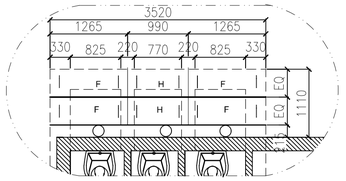
SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:20	STABLE (D1) DOOR DETAIL	x3



SCALE:	DETAIL DESCRIPTION.
1:50	WATER TANK STAND DETAIL

SLAB TYPE	PLAN	1 - 1	2 - 2
F			
NUMBER OFF			
4			

SLAB TYPE	PLAN	1 - 1	2 - 2
H			
NUMBER OFF			
2			



SCALE:	DETAIL DESCRIPTION.
1:50	SLAB DETAIL (PIT COVER) *ALL TO STRUCTURAL ENGINEERS SPECIFICATIONS

Global Roofing Solutions 890mm cover IBR 890 profile roll–formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved

Nutec Everite 200mm x 800mm socketless barge boards. Upvc H–profile barge board joiners. Drill for and fix with hot–dipped galvanised screws and washers. 76 x 50mmm trimmer batten fixed underside of purlin ends for barge board fixing.

Nutec Everite fascia boards 12mm thick and 225mm with aluminium H–profile fascia joiners. Drill for and fix with hot –dip galvanised drive screws and washers.

110mm Nutec Everite gutters or similar approved in maximum possible lengths & fixed with concealed brackets laid to fall 1:200 towards outlet. Joints at corners etc, if any are to be accurately formed, sealed & rivetted to achieve a watertight finish. Brackets to be fixed at max 1m centres. 75mm Dia Upvc downpipes with 1NO. to discharge into rain water tank

Reinforced BOE Facebrick lintel

Steel windows with burglar bars to schedule bottom hung

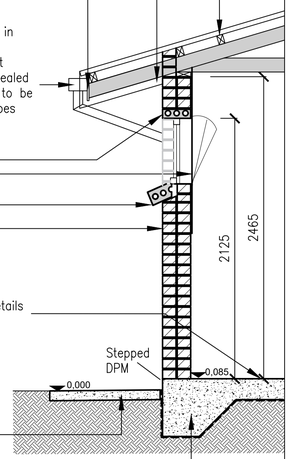
BOE Facebrick window cills with DPC under.

Corobrik Montana Travertine FBS SABS Classification Facebrick lintel or similar approved . Facebrick internally up to 1105mm above finish floor level

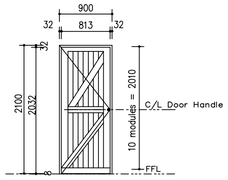
Reinforced concrete slab to structural engineers details on compacted fill by civil engineers. Soil to be poisoned in accordance with SABS 1165. (Certificate to be provided)

Concrete aprons laid to fall off 1:50 to structural engineers details on compacted fill by civil engineers

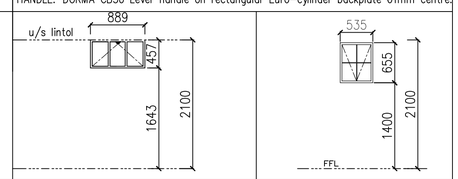
Foundation to be concrete raft foundations to structural eng. detail, under all walls. they are to sit on firm compacted ground by civil eng.



SCALE:	DETAIL DESCRIPTION.
1:25	TYPICAL SKIN SECTION



	Refer to plan for handing
TYPE:	D2 no. of x1
FRAME:	1.2mm pressed metal 1 No. frame suitable for 230mm wall
F.FINISH:	Galvanised. Not painted.
DOOR:	2032x813x40mm meranti hardwood doors. Tongue and groove boarding with v–joints SA pine sub frame with double 20x225mm top and bottom ledges. 20x150mm middle ledge and 20x110mm braces
D.FINISH:	Wood prime, one coat undercoat and two coats gloss
IRONMONGERY	LOCKS: DORMA D036S Euro–profile cylinder sash lock SS HANDLE: DORMA CB30 Lever handle on rectangular Euro–cylinder backplate 61mm centre.



TYPE:	W1 NO REQD: 1	W2 NO REQD: 3
FRAME:	Rolled steel window sections, bottom hung openings. SABS approved.	Rolled steel window sections, top hung openings. SABS approved.
GLASS:	4mm sandblasted glass puttied in with steel window putty.	4mm sandblasted glass puttied in with steel window putty.
FITTING:	Approved standard brass fittings completed with window.	Approved standard brass fittings completed with window.
B. BARS	8mmø bars	8mmø bars
FINISH:	Galvanised. No Painting required	Galvanised. No Painting required
NOTES:	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in

SCALE:	DETAIL DESCRIPTION.
1:50	DOOR (2) & WINDOW SCHEDULE

CONSTRUCTION NOTES (continued):

E. PAINT

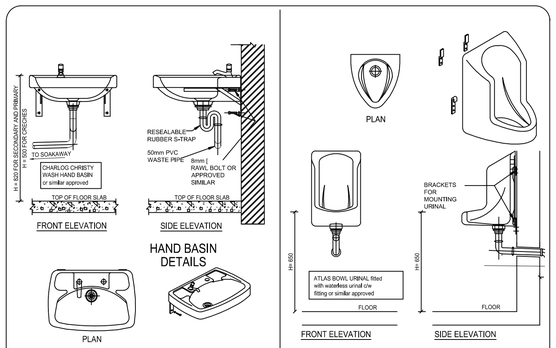
1. All paints, stains, varnishes, etc, are of an approved manufacturer, and used in strict accordance to the manufacturer's instructions.

F. DRAINAGE / STORMWATER NOTES

1. All drainage work and materials comply with the local authority requirements in accordance with the SABS 0400-1990 National Building Regulations Part P.
2. Walls and foundations are to bridge over all pipes.
3. All pipes under building encased in concrete, and approved by engineer.
4. Vent pipes to secured to the walls outside the ablution facilities - 3m 110mm Ø vent pipe (black - uv) fixed with 3 110mm holder bats - 110mm fly screen used at vent end.
5. DRY toilets: All WC for students Atlas plastic vip 200 pedestal, color granite
6. DRY toilets: All WC for teachers and disabled to be Atlas plastic vip 200 pedestal, color granite
7. DRY urinals: Atlas plastic bowl urinal, colour: granite
8. Atlas plastic Christy wash hand basin with traditional chrome cobra watertech or equal and approved Stella basin cold water tap and cobra watertech or equal and approved dura chrome plated single lever basin mixer (code: du-951) for paraplegic toilet. colour: granite.
9. Close taps to ensure reliable water conservation, which must be able to close at minimum 15kpa pressure.
11. Domestic water supply to be connected to existing water mains where possible.
12. All flushing mechanisms if applicable as per civil engineers design
13. The rain water harvesting tank must be equipped with a fload valve and connected to the main water supply within the school yard, where it is available.
14. All downpipes are pvc. All downpipes sizes in accordance with engineer's approval.
15. - pipes from sinks & urinal outlets to soakaway pit (50mm pvc)
    - pipes from gutters to fill tank (75mm pvc)
    - pipe from tank to sinks (15mm polycop) fitting to be done internally

G. FIRE NOTES

1. All building work comply with the local authority requirements in accordance with the SANS10400 National Building Regulations.
2. Fire stability of all structural elements and components comply with National Building Regulations Part TT7 and TT9.



SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:10	BASIN DETAIL	x2

SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:10	BOWL URINAL	x3

TENDER PURPOSES ONLY

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AECOM

CONSULTANT

DURBAN
Ridgeview Building, 3rd Floor, 1 Nokwe Avenue Ridgeside, Umhlanga Ridge
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+27 (0) 31 204 3800 tel +27 (0) 31 204 3818 fax
www.aecom.com Reg No. 1968/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

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ISSUE / REVISION

0	2022.09.30	ISSUED FOR TENDER	FR
I/R	DATE	DESCRIPTION	DRN
	2019-09-16	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME D NOETZOLD DATE 2022.09.30
PROF REG. No. 21510 SIGNATURE

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

6 BOYS ABLUTIONS DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

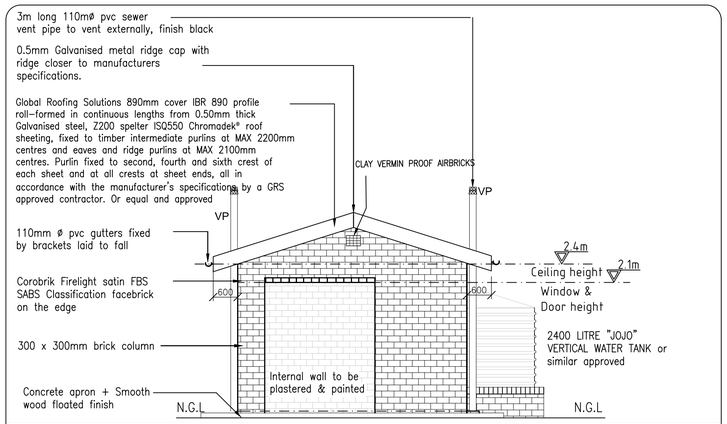
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PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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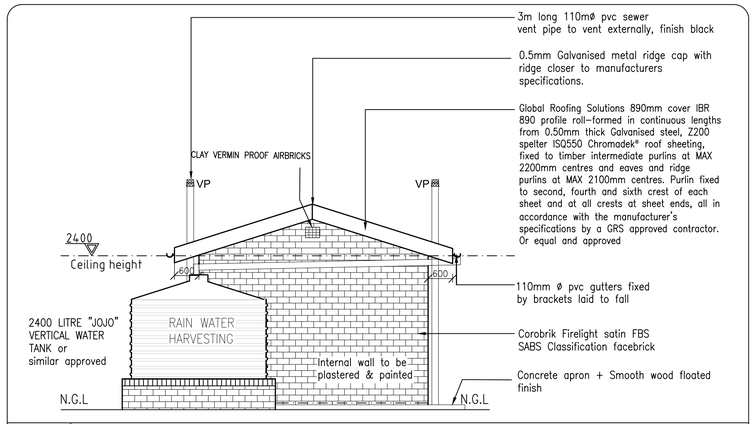
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SCALE As Indicated

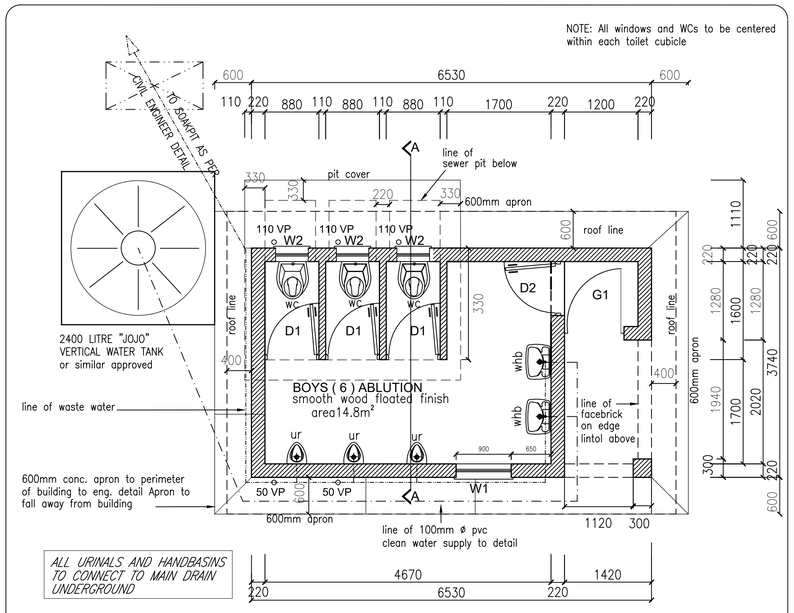
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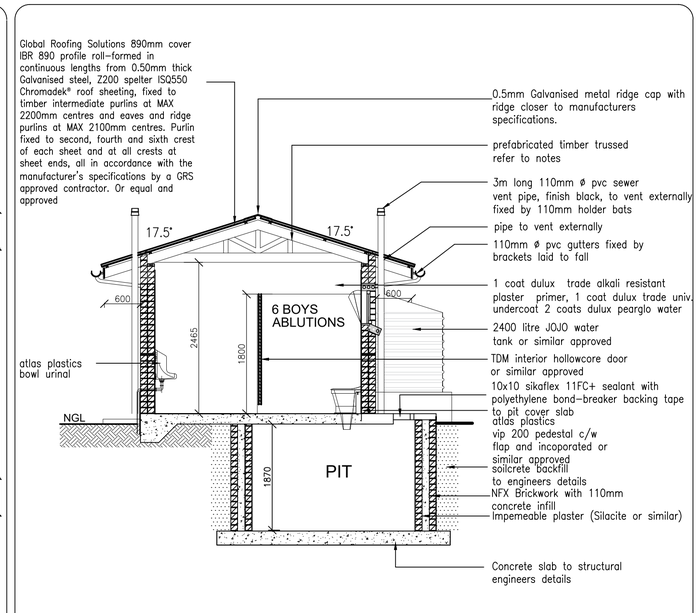
SCALE: 1:50 | DETAIL DESCRIPTION. SIDE ELEVATION



SCALE: 1:50 | DETAIL DESCRIPTION. SIDE ELEVATION



SCALE: 1:50 | DETAIL DESCRIPTION. FLOOR PLAN



SCALE: 1:50 | DETAIL DESCRIPTION. SECTION A-A

GENERAL NOTES:

1. Quality of materials & workmanship to comply with relevant SABS & BSS specifications. All to conform to the minimum standards as specified in the preambles in the BOQ. All work to comply with NBR.
2. Contractor is responsible for correct setting out of building external & internal walls, with particular reference to boundaries & building lines.
3. Contractor to locate & identify existing services and to protect these from damage for the duration of the work.
4. Any discrepancies were brought to the architect's attention immediately and prior to the commencement of any building operations.
5. All dimensions and levels to be checked on site.
6. This drawing is read in conjunction with all other drawings, schedules and specifications related to this project as well as all engineers' drawings.
7. Drawings are not to be scaled off.
8. All building work and materials to comply with the local authorities requirements and are in accordance with the SABS 0400-1990 National Building Regulations.
9. Unless otherwise stated, any products specified by trade name are installed strictly in accordance to the manufacturer's specifications and instructions.
10. All slabs, beams, columns, foundations, structural steel, structural walls, retaining walls as well as any other structural elements are in accordance with the structural engineer's design, detail and approval.
11. All stormwater design is in accordance with the civil engineer's design, detail and approval.

CONSTRUCTION NOTES:

A. FOUNDATIONS / BACKFILL

1. All to Engineers detail and specification.

B. FLOORS

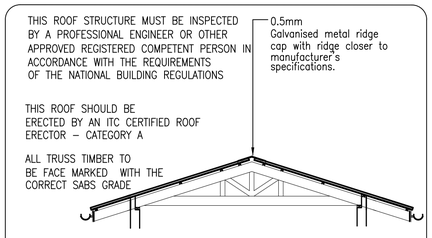
1. All construction, movement and control joints are in accordance with the structural engineer's design and detail and to the structural engineer's approval.
2. All surface beds are on minimum 250 micron, sabs approved, damp proof membrane (dpm) sheeting is laid on a blinding layer on well compacted soil, all in accordance with the Structural Engineer.
3. The soil is treated and certified by a soil poisoning specialist using approved soil poisoning in accordance with the recommendations of SABS 0124.

C. WALLS / BEAMS

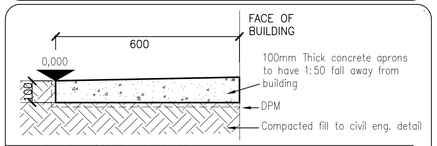
1. All walls are to comply with "Part K" of the National Building Regulations.
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3. Brickforce to every 3rd course up to window head height thereafter all courses from window head to underside of wallplate. Galvanised crimp wire wall ties (7 per square metre - laid staggered).
4. External face of inner skin to be painted bitumen paint. 375 micron embossed damp-proof membrane stepped below all window cills.
5. Where plaster is required internally (13 - 16mm thick) ratio must be 1:5 cement:sand mix. Beam filling to underside of roofing sheets.
6. Isolation joints to be square struck 10x10mm, all to structural engineers details.
7. All founding and / or retaining wall to Structural Engineers details.
8. P.C. lintols to be installed over all new openings.
9. All Facebrick on edge lintols built above every window and door opening (unless otherwise specified) to eng. detail.
10. Bearing areas on either side of openings on all lintel lengths shall be a minimum of 300mm.

D. ROOF

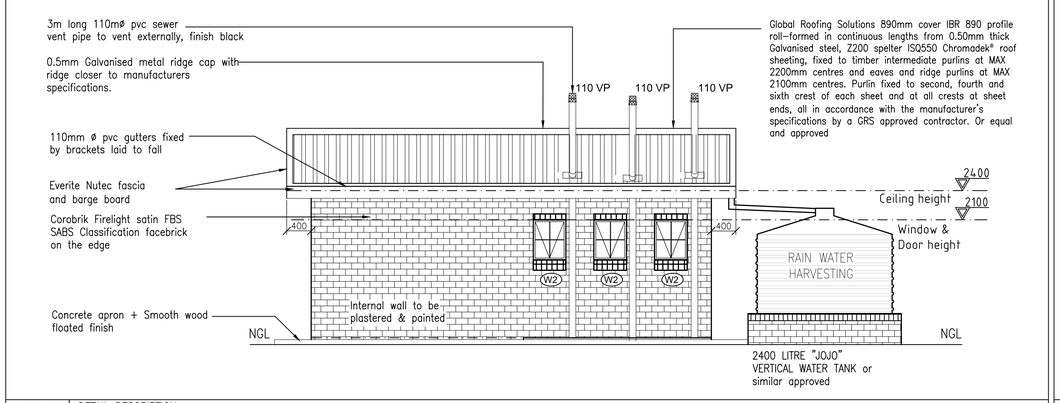
1. Global Roofing Solutions 890mm cover IBR 890 profile roll-formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved
2. Pitch: 17.5degrees
3. Colour of sheeting to be matched to existing roof structure on site.
4. Roof sheet to be laid on Sisalation 405 reflective foil laminate on 75mm x 50mm SA Pine purlins on prefabricated timber trusses to Structural Engineers Details and Specifications.
5. Purlin spacings are dependant on both downward loading and negative suction loading caused by wind. The engineer should be consulted to calculate the load (kN/m2) for particular application



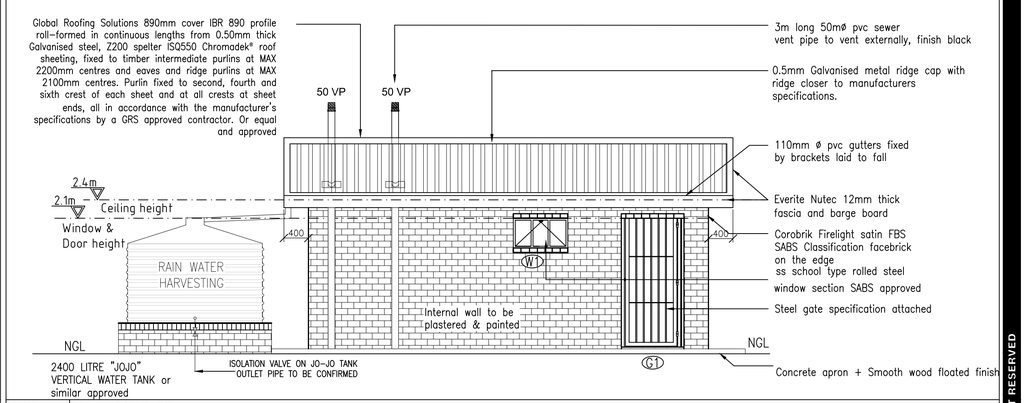
SCALE: 1:50 | DETAIL DESCRIPTION. ROOF DETAIL



SCALE: 1:10 | DETAIL DESCRIPTION. CONC APRON DETAIL



SCALE: 1:50 | DETAIL DESCRIPTION. BACK ELEVATION



SCALE: 1:50 | DETAIL DESCRIPTION. FRONT ELEVATION

TENDER PURPOSES ONLY

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AECOM

CONSULTANT

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Kwa-Zulu Natal, South Africa
+27 (0) 31 204 3800 tel +27 (0) 31 204 3818 fax
www.aecom.com Reg No. 1968/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING:
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.09.30	ISSUED FOR TENDER	FR
I/R	DATE	DESCRIPTION	DRN
	2019-09-16	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME D NOETZOLD DATE 2022.09.30
PROF REG. No. 21510 SIGNATURE

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

6 BOYS ABLUTIONS BLOCK DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

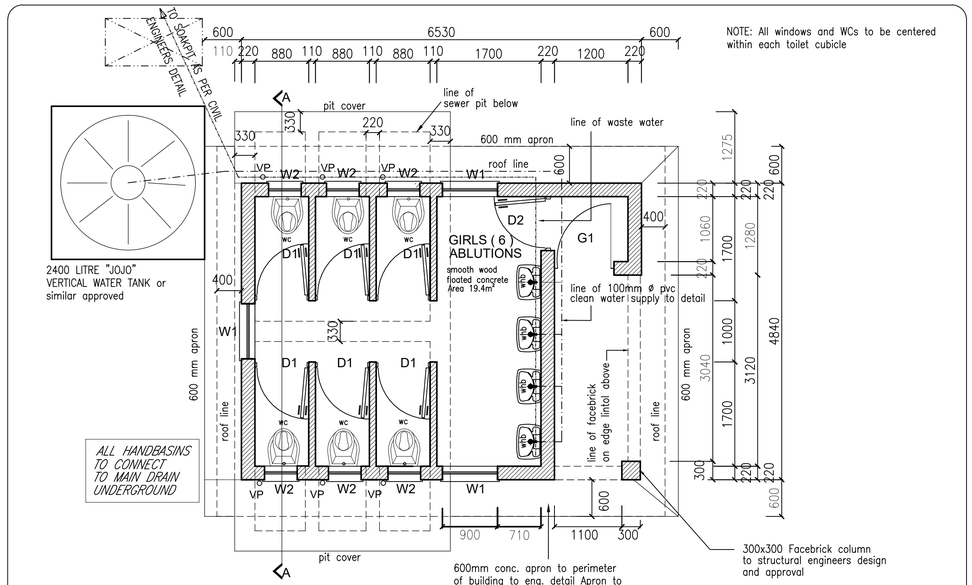
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	A	AF-450	T	0

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REPORT

SCALE As Indicated

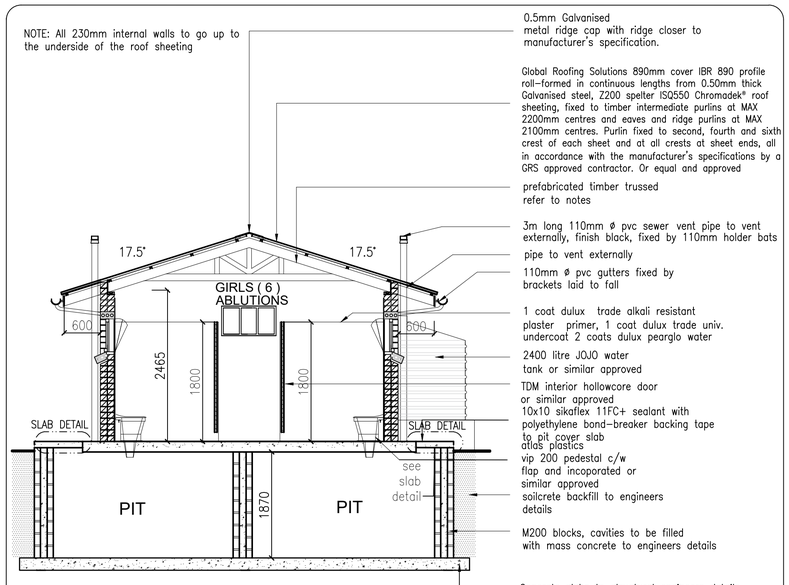
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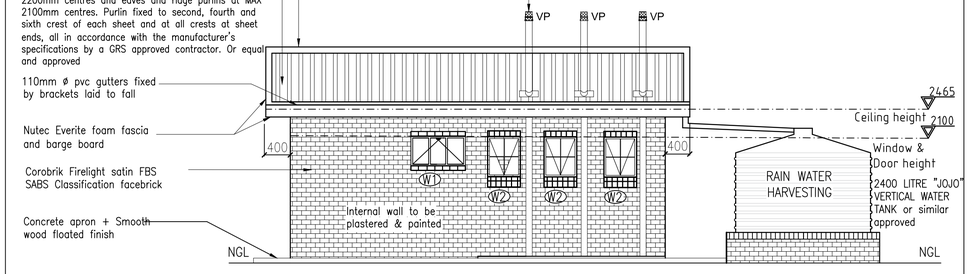
NOTE: All windows and WCs to be centered within each toilet cubicle

NOTE: All

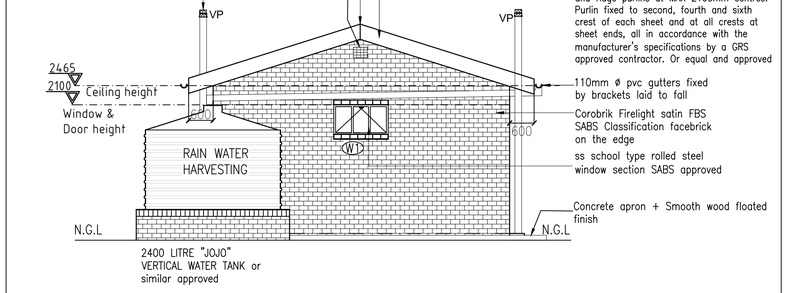
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1:50	FLOOR PLAN



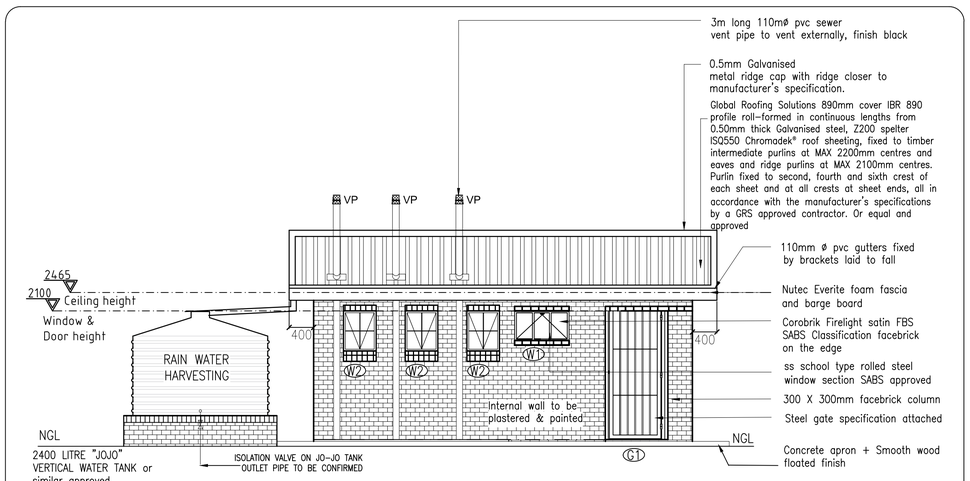
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1:50	SECTION A-A



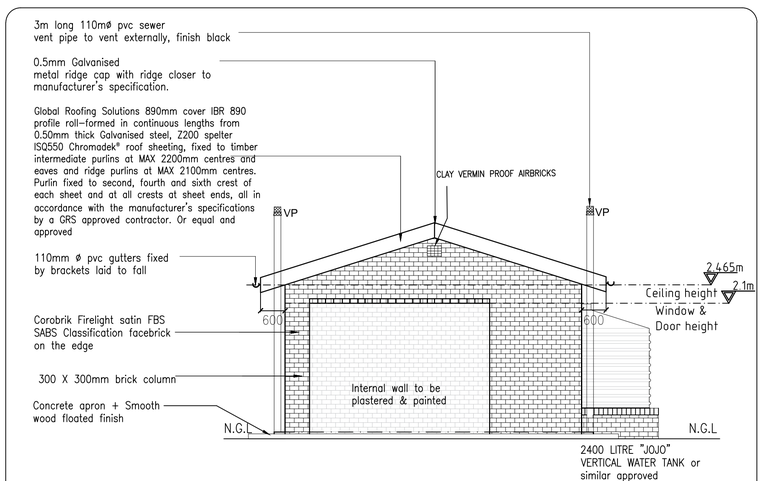
SCALE:	DETAIL DESCRIPTION.
1:50	BACK ELEVATION



SCALE:	DETAIL DESCRIPTION.
1:50	SIDE ELEVATION



SCALE:	DETAIL DESCRIPTION.
1:50	FRONT ELEVATION



SCALE:	DETAIL DESCRIPTION.
1:50	SIDE ELEVATION

GENERAL NOTES:

1. Quality of materials & workmanship to comply with relevant SABS & BSS specifications. All to conform to the minimum standards as specified in the preambles in the BOQ. All work to comply with NBR.
2. Contractor is responsible for correct setting out of building external & internal walls, with particular reference to boundaries & building lines.
3. Contractor to locate & identify existing services and to protect these from damage for the duration of the work.
4. Any discrepancies were brought to the architect's attention immediately and prior to the commencement of any building operations.
5. All dimensions and levels to be checked on site.
6. This drawing is read in conjunction with all other drawings, schedules and specifications related to this project as well as all engineers' drawings.
7. Drawings are not to be scaled off.
8. All building work and materials to comply with the local authorities requirements and are in accordance with the SABS 0400-1990 National Building Regulations.
9. Unless otherwise stated, any products specified by trade name are installed strictly in accordance to the manufacturer's specifications and instructions.
10. All slabs, beams, columns, foundations, structural steel, structural walls, retaining walls as well as any other structural elements are in accordance with the structural engineer's design, detail and approval.
11. All stormwater design is in accordance with the civil engineer's design, detail and approval.

CONSTRUCTION NOTES:

A. FOUNDATIONS / BACKFILL

1. All to Engineers detail and specification.

B. FLOORS

1. All construction, movement and control joints are in accordance with the structural engineer's design and detail and to the structural engineer's approval.
2. All surface beds are on minimum 250 micron, sabs approved, damp proof membrane (dpm) sheeting is laid on a blinding layer on well compacted soil, all in accordance with the Structural Engineer.
3. The soil is treated and certified by a soil poisoning specialist using approved soil poisoning in accordance with the recommendations of SABS 0124.

C. WALLS / BEAMS

1. All walls are to comply with "Part K" of the National Building Regulations.
2. COROBRICK commons to be used where to receive plaster. COROBRICK engineering Bricks to be used below ground level in foundation walls.
3. Brickforce to every 3rd course up to window head height thereafter all courses from window head to underside of wallplate. Galvanised crimp wire wall ties (7 per square metre - laid staggered).
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D. ROOF

1. Global Roofing Solutions 890mm cover IBR 890 profile roll-formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved
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E. PAINT

1. All paints, stains, varnishes, etc, are of an approved manufacturer, and used in strict accordance to the manufacturer's instructions.

F. DRAINAGE / STORMWATER NOTES

1. All drainage work and materials comply with the local authority requirements in accordance with the SANS 10400-2020 National Building Regulations Part P.
2. Walls and foundations are to bridge over all pipes.
3. All pipes under building encased in concrete, and approved by engineer.
4. Vent pipes to secured to the walls outside the ablution facilities - 3m 110mm Ø vent pipe (black - uv) fixed with 3 110mm holder bats - 110mm fly screen used at vent end.
5. DRY toilets: All WC for students Atlas plastic vip 200 pedestal, color granite
6. DRY toilets: All WC for teachers and disabled to be Atlas plastic vip 200 pedestal, color granite
7. DRY urinals: Atlas plastic bowl urinal, colour: granite
8. Atlas plastic Christy wash hand basin with traditional chrome cobra watertech or equal and approved Stella basin cold water tap and cobra watertech or equal and approved dura chrome plated single lever basin mixer (code: du-951) for paraplegic toilet. colour: granite.

Close taps to ensure reliable water conservation, which must be able to close at minimum 15kpa pressure.

9. Domestic water supply to be connected to existing water mains where possible.
10. All flushing mechanisms if applicable as per civil engineers design
11. The rain water harvesting tank must be equipped with a flood valve and connected to the main water supply within the school yard, where it is available.
12. All downpipes are pvc. All downpipes sizes in accordance with engineer's approval.
13. - pipes from sinks & urinal outlets to soakaway pit (50mm pvc)
    - pipes from gutters to fill tank (75mm pvc)
    - pipe from tank to sinks (15mm polycop) fitting to be done internally

G. FIRE NOTES

11. All building work comply with the local authority requirements in accordance with the SANS10400 National Building Regulations.
12. Fire stability of all structural elements and components comply with National Building Regulations Part TT7 and TT9.

TENDER PURPOSES ONLY

AECOM

CONSULTANT

DURBAN
Ridgeview Building
3rd Floor
01 Nokwe Avenue
Ridgeside, Umhlanga Ridge
Kwa-Zulu Natal, 4319
Tel: +27 (0) 31 204 3800 Fax: +27 (0) 31 204 3818
www.aecom.com Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

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I/R	DATE	DESCRIPTION	DRN
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	2019-09-16	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME	D NOETZOLD	DATE	2022.10.30
PROF REG. No.	21510	SIGNATURE	

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

ABLUTIONS BLOCK :
6 GIRLS ABLUTIONS DRY

SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC	TYPE - NUMBER	STATUS	REV
60491906	01	0000	A	AF - 500	T	0

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REPORT

SCALE As Indicated

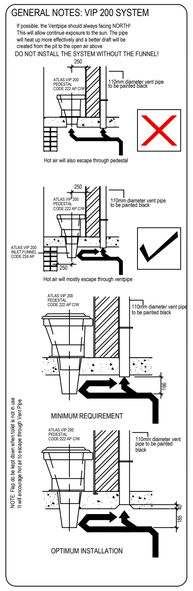
COPYRIGHT RESERVED

ISO A1 841mm x 594mm
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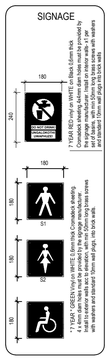
ISO A1 841mm x 594mm

GENERAL NOTES: VIP 200 SYSTEM

If possible, the Ventpipe should always facing NORTH!
This will allow continue exposure to the sun. The pipe will heat up more effectively and a better draft will be created from the pit to the open air above.
DO NOT INSTALL THE SYSTEM WITHOUT THE FUNNEL!

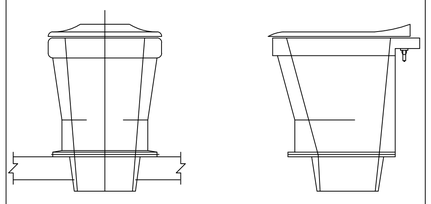


SIGNAGE



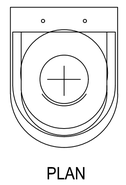
1 YEAR RED vinyl on WHITE 3.65mm thick Corvaplast sheeting
Corvaplast sheeting shall be cut to sizes and as shown on drawings. Holes shall be drilled in the sheeting by the contractor. Sheeting shall be fixed to walls with washers and stainless steel screws.

SCALE:	DETAIL DESCRIPTION.
NTS	VIP 200 SYSTEM & SIGNAGE



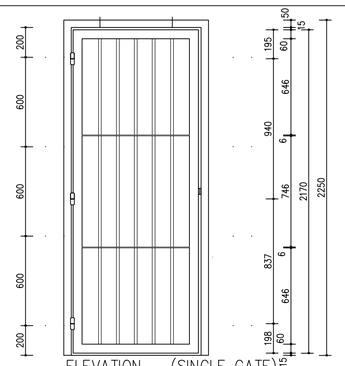


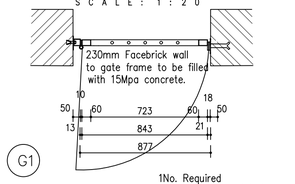
ATLAS 200 VIP PEDESTAL c/w seat and pan or similar approved



PLAN

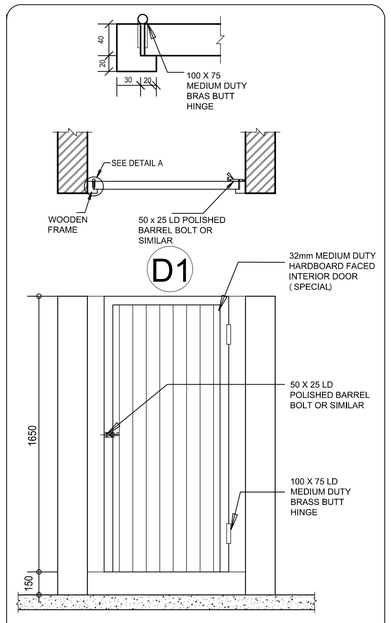
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1:10	WC DETAILS	x6



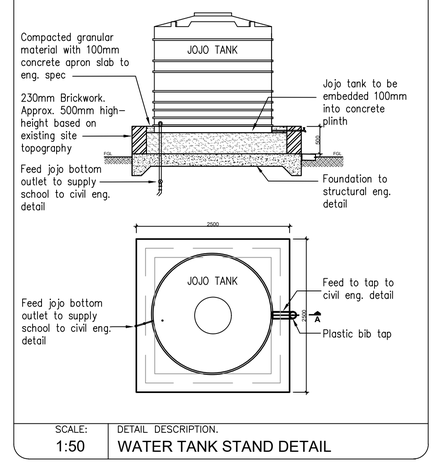


GATE/FRAME FINISH: 1No. Required
IRONMONGERY: Galvanised not painted
Union 'MG47' 47mm Padlock

SCALE:	DETAIL DESCRIPTION:	QUANTITY
1:20	GATE (G1) DETAILS	x1



SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:20	CUBICLE (D1) DOOR DETAIL	x6

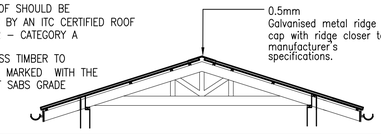


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1:50	WATER TANK STAND DETAIL

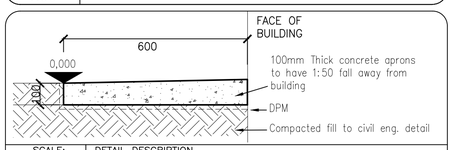
THIS ROOF STRUCTURE MUST BE INSPECTED BY A PROFESSIONAL ENGINEER OR OTHER APPROVED REGISTERED COMPETENT PERSON IN ACCORDANCE WITH THE REQUIREMENTS OF THE NATIONAL BUILDING REGULATIONS

THIS ROOF SHOULD BE ERECTED BY AN ITC CERTIFIED ROOF ERECTOR – CATEGORY A

ALL TRUSS TIMBER TO BE FACE MARKED WITH THE CORRECT SABS GRADE



SCALE:	DETAIL DESCRIPTION.
1:50	ROOF DETAIL



SCALE:	DETAIL DESCRIPTION.
1:10	CONC APRON DETAIL

Global Roofing Solutions 890mm cover IBR 890 profile roll–formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved

Nutec Everite 200mm x 800mm socketless barge boards. Upvc H–profile barge board joiners. Drill for and fix with hot–dipped galvanised screws and washers. 76 x 50mmm trimmer batten fixed underside of purlin ends for barge board fixing.

Nutec Everite fascia boards 12mm thick and 225mm with aluminium H–profile fascia joiners. Drill for and fix with hot –dip galvanised drive screws and washers.

110mm Nutec Everite gutters or similar approved in maximum possible lengths & fixed with concealed brackets laid to fall 1:200 towards outlet. Joints at corners etc, if any are to be accurately formed, sealed & rivetted to achieve a watertight finish. Brackets to be fixed at max 1m centres. 75mm Dia Upvc downpipes with 1NO. to discharge into rain water tank

Reinforced BOE Facebrick lintel

Steel windows with burglar bars to schedule bottom hung

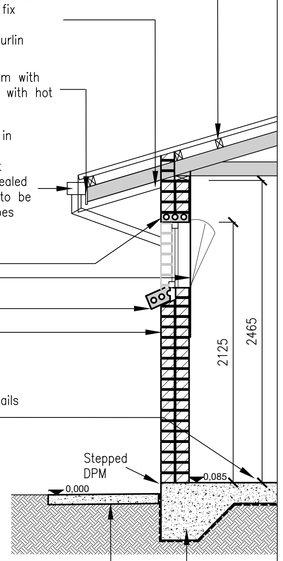
BOE Facebrick window cills with DPC under.

Corobrik Montana Travertine FBS SABS Classification Facebrick lintel or similar approved . Facebrick internally up to 1105mm above finish floor level

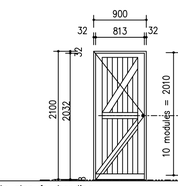
Reinforced concrete slab to structural engineers details on compacted fill by civil engineers. Soil to be poisoned in accordance with SABS 1165. (Certificate to be provided)

Concrete aprons laid to fall off 1:50 to structural engineers details on compacted fill by civil engineers

Foundation to be concrete raft foundations to structural eng. detail, under all walls. they are to sit on firm compacted ground by civil eng.

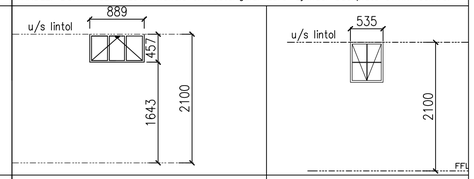


SCALE:	DETAIL DESCRIPTION.
1:25	TYPICAL SKIN SECTION



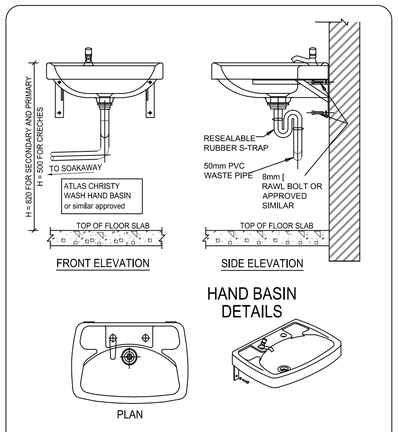
Refer to plan for handing

TYPE:	D2 No. OF : x1
FRAME:	1.2mm pressed metal 1 No. frame suitable for 230mm wall
F.FINISH:	Galvanised. Not painted.
DOOR:	2032x813x40mm meranti hardwood doors. Tongue and groove boarding with v–joints SA pine sub frame with double 20x225mm top and bottom ledges. 20x150mm middle ledge and 20x110mm braces
D.FINISH:	Wood prime, one coat undercoat and two coats gloss
FURNITURE	DOOR SET 2
IRONMONGERY	LOCKS: DORMA D036S Euro–profile cylinder sash lock SS HANDLE: DORMA CB30 Lever handle on rectangular Euro–cylinder backplate 61mm centre.

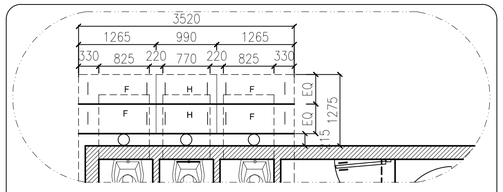


	W1	W02
TYPE:	No. OF : x3	NO REQD: x6
FRAME:	Rolled steel window sections, bottom hung openings. SABS approved.	Rolled steel window sections, top hung openings. SABS approved.
GLASS:	4mm sandblasted glass puttied in with steel window putty.	4mm sandblasted glass puttied in with steel window putty.
FITTING:	Approved standard brass fittings completed with window.	Approved standard brass fittings completed with window.
B. BARS	8mmø bars	8mmø bars
FINISH:	Galvanised. No Painting required	Galvanised. No Painting required
NOTES:	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in

SCALE:	DETAIL DESCRIPTION.
1:50	DOOR (D2) & WINDOWS SCHEDULE



SCALE:	DETAIL DESCRIPTION.	QUANTITY
1:10	BASIN DETAIL	x4



SLAB TYPE	PLAN	1 - 1	2 - 2
F	1265, 200, 165, 530	100 100	y 10 galvanised steel, 100 100, 25 180 25, 73 73
NUMBER OFF: 8			
SLAB TYPE	PLAN	1 - 1	2 - 2
H	990, 200, 165, 530	100 100	y 10 galvanised steel, 100 100, 25 180 25, 73 73
NUMBER OFF: 4			

SCALE:	DETAIL DESCRIPTION.
1:50	SLAB DETAIL (PIT COVER) *ALL TO STRUCTURAL ENGINEERS SPECIFICATIONS

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ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.10.30	ISSUED FOR TENDER	FR
	2019-09-16	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME D NOETZOLD DATE 2022.10.30
PROF REG. No. 21510 SIGNATURE

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
ABLUTIONS BLOCK :
6 GIRLS ABLUTIONS DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE
ARCHITECTURE

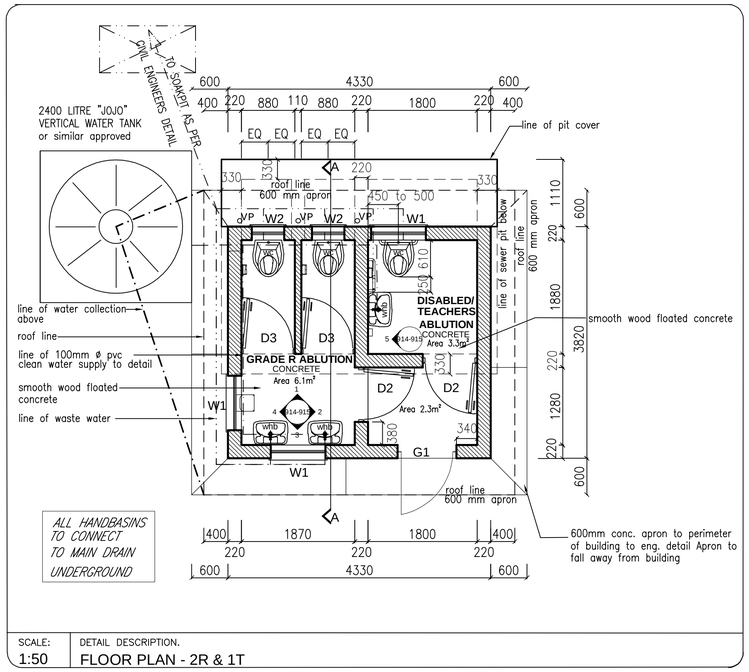
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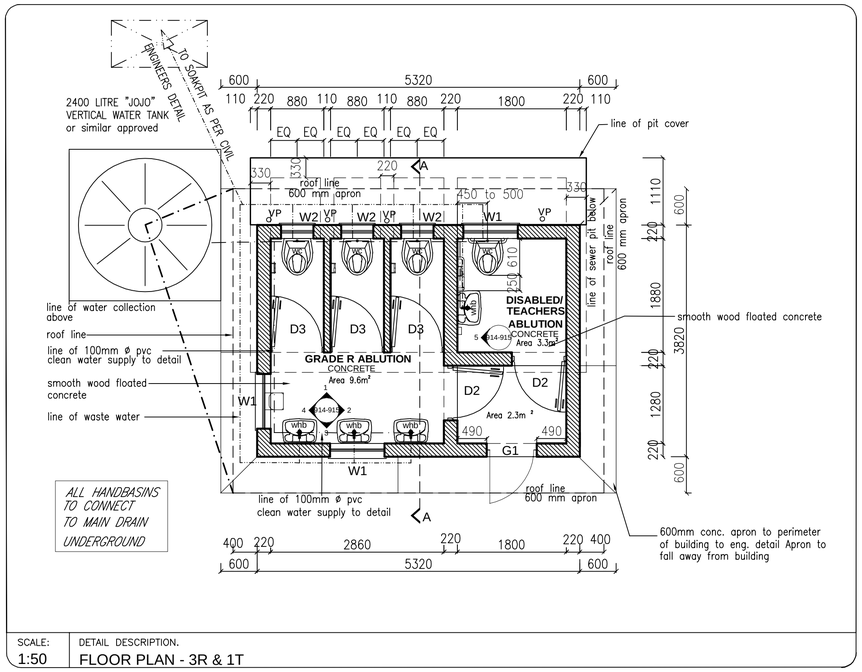
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SCALE: 1:50

DETAIL DESCRIPTION.
FLOOR PLAN - 2R & 1T



SCALE: 1:50

DETAIL DESCRIPTION.
FLOOR PLAN - 3R & 1T

GENERAL NOTE SETTING OUT: Windows & WC in cubicles to sit centrally to cubicle.

*ALL INTERNAL 230mm WALLS TO BE TO UNDERSIDE OF ROOF SHEETING.

GENERAL NOTES:

1. Quality of materials & workmanship to comply with relevant SABS & BS specifications. All to conform to the minimum standards as specified in the preambles in the BOQ. All work to comply with NBR.
2. Contractor is responsible for correct setting out of building external & internal walls, with particular reference to boundaries & building lines.
3. Contractor to locate & identify existing services and to protect these from damage for the duration of the work.
4. Any discrepancies were brought to the architect's attention immediately and prior to the commencement of any building operations.
5. All dimensions and levels to be checked on site.
6. This drawing is read in conjunction with all other drawings, schedules and specifications related to this project as well as all engineers' drawings.
7. Drawings are not to be scaled off.
8. All building work and materials to comply with the local authorities requirements and are in accordance with the SABS 0400-1990 National Building Regulations.
9. Unless otherwise stated, any products specified by trade name are installed strictly in accordance to the manufacturer's specifications and instructions.
10. All slabs, beams, columns, foundations, structural steel, structural walls, retaining walls as well as any other structural elements are in accordance with the structural engineer's design, detail and approval.
11. All stormwater design is in accordance with the civil engineer's design, detail and approval.

CONSTRUCTION NOTES:

A. FOUNDATIONS / BACKFILL

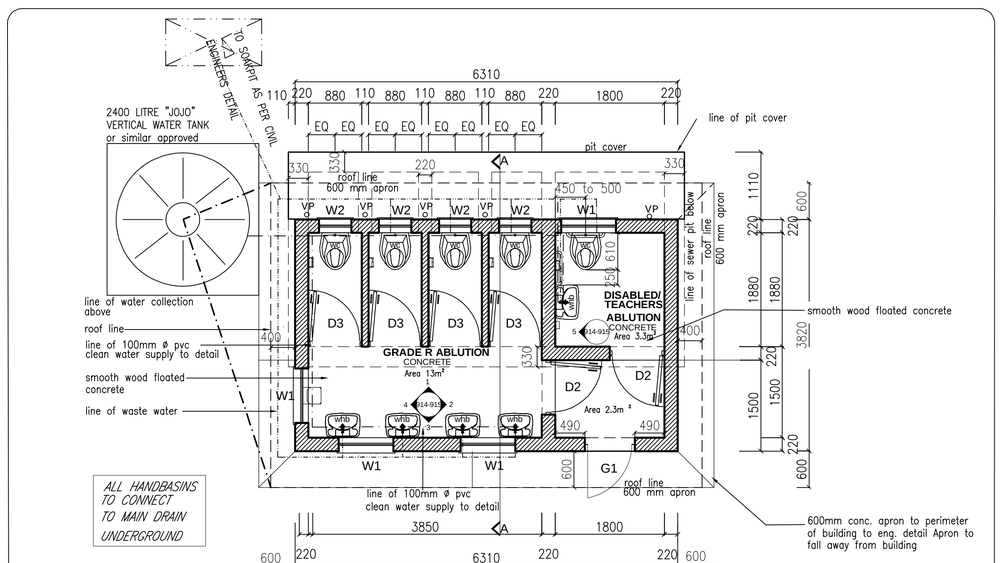
1. All to Engineers detail and specification.

B. FLOORS

1. All construction, movement and control joints are in accordance with the structural engineer's design and detail and to the structural engineer's approval.
2. All surface beds are on minimum 250 micron, sabs approved, damp proof membrane (dpm) sheeting is laid on a blinding layer on well compacted soil, all in accordance with the Structural Engineer.
3. The soil is treated and certified by a soil poisoning specialist using approved soil poisoning in accordance with the recommendations of SABS 0124.

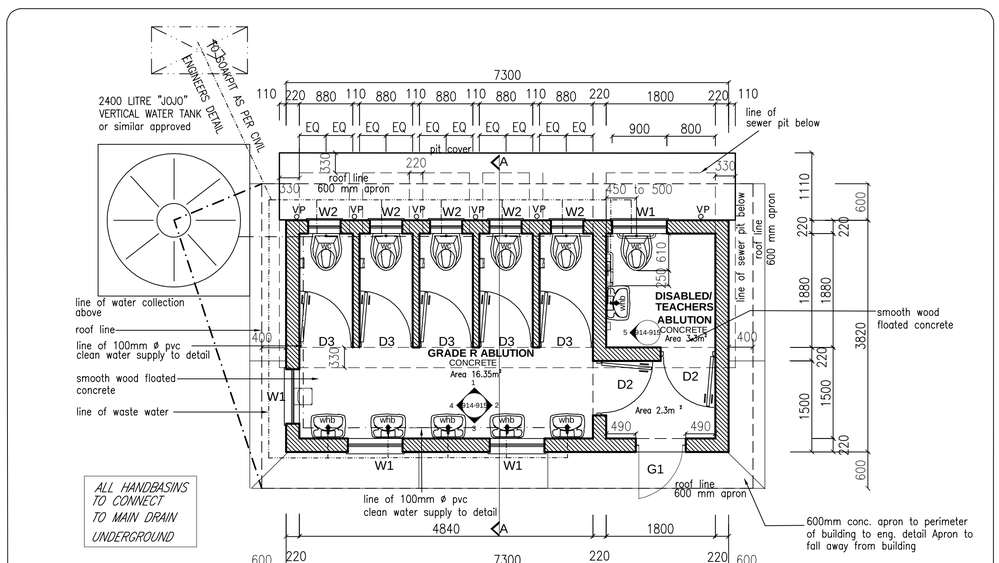
C. WALLS / BEAMS

1. All walls are to comply with "Part K" of the National Building Regulations
2. COROBRICK commons to be used where to receive plaster. COROBRICK engineering Bricks to be used below ground level in foundation walls.
3. Brickforce to every 3rd course up to window head height thereafter all courses from window head to underside of wallplate. Galvanised crimp wire wall ties (7 per square metre - laid staggered).
4. External face of inner skin to be painted bitumen paint. 375 micron embossed damp-proof membrane stepped below all window cills.
5. Where plaster is required internally (13 - 16mm thick) ratio must be 1:5 cement:sand mix. Beam filling to underside of roofing sheets.
6. Isolation joints to be square struck 10x10mm, all to structural engineers details.
7. All founding and / or retaining wall to Structural Engineers details.
8. P.C. lintols to be installed over all new openings.
9. All Facebrick on edge lintols built above every window and door opening (unless otherwise specified) to eng. detail.
10. Bearing areas on either side of openings on all lintel lengths shall be a minimum of 300mm.



SCALE: 1:50

DETAIL DESCRIPTION.
FLOOR PLAN - 4R & 1T



SCALE: 1:50

DETAIL DESCRIPTION.
FLOOR PLAN - 5R & 1T

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PROJECT

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ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.09.29	ISSUED FOR TENDER	JN
	2022-02-18	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	M.MOTLHABI	N/A	
DRAWN BY	M.MOTLHABI	N/A	
DESIGNED CHECKED BY	M.MOODLIAR	N/A	
DRAWING CHECKED BY	M.MOODLIAR	N/A	

APPROVAL CONSULTANT

NAME	D.NOETZOLD	DATE	2022.09.29
PROF REG. No.	21510	SIGNATURE	

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

GRADE R + 1 TEACHERS ABLUTIONS BLOCK
FLOOR PLANS DRY

SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

AECOM DRAWING NUMBER

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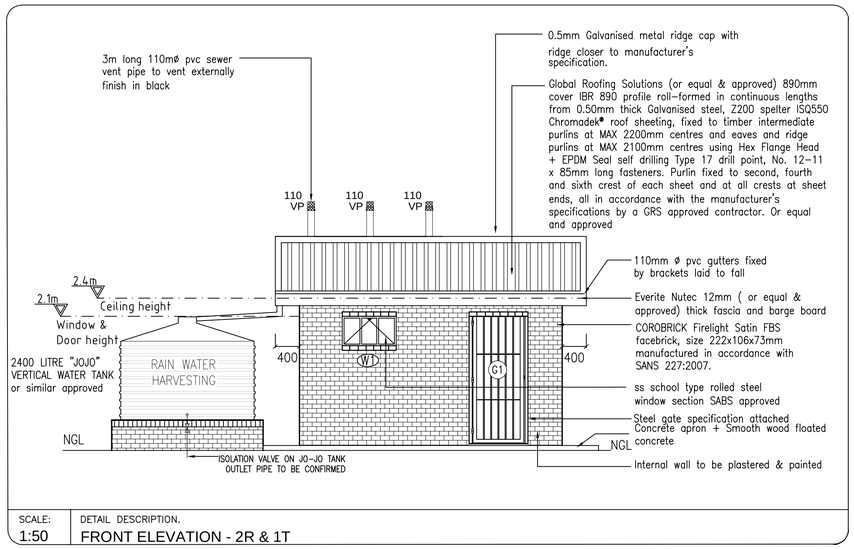
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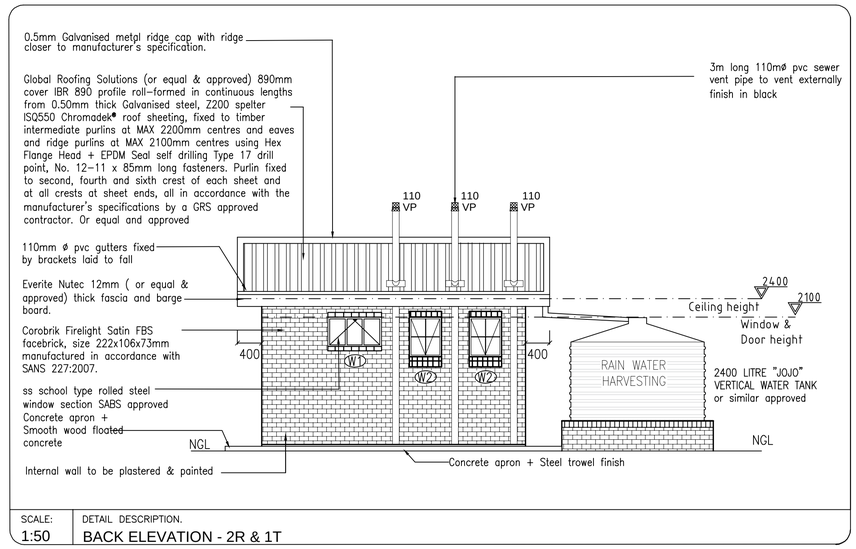
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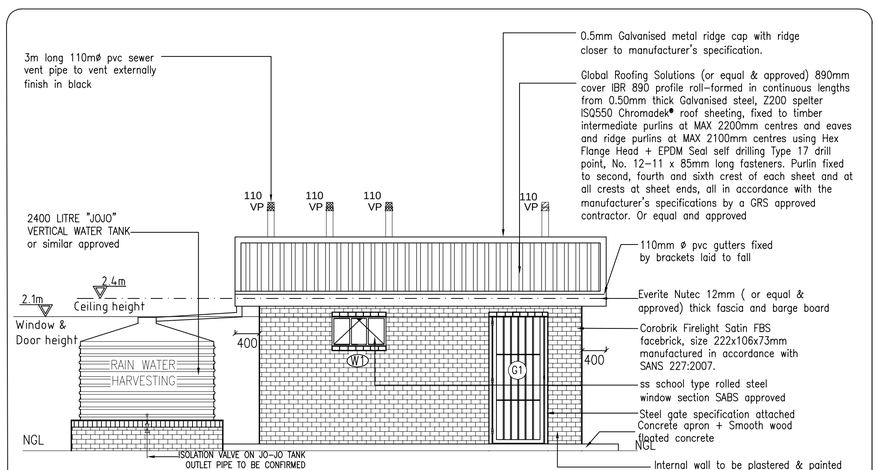
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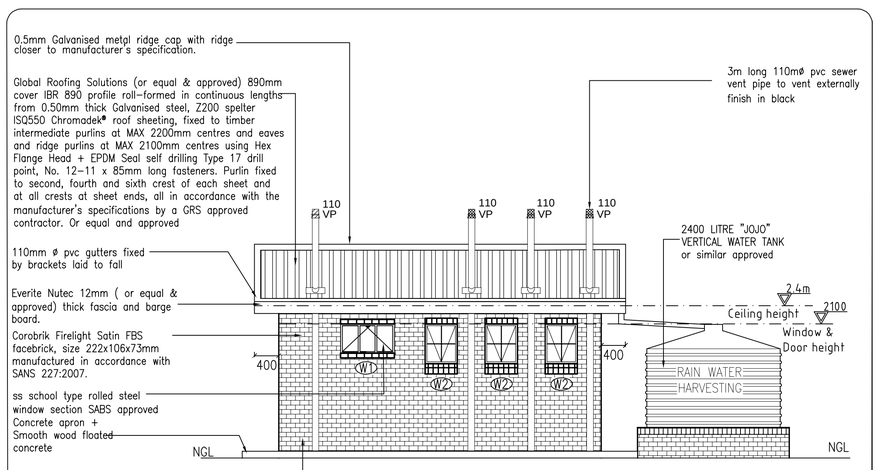
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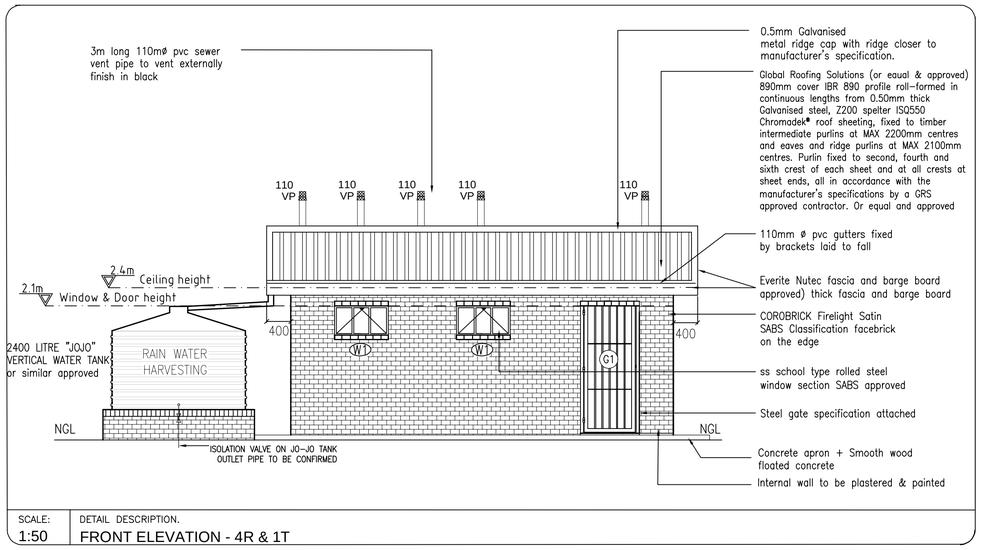
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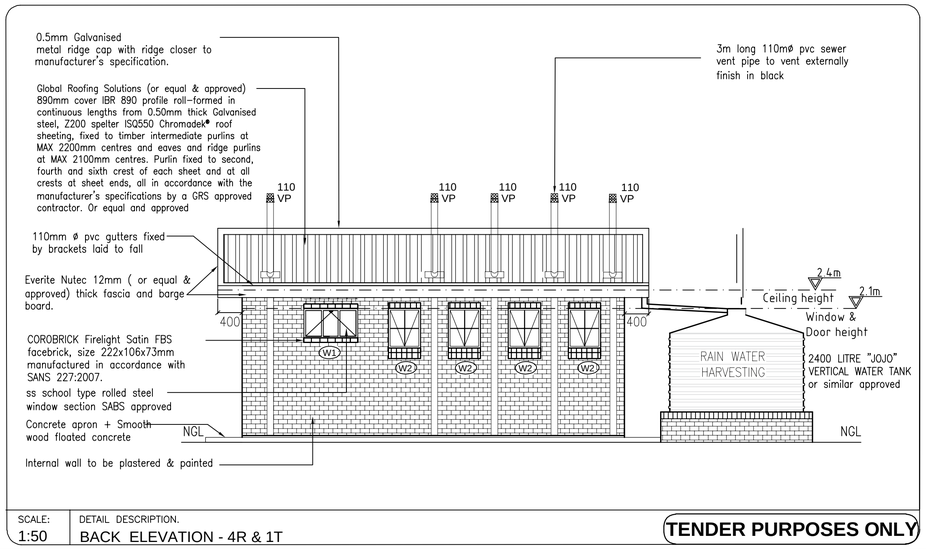
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SCALE: 1:50 | DETAIL DESCRIPTION. BACK ELEVATION - 3R & 1T



SCALE: 1:50 | DETAIL DESCRIPTION. FRONT ELEVATION - 4R & 1T



SCALE: 1:50 | DETAIL DESCRIPTION. BACK ELEVATION - 4R & 1T

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I/R	DATE	DESCRIPTION	DRN
0	2022.09.29	ISSUED FOR TENDER	JN
	2022-02-18	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	M.MOTLHABI	N/A	
DRAWN BY	M.MOTLHABI	N/A	
DESIGNED CHECKED BY	M.MOODLIAR	N/A	
DRAWING CHECKED BY	M.MOODLIAR	N/A	

APPROVAL CONSULTANT

NAME D.NOETZOLD DATE 2022.09.29
PROF REG. No. 21510 SIGNATURE

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SHEET TITLE
GRADE R + 1 TEACHERS ABLUTIONS BLOCK ELEVATIONS - SHEET 1 DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE
ARCHITECTURE

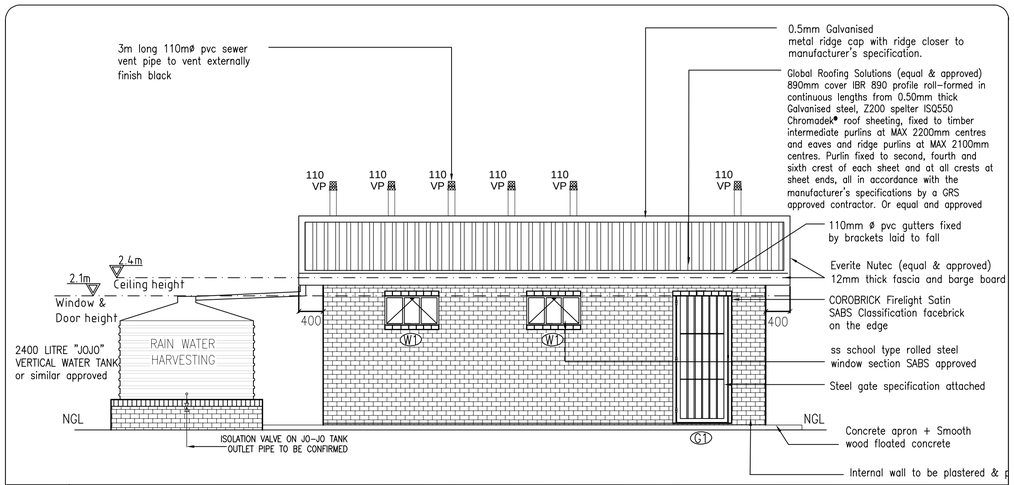
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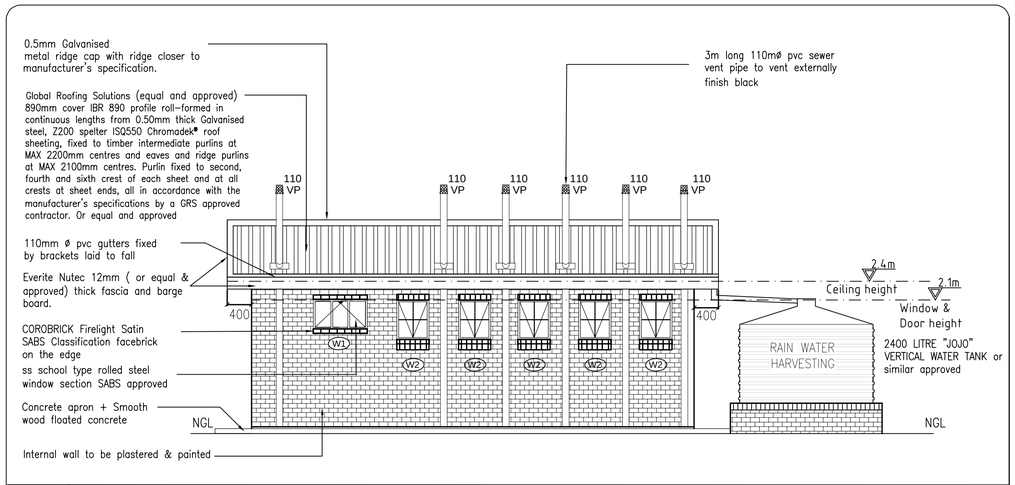
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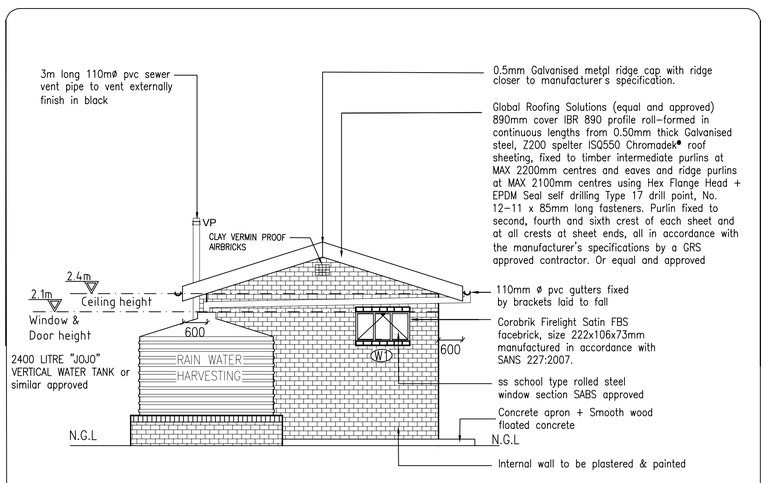
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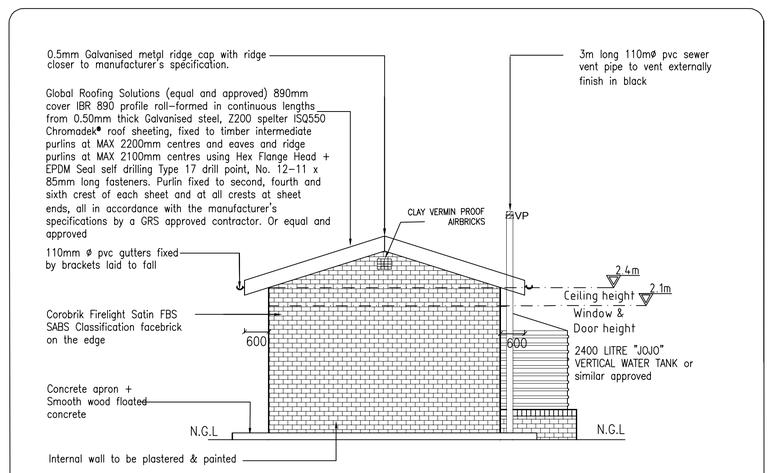
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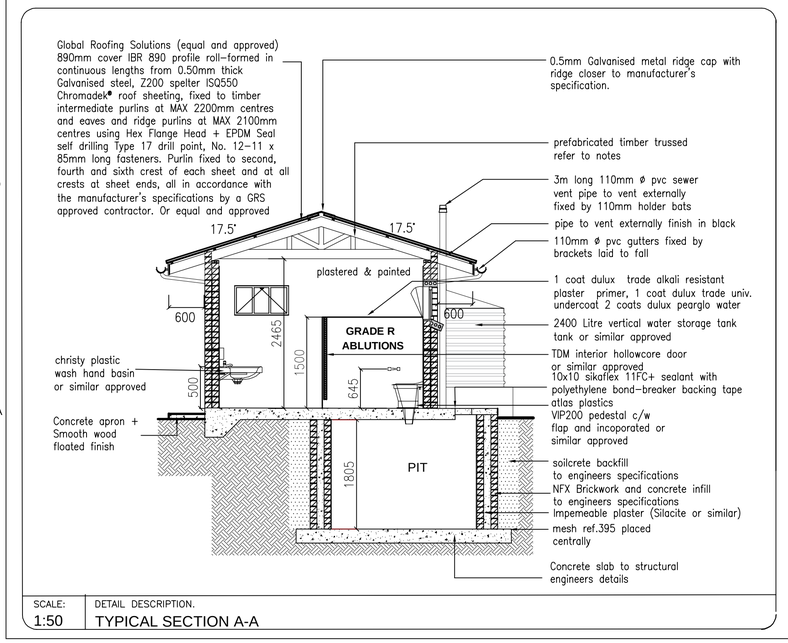
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SCALE: 1:50 | DETAIL DESCRIPTION. TYPICAL SIDE ELEVATION 2



SCALE: 1:50 | DETAIL DESCRIPTION. TYPICAL SECTION A-A

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DRAWING CHECKS

DESIGNED BY	M.MOTLHABI	N/A	
DRAWN BY	M.MOTLHABI	N/A	
DESIGNED CHECKED BY	M.MOODLIAR	N/A	
DRAWING CHECKED BY	M.MOODLIAR	N/A	

APPROVAL CONSULTANT

NAME	D.NOETZOLD	DATE	2022.09.29
PROF REG. No.	21510	SIGNATURE	

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SHEET TITLE
GRADE R + 1 TEACHERS ABLUTIONS BLOCK ELEVATIONS - SHEET 2 DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE
ARCHITECTURE

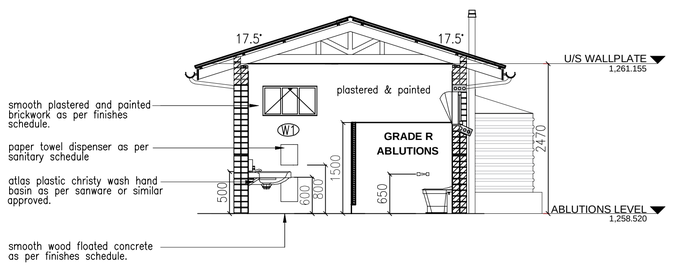
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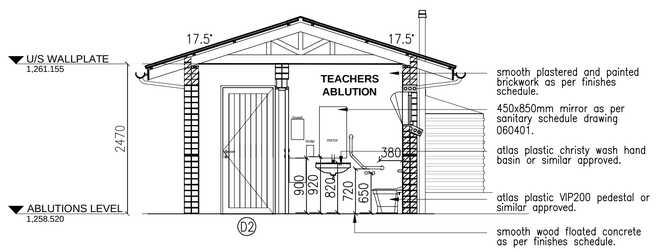
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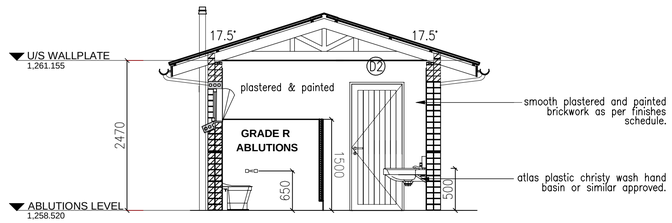
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DETAIL DESCRIPTION.
TYPICAL INTERIOR ELEVATION 4



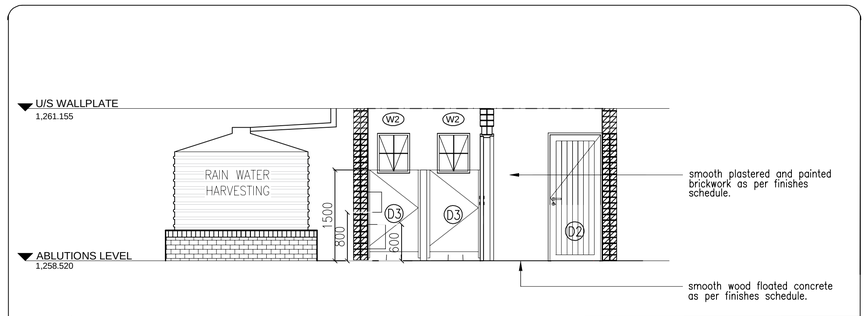
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DETAIL DESCRIPTION.
TYPICAL INTERIOR ELEVATION 5



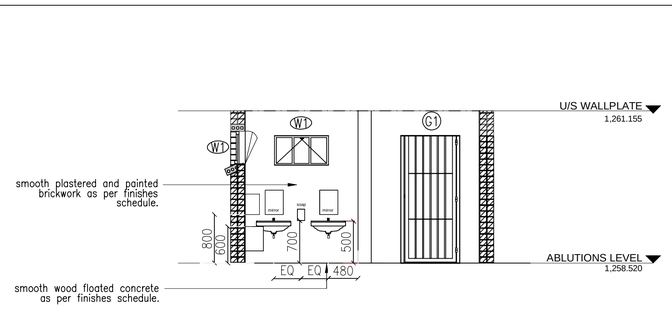
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DETAIL DESCRIPTION.
TYPICAL INTERIOR ELEVATION 2



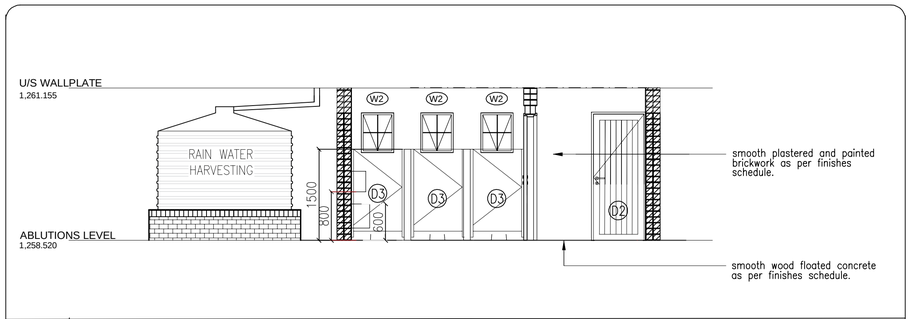
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DETAIL DESCRIPTION.
INTERIOR ELEVATION 1 - 2R & 1T



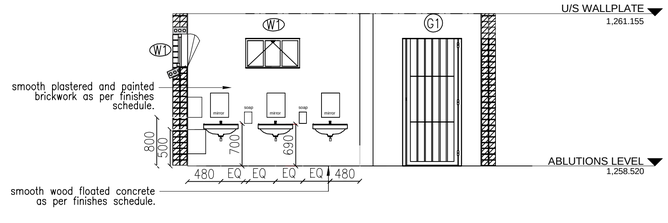
SCALE: 1:50

DETAIL DESCRIPTION.
INTERIOR ELEVATION 3 - 2R & 1T



SCALE: 1:50

DETAIL DESCRIPTION.
INTERIOR ELEVATION 1 - 3R & 1T



SCALE: 1:50

DETAIL DESCRIPTION.
INTERIOR ELEVATION 3 - 3R & 1T

TENDER PURPOSES ONLY

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Reg No. 1966/006628/07

PROJECT
DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT
KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
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NOTES

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ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.09.29	ISSUED FOR TENDER	JN
	2022-02-18	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	M.MOTLHABI	N/A	
DRAWN BY	M.MOTLHABI	N/A	
DESIGNED CHECKED BY	M.MOODLIAR	N/A	
DRAWING CHECKED BY	M.MOODLIAR	N/A	

APPROVAL CONSULTANT

NAME	D.NOETZOLD	DATE	2022.09.29
PROF REG. No.	21510	SIGNATURE	

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

GRADE R + 1 TEACHERS ABLUTIONS BLOCK
INTERNAL ELEVATIONS - SHEET 1 DRY
SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

AECOM DRAWING NUMBER

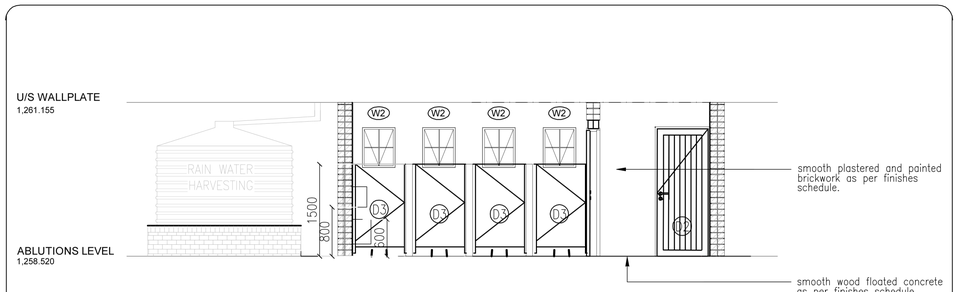
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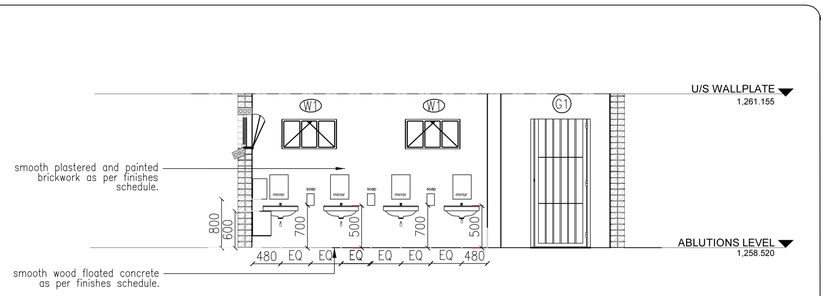
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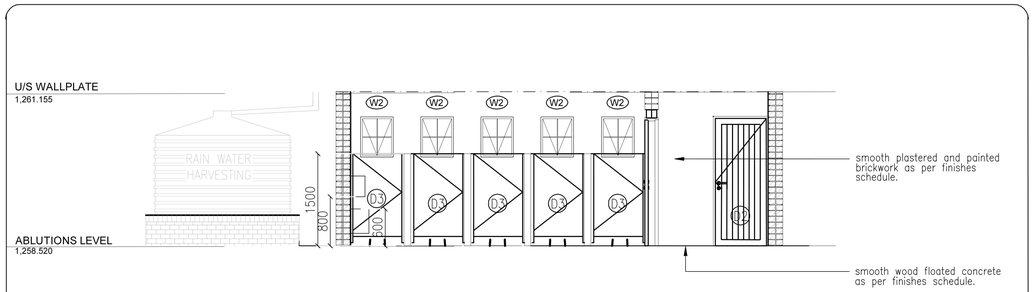
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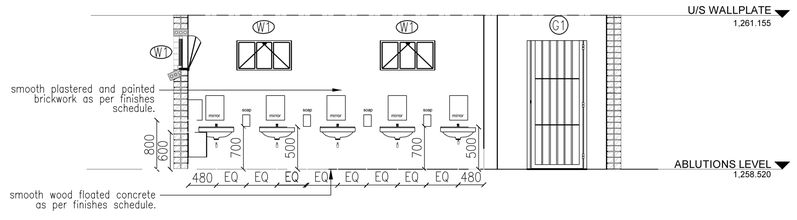
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SCALE: 1:50 | DETAIL DESCRIPTION. INTERIOR ELEVATION 1 - 5R & 1T



SCALE: 1:50 | DETAIL DESCRIPTION. INTERIOR ELEVATION 1 - 5R & 1T

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	2022-02-18	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J.NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME	D.NOETZOLD	DATE	2022.09.30
PROF REG. No.	21510	SIGNATURE	

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SHEET TITLE

GRADE R + 1 TEACHERS ABLUTIONS BLOCK
INTERNAL ELEVATIONS - SHEET 2 DRY

SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

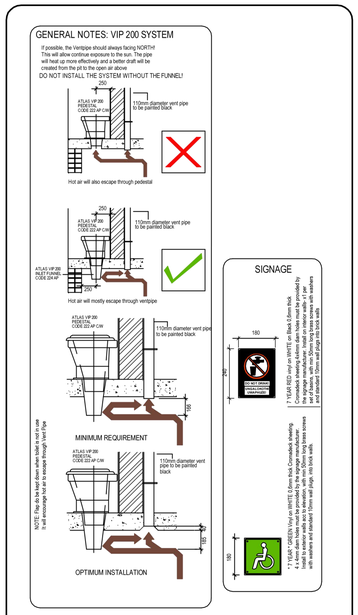
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC	TYPE - NUMBER	STATUS	REV
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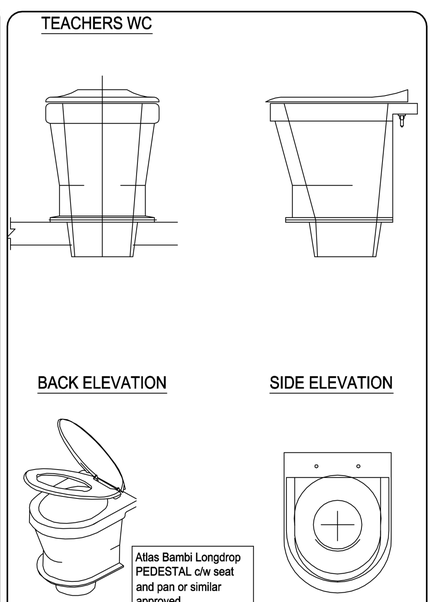
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SCALE As Indicated

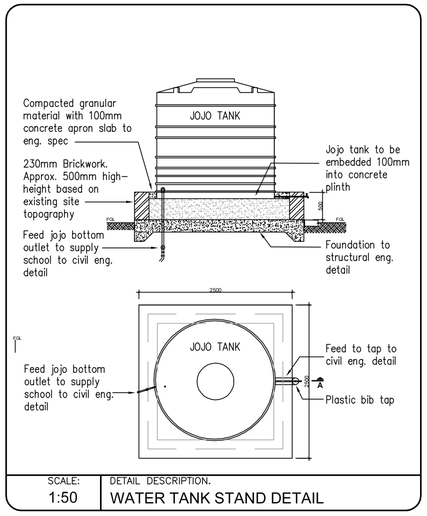
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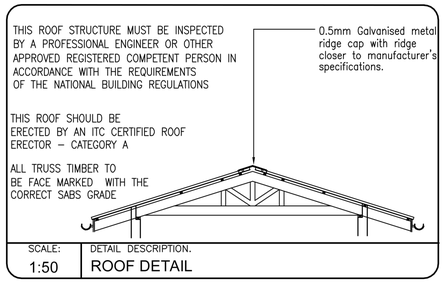
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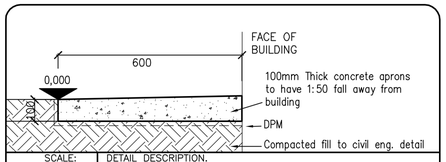
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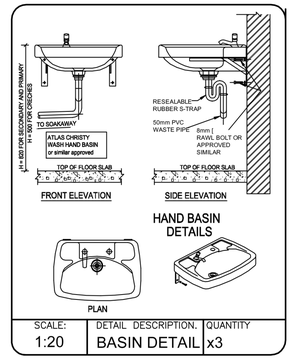
SCALE: 1:50 | DETAIL DESCRIPTION. WATER TANK STAND DETAIL



SCALE: 1:50 | DETAIL DESCRIPTION. ROOF DETAIL



SCALE: 1:10 | DETAIL DESCRIPTION. CONC APRON DETAIL



SCALE: 1:20 | DETAIL DESCRIPTION. BASIN DETAIL | QUANTITY x3

Global Roofing Solutions 890mm cover IBR 890 profile roll–formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12–11 x 85mm long fasteners. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved

Nutec Everite 200mm x 800mm socketless barge boards. Upvc H–profile barge board joiners. Drill for and fix with hot–dipped galvanised screws and washers. 76 x 50mmm trimmer batten fixed underside of purlin ends for barge board fixing.

Nutec Everite fascia boards 12mm thick and 225mm with aluminium H–profile fascia joiners. Drill for and fix with hot –dip galvanised drive screws and washers.

110mm Nutec Everite gutters or similar approved in maximum possible lengths & fixed with concealed brackets laid to fall 1:200 towards outlet. Joints at corners etc, if any are to be accurately formed, sealed & rivetted to achieve a watertight finish. Brackets to be fixed at max 1m centres. 75mm Dia Upvc downpipes with 1NO. to discharge into rain water tank

Reinforced BOE Facebrick lintel

Steel windows with burglar bars to schedule bottom hung

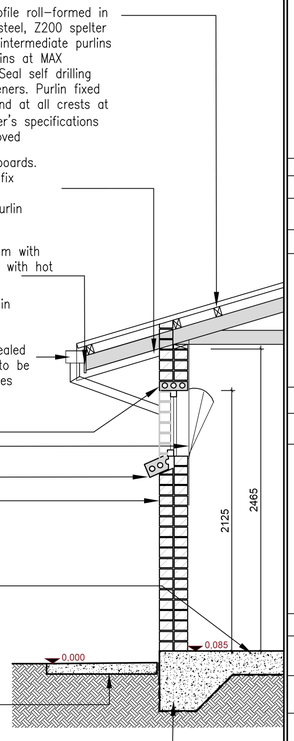
BOE Facebrick window cills with DPC under.

COROBRIC Firelight satin SABS Classification Facebrick lintel or similar approved . Facebrick internally up to 1105mm above finish floor level

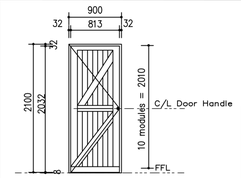
Reinforced concrete slab to structural engineers specifications, on compacted fill by civil engineers. Soil to be poisoned in accordance with SABS 1165. (Certificate to be provided)

Concrete aprons laid to fall of 1:50 to structural engineers details on compacted fill by civil engineers

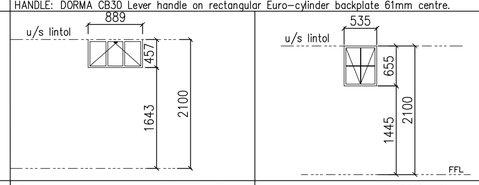
Foundation to be concrete raft foundations to structural eng. detail, under all walls. they are to sit on firm compacted ground by civil eng.



SCALE: 1:25 | DETAIL DESCRIPTION. TYPICAL SKIN SECTION

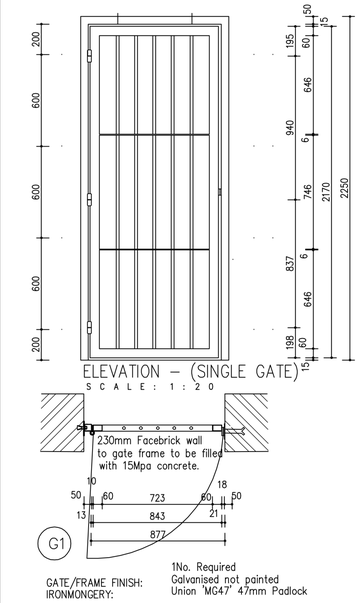


ELEVATION:	
	Refer to plan for handing
TYPE:	D2
FRAME:	1.2mm pressed metal 1 No. frame suitable for 230mm wall
F.FINISH:	Galvanised. Not painted.
DOOR:	2032x813x40mm meranti hardwood doors. Tongue and groove boarding with v–joints. SA pine sub frame with double 20x225mm top and bottom ledges, 20 x 150mm middle ledge and 20 x 110mm braces
D.FINISH:	Wood prime, one coat undercoat and two coats gloss
IRONMONGERY	LOCKS: DORMA D036S Euro–profile cylinder sash lock SS HANDLE: DORMA CB30 Lever handle on rectangular Euro–cylinder backplate 61mm centre.



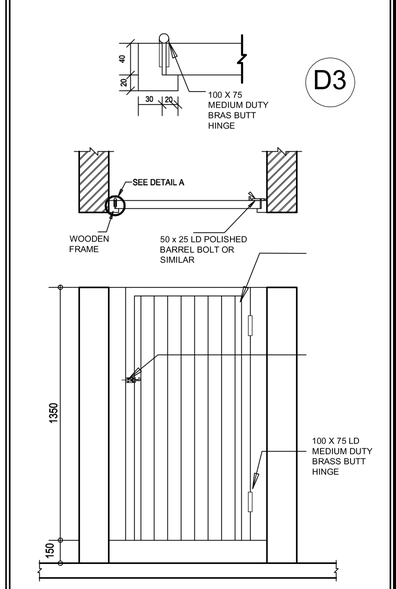
	W1	W2
TYPE:	NO REQD: x3	NO REQD: x2
FRAME:	Rolled steel window sections, bottom hung openings. SABS approved	Rolled steel window sections, top hung openings. SABS approved
GLASS:	4mm sandblasted glass puttied in with steel window putty.	4mm sandblasted glass puttied in with steel window putty.
FITTING:	Approved standard brass fittings completed with window.	Approved standard brass fittings completed with window.
B. BARS	8mm∅ bars	8mm∅ bars
FINISH:	Galvanised. No Painting required	Galvanised. No Painting required
NOTES:	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in	Courses adjacent to window jambs are to have cores filled allowing fixing lugs to be built–in

SCALE: 1:50 | DETAIL DESCRIPTION. DOOR (D2) & WINDOW SCHEDULE



GATE/FRAME FINISH: 1No. Required
IRONMONGERY: Galvanised not painted
Union 'MG47' 47mm Padlock

SCALE: 1:20 | DETAIL DESCRIPTION: GATE G1 DETAIL | QUANTITY x1



SCALE: 1:20 | DETAIL DESCRIPTION. CUBICLE DOOR (D3) DETAIL | QUANTITY x2

TENDER PURPOSES ONLY

D. ROOF

1. Global Roofing Solutions 890mm cover IBR 890 profile roll-formed in continuous lengths from 0.50mm thick Galvanised steel, Z200 spelter ISQ550 Chromadek® roof sheeting, fixed to timber intermediate purlins at MAX 2200mm centres and eaves and ridge purlins at MAX 2100mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners. Purlin fixed to second, fourth and sixth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications by a GRS approved contractor. Or equal and approved
2. Pitch: 17.5degrees
3. Colour of sheeting to be matched to existing roof structure on site.
4. Roof sheet to be laid on Sisalation 405 reflective foil laminate on 75mm x 50mm SA Pine purlins on prefabricated timber trusses to Structural Engineers Details and Specifications.
5. Purlin spacings are dependant on both downward loading and negative suction loading caused by wind. The engineer should be consulted to calculate the load (kN/m2) for particular application

E. PAINT

1. All paints, stains, varnishes, etc, are of an approved manufacturer, and used in strict accordance to the manufacturer's instructions.

F. DRAINAGE / STORM WATER NOTES

1. All drainage work and materials comply with the local authority requirements in accordance with the SABS 0400-1990 National Building Regulations Part P.
2. Walls and foundations are to bridge over all pipes.
3. All pipes under building encased in concrete, and approved by engineer.
4. Vent pipes to secured to the walls outside the ablution facilities - 3m 110mm Ø vent pipe (black - uv) fixed with 3 110mm holder bats - 110mm fly screen used at vent end.
5. DRY toilets: All WC for students Atlas plastic bambi longdrop pedestal, color granite.
6. DRY toilets: All WC for teachers and disabled to be Atlas plastic VIP200 pedestal, color granite
7. DRY urinals: Atlas plastic bowl urinal, colour: granite.
8. Atlas plastic Christy wash hand basin with traditional chrome cobra watertech or equal and approved Stella basin cold water tap and cobra watertech or equal and approved dura chrome plated single lever basin mixer (code: du-951) for paraplegic toilet. colour: granite.
9. Close taps to ensure reliable water conservation, which must be able to close at minimum 15kpa pressure.
10. Domestic water supply to be connected to existing water mains where possible.
11. All flushing mechanisms if applicable as per civil engineers design.
12. The rain water harvesting tank must be equipped with a fload valve and connected to the main water supply within the school yard, where it is available.
13. All downpipes are pvc. All downpipes sizes in accordance with engineer's approval.
14. - pipes from sinks & urinal outlets to soakaway pit (50mm pvc)
- pipes from gutters to fill tank (75mm pvc)
- pipe from tank to sinks (15mm polycop) fitting to be done internally

G. FIRE NOTES

1. All building work comply with the local authority requirements in accordance with the SANS10400 National Building Regulations.
2. Fire stability of all structural elements and components comply with National Building Regulations Part TT7 and TT9.

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APPROVAL CONSULTANT

NAME D.NOETZOLD DATE 2022.09.29
PROF REG. No. 21510 SIGNATURE

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SHEET TITLE

GRADE R + 1 TEACHERS ABLUTIONS BLOCK DETAILS DRY

SINENHLANHLA PRIMARY SCHOOL

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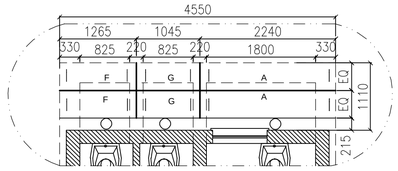
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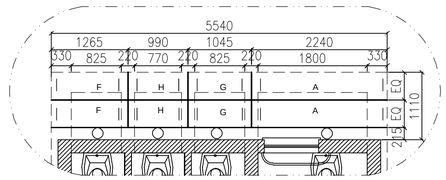
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SLAB TYPE	PLAN	1 - 1	2 - 2
F NUMBER OFF 2	1265 123.75 200 F 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
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*ALL TO STRUCTURAL ENGINEERS DETAILS.

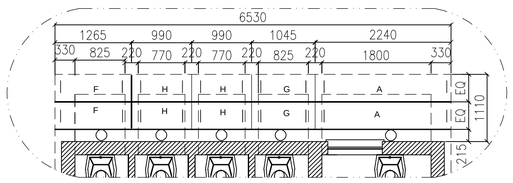
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1:50	SLAB DETAIL- PIT COVER (2R & 1T)



*ALL TO STRUCTURAL ENGINEERS SPECS.

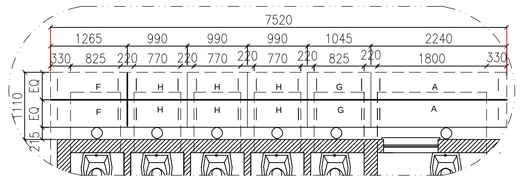
SLAB TYPE	PLAN	1 - 1	2 - 2
A NUMBER OFF 2	2240 123.75 200 A 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
F NUMBER OFF 2	1265 123.75 200 F 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
G NUMBER OFF 2	1045 123.75 200 G 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
H NUMBER OFF 2	990 123.75 200 H 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73

SCALE:	DETAIL DESCRIPTION.
1:50	SLAB DETAIL- PIT COVER (3R & 1T)



SLAB TYPE	PLAN	1 - 1	2 - 2
A NUMBER OFF 2	2240 123.75 200 A 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
F NUMBER OFF 2	1265 123.75 200 F 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
G NUMBER OFF 2	1045 123.75 200 G 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
H NUMBER OFF 4	990 123.75 200 H 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73

SCALE:	DETAIL DESCRIPTION.
1:50	SLAB DETAIL- PIT COVER (4R & 1T)



SLAB TYPE	PLAN	1 - 1	2 - 2
A NUMBER OFF 2	2240 123.75 200 A 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
F NUMBER OFF 2	1265 123.75 200 F 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
G NUMBER OFF 2	1045 123.75 200 G 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73
SLAB TYPE	PLAN	1 - 1	2 - 2
H NUMBER OFF 6	990 123.75 200 H 447.5	100 100	y 10 galvanised steel 100 100 25 180 25 73 73

SCALE:	DETAIL DESCRIPTION.
1:50	SLAB DETAIL- PIT COVER (5R & 1T)

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PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING:
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
0	2022.09.29	ISSUED FOR TENDER	JN
	2022-02-18	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	J. NAIR	N/A	
DRAWN BY	J.NAIR	N/A	
DESIGNED CHECKED BY	F.RANDEREE	N/A	
DRAWING CHECKED BY	F.RANDEREE	N/A	

APPROVAL CONSULTANT

NAME	D.NOETZOLD	DATE	2022.09.29
PROF REG. No.	21510	SIGNATURE	

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

GRADE R & 1T- SLAB DETAIL (PIT COVER)

SINENHLANHLA PRIMARY SCHOOL

DISCIPLINE

ARCHITECTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	A	**AF - 917**	**T**	**0**

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As Indicated

TENDER PURPOSES ONLY

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ISO A1 841mm x 594mm
Last Printed: 2022/05/31 08:47:29
Filename: C:\USERS\NAGOODZONE\DRIVE - AECOM\TEMP - DEIS\RA\460891906 - GRADE R + 1T DRY.DWG
Printed on 100% Post-Consumer Recycled Content Paper

SANITARY SCHEDULE – GRADE R

SANITARY FITTINGS / ROOM NAME	LEARNERS GRADE "R" TOILETS - DRY	TEACHERS TOILETS - DRY
WASH HAND BASINS: ATLAS "CHRISTY" CODE 383 APG OR OTHER EQUAL AND APPROVED POLYETHYLENE WASH HAND BASIN SIZE 570 X 395MM, COLOUR GRANITE FIXED TO WALL ON CAST IRON BRACKETS. INSTALLATION HEIGHT - 500MM OFF FINISHED FLOOR FOR GRADE "R".	●	●
WC (DRY SYSTEMS) : GRADE "R" ATLAS PLASTIC BAMBI LONG DROP OR OTHER EQUAL & APPROVED LINEAR LOW DENSITY POLYETHYLENE WC PEDESTAL WITH FLAT SEAT AND INLET FUNNEL. COLOUR : GRANITE	●	
WC (DRY SYSTEMS) : TEACHERS ATLAS VIP 220 CODE 222 AP OR OTHER EQUAL & APPROVED LINEAR LOW DENSITY POLYETHYLENE WC PEDESTAL WITH FLAT SEAT AND INLET FUNNEL. COLOUR : GRANITE		●
TOILET ROLL HOLDERS : CHROMIUM PLATED TOILET ROLL HOLDER AS "HALCAST" No. 366.	●	●
PARAPLEGIC GRAB RAILS : "CHAIRMAN INDUSTRIES" OR EQUAL AND APPROVED 32MMØ 300X300X300MM (DOG LEG RAIL WITH 2 FLANGES) STAINLESS STEEL GRADE 304 SATIN POLISHED FINISH SIDE GRAB RAIL (CODE DL2) FIXED TO BRICKWORK STRICTLY TO MANUFACTURER'S SPECIFICATIONS. "CHAIRMAN INDUSTRIES" OR EQUAL AND APPROVED 32MMØ 750x90mm STAINLESS STEEL GRADE 304 SATIN POLISHED FINISH SIDE GRAB RAIL (CODE DL2) FIXED TO BRICKWORK STRICTLY TO MANUFACTURER'S SPECIFICATIONS.		●
WASTE TRAPS : 50MM PVC "MARLEY" ETP 10 OR EQUAL AND APPROVED.	●	●
BASIN TAP (NON PARAPLEGIC): 15MM COBRA WATERTECH OR EQUAL AND APPROVED STAR PILLAR TAP WITH FLANGED BACKNUT (CODE111-15) MANUFACTURED IN ACCORDANCE WITH SANS 226:2204 TYPE 1 (BS5412).	●	
BASIN TAP (PARAPLEGIC): 15MM COBRA WATERTECH OR EQUAL AND APPROVED MEDICAL ELBOW WACTION PILLA TAP WITH FLANGED BACKNUT (CODE111/041) MANUFACTURED IN ACCORDANCE WITH SANS 226:2204 TYPE 1 (BS5412).		●
SOAP DISPENSER	●	●
MIRROR: 600X600MM 6MM SILVERED FLOAT GLASS COPPER BACKED MIRRORS WITH POLISHED EDGES HOLED FOR AND FIXED WITH CHROMIUM PLATED DOME CAPPED MIRROR SCREWS WITH RUBBER BUFFERS.	●	
450x850mm GLASS MIRROR SUITABLE FOR BATHROOM APPLICATIONS WITH HIGH POLISH FINISH AND WITH 4 DRILLINGS FOR No. 8 MIRROR SCREWS FOR TEACHERS ABLUTION.		●

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CLIENT: KZN DEPARTMENT OF PUBLIC WORKS

PROJECT DESCRIPTION: DEPARTMENT OF EDUCATION
WATER AND SANITATION

APPROVAL - CONSULTANT

NAME	D.NOETZOLD	SIGNATURE
DATE	2022.02.28	PROF. REG No. PR. Arch 21510

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DRAWING TITLE: GRADE R SANWARE SCHEDULE (DRY) PROGRAMME FOR SCHOOLS
SINENHLANHLA PRIMARY SCHOOL

DRAWING STATUS CODES:
D=DRAFT F=FINAL R=REPORT
P=PRELIMINARY C=CONSTRUCTION
T=TENDER A=AS-BUILT/RECORD

FIRST ISSUE DATE: 2022-02-28
SCALE: N/A
SHEET: 01 of 01
SHEET SIZE: A4

AECOM DRAWING NUMBER

AECOM PROJ. No.	SUB-No.	WBS	DISC.	NUMBER	STATUS	REVISION
60491906	01	0000	A	ED	004	C - 00

SANITARY SCHEDULE

SANITARY FITTINGS / ROOM NAME	STAFF TOILETS – DRY	LEARNERS GIRLS TOILETS – DRY	LEARNERS BOYS TOILETS – DRY	LEARNERS GRADE R TOILETS – DRY	LEARNERS DISABLED TOILETS – DRY	
WASH HAND BASINS: ATLAS "CHRISTY" CODE 383 APG OR OTHER EQUAL AND APPROVED POLYETHYLENE WASH HAND BASIN SIZE 570 X 395MM, COLOUR GRANITE FIXED TO WALL ON CAST IRON BRACKETS. INSTALLATION HEIGHTS – 500MM OFF FINISHED FLOOR FOR GRADE "R" AND 820MM FOR PRIMARY AND SECONDARY.	●	●	●	●	●	
WC (DRY SYSTEMS) : ATLAS VIP 220 CODE 222 AP OR OTHER EQUAL & APPROVED LINEAR LOW DENSITY POLYETHYLENE WC PEDESTAL WITH FLAT SEAT AND INLET FUNNEL. COLOUR : GRANITE	●	●	●	●	●	
TOILET ROLL HOLDERS : CHROMIUM PLATED TOILET ROLL HOLDER AS "HALCAST" No. 366	●	●	●	●	●	
PARAPLEGIC GRAB RAILS : "CHAIRMAN INDUSTRIES" 32MMØ 300X300X300MM (DOG LEG RAIL WITH 2 FLANGES) STAINLESS STEEL GRADE 304 SATIN POLISHED FINISH SIDE GRAB RAIL (CODE DL2) FIXED TO BRICKWORK STRICTLY TO MANUFACTURER'S SPECIFICATIONS. "CHAIRMAN INDUSTRIES" 32MMØ 750X90MM STAINLESS STEEL GRADE 304 SATIN POLISHED FINISH REAR GRAB RAIL (CODE SR1) FIXED TO BRICKWORK STRICTLY TO MANUFACTURER'S SPECIFICATIONS.					●	
WASTE TRAPS : 50MM PVC "MARLEY" ETP 10 OR EQUAL AND APPROVED.	●	●	●	●	●	
BASIN TAP (NON PARAPLEGIC): 15MM COBRA WATERTECH STAR PILLAR TAP WITH FLANGED BACKNUT (CODE111–15) MANUFACTURED IN ACCORDANCE WITH SANS 226:2004 TYPE 1 (BS5412)	●	●	●	●		
BASIN TAP (PARAPLEGIC): 15MM COBRA WATERTECH MEDICAL ELBOW ACTION PILLAR TAP WITH FLANGED BACKNUT (CODE115/041) MANUFACTURED IN ACCORDANCE WITH SANS 226:2004 TYPE 1 (BS5412)					●	
URINAL (DRY SYSTEM): CHARLOG WATERLESS URINAL INCLUDING WASTE FITTING COMPLETE			●			
SOAP DISPENSER	●	●	●	●	●	
MIRROR: 600X600MM 6MM SILVERED FLOAT GLASS COPPER BACKED MIRRORS WITH POLISHED EDGES HOLED FOR AND FIXED WITH CHROMIUM PLATED DOME CAPPED MIRROR SCREWS WITH RUBBER BUFFERS	●	●	●	●	●	

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CLIENT: KZN DEPARTMENT OF PUBLIC WORKS

PROJECT DESCRIPTION: DEPARTMENT OF EDUCATION
WATER AND SANITATION

APPROVAL - CONSULTANT

NAME	D.NOETZOLD	SIGNATURE
DATE		PROF. REG No. PR. ARCH 21510

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DRAWING TITLE: SANWARE SCHEDULE (DRY)
PROGRAMME FOR SCHOOLS

SINENHLANHLA PRIMARY SCHOOL

DRAWING STATUS CODES:
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FIRST ISSUE DATE	2022-02-28	
SCALE	SHEET	SHEET SIZE
N/A	01 of 01	A4

AECOM DRAWING NUMBER

AECOM PROJ. No.	SUB-No.	WBS	DISC.	NUMBER	STATUS	REVISION
60491906 -	01 -	0000 -	A -	ED - 001 -	C -	00

FINISHES SCHEDULE

FINISHES / ROOM NAME	STAFF TOILETS – DRY/WET	LEARNERS GIRLS TOILETS DRY/WET	LEARNERS BOYS TOILETS DRY/WET	LEARNERS GRADE R TOILETS DRY/WET	LEARNERS DISABLED TOILETS DRY/WET	
TERMITE POISON : TREAT GROUND FLOOR UNDER ALL INTERNAL & EXTERNAL WALLS, CONCRETE BEDS AND REINFORCED CONCRETE SLABS WITH POISON AS PRE CLAUSE 2.13 OF SPECIFICATION 00G–001E WITH 50MM SAND OVER POISON.	●	●	●	●	●	
CONCRETE FLOOR SLABS : 100MM THICK POWERFLOATED CONCRETE (25MPA) CAST ON 250 MICRON POLYETHYLENE DAMP PROOF MEMBRANE ON 50MM SAND ON WELL CONSOLIDATED (90% MOD AASHTO) EARTH FILL IN LAYERS NOT EXCEEDING 150MM. ALL SIDES OVER LAPS OF MEMBRANE TO BE TAPED OR SEALED WITH APPROVED CONTACT ADHESIVE.	●	●	●	●	●	
EPOXY FLOOR FINISH : 2–PART EPOXY PRIMER SIKAFLOOR 161 WITH 2–PART EPOXY ROLLER AND SEAL COAT. SIKAFLOOR 264 OVER AS PER MANUFACTURERS SPECIFICATION. EPOXY COATING TO SCREEDED FLOOR, COLOUR : GREY.	●	●	●	●	●	
EXTERNAL FACEBRICK IN STRETCHER BOND : SEE SECTIONS AND ELEVATIONS – WITH JOINTS AND PERPENDS TO BE 6MM SQUARE DEEP RECESSED COROBRIK MONTANA TRAVERTINE FBS	●	●	●	●	●	
INTERNAL PLASTER AND PAINT : ALL WALLS FINISHED WITH ONE COAT PLASTER AND PAINTED WITH ONE COAT DULUX ALKALINE RESISTANT PRIMER, ONE UNIVERSAL UNDERCOAT AND TWO COATS DULUX PEARLGLO WEATHERGUARD PAINT.	●	●	●	●	●	
WHITE GLAZED TILES : 200MM X 200MM SPLASHBACK TILE THREE ROWS ABOVE FITTINGS WITH RETURNS WHERE APPLICABLE.	●	●	●	●	●	
EXTERNAL BRICK ON EDGE WINDOW CILL : ALL JOINTS TO BE FLUSH HALF ROUND POINTED JOINTS 170MM WIDE SLOPING SEE DETAIL SECTION AND CONSTRUCTION DETAIL DRAWINGS.	●	●	●	●	●	
INTERNAL CEMENT PLASTER WINDOW CILLS: 12MM THICK 150MM WIDE EVERITE NUTEC CEMENT CILL PAINTED TO MATCH WALLS	●	●	●	●	●	
ROOF INSULATION : SISALATION 420 HEAVY INDUSTRIAL GRADE REINFORCED ALUMINIUM FOIL, INSULATION DOUBLE SIDED HEAVY GRAMMAGE REFLECTIVE FOIL LAMINATE INCORPORATING 8 LAYERS OF ALUMINIUM FOIL. REINFORCING SCRIM, KRAFT PAPER AND POLYETHYLENE TESTED FOR CONFORMANCE WITH SANS 10 177–3 : 2005 AND BS 476 PART 5, 6 & 7 PULLED TAUTLY AND SECURED TO RAFTERS & INCLUDING GALVANISED STRAINING WIRES WHERE REQUIRED.	●	●	●	●	●	
ROOF SHEETING : 0.5MM CHROMADEK OR SIMILAR APPROVED ROOF SHEETING WITH END OVER–LAPS ACCORDING TO MANUFACTURERS SPECIFICATIONS, FASTENED WITH GALVANISED ROOFING SCREWS (BX CLASS 4)	●	●	●	●	●	

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CLIENT: KZN DEPARTMENT OF PUBLIC WORKS

PROJECT DESCRIPTION: DEPARTMENT OF EDUCATION
WATER AND SANITATION

APPROVAL - CONSULTANT

NAME	D.NOETZOLD	SIGNATURE
DATE		PROF. REG No. PR. ARCH 21510

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DRAWING TITLE: SCHEDULE OF FINISHES (WET/DRY)
PROGRAMME FOR SCHOOLS

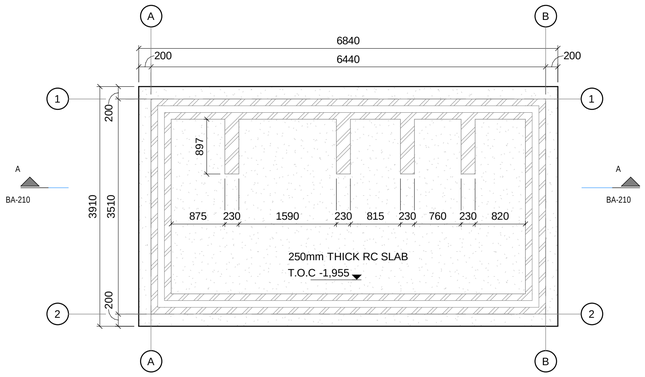
SINENHLANHLA PRIMARY SCHOOL

DRAWING STATUS CODES:
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FIRST ISSUE DATE	2022-02-28	
SCALE	SHEET	SHEET SIZE
N/A	01 of 2	A4

AECOM DRAWING NUMBER

AECOM PROJ. No.	SUB-No.	WBS	DISC.	NUMBER	STATUS	REVISION
60491906 -	01 -	0000 -	A -	EF - 001 -	C -	00

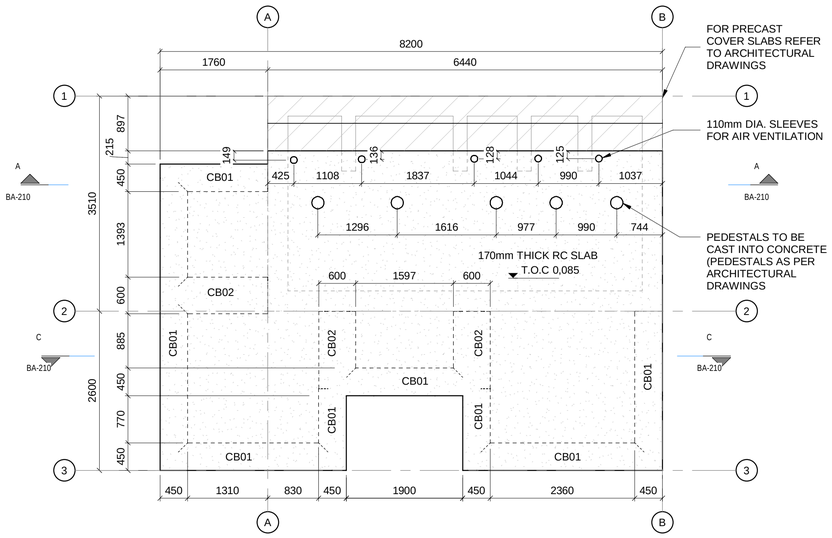


PIT SLAB FOUNDATION LAYOUT

SCALE 1 : 50

NOTE:
- WOOD FLOAT FINISH ON PIT SLAB

CONCRETE INFILL METHOD STATEMENT
- INFILL WALL TO BE CONSTRUCTED IN MAXIMUM HEIGHTS OF 425mm (5 BRICK COURSES).
- EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN.
- ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED AFTER EVERY CONSTRUCTION JOINT.
- THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE FOR THE NEXT LIFT IS POURED.



GROUND FLOOR SLAB LAYOUT

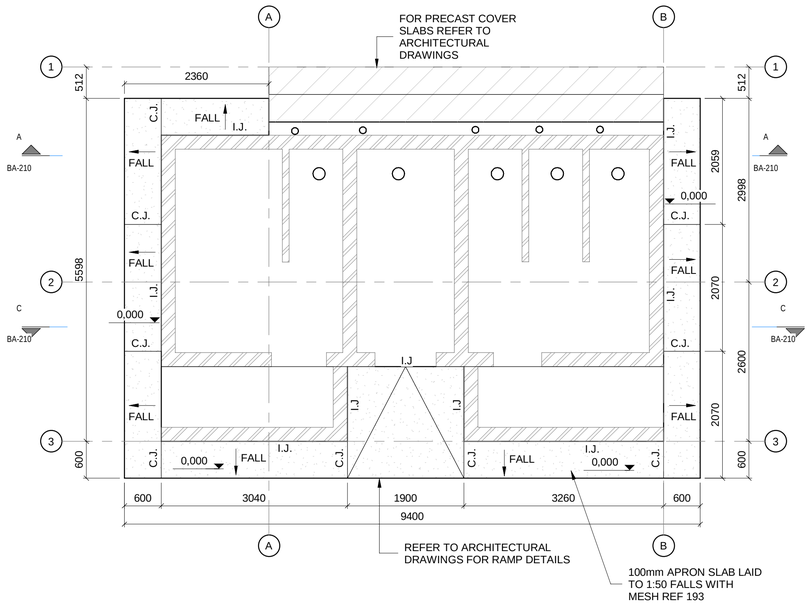
SCALE 1 : 50

NOTES
- ALL BRICKWORK SHOWN AS LOAD BEARING
- POWER FLOATED FINISH ON FLOOR SLAB

RAFT BEAM SCHEDULE

TYPE MARK	TYPE
CB01	300 x 500 DEEP RC RAFT BEAM
CB02	300 x 500 DEEP RC RAFT BEAM

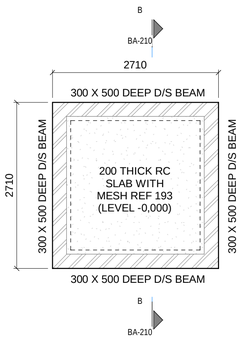
NOTES:
1. SETTING OUT TO BE PROVIDED BY CIVIL ENGINEER
2. JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEER'S DRAWINGS
3. SETTING OUT LEVEL 0,000 TO BE DETERMINED FROM CIVIL ENGINEER'S DRAWINGS
4. ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE LATEST REVISION OF SANS 10400, SANS 2001, OHS ACT AND THE PROJECT SPECIFICATIONS IN THE CONTRACT DOCUMENTATION.
5. ALL DIMENSIONS ARE TO BE CHECKED AGAINST THE ARCHITECT'S DRAWINGS. ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER IN WRITING.
6. NO SCALING OFF DRAWING IS ALLOWED.
7. UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING IS ACCORDING TO ARCHITECT'S DETAILS AND SPECIFICATIONS.
8. THE CONTRACTOR SHALL ENSURE THAT WATERPROOFING MATERIALS ARE NOT DAMAGED DURING BACKFILLING OPERATIONS AND FIXING OF STEEL. ANY REPAIR WORK FOR THE CONTRACTOR'S ACCOUNT.
9. THE CONTRACTOR IS RESPONSIBLE TO CONTROL STORM WATER AND DEWATERING ON THE SITE TO PREVENT DAMAGE TO THE STRUCTURE, BANKS, EXCAVATIONS, OR ANY OTHER WORKS FOR THE DURATION OF THE CONTRACT PERIOD.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL TEMPORARY STRUCTURES.
11. TIMBER ROOFS TO BE DESIGNED BY SUPPLIER AND SHALL COMPLY WITH NHBRC AND RELEVANT CODES. ONLY TREATED TIMBER TO BE USED IN ACCORDANCE WITH NHBRC REGULATIONS
12. PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY ONLY BE USED IF APPROVED BY ENGINEER
13. CERTIFICATES TO PROVE COMPLIANCE SHALL BE SUBMITTED TO ENGINEER
14. UNLESS OTHERWISE SPECIFIED, ALL BACKFILLING BENEATH SURFACE BEDS OR BEHIND RETAINING WALLS SHALL BE COMPACTED TO 95% MOD AASHTO IN LAYERS NOT EXCEEDING 150mm THICK
15. ALL EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE RESIDENT/GEOTECHNICAL ENGINEER BEFORE PLACING OF ANY CONCRETE FOUNDATION, BLINDING, AND WATERPROOFING OR GEOFABRIC MEMBRANE.
16. LEVELS OF FOUNDATIONS TO BE CONFIRMED BY THE RESIDENT/GEOTECHNICAL ENGINEER ON SITE TO OBTAIN THE SPECIFIED BEARING PRESSURE. WHERE EXCAVATION LEVELS HAVE TO BE LOWERED, THE ENGINEER WILL ISSUE A SITE INSTRUCTION WITH THE CORRECT PROCEDURE TO BE IMPLEMENTED.
17. DESIGN BEARING PRESSURE = 50 kPa.
18. PORTIONS THAT ARE OVER-EXCAVATED BEYOND THE DEPTH REQUIRED BY THE GEOTECHNICAL ENGINEER, TO BE FILLED WITH MASS CONCRETE (15MPa / 19mm) AT CONTRACTOR'S EXPENSE.
19. 50mm THICK BLINDING LAYER OF 15MPa/19mm SHALL BE CAST UNDER ALL REINFORCED FOUNDATIONS UNLESS INDICATED OTHERWISE ON DRAWINGS. NO BLINDING LAYER NEEDS TO BE CAST FOR UNREINFORCED BRICKWORK AND MASS CONCRETE FOUNDATIONS.
20. MINIMUM CONCRETE STRENGTHS @ 28 DAYS: 30 MPa. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY ENGINEER.
21. CURING OF CONCRETE SHALL BE CARRIED OUT IN ACCORDANCE WITH SANS 1200G. THE CONTRACTOR MUST ENSURE THAT ALL MATERIALS REQUIRED FOR THE CURING PROCESS ARE ON HAND BEFORE STRIPPING ANY FORMWORK, AND THAT THESE MEASURES ARE IMPLEMENTED IMMEDIATELY AFTER THE FORMWORK HAS BEEN REMOVED.
22. CONCRETE CUBE CRUSHING TESTS AS PER SANS 2001-CC1 : 2012 CLAUSE 5
23. FLOOR FINISHES:
    - PIT FLOOR = WOOD FLOATED
    - GROUND FLOOR = POWER FLOATED
    - APRON SLAB = WOOD FLOATED
    - JOJO TANK PLINTH = WOOD FLOATED
24. SEE ARCHITECT'S DRAWINGS FOR GENERAL LAYOUT OF BRICKWORK. ALL SETTING OUT TO BE DONE FROM ARCHITECT'S DRAWINGS. ALL FOUNDATIONS AND STRIP FOOTINGS ARE PLACED SYMMETRICALLY BELOW BRICKWORK UNLESS OTHERWISE SHOWN.
25. BRICKWORK TO BE BUILT IN ACCORDANCE WITH SANS 2001-CM1:2012, SANS 10400, SANS 10164 AND NHBRC.
26. THE MINIMUM CRUSHING STRENGTH OF ALL LOAD-BEARING BRICKWORK SHALL BE 14 MPa UNLESS SHOWN OTHERWISE
27. THE MINIMUM CRUSHING STRENGTH OF MORTAR SHALL BE AS FOR CLASS II MORTAR IN ACCORDANCE WITH TABLE 1 SANS 10164 PART 1 - 1980
28. ALL BRICK ANCHORS, WALL TIES AND STRAPS SHALL BE HOT-DIP GALVANISED. ALL WALL TIES TO BE POZZI TIES
29. BRICKFORCE
    - BRICKWORK SHALL BE REINFORCED WITH AN APPROVED BRICKFORCE EVERY FOURTH LAYER UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
30. IN ADDITION, CONTINUOUS BRICK FORCE IS REQUIRED IN EVERY LAYER FOR THE FIRST FOUR LAYERS ABOVE AND BELOW THE TOP OF FOUNDATIONS & SLABS, AS WELL AS WINDOWS AND OVER DOOR OPENINGS. MINIMUM LAPS TO BE 300mm.
31. IN CAVITY WALLS, WALL TIES SHALL JOIN THE LEAVES AND SHALL BE EMBEDDED IN MASONRY JOINTS AT RIGHT ANGLES TO THE LEAVES AS THE WORK PROGRESSES.
32. EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN. ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED. THESE BRICK OPENING IN THE FIRST COURSE WILL ALLOW FOR THE CLEANING OF EXCESS BRICKWORK MORTAR COLLECTING AT THE BOTTOM OF THE CAVITY. THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE IS POURED. CONCRETE FOR BRICK WORK INFILL TO BE POURED IN MAXIMUM OF 1m HEIGHTS.
33. THERE SHOULD BE 5.0 WALL TIES PER M^2 OF WALLING.
34. ENSURE THAT EACH TIE IS EMBEDDED TO A DEPTH OF AT LEAST 50mm IN THE MORTAR JOINT OF EACH LEAF.
35. FOR CAVITY WIDTHS EXCEEDING 75mm BUT NOT EXCEEDING 150mm. ENSURE THAT WALL TIES USED ARE OF THE VERTICAL TWIST TYPE, OR ANY SIMILAR TYPE HAVING AT LEAST THE EQUIVALENT STRENGTH AND STIFFNESS.
36. CONCRETE BRICKS TO BE KEPT DRY BEFORE BEING USED.



APRON SLAB LAYOUT

SCALE 1 : 50

NOTES:
- ALL APRON SLABS TO BE 100mm THICK WITH MESH REF 193
- `EXTERNAL BRICKWORK TO BE LOAD BEARING



JOJO TANK PLINTH DETAILS

SCALE 1 : 50

NOTES :
- JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEERS DRAWING

TENDER PURPOSES ONLY

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AECOM

CONSULTANT

DURBAN
3rd Floor Ncondo Chambers
27 Ncondo Place, Umhlanga Ridge

South Africa
T +2731 204 3880
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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

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ISSUE / REVISION

0	2023-05-29	ISSUED FOR TENDER	TN
I/R	DATE	DESCRIPTION	ISS BY
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	T.A NGUBANE	N/A
DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:

PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 3 MALE, 3 FEMALE, 1 DISABLED ABLUTIONBLOCK DRY RAFT PLAN LAYOUTS

DISCIPLINE

STRUCTURES

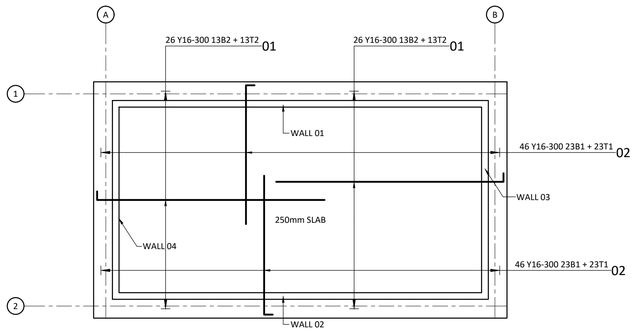
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PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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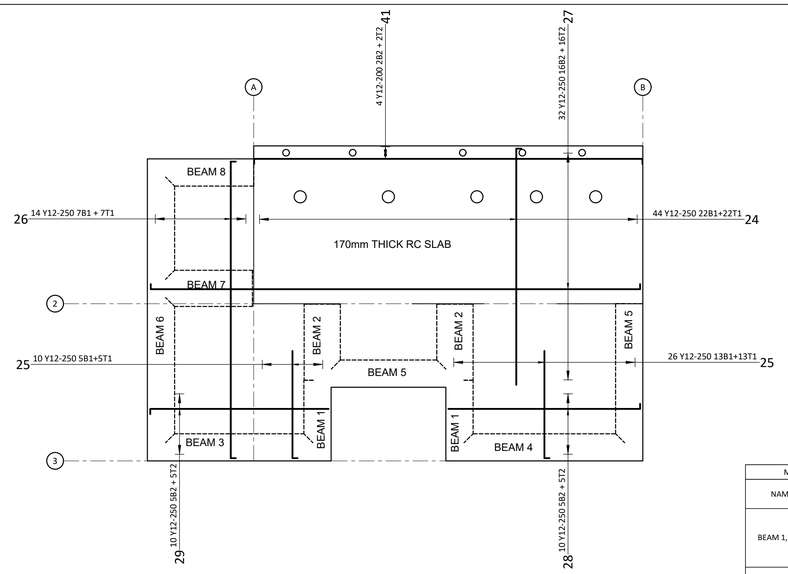
D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REDSET

SCALE 1 : 50

ISO A1 594mm x 841mm
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PIT SLAB FOUNDATION
REINFORCEMENT LAYOUT
SCALE 1:50



GROUND FLOOR SLAB
REINFORCEMENT LAYOUT
SCALE 1:50

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	REV
250mm PIT SLAB	1	01	16	52	52	3880	37	150	3770	
		02	16	92	92	2410	37	150	2310	

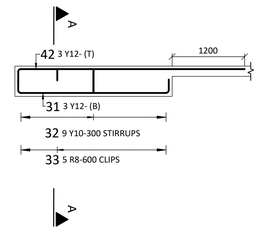
REINFORCEMENT SUMMARY	
Grade450	Y 16
Total Length (m)	423.48
Total Weight (kg)	669.10
Subtotal: (kg)	669.10

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
170mm THICK GROUND SLAB	1	24	12	44	44	3970	37	90	3910		
		25	12	36	36	1840	37	90	1780		
		26	12	14	14	5040	38	90	4920	90	
		27	12	32	32	8230	38	90	8110	90	
		28	12	10	10	3240	37	3180	90		
		29	12	10	10	3020	37	2960	90		
		41	12	4	4	6560	38	90	6440	90	

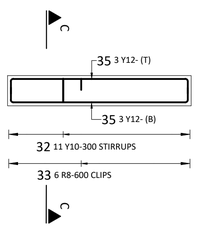
REINFORCEMENT SUMMARY	
Grade450	Y 12
Total Length (m)	663.68
Total Weight (kg)	589.35
Subtotal: (kg)	589.35

MEMBER NAME	MEMBER NUM	MARK	TYPE R Grade250	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
BEAM 1,2 & 5	3	31		12	3	9	2900	38	230	2500	230	
		32		10	9	27	1160	72	390	190		
		33	8		5	15	400	38	120	190	120	
		42		12	3	9	3970	37	250	3750		
BEAM 3	1	32		10	11	11	1160	72	390	190		
		33	8		6	6	400	38	120	190	120	
		35		12	6	6	3380	38	250	2940	250	
BEAM 4	1	32		10	11	11	1160	72	390	190		
		33	8		6	6	400	38	120	190	120	
		36		12	6	6	3600	38	250	3160	250	
BEAM 6	1	32		10	17	17	1160	72	390	190		
		33	8		9	9	400	38	120	190	120	
		38		12	6	6	5340	38	250	4900	250	
BEAM 7 & 8	2	32		10	6	12	1160	72	390	190		
		33	8		3	6	400	38	120	190	120	
		39		12	3	6	2060	38	230	1660	230	
		43		12	3	6	3130	37	250	2910		

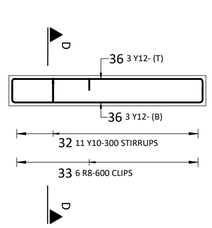
REINFORCEMENT SUMMARY			
Grade250	R 8	R 10	R 12
Total Length (m)	16.80		
Total Weight (kg)	6.64		
Grade450	Y 8	Y 10	Y 12
Total Length (m)		90.48	166.89
Total Weight (kg)		55.83	148.20
Subtotal: (kg)		210.66	



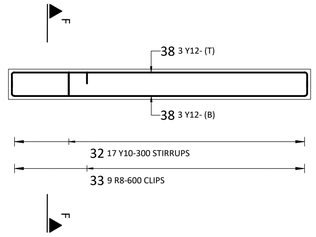
BEAM 1,2 & 5 REINFORCEMENT
3NO. OFF
SCALE 1:50



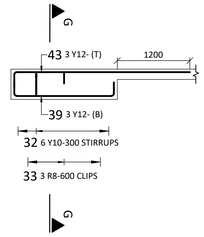
BEAM 3 REINFORCEMENT
1NO. OFF
SCALE 1:50



BEAM 4 REINFORCEMENT
1NO. OFF
SCALE 1:50



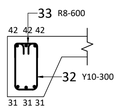
BEAM 6 REINFORCEMENT
1NO. OFF
SCALE 1:50



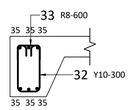
BEAM 7 & 8 REINFORCEMENT
2NO. OFF
SCALE 1:50

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
WALL 1	1	13	10	18	18	3830	37	500	3360		
		14	10	32	32	950	37	130	850		
		15	10	32	32	1770	20	1770			
WALL 2	1	13	10	18	18	3830	37	500	3360		
		14	10	32	32	950	37	130	850		
		16	10	32	32	2040	37	130	1940		
WALL 3&4	2	14	10	16	32	950	37	130	850		
		15	10	4	8	1770	20	1770			
		16	10	12	24	2040	37	130	1940		
		17	10	18	36	2370	37	500	1900		

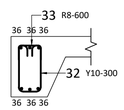
REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	499.44
Total Weight (kg)	308.15
Subtotal: (kg)	308.15



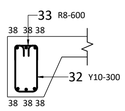
SECTION A-A
SCALE 1:25



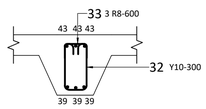
SECTION C-C
SCALE 1:25



SECTION D-D
SCALE 1:25



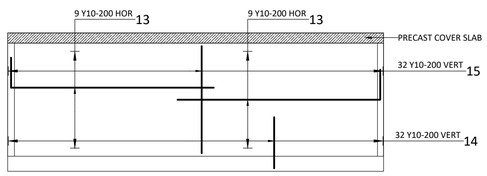
SECTION F-F
SCALE 1:25



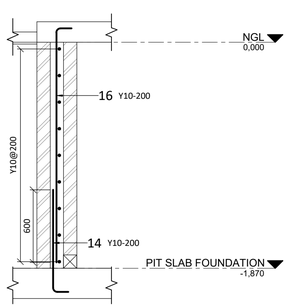
SECTION G-G
SCALE 1:25

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
STOOLS	1	18	10	30	30	1550	83	400	100	400	

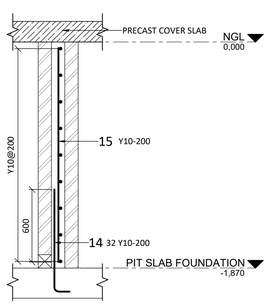
REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	46.50
Total Weight (kg)	28.69
Subtotal: (kg)	28.69



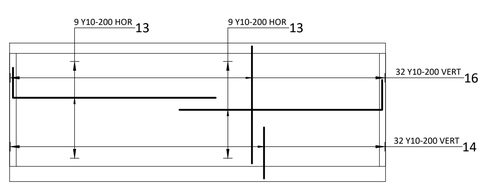
WALL 1
REINFORCEMENT LAYOUT
SCALE 1:50



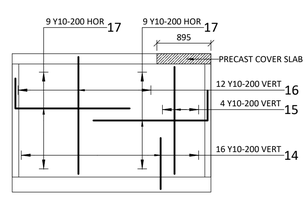
TYPICAL SECTION
THROUGH WALLS WITH SLAB OVER
SCALE 1:25



TYPICAL SECTION
THROUGH WALLS WITH NO SLAB OVER
SCALE 1:25



WALL 2
REINFORCEMENT LAYOUT
SCALE 1:50



WALL 3&4
REINFORCEMENT LAYOUT
SCALE 1:50

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NOTE:
COVER FOR SUSPENDED SLAB = 40mm
COVER FOR WALLS = 50mm
COVER FOR FOUNDATION SLAB = 50mm
MINIMUM SPLICING = 50Ø
UNLESS STATED OTHER WISE
Ø =THE LARGEST DIAMETER BAR BEING SPLICED

NOTE:
FOR 170mm SLAB USE 60mm COVER BLOCKS
STOOLS
TO SIT ON B2 TO SUPPORT T2 (17 No OFF STOOLS 1 / m²

NOTE:
STOOLS FOR 250mm THICK SLAB



NOTES
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NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

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BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
SINENHLANHLA PS 3 MALE , 3 FEMALE, 1 DISABLED ABLUTION BLOCK DRY RAFT REINFORCEMENT LAYOUTS & SCHEDULES

DISCIPLINE
STRUCTURES

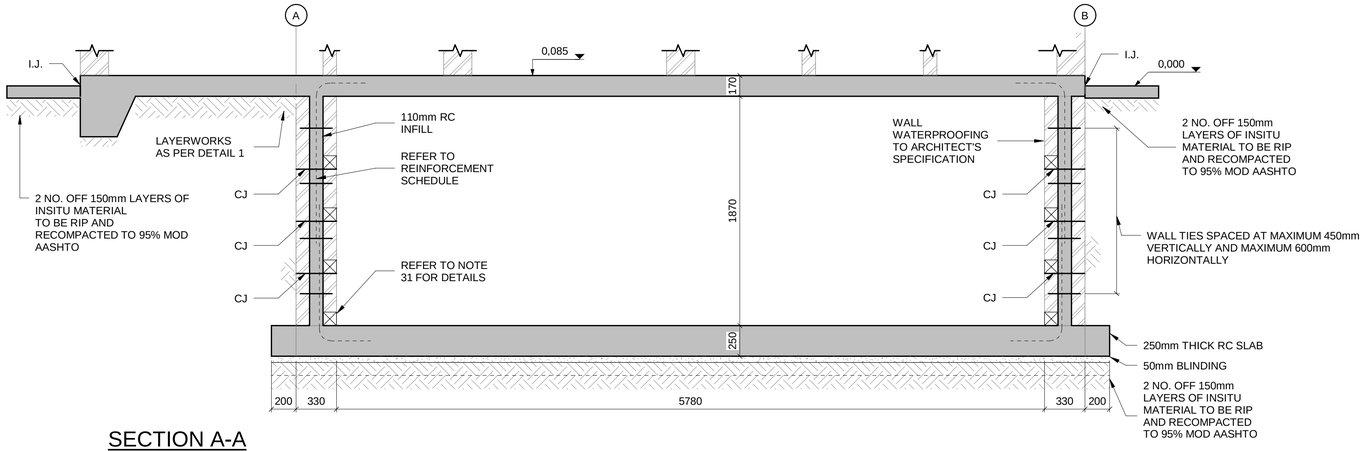
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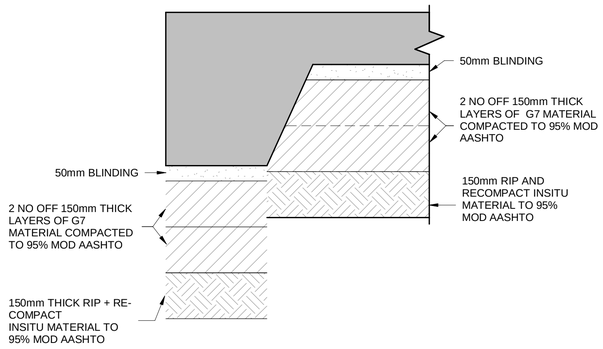
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SCALE 1 : 50

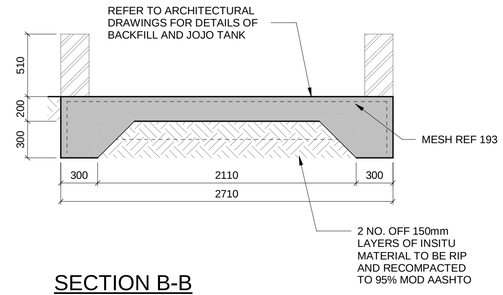
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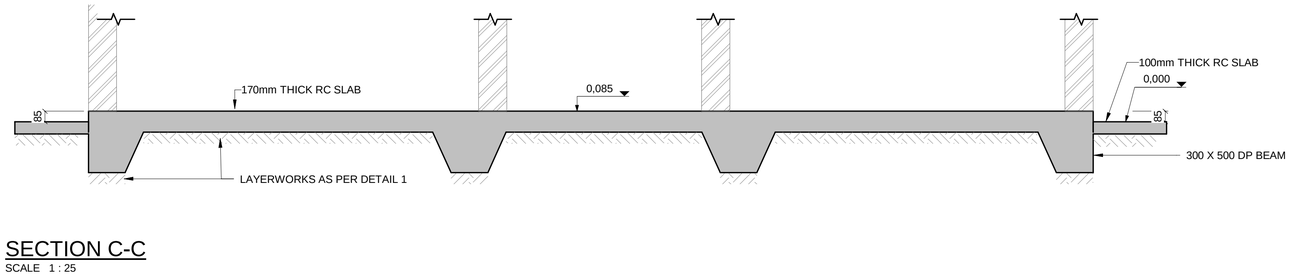
SECTION A-A
SCALE 1 : 25



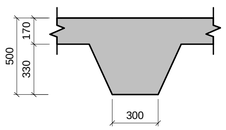
DETAIL -1 LAYERWORKS
SCALE 1 : 10



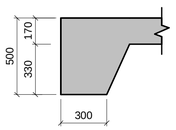
SECTION B-B
SCALE 1 : 25



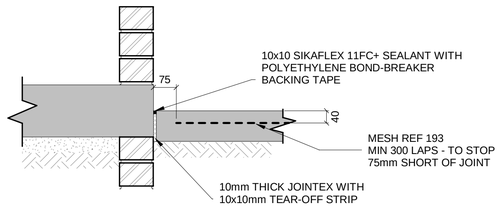
SECTION C-C
SCALE 1 : 25



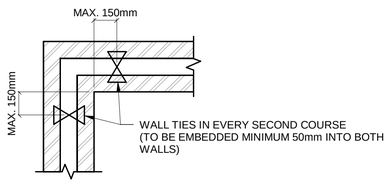
CB01 RAFT BEAM TYPE SECTION
SCALE 1 : 20



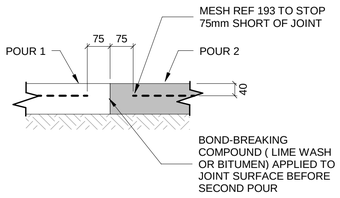
CB02 RAFT BEAM TYPE SECTION
SCALE 1 : 20



ISOLATION JOINT (I.J.)
SCALE 1 : 10



WALL TIE CORNER DETAIL
SCALE 1 : 20



CJ CONSTRUCTION JOIN (CJ)
BA-210 SCALE 1 : 10

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I/R	DATE	DESCRIPTION	ISS BY

INITIAL ISSUE

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DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

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NAME: N. BUDREE DATE:
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BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 3 MALE, 3 FEMALE, 1 DISABLED ABLUTIONBLOCK DRY RAFT SECTIONS AND DETAILS

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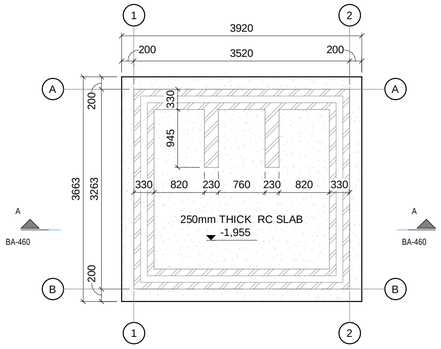
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60491906	01	0000	S	**BA-210**	**T**	**0**

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REDOSE

SCALE As indicated

ISO A1 594mm x 841mm
Printed on 100% Post-Consumer Recycled Content Paper
Last Printed: 2023/05/30 09:26:48
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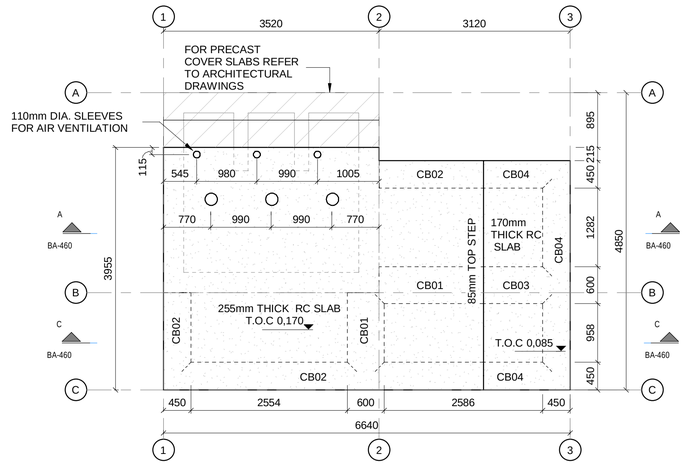


PIT SLAB FOUNDATION LAYOUT

SCALE 1 : 50

NOTE:
- WOOD FLOAT FINISH ON PIT SLAB

CONCRETE INFILL METHOD STATEMENT
- INFILL WALL TO BE CONSTRUCTED IN MAXIMUM HEIGHTS OF 425mm (5 BRICK COURSES).
- EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN.
- ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED AFTER EVERY CONSTRUCTION JOINT.
- THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE FOR THE NEXT LIFT IS POURED.



GROUND FLOOR SLAB LAYOUT

SCALE 1 : 50

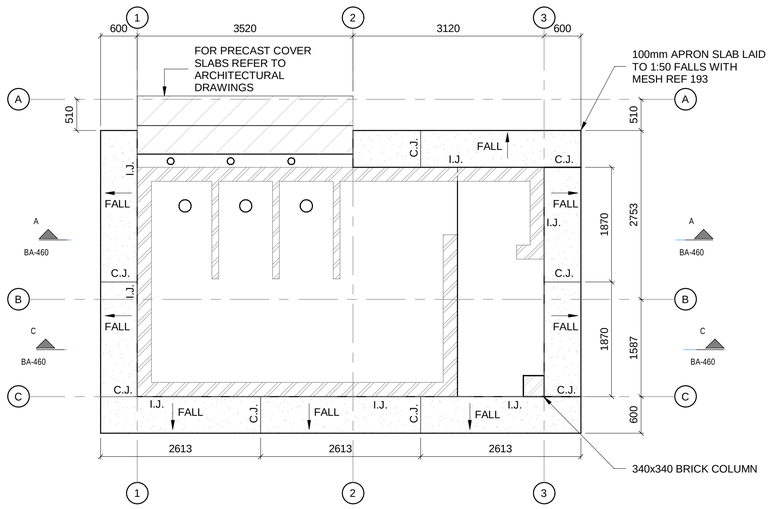
NOTES
- ALL BRICKWORK SHOWN AS LOAD BEARING
- POWER FLOATED FINISH ON GROUND FLOOR SLAB

RAFT BEAM SCHEDULE

TYPE MARK	TYPE
CB01	300X500 DEEP INTERNAL RC RAFT BEAM
CB02	300x500 DEEP PERIMETER RC RAFT BEAM
CB03	300x415 DEEP INTERNAL RC RAFT BEAM
CB04	300x415 DEEP PERIMETER RC RAFT BEAM

NOTES:

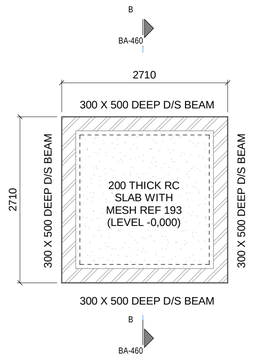
1. SETTING OUT TO BE PROVIDED BY CIVIL ENGINEER
2. JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEER'S DRAWINGS
3. SETTING OUT LEVEL 0,000 TO BE DETERMINED FROM CIVIL ENGINEER'S DRAWINGS
4. ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE LATEST REVISION OF SANS 10400, SANS 2001, OHS ACT AND THE PROJECT SPECIFICATIONS IN THE CONTRACT DOCUMENTATION.
5. ALL DIMENSIONS ARE TO BE CHECKED AGAINST THE ARCHITECT'S DRAWINGS. ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER IN WRITING.
6. NO SCALING OFF DRAWING IS ALLOWED.
7. UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING IS ACCORDING TO ARCHITECT'S DETAILS AND SPECIFICATIONS.
8. THE CONTRACTOR SHALL ENSURE THAT WATERPROOFING MATERIALS ARE NOT DAMAGED DURING BACKFILLING OPERATIONS AND FIXING OF STEEL. ANY REPAIR WORK FOR THE CONTRACTOR'S ACCOUNT.
9. THE CONTRACTOR IS RESPONSIBLE TO CONTROL STORM WATER AND DEWATERING ON THE SITE TO PREVENT DAMAGE TO THE STRUCTURE, BANKS, EXCAVATIONS, OR ANY OTHER WORKS FOR THE DURATION OF THE CONTRACT PERIOD.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL TEMPORARY STRUCTURES.
11. TIMBER ROOFS TO BE DESIGNED BY SUPPLIER AND SHALL COMPLY WITH NHBRC AND RELEVANT CODES. ONLY TREATED TIMBER TO BE USED IN ACCORDANCE WITH NHBRC REGULATIONS
12. PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY ONLY BE USED IF APPROVED BY ENGINEER
13. CERTIFICATES TO PROVE COMPLIANCE SHALL BE SUBMITTED TO ENGINEER
14. UNLESS OTHERWISE SPECIFIED, ALL BACKFILLING BENEATH SURFACE BEDS OR BEHIND RETAINING WALLS SHALL BE COMPACTED TO 95% MOD AASHTO IN LAYERS NOT EXCEEDING 150mm THICK
15. ALL EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE RESIDENT/GEOTECHNICAL ENGINEER BEFORE PLACING OF ANY CONCRETE FOUNDATION, BLINDING, AND WATERPROOFING OR GEOFABRIC MEMBRANE.
16. LEVELS OF FOUNDATIONS TO BE CONFIRMED BY THE RESIDENT/GEOTECHNICAL ENGINEER ON SITE TO OBTAIN THE SPECIFIED BEARING PRESSURE. WHERE EXCAVATION LEVELS HAVE TO BE LOWERED, THE ENGINEER WILL ISSUE A SITE INSTRUCTION WITH THE CORRECT PROCEDURE TO BE IMPLEMENTED.
17. DESIGN BEARING PRESSURE = 50 kPa.
18. PORTIONS THAT ARE OVER-EXCAVATED BEYOND THE DEPTH REQUIRED BY THE GEOTECHNICAL ENGINEER, TO BE FILLED WITH MASS CONCRETE (15MPa / 19mm) AT CONTRACTOR'S EXPENSE.
19. 50mm THICK BLINDING LAYER OF 15MPa/19mm SHALL BE CAST UNDER ALL REINFORCED FOUNDATIONS UNLESS INDICATED OTHERWISE ON DRAWINGS. NO BLINDING LAYER NEEDS TO BE CAST FOR UNREINFORCED BRICKWORK AND MASS CONCRETE FOUNDATIONS.
20. MINIMUM CONCRETE STRENGTHS @ 28 DAYS: 30 MPa. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY ENGINEER.
21. CURING OF CONCRETE SHALL BE CARRIED OUT IN ACCORDANCE WITH SANS 1200G. THE CONTRACTOR MUST ENSURE THAT ALL MATERIALS REQUIRED FOR THE CURING PROCESS ARE ON HAND BEFORE STRIPPING ANY FORMWORK, AND THAT THESE MEASURES ARE IMPLEMENTED IMMEDIATELY AFTER THE FORMWORK HAS BEEN REMOVED.
22. CONCRETE CUBE CRUSHING TESTS AS PER SANS 2001-CC1 : 2012 CLAUSE 5
23. FLOOR FINISHES:
    - PIT FLOOR = WOOD FLOATED
    - GROUND FLOOR = WOOD FLOATED
    - APRON SLAB = WOOD FLOATED
    - JOJO TANK PLINTH = WOOD FLOATED
24. SEE ARCHITECT'S DRAWINGS FOR GENERAL LAYOUT OF BRICKWORK. ALL SETTING OUT TO BE DONE FROM ARCHITECT'S DRAWINGS. ALL FOUNDATIONS AND STRIP FOOTINGS ARE PLACED SYMMETRICALLY BELOW BRICKWORK UNLESS OTHERWISE SHOWN.
25. BRICKWORK TO BE BUILT IN ACCORDANCE WITH SANS 2001-CM1:2012, SANS 10400, SANS 10164 AND NHBRC.
26. THE MINIMUM CRUSHING STRENGTH OF ALL LOAD-BEARING BRICKWORK SHALL BE 14 MPa UNLESS SHOWN OTHERWISE
27. THE MINIMUM CRUSHING STRENGTH OF MORTAR SHALL BE AS FOR CLASS II MORTAR IN ACCORDANCE WITH TABLE 1 SANS 10164 PART 1 - 1980
28. ALL BRICK ANCHORS, WALL TIES AND STRAPS SHALL BE HOT-DIP GALVANISED. ALL WALL TIES TO BE POZZI TIES
29. BRICKFORCE
    - BRICKWORK SHALL BE REINFORCED WITH AN APPROVED BRICKFORCE EVERY FOURTH LAYER UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
30. IN ADDITION, CONTINUOUS BRICK FORCE IS REQUIRED IN EVERY LAYER FOR THE FIRST FOUR LAYERS ABOVE AND BELOW THE TOP OF FOUNDATIONS & SLABS, AS WELL AS WINDOWS AND OVER DOOR OPENINGS. MINIMUM LAPS TO BE 300mm.
31. IN CAVITY WALLS, WALL TIES SHALL JOIN THE LEAVES AND SHALL BE EMBEDDED IN MASONRY JOINTS AT RIGHT ANGLES TO THE LEAVES AS THE WORK PROGRESSES.
32. EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN. ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED. THESE BRICK OPENING IN THE FIRST COURSE WILL ALLOW FOR THE CLEANING OF EXCESS BRICKWORK MORTAR COLLECTING AT THE BOTTOM OF THE CAVITY. THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE IS POURED. CONCRETE FOR BRICK WORK INFILL TO BE POURED IN MAXIMUM OF 1m HEIGHTS.
33. THERE SHOULD BE 5.0 WALL TIES PER M² OF WALLING.
34. ENSURE THAT EACH TIE IS EMBEDDED TO A DEPTH OF AT LEAST 50mm IN THE MORTAR JOINT OF EACH LEAF.
35. FOR CAVITY WIDTHS EXCEEDING 75mm BUT NOT EXCEEDING 150mm. ENSURE THAT WALL TIES USED ARE OF THE VERTICAL TWIST TYPE, OR ANY SIMILAR TYPE HAVING AT LEAST THE EQUIVALENT STRENGTH AND STIFFNESS.
36. CONCRETE BRICKS TO BE KEPT DRY BEFORE BEING USED.



APRON SLAB LAYOUT

SCALE 1 : 50

NOTES:
- ALL APRON SLABS TO BE 100mm THICK WITH MESH REF 193
- EXTERNAL BRICKWORK TO BE LOAD BEARING



JOJO TANK PLINTH DETAILS

SCALE 1 : 50

NOTES:
- JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEERS DRAWINGS

TENDER PURPOSES ONLY

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AECOM

CONSULTANT

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3rd Floor Ncondo Chambers
27 Ncondo Place, Umhlanga Ridge

South Africa
T +2731 204 3880
www.aecom.com
Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES, REFER TO DRAWING: N/A.
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

0	2023-05-29	ISSUED FOR TENDER	TN
I/R	DATE	DESCRIPTION	ISS BY
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	T.NGUBANE	N/A
DRAWN BY:	T.NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 BOYS ABLUTION BLOCK DRYRAFT PLAN LAYOUTS

DISCIPLINE

STRUCTURES

AECOM DRAWING NUMBER

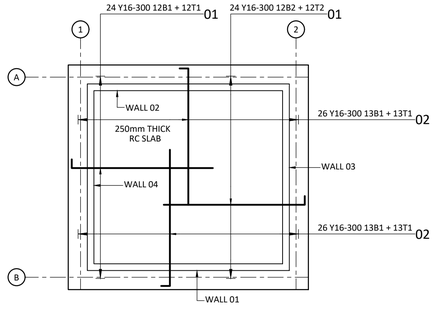
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60491906	01	0000	S	AC-460	T	0

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REDSET

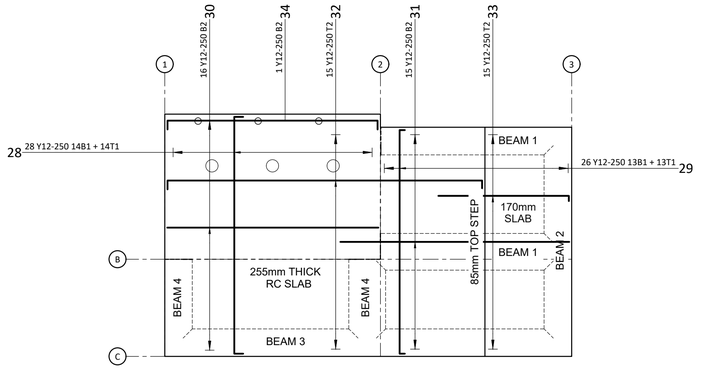
SCALE 1 : 50

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Printed on ___% Post-Consumer Recycled Content Paper
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Filename: 60491906 - 460 (6B)_detached.rvt

ISO A1 594mm x 841mm



PIT SLAB FOUNDATION
REINFORCEMENT LAYOUT
SCALE 1:50



GROUND FLOOR SLAB
REINFORCEMENT LAYOUT
SCALE 1:50

NOTE:

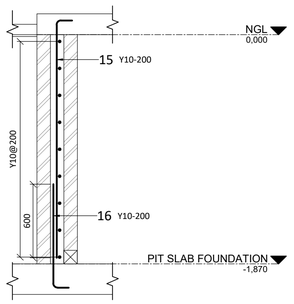
COVER FOR SUSPENDED SLAB = 40mm
COVER FOR WALLS = 50mm
COVER FOR BEAMS = 50mm
COVER FOR FOUNDATION SLAB = 50mm
MINIMUM SPLICING = 50Ø UNLESS STATED OTHER WISE
Ø =THE LARGEST DIAMETER BAR BEING SPLICED

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	REV
250mm THICK PIT SLAB	1	01	16	48	48	2420	37	150	2310	
		02	16	52	52	2340	37	150	2230	

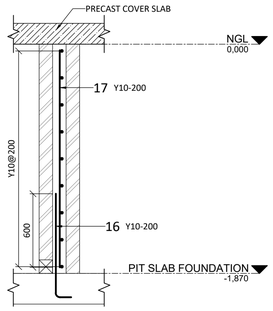
REINFORCEMENT SUMMARY	
Grade450	Y 16
Total Length (m)	237.84
Total Weight (kg)	375.79
Subtotal: (kg)	375.79

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
170/255mm THICK GROUND SLAB	1	28	12	28	28	4110	38	150	3880	150	
		29	12	26	26	3780	38	90	3660	90	
		30	12	16	16	3450	20	3450			
		31	12	15	15	3740	20	3740			
		32	12	15	15	5380	38	150	5150	150	
		33	12	15	15	2190	37	2140	90		
		34	12	1	1	3680	38	150	3440	150	

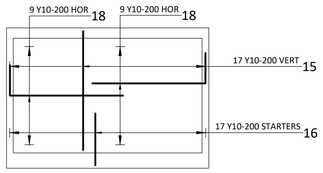
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Grade450	Y 12
Total Length (m)	441.89
Total Weight (kg)	392.40
Subtotal: (kg)	392.40



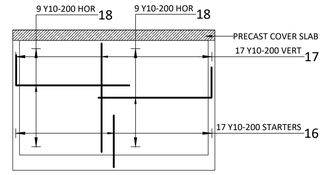
TYPICAL SECTION
THROUGH WALLS WITH SLAB OVER
SCALE 1:25



TYPICAL SECTION
THROUGH WALLS WITH NO SLAB OVER
SCALE 1:25



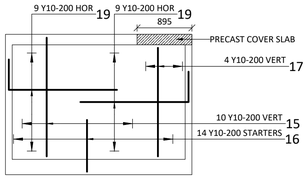
WALL 1
REINFORCEMENT LAYOUT
SCALE 1:50



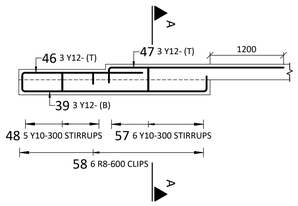
WALL 2
REINFORCEMENT LAYOUT
SCALE 1:50

MEMBER NAME	MEMBER NUM	MARK	TYPE R Grade250	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
BEAM 1 REBAR	2	39		12	3	6	3460	38	250	3020	250	
		46		12	3	6	2180	37	250	1970		
		47		12	3	6	3070	37	250	2860		
		48		10	5	10	980	72	300	190		
		57		10	6	12	1160	72	390	190		
		58	8		6	12	360	38	100	190	100	
BEAM 2 REBAR	1	40		12	6	6	4080	38	250	3640	250	
		48		10	13	13	980	72	300	190		
		58	8		7	7	360	38	100	190	100	
BEAM 3 REBAR	1	48		10	5	5	980	72	300	190		
		49		12	3	3	5560	38	250	5130	250	
		50		12	3	3	2240	37	250	2020		
		58	8		12	12	360	38	100	190	100	
		59		10	18	18	1160	72	390	190		
		60		12	3	3	6980	38	250	6540	250	
BEAM 4 REBAR	2	51		12	3	6	2960	37	250	2740		
		58	8		3	6	360	38	100	190	100	
		59		10	5	10	1160	72	390	190		
		61		12	3	6	1930	38	250	1490	250	

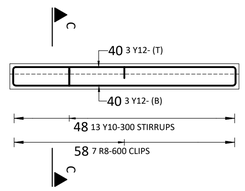
REINFORCEMENT SUMMARY			
Grade250	R 8	R 10	R 12
Total Length (m)	13.32		
Total Weight (kg)	5.26		
Grade450	Y 8	Y 10	Y 12
Total Length (m)		73.84	150.42
Total Weight (kg)		45.56	133.57
Subtotal: (kg)	184.39		



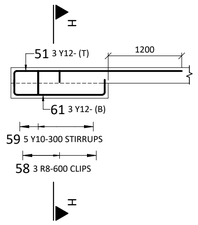
WALL 3&4
REINFORCEMENT LAYOUT
SCALE 1:50



BEAM 1 REINFORCEMENT
2NO. OFF
SCALE 1:50



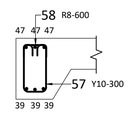
BEAM 2 REINFORCEMENT
1NO. OFF
SCALE 1:50



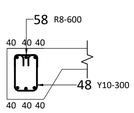
BEAM 4 REINFORCEMENT
2NO. OFF
SCALE 1:50

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	REV
WALL 1	1	15	10	17	17	2040	37	130	1940	
		16	10	17	17	950	37	130	850	
		18	10	18	18	2320	37	500	1850	
WALL 2	1	16	10	17	17	950	37	130	850	
		17	10	17	17	1770	20	1770		
		18	10	18	18	2320	37	500	1850	
WALL 3&4	2	15	10	10	20	2040	37	130	1940	
		16	10	14	28	950	37	130	850	
		17	10	4	8	1770	20	1770		
		19	10	18	36	2240	37	500	1770	

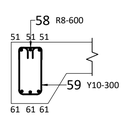
REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	342.79
Total Weight (kg)	211.50
Subtotal: (kg)	211.50



SECTION A-A
SCALE 1:25



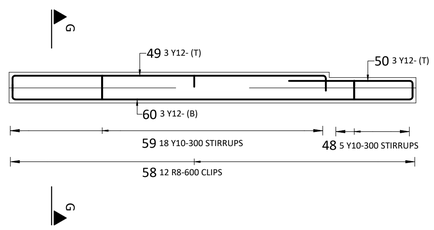
SECTION C-C
SCALE 1:25



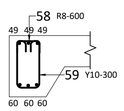
SECTION H-H
SCALE 1:25

MEMBER NAME	MEMBER NUM	MARK	TYPE Y Grade450	NUMBER ELEMENT	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
STOOLS	1	20	10	20	20	1490	83	400	350	200	
		45	10	14	14	1350	83	400	400	100	

REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	31.15
Total Weight (kg)	19.22
Subtotal: (kg)	19.22



BEAM 3 REINFORCEMENT
1NO. OFF
SCALE 1:50



SECTION G-G
SCALE 1:25

TENDER PURPOSES ONLY

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Last Plotted:
Filename:

AECOM

CONSULTANT

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3rd Floor Ncondo Chambers
27 Ncondo Place, Umhlanga Ridge

South Africa
T +2731 204 3880
www.aecom.com
Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING: N/A
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	ISS BY
0	2023-05-29	ISSUED FOR TENDER	TN
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY: T A NGUBANE N/A
DRAWN BY: T A NGUBANE N/A
DESIGN CHECKED BY: N. BUDREE N/A
DRAWING CHECKED BY: N. NGCOBO N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 BOYS ABLUTION BLOCK
DRY RAFT REINFORCEMENT LAYOUTS & SCHEDULES

DISCIPLINE

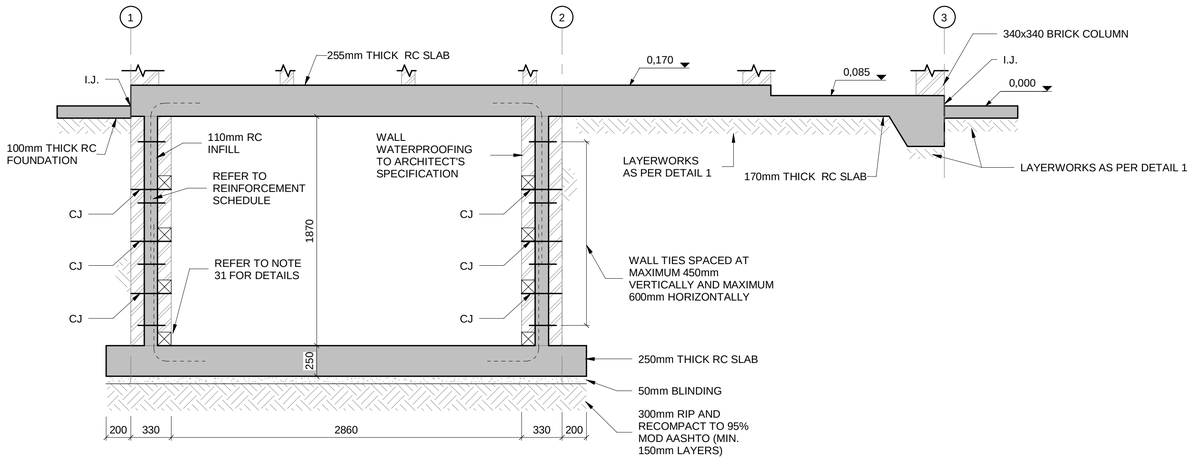
STRUCTURES

AECOM DRAWING NUMBER

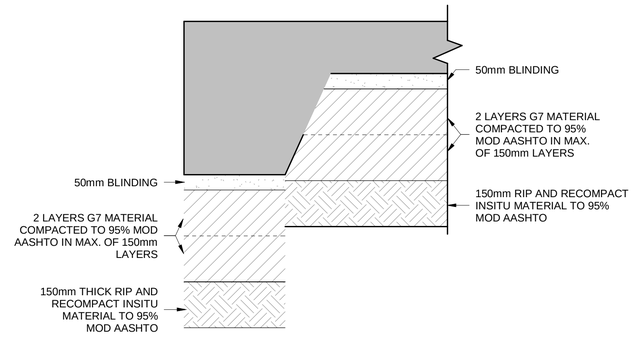
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60491906	01	0000	S	**AD-460**	**T**	0

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REPORT

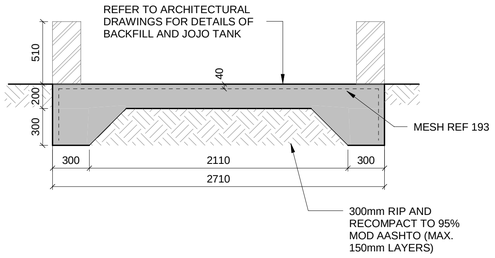
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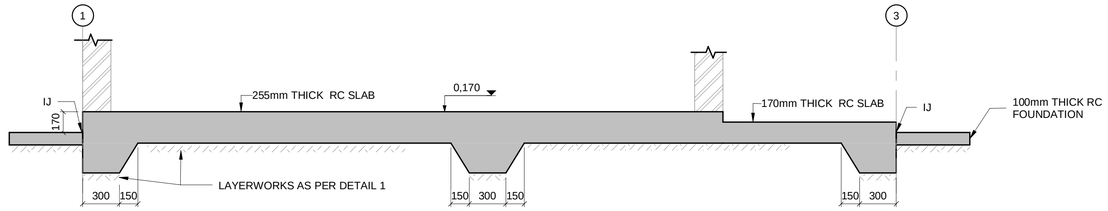
SECTION A-A
SCALE 1 : 25



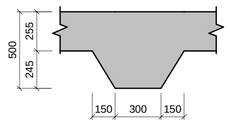
DETAIL 1 LAYERWORKS
SCALE 1 : 10



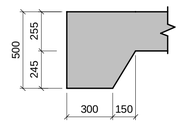
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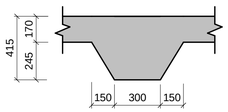
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SCALE 1 : 25



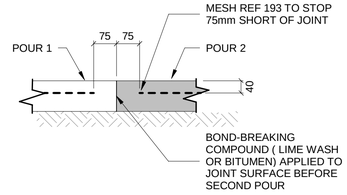
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SCALE 1 : 20



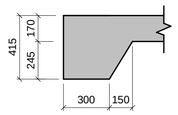
CB02 RAFT BEAM TYPE SECTION
SCALE 1 : 20



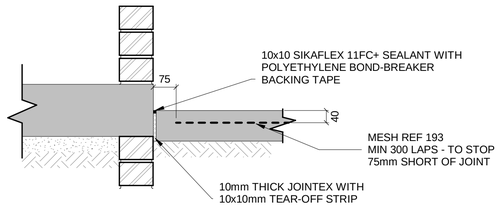
CB03 RAFT BEAM TYPE SECTION
SCALE 1 : 20



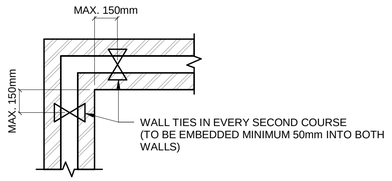
CJ CONSTRUCTION JOIN (CJ)
BA-460 SCALE 1 : 10



CB04 RAFT BEAM TYPE SECTION
SCALE 1 : 20



ISOLATION JOINT (I.J.)
SCALE 1 : 10



WALL TIE CORNER DETAIL
SCALE 1 : 20

TENDER PURPOSES ONLY

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING: N/A
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
4. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	ISS BY
0	2023-05-29	ISSUED FOR TENDER	TN
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	T.NGUBANE	N/A	
DRAWN BY:	T.NGUBANE	N/A	
DESIGN CHECKED BY:	N. BUDREE	N/A	
DRAWING CHECKED BY:	N. NGCOBO	N/A	

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 BOYS ABLUTION BLOCK
DRY RAFT SECTIONS AND DETAILS

DISCIPLINE

STRUCTURES

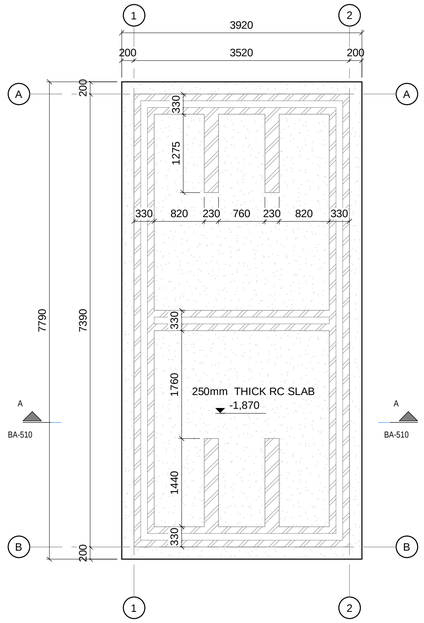
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	S	BA-460	T	0

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As indicated

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Last Plotted: 2023/05/30 09:38:08
Filename: 60491906 - 460 (BE)_detached.rvt

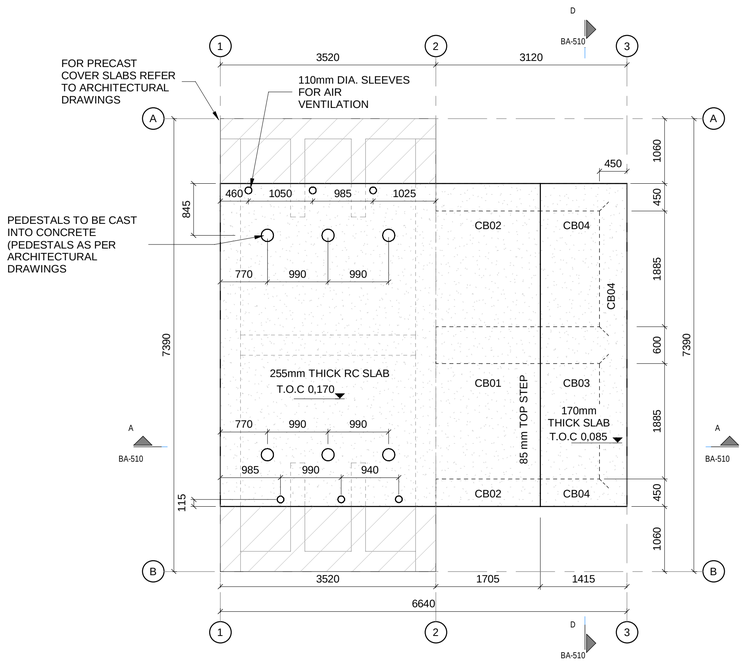


PIT SLAB FOUNDATION LAYOUT

SCALE 1 : 50

NOTE:
- WOOD FLOAT FINISH ON PIT SLAB

CONCRETE INFILL METHOD STATEMENT
- INFILL WALL TO BE CONSTRUCTED IN MAXIMUM HEIGHTS OF 425mm (5 BRICK COURSES).
- EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN.
- ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED AFTER EVERY CONSTRUCTION JOINT.
- THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE FOR THE NEXT LIFT IS POURED.



GROUND FLOOR SLAB LAYOUT

SCALE 1 : 50

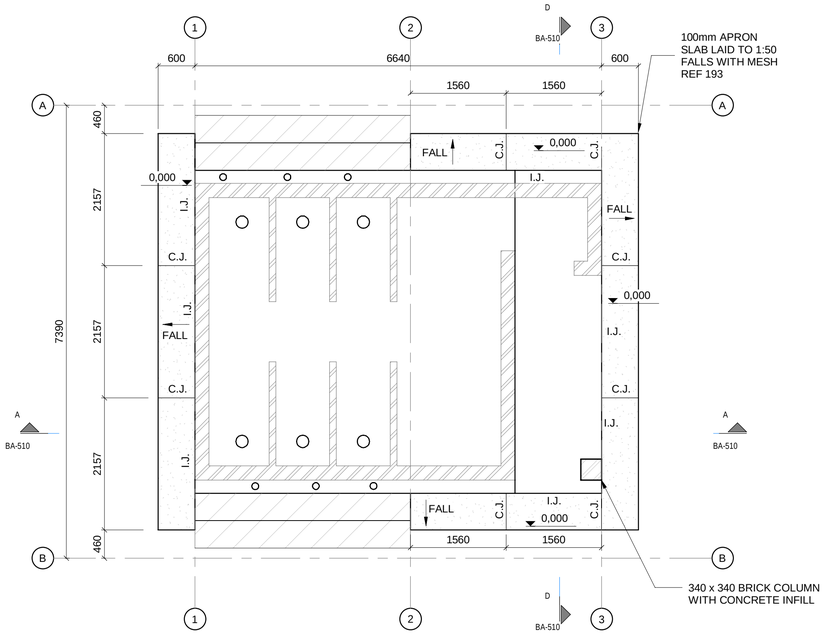
NOTES:
- ALL BRICKWORK SHOWN AS LOAD BEARING
- POWER FLOATED FINISH ON FLOOR SLABS

RAFT BEAM SCHEDULE

TYPE MARK	TYPE
CB01	300 X 500 DEEP RC RAFT BEAM
CB02	300 X 500 DEEP RC RAFT BEAM
CB03	300 X 415 DEEP RC RAFT BEAM
CB04	300 X 415 DEEP RC RAFT BEAM

NOTES:

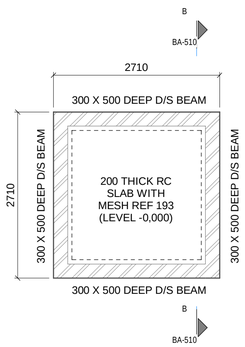
1. SETTING OUT TO BE PROVIDED BY CIVIL ENGINEER
2. JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEER'S DRAWINGS
3. SETTING OUT LEVEL 0,000 TO BE DETERMINED FROM CIVIL ENGINEER'S DRAWINGS
4. ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE LATEST REVISION OF SANS 10400, SANS 2001, OHS ACT AND THE PROJECT SPECIFICATIONS IN THE CONTRACT DOCUMENTATION.
5. ALL DIMENSIONS ARE TO BE CHECKED AGAINST THE ARCHITECT'S DRAWINGS. ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER IN WRITING.
6. NO SCALING OFF DRAWING IS ALLOWED.
7. UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING IS ACCORDING TO ARCHITECT'S DETAILS AND SPECIFICATIONS.
8. THE CONTRACTOR SHALL ENSURE THAT WATERPROOFING MATERIALS ARE NOT DAMAGED DURING BACKFILLING OPERATIONS AND FIXING OF STEEL. ANY REPAIR WORK FOR THE CONTRACTOR'S ACCOUNT.
9. THE CONTRACTOR IS RESPONSIBLE TO CONTROL STORM WATER AND DEWATERING ON THE SITE TO PREVENT DAMAGE TO THE STRUCTURE, BANKS, EXCAVATIONS, OR ANY OTHER WORKS FOR THE DURATION OF THE CONTRACT PERIOD.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL TEMPORARY STRUCTURES.
11. TIMBER ROOFS TO BE DESIGNED BY SUPPLIER AND SHALL COMPLY WITH NHBRC AND RELEVANT CODES. ONLY TREATED TIMBER TO BE USED IN ACCORDANCE WITH NHBRC REGULATIONS
12. PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY ONLY BE USED IF APPROVED BY ENGINEER
13. CERTIFICATES TO PROVE COMPLIANCE SHALL BE SUBMITTED TO ENGINEER
14. UNLESS OTHERWISE SPECIFIED, ALL BACKFILLING BENEATH SURFACE BEDS OR BEHIND RETAINING WALLS SHALL BE COMPACTED TO 95% MOD AASHTO IN LAYERS NOT EXCEEDING 150mm THICK
15. ALL EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE RESIDENT/GEOTECHNICAL ENGINEER BEFORE PLACING OF ANY CONCRETE FOUNDATION, BLINDING, AND WATERPROOFING OR GEOFABRIC MEMBRANE.
16. LEVELS OF FOUNDATIONS TO BE CONFIRMED BY THE RESIDENT/GEOTECHNICAL ENGINEER ON SITE TO OBTAIN THE SPECIFIED BEARING PRESSURE. WHERE EXCAVATION LEVELS HAVE TO BE LOWERED, THE ENGINEER WILL ISSUE A SITE INSTRUCTION WITH THE CORRECT PROCEDURE TO BE IMPLEMENTED.
17. DESIGN BEARING PRESSURE = 50 kPa.
18. PORTIONS THAT ARE OVER-EXCAVATED BEYOND THE DEPTH REQUIRED BY THE GEOTECHNICAL ENGINEER, TO BE FILLED WITH MASS CONCRETE (15MPa / 19mm) AT CONTRACTOR'S EXPENSE.
19. 50mm THICK BLINDING LAYER OF 15MPa/19mm SHALL BE CAST UNDER ALL REINFORCED FOUNDATIONS UNLESS INDICATED OTHERWISE ON DRAWINGS. NO BLINDING LAYER NEEDS TO BE CAST FOR UNREINFORCED BRICKWORK AND MASS CONCRETE FOUNDATIONS.
20. MINIMUM CONCRETE STRENGTHS @ 28 DAYS: 30 MPa. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY ENGINEER.
21. CURING OF CONCRETE SHALL BE CARRIED OUT IN ACCORDANCE WITH SANS 1200G. THE CONTRACTOR MUST ENSURE THAT ALL MATERIALS REQUIRED FOR THE CURING PROCESS ARE ON HAND BEFORE STRIPPING ANY FORMWORK, AND THAT THESE MEASURES ARE IMPLEMENTED IMMEDIATELY AFTER THE FORMWORK HAS BEEN REMOVED.
22. CONCRETE CUBE CRUSHING TESTS AS PER SANS 2001-CC1 : 2012 CLAUSE 5
23. FLOOR FINISHES:
    - PIT FLOOR = WOOD FLOATED
    - GROUND FLOOR = POWER FLOATED
    - APRON SLAB = WOOD FLOATED
    - JOJO TANK PLINTH = WOOD FLOATED
24. SEE ARCHITECT'S DRAWINGS FOR GENERAL LAYOUT OF BRICKWORK. ALL SETTING OUT TO BE DONE FROM ARCHITECT'S DRAWINGS. ALL FOUNDATIONS AND STRIP FOOTINGS ARE PLACED SYMMETRICALLY BELOW BRICKWORK UNLESS OTHERWISE SHOWN.
25. BRICKWORK TO BE BUILT IN ACCORDANCE WITH SANS 2001-CM1:2012, SANS 10400, SANS 10164 AND NHBRC.
26. THE MINIMUM CRUSHING STRENGTH OF ALL LOAD-BEARING BRICKWORK SHALL BE 14 MPa UNLESS SHOWN OTHERWISE
27. THE MINIMUM CRUSHING STRENGTH OF MORTAR SHALL BE AS FOR CLASS II MORTAR IN ACCORDANCE WITH TABLE 1 SANS 10164 PART 1 - 1980
28. ALL BRICK ANCHORS, WALL TIES AND STRAPS SHALL BE HOT-DIP GALVANISED. ALL WALL TIES TO BE POZZI TIES
29. BRICKFORCE
    - BRICKWORK SHALL BE REINFORCED WITH AN APPROVED BRICKFORCE EVERY FOURTH LAYER UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
30. IN ADDITION, CONTINUOUS BRICK FORCE IS REQUIRED IN EVERY LAYER FOR THE FIRST FOUR LAYERS ABOVE AND BELOW THE TOP OF FOUNDATIONS & SLABS, AS WELL AS WINDOWS AND OVER DOOR OPENINGS. MINIMUM LAPS TO BE 300mm.
31. IN CAVITY WALLS, WALL TIES SHALL JOIN THE LEAVES AND SHALL BE EMBEDDED IN MASONRY JOINTS AT RIGHT ANGLES TO THE LEAVES AS THE WORK PROGRESSES.
32. EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN. ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED. THESE BRICK OPENING IN THE FIRST COURSE WILL ALLOW FOR THE CLEANING OF EXCESS BRICKWORK MORTAR COLLECTING AT THE BOTTOM OF THE CAVITY. THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE IS POURED. CONCRETE FOR BRICK WORK INFILL TO BE POURED IN MAXIMUM OF 1m HEIGHTS.
33. THERE SHOULD BE 5.0 WALL TIES PER M² OF WALLING.
34. ENSURE THAT EACH TIE IS EMBEDDED TO A DEPTH OF AT LEAST 50mm IN THE MORTAR JOINT OF EACH LEAF.
35. FOR CAVITY WIDTHS EXCEEDING 75mm BUT NOT EXCEEDING 150mm. ENSURE THAT WALL TIES USED ARE OF THE VERTICAL TWIST TYPE, OR ANY SIMILAR TYPE HAVING AT LEAST THE EQUIVALENT STRENGTH AND STIFFNESS.
36. CONCRETE BRICKS TO BE KEPT DRY BEFORE BEING USED.



APRON SLAB LAYOUT

SCALE 1 : 50

NOTES:
- ALL APRON SLABS TO BE 100mm THICK WITH MESH REF 193
- EXTERNAL BRICKWORK TO BE LOAD BEARING



JOJO TANK PLINTHS DETAILS

SCALE 1 : 50

NOTES:
- JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEERS DRAWINGS

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AECOM

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

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I/R	DATE	DESCRIPTION	ISS BY

INITIAL ISSUE

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DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 GIRLS ABLUTION BLOCK DRYRAFT PLAN LAYOUTS

DISCIPLINE

STRUCTURES

AECOM DRAWING NUMBER

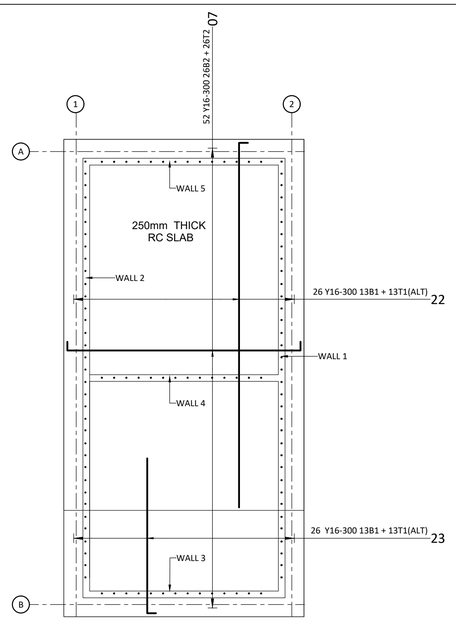
PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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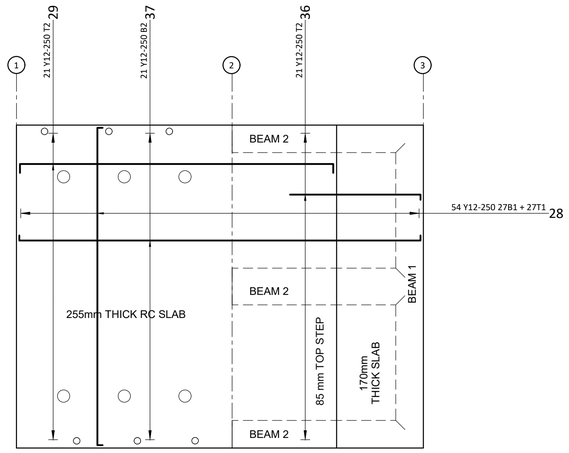
SCALE 1 : 50

ISO A1 594mm x 841mm
Printed on ___% Post-Consumer Recycled Content Paper
Last Plotted: 2023/05/30 09:43:12
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ISO A1 594mm x 841mm



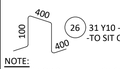
PIT SLAB FOUNDATION SLAB
BOTTOM & TOP REINFORCEMENT LAYOUT
SCALE 1:50



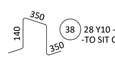
GROUND PLAN SLAB
BOTTOM & TOP REINFORCEMENT LAYOUT
SCALE 1:50

NOTE:
FOR 170mm SLAB USE 60mm COVER BLOCKS
TO SIT ON B2 TO SUPPORT T2 (7 No OFF STOOLS 1 / M^2)

NOTE:
STOOLS FOR 250mm THICK SLAB



NOTE:
STOOLS FOR 255mm THICK SLAB



MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
250mm THICK PIT SLAB	1	07	16	52	52	4040	38	150	3820	150	
		22	16	26	26	6070	37	150	5960		
		23	16	26	26	2640	37	2530	150		

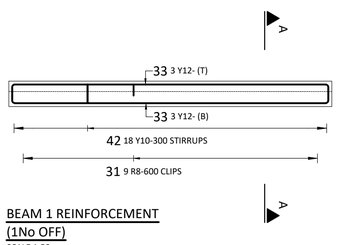
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Grade450	Y 16
Total Length (m)	436.54
Total Weight (kg)	689.73
Subtotal: (kg)	689.73

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
170/255mm THICK GROUND SLAB	1	28	12	54	54	5310	38	90	5190	90	
		29	12	21	21	5360	38	150	5130	150	
		36	12	21	21	2190	37	2140	90		
		37	12	21	21	6680	38	90	6560	90	

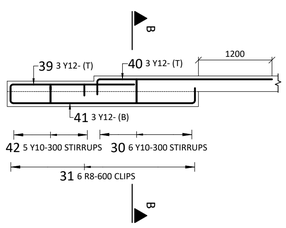
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Grade450	Y 12
Total Length (m)	585.57
Total Weight (kg)	519.99
Subtotal: (kg)	519.99

MEMBER		MARK	TYPE		NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		R Grade250	Y Grade450	ELEMENT	TOTAL						
BEAM 1	1	31	8		9	9	360	38	100	190	100	
		33		12	6	6	5610	38	250	5170	250	
		42		10	18	18	980	72	300	190		
BEAM 2	3	30		10	6	18	1160	72	390	190		
		31	8		6	18	360	38	100	190	100	
		39		12	3	9	2240	37	250	2020		
		40		12	3	9	3070	37	250	2860		
		41		12	3	9	3460	38	250	3020	250	
		42		10	5	15	980	72	300	190		

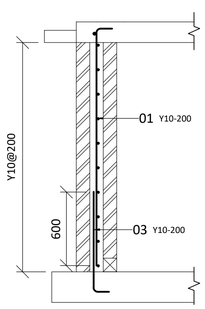
REINFORCEMENT SUMMARY			
Grade250	R 8	R 10	R 12
Total Length (m)	9.72		
Total Weight (kg)	3.84		
Grade450	Y 8	Y 10	Y 12
Total Length (m)		53.22	112.59
Total Weight (kg)		32.84	99.98
Subtotal: (kg)		136.66	



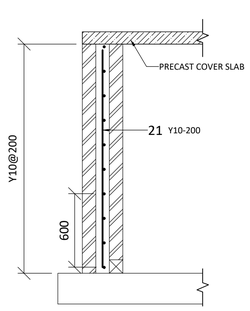
BEAM 1 REINFORCEMENT
(1No OFF)
SCALE 1:50



BEAM 2 REINFORCEMENT
(3No OFF)
SCALE 1:50



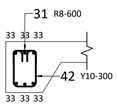
TYPICAL SECTION
THROUGH WALLS WITH SLAB OVER
SCALE 1:25



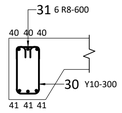
TYPICAL SECTION
THROUGH WALLS WITH NO SLAB OVER
SCALE 1:25

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
WALL 4	1	01	10	17	17	2040	37	130	1940		
		03	10	17	17	920	37	130	820		
		24	10	18	18	2320	37	1850	500		
WALLS 1&2	2	01	10	27	54	2040	37	130	1940		
		03	10	37	74	920	37	130	820		
		08	10	18	36	4260	37	500	3790		
		21	10	10	20	1770	20	1770			
WALLS 3 & 5	2	03	10	15	30	920	37	130	820		
		21	10	15	30	1770	20	1770			
		24	10	18	36	2320	37	1850	500		

REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	623.30
Total Weight (kg)	384.58
Subtotal: (kg)	384.58



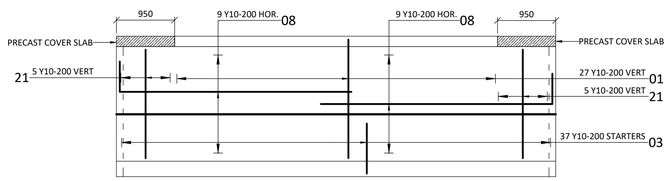
SECTION A-A
SCALE 1:25



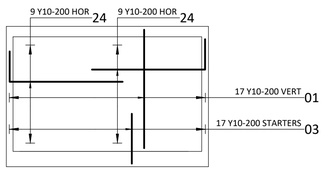
SECTION B-B
SCALE 1:25

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
STOOLS	1	26	10	31	31	1450	83	400	100	400	
		38	10	28	28	1290	83	350	140	350	

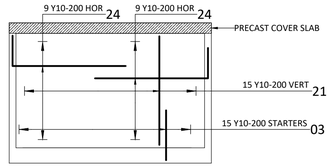
REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	81.07
Total Weight (kg)	50.02
Subtotal: (kg)	50.02



WALLS 1 AND 2
(2No OFF)
SCALE 1:50



WALL 4
SCALE 1:50



WALLS 3&5
(2No OFF)
SCALE 1:50

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1 2 3 4 5

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTE:
- COVER FOR SUSPENDED SLAB = 40mm
- COVER FOR WALLS = 50mm
- COVER FOR BEAMS = 50mm
- COVER FOR FOUNDATION SLAB = 50mm
- MINIMUM SPLICING = 50Ø
- Ø = THE LARGEST DIAMETER BAR OF THE SPLICED

NOTES

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I/R	DATE	DESCRIPTION	ISS BY
0	2023-05-29	ISSUED FOR TENDER	TN
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	T.A NGUBANE	N/A
DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 GIRLS ABLUTION BLOCK
DRY RAFT REINFORCEMENT LAYOUTS & SCHEDULES

DISCIPLINE

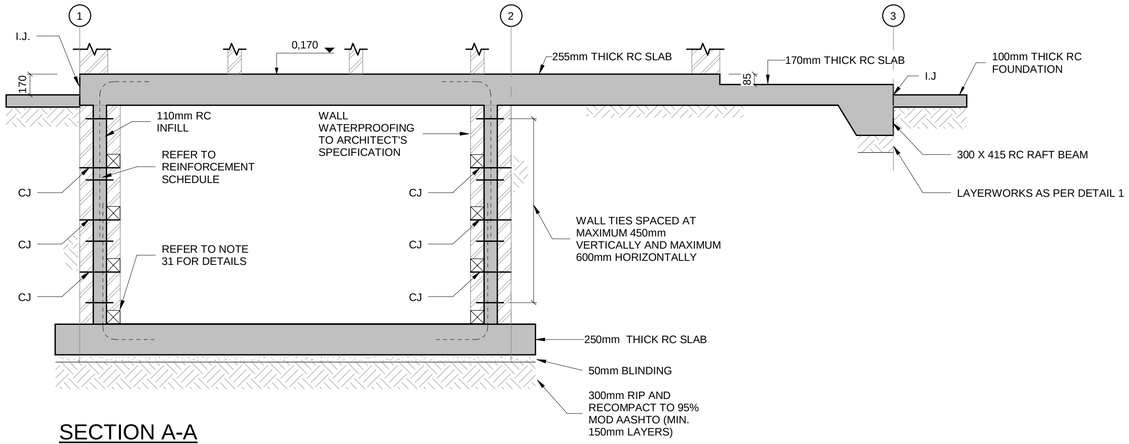
STRUCTURES

AECOM DRAWING NUMBER

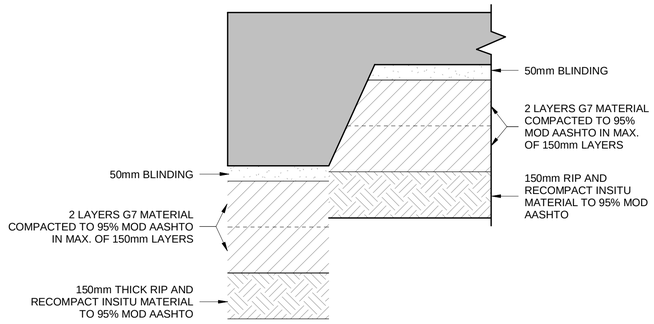
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60491906	01	0000	S	**AD-510**	T	0

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REPORT

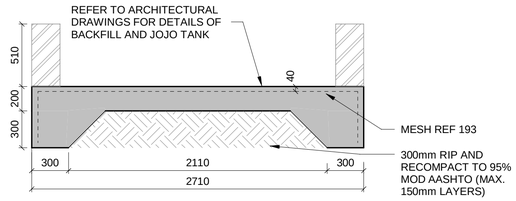
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SECTION A-A
SCALE 1 : 25



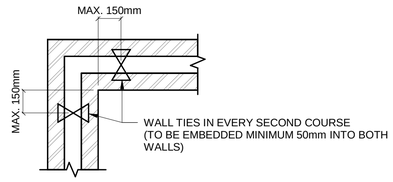
DETAIL - 1 LAYERWORKS
SCALE 1 : 10



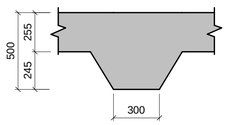
SECTION B-B
SCALE 1 : 25



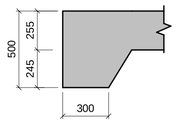
SECTION D-D
SCALE 1 : 25



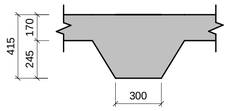
WALL TIE CORNER DETAIL
SCALE 1 : 20



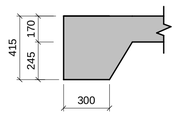
CB01 RAFT BEAM TYPE SECTION
SCALE 1 : 20



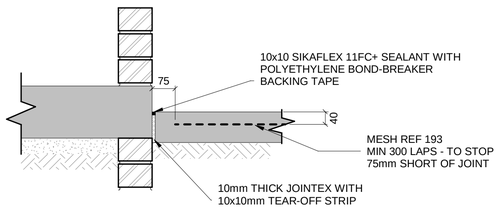
CB02 RAFT BEAM TYPE SECTION
SCALE 1 : 20



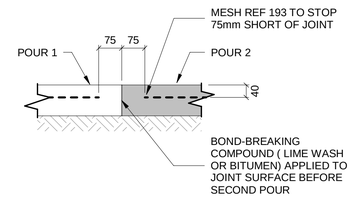
CB03 RAFT BEAM TYPE SECTION
SCALE 1 : 20



CB04 RAFT BEAM TYPE SECTION
SCALE 1 : 20



ISOLATION JOINT (I.J.)
SCALE 1 : 10



CJ CONSTRUCTION JOIN (CJ)
BA-510 SCALE 1 : 10

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

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ISSUE / REVISION

0	2023-05-29	ISSUED FOR TENDER	TN
I/R	DATE	DESCRIPTION	ISS BY
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	N. BUDREE	N/A
DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 6 GIRLS ABLUTION BLOCK
DRYRAFT SECTIONS AND DETAILS

DISCIPLINE

STRUCTURES

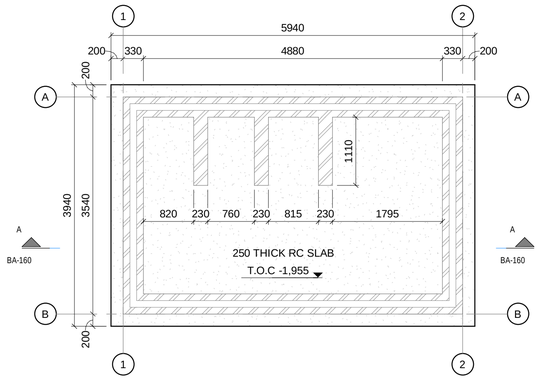
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	S	**BA-510**	**T**	**0**

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REDSET

SCALE As indicated

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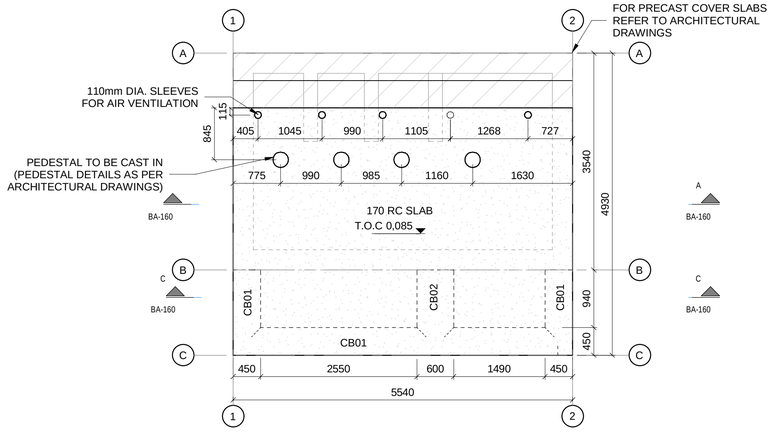


PIT SLAB FOUNDATION LAYOUT

SCALE 1 : 50

NOTE:
- WOOD FLOAT FINISH ON PIT SLAB

CONCRETE INFILL METHOD STATEMENT
- INFILL WALL TO BE CONSTRUCTED IN MAXIMUM HEIGHTS OF 425mm (5 BRICK COURSES).
- EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN.
- ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED AFTER EVERY CONSTRUCTION JOINT.
- THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE FOR THE NEXT LIFT IS POURED.



GROUND FLOOR SLAB LAYOUT

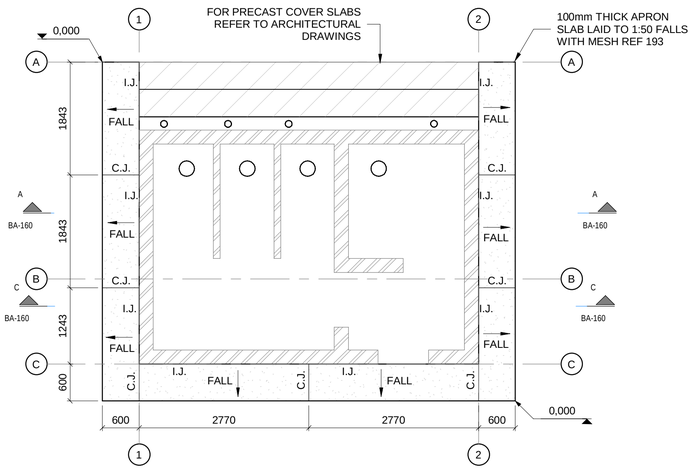
SCALE 1 : 50

NOTES:
- ALL BRICKWORK SHOWN AS LOAD BEARING
- POWER FLOATED FINISH ON GROUND FLOOR SLAB

FRAMING SCHEDULE	
TYPE MARK	**TYPE**
CB01	300X500 DEEP RC RAFT BEAM
CB02	300X500 DEEP RC RAFT BEAM

NOTES:

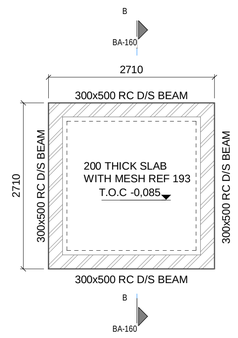
1. SETTING OUT TO BE PROVIDED BY CIVIL ENGINEER
2. JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEER'S DRAWINGS
3. SETTING OUT LEVEL 0,000 TO BE DETERMINED FROM CIVIL ENGINEER'S DRAWINGS
4. ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE LATEST REVISION OF SANS 10400, SANS 2001, OHS ACT AND THE PROJECT SPECIFICATIONS IN THE CONTRACT DOCUMENTATION.
5. ALL DIMENSIONS ARE TO BE CHECKED AGAINST THE ARCHITECT'S DRAWINGS. ANY DISCREPANCIES SHALL IMMEDIATELY BE REPORTED TO THE ENGINEER IN WRITING.
6. NO SCALING OFF DRAWING IS ALLOWED.
7. UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING IS ACCORDING TO ARCHITECT'S DETAILS AND SPECIFICATIONS.
8. THE CONTRACTOR SHALL ENSURE THAT WATERPROOFING MATERIALS ARE NOT DAMAGED DURING BACKFILLING OPERATIONS AND FIXING OF STEEL. ANY REPAIR WORK FOR THE CONTRACTOR'S ACCOUNT.
9. THE CONTRACTOR IS RESPONSIBLE TO CONTROL STORM WATER AND DEWATERING ON THE SITE TO PREVENT DAMAGE TO THE STRUCTURE, BANKS, EXCAVATIONS, OR ANY OTHER WORKS FOR THE DURATION OF THE CONTRACT PERIOD.
10. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND MAINTENANCE OF ALL TEMPORARY STRUCTURES.
11. TIMBER ROOFS TO BE DESIGNED BY SUPPLIER AND SHALL COMPLY WITH NHBRC AND RELEVANT CODES. ONLY TREATED TIMBER TO BE USED IN ACCORDANCE WITH NHBRC REGULATIONS
12. PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY ONLY BE USED IF APPROVED BY ENGINEER
13. CERTIFICATES TO PROVE COMPLIANCE SHALL BE SUBMITTED TO ENGINEER
14. UNLESS OTHERWISE SPECIFIED, ALL BACKFILLING BENEATH SURFACE BEDS OR BEHIND RETAINING WALLS SHALL BE COMPACTED TO 95% MOD AASHTO IN LAYERS NOT EXCEEDING 150mm THICK
15. ALL EXCAVATIONS MUST BE INSPECTED AND APPROVED BY THE RESIDENT/GEOTECHNICAL ENGINEER BEFORE PLACING OF ANY CONCRETE FOUNDATION, BLINDING, AND WATERPROOFING OR GEOFABRIC MEMBRANE.
16. LEVELS OF FOUNDATIONS TO BE CONFIRMED BY THE RESIDENT/GEOTECHNICAL ENGINEER ON SITE TO OBTAIN THE SPECIFIED BEARING PRESSURE. WHERE EXCAVATION LEVELS HAVE TO BE LOWERED, THE ENGINEER WILL ISSUE A SITE INSTRUCTION WITH THE CORRECT PROCEDURE TO BE IMPLEMENTED.
17. DESIGN BEARING PRESSURE = 50 kPa.
18. PORTIONS THAT ARE OVER-EXCAVATED BEYOND THE DEPTH REQUIRED BY THE GEOTECHNICAL ENGINEER, TO BE FILLED WITH MASS CONCRETE (15MPa / 19mm) AT CONTRACTOR'S EXPENSE.
19. A 50mm THICK BLINDING LAYER OF 15MPa/19mm SHALL BE CAST UNDER ALL REINFORCED FOUNDATIONS UNLESS INDICATED OTHERWISE ON DRAWINGS. NO BLINDING LAYER NEEDS TO BE CAST FOR UNREINFORCED BRICKWORK AND MASS CONCRETE FOUNDATIONS.
20. MINIMUM CONCRETE STRENGTHS @ 28 DAYS: 30 MPa. THE CONCRETE MIX DESIGN IS TO BE APPROVED BY ENGINEER.
21. CURING OF CONCRETE SHALL BE CARRIED OUT IN ACCORDANCE WITH SANS 1200G. THE CONTRACTOR MUST ENSURE THAT ALL MATERIALS REQUIRED FOR THE CURING PROCESS ARE ON HAND BEFORE STRIPPING ANY FORMWORK, AND THAT THESE MEASURES ARE IMPLEMENTED IMMEDIATELY AFTER THE FORMWORK HAS BEEN REMOVED.
22. CONCRETE CUBE CRUSHING TESTS AS PER SANS 2001-CC1 : 2012 CLAUSE 5
23. FLOOR FINISHES:
    - PIT FLOOR = WOOD FLOATED
    - GROUND FLOOR = POWER FLOATED
    - JOJO TANK PLINTH = WOOD FLOATED
    - APRON SLAB =WOOD FLOATED
24. SEE ARCHITECT'S DRAWINGS FOR GENERAL LAYOUT OF BRICKWORK. ALL SETTING OUT TO BE DONE FROM ARCHITECT'S DRAWINGS. ALL FOUNDATIONS AND STRIP FOOTINGS ARE PLACED SYMMETRICALLY BELOW BRICKWORK UNLESS OTHERWISE SHOWN.
25. BRICKWORK TO BE BUILT IN ACCORDANCE WITH SANS 2001-CM1:2012, SANS 10400, SANS 10164 AND NHBRC.
26. THE MINIMUM CRUSHING STRENGTH OF ALL LOAD-BEARING BRICKWORK SHALL BE 14 MPa UNLESS SHOWN OTHERWISE
27. THE MINIMUM CRUSHING STRENGTH OF MORTAR SHALL BE AS FOR CLASS II MORTAR IN ACCORDANCE WITH TABLE 1 SANS 10164 PART 1 - 1980
28. ALL BRICK ANCHORS, WALL TIES AND STRAPS SHALL BE HOT-DIP GALVANISED. ALL WALL TIES TO BE POZZI TIES
29. BRICKFORCE
    - BRICKWORK SHALL BE REINFORCED WITH AN APPROVED BRICKFORCE EVERY FOURTH LAYER UNLESS OTHERWISE SPECIFIED ON DRAWINGS.
30. IN ADDITION, CONTINUOUS BRICK FORCE IS REQUIRED IN EVERY LAYER FOR THE FIRST FOUR LAYERS ABOVE AND BELOW THE TOP OF FOUNDATIONS & SLABS, AS WELL AS WINDOWS AND OVER DOOR OPENINGS. MINIMUM LAPS TO BE 300mm.
31. IN CAVITY WALLS, WALL TIES SHALL JOIN THE LEAVES AND SHALL BE EMBEDDED IN MASONRY JOINTS AT RIGHT ANGLES TO THE LEAVES AS THE WORK PROGRESSES.
32. EVERY FOURTH BRICK IN THE FIRST COURSE OF CAVITY BRICK WALL TO BE LEFT OPEN. ONCE BRICKWORK IS BUILT, THE EXCESS MORTAR IN THE CAVITY IS TO BE CLEANED. THESE BRICK OPENING IN THE FIRST COURSE WILL ALLOW FOR THE CLEANING OF EXCESS BRICKWORK MORTAR COLLECTING AT THE BOTTOM OF THE CAVITY. THESE OPENINGS ARE TO BE CLOSED ONCE THE CAVITY IS CLEANED AND BEFORE THE CONCRETE IS POURED. CONCRETE FOR BRICK WORK INFILL TO BE POURED IN MAXIMUM OF 1m HEIGHTS.
33. THERE SHOULD BE 5.0 WALL TIES PER M^2 OF WALLING.
34. ENSURE THAT EACH TIE IS EMBEDDED TO A DEPTH OF AT LEAST 50mm IN THE MORTAR JOINT OF EACH LEAF.
35. FOR CAVITY WIDTHS EXCEEDING 75mm BUT NOT EXCEEDING 150mm. ENSURE THAT WALL TIES USED ARE OF THE VERTICAL TWIST TYPE, OR ANY SIMILAR TYPE HAVING AT LEAST THE EQUIVALENT STRENGTH AND STIFFNESS.
36. CONCRETE BRICKS TO BE KEPT DRY BEFORE BEING USED.



APRON SLAB LAYOUT

SCALE 1 : 50

NOTES
- ALL APRON SLABS TO BE 100mm THICK WITH MESH REF 193
- EXTERNAL BRICKWORK TO BE LOAD BEARING



JOJO TANK PLINTH DETAILS

SCALE 1 : 50

NOTES :
- JOJO TANKS TO BE POSITIONED AS PER CIVIL ENGINEERS DRAWING

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DRAWING CHECKS

DESIGNED BY: T.A NGUBANE N/A
DRAWN BY: T.A NGUBANE N/A
DESIGN CHECKED BY: N. BUDREE N/A
DRAWING CHECKED BY: N. NGCOBO N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 3 GRADE R AND 1 TEACHER ABLUTIONBLOCK DRY RAFT PLAN LAYOUTS

DISCIPLINE

STRUCTURES

AECOM DRAWING NUMBER

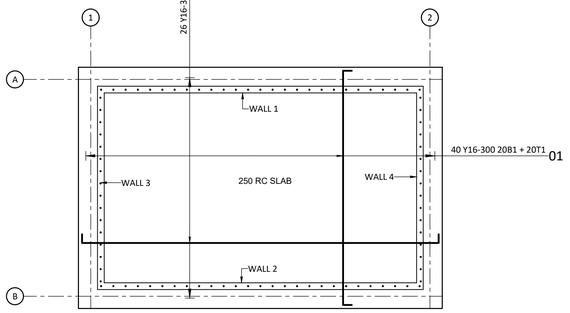
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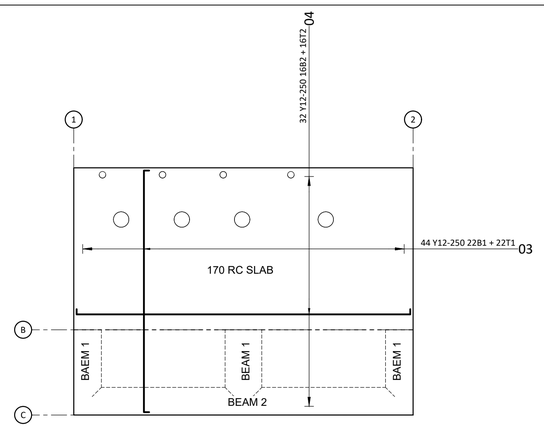
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ISO A1 594mm x 841mm
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ISO A1 (594mm x 841mm)



PIT SLAB REINFORCEMENT LAYOUT
SCALE 1:50



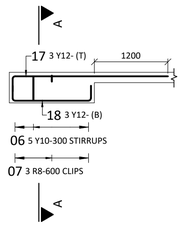
GROUND FLOOR SLAB REINFORCEMENT LAYOUT
SCALE 1:50

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
PIT SLAB REBAR	1	01	16	40	40	4060	38	150	3840	150	
		02	16	26	26	6060	38	150	5840	150	

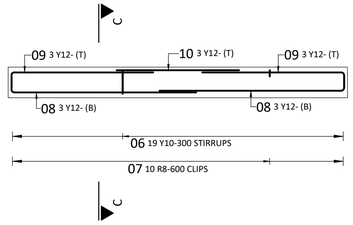
REINFORCEMENT SUMMARY	
Grade450	Y 16
Total Length (m)	319.96
Total Weight (kg)	505.54
Subtotal: (kg)	505.54

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
GROUND FLOOR SLAB REBAR	1	03	12	44	44	4070	38	90	3960	90	
		04	12	32	32	5580	38	90	5460	90	

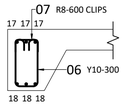
REINFORCEMENT SUMMARY	
Grade450	Y 12
Total Length (m)	357.64
Total Weight (kg)	317.58
Subtotal: (kg)	317.58



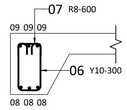
BEAM 1 REINFORCEMENT
3NO. OFF
SCALE 1:50



BEAM 2 REINFORCEMENT
1 NO. OFF
SCALE 1:50



SECTION A-A
SCALE 1:25



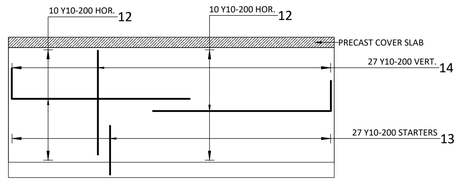
SECTION C-C
SCALE 1:25

MEMBER		MARK	TYPE		NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		R Grade250	Y Grade450	ELEMENT	TOTAL						
BEAM 1	3	06		10	5	15	1160	72	390	190		
		07	8		3	9	360	38	100	190	100	
		17		12	3	9	2760	37	250	2540		
		18		12	3	9	1730	38	250	1290	250	

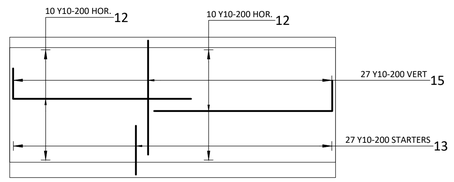
REINFORCEMENT SUMMARY			
Grade250	R 8	R 10	R 12
Total Length (m)	3.24		
Total Weight (kg)	1.28		
Grade450	Y 8	Y 10	Y 12
Total Length (m)		17.40	40.41
Total Weight (kg)		10.74	35.88
Subtotal: (kg)		47.90	

MEMBER		MARK	TYPE		NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		R Grade250	Y Grade450	ELEMENT	TOTAL						
BEAM 2	1	06		10	19	19	1160	72	390	190		
		07	8		10	10	360	38	100	190	100	
		08		12	6	6	3240	37	250	3020		
		09		12	6	6	2540	37	250	2320		
		10		12	3	3	2000	20	2000			

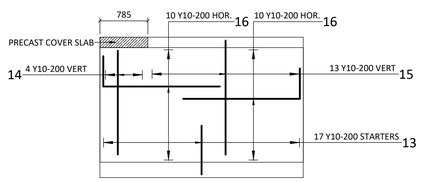
REINFORCEMENT SUMMARY			
Grade250	R 8	R 10	R 12
Total Length (m)	3.60		
Total Weight (kg)	1.42		
Grade450	Y 8	Y 10	Y 12
Total Length (m)		22.04	40.68
Total Weight (kg)		13.60	36.12
Subtotal: (kg)		51.14	



WALL 1 ELEVATION
SCALE 1:50



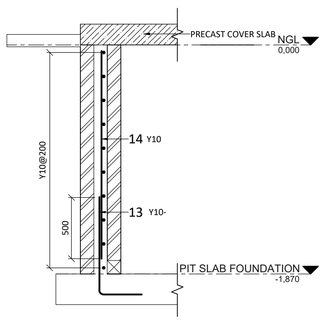
WALL 2 ELEVATION
SCALE 1:50



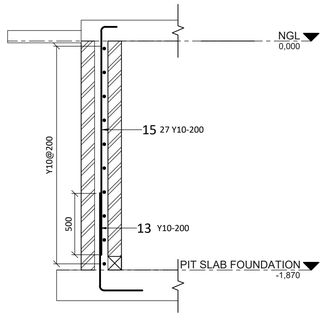
WALL 3 & 4 ELEVATION
2 NO. OFF
SCALE 1:50

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL					
WALL 1 REBAR	1	12	10	20	20	3380	37	2910	500	
		13	10	27	27	1120	37	350	800	
		14	10	27	27	1690	20	1690		
WALL 2 REBAR	1	12	10	20	20	3380	37	2910	500	
		13	10	27	27	1120	37	350	800	
		15	10	27	27	1970	37	130	1870	
WALL 3 & 4 REBAR	2	13	10	17	34	1120	37	350	800	
		14	10	4	8	1690	20	1690		
		15	10	13	26	1970	37	130	1870	
		16	10	20	40	2380	37	500	1910	

REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	492.52
Total Weight (kg)	303.88
Subtotal: (kg)	303.88



TYPICAL SECTION
THROUGH WALL WITHOUT SLAB OVER
SCALE 1:25



TYPICAL SECTION
THROUGH WALL WITH SLAB OVER
SCALE 1:25

MEMBER		MARK	TYPE	NUMBER		LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	REV
NAME	NUM		Y Grade450	ELEMENT	TOTAL						
STOOLS	1	19	10	24	24	1240	83	300	90	300	

REINFORCEMENT SUMMARY	
Grade450	Y 10
Total Length (m)	29.76
Total Weight (kg)	18.36
Subtotal: (kg)	18.36

TENDER PURPOSES ONLY

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

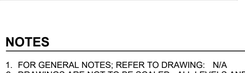
KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTE:

- COVER FOR PIT SLAB = 50mm
- COVER FOR GROUND FLOOR SLAB = 40mm
- COVER FOR RAFT BEAMS = 50mm
- COVER FOR WALLS = 50mm
- MINIMUM SPLICING = 50Ø UNLESS STATED OTHER WISE
- Ø = LARGEST DIAMETER BAR OF THE SPLICED

NOTE:
FOR 170mm SLAB USE 60mm COVER BLOCKS STOOLS TO SIT ON B2 TO SUPPORT T2 (22 No OFF STOOLS 1 / m²)

NOTE:
STOOLS FOR 250mm THICK SLAB



NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING: N/A
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY
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ISSUE / REVISION

I/R	DATE	DESCRIPTION	ISS BY
0	2023-05-29	ISSUED FOR TENDER	TN
		INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY:	T.A NGUBANE	N/A
DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 3 GRADE R AND 1 TEACHER ABLUTION BLOCK DRY RAFT REINFORCEMENT LAYOUTS & SCHEDULES

DISCIPLINE

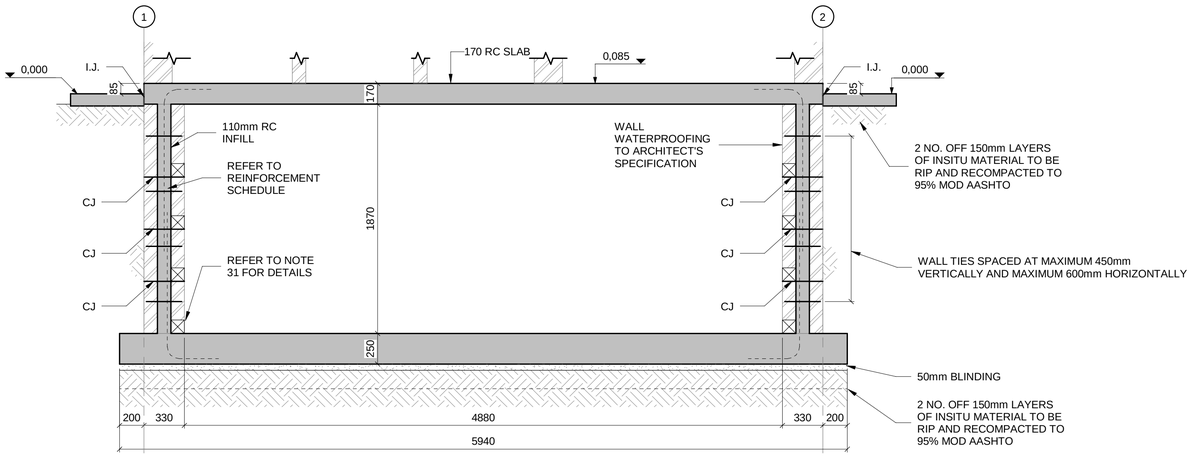
STRUCTURES

AECOM DRAWING NUMBER

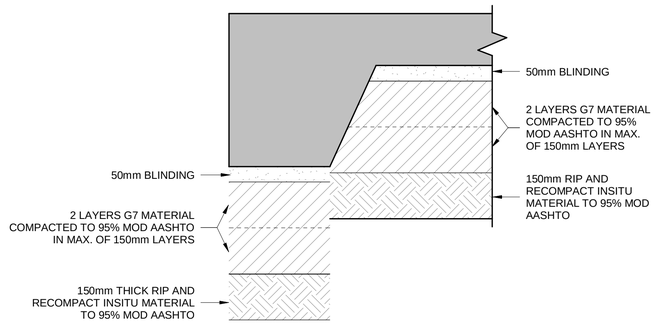
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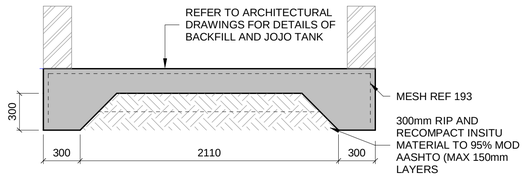
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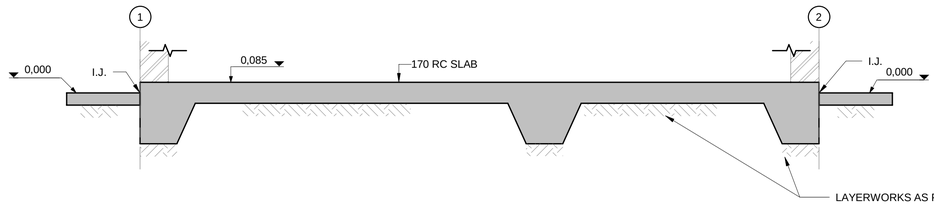
SECTION A-A
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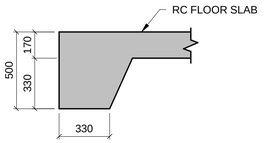
DETAIL 1 LAYERWORKS
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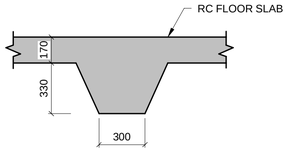
SECTION B-B
SCALE 1 : 25



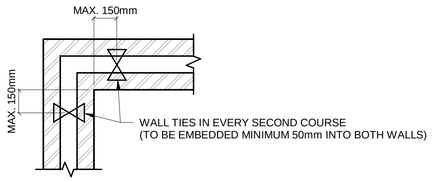
SECTION C-C
SCALE 1 : 25



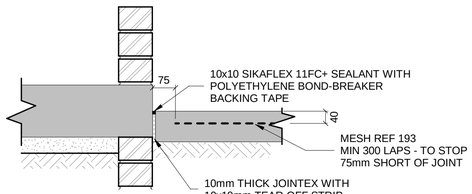
CB01
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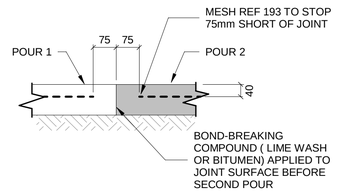
CB02
SCALE 1 : 20



WALL TIE CORNER DETAIL
SCALE 1 : 20



ISOLATION JOINT (I.J.)
SCALE 1 : 10



CJ CONSTRUCTION JOIN (CJ)
BA-160 SCALE 1 : 10

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AECOM

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Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. FOR GENERAL NOTES; REFER TO DRAWING: N/A
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY
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ISSUE / REVISION

I/R	DATE	DESCRIPTION	ISS BY
0	2023-05-29	ISSUED FOR TENDER	TN

INITIAL ISSUE

DRAWING CHECKS

DESIGNED BY:	T.A NGUBANE	N/A
DRAWN BY:	T.A NGUBANE	N/A
DESIGN CHECKED BY:	N. BUDREE	N/A
DRAWING CHECKED BY:	N. NGCOBO	N/A

APPROVAL CONSULTANT

NAME: N. BUDREE DATE:
PROF REG. No.: 20150150 SIGNATURE:

THE MASTER HELD AT THE **AECOM DURBAN OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PS 3 GRADE R AND 1 TEACHER ABLUTIONBLOCK DRY RAFT SECTIONS AND DETAILS

DISCIPLINE

STRUCTURES

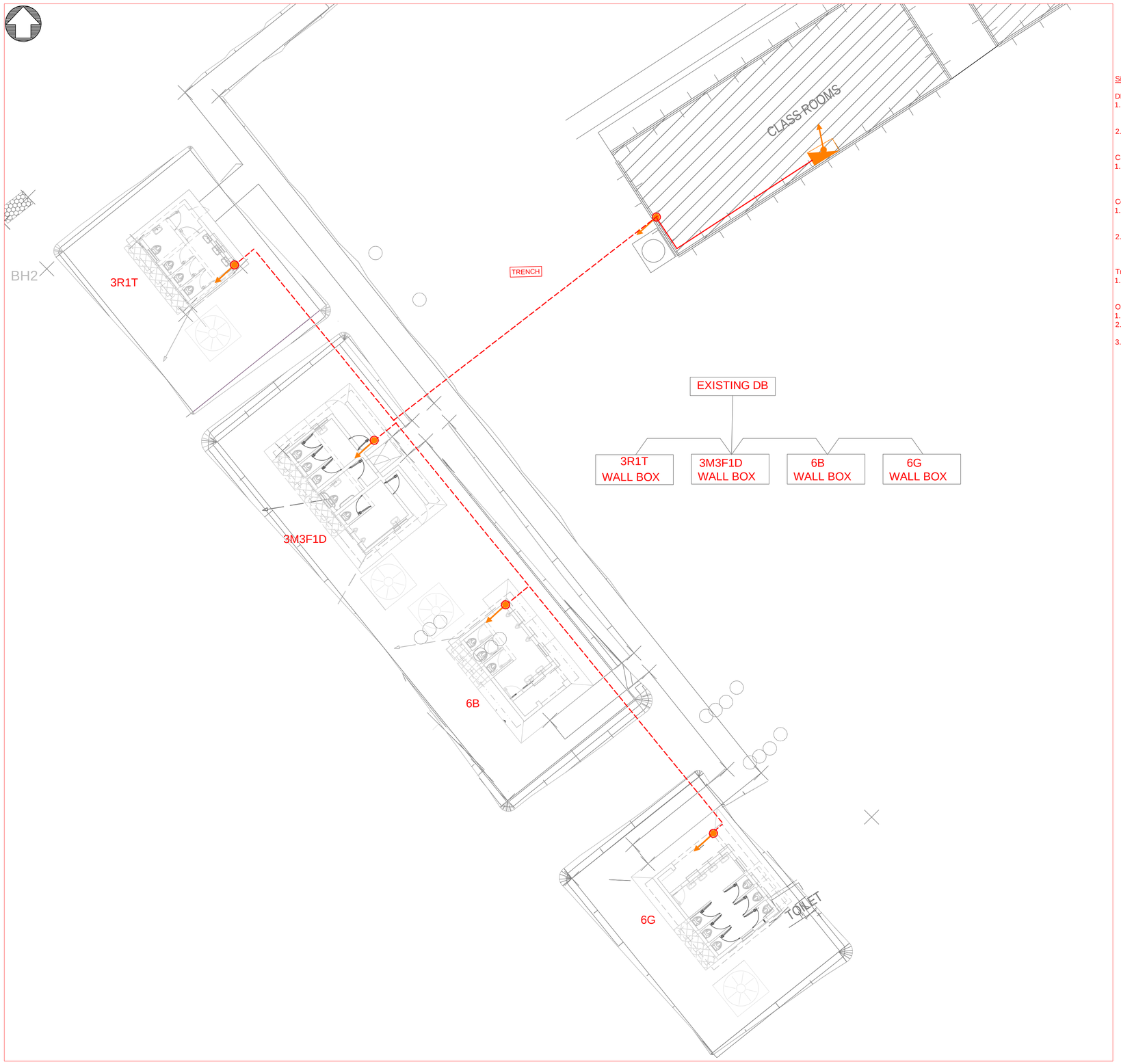
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D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As indicated

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Site Specific instructions

DB modifications:
1. Modify existing DB to include 1 x new CBI 10A - C2. Other specification to match existing. 1 x CB feeding ablutions "3R1T, 3M3F1D,6G and 6B"

2. Install cover on DB and comply to SANS 10142

Cabling:
1. 1 x 1c x 4mm2 CU 0,6/1kV PVC/ECC/PVC Cable (SANS1507) feeding ablutions "3R1T, 3M3F1D,6G and 6B" to exit existing DB at top, via 32mm PVC Conduit chased into brick wall.

Containment:
1. 20mm PVC Conduit to be routed internally to contractors detail and exit existing building building via 32mm bosal conduit dropper into 50mm Flexible Corrugated HDPE double walled cable conduit.
2. Sleeves installed in trenching shall be 50mm Flexible Corrugated HDPE double walled cable conduit (SANS 61368-24) into existing trench (measure elsewhere) incl. adaptors and draw wire

Trenching:
1. Trenching soft sand, cable bedding and sifted compacted backfill to 98% MOD ASTM, with cable marker tape 400mm (w)x 650mm (d)

Other Engineering Notes:
1. Cutting through all brick work and concrete shall be made new
2. The contractor shall make them selfs fully aware of the site conditions and consider all installation requirements during pricing accoridnly.
3. The contractor shall make the Engineer fully aware of any site restrictions, deviations to design or other relevant items affecting the electrical installations prior commencing with the works for the Engineers approval
All PVC Conduit to be chased/built into walls.

REF. DRG. NO	REFERENCE DRAWING DESCRIPTION

FOR TENDER

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AECOM

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PROJECT

DEPARTMENT OF EDUCATION
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KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

LEGEND:

- Cable installed in ceiling void
- Cable installed in trench 400mm(w) x 650mm(d)
- PVC wall box (4x4) 100mm x 100mm
- Cable riser
- Cable dropper

NOTES

1. FOR GENERAL NOTES; REFER TO STANDARD DETAILS.
2. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
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ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
	2022-12-06	INITIAL ISSUE	T.M

DRAWING CHECKS

DESIGNED BY	E. NTULI	N/A
DRAWN BY	T. MDHLETSHE	N/A
DESIGNED CHECKED BY	B. RUDD	N/A
DRAWING CHECKED BY	E. NTULI	N/A

APPROVAL CONSULTANT

NAME B. RUDD DATE
PROF REG. No. SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

UTHUKELA DISTRICT
SINENHLANHLA PRIMARY SCHOOL
EMIS No. 500266511
NEW ABLUTION FACILITIES

DISCIPLINE

ELECTRICAL

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	UT09	E	**AC - 001**	**T**	**0**

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As Indicated

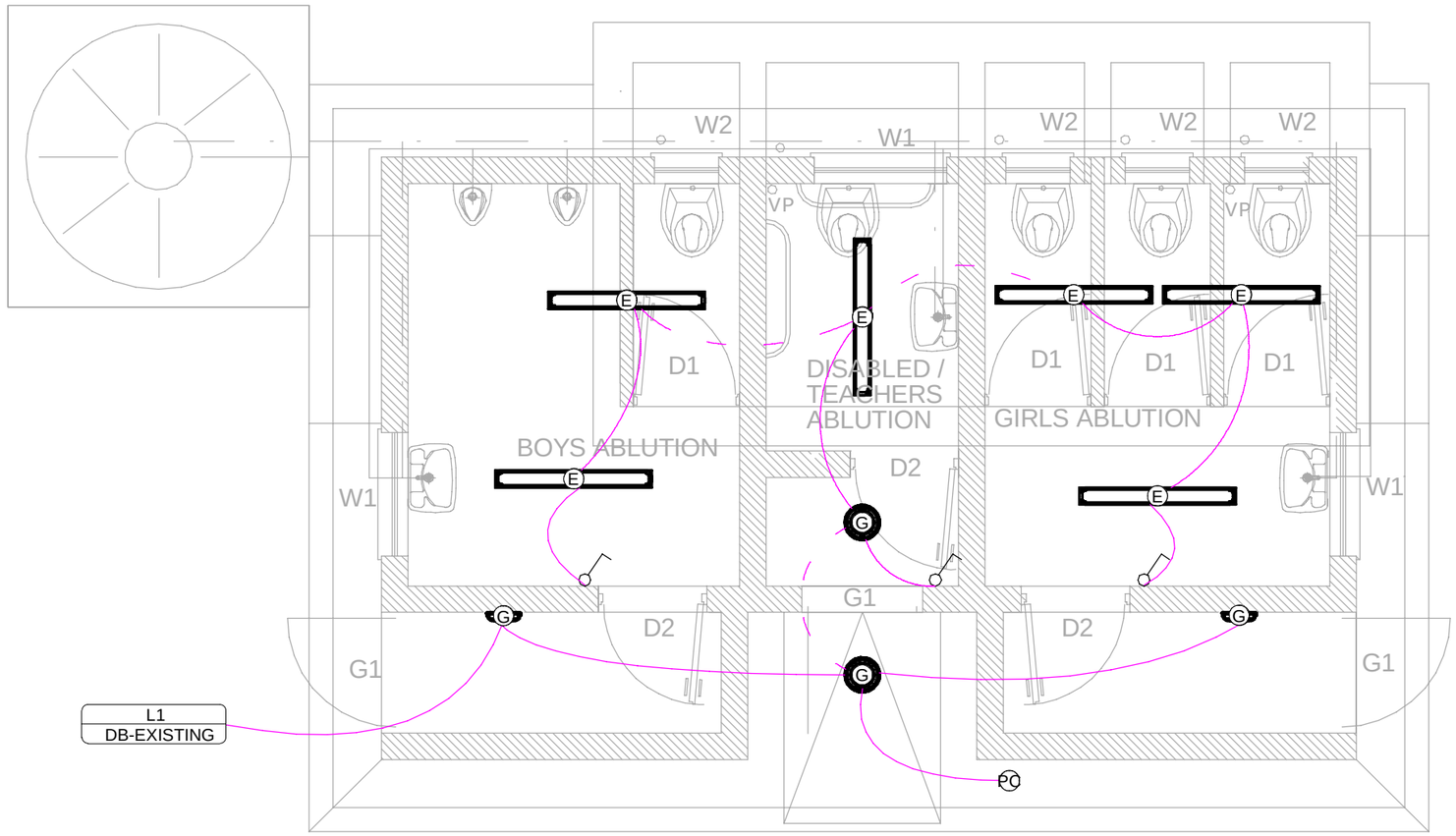
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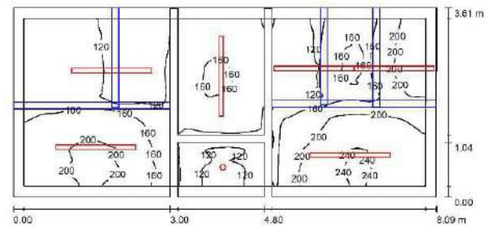
THE MASTER HELD AT THE **AECOM PORT ELIZABETH OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

PORT ELIZABETH Reg No. 1966/006628/07
PO BOX 272, Port Elizabeth, 6001, Eastern Cape, South Africa +27 (0) 41 585 8478fax
2 Fort Street, Central +27 (0) 41 585 2514 tel

C:\Users\ntulie\AECOM\DOPW Southern Region - General\SINENHLANHLA\Working\60491906-01-3M3F1D-E.rvt - Filename
2023/05/29 14:19:09 - Last Plotted

LEGEND:	
TYPE E -	24W LED SURFACE MOUNTED 1200mm, IP 65, >50 000h (L70B10) SIMILAR TO ALESTA BY RUBICON OR ANY EQUIVALENT APPROVED FITTING.
TYPE G -	18W LED SURFACE MOUNTED BULKHEAD WITH DIE-CAST ALUMINIUM BODY, >50 000h (L70B10) IP65 RATED. SIMILAR TO SOLO BY REGENT LIGHT SOLUTION OR ANY APPROVED EQUIVALENT FITTING.
Lx / DB-	CIRCUIT DESCRIPTION INDICATING CIRCUIT NUMBER AND DISTRIBUTION BOARD
	SINGLE LEVER LIGHT SWITCH.
PC	PHOTO CELL





Height of Room: 2.500 m, Mounting Height: 2.500 m, Light loss factor: 0.80

Values in Lux, Scale 1:58

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	161	79	246	0.492
Floors (2)	20	161	81	270	/
Ceilings (2)	80	145	65	763	/
Walls (6)	90	177	27	2801	/

Workplane:
Height: 0.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.200 m

GROUND FLOOR LIGHTING LAYOUT

SCALE 1 : 50

TENDER PURPOSES ONLY

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ISO A3 297mm x 420mm

AECOM

PROJECT

DOPW Sourthen Region

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Sanitation Programme - Phase 03

CLIENT

.

0	2022-12-06	ISSUED FOR TENDER	T.M
I/R	DATE	DESCRIPTION	ISS BY

2022-12-06 : INITIAL ISSUE

DRAWING CHECKS

DESIGNED BY:	E. Ntuli	N/A
DRAWN BY:	T. Mdhletshe	N/A
DESIGN CHECKED BY:	B. Rudd	N/A
DRAWING CHECKED BY:	E. Ntuli	N/A

APPROVAL CONSULTANT

NAME: B. Rudd DATE: 2022-12-06
PROF REG. No.: SIGNATURE:

SHEET TITLE

SINENHLANHLA PS - 3M3F1D LIGHTING LAYOUT

DISCIPLINE

ELECTRICAL

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	E	**AF-830**	**T**	**0**

D: DRAFT **P**: PRELIMINARY **T**: TENDER **F**: FINAL **C**: CONSTRUCTION **A**: AS-BUILT, RECORD **R**: REPORT

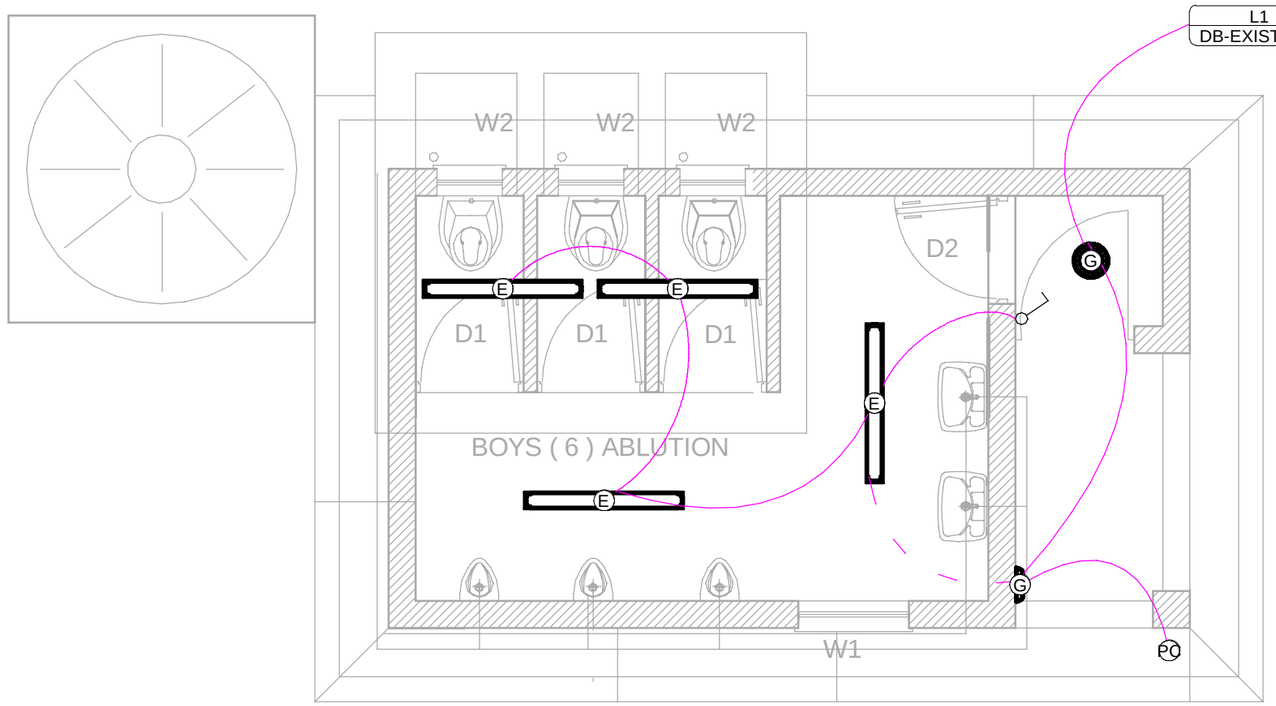
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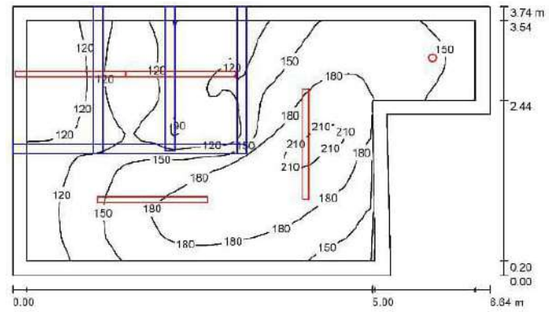
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PO BOX 272, Port Elizabeth, 6001, Eastern Cape, South Africa +27 (0) 41 585 2514 tel +27 (0) 41 585 8478fax
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LEGEND:	
TYPE E -	24W LED SURFACE MOUNTED 1200mm, IP 65, >50 000h (L70B10) SIMILAR TO ALESTA BY RUBICON OR ANY EQUIVALENT APPROVED FITTING.
TYPE G -	18W LED SURFACE MOUNTED BULKHEAD WITH DIE-CAST ALUMINIUM BODY, >50 000h (L70B10) IP65 RATED. SIMILAR TO SOLO BY REGENT LIGHT SOLUTION OR ANY APPROVED EQUIVALENT FITTING.
Lx / DB-	CIRCUIT DESCRIPTION INDICATING CIRCUIT NUMBER AND DISTRIBUTION BOARD
	SINGLE LEVER LIGHT SWITCH.
PC	PHOTO CELL





Height of Room: 2.500 m, Mounting Height: 2.500 m, Light loss factor: 0.80 — Values in Lux, Scale 1:49

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	150	71	215	0.475
Floor	20	146	76	215	0.520
Ceiling	80	86	46	320	0.534
Walls (6)	50	145	23	2009	/

Workplane:
Height: 0.000 m
Grid: 64 x 32 Points
Boundary Zone: 0.200 m

1 GROUND FLOOR LIGHTING LAYOUT

AF-890 | SCALE 1 : 50

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DOPW Sourthen Region
Sanitation Programme - Phase 03
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KWAZULU-NATAL PROVINCE
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0	2022-12-06	ISSUED FOR TENDER	T.M
I/R	DATE	DESCRIPTION	ISS BY

2022-12-06 : INITIAL ISSUE

DRAWING CHECKS

DESIGNED BY:	E. Ntuli	N/A
DRAWN BY:	T. Mdhletshe	N/A
DESIGN CHECKED BY:	B. Rudd	N/A
DRAWING CHECKED BY:	E. Ntuli	N/A

APPROVAL CONSULTANT

NAME: B. Rudd DATE: 2022-12-06
PROF REG. No.: SIGNATURE:

SHEET TITLE
SINENHLANHLA PS - 6B LIGHTING LAYOUT

DISCIPLINE
ELECTRICAL

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	E	**AF-890**	**T**	**0**

D: DRAFT **P**: PRELIMINARY **T**: TENDER **F**: FINAL **C**: CONSTRUCTION **A**: AS-BUILT, RECORD **R**: REPORT

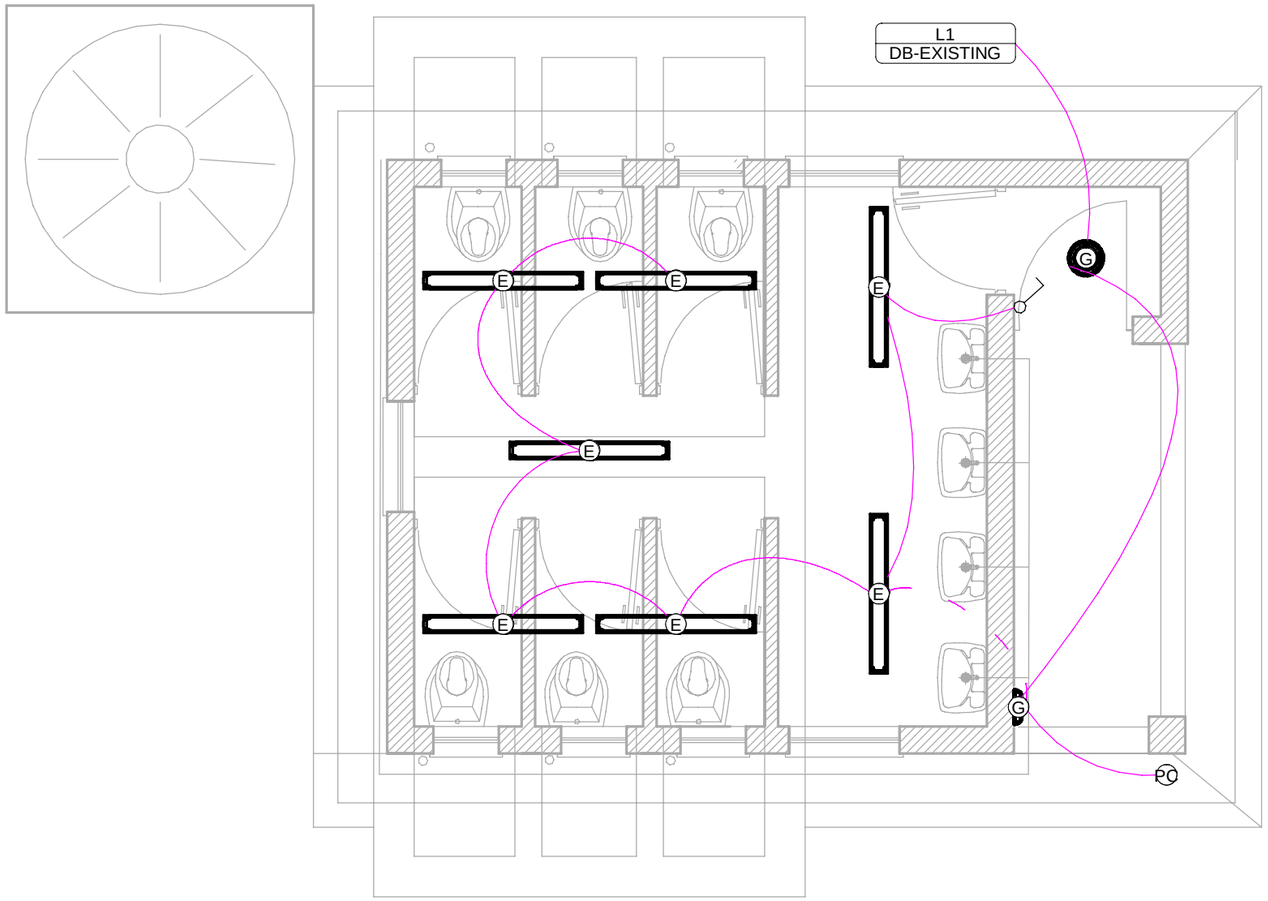
SCALE As indicated

ISO A3 297mm x 420mm

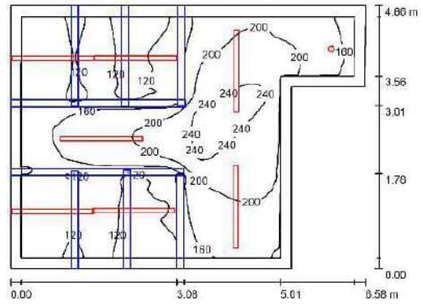
THE MASTER HELD AT THE **AECOM PORT ELIZABETH OFFICE**
BEARS THE ORIGINAL SIGNATURE OF APPROVAL

PORT ELIZABETH Reg No. 1966/006628/07 2 Fort Street, Central
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LEGEND:	
TYPE E -	24W LED SURFACE MOUNTED 1200mm, IP 65, >50 000h (L70B10) SIMILAR TO ALESTA BY RUBICON OR ANY EQUIVALENT APPROVED FITTING.
TYPE G -	18W LED SURFACE MOUNTED BULKHEAD WITH DIE-CAST ALUMINIUM BODY, >50 000h (L70B10) IP65 RATED. SIMILAR TO SOLO BY REGENT LIGHT SOLUTION OR ANY APPROVED EQUIVALENT FITTING.
Lx / DB-	CIRCUIT DESCRIPTION INDICATING CIRCUIT NUMBER AND DISTRIBUTION BOARD
	SINGLE LEVER LIGHT SWITCH.
PC	PHOTO CELL



Height of Room: 2.500 m, Mounting Height: 2.500 m, Light loss factor: 0.80 — Values in Lux, Scale 1:63

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	167	87	251	0.521
Floor	20	160	52	249	0.327
Ceiling	80	112	44	534	0.396
Walls (6)	50	175	33	3422	/

Workplane:
Height: 0.000 m
Grid: 128 x 128 Points
Boundary Zone: 0.200 m

GROUND FLOOR LIGHTING LAYOUT

SCALE 1 : 50

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ISO A3 297mm x 420mm

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PROJECT

DOPW Sourthen Region

Sanitation Programme - Phase 03

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0	2022-12-06	ISSUED FOR TENDER	T.M

2022-12-06 : INITIAL ISSUE

DRAWING CHECKS

DESIGNED BY:	E. Ntuli	N/A
DRAWN BY:	T. Mdhletshe	N/A
DESIGN CHECKED BY:	B. Rudd	N/A
DRAWING CHECKED BY:	E. Ntuli	N/A

APPROVAL CONSULTANT

NAME: B. Rudd DATE: 2022-12-06
PROF REG. No.: SIGNATURE:

SHEET TITLE

SINENHLANHLA PS - 6G LIGHTING LAYOUT

DISCIPLINE

ELECTRICAL

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	E	**AF-900**	**T**	**0**

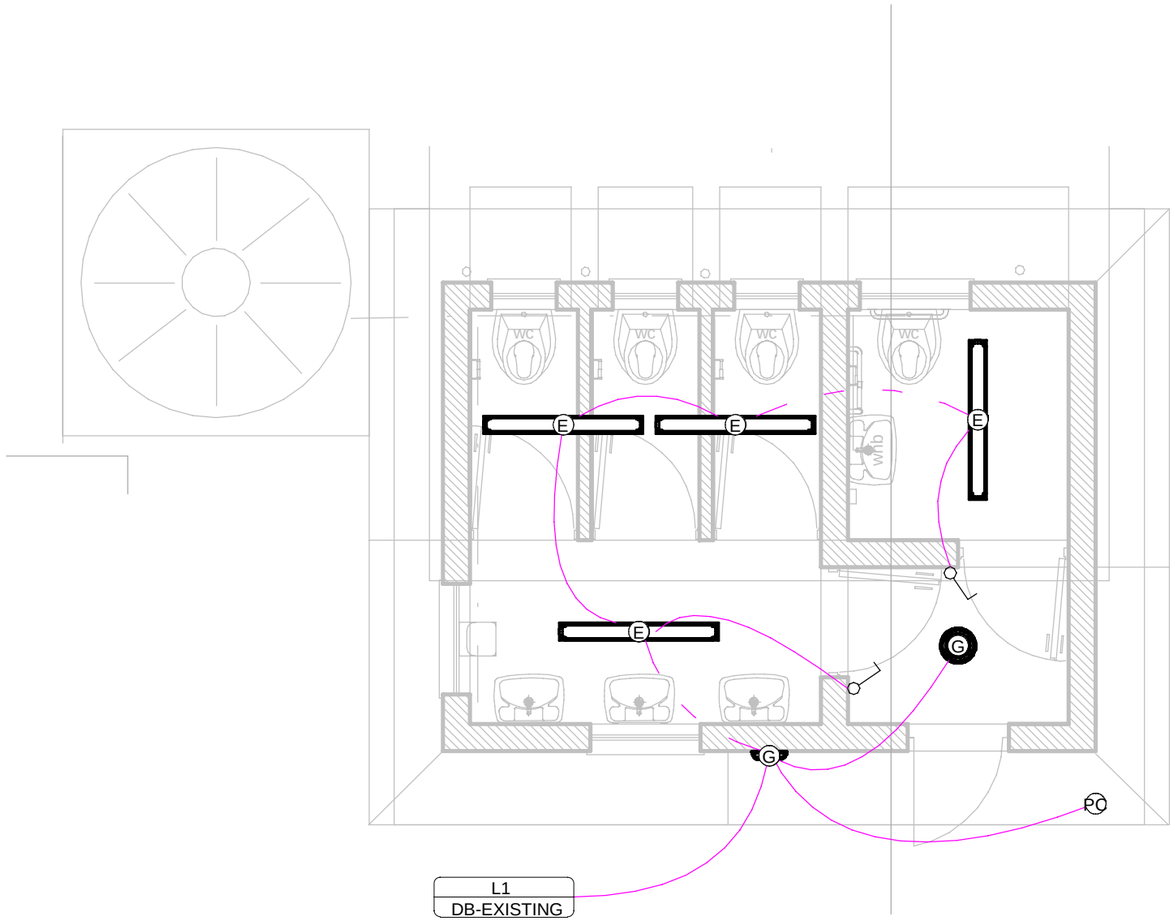
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SCALE As indicated

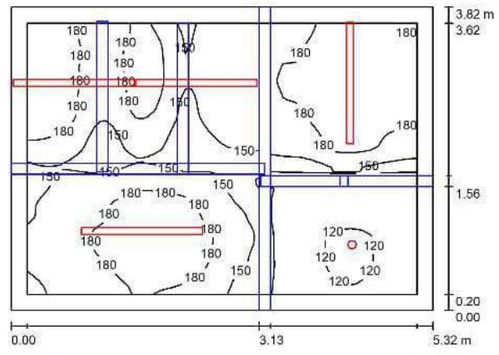
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LEGEND:	
TYPE E -	24W LED SURFACE MOUNTED 1200mm, IP 65, >50 000h (L70B10) SIMILAR TO ALESTA BY RUBICON OR ANY EQUIVALENT APPROVED FITTING.
TYPE G -	18W LED SURFACE MOUNTED BULKHEAD WITH DIE-CAST ALUMINIUM BODY, >50 000h (L70B10) IP65 RATED. SIMILAR TO SOLO BY REGENT LIGHT SOLUTION OR ANY APPROVED EQUIVALENT FITTING.
Lx / DB-	CIRCUIT DESCRIPTION INDICATING CIRCUIT NUMBER AND DISTRIBUTION BOARD
	SINGLE LEVER LIGHT SWITCH.
PC	PHOTO CELL



Height of Room: 2.500 m, Mounting Height: 2.500 m, Light loss factor: 0.80

Values in Lux, Scale 1:50

Surface	ρ [%]	E_{av} [lx]	E_{min} [lx]	E_{max} [lx]	u0
Workplane	/	163	100	210	0.610
Floor	20	154	28	216	0.183
Ceiling	70	144	29	534	0.205
Walls (4)	70	176	25	2418	/

Workplane:
Height: 0.000 m
Grid: 64 x 64 Points
Boundary Zone: 0.200 m

1 | 00 LEVEL - LIGHTING LAYOUT

AF-840 | SCALE 1 : 50

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PROJECT

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Sanitation Programme - Phase 03

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0	2022-12-06	ISSUED FOR TENDER	T.M
I/R	DATE	DESCRIPTION	ISS BY

YYYY-MM-DD : INITIAL ISSUE

DRAWING CHECKS

DESIGNED BY:	E. Ntuli	N/A
DRAWN BY:	T. Mdhletshe	N/A
DESIGN CHECKED BY:	B. Rudd	N/A
DRAWING CHECKED BY:	E. Ntuli	N/A

APPROVAL CONSULTANT

NAME: B. Rudd DATE: 2022-12-06
PROF REG. No.: SIGNATURE:

SHEET TITLE

SINENHLANHLA PS - 3R1T LIGHTING LAYOUT

DISCIPLINE

ELECTRICAL

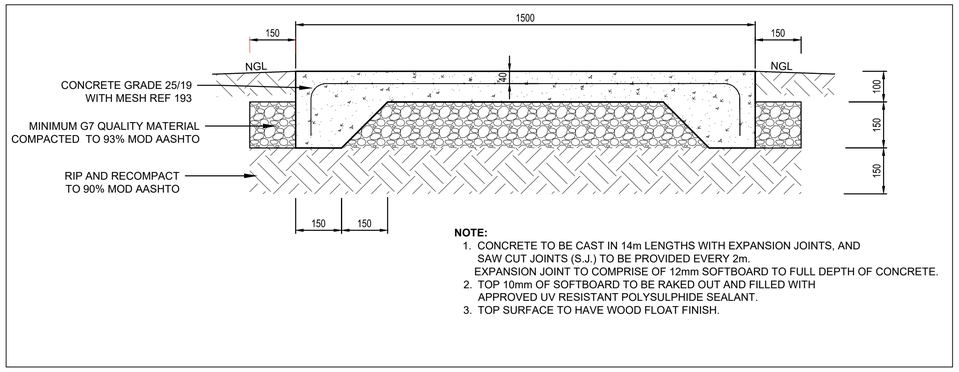
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	01	0000	E	**AF-840**	**T**	**0**

D: DRAFT **P**: PRELIMINARY **T**: TENDER **F**: FINAL **C**: CONSTRUCTION **A**: AS-BUILT, RECORD **R**: REPORT

SCALE As indicated

ISO A3 297mm x 420mm

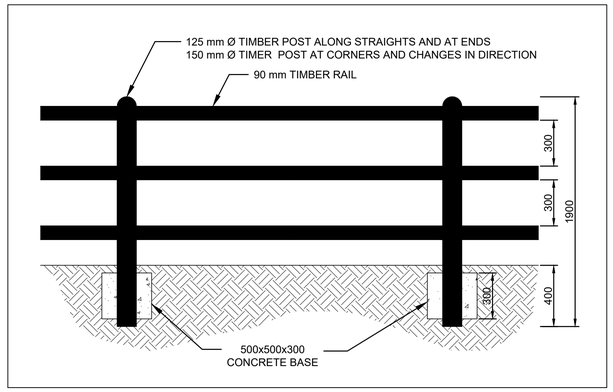


NOTE:

1. CONCRETE TO BE CAST IN 14m LENGTHS WITH EXPANSION JOINTS, AND SAW CUT JOINTS (S.J.) TO BE PROVIDED EVERY 2m. EXPANSION JOINT TO COMPRISE OF 12mm SOFTBOARD TO FULL DEPTH OF CONCRETE.
2. TOP 10mm OF SOFTBOARD TO BE RAKED OUT AND FILLED WITH APPROVED UV RESISTANT POLYSULPHIDE SEALANT.
3. TOP SURFACE TO HAVE WOOD FLOAT FINISH.

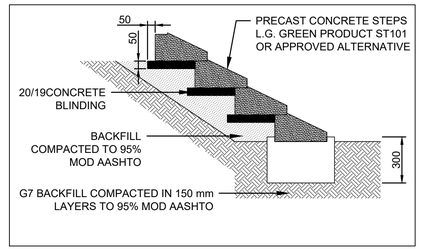
CONCRETE WALKWAY

SCALE 1:10



TYPICAL 'POST AND RAIL' FENCE

SCALE 1:20

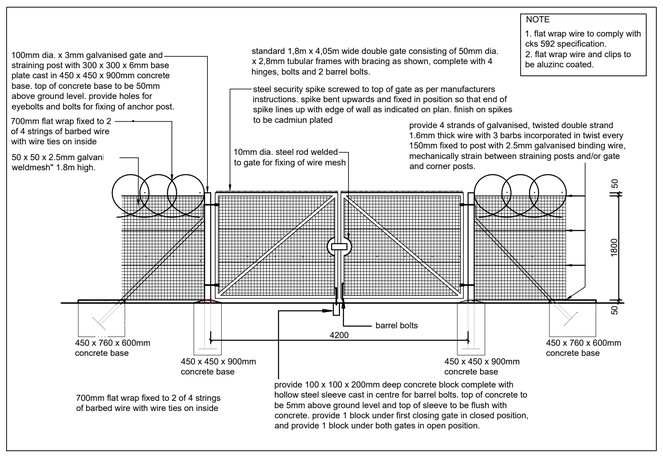


TYPICAL PRECAST CONCRETE STAIRCASE

SCALE 1:20

NOTES :
STAIRCASE:

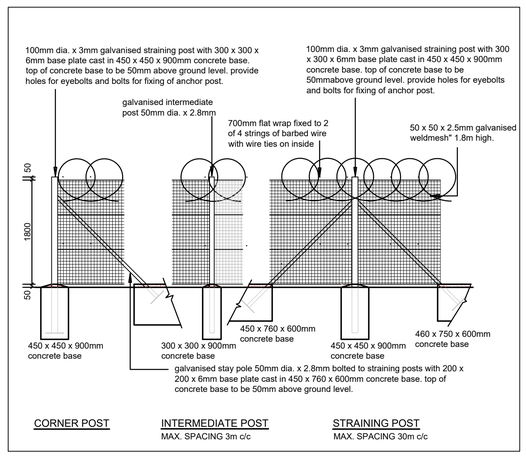
1. STEPS TO BE LG GREEN PRODUCT ST101 OR SIMILAR APPROVED.
2. FIRST STEP TO BE BEDDED INTO 300 mm THICK CONCRETE FOUNDATION.
3. LANDINGS TO BE 1 m LONG WITH MIN 1% SLOPE.
4. G7 MATERIAL TO BE USED FOR ALL FILL UNDER STEPS.
5. RAMP AND LANDINGS TO BE 100 mm THICK ON 150 mm G7 BEDDING COMPACTED TO 93% MOD AASHTO.



NOTE
1. flat wrap wire to comply with cks 592 specification.
2. flat wrap wire and clips to be aluzinc coated.

DOUBLE VEHICULAR GATES

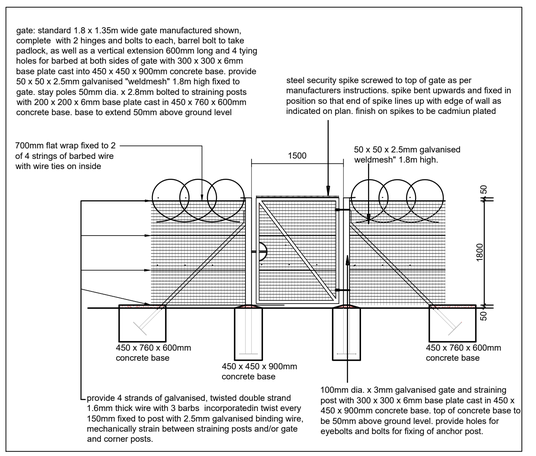
SCALE 1:50



CORNER POST | INTERMEDIATE POST (MAX. SPACING 3m c/c) | STRAINING POST (MAX. SPACING 30m c/c)

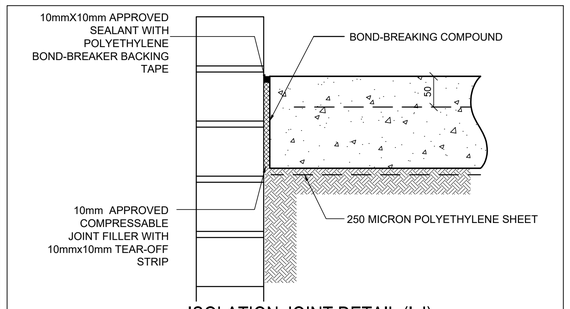
SECURITY FENCE DETAILS

SCALE 1:50



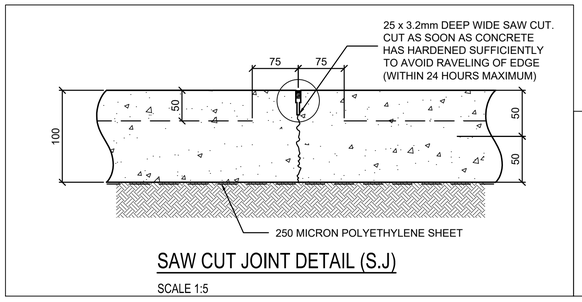
SINGLE PEDESTRIAN GATE

SCALE 1:50



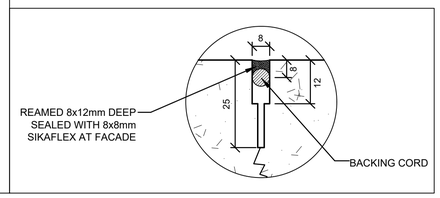
ISOLATION JOINT DETAIL (I.J)

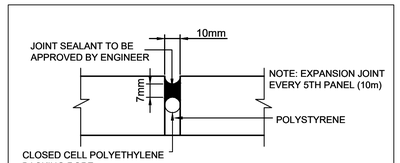
SCALE 1:5



SAW CUT JOINT DETAIL (S.J)

SCALE 1:5





EXPANSION JOINT DETAIL

NTS

FOR TENDER PURPOSES

AECOM

CONSULTANT

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www.aecom.com Reg No. 1966/006628/07

PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
3. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
	2023-05-24	INITIAL ISSUE	

DRAWING CHECKS

DESIGNED BY	P. NYIDE	N/A
DRAWN BY	P. NYIDE	N/A
DESIGNED CHECKED BY	A. CHETTY	N/A
DRAWING CHECKED BY	A. CHETTY	N/A

APPROVAL CONSULTANT

NAME D. PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
TYPICAL DETAILS
SHEET 1

DISCIPLINE

CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	0000	C	**DA - 801**	T	

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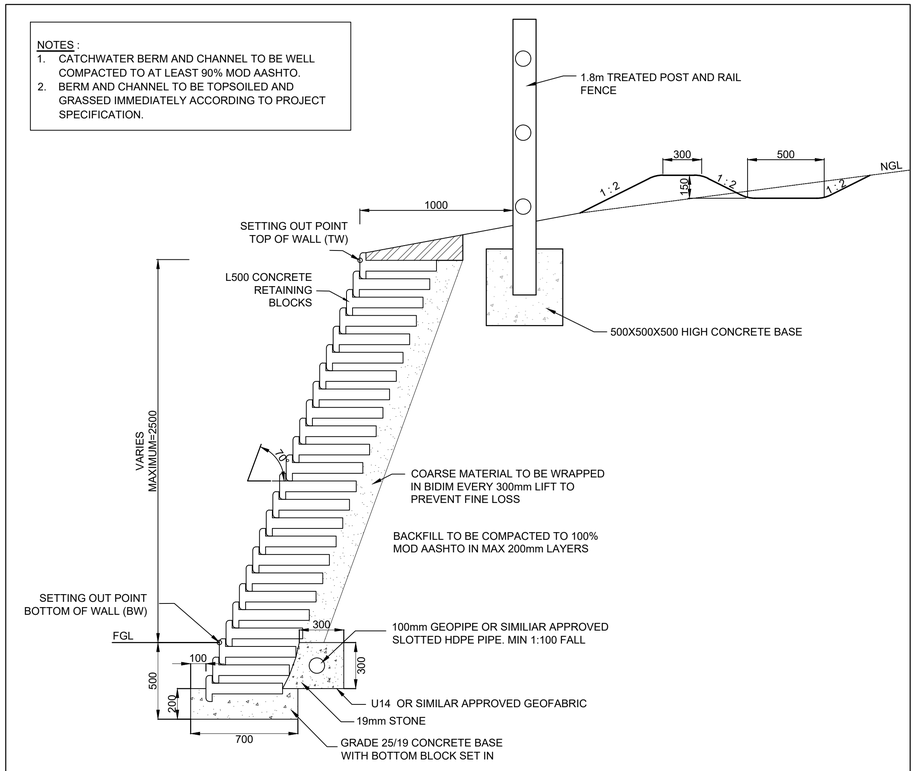
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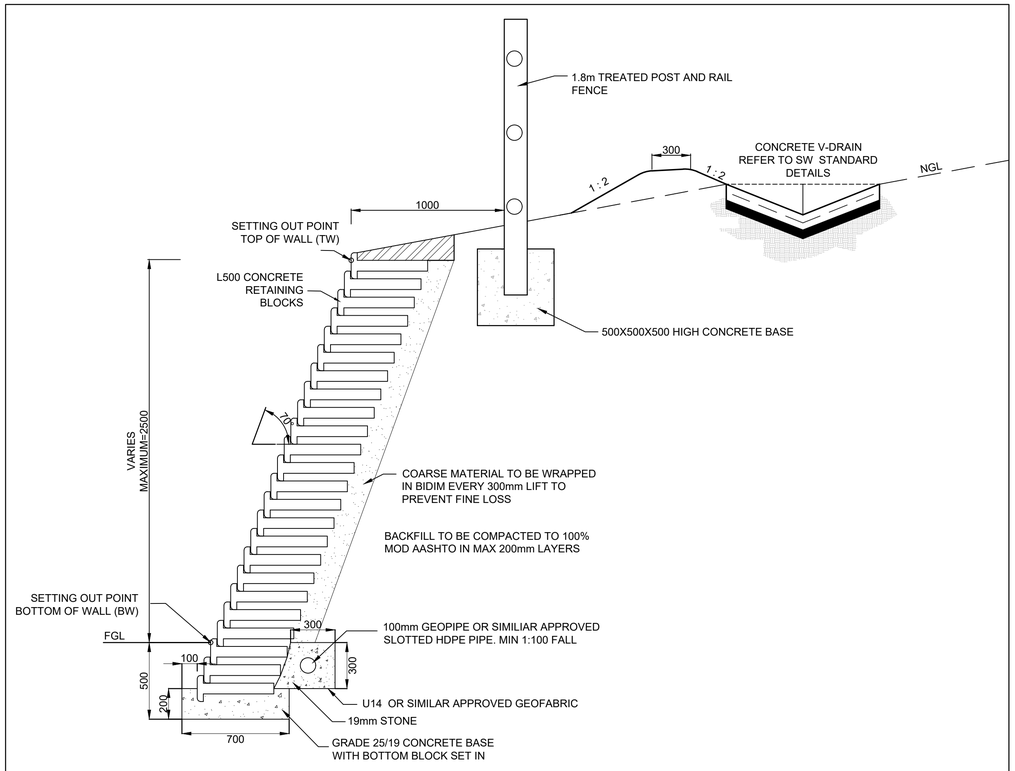
ISO A1 841mm x 594mm

NOTES :
1. CATCHWATER BERM AND CHANNEL TO BE WELL COMPACTED TO AT LEAST 90% MOD AASHTO.
2. BERM AND CHANNEL TO BE TOPSOILED AND GRASSED IMMEDIATELY ACCORDING TO PROJECT SPECIFICATION.



DRY STACK RETAINING WALL DETAIL (MAXIMUM HEIGHT OF 2.5m) WITH CATCHWATER BERM

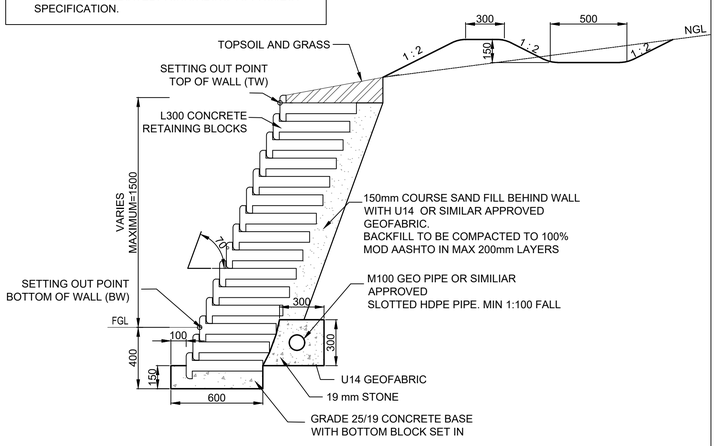
SCALE 1 : 20



DRY STACK RETAINING WALL DETAIL (MAXIMUM HEIGHT OF 2.5m) WITH CONCRETE V-DRAIN

SCALE 1 : 20

NOTES :
1. CATCHWATER BERM AND CHANNEL TO BE WELL COMPACTED TO AT LEAST 90% MOD AASHTO.
2. BERM AND CHANNEL TO BE TOPSOILED AND GRASSED IMMEDIATELY ACCORDING TO PROJECT SPECIFICATION.



DRY STACK RETAINING WALL DETAIL (MAXIMUM HEIGHT OF 1.5m) WITH CATCHWATER BERM

SCALE 1 : 20

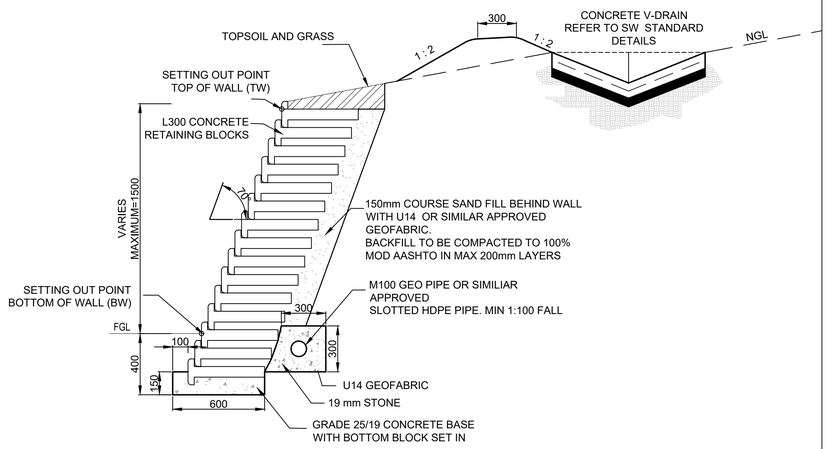
NOTES:
1. ENGINEER TO APPROVE FOUNDING CONDITIONS PRIOR TO CASTING OF CONCRETE.
2. PROVISION OF SUBSOIL DRAINAGE TO BE CONFIRMED ON SITE.
3. STORMWATER BEHIND THE TOP OF THE WALL TO BE MANAGED IN SUCH A MANNER AS TO OBVIATE SCOUR BEHIND OR OVERTOPPING THE WALL.
4. WHERE APPLICABLE, BACKFILL TO BE BENCHED INTO COMPETENT ORIGINAL GROUND.
5. DRYSTACK WALL TO BE CONSTRUCTED WITH A SLOPE OF 70 DEGREES.

NOTES:

1. A 150 mm LAYER OF TOPSOIL IS TO BE REMOVED BEFORE COMMENCEMENT OF EARTHWORKS AND REPLACED UPON COMPLETION.
2. ALL LEVELS SHOWN REFLECT THE TOP OF THE EARTHWORKS AND INCLUDE TOP SOIL.
3. ALL LEVELS TO BE BUILT WITHIN A TOLERANCE OF 50 mm.
4. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING ALL EXISTING SERVICES ON SITE.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORKS FROM SURFACE WATER RUNOFF THAT MAY CAUSE EROSION DAMAGE, USING CHANNELS, BERMS, PUMPS etc, AS AND WHEN REQUIRED AND DIRECT GROUND WATER AWAY FROM THE WORKS.
6. COORDINATES ARE IN ACCORDANCE WITH WGS 84 : LO 31.

RETAINING WALL:

1. ENGINEER TO APPROVE FOUNDING CONDITIONS PRIOR TO CASTING OF CONCRETE.
2. BOTTOM ROW OF BLOCKS TO BE SET IN WET CONCRETE OF STRENGTH 25 MPa AT 28 DAYS.
3. ALL BACKFILL TO BE COMPACTED TO 93% MOD AASHTO.
4. BACKFILL TO BE BENCHED INTO COMPETENT GROUND.
5. 170 x 170 mm CLEAN SAND DRAINAGE WEEPHOLES TO BE ALLOWED THROUGH STABILIZATION AT 2 m CENTRES. FIRST ROW 200 mm ABOVE FGL AND REPEAT IN 1 m LIFTS.



DRY STACK RETAINING WALL DETAIL (MAXIMUM HEIGHT OF 1.5m) WITH CONCRETE V-DRAIN

SCALE 1 : 20

FOR TENDER PURPOSES

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PROJECT
DEPARTMENT OF EDUCATION WATER AND SANITATION PROGRAMME FOR SCHOOLS

CLIENT
KZN DEPARTMENT OF PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

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ISSUE / REVISION

I/R	DATE	DESCRIPTION	DRN
	2017-05-29	INITIAL ISSUE	

DRAWING CHECKS

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DRAWING CHECKED BY	A.CHETTY	N/A	

APPROVAL CONSULTANT

NAME D.PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
TYPICAL DETAILS
SHEET 2

DISCIPLINE
CIVIL INFRASTRUCTURE

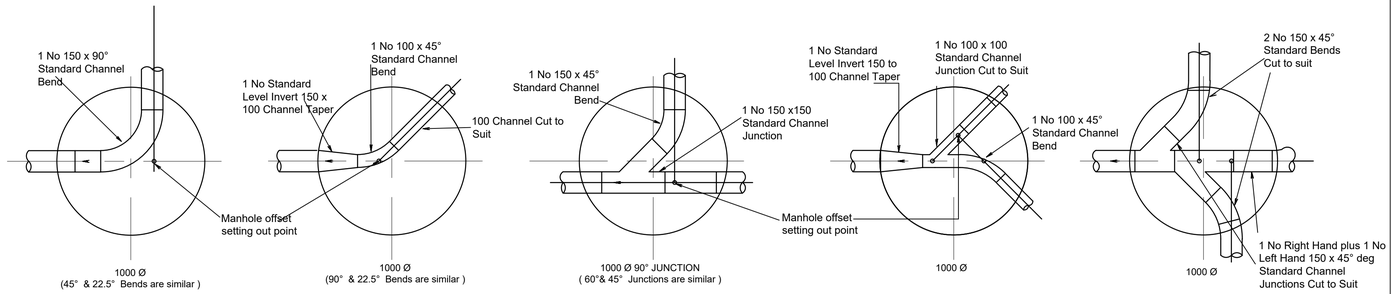
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PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	0000	C	DA - 802	T	

D: DRAFT / P: PRELIMINARY / T: TENDER / F: FINAL / C: CONSTRUCTION / A: AS-BUILT, RECORD / R: REPORT

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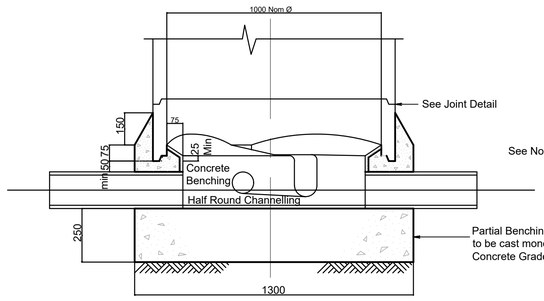
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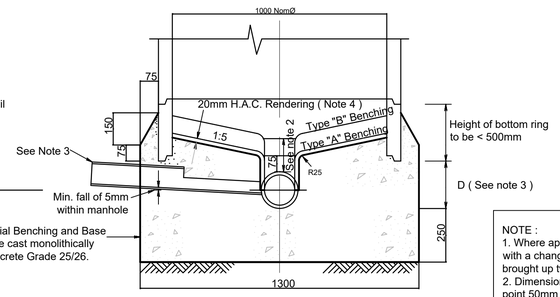
BENDS | TERMINAL BENDS | SINGLE JUNCTION | TERMINAL JUNCTION | DOUBLE JUNCTION

STANDARD CHANNELLING IN PRECAST CONCRETE MANHOLES

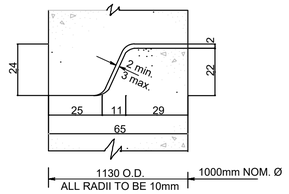
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SECTION OF 1000 DIAMETER MANHOLE



SECTION OF 1000 DIAMETER MANHOLE

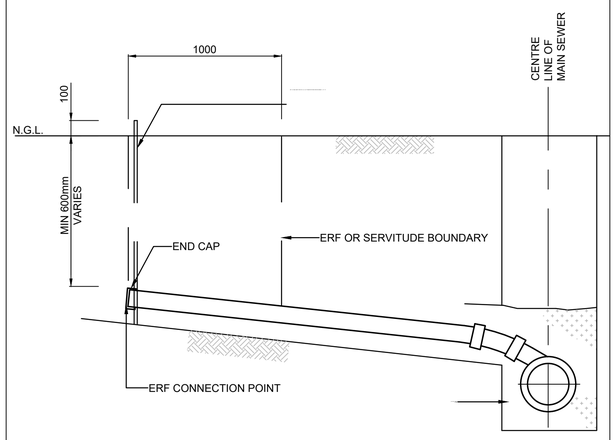


DETAIL OF JOINT

NOTE :
1. Where approach grades into the manhole are 1 : 15 or steeper and associated with a change in direction in the manhole of 30° or more , the benching is to be brought up two pipe diameters above the pipe invert (Type B benching sewers)
2. Dimension D varies with the diameter of the sewer pipes and shall be to a point 50mm above the highest crown of the pipes.
3. Rendering for manhole benching shall consist of one part H.A.C. to two parts sand thoroughly mixed and applied to concrete surfaces while the latter are still green. Rendering shall be at least 20mm thick.

TYPICAL DETAIL: SEWER MANHOLE BENCHING

NTS

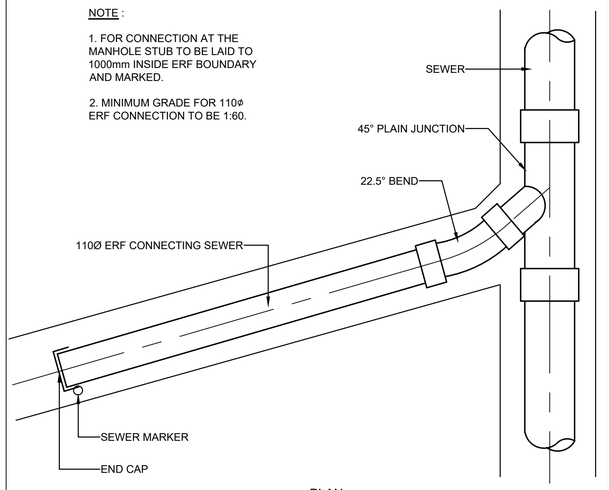


ELEVATION

NOTE :

1. FOR CONNECTION AT THE MANHOLE STUB TO BE LAID TO 1000mm INSIDE ERF BOUNDARY AND MARKED.

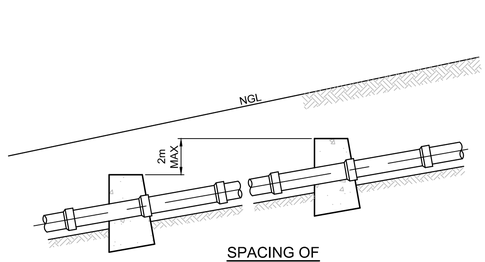
2. MINIMUM GRADE FOR 110ø ERF CONNECTION TO BE 1:60.



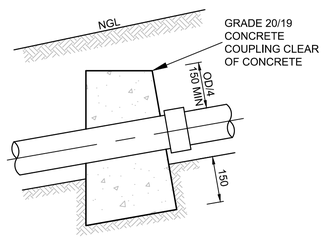
PLAN

SEWER ERF CONNECTION

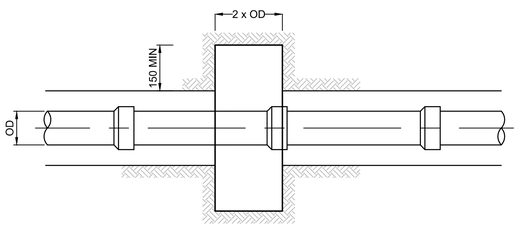
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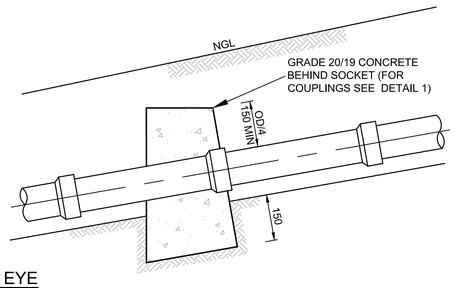
SPACING OF ANCHOR BLOCKS



DETAIL 1



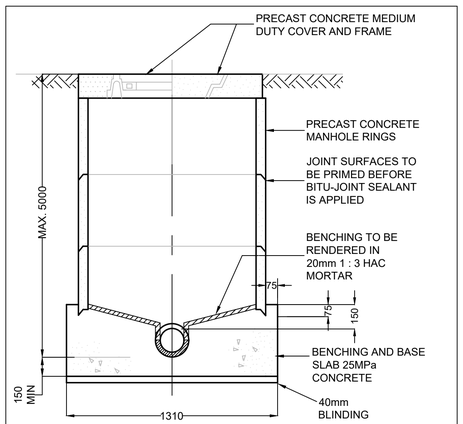
PLAN



SECTION

SECTION RODDING EYE
PIPE ANCHOR BLOCKS ON SLOPES STEEPER THAN 1:10

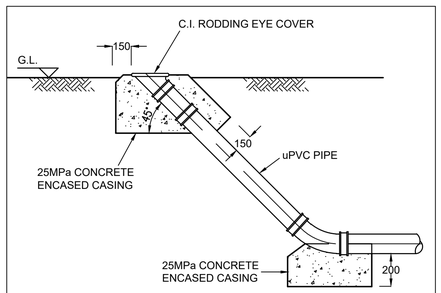
NTS



TYPICAL SECTION

PRECAST CONCRETE SEWER RING MANHOLE DETAIL

NTS



SECTION RODDING EYE

N.T.S.

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ISSUE / REVISION

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DRAWING CHECKED BY	A.CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
SEWER - SHEET 1

DISCIPLINE

CIVIL INFRASTRUCTURE

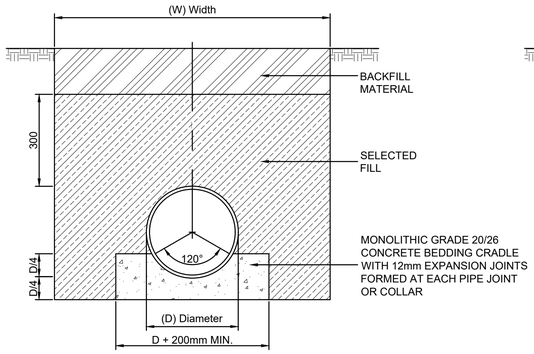
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC	TYPE - NUMBER	STATUS	REV
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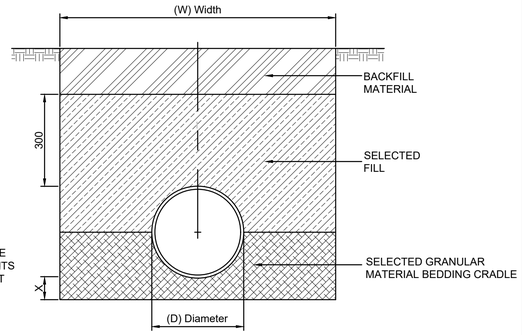
SCALE As Indicated

D/4 = 300 MAX. WITH
a) 100 MIN. TRENCH IN SOIL
b) 50 MIN. FOR TRENCH IN ROCK



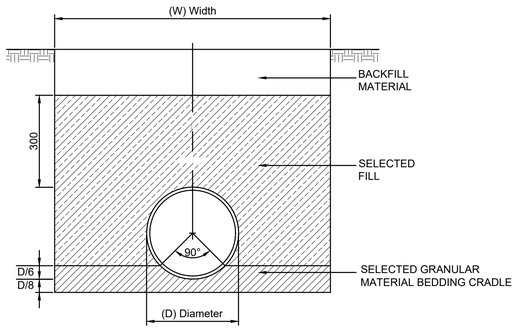
CLASS A

a) IN SOIL
X = D/6: 75 MIN. 200 MAX
b) IN ROCK
X = D/4: 150 MIN. 200 MAX.



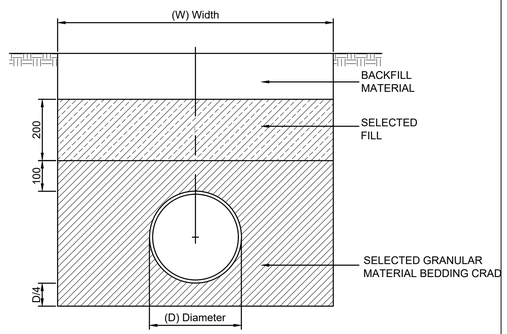
CLASS B

a) IN SOIL
X = D/8: 75 MIN. 200 MAX
b) IN ROCK
X = D/8: 100 MIN. 200 MAX.



CLASS C

D/4: 100 MIN. 200 MAX.

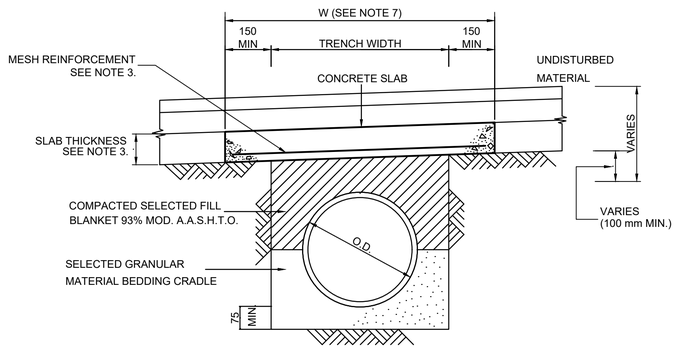


FLEXIBLE PIPE

W = TRENCH PAY WIDTH
D = OUTSIDE DIAMETER OF PIPE

PIPE BEDDING DETAILS

SCALE: 1:10



DETAILS OF PIPE PROTECTION FOR REDUCED DEPTH OF COVER

SCALE: 1:10

NOTES

1. THIS DETAIL APPLIES WHERE COVER IS LESS THEN 300mm IN SERVITUDE AND LESS THAN 600mm IN ROAD RESERVES.
2. CLASS "B" BEDDING IS SHOWN
3. SLAB THICKNESS AND REINFORCING DETAILS WILL BE CONFIRMED BY THE ENGINEER.
4. SLAB TO CONSIST OF GRADE 20/26 CONCRETE.
5. COVER TO REINFORCEMENT IS TO BE 35mm
6. CONSTRUCTION JOINTS ARE TO BE FORMED IN THE SLAB IN INTERVALS NOT EXCEEDING 5.0M.
7. W = TRENCH WIDTH + 300mm IN UNDISTURBED MATERIAL.

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DRAWING CHECKED BY	A.CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
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SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
SEWER - SHEET 2

DISCIPLINE

CIVIL INFRASTRUCTURE

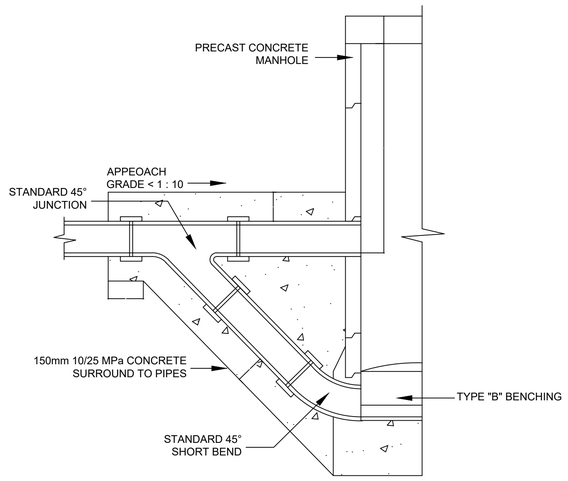
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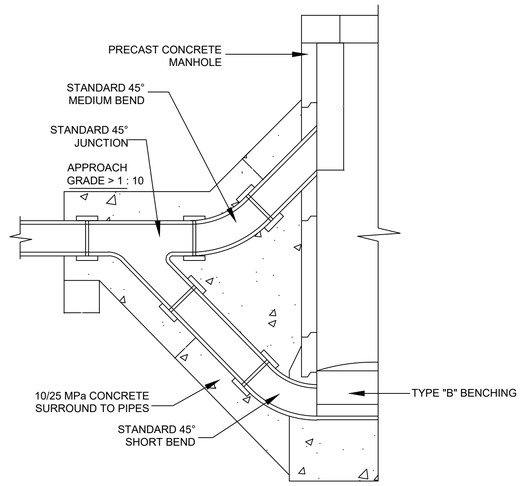
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SCALE As Indicated

ISO A1 841mm x 594mm

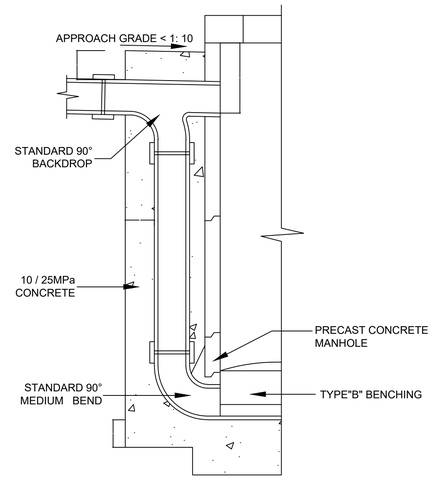


RAMP MANHOLE: TYPE A FOR DROPS BETWEEN 500 AND 1000

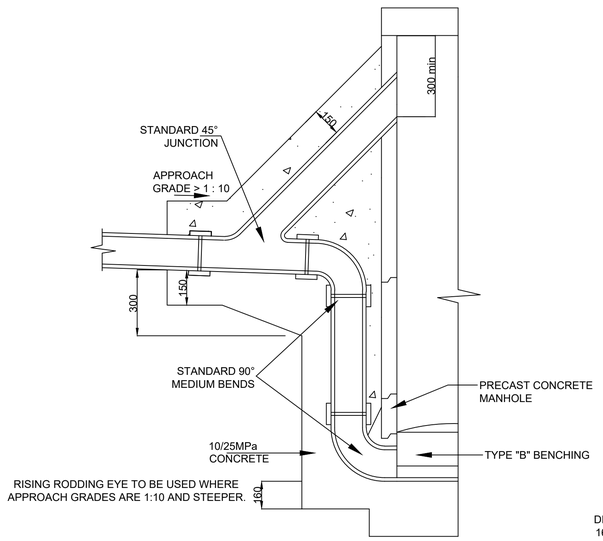


RISING RODDING EYE TO BE USED WHERE APPROACH GRADES ARE 1 : 10 AND STEEPER.

RAMP MANHOLE: TYPE B FOR DROPS BETWEEN 500 AND 1000



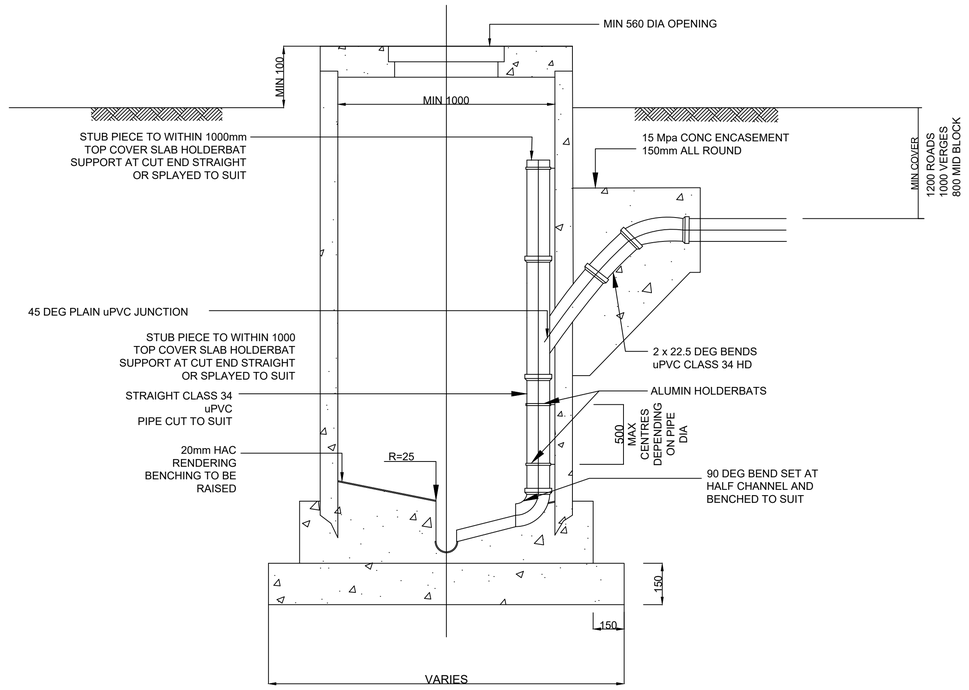
BACKDROP MANHOLE: TYPE A FOR DROPS IN EXCESS OF 1000



RISING RODDING EYE TO BE USED WHERE APPROACH GRADES ARE 1:10 AND STEEPER.

TO BE USED IN ROCK OR AT SOLE DISCRETION OF ENGINEER AND FOR 110mm OR 160mm DIA INCOME ONLY AND FOR MANHOLES EXCEEDING 1050mm INTERNAL DIA

BACKDROP MANHOLE: TYPE B FOR DROPS IN EXCESS OF 1000



STANDARD 90 DEGREE INTERNAL DROP CONNECTION

STANDARD FITTING FOR RAMP AND BACKDROP MANHOLES.
NTS

FOR TENDER PURPOSES

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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
SEWER - SHEET 3

DISCIPLINE

CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

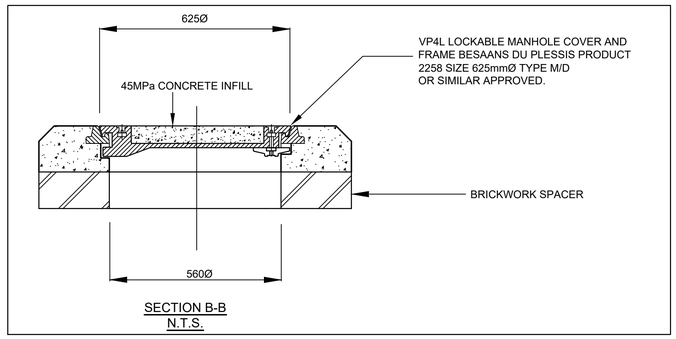
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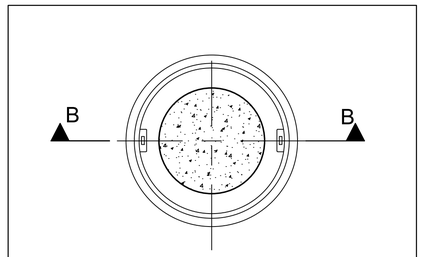
SCALE As Indicated

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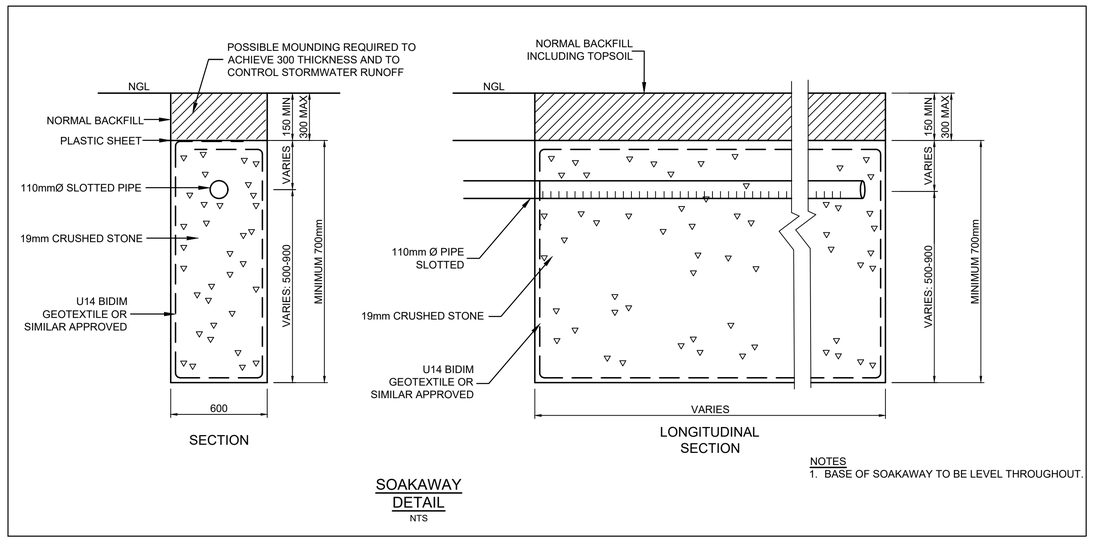
ISO A1 841mm x 594mm



SECTION B-B
N.T.S.



LOCKABLE COVER FOR SEPTIC TANK
PLAN
N.T.S



NOTES
1. BASE OF SOAKAWAY TO BE LEVEL THROUGHOUT.

SOAKAWAY DETAIL
NTS

NOTES:

1. ABLUTION FACILITY LAYOUT SHOWN INDICATIVELY AND IS SUBJECT TO CHANGE ACCORDING TO TYPE AND SIZE OF ABLUTION FACILITY.
2. EXTERNAL DIMENSIONS SHOWN INDICATIVELY AND IS SUBJECT TO CHANGE ACCORDING TO TYPE AND SIZE OF ABLUTION FACILITY.
3. ALL DIMENSION SHOWN IN MILLIMETERS UNLESS OTHERWISE STATED.

AECOM

CONSULTANT

PIETERMARITZBURG
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8 Montrose Park Boulevard
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PROJECT

DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

NOTES

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ISSUE / REVISION

I/R	DATE	DESCRIPTION	
	2023-05-24	INITIAL ISSUE	PN

DRAWING CHECKS

DESIGNED BY	P.NYIDE	N/A	
DRAWN BY	P.NYIDE	N/A	
DESIGNED CHECKED BY	A.CHETTY	N/A	
DRAWING CHECKED BY	A.CHETTY	N/A	

APPROVAL CONSULTANT

NAME D.PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
SEWER - SHEET 4

DISCIPLINE

CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	0000	C	**DA - 806**	T	

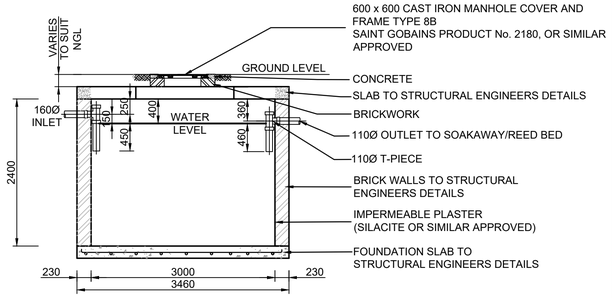
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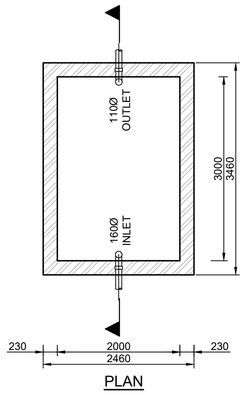
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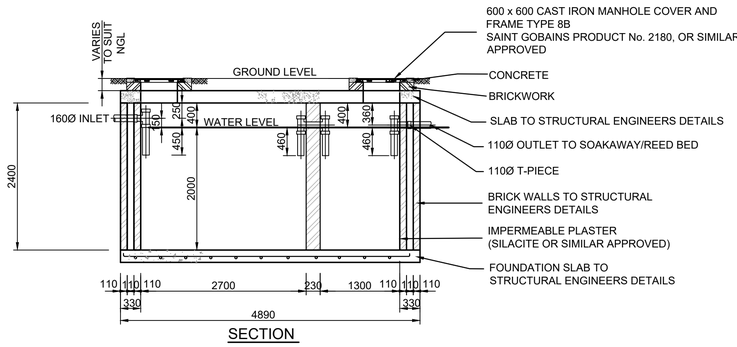
SECTION



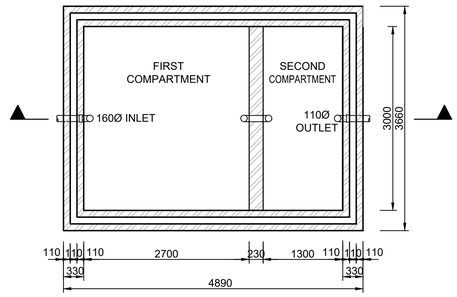
PLAN

2m SEPTIC TANK DETAIL

1:50



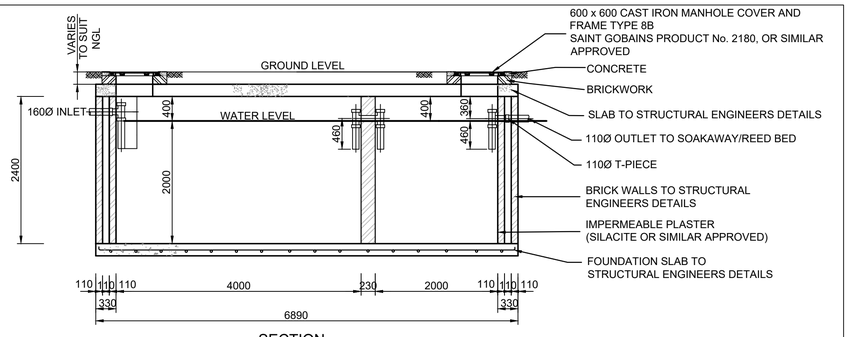
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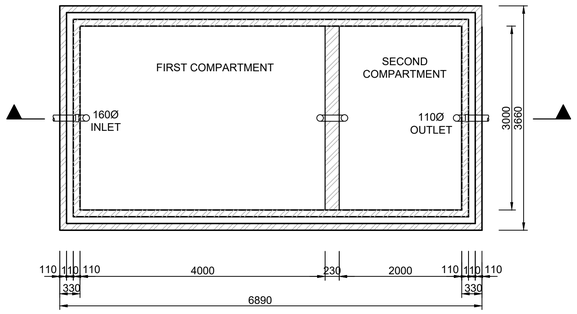
PLAN

4m SEPTIC TANK DETAIL

1:50



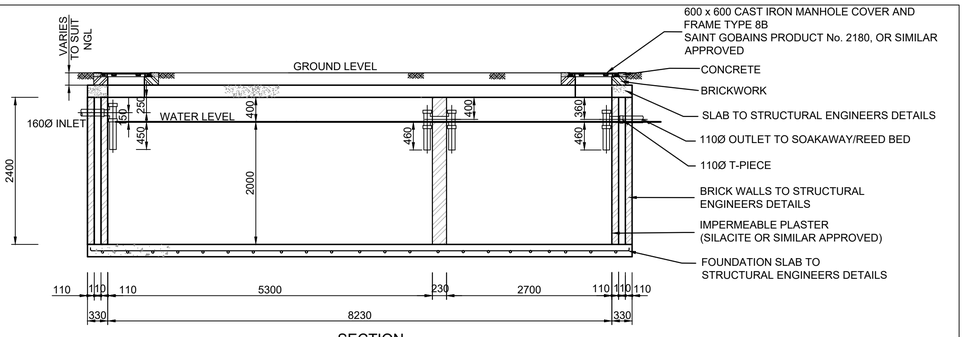
SECTION



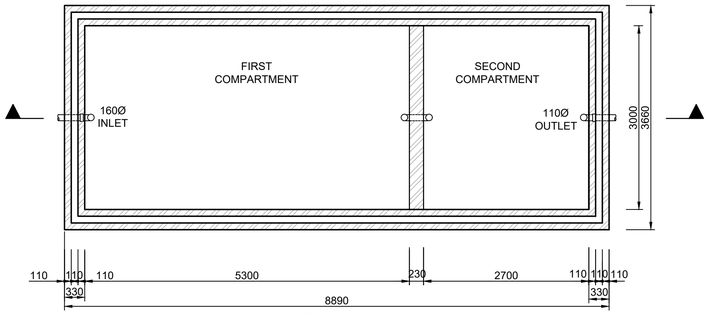
PLAN

6m SEPTIC TANK DETAIL

1:50



SECTION



PLAN

8m SEPTIC TANK DETAIL

1:50

FOR TENDER PURPOSES

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AECOM

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PROJECT

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WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT

KZN DEPARTMENT OF
PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

NOTES:

1. ALL PIPEWORK TO BE CLASS 34 uPVC.
2. INLET TO BE 160Ø.
3. ALL OTHER PIPEWORK TO BE 110Ø
4. ALL DIMENSION SHOWN IN MILLIMETERS UNLESS OTHERWISE STATED.

NOTES

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DRAWN BY	P.NYIDE	N/A
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DRAWING CHECKED BY	A.CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
SEWER - SHEET 5

DISCIPLINE

CIVIL INFRASTRUCTURE

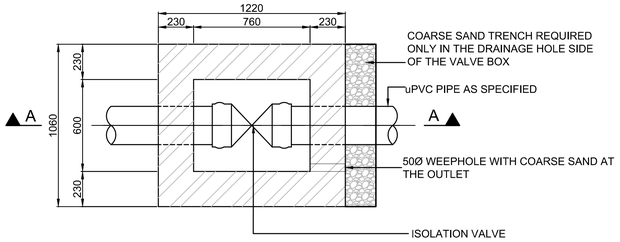
AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	0000	C	**DA - 807**	**T**	

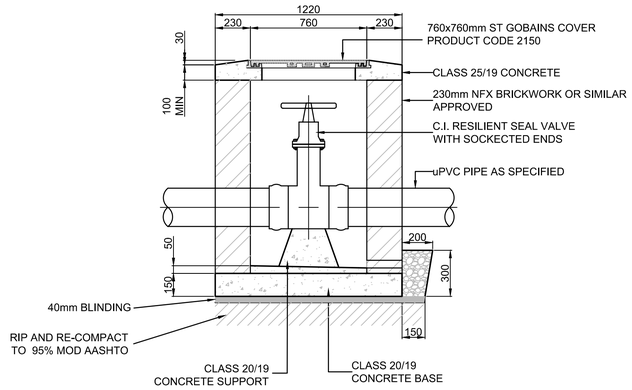
D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As Indicated

ISO A1 841mm x 594mm



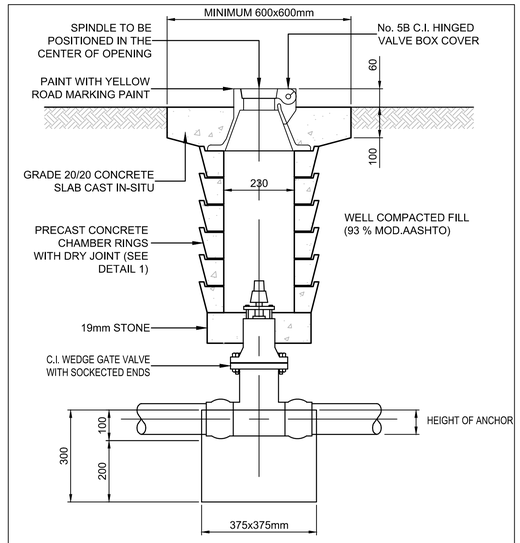
PLAN



SECTION A-A

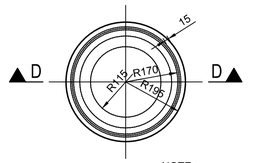
TYPICAL ISOLATING VALVE AND CHAMBER DETAIL PIPE DIAMETER : 160-250mm

SCALE 1 : 20



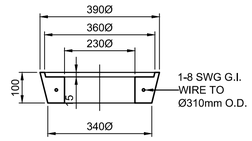
TYPICAL ISOLATING VALVE AND CHAMBER DETAIL PIPE DIAMETER : 50-110mm

SCALE 1 : 10



PLAN

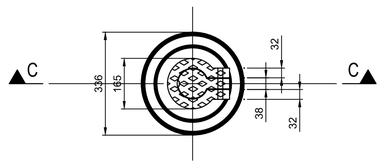
NOTE :
CONCRETE MIX 3:1 UMGENI SAND TO CEMENT DRY MIX. FINISH PRESS AND STRUCK SMOOTH.



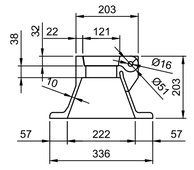
SECTION D-D

STANDARD PRECAST CONCRETE RINGS FOR VALVE CHAMBERS (PIPE DIAMETER : 50-110mm)

SCALE 1 : 10



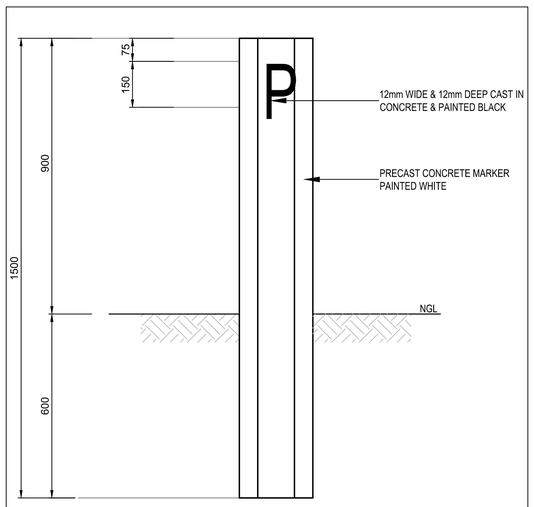
PLAN



SECTION C-C

DETAILS OF VALVE COVER

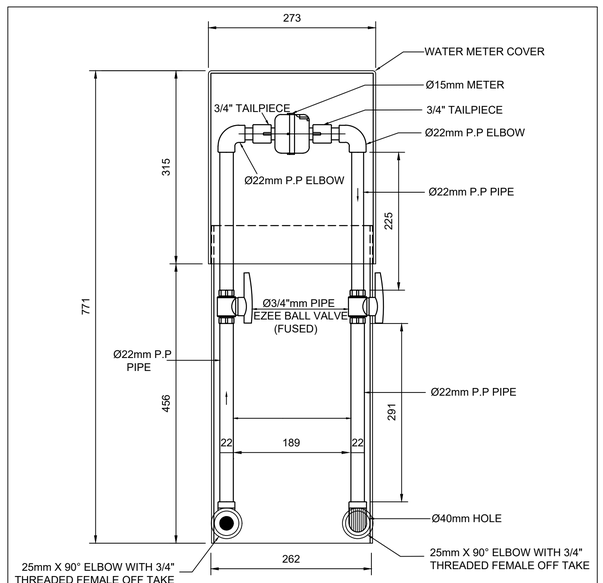
SCALE 1 : 10



ELEVATION

PIPE MARKER

NTS



15mm DOMESTIC METER INSTALLATION

SCALE 1:5

FOR TENDER PURPOSES

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AECOM

CONSULTANT

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Suite 3 Brookside Offices
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KZN DEPARTMENT OF
PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

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DRAWN BY	P.NYIDE	N/A
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DRAWING CHECKED BY	A.CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
WATER
SHEET 1

DISCIPLINE

CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

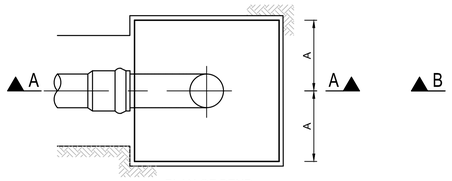
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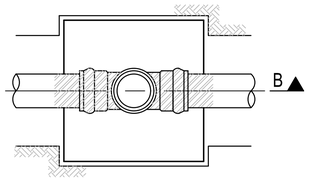
SCALE As Indicated

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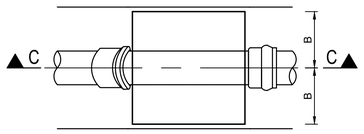
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PLAN OF BEND
DOWNWARD THRUST



PLAN OF T-JUNCTION
DOWNWARD THRUST BLOCK



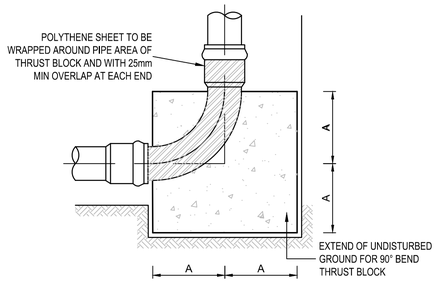
PLAN OF BEND UPWARD
THRUST BLOCK

NOTES:
1. DRAWINGS APPLIES TO VERTICAL THRUST BLOCKS FOR PIPE SIZES 50 - 355mm ONLY.

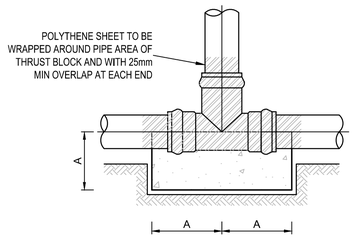
2. MINIMUM DEPTH OF COVER = 800mm

3. ALL CONCRETE TO BE GRADE 20/19 AND CAST AGAINST UNDISTURBED GROUND WHERE SHOWN.

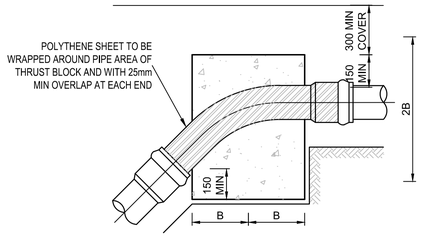
4. THRUST BLOCKS DESIGN PARAMETERS:
UNIT WEIGHT OF CONCRETE = 22kN/m³
UNIT WEIGHT OF SOIL = 18kN/m³
COHESIONLESS SOIL: ANGLE OF FRICTION = 30°
BEARING CAPACITY = 70kN/m²
FACTOR OF SAFETY = 1,5



SECTION A-A BEND



SECTION B-B T-JUNCTION



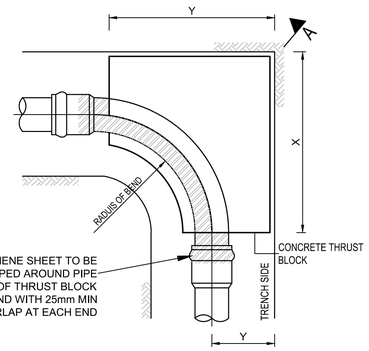
SECTION C-C BEND

PIPE OD (mm)	DOWNWARD THRUST BLOCK					UPWARD THRUST BLOCK		
	ANGLE OF BEND				T-JUNCTION	ANGLE OF BEND		
	11¼°	22½°	45°	90°		11¼°	22½°	45°
	A	A	A	A	A	B	B	B
50	150	150	175	250	150	225	275	325
63	150	150	175	275	175	250	300	375
75	150	150	175	300	200	275	325	400
90	150	150	175	325	225	275	350	450
110	150	150	200	375	250	325	400	525
125	150	175	225	400	275	350	425	575
140	150	200	250	425	300	375	475	600
160	150	225	275	475	350	400	500	650
200	200	275	350	550	425	450	600	750
250	250	325	425	650	525	525	675	875
315	300	400	550	750	650	625	800	1 025
355	350	470	650	890	800	750	925	1 200

FOR PIPE CLASS 12

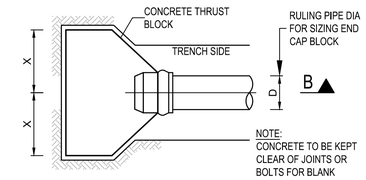
VERTICAL THRUST BLOCKS: BENDS & T-JUNCTIONS MAX. TEST PRESSURE 2400 KPa

NTS

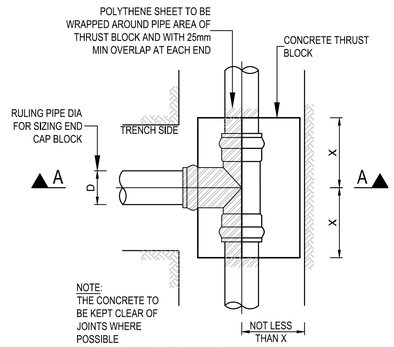


NOTE:
THE CONCRETE TO BE KEPT CLEAR OF JOINTS WHERE POSSIBLE

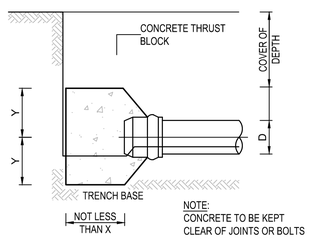
PLAN OF BEND



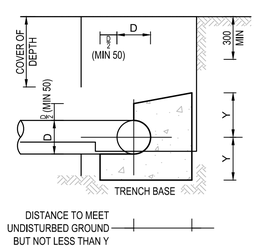
PLAN OF END CAP
OR BLANK FLANGE



PLAN OF T-JUNCTION



SECTION B-B



SECTION A-A

NOTES:
1. DRAWINGS APPLIES TO VERTICAL THRUST BLOCKS FOR PIPE SIZES 50 - 355mm ONLY.

2. MINIMUM DEPTH OF COVER = 800mm

3. ALL CONCRETE TO BE GRADE 20/19 AND CAST AGAINST UNDISTURBED GROUND WHERE SHOWN.

4. THRUST BLOCKS DESIGN PARAMETERS:
UNIT WEIGHT OF CONCRETE = 22kN/m³
UNIT WEIGHT OF SOIL = 18kN/m³
COHESIONLESS SOIL: ANGLE OF FRICTION = 30°
BEARING CAPACITY = 70kN/m²
FACTOR OF SAFETY = 1,5

PIPE OD (mm)	ANGLE OF BEND								T-JUNCTION OR END CAP	
	11¼°		22½°		45°		90°			
	X	Y	X	Y	X	Y	X	Y	X	Y
50	75	75	100	100	150	125	275	150	150	150
63	75	100	125	125	175	175	325	175	200	175
75	100	100	150	150	200	200	375	200	225	225
90	125	125	175	175	250	225	450	250	275	250
110	150	150	200	200	300	275	525	275	325	325
125	175	150	225	225	325	325	625	325	375	350
140	200	175	250	250	350	350	675	350	400	400
160	225	200	300	275	400	400	775	400	450	450
200	250	250	350	350	500	475	925	475	625	500
250	325	300	450	400	700	500	1 150	575	825	550
315	375	375	575	475	975	550	1 625	600	1 150	600
355	425	450	710	620	1050	625	2 200	710	1 350	680

FOR PIPE CLASS 12

HORIZONTAL THRUST BLOCKS: BENDS & T-JUNCTIONS MAX. TEST PRESSURE 2400 KPa

NTS

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PROJECT
DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT
KZN DEPARTMENT OF PUBLIC WORKS

public works
Department:
Public Works
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ISSUE / REVISION

I/R	DATE	DESCRIPTION	
	2023-05-24	INITIAL ISSUE	PN

DRAWING CHECKS

DESIGNED BY	P.NYIDE	N/A	
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APPROVAL CONSULTANT

NAME D.PILLAY DATE
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THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
WATER
SHEET 2

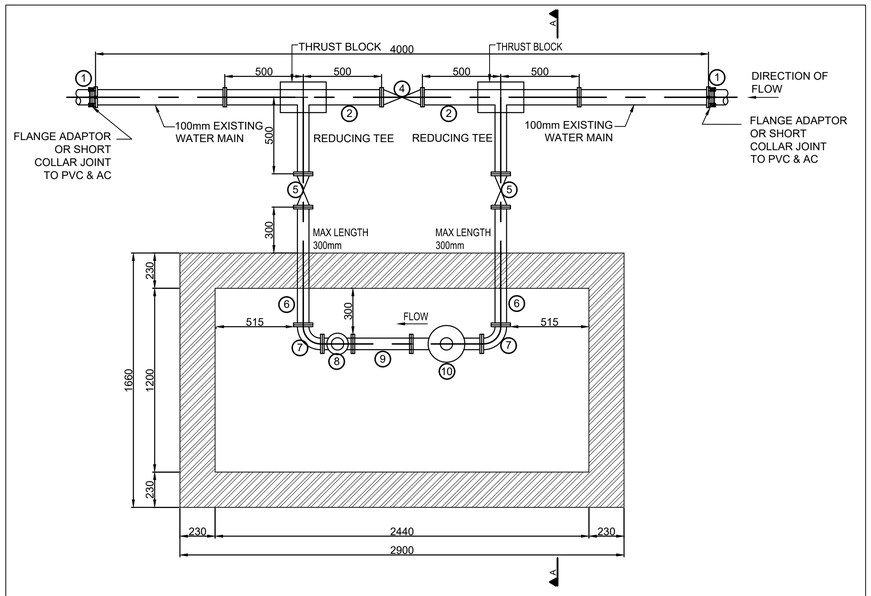
DISCIPLINE
CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
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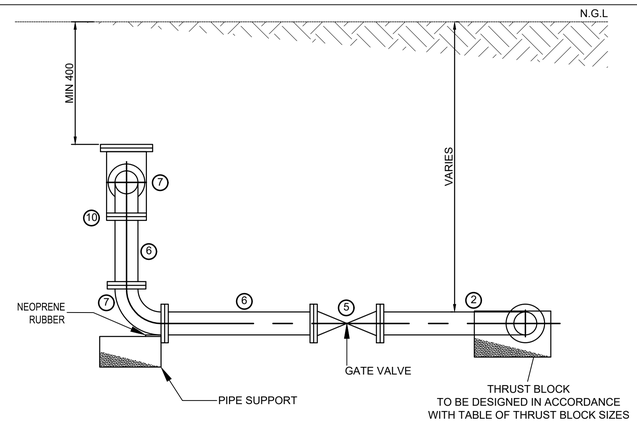
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SCALE As Indicated



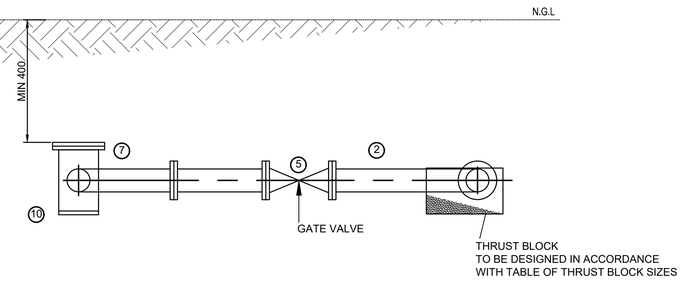
PLAN OF 80Ø METER INSTALLATION OFF 100Ø MAIN

SCALE: 1:20



PART SECTION A-A 80Ø DIRT BOX OFF 100Ø MAIN OPTION 1

SCALE: 1:10



PART SECTION A-A 80Ø DIRT BOX OFF 100Ø MAIN OPTION 2

SCALE: 1:10

PIPEWORK SCHEDULE OF DIMENSIONS(mm)			
ITEM NO.	NAME	DIMENSIONS	QTY
1	EXISTING MAIN	100 Ø	-
2	REDUCING TEE(F.A.R)	100Ø X 80Ø	2
3	80mm Ø SPOOL PIECE (F.B.E)	0	0
4	100mm Ø GATE VALVE	254	1
5	80mm Ø GATE VALVE	229	2
6	80mm Ø SPOOL PIECE (F.B.E)	CUT TO SUIT	-
7	90° LONG RADIUS BEND (F.B.E)	114	-
8	80mm Ø METER	200	1
9	80mm Ø SPOOL PIECE (MIN LENGTH)	240	1
10	80mm Ø DIRT BOX	480	1

REPAIR OF PIPE COATINGS/LININGS		
COATING/LINING	COLOUR	REPAIR MEDIUM
COPON KSIR88	RED/BLUE	COPON HYCOTE 151
FUSION BONDED EPOXY (F.B.E)	GREEN	COPON HYCOTE 151
FUSION BONDED MEDIUM DENSITY POLYETHYLENE (F.B.M.D.P.E)	BLACK	COPON HYCOTE 151
COPON	RED	COPON HYCOTE 151
SOLVENT FREE/BORNE EPOXY (S.F.E/ S.B.E)	BLUE/RED/GREY	COPON HYCOTE 151
CEMENT MORTAR	GREY	EPIDERMIX 338
RILSAN	BLACK	RILSAN REPAIR KIT

THRUST BLOCK SIZES (in mm) IN NORMAL EARTH FOR HEADS OF 120m						
PIPE SIZE	END CAP	TEE (BRANCH)	90° BEND	45° BEND	22.5° BEND	11.25° BEND
	X Y	X Y	X Y	X Y	X Y	X Y
75	300x200	300x200	350x300	300x250	300x200	300x200
100	300x400	300x400	400x500	350x300	300x200	300x200
150	400x500	400x500	600x600	450x500	400x300	300x250
200	500x600	500x600	700x900	500x800	400x500	350x300

NOTES

1. EXACT POSITION OF METER INSTALLATION TO BE INDICATED BY ENGINEER.
2. CONTRACTOR TO CONFIRM DIMENSIONS OF ALL NEW STEEL PIPEWORK PRIOR TO FABRICATION AND INSTALLATION.
3. PRIOR TO INSTALLATION ALL FABRICATED PIPEWORK TO BE EXTERNALLY COATED AND INTERNALLY LINED WITH 'RILSAN' OR APPROVED EQUIVALENT.
4. PRIOR TO INSTALLATION AND ASSEMBLY ANY UNCOATED FLANGE FACES TO BE COATED WITH 'COPON KSIR88' TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
5. ONCE THE PIPEWORK HAS BEEN INSTALLED ALL DAMAGED STEEL PIPEWORK TO BE REPAIRED USING AN APPROVED PROCEDURE AS PER TABLE "REPAIR OF PIPE COATINGS/LININGS".
6. ALL GATE VALVES TO BE INSTALLED UNDER SPACER RINGS AND No.5 VALVE COVER AS PER STANDARD PRECAST CONCRETE VALVE CHAMBER DETAILS.
7. THRUST BLOCKPIPE SUPPORTS TO BE INSTALLED UNDER ALL TEES AND VERTICAL 90° BENDS.
8. ALL FLANGE DRILLING TO BE TO SANS 1123 (PN16).
9. WHEN RECOMISSIONING THE PIPELINE, VALVE (4) MUST BE OPENED AND BOTH VALVES (5) SHOULD BE CLOSED FOR 72 HOURS FOR THRUST BLOCK CONCRETE TO CURE.
10. ALL STEEL PIPE TO BE IN ACCORDANCE WITH SANS 719 - MEDIUM BLACK - 6mm THICK.
11. A FULL 4 METER LENGTH OF EXISTING AC PIPE TO BE REMOVED TO ACCOMMODATE THE NEW INSTALLATION. NO REAMING OF AN EXISTING AC PIPE WILL BE PERMITTED.

FOR TENDER PURPOSES

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PROJECT

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PROGRAMME FOR SCHOOLS

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KZN DEPARTMENT OF
PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

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APPROVAL CONSULTANT

NAME D.PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
WATER
SHEET 3

DISCIPLINE

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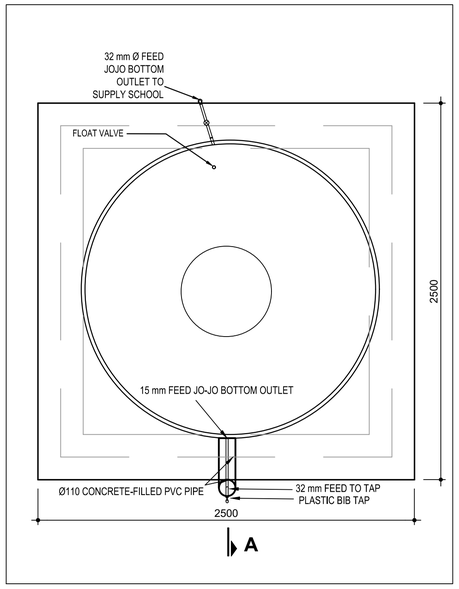
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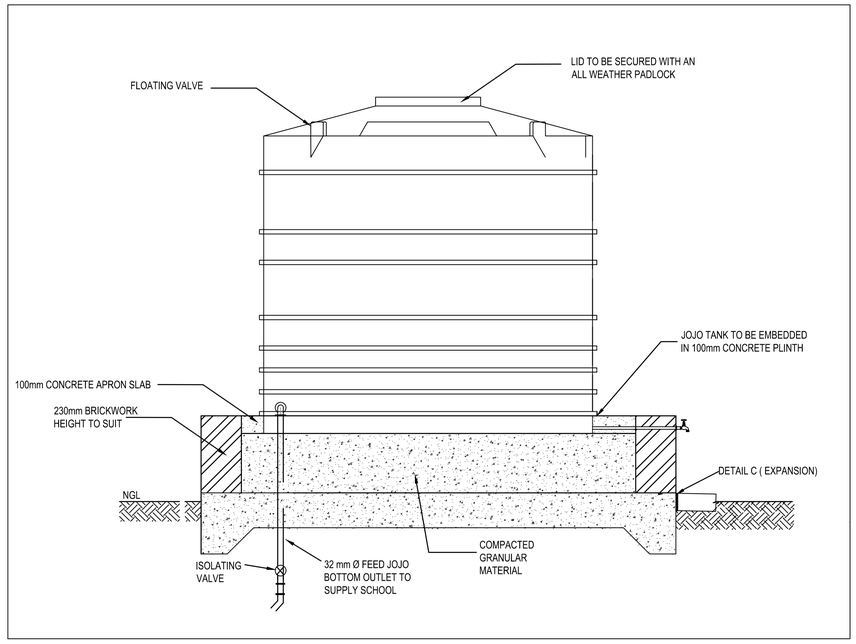
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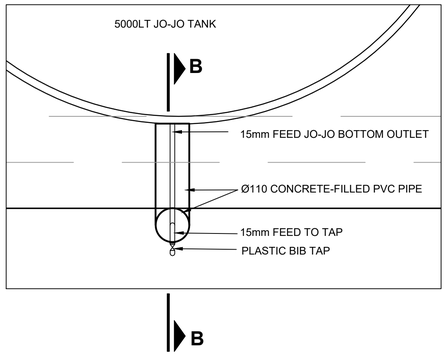
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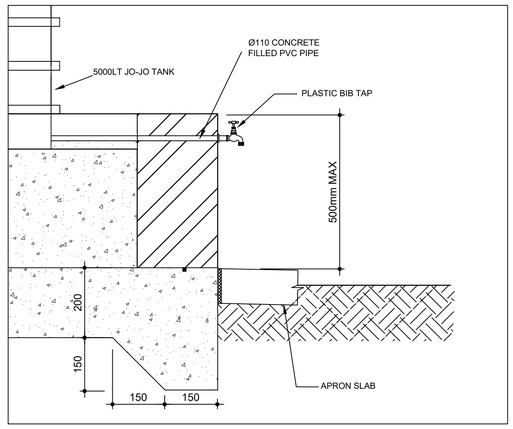
5000L JO-JO TANK
PLAN
NTS



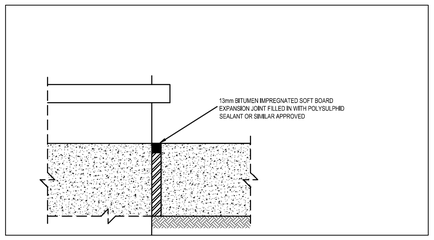
SECTION A-A
NTS



STAND PIPE DETAIL PLAN
NTS



SECTION B-B
NTS



DETAIL C
NTS

FOR TENDER PURPOSES

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KZN DEPARTMENT OF
PUBLIC WORKS

public works
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DRAWING CHECKED BY	A.CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
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SHEET TITLE

SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
WATER
SHEET 4

DISCIPLINE

CIVIL INFRASTRUCTURE

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PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906 -	02 -	0000 -	C -	**DA - 811** -	**T** -	

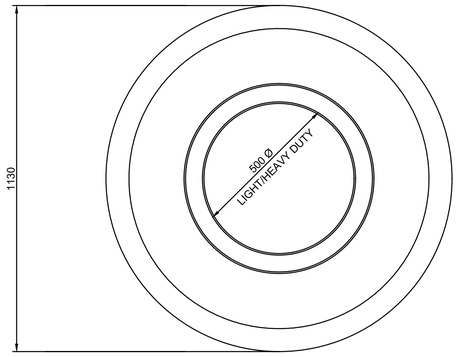
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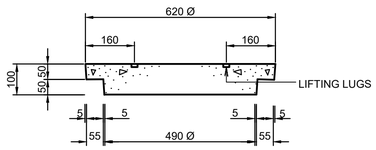
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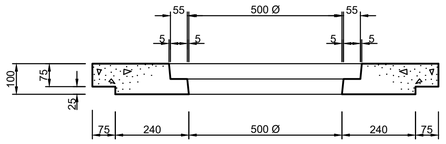
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PLAN OF CIRCULAR LIGHT AND HEAVY DUTY FRAME FOR 1000 NOM. DIA. MANHOLE
SCALE : 1:10

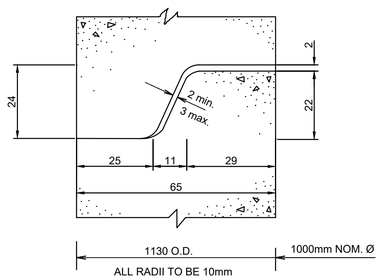


SECTION OF CIRCULAR LIGHT DUTY MH COVER
SCALE: 1:10

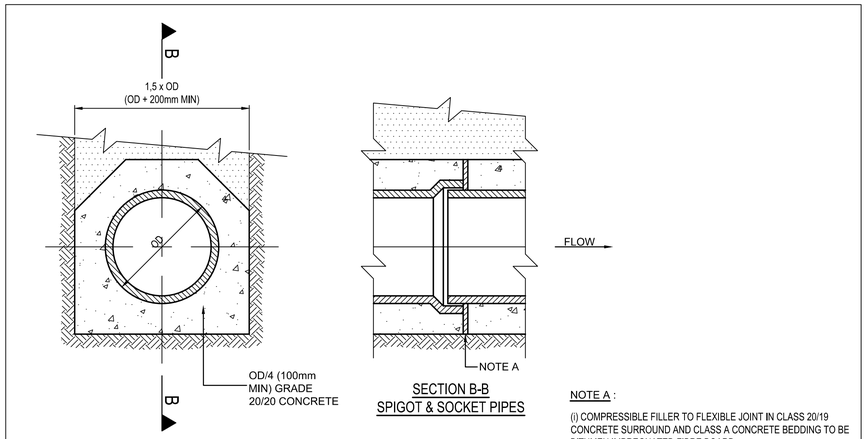


SECTION OF CIRCULAR LIGHT DUTY MH FRAME
SCALE: 1:10

NOTES:
A. GENERAL
1. ALL PRECAST CONCRETE MANHOLE COMPONENTS TO COMPLY WITH THE REQUIREMENTS OF SANS 1294 (WHERE APPLICABLE)
2. LENGTHS OF INDIVIDUAL WALL UNITS ARE TO VARY IN MULTIPLES OF 250mm.
3. MEDIUM DUTY CONCRETE COVERS AND FRAMES ARE TO BE USED ON MANHOLES UNDER VEHICULAR TRAFFIC.
4. FOR DETAILS OF STEEL REINFORCEMENT TO MANHOLE COVERS,COVER SLABS AND FRAMES - SEE STANDARD PRECAST DETAILS LISTED.
5. DIMENSION "D" VARIES WITH THE DIAMETER OF THE PIPES. DIMENSION "D" SHALL BE TO A POINT 50mm ABOVE THE HIGHEST CROWN OF THE PIPES.
6. RENDERING FOR MANHOLE BENCHING SHALL CONSIST OF 1 PART CEMENT TO 3 PARTS SAND THOROUGHLY MIXED AND APPLIED TO CONCRETE SURFACES WHILE THE LATTER ARE STILL GREEN. RENDERING SHALL BE AT LEAST 20mm THICK.
7. THE LENGTH OF PIPE BUILT INTO THE MANHOLE SHALL NOT EXCEED 2.5m.
8.IN LOCATIONS DEFINED BY THE ENGINEER AS SUBJECT TO FLOODING, C.I. MANHOLE COVERS AND JOINTS SEALED WITH BOSTIK BUTYL TAPE OR SIMILAR, SHALL BE USED.



DETAIL OF JOINT
SCALE: 1:1



CONCRETE ENCASEMENT FOR FLEXIBLE PIPE
NTS

SECTION B-B
SPIGOT & SOCKET PIPES

NOTE A :

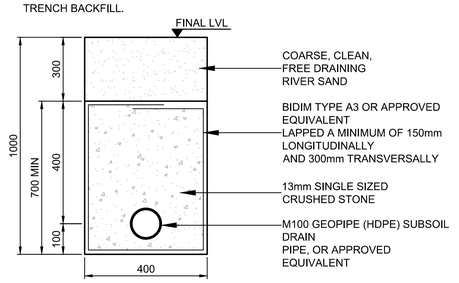
(i) COMPRESSIBLE FILLER TO FLEXIBLE JOINT IN CLASS 20/19 CONCRETE SURROUND AND CLASS A CONCRETE BEDDING TO BE BITUMEN IMPREGNATED FIBRE BOARD.

(ii) SOFTBOARD OR POLYSTYRENE OF THICKNESS 15mm FOR PIPES UP TO 450mm (& 30mm FOR PIPES 450-1200mm).

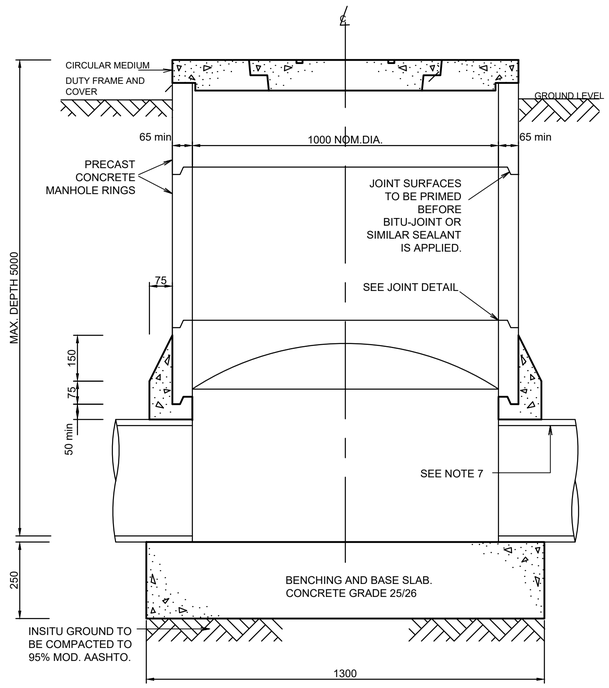
(iii) FLEXIBLE JOINT IN CONCRETE SURROUND EVERY 6m MIN LOCATED AT PIPE JOINTS.

NOTE:

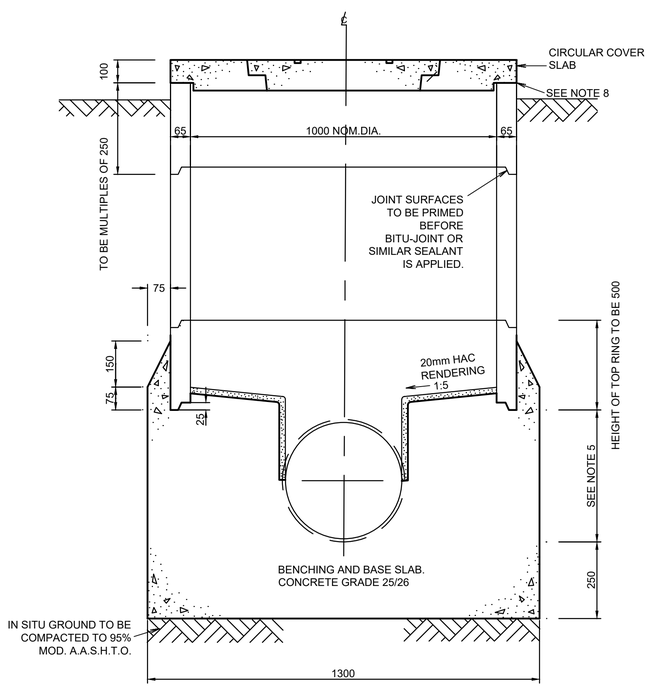
1. WHERE SUBSOIL DRAINS ARE CONSTRUCTED IN UNPAVED AREAS AN IMPERVIOUS MATERIAL SHALL BE USED FOR THE TOP 100mm OF TRENCH BACKFILL.



SUB-SOIL DRAIN DETAIL
SCALE 1:10



SECTION OF 1000 DIA. MANHOLE
SCALE: 1:10



SECTION OF 1000 DIA. MANHOLE
SCALE: 1:10

PRECAST STORMWATER RING MANHOLE DETAILS

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STORMWATER
SHEET 1

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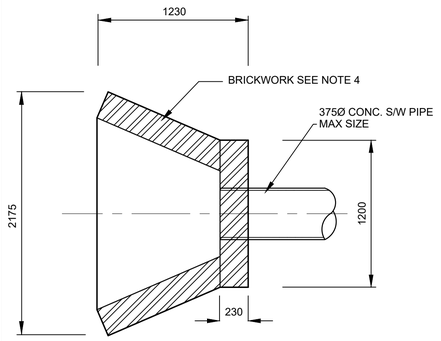
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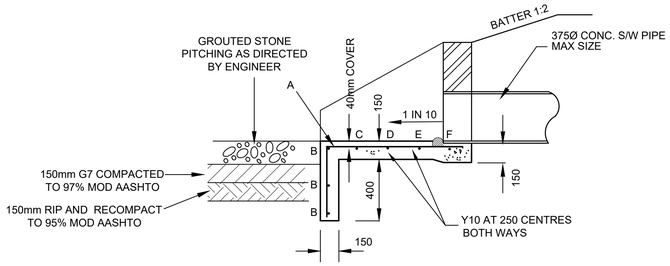
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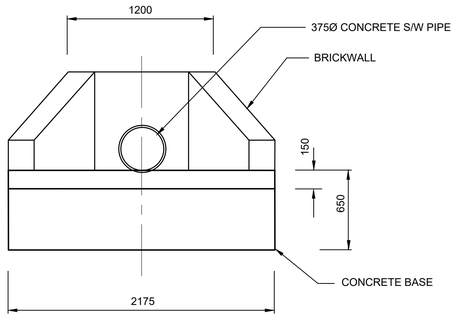
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PLAN



SECTION



ELEVATION

HEADWALL DETAIL
FOR PIPE 375Ø AND SMALLER

SCALE 1:25

REINFORCEMENT SCHEDULE FOR HEADWALL

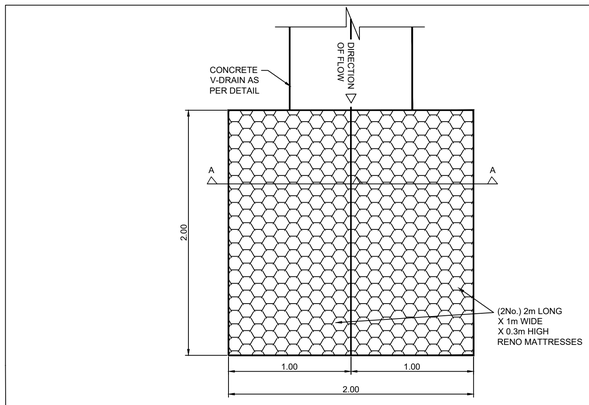
BAR MARK	No. IN EACH	TYPE & DIA.	LENGTH OF EACH BAR	SHAPE CODE	A	B
A	9	Y10	1600	37	450	
B	3	Y10	2050	20		
C	1	Y10	1750	20		
D	1	Y10	1500	20		
E	1	Y10	1300	20		
F	1	Y10	1100	20		

NOTES

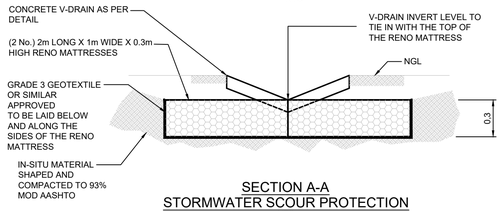
1. CONCRETE GRADE 25/19 MPa
2. COVER TO STEEL 40mm MIN.
3. FINISHES:
   BOTTOM AND SIDES - OFF SHUTTER
   TOP - WOOD FLOAT
4. HEADWALL BRICKWORK SIZES (mm)

WALL HEIGHT	BRICKWORK
0 - 1100	230
1100 - 1400	345

5. ALL EXPOSED BRICKWORK TO BE FACEBRICK



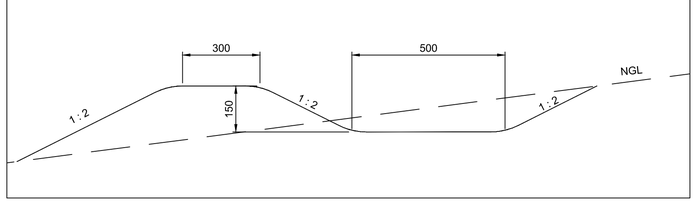
PLAN OF STORMWATER SCOUR PROTECTION
NTS



SECTION A-A
STORMWATER SCOUR PROTECTION
NTS

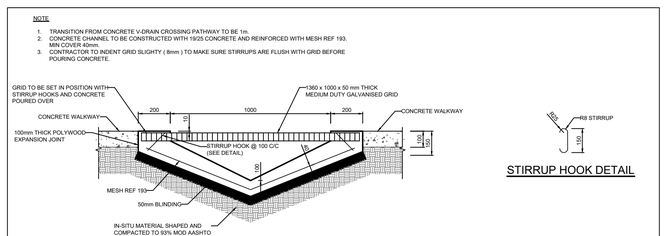
NOTES :
1. CATCHWATER BERM AND CHANNEL TO BE WELL COMPACTED TO AT LEAST 90% MOD AASHTO.

2. BERM AND CHANNEL TO BE TOPSOILED AND GRASSED IMMEDIATELY ACCORDING TO PROJECT SPECIFICATION.



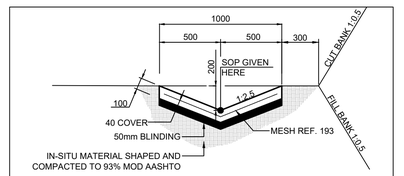
TYPICAL CATCHWATER BERM
SCALE 1:10

NOTE
1. TRANSITION FROM CONCRETE V-DRAIN CROSSING PATHWAY TO BE 1m.
2. CONCRETE CHANNEL TO BE CONSTRUCTED WITH 19/25 CONCRETE AND REINFORCED WITH MESH REF 193. MIN COVER 40mm.
3. CONTRACTOR TO INDENT GRID SLIGHTY (8mm) TO MAKE SURE STIRRUPS ARE FLUSH WITH GRID BEFORE POURING CONCRETE.



STIRRUP HOOK DETAIL

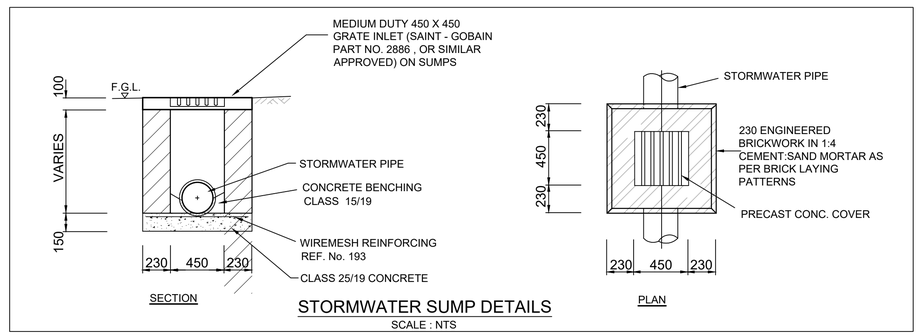
CONCRETE V-DRAIN
CROSSING PATHWAY
NTS



CONCRETE V-DRAIN
NTS

NOTE:

1. CONCRETE CHANNEL TO BE 100mm THICK USING 19/25 MPa CONCRETE. CONCRETE TO BE CAST IN 2.0m ALTERNATE PANELS WITH EXPANSION JOINTS AT 10m INTERVALS (EVERY 5th PANEL).
2. CONCRETE CHANNEL TO BE REINFORCED WITH MESH REF. 193 MINIMUM COVER = 40mm



STORMWATER SUMP DETAILS
SCALE : NTS



PATTERN A

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS :
805mm
1035mm
1265mm
1495mm

PATTERN B

TO BE USED FOR THE FOLLOWING INTERNAL DIMENSIONS :
820mm
1150mm
1380mm
1610mm

STORMWATER SUMP BRICK LAYING PATTERNS
NTS

FOR TENDER PURPOSES

AECOM

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PROJECT
DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT
KZN DEPARTMENT OF
PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

NOTES

1. DRAWINGS ARE NOT TO BE SCALED. ALL LEVELS AND DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO COMMENCEMENT OF WORKS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER / ARCHITECT'S ATTENTION IMMEDIATELY.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS, SCHEDULES AND SPECIFICATIONS RELATED TO THIS PROJECT.
3. ALL BUILDING WORK AND MATERIALS ARE TO COMPLY WITH LOCAL AUTHORITY'S REQUIREMENTS AND ARE TO BE IN ACCORDANCE WITH SANS 10400 NATIONAL BUILDING REGULATIONS

ISSUE / REVISION

	2023-05-24	INITIAL ISSUE	PN
I/R	DATE	DESCRIPTION	DRN

DRAWING CHECKS

DESIGNED BY	P.NYIDE	N/A
DRAWN BY	P.NYIDE	N/A
DESIGNED CHECKED BY	S.RASOOL	N/A
DRAWING CHECKED BY	A. CHETTY	N/A

APPROVAL CONSULTANT

NAME D.PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
SINENHLANHLA PRIMARY SCHOOL
STANDARD DETAILS
STORMWATER
SHEET 2

DISCIPLINE
CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

PROJECT-No.	SUB-No.	WBS	DISC.	TYPE - NUMBER	STATUS	REV
60491906	02	0000	C	**DA - 813**	**T**	

D: DRAFT / **P**: PRELIMINARY / **T**: TENDER / **F**: FINAL / **C**: CONSTRUCTION / **A**: AS-BUILT, RECORD / **R**: REPORT

SCALE As Indicated

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ISO A1 841mm x 594mm
Printed on % Post-Consumer Recycled Content Paper
Last Plotted: 2023/05/31 03:39:05
Filename: L:\SECURE\PMFM PROJECTS\CURRENT PROJECTS\60491906 - DOPW - DOE SANITATION PROGRAMME FOR 387 SCHOOLS\3300 DRAWINGS\340 ENGINEERING - ADD\STYPICAL DETAILS\02_MED\ANSI STYPICAL DETAILSTENDER 60491906SHEET2 MED.DWG

NOTES:

GENERAL NOTES:

1. ALL DIMENSIONS ARE IN METERS (m) AND PIPE DIAMETERS ARE IN MILLIMETERS (mm) UNLESS OTHERWISE SPECIFIED.
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS.
3. ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGN ENGINEER.
4. ALL DIMENSIONS TO BE CHECKED BEFORE COMMENCEMENT OF WORK ON SITE.
5. LEVELS AND/OR DIMENSIONS ARE NOT TO BE OBTAINED BY SCALING FROM THE DRAWINGS.
6. SETTING OUT DIMENSIONS SHALL BE CONFIRMED ON SITE BEFORE CONSTRUCTION IS COMMENCED.
7. DURING CONSTRUCTION, THE CONTRACTOR SHALL:
   a) PROVIDE TEMPORARY BRACING/SUPPORT AS REQUIRED TO KEEP THE WORKS AND EXCAVATIONS STABLE AT ALL TIMES
   b) IDENTIFY AND PROTECT ALL DRAINAGE SYSTEMS AGAINST CONSTRUCTION LOADINGS.
8. THE CONTRACTOR IS TO EXPOSE AND VERIFY ALL EXISTING SERVICES/ INFRASTRUCTURE ON SITE PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION ON SITE, OR THE FABRICATION OF COMPONENTS FOR INSTALLATION ON SITE, OR THE ORDERING OF COMPONENTS FOR INSTALLATION ON SITE. THE CLIENT/EMPLOYER AND THE ENGINEER WILL NOT ENTERTAIN ANY ADDITIONAL PAYMENT CLAIMS FOR NEW COMPONENTS WHICH DO NOT MATCH WITH EXISTING SERVICES, OR WHERE EXISTING SERVICES CANNOT BE CONNECTED INTO DUE TO A LACK OF MATERIAL OR FITMENT COMPATIBILITY IN ANY WAY.
9. UNLESS DRAWINGS ARE IDENTIFIED AS "FOR CONSTRUCTION", THEY SHALL NOT BE USED FOR CONSTRUCTION PURPOSES.
10. ANY PERMITS REQUIRED FOR CONSTRUCTION WORK SHALL BE OBTAINED BY THE CONTRACTOR PRIOR TO CONSTRUCTION.
11. ALL DRAINAGE SYSTEMS SHALL BE CLEAN AND FREE OF DEBRIS AND SILT DURING CONSTRUCTION AND ON COMPLETION OF THE WORKS.
12. MODIFICATION TO THE DRAINAGE DESIGN WHICH MAY IMPACT ON ANY PIT (TYPE, LOCATION OR LEVEL) OR PIPE (TYPE, SIZE, LEVEL OR GRADE) OR INSTALLATION CONDITIONS SHALL BE SUBMITTED TO THE DESIGN ENGINEER FOR CONSIDERATION AND APPROVAL PRIOR TO ANY CHANGES BE CARRIED OUT ON SITE.
13. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY HEALTH & SAFETY RISK MITIGATION ON SITE.
14. ALL CONSTRUCTION WORK MUST COMPLY WITH THE STANDARDIZED SPECIFICATION FOR CIVIL ENGINEERING CONSTRUCTION (**SANS 1200 SERIES**) AND RELEVANT DoPW STANDARDS.

EARTHWORKS:

1. A 150 mm LAYER OF TOPSOIL IS TO BE REMOVED BEFORE COMMENCEMENT OF EARTHWORKS AND REPLACED UPON COMPLETION.
2. ALL LEVELS SHOWN REFLECT THE TOP OF THE EARTHWORKS AND INCLUDE TOP SOIL.
3. ALL LEVELS TO BE BUILT WITHIN A TOLERANCE OF 50 mm.
4. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND PROTECTING ALL EXISTING SERVICES ON SITE.
5. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING THE WORKS FROM SURFACE WATER RUNOFF THAT MAY CAUSE EROSION DAMAGE, USING CHANNELS, BERMS, PUMPS etc, AS AND WHEN REQUIRED AND DIRECT GROUND WATER AWAY FROM THE WORKS.
6. ALL FINAL CUT BANKS TO BE CONSTRUCTED AT A SLOPE OF OF 1 V : 2 H AND FILL BANKS AT 1 V : 2 H, UNLESS OTHERWISE SHOWN.
7. AREAS IN CUT ARE TO BE RIPPED AND RECOMPACTED TO MINIMUM 90% MOD AASHTO (100% FOR SAND).
8. FILL MATERIAL TO BE G7 QUALITY OR BETTER COMPACTED IN 150mm LAYERS TO MINIMUM 93% MOD AASHTO.
9. CONTRACTOR WILL BE SUPPLIED WITH BENCHMARK INFORMATION BEFORE CONSTRUCTION COMMENCES.
10. COORDINATES ARE IN ACCORDANCE WITH WGS 84 : LO 31.

RETAINING WALL: (IF REQUIRED)

1. ENGINEER TO APPROVE FOUNDING CONDITIONS PRIOR TO CASTING OF CONCRETE.
2. BOTTOM ROW OF BLOCKS TO BE SET IN WET CONCRETE OF STRENGTH 25 MPa AT 28 DAYS.
3. ALL BACKFILL TO BE COMPACTED TO MINIMUM 93% MOD AASHTO.
4. BACKFILL TO BE BENCHED INTO COMPETENT GROUND.
5. WEEPHOLES TO BE ALLOWED THROUGH STABILIZATION AT 2 m CENTRES.
   FIRST ROW 200 mm ABOVE FGL AND REPEAT IN 1 m LIFTS.
6. PROVISION OF SUBSOIL DRAIN TO BE CONFIRMED ON SITE.
7. DRYSTACK WALL TO BE CONSTRUCTED WITH A SLOPE OF 70 DEGREES.
8. STORMWATER BEHIND THE TOP OF THE WALL TO BE MANAGED IN SUCH A MANNER AS TO OBVIATE SCOUR BEHIND OR OVERTOPPING THE WALL.

STAIRCASE: (IF REQUIRED)

1. STEPS TO BE LG GREEN PRODUCT ST101 OR SIMILAR APPROVED.
2. FIRST STEP TO BE BEDDED INTO 300 mm THICK CONCRETE FOUNDATION.
3. LANDINGS TO BE 1 m LONG WITH MIN 1% SLOPE.
4. G7 MATERIAL TO BE USED FOR ALL FILL UNDER STEPS.
5. RAMP AND LANDINGS TO BE 100 mm THICK ON 150 G7 BEDDING COMPACTED TO 97% MOD AASHTO.

FOR TENDER PURPOSES

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PROJECT
DEPARTMENT OF EDUCATION
WATER AND SANITATION
PROGRAMME FOR SCHOOLS

CLIENT
KZN DEPARTMENT OF
PUBLIC WORKS

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL

NOTES
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I/R	DATE	DESCRIPTION	DRN

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DESIGNED BY	P.NYIDE	N/A	
DRAWN BY	P.NYIDE	N/A	
DESIGNED CHECKED BY	A.CHETTY	N/A	
DRAWING CHECKED BY	A.CHETTY	N/A	

APPROVAL CONSULTANT

NAME D.PILLAY DATE
PROF REG. No. 201270383 SIGNATURE

THE MASTER HELD AT THE **AECOM PIETERMARITZBURG OFFICE** BEARS THE ORIGINAL SIGNATURE OF APPROVAL

SHEET TITLE
SINENHLANHLA PRIMARY SCHOOL
SPECIFICATIONS

DISCIPLINE
CIVIL INFRASTRUCTURE

AECOM DRAWING NUMBER

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60491906	02	0000	C	**K - 001**	T	

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KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURES

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 1
MODEL PREAMBLE FOR TRADE 2008

The Association of South African Quantity Surveyors
Die Vereniging van Suid-Afrikaanse Bourekenaars

MODEL PREAMBLES FOR TRADES 2008

forming part of
the bills of quantities

Project:

Harry Gwala District : Cluster No.21

Rietvlei Junior Secondary School

Contract Reference Number: 064054

Effective date November 2008

ISBN 978-0-620-1663-4

EXPLANATORY NOTES AND INSTRUCTIONS ON THE USE OF THESE MODEL PREAMBLES

1. The document

1.1 This document is published by and is available from the Association of South African Quantity Surveyors, P.O. Box 3527, Halfway House, 1685. Telephone (011) 315 4140. E-mail: administration@asaqs.co.za

1.2 The contents of this document are intended to cover workmanship and materials encountered in a significant majority of projects. If a material is not encountered in a significant majority of projects, its preamble will in all likelihood not be included in this document

1.3 By its very nature, this document is a "Model" document and one that is designed to act as a basis upon which to build. It is anticipated that it will be supplemented by a "Supplementary Preambles" document included in the text of the bills of quantities that will include, *inter alia*, the following:

1.3.1 supplementary clauses of a general nature that practitioners may deem necessary to cover their own individual requirements,

1.3.2 additional clauses pertaining to specific materials incorporated in a project and not covered by the Model Preambles,

1.3.3 amendments to anything contained in the Model Preambles. A clause has been incorporated in the "General" section of the document stipulating that anything contained in the "Supplementary Preambles" which is at variance to that which is contained in the Model Preambles, will take precedence over the Model Preambles and apply to the works in hand

1.4 It is intended that this document will be used by reference only in the text of the bills of quantities and will NOT be bound or reproduced therein

2. The basic philosophy

2.1 Wherever possible, reference has been made throughout the preambles to South African National Standards (SANS) to describe materials and methods respectively. It is therefore incumbent on the users of these preambles to have ready access to the relevant Specifications and Codes. Where such Specifications or Codes do not exist, suitable preambles have been compiled

2.2 These preambles have been designed to assist in abbreviating descriptions in the text of the bills of quantities and practitioners are encouraged to make use of this facility. e.g. The description of a stormwater catchpit would read:

"Brick stormwater catchpit size internally 600 x 400 x 1 200mm deep to invert fitted with and including a 450 x 300mm x 59kg cast iron grating and frame"

2.3 Wherever alternatives exist in respect of materials or workmanship, specific choices have been made in these preambles. Should users require different choices to specific items, these should be referred to in the Supplementary Preambles as outlined in clause 1.3

3. Additional notes in the use of these Model Preambles

3.1 **Concrete, Formwork and Reinforcement**

The Project Specification embodied in these preambles was compiled in collaboration with the Authors of SANS 1200G, which forms the basis for the Concrete, Formwork and Reinforcement model preambles

Users of these preambles are advised to submit a copy of the Model Preambles to the Engineers involved in a project for their scrutiny. Any amplifications, amendments, etc required by individual Engineers would then be incorporated in the Supplementary Preambles referred to in item 1.3

3.2 **Roof Coverings**

The roof coverings included in these Model Preambles are limited in their content and therefore any roofing material not included in these Preambles will need to have its full preamble included in the Supplementary Preambles

3.3 **Structural Steelwork**

The comments made under item 3.1 apply equally to Structural Steelwork

Note that the protective treatment of the structural steel covers only the treatment up to and including the primer (and patching after erection). The finishing coats of paint must be fully described and included either in the "Structural Steelwork" or in the "Paintwork" trade, as the practitioner wishes

MODEL PREAMBLES FOR TRADES

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A. GENERAL

A.1 APPLICATION OF CLAUSES

These Model Preambles for Trades, and any Supplementary Preambles, shall be read in conjunction with and shall form part of the descriptions of items in the bills of quantities

Where descriptions or Supplementary Preambles in the bills of quantities differ from these Model Preambles for Trades, the descriptions or Supplementary Preambles in the bills of quantities shall take precedence. Where supplementary preambles differ from descriptions in the bills of quantities, the descriptions in the bills of quantities shall take precedence

Except where otherwise stated, all preambles contained in any individual Trade Preamble shall apply equally to any work of a similar nature in all other trades

A.2 ABBREVIATIONS

The following abbreviations shall apply:

AASHTO	–	American Association of State Highway and Transportation Officials
AISI	–	American Institute of Steel Industries
BS	–	British Standard
CKS	–	Coordinating Specifications issued by the Central Coordinating Committee under the auspices of the South African Bureau of Standards
CSIR	–	Council for Scientific and Industrial Research
SANS	–	South African National Standards and the number following shall refer to the relevant specification or code of practice as the case may be

A.3 MATERIALS AND WORKMANSHIP

Materials and workmanship shall be the best of their respective kinds. Only new and undamaged materials shall be used in the Works. Materials to be permanently installed into the works shall not be used for any temporary purposes on site. Work shall be to the approval of the Principal Agent and shall be executed in accordance with the relevant manufacturer's written recommendations and instructions where applicable

A.4 PROPRIETARY PRODUCTS

For the purposes of submission of tenders, rates for items described in the bills of quantities by trade names, catalogue references, etc shall be for the particular type and manufacture specified

The approval of the Principal Agent shall be obtained prior to any substitution and where products or materials etc other than those specified are used, adjustments in the rates will be made if necessary

A.5 ASSEMBLING

Rates for manufactured items shall include assembling complete and handing over in proper working order

A.6 REFERENCES IN DESCRIPTIONS

Any references given in brackets at the end of certain descriptions shall refer to the relevant references on the drawings or schedules

A.7 WATER

Water shall be clean and free from injurious amounts of acids, alkalis, organic matter and other substances and shall be suitable for its intended use

A.8 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

All work shall be executed in accordance with the requirements of SANS 10400

A.9 ACCURACY IN BUILDINGS

The dimensional and positional accuracy of the buildings and their component parts shall comply with Grade II requirements of SANS 10155 unless otherwise stated

A.10 REFERENCES TO OTHER DOCUMENTS

References in these "Model Preambles for Trades" to other documents, including SANS, CKS and BS, shall pertain to the latest edition thereof including all amendments thereto at the date for submission of the tender

B. ALTERATIONS

B.1 ALTERATIONS

In taking down and removing existing work the utmost care shall be observed to prevent any structural or other damage to remaining portions of the building. The Contractor shall ensure the stability of all structures during alteration work

Special care shall be exercised during the progress of the work to ensure that any electrical installations, water supply pipes, telephone and other services which may be encountered are not interfered with and notice shall be given to the Principal Agent if any disconnection or alterations become necessary

The Contractor shall take all precautions necessary to prevent any nuisance from dust whilst carrying out the work

B.2 MATERIALS FROM THE ALTERATIONS, CREDIT, ETC

Materials recovered from the alterations (except where described as to be re-used or to be handed over to the Employer) will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in new work without written permission from the Principal Agent

Materials described as “removed” shall be removed from the site immediately.

Materials described as “handed over to the Employer” shall be carefully dismantled where necessary, neatly stored under cover on the site where directed and protected from damage, until required

Materials described as “set aside for re-use” shall be carefully dismantled where necessary, cleaned, neatly stored under cover and protected from damage until required for re-use. Any damage caused to such materials during removal, storage or refixing shall be made good at the Contractor’s expense

B.3 DISPOSAL OF DEBRIS ETC

The Contractor shall be responsible for the removal from the site of all materials, debris and rubbish resulting from the alterations

B.4 MAKING GOOD DAMAGED WORK

The Contractor shall make good in all trades to existing work where damaged or disturbed through the alterations with all necessary new materials to match the existing

B.5 FORMING NEW OPENINGS OR ALTERING OPENINGS IN EXISTING WALLS

Where new openings are formed or openings altered in existing walls, the wall above the opening shall be broken out and a new brick, in situ concrete or prestressed concrete lintel inserted, complete with all necessary reinforcement, formwork, turning piece, etc, the jambs and portions of openings as described shall be built up with new brickwork or blockwork properly toothed and bonded to existing, cavities of hollow walls shall be closed where necessary and finishes shall be made good all round and into reveals

B.6 BUILDING UP OPENINGS

Where existing openings are given in number as built up, the existing surfaces all round shall be prepared as necessary, brickwork or blockwork properly toothed and bonded to existing, wedged up to underside of existing lintel and finishes shall be made good on both sides

C. EARTHWORKS

C.1 DEMOLITIONS

C.1.1 Nature and extent

Descriptions of demolitions give a rough guide only as to the scope of the work. Tenderers are therefore advised to visit the site before submitting a tender and to acquaint themselves with the nature and extent of the work to be done and the value of recoverable materials which are not to be re-used or handed over to the Employer. Unless otherwise stated, loose furniture, kitchen and other equipment, apparatus, machinery, etc shall remain the property of the Employer and the removal thereof does not fall within the scope of this Contract

The Contractor shall completely demolish the buildings etc in a careful, skilful, practical and safe manner down to 150mm below ground level

Demolitions shall include breaking up and removing:

all floors and surface beds;

all external screen walls, steps, ramps, aprons, surface water channels, rainwater sumps, gulleys, etc attached to the building to be demolished;

all services, manholes, etc in ground to a point not less than 1m beyond the perimeter of the building including plugging off ends of all remaining pipes, drains, etc, filling in holes where necessary and ramming and levelling to ground level

Where only a portion of a building is to be demolished, it shall be done without damage to the remaining portion of the building. Any such damage shall be made good by the Contractor at his own expense

C.1.2 Notices etc

The Contractor shall, before commencing work, obtain all necessary authorisation for carrying out the work, by whatever means including the use of pneumatic equipment or blasting, give all necessary notices and pay all charges and fees in connection therewith. He shall also comply with all regulations pertaining to rodent extermination and he shall obtain the requisite Rodent Extermination Clearance Certificate and pay all necessary fees. All receipts and certificates shall be left in the safekeeping of the Principal Agent. All the abovementioned charges and fees shall be paid by the Contractor and included in his prices

The Contractor shall give ample notice to the Principal Agent and Local Authorities regarding any disconnections necessary prior to the removal or interruption of electrical or telephone cables, water and sanitary services etc

C.1.3 Loss

After the handing over of the site to the Contractor, the full risk of any loss or damage to buildings to be demolished shall be the responsibility of the Contractor and he shall take such precautions as he deems necessary against such loss or damage

C.1.4 Materials from the demolitions, credit, etc

Materials recovered from the demolitions will become the property of the Contractor, who may allow credit in respect thereof where provided for in the bills of quantities. Such materials shall not be re-used in any new work without written permission from the Principal Agent

C.1.5 Disposal of debris etc

The Contractor shall be responsible for the removal from the site of all materials, rubble, debris and rubbish resulting from the demolitions

C.2 SOIL INSECTICIDES

The application of soil insecticides shall be carried out in accordance with “The application of soil insecticides for the protection of buildings” - SANS 10124

C.3 FILLING ETC

C.3.1 **Filling generally**

Filling over site shall be spread, levelled, watered and consolidated in layers not exceeding 300mm

Filling under floors and backfilling to excavations shall be suitable inert material, free from clay, vegetable matter, large stones, etc, having a maximum plasticity index of 10, spread, levelled and compacted to a density of at least 90% Mod. AASHTO

C.3.2 **Hardcore**

Hardcore shall be broken stone or other approved hard material graded from 25mm to 75mm with the finer material on top and shall be spread, levelled and consolidated

C.4 EXCAVATIONS

C.4.1 **Classification of excavated material**

“Hard rock” shall mean granite, quartzitic sandstone or other rock of similar hardness, the removal of which requires drilling, wedging and splitting or the use of explosives

“Soft rock” shall mean hard material the removal of which warrants the use of pneumatic tools and includes hard shale, ferricite, compact ouklip and material of similar hardness

“Earth” shall mean all ground other than that classified as “hard rock” or “soft rock” and shall include made-up ground and any loose stones or pieces of concrete not exceeding 0,03m^3 in volume

D. CONCRETE, FORMWORK AND REINFORCEMENT

D.1 SPECIFICATION FOR CONCRETE WORK GENERALLY

All in situ concrete work (plain and reinforced) shall comply with SANS 1200G supplemented by the following Project Specification. Where SANS 1200G and the Project Specification are in conflict, the Project Specification shall take precedence

Wherever the term "Engineer" appears in SANS 1200G or in the following Project Specification this shall be deemed to mean the Principal Agent's representative responsible for this section of the Works

PROJECT SPECIFICATION

The following amplifications, additions and amendments to SANS 1200G shall constitute the Project Specification. Clause numbers refer to either the existing clauses in SANS 1200G or to new clauses, which are related to the existing clauses

1. **SCOPE**
This clause is amended to include:

1.1 This specification does not cover the methods by which the finished structure is to be measured for the purpose of payment and the "Standard System of Measuring Building Work" shall apply

2. **INTERPRETATIONS**

2.1 **SUPPORTING SPECIFICATIONS**
Clause 2.1(b) shall not apply

2.2 **APPLICATION**
This clause shall not apply

4. **PLANT**

4.5 FORMWORK

4.5.2 **Finish**
Unless otherwise stated the quality of all formwork shall be such that the finished surface of the concrete is "Rough" in terms of clause 5.2.1(a)

5. **CONSTRUCTON**

5.2 FORMWORK

5.2.1 **Classification of Finishes**

(a) **Rough**. No treatment of the surface of the concrete will be required after the striking of the formwork. The finish of the concrete need not be more accurate than Degree of Accuracy III

(b) **Smooth**. Imperfections such as small fins, bulges, irregularities, surface honeycombing and surface discolorations shall be made good and repaired by approved methods. The finish of the concrete shall be accurate to Degree of Accuracy II

(c) **Special**

(i) **Smooth and fair**

This class of finish requires the highest standard of concrete work, formwork, accuracy and technique

Concrete placed in any one structure to give this finish shall be made from cement and aggregates from the same source. The grading of the aggregate shall be kept constant

Formwork shall be metal, wrot timber or other approved material in new condition designed and constructed to suit the particular job in hand and with shutter bolts and joints between panels in a regular pattern approved by the Principal Agent. Joints between panels shall be watertight, but the use of sealing tape which will mark the concrete shall not be permitted

Designated joints shall be in the position and of the details shown upon the working drawings. Should the Contractor wish to incorporate further construction joints or amend the position of those shown to suit his own requirements or technique, this may be allowed provided that all design considerations are met, that the prior approval of the Engineer is obtained and that any extra costs are borne by the Contractor

In the case of horizontal construction joints, the top edge of the concrete on the smooth and fair finished side shall be struck true and level with a trowel

Special care shall be taken to ensure that forms are clean and free of all pieces of tying wire, nails and other debris at the time of concreting

The standard of finish shall be such that upon removal of the formwork, no further treatment, other than treatment of bolt holes if required, shall be found necessary to provide a straight, smooth and uniform finish of good quality and consistent colour and texture, free of all honeycombing etc. Any defect shall be made good by either removing and replacing the defective concrete or, in certain instances only, by patching

5.5 CONCRETE

5.5.1.6 **Prescribed mix concrete**

Where prescribed mix concrete is specified the proportions of constituents, the maximum size of coarse aggregate and the estimated minimum compressive strength shall be as specified in the following table:

Class of Concrete	Estimated minimum compressive strength in MPa at 28 days	Maximum nominal size of coarse aggregate in mm	Proportions of Constituents		
			Cement (Parts)	Fine aggregate (Parts)	Coarse aggregate (Parts)
A	7	37,5	1	4	8
B	15	19	1	3	5
C	20	19	1	2,5	3,5

Cement shall comply with SANS 50917-1 of strength 32,5N or higher

Should cement and aggregates be mixed by volume, the contents of a 50kg sack of cement shall be taken to be 0,033m^3

Notwithstanding the requirements contained in SANS 1200G, the Principal Agent may permit certain items of non-structural concrete to be mixed by hand

If the concrete is mixed by hand, it shall first be mixed in a dry state on a clean non-absorbent surface until it is of uniform colour and consistency. Just enough water shall then be added to permit mixing and working, at which stage the concrete shall continue to be mixed until it is of uniform colour and consistency

5.5.1.7 **Strength concrete**

Where strength concrete is specified it shall be designated by its specified strength followed by the size of stone used in its manufacture, eg 30 MPa/19mm

The water/cement ratio shall be as Table 5 of clause 5.5.1.5 for moderate exposure conditions

5.5.1.8 "**No-Fines" concrete**

"No-fines" concrete shall consist of one part cement to eight parts aggregate graded from minimum 6mm to maximum 13mm size

The quantity of water used shall be just sufficient to form a smooth grout which shall completely coat every particle of aggregate and also to ensure that the grout is just wet enough to form a small fillet at each point of contact between the stones. “No-fines” concrete mixed with excessive water, which results in a thin grout, which drops off the aggregate, will be rejected

“No-fines” concrete shall be placed in its final position within 20 minutes of mixing and shall be placed in continuous horizontal layers. Concrete shall be spade worked sufficiently to ensure that it fills the forms but vibrating, tamping or ramming will not be permitted

5.5.3.2 **Ready-mixed concrete**

The use of ready-mixed concrete and the acceptability of test results from a central concrete production facility shall be subject to the written approval of the Engineer

6. **TOLERANCES**

Degree of Accuracy II shall apply for all work unless otherwise stated

7. **TESTS**

7.1 FACILITIES AND FREQUENCY OF SAMPLING

7.1.2 **Frequency of sampling**

7.1.2.5 The frequency of sampling shall be as directed by the Engineer, but not less than one set of cubes from every 50m³ cast

8. **MEASUREMENT AND PAYMENT**

This clause shall not apply

D.2 AGGREGATES OF LOW DENSITY

Aggregates of low density shall comply with SANS 794

D.3 HOLLOW BLOCKS, PREFABRICATED BLOCK BEAMS AND PLANKS, ETC

Blocks, block beams, planks, etc shall be fixed and supported in such a manner that no movement can take place before or during the casting of concrete. No broken components shall be used

D.4 SUPERVISION

A competent and experienced foreman shall superintend personally the whole of the concrete construction and pay special attention to:

(a) The quality, testing and mixing of materials,
(b) The placing and compaction of concrete,
(c) The construction and removal of formwork and
(d) The sizes and position of reinforcement

The Contractor shall obtain the permission of the Principal Agent before commencing concreting of foundations or reinforced structure

No inspection, approval, authorisation to proceed, comment or instructions following from such an inspection, or failure of the Principal Agent to comment on any particular aspect of the work, shall be deemed to relieve the Contractor in any way from his obligation to ensure through his own supervision that the work is constructed in every way in accordance with the Drawings, Specification and Conditions of Contract, nor relieve him from his obligations to make good any fault or defect, nor shall it be deemed that there is any obligation on the Principal Agent to inspect all or any part of the Works or that such inspection is necessarily complete in every respect

D.5 GENERAL

Concrete

Rates for concrete work shall include all “construction joints” other than “designated joints” as defined in SANS 1200G clause 2.4.3 which are measured separately, and for the design of strength concrete mixes and all testing of concrete and materials other than compressive strength testing of concrete samples taken from concrete being placed in the Works. The Contractor shall only be entitled to payment for those samples and compressive strength tests called for by the Engineer and which pass the test requirements

Surface beds cast in panels shall be cast in panels approximately 9m^2

Formwork

Formwork to slabs and beams shall be cambered where required
Rates for formwork to soffits shall include propping not exceeding 3,5m high unless otherwise described. Formwork to walls and columns is not exceeding 3,5m high above bearing level unless otherwise described

Reinforcement

Standard welded steel fabric reinforcement shall be as included in Table 1 of SANS 1024 and shall have 300mm wide laps.

The mass of binding wire is not included in the mass of the reinforcement and the cost thereof shall be included in the rates for the reinforcement

E. PRECAST CONCRETE

E.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Precast concrete paving slabs SANS 541

Cement, water, aggregates and reinforcement shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT

E.2 CONCRETE

Concrete shall be as described under D. CONCRETE, FORMWORK AND REINFORCEMENT and unless otherwise stated shall be prescribed mix concrete Class C but with coarse aggregate of an appropriate size

E.3 MOULDS

Before each casting, moulds shall be coated with a suitable release agent which will not in any way discolour the surface of the finished product or impair its strength. Where items are described as “finished smooth from the mould” or as “precast terrazzo”, moulds shall be made to a high degree of accuracy and shall be such as to leave even and smooth surfaces

E.4 FINISHES TO BLOCKS

Where described as “precast terrazzo”, such surfaces shall have a facing of terrazzo described under O. PLASTERING. The facing shall be poured into the moulds in a wet state (not dry pressed) and thoroughly worked up against finished faces to ensure that it finishes smooth from the mould

Projections shall be rubbed off and faces shall be of even colour and free from blemishes, cracks and other imperfections. Salient angles shall be arris rounded

E.5 CASTING ETC

Items shall be suitably cured, shall not be handled whilst still green and shall not be built in within 21 days of casting

E.6 REINFORCEMENT

Unspecified reinforcement required for manufacturing, handling and erection purposes and for reinforcing projecting and other unwieldy portions of blocks shall be provided by the Contractor at his discretion

E.7 BEDDING, JOINTING AND POINTING

Blocks shall be bedded and jointed solidly in Class I mortar as described under F. MASONRY and shall be pointed with slightly keyed joints

Blocks finished with “precast terrazzo” shall have joints raked out and pointed with slightly keyed joints in tinted waterproofed mortar composed of one part cement and three parts sand to match terrazzo facing

E.8 GENERAL

Precast concrete work shall include reinforcement required for manufacturing, handling and erection purposes, steel rod or wire hooks and/or mortices for lewis bolts required for handling and transporting, any necessary temporary propping and strutting and bedding, jointing and pointing

F. MASONRY

F.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Burnt clay masonry units	SANS 227
Limes for use in building	SANS 523 {Slaked (hydrated) limes}
Aggregates from natural sources – fine aggregates for plaster and mortar	SANS 1090
Concrete masonry units	SANS 1215
Prestressed concrete lintels	SANS 1504
Burnt clay paving units	SANS 1575
Metal ties for cavity walls	SANS 28
Common cement	SANS 50197-1 (Class 32,5N)
Masonry cement	SANS 50413-1 (Class 22,5X)
Concrete masonry construction	SANS 10145
The structural use of masonry	SANS 10164-1
Masonry walling	SANS 10249
Concrete floors	SANS 10109-1&2

F.2 SAND

Sand shall be washed where necessary and screened through a 2,4mm mesh sieve

F.3 BURNT CLAY BRICKS

Burnt clay bricks shall be of nominal size 222 x 106 x 73mm unless otherwise stated

Common bricks shall be General Purpose bricks

Extra hard burnt bricks shall be General Purpose (Special) bricks

Facing bricks shall exhibit a liability to efflorescence not in excess of “Slight” and water absorption when tested in conformity with the requirements of SANS 227 shall not exceed 14%

Particular care shall be taken to preserve arrisses and faces of facing and paving bricks during transit and handling

F.4 CONCRETE BRICKS

Concrete bricks shall have a nominal compressive strength of 8 MPa

F.5 QUARRY TILES ETC

Quarry, cement and similar tiles shall be of approved manufacture, even in shape and size, free from cracks, twists or blemishes and uniform in colour

F.6 WIRE TIES

Wire ties shall be of galvanized steel of the single wire type for solid walls and either the “Butterfly” or Modified PWD type for hollow walls. Ties shall be of sufficient length to allow not less than 75mm of each end to be built into brickwork or embedded in concrete

F.7 BRICKWORK REINFORCEMENT

Brickwork reinforcement shall be manufactured from hard drawn steel wire conforming to BS 785 and shall consist of two 2,8mm diameter main wires with 2,5mm diameter cross wires at 300mm centres welded at intersections

Brickwork reinforcement shall be lapped not less than 300mm at end joints and for a length equal to the width of the widest reinforcement at intersections

F.8 MORTAR

Mortar shall comply with the following table:

1	2	3	4
Mortar Class	Minimum compresive strength MPa	Cement:sand (common cement)	Cement:sand (masonry cement)
I	10	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	5	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1,5	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

Mortar shall be Class II unless otherwise specified

Mortar plasticizers may only be used with the approval of the Principal Agent

The materials shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated

Mortar shall be produced in such quantities as can be used before commencement of set and no mortar that has set shall be used

F.9 COMPO MORTAR

Compo mortar shall be Class III mortar in accordance with clause F.8 but with a lime content of 80 litres

The lime and sand shall be mixed dry until of uniform colour, water added and the mixture turned over until the ingredients are thoroughly incorporated. Immediately before use, the cement shall be mixed in and the requisite amount of water added. Compo mortar shall be produced in such quantities as can be used before commencement of set and no compo mortar that has set shall be used

F.10 BRICKWORK

Wherever practicable, brickwork shall be built in stretcher bond. Unless legitimately required to form bond, no false headers shall be used. English bond shall only be used where specifically so indicated or where stretcher bond is not practicable

Brickwork, unless otherwise described, shall be built in Class II mortar

Bricks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

The brickwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Where necessary, bricks shall be wetted before being laid and the course of bricks last laid shall be well wetted before laying a fresh course upon it

Walls in thicknesses of more than one skin shall have at least five wire ties per square metre. Linings to concrete, unless otherwise specified, shall be tied to the concrete with at least five wire ties per square metre

Hollow walls, unless otherwise specified, shall be built of two half brick skins with cavity between, tied together with at least five wire ties per square metre. The cavities shall be kept free of all rubbish, mortar droppings and projecting mortar. Mortar joints to brickwork shall be not less than 8mm or more than 12mm thick

F.11 BLOCKWORK

Unless otherwise described, all blockwork shall be built in stretcher bond. Whole blocks shall be used except where bats or closers are required to form bond. Blockwork, unless otherwise described, shall be built in Class II mortar

Solid blocks shall be laid on a solid bed of mortar and all joints shall be grouted up solid

Hollow blocks shall be laid in shell bedding, ie only the inner and outer shells of the blocks shall be covered with mortar. Vertical joints shall be similarly formed

The blockwork shall be carried up in a uniform manner, no part being raised more than 1,2m above adjoining work

Clay blocks shall be wetted before being laid and the course of blocks last laid shall be well wetted before laying a fresh course upon it

F.12 CENTRES AND TURNING PIECES

Centres and turning pieces to soffits of arches and lintels shall be left in position for not less than 14 days

F.13 FACE BRICKWORK

Face brickwork shall be built in stretcher bond, unless otherwise specified, to a true and fair face. Perpends shall be vertically aligned

Facing bricks shall be mixed to ensure that the proper blending of bricks within the colour range of each facing brick being used is obtained

F.14 PAVINGS, SILLS, COPINGS, ETC

Clay bricks and tiles shall be wetted before fixing and shall be solidly bedded and jointed in Class I mortar and pointed with slightly keyed joints

G. WATERPROOFING

G.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Bituminous damp-proof courses	SANS 248 (Type FV)
Polyolefin film for damp- and waterproofing in buildings (walls, sills, etc)	SANS 952 (Type B)
Polyolefin film for damp- and waterproofing in buildings (floors and basements)	SANS 952 (Type C)
Mastic asphalt for roofing	SANS 297
Mastic asphalt for damp-proof courses and tanking	SANS 298
Bituminous roofing felt	SANS 92 (Type 60)
Polyolefin film for damp- and waterproofing in buildings (flat roofs)	SANS 952 (Type A)
Chloroprene rubber sheet (for waterproofing)	SANS 580
Sealing compounds for the building industry, two-component, polysulphide base	SANS 110 (Type 2 - Gun Grade)
Sealing compounds for the building and construction industry, two- component, polyurethane base	SANS 1077
The waterproofing of buildings (including damp-proofing and vapour barrier installation)	SANS 10021

G.2 WATERPROOFING TO ROOFS, BASEMENTS, ETC

Waterproofing to roofs, basements, etc shall be carried out by workmen who are experienced in this type of work

G.3 DAMP-PROOF COURSE TO WALLS

All joints in damp-proof course to walls shall be lapped a minimum of 150mm except at junctions and corners where the lap shall equal the full thickness of the wall

H. ROOF COVERINGS ETC

H.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Concrete roofing tiles	SANS 542
Clay roofing tiles	SANS 632
Sawn softwood timber battens	SANS 1783-4
Fibre-cement sheets (flat and profiled)	SANS 685
Aluminium alloy corrugated and troughed sheets	SANS 903
Continuous hot-dip zinc-coated carbon steel sheet of commercial, lock-forming and drawing qualities	SANS 3575
Continuous hot-dip zinc-coated carbon steel sheet of structural quality	SANS 4998
Polyolefin film for damp- and waterproofing in buildings	SANS 952
Metal roofing tiles	SANS 1022
Glass-reinforced polyester (GRP) laminated sheets (profiled or flat)	SANS 1150
Fasteners for roof and wall coverings in the form of sheeting	SANS 1273
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Fixing of concrete interlocking roofing tiles	SANS 10062
Roof and side cladding	SANS 10237
Sheet zinc	BS 849
Sheet lead	BS 1178
Sheet aluminium	BS 1470
Sheet copper	BS 2870

H.2 GALVANIZED STEEL PROFILED SHEETS ETC

Galvanized steel profiled sheets, ridge and hip coverings, etc shall be coated with a minimum of 275 g zinc per m^2 and shall be free of white rust

H.3 GALVANIZED SHEET IRON

Galvanized sheet iron shall be rolled steel sheet coated on both sides with a minimum of 275 g of zinc per m^2 and shall be free from white rust

H.4 NAILING AND SCREWING

Where nailing and screwing is required:

- galvanized iron nails and screws shall be used for galvanized sheet iron and sheet zinc
- copper or copper alloy nails and screws for sheet copper and sheet lead
- aluminium alloy or stainless steel nails and screws for sheet aluminium

H.5 LAPS

Sheet metal flashings shall have minimum 100mm laps and linings to valleys, secret gutters, etc minimum 225mm laps

H.6 GENERAL

Rates for profiled sheet roofing and rolled edges, ridge and hip coverings, flashing pieces, etc of metal, fibre-cement, plastic, etc shall include fixing accessories

I. CARPENTRY AND JOINERY

I.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sawn softwood timber : General requirements	SANS 1783-1
Sawn softwood timber : Stress-graded structural timber and timber for frame wall construction	SANS 1783-2
Sawn softwood timber : Brandering and battens	SANS 1783-4
Softwood flooring boards	SANS 629
Hardwood furniture timber	SANS 1099
Hardwood block and strip flooring	SANS 281
Wooden ceiling and panelling boards	SANS 1039
Laminated timber (glulam)	SANS 1460
Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Wood-wool panels (cement bonded)	SANS 637
Fibre-cement sheets (flat and profiled)	SANS 685
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Particle boards	SANS 50312-1to7
Decorative laminates	SANS 4586
Wooden doors	SANS 545
Fire doors	SANS 1253
Materials for thermal insulation of buildings	SANS 1381-1,2,4&6
Expanded polystyrene thermal insulation boards	SANS 1508
Mild steel nails	SANS 820
Metal screws for wood	SANS 1171
Wood-preserving creosote	SANS 539

Softwood shall bear the relevant SABS mark and shall be ordered in the sizes in which it will be used as no scantlings of marked timber will be allowed. Should SABS marked timber be unavailable, the Principal Agent's prior permission shall be obtained before using unmarked timber

I.2 HARDWOODS

All hardwoods shall be specially selected, well seasoned, free from sapwood and well kiln dried. Meranti shall be Red or Medium Brown Meranti, even in grain and colour, selected from "Standard and Better" quality from Malaysia

I.3 INFECTION AND PRE-TREATMENT OF TIMBER

All timber used on the site, whether for permanent or temporary work, shall be free of borer or other beetle and termite infection. If the work under this contract falls within an area designated under Government Notice R2577 of 197812-29, permanent softwood fixed in the building shall be treated against borer etc in accordance with Government Notice R451 of 1969-03-28 using Class B or C preservative

When treated timbers are cut, the cut surfaces shall be effectively brushed with at least two coats of preservative solution

I.4 CONSTRUCTION IN GENERAL

Where applicable, construction methods shall comply with SANS 10082. Wood and laminate flooring shall be installed in accordance with SANS 10043. Roof trusses shall be manufactured, erected and braced in accordance with SANS 10243

I.5 STRUCTURAL TIMBER

Timbers generally shall be in single lengths and jointing of timbers will only be permitted when the required length is unobtainable. Only the absolute minimum of joints to obtain a particular length will be permitted and such joints are to be evenly spaced along the length of the timber

Finger-jointing of structural timber will be permitted, in which case it shall be manufactured in accordance with SANS 10096

I.6 PLATE NAILED TIMBER ROOF TRUSSES

Plate nailed timber roof trusses shall be of approved design and manufacture and constructed with softwood structural timber by a truss Fabricator holding a current Certificate of Competence awarded by the Institute of Timber Construction

Each roof truss shall have all its members accurately cut and closely butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, precision pressed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions

The design, manufacture and transportation of the roof trusses, bracing, etc shall be under the control of a registered Structural Engineer in accordance with SANS 1900, SANS 10160 and SANS 10163, who shall, after erection, provide a certificate confirming that the design, manufacture, transportation, erection and bracing has been carried out in accordance with this specification

The design shall include for all live loads, wind loads and for dead loads imposed by roof covering, purlins, ceilings, etc

Fully detailed shop drawings of all trusses etc, indicating sizes, bracing, loading, etc, shall be submitted to the Principal Agent for approval prior to fabrication

Unless specific erection instructions are given, erection shall be carried out in accordance with the procedures and recommendations of the manual "The Erection and Bracing of Timber Roof Trusses" published by the Institute for Timber Construction and the Council for Scientific and Industrial Research or as detailed by the designer

Roof trusses and bracing shall include design and preparation of shop drawings

I.7 TONGUED AND GROOVED BOARDING

Tongued and grooved boards for floors, panelling, etc shall be in long varying lengths with joints tightly cramped up and secret nailed. Flooring boarding shall be flush jointed with staggered heading joints and machine sanded after fixing

I.8 JOINERY

Skirtings, cornices, rails, etc shall be in single lengths wherever practicable and shall have splayed heading joints where
necessary. Skirtings shall be trenched at back

All horns of door frames shall be checked and splayed back where frames are fixed projecting or flush with surface and built in

Heads of screws in exposed faces of hardwood joinery shall be sunk and match pelleted

Joinery shall have arris rounded angles and shall be blocked and planted on

I.9 VENEERS

All face veneers shall be of kiln dried timber, free from knots, cracks, patchwork, sapwood and other defects, selected and glued, dried and machine-sanded to a smooth finish. All veneers shall be applied under hydraulic pressure

I.10 DOORS

Flush doors shall have solid timber edge strips with concealed edges. Where doors are to be finished with a transparent finish, the veneer and the edge strips shall be timber of the same species and as far as possible of matching colour. Unless otherwise described all flush doors shall be of interior quality, but where exterior quality doors are specified the glue used shall be of the WBP type

Framed and ledged batten doors described as filled in with V-jointed boarding shall be filled in flush on one side with tongued and grooved vertical boarding, V-jointed on one or both sides and of the thickness stated. The boarding shall be in narrow widths, closely cramped up, rebated or tongued on outer edges and housed to grooves in stiles and rails and twice countersunk brass screwed at each intersection with ledges and braces and the inner edges of the abutting stiles and rails shall be chamfered to form a V-joint at junction with the board

Unless otherwise described double doors shall have rebated meeting stiles

I.11 FIXING

All nails and screws shall be of the size, length and type appropriate to their respective uses. All screws for hardwood joinery work shall be brass

Items described as “plugged” shall be screwed to fibre, plastic or metal plugs at not exceeding 600mm centres. Where items are described as “bolted”, the bolts have been given separately

I.12 ADHESIVES

Adhesives shall comply with BS 1204 and 4071 where applicable. Adhesives used in the manufacture of external joinery exposed to excessive moisture (eg kitchen and laboratory worktops) shall be of the WBP type

J. CEILINGS, PARTITIONS AND ACCESS FLOORING

J.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Gypsum plasterboard	SANS 266
Fibreboard products	SANS 540
Gypsum cove cornice	SANS 622
Wood-wool panels (cement-bonded)	SANS 637
Sawn softwood timber : Brandering and battens	SANS 1783-4
Sawn softwood timber : Timber for frame wall Construction	SANS 1783-2
Fibre-cement boards	SANS 803
Plywood and composite board	SANS 929
Wooden ceiling and panelling boards	SANS 1039
Materials for thermal insulation of buildings	SANS 1381-1&4
Expanded polystyrene thermal insulation boards	SANS 1508
Raised access flooring	SANS 1549

J.2 TONGUED AND GROOVED BOARDING

Tongued and grooved boarding for ceilings shall be in long varying lengths, V-jointed one side and with joints tightly cramped up and secret nailed

J.3 CEILINGS ETC

J.3.1 **Brandering**

Brandering for ceilings and eaves soffit coverings shall be symmetrically arranged with necessary smaller panels. Main branders shall be at right angles to roof timbers, with cross branders cut in between and branders shall be fixed with galvanized wire nails driven in on skew alternately in opposite directions

J.3.2 **Ceiling boards**

Ceiling boards shall be in long lengths symmetrically arranged with necessary smaller panels, closely butted and secured at 150mm centres to brandering with galvanized or cadmium-plated clout-headed nails

J.4 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

J.5 EXPOSED TEE-SYSTEM SUSPENDED CEILINGS

The ceiling panels shall be as described in the items and the panels shall be stiffened at back as recommended by the manufacturer to prevent bowing or sagging

The exposed surfaces of all ceiling panels and supporting members shall be uniform in colour and free from surface blemishes

The suspension grid system shall be an approved patent suspension system comprising 38mm galvanized steel main and cross tee bearers spaced in both directions at centres to suit sizes of ceiling panels used, with the cross bearers fitted between and notched to form flush fit with main bearers. The exposed flange of the tees shall be 25mm wide, covered with a rolled aluminium cap painted a low sheen satin white. Cornices etc shall be as described in the items and shall be finished to match the exposed tees

The main tee bearers shall have holes for cross tees at 300mm centres and holes for hangers at 50mm centres. In addition, main and cross tee bearers shall be holed as necessary for and provided with timber wedges or steel clips where recommended by the manufacturer to prevent ceiling panels from lifting

The web of the exposed cross tee bearers shall extend to form a positive interlock with the main tee bearers and the lower flange shall be cut back to provide a joint free appearance

All hangers shall be galvanized and shall be at centres to meet the requirements of the specification with one end fixed to the suspension grid main bearers and the other end fitted with suitable galvanized fixing cleat securely fixed to the structure. Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducts. Where recommended by the manufacturer, hangers shall be of the rigid type

Component parts and fixings shall be non-corrosive and able to withstand atmospheric pollution. Surfaces of aluminium which are in contact with other materials when fixed, particularly metals, shall be suitably insulated to prevent electrolytic corrosion

Ceilings shall comprise hangers, suspension grid system and ceiling panels, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension systems modified as necessary to work around any pipes or light fittings

J.6 FLUSH PLASTERED SUSPENDED CEILINGS

Gypsum plasterboard panels of the specified thickness generally in 1200mm widths and in long lengths shall be fixed grey side down with self-tapping screws to the suspension system with the joints between boards loosely butt jointed and covered with 50mm wide strips of self-adhesive fibre tape

The plasterboard panels shall be finished with gypsum skim plaster trowelled to a smooth polished surface to the thickness etc recommended by the manufacturer

The suspension system shall be an approved patent concealed suspension system consisting of galvanized mild steel bearers suspended on approved non-rusting metal hangers spaced generally at 1200mm centres or to suit layout of air-conditioning ducts and other services etc above ceiling with one end bolted to the bearer and the other end fitted with a galvanized fixing cleat securely fixed to the structure as required

Fixing points shall be agreed to by the Principal Agent before any power shot fixings are made. Hangers shall not be suspended from air-conditioning ducting

Ceilings shall comprise hangers, suspension system, ceiling panels and plaster finish, shall be constructed in a manner suitable for carrying air-conditioning diffusers and light fittings in the positions required, shall be set out to layouts approved by the Principal Agent and shall have the standard suspension system modified as necessary to work around any pipes or light fittings

K. FLOOR COVERINGS, WALL LININGS, ETC

K.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Semi-flexible vinyl floor tiles	SANS 581
Resin modified vinyl floor tiles	SANS 586
Flexible vinyl flooring	SANS 786
Hardwood block and strip flooring	SANS 281
Wood mosaic flooring	SANS 978
Textile floor coverings (pile construction)	SANS 1375
Textile floor coverings (needle-punched construction)	SANS 141
Carpet underlays	SANS 1419
The installation of wood and laminate flooring	SANS 10043
The installation of resilient thermoplastic and similar flexible floor covering materials	SANS 10070
The installation of textile floor coverings	SANS 10186
Sheet linoleum (calendered types), cork, carpet and linoleum tiles	BS 810
Solid rubber flooring	BS 1711
Felt backed linoleum	BS 1863

K.2 LAYING OF MATERIAL

Floor tiles shall be laid with continuous joints in both directions

Patterned floor coverings shall be matched at joints

K.3 GENERAL

Floor coverings, wall linings, skirtings, nosings, etc shall include all preparatory work to screeded or plastered surfaces etc, priming coats and adhesives

Floor coverings and wall linings shall be dressed around and into corners. Wood block and wood mosaic flooring shall be sanded with a sanding machine and sealed with a coat of approved penetrating sealer

Plastic handrails shall have welded and polished butt joints

L. IRONMONGERY

L.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Locks, latches and associated furniture for doors. (Domestic type)	SANS 4
Kitchen cupboards: Built-in and free-standing	SANS 1385
Single action closers	SANS 1510
Padlocks	SANS 1533
Fasteners	SANS 1700
Chalk writing boards for schools	CKS 36

L.2 KEYS

Locks shall have the minimum possible number of interchangeable keys. Cylinder locks and locks described as "en suite" shall be clearly marked with consecutive numbers and each key shall be punched with the corresponding number of the relative lock

L.3 FIXING

Unless otherwise described, ironmongery is to be fixed to wood

Items described as "plugged" shall be screwed to fibre, plastic or metal plugs

Screws, bolts, etc for fixing of ironmongery shall be of matching metal and finish, except for aluminium ironmongery or ironmongery fixed to aluminium in which cases stainless steel screws may be used

All necessary preparation of pressed steel door frames for the fixing of ironmongery to the frames has been included with the pressed steel door frames

L.4 KITCHEN CUPBOARDS

Steel cupboards shall be finished with baked enamel. Tops of floor cupboards shall have laminated plastic covering

Cupboards shall be fitted with all necessary hinges, handles, catches, etc. Cupboards shall be securely fixed with all necessary screws and fibre, plastic or metal plugs

Where cupboards are described as a "series", tops shall be continuous and cupboards shall be bolted or screwed together, including bolts, screws, holes, etc

M. STRUCTURAL STEELWORK

M.1 SPECIFICATION

All structural steelwork shall comply with SANS 1200H or 1200HA as applicable. Structural fasteners shall comply with
SANS 1700

Whenever the term “Engineer” appears in SANS 1200H or 1200HA or in the following Project Specification this shall be deemed to mean the Principal Agent’s representative responsible for this section of the Works

M.2 PROJECT SPECIFICATION INCORPORATING AMPLIFICATIONS, ADDITIONS AND AMENDMENTS TO SANS 1200H AND 1200HA

The following amplifications, additions and amendments to SANS 1200H and SANS 1200HA shall apply and clause numbers refer to either the existing clauses in the relevant SANS or to new clauses which are related to the clauses therein

SANS 1200H

3.1.1 **Weldable structural steel**

Weldable structural steel shall comply with SANS 1431

5.1.2 **Contractor provides shop details**

The Contractor shall be responsible for the preparation of all shop detail drawings

5.1.3 **Engineer provides shop details**

This clause shall not apply

5.3.9 **Protective treatment**

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

8. **Measurement and payment**

This clause shall not apply

SANS 1200HA

5.2.10 **Protective treatment**

Structural steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and all surfaces shall be primed as specified to a minimum dry film thickness of 30 micrometres before leaving the workshop. Upon delivery to the site and again after erection all bared surfaces shall be made good with similar primer

5.3.7 **Repairs to paint and site painting**
This clause shall not apply

8. **Measurement and payment**

This clause shall not apply

N. METALWORK

N.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Fasteners	SANS 1700
Expanded metal	SANS 190-1&2
Windows and doors made of rolled mild steel sections	SANS 727
Hot-dip galvanized zinc coatings on fabricated iron and steel articles	SANS 121
Strongroom and vault doors	SANS 949
Anodized coatings on aluminium (for architectural applications)	SANS 999
Steel door frames	SANS 1129
Mushroom- and countersunk-head bolts and nuts	SANS 1143
Welding of metalwork	SANS 1044
Adjustable glass-louvred windows	CKS 413
Aluminium sheet and strips	BS 1470
Aluminium extruded tube and hollow sections	BS 1474
Aluminium bars and sections	BS 1476

N.2 STEEL

Steel shall be mild steel of approved commercial quality. Steelwork shall be cleaned and prepared by wire brushing in accordance with SANS 10064 and given one coat of primer as specified before leaving the workshop

N.2.1 **Galvanizing of steel**

Steelwork described as “galvanized” shall be galvanized by means of the hot-dip process after fabrication. Where welding on site is unavoidable, such welded joints shall be cleaned down and cold galvanized to approval

N.3 STAINLESS STEEL

Stainless steel shall be AISI Type 304 stainless steel and shall be buffed to an even satin finish. Stainless steel screws shall be used for fixing stainless steel

N.4 ALUMINIUM

Aluminium extrusions shall be of 6063-T6 alloy and temper. Aluminium sheet and strips shall be of 1200-H4 alloy and temper.
Joints in all aluminium members shall be formed in an approved manner so that the joints are practically invisible. Screw heads, pins, rivets, etc shall be concealed as far as possible. 300 Series stainless steel screws and bolts shall be used for jointing and fixing aluminium work

The surfaces of all aluminium which are in contact with other materials when fixed shall be suitably insulated with a non-absorbent insulating material to prevent corrosion. All aluminium work shall be suitably protected against damage, deterioration or discolouration caused by mortar droppings, paint, etc by taping with removable tape, covering with temporary casings or by covering with motor oil

N.4.1 **Anodizing of aluminium**

Aluminium described as “anodized” shall be treated with Grade 25 coating thickness for exterior use or Grade 15 for interior use as specified, to the required finish. All alloys to be anodized shall be suited to anodizing

N.5 BOLTS AND NUTS

Nuts shall be of at least the strength grade appropriate to the grade of bolt or other threaded element with which they are used

N.6 SCREWING OF METALWORK TO STEEL, WOOD, CONCRETE, ETC

Metalwork described as “screwed” to steel, wood, etc or “plugged” to brickwork, concrete, etc shall be fixed at not exceeding 500mm centres, with necessary holes, countersinking, threading, screws, set screws, self-tapping screws and fibre, plastic or metal plugs

N.7 BOLTING OF METALWORK

Where metalwork is described as “bolted” to steel, wood, brickwork, concrete, etc the bolts are measured elsewhere

N.8 WELDING OF METALWORK

All welds shall be cleaned and filed or ground off smooth to approval. All welded joints shall be continuous

N.9 METALWORK GENERALLY

Metalwork shall have all sharp edges ground smooth. Tubular and pipe work shall include running joints. Rails etc described as “continuous” shall be in long lengths with welded joints

N.10 PRESSED STEEL DOORS, FRAMES, ETC

N.10.1 **Door frames**

Frames shall project not less than 20mm into floor finish. Except where described as galvanized, frames shall be primed as specified before leaving the factory. Frames are to jambs and heads of openings. Frames for single doors shall be provided with two 100mm steel butt hinges and an adjustable striking plate for a mortice lock and frames for double doors shall be provided with four 100mm steel butt hinges. Butt hinges shall be steel butts with loose pins, welded to frames. Where necessary mortar caps shall be welded to frames and back plates shall be welded on behind tappings for screws

N.10.2 **Cupboard door frames**

Cupboard door frames shall be as described in N.10.1, but with thresholds of unequal channel section, two 100mm steel butt hinges to hanging stiles, two 75mm steel butt hinges to hanging stiles above transoms, necessary striking plates for mortice locks and keeps for barrel bolts

N.10.3 **Combination doors and frames**

Combination doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be standard design and required profile, with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with two reinforcing rails welded on. The door shall be provided with two lever mortice lock with lock box welded to inside. Doors shall be welded to steel butts

N.10.4 **Transformer room doors and frames**

Transformer room doors and frames shall be manufactured of 1,6mm thick steel plate. Frames shall be as described in N.10.1. Doors shall be of standard design with a 44mm wide edge all round, vertical reinforcing ribs pressed in and with three reinforcing rails welded on. Single doors shall be fitted with a padlock cleat and two 100mm brass pintle hinges and double doors shall be fitted with a padlock cleat, two 150mm bolts and four 100mm brass pintle hinges. Each leaf shall be fitted with a louvered ventilation panel of standard design backed with 6mm mesh galvanized wire vermin proof screen

N.10.5 **Sizes**

The frame widths given refer to unfinished wall thicknesses

N.10.6 **Glazing beads**

Where specified, glazing beads shall be 12 x 12mm standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

N.11 STEEL WINDOWS, DOORS, ETC

N.11.1 **Windows, doors, etc**

All fittings to windows, doors, etc shall be chromium plated. Fixed lights and opening sashes shall be in single squares. Windows etc of single unit construction shall have weather bars at transoms above opening sashes

Composite windows not of single piece construction shall be coupled with standard coupling mullions and transoms that correspond with the window section used

Kicking plates and panels shall be 1,6mm metal plate fixed with standard metal glazing beads mitred at angles and countersunk screwed on at not exceeding 300mm centres with self-tapping screws

Except where described as galvanized, windows, doors, burglar bars, etc shall be primed as specified before leaving the factory

N.11.2 **Burglar bars and flyscreens**

Where windows are described as fitted with burglar bars or flyscreens, these shall be standard type fitted over opening sashes

N.12 ADJUSTABLE LOUVRE UNITS

Adjustable louvre units shall be suitable for hand or longarm operation

Louvre units shall include glass louvres with polished edges and installation, including holes, screws, rivets, preparation of openings, etc

N.13 ALUMINIUM WINDOWS AND DOORS

The foregoing preambles “N.4 – ALUMINIUM” shall apply to aluminium windows, doors, etc in all respects in so far as they are applicable. Aluminium windows and doors shall be manufactured from extruded aluminium members of 6063T6, 6261-T6 or 6082-T6 alloy and temper

Ancillary members such as sills, flashings, infill panels and the like formed from flat sheet material shall be of an appropriate alloy selected from 1200, 3004 or 5251 complying with BS 1470 of a temper suitable for the method of forming and a composition suitable for anodizing or painting as required

Windows, doors, etc shall be of an approved standard system, manufactured by an approved firm experienced in this type of work, and shall meet with the minimum recommended performance requirements as set out by the Association of Architectural Aluminium Manufacturers of South Africa (AAAMSA) in the latest edition of the Selection Guide

The fittings for all opening sashes shall be substantial and, unless otherwise described, shall be of high quality aluminium alloy finished to match the windows, doors, etc on which they occur. Samples of all fittings shall be supplied to the Principal Agent for approval

Top, side and bottom hung opening sashes shall be hung on two aluminium hinges with 300 Series stainless steel pins, nylon bushes and stainless steel washers. Side hung sashes shall have fasteners and sliding stays, top hung sashes shall have peg stays and bottom hung sashes shall have spring catches and concealed arms

Projected out sashes shall have aluminium fasteners and concealed arms of a non-corrosive material compatible with aluminium

The frames which are to be built into openings in brickwork shall be fitted with the manufacturer’s standard type fixing lugs, not less than 20 x 3 x 150mm long, screwed to frame and placed one near each corner and intermediately not more than 450mm apart to sides, top and bottom and where fixed to concrete reveals, wood sub-frames or to preformed openings in brickwork shall have countersunk holes for screws, one near each corner and intermediately not more than 450mm apart to sides, top and bottom

N.13.1 **Glazing beads**

Where so described, openings and sashes of windows and doors shall be fitted with approved channel section aluminium glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc and neatly mitred. Screws where necessary shall be of aluminium or 300 Series stainless steel and have pan or raised heads finished to match the beads

N.13.2 **Finishes**

Windows, doors, etc described as “anodized” shall be treated with Grade 25 coating thickness. Windows, doors, etc described as “factory painted” shall have an electrostatically applied oven baked polyester paint coating not less than 25 micrometres thick

N.13.3 **General**

Aluminium windows, doors, etc shall include glass as described, fixing in position, sealing and protection against damage, deterioration or discolouration by taping with removable tape or covering with temporary casings or motor oil and removing same on completion

N.14 STRONGROOM AND RECORD ROOM DOORS

Strongroom and record room doors shall not be built in as the work proceeds, but shall be fixed later in the openings provided. The Contractor shall ensure that the lock or other important parts of the door are not tampered with. Should any such tampering occur, the Contractor will be held responsible and at the Principal Agent’s discretion shall provide a new door or lock and keys at his own expense. The keys shall not be delivered together with the doors to the building site. The Contractor shall arrange for the manufacturer to send the keys direct to the Principal Agent per registered post. If these instructions are not complied with, a new lock and keys shall be provided by the Contractor at his own expense

N.15 STEEL ROLLER SHUTTERS

Roller shutters shall be of approved manufacture comprising curtain, vertical channel guides and top mechanism. The curtain shall be constructed of 1mm thick machine-rolled galvanized interlocking slats with mild steel end locks spot welded to alternate strips. The bottom shall be provided with a galvanized rail riveted on and vertical edges shall slide in galvanized channel guides formed of steel not less than 2,5mm thick bolted to sides of openings

The mechanism shall be covered in a galvanized sheet iron box. The ungalvanized sections shall be primed as specified before leaving the factory

O. PLASTERING

O.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 225X)
Limes for use in building	SANS 523 {Slaked (hydrated) limes}
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090

O.2 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any plastering or other in situ finishes are commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key. Preparatory coats shall be thoroughly scored and roughened to form a proper key

O.3 FINISH

All coats of paving and plastering shall be executed in one operation without any blemishes

O.4 SCREEDS

Screeds shall be composed of one part cement and four parts sand

O.5 CEMENT RENDER

Cement render shall be composed of one part cement and three parts sand finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Cement render finish shall be divided into panels not exceeding $6m^2$ with V-joints and deep trowel cuts

O.6 GRANOLITHIC

Granolithic shall be composed of one part cement, one part fine sand, two parts coarse sand and one part granite or other approved stone aggregate that will pass through a 5mm sieve, finished with a steel trowel to a smooth polished surface and cured for at least seven days after laying

Coloured granolithic shall be carried out in two coats in one operation and shall be tinted to the required colour with approved colouring pigment mixed into the finishing coat. Under no circumstances is the pigment to be sprinkled on and trowelled in after the granolithic is laid

Granolithic shall be divided into panels not exceeding $6m^2$ with V-joints and deep trowel cuts

O.7 TERRAZZO

Terrazzo shall be applied in two coats. The undercoat shall be composed of one part cement and three parts sand and shall be finished with a wooden float. The finishing coat shall be composed of one part cement and two parts marble or stone aggregate of a colour and size to obtain the required colour and texture and shall be at least 12mm thick, and applied before the undercoat has dried out. The finishing coat shall be compacted by tamping or rolling until superfluous water has been expelled, finished with a steel trowel and cured for at least seven days after laying. The finished surface shall show at least 80% of the aggregate

Surfaces described as “polished” shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as “polished” shall be polished by machine using various grades of abrasive and grouting with tinted cement as necessary between polishings

Surfaces described as “brushed” shall be brushed with a steel wire brush on the day the terrazzo has been laid to expose the aggregate as required

Where required, brass or other dividing strips shall be embedded in the undercoat to finish flush with the finished surface

Three sample blocks, each size 300 x 300mm, as separately measured shall be prepared for approval by the Principal Agent and kept in an accessible place on the site until the completion of the contract

O.8 SKIRTINGS

Skirtings shall not exceed 25mm thick and shall have a fair edge with arris or rounded external angle at top edge or V-joint to finish flush with plaster and coved or square junction with floor finish

O.9 THICKNESS OF PLASTER

All plaster, other than skim plaster, shall be not less than 10mm and not more than 20mm thick

O.10 CEMENT PLASTER

Cement plaster shall comply with the following table:

1	2	3
Plaster Class	Cement:sand (common cement)	Cement:sand (masonry cement)
I	1:4 or 50kg to 130 litres	1:3 or 50kg to 100 litres
II	1:6 or 50kg to 200 litres	1:5 or 50kg to 170 litres
III	1:9 or 50kg to 300 litres	1:6 or 50kg to 200 litres

O.11 COMPO PLASTER

Compo plaster shall be composed of one part cement, two parts lime and nine parts sand

O.12 GYPSUM SKIM PLASTER

Gypsum skim plaster shall be pure gypsum plaster finished with a steel trowel

O.13 TWO COAT PLASTER WITH GYPSUM FINISH

Two coat plaster with gypsum finish shall comprise an undercoat of Class II cement plaster finished with a wooden float and a finishing coat of gypsum skim plaster

O.14 ROUGH-CAST PLASTER

Rough-cast plaster shall be applied in two coats. The undercoat shall be composed of one part cement and five parts sand finished with a wooden float. The finishing coat shall be composed of one part cement and three parts stone aggregate that will pass through a 4mm sieve. The finishing coat shall be flicked on with a machine before the undercoat has set to obtain an even texture

O.15 FINE ROUGH-CAST PLASTER

Fine rough-cast plaster shall be as for rough-cast plaster but the finishing coat shall be composed of one part cement and three parts coarse sand

0.16 GENERAL

Rates for plastering described as being on vertical surfaces of brickwork or blockwork shall include concrete columns, beams and lintels flush with the face of the wall

P. TILING

P.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glazed ceramic wall tiles and fittings	SANS 22
Ceramic wall and floor tiles	SANS 1449
Common cement	SANS 50197-1(Class 32,5N)
Masonry cement	SANS 50413-1(Class 22,5X)
Aggregates from natural sources – Fine aggregates for plaster and mortar	SANS 1090
The design and installation of ceramic tiling	SANS 10107

P.2 TILES, MOSAICS, ETC

Tiles, mosaics, etc shall be even in shape and size, free from cracks, twists or blemishes and uniform in colour

P.3 PREPARATORY WORK

Surfaces shall be clean and free of oil and thoroughly wetted directly before any tiling is commenced. Concrete surfaces shall be slushed with a mixture of one part cement and one part coarse sand or otherwise treated to form a proper key

P.4 CERAMIC WALL AND FLOOR TILING

Where tiles are fixed to plaster or screeds with an adhesive, the adhesive shall be as recommended by the manufacturer of the tiles. Joints shall be straight, continuous and flush pointed with an approved grouting compound

P.5 GENERAL

Tiling described as “on walls” is on brick walls or block walls unless otherwise stated and shall include concrete columns, beams and lintels flush with the face of the wall

Q. PLUMBING AND DRAINAGE

Q.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Sheet metal

Sheet zinc	BS 849
Sheet aluminium	BS 1470
Sheet copper	BS 2870

Rainwater systems

Unplasticized poly(vinyl chloride) (PVC-U) components for external rainwater systems	SANS 11

Pipes and fittings

Steel pipes : Pipes suitable for threading and of nominal size not exceeding 150mm	SANS 62
Plain-ended solid drawn copper tubes for Potable water	SANS 460
Malleable cast iron fittings threaded to ISO 7-1	SANS 4
Polyethylene (PE) pipes for water supply – Specifications	SANS 4427
Cast iron fittings for asbestos cement pressure pipes	SANS 546
Vitrified clay sewer pipes and fittings	SANS 559
Reinforced concrete pressure pipes	SANS 676
Concrete non-pressure pipes	SANS 677
Cast iron pipes and pipe fittings for use above ground in drainage installations	SANS 746
Unplasticized poly(vinyl chloride) (PVC-U) sewer and drain pipes and pipe fittings	SANS 791
Fibre-cement pipes, couplings and fittings for sewerage, drainage and low-pressure irrigation	SANS 819
Pitch-impregnated fibre pipes and fittings and jointing	SANS 921
Unplasticized poly (vinyl chloride) (PVC-U) pressure pipe systems	SANS 966-1
Unplasticized poly(vinyl chloride) (PVC-U) soil, waste and vent pipes and pipe fittings	SANS 967
Rubber joint rings (non-cellular)	SANS 974-1
Copper-based fittings for copper tubes	SANS 1067-1&2
Fibre-cement pressure pipes and couplings	SANS 1223
Polypropylene pressure pipes	SANS 1315
Non-metallic waste traps	SANS 1321-1&2
Vent valves for drainage installations	SANS 1532
Heavy duty cast iron pipe fittings for drainage and gas and water supplies	BS 78

Lead pipes	BS 602
Cast iron pressure pipes for use in drainage and gas and water supplies	BS 1211
Stainless steel pipes for use with compression fittings	BS 4127
Sanitary fittings etc	
Stainless steel sinks with draining boards (for domestic use)	SANS 242
Stainless steel wash-hand basins and wash troughs	SANS 906
Stainless steel sinks for institutional use	SANS 907
Stainless steel stall urinals	SANS 924
Acrylic sanitary ware : Baths	SANS 1402-1
Glazed ceramic sanitary ware	SANS 497
WC flushing cisterns	SANS 821
Flush valves for WC flushing cisterns	SANS 1509
Taps, valves etc	
Water taps (metallic bodies)	SANS 226
Water taps (plastic bodies)	SANS 1021
Single control mixer taps	SANS 1480
Float valves	SANS 752
Plastic floats for ball valves	SANS 1006
Functional control valves and safety valves for Domestic hot and cold water supply systems	SANS 198
Cast iron gate valves for waterworks	SANS 664
Automatic shut-off flush valves for water closets and urinals	SANS 1240
Check valves (flanged and wafer types)	SANS 1551-1&2
Fire extinguishers	
Portable refillable fire extinguishers	SANS 1910
Portable rechargeble fire extinguishers : Halogenated hydrocarbon type extinguishers	SANS 1151
Water heaters and fire hose reels	
Fixed electric storage water heaters	SANS 151
Fire hose reels (with semi-rigid hose)	SANS 543
Drainage covers, gratings, etc	
Cast iron surface boxes and manhole and inspection covers and frames	SANS 558
Cast iron gratings for gullies and stormwater drains	SANS 1115
The installation of polyethylene and poly (vinyl chloride) (PVC-U and PVC-M) pipes	SANS 10112
Water supply and drainage for buildings	SANS 10252-1&2

Cast iron step irons BS 1247

Q.2 GENERAL

Q.2.1 Excavations

Excavations shall be deemed to be in “earth”. Backfilling to excavations shall be executed in 300mm thick layers, watered and compacted. Surplus excavated material shall be spread and levelled over site as directed

Q.2.2 Concrete

Unreinforced concrete shall be Class B prescribed mix concrete and reinforced and precast concrete shall be Class C prescribed mix concrete

Q.2.3 Brickwork

Brickwork shall be of extra hard burnt bricks built in Class I mortar

Q.2.4 Plaster

Plaster shall be 1:3 cement plaster finished smooth with a steel trowel. All angles shall be rounded

Q.2.5 Diameters of pipes etc

Diameters stated for pipes, traps, valves, etc are internal diameters except PVC, polyethylene, stainless steel and copper pipes and traps for which external diameters are stated

Q.3 SHEET METAL WORK

Q.3.1 Galvanized sheet iron

Galvanized sheet iron shall be rolled steel sheet coated on both sides with Class Z275, unless otherwise specified, zinc coating complying with SANS 3575/4998. Sheets shall be free from white rust

Q.4 EAVES GUTTERS

Q.4.1 Galvanized sheet iron gutters

Galvanized sheet iron gutters shall have beaded edges and all joints shall be riveted and soldered. Angles shall be strengthened with 50 x 0,6mm galvanized sheet iron strips soldered on over the internal faces of mitres

Gutters shall be fixed with falls to outlets on 30 x 3mm galvanized mild steel brackets, bent to the shape of gutters, with front ends taken up to the underside of beaded edge of gutter and each screwed to roof timbers or bolted to fibre-cement fascias with 6mm galvanized gutter bolts. Gutters shall be bolted to brackets at front with 6mm galvanized gutter bolts, one to each bracket

Brackets shall be positioned at joints of gutters and intermediately at not exceeding 1,25m centres

Q.4.2 Fibre-cement gutters

Fibre-cement gutters shall have spigot and socket joints. Gutters shall be fixed with falls to outlets on standard aluminium alloy brackets, screwed or bolted to roof timbers or fascias

Q.4.3 Unplasticized polyvinyl chloride (UPVC) gutters

Gutters shall be fixed with falls to outlets on brackets as supplied by the manufacturer, screwed or bolted to roof timbers or fascias

Q.4.4 Aluminium gutters

Aluminium gutters shall be roll formed on site to required lengths and profiles from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides with baked enamel and two coats of silicone modified polyester to a total minimum thickness of 20 micrometres. Angles, stopped ends, etc shall be prefabricated units pop riveted to gutters with joints sealed with mastic. The guttering shall be in continuous lengths between angles, stopped ends, etc

Q.5 RAINWATER PIPES

Q.5.1 Galvanized sheet iron pipes

Galvanized sheet iron pipes shall have seams at the back and shall be jointed with soldered slip joints. Pipes shall be fixed to walls etc with galvanized mild steel holderbats spaced at not exceeding 2m centres with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.2 Fibre-cement pipes

Fibre-cement pipes shall have spigot and socket joints. Pipes shall be fixed to walls etc with standard aluminium alloy holderbats with tails driven in or cut and pinned in 1:3 cement mortar

Q.5.3 Unplasticized polyvinyl chloride (UPVC) pipes

Pipes shall be fixed to walls etc with patented UPVC or aluminium clips and holderbats as supplied by the manufacturer of the pipe

Q.5.4 Aluminium pipes

Aluminium pipes and fixing straps shall be formed from 3003H14-3SH4 alloy strip not less than 0,7mm thick factory coated on both sides as described for aluminium gutters. Pipes shall be in continuous lengths with formed angles, offsets, shoes, etc. Pipes shall be fixed to walls etc with 20 x 0,6mm straps at not exceeding 1,5m centres screwed to 25 x 75 x 100mm hardwood chamfered and oiled blocks plugged to walls

Q.6 STORMWATER CHANNELS

In-situ concrete stormwater channels shall be constructed of unreinforced concrete with segmental channel formed in top. Channels shall be laid to falls on a well rammed earth bottom and finished smooth on exposed surfaces

Precast concrete channels shall be of 25 MPa concrete, generally in 1m lengths, finished smooth from the mould on exposed surfaces, laid to falls on a well rammed earth bottom, jointed in 1:3 cement mortar and pointed with keyed joints

Q.7 JOINTS

Joints of pipes not covered by SANS shall be as follows:

Pipes	Joints
Fibre-cement, concrete, pitch-impregnated fibre and vitrified clay pipes for use under ground in non-pressure pipe lines	Flexible joints in accordance with the manufacturer's instructions
Cast iron for use above ground	Spigot and socket joints with tarred rope yarn and caulking compound or Plain ended joints with stainless steel couplings with neoprene rubber sleeves
Cast iron for use below ground	Spigot and socket joints with tarred rope yarn and caulking compound
Galvanized mild steel	Joints of screwed galvanized steel sockets or bolted galvanized iron flanges Screwed joints with plastic jointing tape or hemp Flanged joints which shall be bolted and provided with rubber gaskets and with flanges screwed to pipes
Joints between pipes of different materials shall be as follows:	
Between cast iron and mild steel	Spigot and socket joints with tarred rope yarn and caulking compound
Between cast iron and clay	Spigot and socket joint with semi-dry cement caulking and 1:2 cement mortar fillet
Between mild steel or copper and clay	Spigot and socket joint with either bitumen or semi-dry cement caulking and 1:2 cement mortar fillet

Q.8 FIXING OF PIPES

Pipes shall be fixed as follows:

Q.8.1	Galvanized mild steel (except those stated in Q.8.3)	To walls with galvanized mild steel brackets for pipes not exceeding 80mm diameter and with galvanized cast iron hinged holderbats with brass pins or bolts for pipes exceeding 80mm diameter; both types with tails cut and pinned in 1:3 cement mortar To woodwork with screw-on type galvanized mild steel holderbats
Q.8.2	Copper and stainless steel	To walls with brass holderbats or screw-on type two- piece spacing clips for pipes not exceeding 75mm diameter and with purpose made holderbats for pipes exceeding 75mm diameter; both types with tails cut and pinned in 1:3 cement mortar To woodwork with screw-on type brass holderbats
Q.8.3	Cast iron and galvanized mild steel for soil, waste and vent pipes	To walls with hinged cast iron holderbats with brass bolts and with tails cut and pinned in 1:3 cement mortar To woodwork with screw-on type galvanized mild steel holderbats
Q.8.4	Polyethylene, polypropylene and patented UPVC or unplasticized polyvinyl chloride	To walls, woodwork, etc with aluminium clips and holderbats as supplied by the manufacturer of the pipes
Q.8.5	Fibre-cement	To walls with aluminium alloy holderbats with tails cut and pinned in 1:3 cement mortar

Q.8.6	Pipes fixed to ceilings	Fixed with holderbats and standard or purpose made hangers, with extended hangers for pipes to falls

Q.9 PIPES LAID IN GROUND

Q.9.1 **Water pipes etc**

Water pipes, gas pipes, etc laid in ground shall be at least 400mm deep from the crown of the pipe to the finished surface

Q92 **Drain pipes**

Excavations taken out too deep shall be filled in with selected soil and compacted. Backfilling to sides and up to 300mm above plastic pipes shall be free from stone or hard substances which will not pass a 10mm mesh

Q.10 CLEANING EYE LIDS

Cleaning eye lids for drain pipe fittings shall be fixed and sealed as follows:

Pipe fittings	**Method of sealing and fixing**
Fibre-cement	Sealed with synthetic rubber or bituminous mastic packing and fixed with screws
Vitrified clay	Polypropylene lid sealed with synthetic rubber packing and pressed into position
Polypropylene and unplasticized polyvinyl chloride	Sealed with synthetic rubber packing and screwed on or pressed into position
Cast iron	Sealed with tallow or putty and fixed with non-ferrous metal screws
Galvanized malleable cast iron and cast brass	Sealed with synthetic rubber packing and screwed in

Q.11 CLEANING EYES

Cleaning eyes shall consist of cast iron frames and lids with letters “CE” (or “SO”) cast in lids. The lids shall be secured with non-ferrous metal screws. Frames shall be jointed to vertical drain pipes. Cleaning eyes shall be encased in unreinforced concrete taken up to ground level and plastered on exposed surfaces

Q.12 INSPECTION EYE MARKER SLABS

Inspection eye marker slabs shall be 350 x 350 x 50mm thick precast concrete finished smooth from the mould, with letters “IE” (or “IO”) formed in top and placed flush in ground or paving

Q.13 GULLEYS

Gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete to finish flush with gulley head top and taken up to at least 50mm above surrounding finished surfaces. The outer top edge of the concrete encasing shall be splayed and the exposed surfaces plastered

Q.14 DISHED GULLEYS

Dished gulleys shall be built up of traps, vertical piping and gulley heads with loose gratings, all encased in unreinforced concrete and with dished unreinforced concrete hopper size 450 x 450mm overall around gulley head with rounded kerb 50mm wide to front and sides and 25mm wide at back, 100mm high above top of dishing and the hopper plastered on exposed surfaces. Top of hopper shall be taken up to at least 50mm above surrounding finished surfaces

Q.15 SUMPS, CATCHPITS, INSPECTION CHAMBERS, ETC

Q.15.1 **Rainwater sumps**

Rainwater sumps shall be built with half-brick sides on 100mm thick unreinforced concrete bottom, plastered internally on walls and with 80mm high unreinforced concrete kerb at top rebated for grating or cover and plastered on exposed surfaces

Q.15.2 **Stormwater catchpits and inspection chambers**

Brick catchpits and inspection chambers shall be built with one-brick sides on 150mm thick unreinforced concrete bottom projecting 100mm beyond walls all round, plastered internally on walls and with 100mm thick reinforced concrete cover slab with opening rebated for frame of grating or cover and plastered on exposed surfaces

Precast concrete catchpits and inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LE-1 of SANS 1200LE. Precast concrete manhole sections and slabs shall comply with SANS 1294 and pipes shall be SC type and in accordance with SANS 677

Q.15.3 **Sewer inspection chambers**

Brick inspection chambers shall be built as for brick stormwater inspection chambers and with the bottom of the chamber well benched around half round channels, bends, junctions, etc up to sides of chamber in unreinforced concrete finished smooth

Precast concrete inspection chambers shall be constructed in accordance with the applicable details shown on Drawing LD-5 of SANS 1200LD. Precast concrete manhole sections and slabs shall comply with SANS 1294 and the pipes shall be SC type in accordance with SANS 677

Q.15.4 **Stormwater drain junction boxes**

Junction boxes shall be formed of 150mm thick unreinforced concrete bottom and sides to suit the various sizes of the drain pipes and built after the pipes have been laid, with the sides taken up slightly higher than the highest pipe and finished level on top for and covered with a 75mm thick loose precast concrete slab

Q.15.5 **Step irons**

Where inspection chambers exceed 1,2m deep, cast iron step irons shall be provided, built into the wall at 300mm centres and staggered regularly in vertical rows spaced at 200mm centres horizontally

Q.16 STOPCOCK AND METER BOXES

Stopcock and meter boxes shall be built with half-brick sides with a cast iron box and lid complying with SANS 558 set in 75mm wide unreinforced concrete kerb for the full depth of the cast iron box and plastered on exposed surfaces

Q.17 VALVE CHAMBERS

Valve chambers shall be built with half-brick sides with 100mm thick unreinforced concrete kerb to top with rebate for cover and frame to finish flush with adjacent paving or finished ground level and plastered on exposed surfaces

Q.18 CAST IRON COVERS, GRATINGS, ETC

All cast iron covers, gratings, frames and surface boxes shall be coated with preservative solution. Frames shall be cast into concrete. Covers, except covers to stormwater drainage or electrical cable inspection chambers, shall be set in grease

Q.19 CONCRETE ENCASING

Concrete encasing for pipes, bends, traps, gulleys, grease traps, etc shall be unreinforced concrete not less than 100mm thick all round

Q.20 SANITARY FITTINGS

Q.20.1 General

Glazed ceramic, acrylic and porcelain enamelled sanitary fittings and component parts shall be white. Accessories for sanitary fittings shall be chromium plated brass

Waste outlets for baths, basins, etc shall comprise chromium plated brass waste union with grating, rubber washers and locknut, fitted with rubber or vulcanite plug on a chromium plated brass chain and stay

Q.20.2 Stainless steel sanitary fittings

Stainless steel sinks and draining boards, basins, wash troughs and urinals shall be AISI Type 304 satin finished stainless steel. All stainless steel fittings shall be treated on the back with a vermin proof sound deadening coating. Sinks, basins and wash troughs shall be provided with 40mm diameter screwed waste outlets

Q.20.3 Precast concrete wash troughs

Reinforced precast concrete wash troughs shall have a sloping front with ribbed rubbing surface and shall be finished smooth on exposed faces with top edges and inner angles rounded. Each compartment shall be fitted with a 40mm diameter waste outlet. Wash troughs shall each be supported on two reinforced precast concrete pedestals finished smooth on exposed faces

Q.20.4 Steel baths

Steel baths shall be porcelain enamelled internally and painted externally and fitted with waste outlet and overflow grating with coupling

Q.20.5 Acrylic resinous baths

Acrylic resinous baths shall be fitted with waste outlet and overflow grating with coupling

Q.20.6 Acrylic resinous wash hand basins

Acrylic resinous wash hand basins and vanity units shall have a smooth high gloss finish, with outlet openings, soap recesses, tap-holes and integral overflow and shall be fitted with waste outlet and overflow grating with coupling

Q.20.7 Glazed ceramic sanitary fittings

Sinks shall be provided with integral weir overflows

Washdown closet pans shall have washdown action and be provided with smooth finished injection moulded polypropylene heavy duty double flap seats fixed with non-ferrous bolts. Urinal channels shall be provided with outlet gratings fitted in bitumen

Q.20.8 Flush and sparge pipes

Flush pipes for high level cisterns shall be of plastic or drawn galvanized steel

Flushpipes for low level cisterns shall be of plastic

Flush and sparge pipes for urinals with high level cisterns shall be of chromium plated copper piping and of the sizes recommended by the manufacturer of the urinal

Q.21 INSTALLATION OF SANITARY FITTINGS

Sanitary fittings shall be installed as follows:

Q.21.1 Precast concrete wash troughs

Precast concrete wash troughs shall be bedded on top of pedestals which shall be bedded on floors in 1:3 cement mortar

Q.21.2 Stainless steel wash troughs and wash hand basins

Stainless steel wash troughs and wash hand basins shall be fixed to walls on a pair of galvanized mild steel gallows brackets bolted to wall with 6mm diameter expanding bolts

Q.21.3 **Acrylic resinous wash hand basins**

Acrylic resinous wash hand basins shall be fixed to walls on a pair of standard painted cast iron brackets screwed to underside of basin and bolted to wall with 6mm diameter expanding bolts

Q.21.4 **Ceramic wash hand basins**

Ceramic wash hand basins shall be fixed to walls on a pair of standard painted steel or cast iron brackets bolted to wall with 6mm diameter expanding bolts

Q.21.5 **Acrylic resinous baths**

Acrylic resinous baths shall be bedded in 1:5 cement mortar on three cross rows of bricks or bedded solid on a layer of dry river sand and fixed to wall with galvanized steel brackets under edges (in the middle of the sides against walls) bolted to wall with 6mm diameter expanding bolts and sealed along top against wall finishes with patent mildew resistant silicone rubber

Q.21.6 **Washdown closet pans and cisterns**

Washdown closet pans shall be bedded on floors in 1:3 cement mortar. Cisterns shall be fixed to walls with 6mm diameter expanding bolts

Q.21.7 **Ceramic urinals**

Ceramic stall and slab urinals shall be bedded on floors and against walls in 1:3 cement mortar. Slabs, channels, treads, etc shall be jointed in 1:3 cement mortar and pointed in white cement

Ceramic bowl urinals shall be fixed to walls on standard steel brackets bolted to wall with 6mm diameter expanding bolts. Cisterns shall be fixed to walls on standard brackets bolted to wall with 6mm diameter expanding bolts

Q.21.8 **Stainless steel urinals**

Stainless steel stall and slab urinals shall be bedded on floors in 1:3 cement mortar and with backs and sides against walls filled in with fine unreinforced concrete. Cisterns shall be fixed as cisterns for ceramic urinals

Q.22 FIRE HOSE REELS

Fire hose reels shall each be fitted with a 30m long hose of internal diameter not less than 19mm with a 4,8mm internal diameter chromium plated brass nozzle

Q.23 FIRE EXTINGUISHERS

All fire extinguishers shall be fully charged

Q.24 TESTS

Sewerage pipe lines, sanitary plumbing including fittings and hot and cold water supply and fire service shall be tested to the approval of the Principal Agent and Local Authority

The Contractor shall provide all testing apparatus, material and labour required for the tests and inspections

R. GLAZING

R.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Glass in building	SANS 50572-1 to 5
Glazing putty for wooden and metal window frames	SANS 680
Silvered glass mirrors for general use	SANS 1236
Safety and security glazing materials for buildings	SANS 1263-1 to 3
Sealing compounds for the building industry, one Component, silicone-rubber based	SANS 1305
The installation of glazing materials in buildings	SANS 10137
Work on glass for glazing	SANS 1817

R.2 PUTTY ETC

Glazing putty shall be Type I for wooden sashes and Type II for steel sashes. Putty for glazing to unpainted hardwood shall be tinted to match the colour of the wood

Back putty shall not exceed 3mm thick. Putty shall not be painted until it has formed a surface crust, and if the putty does not form a surface crust it shall be replaced

Butyl putty shall be used where glass is to be fixed in aluminium sashes with glazing beads

Non-setting compounds shall be used where laminated glass is fixed in sashes with glazing beads

S. PAINTWORK

S.1 MATERIALS AND WORKMANSHIP

Materials and workmanship shall comply with the following standards:

Decorative paint for interior use	SANS 515
Decorative high gloss enamel paints	SANS 630
Primers for wood (for external work)	SANS 678
Primers for wood (for internal work)	SANS 678
Zinc phosphate primer for steel	SANS 1319
Undercoats for paints (except emulsion paint)	SANS 681
Aluminium paint	SANS 682
Varnish for interior use	SANS 887
Emulsion paints	SANS 1586

Materials for paintwork shall be delivered to the site in unopened containers and applied in accordance with the manufacturer's instructions. Materials shall be suitable for application to the surfaces concerned. Undercoats shall be as
recommended by the manufacturer of the finishing coats

S.2 PREPARATORY WORK

S.2.1 **Plastered surfaces etc**

Plastered surfaces shall be thoroughly inspected and, if necessary, washed down and brushed in order to remove any traces of efflorescence and allowed to dry completely before any paint finish is applied. Before any paint is applied, holes, cracks and irregularities in plaster and other surfaces shall be filled with a suitable filler and finished smooth. Unfinished concrete surfaces shall have all projections rubbed off and shall be thoroughly cleaned with a spirits-of-salts solution (1 part concentrated spirits-of-salts to 4 parts water)

S.2.2 **Metal surfaces**

Metal surfaces shall be sanded, where necessary, washed with a suitable cleaning agent and left smooth

Protective coatings applied by manufacturers to galvanized metal surfaces shall be removed with a suitable agent and the surfaces washed down

Rust, grease and defective factory primers on metal surfaces, as well as pitch on cast iron pipes, shall be removed

S.2.3 **Wood surfaces**

Knots in woodwork shall be treated with knotting. Minor blemishes shall be filled with a suitable filler. Wood surfaces shall be sanded smooth

S.3 APPLICATION OF PAINT

Primers to wood surfaces shall be applied by brush. Primers to other surfaces may be applied by roller with the approval of the Principal Agent. Undercoats and finishing coats may be applied by brush or roller

Paint shall not be sprayed on except in the case of cellulose and other special paints where spray painting is the accepted method of application

Before subsequent coats of paint are applied the previous coat shall be properly dry and shall be sanded down where necessary

S.4 COLOUR SCHEME

A colour scheme comprising colours and the blending of colours approved by the Principal Agent shall be used for the paintwork. The tints of the undercoats shall closely match the finishing coat but nevertheless differ sufficiently to indicate the number of undercoats. Colour samples of the finishing coats shall be provided in all cases

S.5 GENERAL

Paintwork shall include the preparation of surfaces, filling, stopping, sanding and priming of nail heads and screws. Where windows, sashes, etc are to be painted, the rebates of the openings to be glazed shall be primed

T. PAPERHANGING

T.1 PREPARATORY WORK

Plaster surfaces to be papered shall be dry, thoroughly cleaned down, filled with a suitable filler as necessary to obtain a smooth surface and painted thereafter with a single coat of emulsion paint

Wood surfaces to be papered shall be knotted, stopped and sanded

T.2 PAPERHANGING

Wallpaper shall be hung in vertical long lengths. Vertical joints shall be close-fitted and plumb and the paper shall be tightly fitted to skirtings, ceilings, door frames, windows, etc. Horizontal joints will not be allowed

U. EXTERNAL WORKS

U.1 GENERAL

U.1.1 Excavations

Excavations shall be deemed to be in “earth”

U.2 LANDSCAPING

U.2.1 Topsoil

Topsoil shall vary between sandy loamy soil and sandy clayey soil with an ideal composition of 15% to 25% clay, 10% silt/sludge and 65% to 75% sand, with a minimum ratio of organic material of 2%. All material shall be free of harmful deposits as well as unwanted seeds

U.2.2 Compost

Compost shall be composed of properly decayed organic material, free from harmful deposits, salts, seeds and other waste material and shall have a pH of more than 4 and less than 7

U.2.3 Mulch

Mulch shall be approved organic material free from small particles of bark residue, fungus, disease, etc

U.2.4 Lime

Lime shall be agricultural lime of an approved manufacture

U.2.5 Fertilizer

Fertilizer shall be of the type specified, mixed thoroughly into the soil as prescribed. No fertilizer shall be added more than two weeks prior to planting

U.2.6 Backfilling

Backfilling in plant and tree holes shall be composed of two parts topsoil to one part compost mixed thoroughly together and compacted by foot in 100mm layers. Fertilizer shall only be added if prescribed

U.2.7 Pebbles

Pebbles shall be smooth with a uniform colour and form and ranging in size from 50mm to 75mm diameter. Removal of pebbles from river beds shall be done selectively to avoid any major disruption to the ecology of the river and environment

U.2.8 Plant material

U.2.8.1 General

All plant material (plants, shrubs, trees, etc) shall be obtained from a registered nursery and shall be free from damaged parts, parasites, fungus, other plant diseases or insects. No container-bound plants will be acceptable

U.2.8.2 Trees

The height of trees described in the bills of quantities shall be measured from the top of the root ball to the top of the tree. Where trees are pruned, such prune wounds shall not be more than 25mm in diameter and be sealed with an approved sealing compound

U.2.8.3 Shrubs and small plants

Shrubs and small plants shall meet the requirements for height and spread as specified. Thin or sparsely branched plants shall not be accepted. Branches shall be well spread with ample young branches and the plant as a whole shall be growing well

U.2.8.4 Groundcover

Groundcover shall be dense and healthy and shall comply with the minimum requirements for leaf density as specified

Formal grass shall be planted as runners in 50mm deep drills at 150mm centres unless otherwise described

U.2.9 **Cultivation and preparation of planting areas etc**

All surface rocks and stones larger than 50mm shall be removed before commencing cultivation and preparation. The entire area shall be ripped and rotavated using approved machinery by breaking up the earth to a depth of 300mm at 600mm centres in both directions, unless otherwise described, and then levelled. Where fertilizer or compost is specified, it shall be worked into the topsoil after ripping and rotavation to a depth of 300mm and finished to final levels

All fertilizer to areas to be grassed shall be strewn on the final layer before final finishing is commenced and worked mechanically into the top 150mm soil

U.2.10 **Planting procedure**

Holes for shrubs and groundcover shall be as follows:

Shrubs – 500 x 500 x 500mm deep

Groundcover – 300 x 300 x 300mm deep (if not planted in drills)

Holes for trees shall be square, of adequate size to accommodate the root system and suitable for the height of the tree

All plant material shall be watered thoroughly before careful removal from the container and planted in the prescribed planting medium with the top of the soil in the container finishing level with the surrounding area. Water dams size 800mm diameter x 150mm deep and 500mm diameter x 150mm deep shall be formed around trees and shrubs respectively and all planting material shall be watered immediately after planting. Trees, shrubs, etc shall be properly staked or stayed, depending on their size, on the prevailing windy side with patent tree ties

U.2.11 **Maintenance**

All planted areas shall be maintained for a period of three months after practical completion as defined in the contract with the exception of hydroseeded areas which shall be maintained for 12 months after an acceptable cover has been obtained

This maintenance shall consist of keeping clear of weeds and litter, loosening soil where necessary every two weeks, replacing damaged, diseased or dead plants, pruning, cutting and mowing as necessary and watering so as to keep the plant material in a healthy growing condition

U.3 ROADWORK

U.3.1 **Filling**

Filling under roads etc shall be of inert material having a maximum plasticity index of 10, free from large stones etc spread, levelled, watered and compacted in layers not exceeding 200mm thick to a density of 98% Mod AASHTO

U.3.2 **Preparation of sub-grade**

The sub-grade shall be prepared by scarifying for a depth of 150mm and compacting to a density of 98% Mod. AASHTO, including trimming to the correct levels and grades

U.3.3 **Base course**

The base course shall consist of crusher run stone compacted to a density of 98% Mod. AASHTO and finished to the correct levels and grades

U.3.4 **Weed killer**

The completed sub-grade shall be treated with an approved total weed killer

U.3.5 **Bituminous premix road surfacing**

Before spreading the premix material, the base course shall be swept clean and free from all dust, dirt and loose particles, lightly wetted and sprayed with a prime coat of cutback bitumen complying with SANS 308 at the rate of 1 litre/m^2

The material shall consist of semi-gap graded crushed stone aggregate having the following grading:

Sieve size (mm)	% By mass passing sieve
13,2	100
4,75	45-60
2,36	42-55
1,18	40-52
0,3	25-45
0,075	5-12

The aggregate shall be mixed with bituminous road tar binder complying with SANS 748 at the rate of 1m3 of stone to 120 litre of emulsion at atmospheric temperature

The binder shall be added to the stone and mixed until the stone is uniformly coated. Thereafter 5% of clean, dry quartzitic sand shall be added and mixed until evenly distributed through the mixture

The premix shall be applied only after the primer has dried out completely and shall be spread immediately after mixing and rolled on the same day

Spreading shall be done evenly over the prepared base course to a loose depth sufficient to ensure the consolidated thickness specified

Rolling shall commence as soon as the binder has set sufficiently, followed after three days by a final rolling

U.3.6 **Precast concrete block road surfacing**

Paving blocks shall be precast concrete blocks complying with SANS 1058

Blocks shall be laid to true levels and grades on and including a 25mm thick layer of river sand with joints exceeding 2mm and not exceeding 6mm wide

After laying, the paving shall be compacted by means of a vibrating plate compactor, with joints between the blocks filled in, after compaction, by sweeping in fine sand

Infill areas at edges of paving constituting less than 25% of a full block unit and of 25mm minimum dimension shall be filled with Class C prescribed mix unreinforced concrete with top surface trowelled smooth to match blocks. Smaller areas shall be filled with 1:4 cement mortar

U.3.7 **Precast concrete kerbs and channels**

Precast concrete kerbs and channels shall comply with SANS 927, generally in 1m lengths and finished smooth from the mould on exposed surfaces. Kerbs and channels shall be bedded on and jointed in 1:3 cement mortar and pointed with keyed joints. Bases to kerbs shall be Class B prescribed mix unreinforced concrete

U.3.8 **Process control tests**

The Contractor shall be responsible for carrying out all necessary process control tests on the density and moisture content of the compacted sub-grade, base course, etc to ensure that the required compaction is being attained

U.4 FENCING ETC

U.4.1 **Materials**

Materials and workmanship shall comply with the following specifications and requirements :

Wooden poles, droppers, guardrail posts and spacer blocks	SANS 457-2&3
Zinc-coated fencing wire	SANS 675
Prefabricated concrete components for fencing	SANS 1372
Chain-link fencing and its wire accessories	SANS 1373

Fasteners	SANS 1700
Anti-intruder fences	CKS 451
Metal droppers and standards	CKS 451

U.4.2 **Galvanized wire**

All galvanized wire shall be zinc coated wire with Class B zinc coating. Straining wire shall be 4mm diameter galvanized mild steel wire. Tie wire shall be 1,6mm diameter galvanized mild steel wire

U.4.3 **Plastic coated wire**

Plastic coated straining wire shall be 3,15mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,95mm

Plastic coated tie wire shall be 1,8mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 2,5mm

U.4.4 **Galvanized barbed wire**

Galvanized barbed wire shall be 2,5mm diameter mild steel double strand reverse twist zinc coated barbed wire with Class A zinc coating

U.4.5 **Galvanized wire mesh**

Galvanized wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire

U.4.6 **Plastic coated wire mesh**

Plastic coated wire mesh shall be 50mm mesh chain link netting of 2,5mm diameter Class C galvanized mild steel wire plastic coated to an overall diameter of 3,25mm

U.4.7 **Galvanized welded wire mesh**

Galvanized welded wire mesh shall be fabricated from pre-galvanized wires to rectangular pattern welded together at each intersection using a welding method which forms a zinc oxide protective coating at each intersection

U.4.8 **Razor wire**

Razor wire shall be fabricated from 2,5mm diameter galvanized high tensile steel wire fitted with razor barbs formed of 0,5mm galvanized steel strip clipped on at 37,5mm centres

U.4.9 **Metal droppers and standards**

Droppers shall be of ridged T-section mild steel with a mass of not less than 0,55kg/m. Standards shall be of I- section mild steel with a mass of not less than 3kg/m or of ridged edge Y-section mild steel with a mass of not less than 2,5kg/m, and shall be driven 600mm deep into the ground

Droppers and standards shall have either galvanized, sprayed metal or painted finish as described in the items and in accordance with CKS 451. In addition, those surfaces of standards embedded in the ground shall be coated with bitumen

U.4.10 **Metal posts and stays**

Posts and stays shall comply with CKS 451 and shall be of black galvanized mild steel tubing as specified

Straining posts shall be of 108mm outside diameter x 3mm wall thickness tubing, each with a 300 x 300 x 5mm thick mild steel sole plate and a steel cap welded on

Intermediate posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate and a steel cap welded on
Stays for straining posts shall be of 50mm outside diameter x 2,5mm wall thickness tubing, each with a 230 x 230 x 5mm thick mild steel sole plate welded on and fixed raking with top end flattened, bent, holed and bolted to straining post with and including a 5mm diameter galvanized mild steel bolt with nut and washer

Posts and stays shall have either galvanized or painted finish as described in the items and in accordance with CKS 451. In addition, sole plates and portions of posts and stays embedded in ground shall be coated with bitumen

U.4.11 **Timber posts, stays and droppers**

Timber posts shall be 125mm diameter, timber stays shall be 100mm diameter and timber droppers shall be 30mm diameter

U.4.12 **Prestressed concrete posts and stays**

Prestressed concrete posts and stays shall be finished smooth from the mould and uniformly stressed by means of high tensile longitudinal prestressing wires with concrete cover to wires of not less than 20mm

Corner and straining posts shall be 100 x 100mm and intermediate posts and stays shall be 75 x 75mm. Stays shall be fixed raking with top end splayed and glued to posts with a suitable epoxy compound

U.4.13 **Bolts, nuts and washers**

Straining eye bolts, hinge bolts, bolts, nuts and washers shall be galvanized

U.4.14 **Precast concrete fencing**

Precast concrete fencing over sloping terrain shall be stepped to suit terrain, including the use of increased lengths of posts as necessary, excavation, etc

U.4.15 **Concrete bases**

Bases in ground for posts, stays, etc shall be of Class B prescribed mix concrete with tops 100mm below surface of ground

Sizes of concrete bases for posts, stays, etc shall be as follows:

Straining and gate posts	–	450 x 450 x 700mm deep
Intermediate posts	–	300 x 300 x 600mm deep
Stays	–	600 x 300 x 500mm deep

U.4.16 **Security overhangs**

Where fencing is described as having a security overhang, the posts and standards shall have angular (single arm) extension arms

Extension arms shall be attached to the posts and standards by welding in the case of steel and by spiking in the case of timber

Concrete extension arms shall be cast integrally with the post or standard

Barbed wire to security overhangs shall be tightly strained and wired at each intersection with extension arms and shall have barbed wire braces at 450mm centres between standards, posts, etc wired onto the barbed wire and the top straining wire

U.4.17 **Gates**

Gates shall be formed of 40mm outside diameter x 2,5mm wall thickness mild steel tubular framework with welded joints, strongly braced as necessary and filled in with wire mesh as described above, properly strained and securely bound to framework with tie wire

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 2
GENERAL ELECTRICAL SPECIFICATION

GENERAL ELECTRICAL SPECIFICATION

(ALL IN CONTRACTS)

1. CONDUIT AND CONDUIT ACCESSORIES

1.1 Conduit

Conduit shall be of steel galvanised internally and externally, either solid drawn, or welded and not less than 20 mm diameter, with all rough edges removed. All tube ends removed. All tube ends are to be reamed. With screwed conduit one threaded end is to be fitted with a coupling and the other end is to be protected against damage.

UPVC conduit may only be used if permitted by the Head : Works and only in those areas which he may specify. In this case this conduit shall be according to SABS 950.

Conduit accessories, which are secured to the conduit by means of lugs, screws or setscrews, are not acceptable.

General requirements of conduiting to SABS IEC 60614 (1).

Metal conduits shall be fully in accordance with SABS 1065 PART I.

1.2 Conduit Accessories

All conduit accessories shall be galvanised both internally and externally and comply with SABS 1065 – PART II.

All screwed conduit fittings shall be of malleable cast iron.

Where fittings are fitted with covers, the covers shall be of galvanised pressed steel secured with brass screws.

1.3 Flexible Conduit

Flexible conduit shall be of the plastic covered metal type complete with brass connectors to the approval of the Head : Works.

2. INSTALLATION OF CONDUIT

2.1 General

Except where cables are specified for certain circuits, the installation(s) shall be tubed throughout in steel conduit. Split conduit is not permitted. All conduits shall, wherever possible, or unless otherwise specified or agreed, be concealed in the structural work.

Except where agreed or otherwise specified or indicated on the drawings, all conduit to points shall run via the ceiling and floor slabs or roof space. In damp situations and where exposed to the weather, the conduits shall be so installed as to avoid, as far as possible, the condensation of moisture within them. All running joints are to be painted with an approved metal primer.

Mechanical and Electrical continuity must be maintained throughout the installation. Each length of conduit and every conduit fitting must be inspected for defects and all sharp edges or burrs must be removed before it is installed. All joints are to be tightly fitted together.

Running joints with long threads, where used, are to be fitted with a lock nut and the running thread shall not be longer in length than a coupling and lock unit.

In conduits smaller than 32 mm elbows and normal bends are not to be used but conduits are to be set to the required angles.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible tubing (see Par 1.3).

No wiring shall be drawn into conduits until the conduits have been installed.

Where more than one socket outlet is connected on a circuit, the conduit shall be looped from the one outlet box to the following outlet box.

All switch-boxes, socket outlet boxes and any other purpose made metal box including distribution board trays shall be suitable treated against corrosion before installation with "Rustodian" or other approved metal primer.

All conduits shall be securely fixed into chases, and all flush switch and socket outlet boxes must be firmly embedded in cement mortar.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, worktops, etc, before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dados and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish.

2.2 **In Roof Spaces**

The conduit in roof spaces shall be installed parallel or at right angles to the roof truss members and shall be secured at centers not exceeding 1,2 m by means of galvanised saddles nailed to the timbers with galvanised clout nails. Crampets will not be allowed.

Crossing of conduits is to be avoided wherever possible. Where unavoidable, one conduit must be neatly set over the other. Where a number of conduits have to run back to the distribution board or switchboard, they shall run parallel to the distribution board or switchboard, and at saddle distance to each other wherever possible.

Conduit runs from distribution boards shall terminate in fabricated sheet steel draw boxes installed in the roof above the distribution boards. Each draw box shall be fabricated from 1,6 mm galvanised sheet steel with welded corners and

suitably treated against corrosion with "Rustodian" or other approved primer and finished in aluminium paint.
Each draw box is to be fitted with slip-on lid with a 13 mm skirt. The box shall be 75 mm deep, shall be rectangular in shape and the size of conduits entering or leaving the box. Conduits shall be fixed to the box by means of couplings and brass male bushes or lock nuts and brass bush-nuts.

Conduit droppers shall be neatly cut into timber wall plates and set to face the right direction. All sets must be uniform. Conduits may be set at angles only where droppers or ceiling points are within 230 mm of roof members.

No conduits are to be run over the top of gangplanks or trapdoors.

Draw-in boxes with metal covers shall be provided where required and shall be installed near the gangplanks, if any. All inspection conduit fittings in open roof spaces shall face upwards to facilitate wiring and to permit easy inspection. Three-way conduit boxes shall be used for tee-off purposed in open roof spaces. Inspection tees are not to be used except where otherwise agreed or specified.

All conduits extended into a roof space with a roof clearance of more than 900 mm shall be set onto the beam and extended into the roof for a distance where there is sufficient clearance. Under flat roofs or where there is less than 900 mm clearance, the conduit shall be installed as specified for tubing in concrete slabs, right angle bends should be kept to a minimum and the shortest route taken.

Where false ceilings occur they shall be tubed as called for in the detailed specification. Conduits in restricted spaces and run as for concrete slabs must however, be installed in a neat and orderly manner.

Conduits to ceiling points for all types of fittings must be firmly supported and shall terminate in a back entry conduit box. The conduit box shall be taken through to the face of the ceiling and finish flush. Where the ceiling brandering interferes with the installation of the ceiling point specified, the Contractor must trim the brandering to allow the conduit box to be taken through to the face of the ceiling as specified. Luminaires must be bonded to the conduit box by means of metal threaded screws.

2.3 **<u>In Concrete Slabs</u>**

In order not to delay building operations, the Contractor must ensure that all conduits and conduit fittings, which are to be cast in concrete, are laid in good time. The Contractor shall have a competent Electrical Artisan standing by during casting of concrete, etc, to ensure that the conduit boxes are not damaged during casting of concrete.

Draw boxes, expansion joints boxes and round conduit boxes are to be provided where necessary.

Deep type conduit boxes shall be used for side entering conduits and normal shallow boxes may be used for back entry conduits. No elbows, bends or sharp sets will be allowed in concrete slabs except in cases of conduits of 40 mm diameter or when larger sweeping bends will be permitted.

Common drawn and/or inspection boxes shall be used where there is more than one circuit involved. They shall be installed in lavatories, storerooms, or other inconspicuous places. Covers shall be of hardboard neatly finished to match the finished ceiling or wall surface, and shall be fitted parallel to the wall or ceiling. All boxes, etc. are to be securely fixed to the shuttering to prevent displacement when concrete is cast. All conduits must be laid off the deck, supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete beams and slabs.

Expansion joints shall be shown on layout drawings and shall consist of a metal box in which one conduit is fixed and the other capable of movement with the building's expansion and contraction. Earth continuity of these joints shall be maintained by means of stranded copper conductors bonded to the conduits in the box as shown on the drawing.

Earth conductors and clamps buried in concrete are not permitted.

Conduits must be spaced sufficiently apart to allow for proper concreting. All joints shall be painted with an approved metal primer after completion of the tubing installation, prior to the concreting. All exposed parts of the conduit installation shall be suitably, protected against corrosion at the discretion of the Head : Works.

Before any concrete slab is cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

2.4 **Surface Work**

All conduit must be plumbed and leveled and only straight lengths shall be used.

In cases where doorframes are out of plumb, or fittings, beams etc, are out of level, the conduit shall be run parallel with the doorframes, fittings, beams etc.

No threads shall be visible when the conduit installation is complete, except on running couplings.

Running couplings shall only be used where unavoidable and shall be fitted with a sliced coupling as a lock nut.

No inspection or normal bends are to be used on surface work, except with the approval of the Works Inspector and where conduits of 32 mm diameter or larger are used. Conduits shall be set uniformly and inspection couplings shall be used where necessary.

Fittings, tees, boxes, couplings, etc, are to be cut into the surface to allow the conduit to fit flush against the surface or alternatively spacer bar saddles may be used. Conduit is to be bedded into any irregularities to avoid gaps between the surface and the conduit.

Double sets, where used, shall be parallel with no twists and shall be as short as possible. All conduits, which terminate at metal trays, boxes, industrial switches and plugs shall do so by means of couplings and male bushes. No couplings will be permitted in droppers of lengths less than 3.6 m.

Where crossings of conduits is unavoidable, purpose made metal boxes shall be used. The length of the box is to be 8 times the diameter of the largest conduit, the width one and half times the sum of the diameter of al the conduits, and the depth one and half times the diameter of the largest conduit with a minimum depth of 50 mm. The box shall be fitted with a neatly fitting cover and the finish shall be in keeping with the general layout. Where a number of conduits are to be installed in parallel they shall be evenly spaced and grouped under one purpose made saddle. Conduit spacing shall not exceed 10 mm. The purpose made saddle shall be made of 25 x 2 mm galvanised steel strip or other approved material, formed to suit the curvature of the various conduits and shall be drilled and fixed by means of screws between. Saddles shall be spaced at intervals not exceeding 1.8 m, except for conduit droppers, which shall be saddled centrally between ceiling and accessory box. All saddles are to be secured to the wall by means of black japan or brass rounded head screws. Distribution boards, draw boxes, industrial switches and plugs, etc, shall be neatly recessed into the surface of plastered walls to avoid double sets or alternatively spacer bar saddles may be used. On face brick walls the conduit shall be tightly set into the switch or plug.

In situations where there are not ceilings, the conduits are to be run along the wall plates and tie beams.

No wiring is to be carried out until the tubing has been inspected and approved.

Where spacer bar saddles are used, these shall be installed at centers of 1 m for horizontal and 1.5 m for vertical runs.

All conduits shall be painted with an approved enamel paint to match the background colour.

2.5 Future Extensions

In roof spaces with a minimum clearance of 900 mm, switch and plug drips for future use are to be set 300 mm in the correct direction and shall be threaded and fitted with plugged couplings. Where the roof over a slab is to be removed for future expansions, conduits for future use are to terminate 40 mm above tie beams and shall be threaded and fitted with plugged couplings.

Where future extensions are to be below slabs, all switch, socket outlet and other conduit droppers are to terminate 130 mm below slabs or beams with conduit ends threaded and fitted with plugged couplings.

Where provision is made for future extensions to a concrete slab, all conduits required for future use are to project 130 mm from the slab. Conduit projections are to be painted with an approved anti-corrosive paint and must be fitted with plugged couplings.

All switch, plug and other outlet boxes required for future use shall be fitted with approved blank cover plates.

Unused lighting outlet boxes are to be fitted with round hardboard or plastic covers with brass cover screws, which shall fit flat on the finished ceiling.

2.6 Fixing of Conduits

Conduits shall be fixed to switch and socket outlet boxes by means of couplings and brass male bushes or lock nuts and brass bush nuts. Couplings and male bushes to be used on all surface work. 2.7 **Chases and Building Work**

Except where otherwise specified conduits, switch boxes, plug boxes and distribution boards are to be built into the brick walls by the Contractor. It will, however, remain the responsibility of the Contractor to ensure that the above-mentioned boxes and distribution boards are correctly built in and are firmly bedded and cemented into the walls, plumb and square.

The Contractor shall, unless otherwise specified, do all necessary chasing and cutting of bricks. All electrical materials (e.g. conduits up to 40 mm for UG cables, conduits, conduit boxes, distribution boards etc) must be supplied by the Contractor who must arrange to have these on site, and positioned when required for the building work. A competent Electrical Artisan must be in attendance and ensure that the conduits etc are correctly installed and positioned.

The Contractor is to ensure that tubing installed in chases is securely nailed and covered by a layer of 5:1 mixture of coarse sand and cement, finished flush with brickwork and that switch and plug boxes finish flush with the finished wall surface.

The Contractor is to ensue that below distribution boards connected by means of under-ground cables, a 230 mm wide by 115 mm deep cavity in the wall from the cable pipe to the distribution board is to be provided by the Contractor, or alternatively, cable sleeves as specified.

3. PLUGGING OF WALLS

Only approved plastic plugs shall be used to secure conduit or equipment up to 5kg mass. The use of round-headed screws only will be permitted.

Heavier equipment shall be secured by means of approved expansion bolts.

Wood plugs and any plugs in the joints in brick walls are not permitted.

4. FIXING TO CONCRETE CEILINGS

Ceilings mounted equipment other than luminaires shall be secured to concrete ceilings by means of expansion bolts, shot bolts or “Robot” tools bolts or as expressly specified for the service.

5. WIRING

5.1 PVC Insulated Single Core Medium Voltage Conductor

The conductor is to be of high conductivity copper wire insulated with Polyvinyl Chloride. The cable shall be finished in the required colours and shall be in accordance with SABS 1507 and 1574.

Circuit wiring shall be of the Loop-in system and no wiring joints in the conduit or conduit fittings will be permitted. Not more than two conductors of a kind will be allowed at any outlet point. the end strands of cables, whether single or looped which have to be connected to terminals of switched, plugs, lamp-holders, fittings

and distribution boards, etc, are to be tightly twisted together. Cutting away of wire strands of any cable will not be allowed. Only one circuit in any one conduit will be permitted unless otherwise specified.
Conductor sizes shall be as follows except where otherwise specified:

Lighting circuits	1,5 mm^2	
Bells circuits	1,5 mm^2	
Clock circuits	1,5 mm^2	
Incinerator circuits	2,5 mm^2	
Ironing circuits	2,5 mm^2	with 2,5 mm^2 insulated earth wire
Plug circuits	4,0 mm^2	with 2,5 mm^2 insulated earth wire
Geyser circuits	4,0 mm^2	with 2,5 mm^2 insulated earth wire
Heater circuits	4,0 mm^2	with 2,5 mm^2 insulated earth wire
Stove	10 mm^2	with 6,0 mm^2 insulated earth wire
Motor circuits		
Up to 4kW single phase	4,0 mm^2	with 2,5 mm^2 insulated earth wire
Up to 11kW three phase	4,0 mm^2	with 2,5 mm^2 insulated earth wire

To avoid deformation of PVC insulated cables at temperatures in excess of 57° C, they shall not be brought directly on to the terminals of appliances such as electric heaters, or any other electrical appliances or apparatus (including luminaires) which have a temperature in excess of 57° C. They shall terminate in a suitable terminal box as near to the appliance or fittings as possible and connect up from thereon, with heat resistant conductor.

6. MOUNTING AND POSITIONING OF LUMINAIRES

Luminaires and installation to comply with SABS 1464 Parts 1 to 22 and IEC 598-1 and IEC 60598 as applicable.

The contractor shall, in the case of board and acoustic tile ceilings (i.e. as opposed to concrete slabs), ensure that the luminaires are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaires as indicated on the drawings shall be adhered to as far as possible. The exact positions must be confirmed on site with the Head : Works.

Except where otherwise specified, pendant luminaires are to be mounted with the bottom of the fittings 2,5 m above finished floor level, mounted on either metal discs or wood blocks.

Under no circumstances shall cover strips be cut to accommodate wood blocks. Wood blocks must be neatly slotted to fit over cover strips and are to be secured by a minimum of two screws, which shall penetrate at least 25 mm into solid wood. Ceiling cover strips shall be neatly cut to accommodate fluorescent luminaires.

Where ceilings are raked, all incandescent luminaires are to be mounted on shaped leveling wood blocks securely fixed to the ceiling. Batten holders shall be secured to woodblocks by suitable brass screws. Fluorescent luminaires are to be mounted direct on raked ceiling without leveling blocks.

Fluorescent luminaires to be mounted on concrete ceilings shall be screwed to the outlet boxes and additionally supported by means of 50 x 6 mm expansion bolts. The bolts are to be ¾ of the length of luminaires apart.

Where a number of luminaires are installed end to end, outlet points must be provided after every second luminaire unless otherwise indicated on the drawing. The luminaires are to be joined together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

The luminaires are to be jointed together by means of 20 mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaires. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs and in board ceilings. In board ceilings the conduit box and the conduit shall be secured to the timberwork of the ceiling in such a manner that it shall support any incandescent luminaire, which is designed to be fixed to a normal conduit box.

Fluorescent luminaires shall be secured to board ceilings by means of the conduit box and 6 mm bolts passing through the boards and brandering.

7. BATTEN HOLDERS

B.C. batten holders shall be of brass or moulded plastic reinforced type complete with shade ring. The batten holders shall comply with SABS IEC 60238 and SABS IEC 61184. All lamp holders are to have brass terminals with screw type connection.

8. LAMP HOLDERS

Edison screw lamp holders	:	SABS IEC 60238
Bayonet lamp holders	:	SABS IEC 61184
Lamp holders for tubular fluorescent lamps	:	SABS IEC 60400

B.C. screwed lamp holders shall be of brass 20 mm E.T. complete with shade ring and shall comply with SABS IEC 60238 and SABS IEC 61184 with screw type connection terminals.

9. SWITCHES AND SOCKET OUTLETS

Switches SABS IEC 60669 as applicable and socket outlets SABS IEC 60884 as applicable shall be of the most modern manufacture and bear the SABS mark.

Flush switch and plug cover plates shall, unless otherwise specified, be of anodized aluminium of thickness not less than 0,9 mm, satin or other approved finish as directed and otherwise to be fully in accordance with SABS IEC 1084 for cover plates and SABS 1085 for wall boxes.

10. POSITIONS OF SWITCHES AND SOCKET OUTLETS

Except where otherwise specified, lighting switches and socket outlets are to be installed 1,4 m above finished floor level.

All mounting heights specified are to be measured from finished floor level to the bottom of the outlet box. Where the lower portion of the wall consists of face brickwork and the upper portion of plastered finish, switches and socket outlets are to be mounted in the plastered surface, provided that the lower edge of the plasterwork does not exceed a height of 1,5 m above finished floor level in which case the switches or socket outlets are to be installed in the face brick dado.

Where socket outlet and switch boxes have been installed with fixing lugs below finished wall surface, only approved distance pieces required to compensate for the recess shall be used. The lengths of distance pieces are not to exceed 15 mm.

Unless otherwise approved, light switches adjacent to doors are to be installed at the lock side of the door. Where the lock position is not indicated on the drawings, its position shall be ascertained before the switch box is installed. Switches are to be installed 150 mm from the reveal, or centrally if there is a fitting near the door.

All switch and socket outlet boxes shall be installed plumb, and built into the wall with a 1:1 mixture of cement and sand.

Industrial type switches and socket outlets shall be neatly recessed into the surface of plastered walls to avoid sets or alternatively spacer bar saddles may be used.

Deep type boxes may be used where switches or socket outlets are back to back, but where one side only is to be utilized at the time and the other is for future use, the side for future use shall be suitably covered with a metal cover plate.

11. LOW TENSION SWITCHBOARDS

Low Voltage switch gear and control gear to comply with SABS 1473 and SABS IEC 60947 and SABS 60349.

Where switchboards are to be installed in switch rooms or switch cupboards, the Contractor must ensure that the boards are manufactured to suit the dimensions of the rooms or cupboards.

Low tension switchboards shall be specified in detail for each service, but shall generally conform to the following:

They are to be of strong and rigid construction, with suitable angle, channel or folded steel framework. They are to be flush fronted and totally enclosed with sheet steel panels suitably formed at the edges and reinforced to prevent distortion. Unless otherwise directed, all front panels must be at least 2 mm thick and all other panels at least 1.6 mm thick. Panels are to be secured to the framework with studs and chromium plated dome nuts (self-tapping and similar screws are not permitted).

Switches, etc, are to be mounted on metal frames within the boards to give flush front panels. Equipment of normally surface mounted types such as energy meters, time switches and contractors, are to be mounted on inner metal trays

behind hinged front panels. In the case of supply authority meters the hinged front panels must have transparent inserts.

All metal work of the boards must be thoroughly degreased, primed with PA 10 self etching primer and finished with one coat of undercoat and two coats of electrical orange high gloss enamel, unless otherwise specified. All accessible current carrying parts, bus-bars, connecting strips, collector bars, etc, are to be adequately insulated in phase colours and suitably braced to withstand projected fault currents.

Connecting strips and collector bars must be of sufficient cross sectional area to carry full rated current of the switches served, irrespective of the fuse of trip rating.

The complete distribution board including bus-bars must be suitably constructed to withstand fault currents specified.

Connections to bus-bars are to be made by means of lugs suitably bolted and locked with high tensile bolts and connections to lugs must be effected by means of a crimping tools.

Incoming and outgoing bus-bar studs, where required, must be suitably insulated where they pass through panels of the board, and firmly supported within the board.

Where applicable, incoming and outgoing collector bars for cables in parallel must so arrange that the multiple cable ends can be connected to the bars with reasonably short tails which do not have to cross.
Cable supports must be placed at suitable heights having regard to the bending radius of the cables concerned and convenience in making off.

Wall-mounting and floor-standing back to wall type boards must be provided with full easy access to all equipment and wiring without any necessity of disconnecting or removing of any of the equipment mounted in the board.

Clear visible indication of all switch positions must be provided and the switches must be clearly labeled as directed by the Head : Works.

The details of construction proposed, and the Head : Works must approve all equipment of switchboards: Works before manufacture is commenced.

12. DISTRIBUTION BOARDS

12.1 Approval

The Head : Works must approve the details of construction proposed and all equipment within distribution boards: Works before manufacture is commenced.

12.2 Flush Mounting Distribution Boards

These shall be generally manufactured in accordance with SABS 1765. The board shall consist of two panels fitted side by side with common bonding tray and attached to a common architrave. One panel shall accommodate all single phase MCB's and the second panel shall accommodate the main isolator, main bus-bars and the triple pole MCB's. Chassis shall be of rigid channel section rust proofed

steel with clip-on trays for the single pole MCB's. The main isolator is to be mounted at the bottom of the second panel with the triple pole circuit breakers above.

12.3 **Surface Mounting Distribution Boards**

These shall be generally manufactured in accordance with SABS 1765, with two panels as for flush boards. 12.4 **Single Phase Distribution Boards**

Single Phased boards shall be generally constructed as three phase boards except they shall have a single panel. Single phase boards shall be mounted with the bottom of the architrave 1,5 m above finished floor level unless specifically directed otherwise.

12.5 **Distribution Board – In Roof Spaces**

Where distribution boards are installed below a roof space, a minimum of 2 x 20 mm and 1 x 25 mm spare conduits are to be run from the distribution board into the roof space.

13. **METER BOXES**

The meter box shall be mounted with the top 1,7 m above finished ground level. Surface mounted meter boxes shall be secured by at least 4 x 10 mm expansion bolts.

Service cables entering the meter box shall be protected by means of a suitably sized galvanised pipe extended 450 mm below the ground surface and securely saddled to the wall and bonded to the meter box.

14. **CONNECTIONS TO OUTLETS**

14.1 **General**

Where connectors are used to connect to the wiring of luminaires and other appliances, the connectors shall comply with SABS Specification 1239.

14.2 **Connection to Stoves**

14.2.1 **General**

The connection to an electric stove, unless otherwise specified shall consist of 2 x 10 mm^2 conductors and a 6 mm^2 insulated earth wire in 25 mm conduit. The stove shall be controlled by a 60 Amp micro gap switch of approved make and the connection shall be by means of a 45 Amp 3 pin stove plug of the "Cape Town" type. Cable ends, which are to be connected to the stove, shall be equipment with suitable soldered or crimped lugs. The connection between the stove plug and stove shall be by means of flexible conduit.

Except for high school domestic science unit kitchens (see Clause 14.2.2), the conduit shall be chased into the wall and fitted with a switchbox for housing the micro gap switch and a 25 mm circular conduit box over which the stove plug will be mounted. The stove plug shall be fitted with an adaptor plate and shall be

screwed directly to the conduit box by means of round head metal screws. The plug outlet shall face downward.

The stove plug and switch shall be mounted 430 mm and 1,4 m respectively above finished floor level unless otherwise specified or indicated on the drawings. 14.2.2 **Stove Connections in High School Domestic Science Unit Kitchens**

Connections to stoves in High School Domestic Science Unit Kitchens, where the stoves are situated in front of a fitting, shall be generally as specified in Clause 14.2.1 except that the 25 mm diameter conduit shall be run in the floor slab, from the distribution board to a position to the right of the stove. A pedestal, which is complete with a 45 Amp 3 pin "Cape Town" type cooker plug, mounted on the back, shall be fitted over the conduit and securely bolted to the floor by means of expansion bolts. The plug circuit, which passes through the pedestal, is to be on a separate circuit.

14.3 Connections to Hot-water Cylinders

The connections to hot-water cylinders not exceeding 3kW loading shall consist of 2 x 4 mm^2 PVC conductors and 1 x 2,5 mm^2 earth wire in a 20 mm diameter conduit from the distribution board. The conduits shall be chased in the wall and shall terminate at the side of the cylinder in a box over which is to be mounted a double pole isolator with pilot light.

The final connection between the isolator and cylinder shall be by means of silicone heat resistant conductors in 20 mm diameter flexible conduit.

Connections to roof mounted hot-water cylinders shall generally be as specified above with an isolator with pilot light mounted adjacent.

14.4 Connections to Power Points

Connections to electric motors and fixed apparatus to vibration shall, unless otherwise specified or indicated on the drawings, have final connections consisting of conduit and flexible tubing or reinforced hose in accordance with Clause 1.3 of this specification and PVC cables and earth wire of the required size.

An isolator shall protect all fixed apparatus and where necessary a starter fitted with a no-volt coil and overload protection adjacent to such apparatus.

Power points for connection of fixed apparatus to be installed by others, shall terminate in an approved type wall mounted switch unless otherwise specified.

The minimum conductor size for all power points shall be 4 mm^2 unless otherwise specified.

14.5 Underground Service Connection

This clause refers to underground service connections not provided by the Supply Authority.

The service cable and earth wire to be connected at the supply point in accordance with Clause 15.8 of this specification, and unless otherwise specified, shall be aid 600 mm below ground level throughout and otherwise fully in accordance with

Clause 15 and all applicable sub-clauses thereof. Cable entries to meter boxes shall be in accordance with Clause 13 and other entries shall be by pipe or duct as directed.

14.6 **Connections to Outbuildings**

Connections to outbuildings shall be made by means of underground cable only, laid in accordance with Clause 15 and all applicable sub-clauses.

Where the cable is run from the roof space of the main building, it shall be enclosed in suitably sized galvanised pipe built into the wall or run surface as directed. Surface run pipes shall be securely saddled at 1,8 m centers. Where the cable connects to the conduit in the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space with fixings at regular intervals, and down to the main board. At the outbuildings, the cable shall be enclosed in a suitably sized galvanised sleeve pipe built into the wall or run surface and terminated in the distribution board tray.

14.7 **Connection and Mounting of Cable Fed Street/Site Lighting**

Street/site lights shall in all cases, except where otherwise specified, be fed by underground cable. Unless otherwise directed, a suitable terminal board shall be provided in the base of the lighting pole for the connection of the incoming and outgoing cables, the feeds from the terminal board to the fitting shall be as specified.

"Surfix" cable and compression glands shall be installed between terminal board and cross arm/bracket mounted luminaires. The terminal board shall also accommodate a miniature circuit-breaker in the phase connection to the fitting. Poles intended for mounting directly in ground are to be provided with a 300 x 300 mm base plate.

15. **UNDERGROUND CABLES**

1000 volt PVC SWA and 110 Volt PILCA cable and accessories shall be in accordance with the relevant SABS specifications to SABS 1507.

The storage, transportation, handling and laying of underground cables shall be according to the manufacturer's requirements and the Contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operation. All cable pipes and ducts entering buildings are to be sealed against the ingress of vermin, water, etc.

15.1 **Trenching**

Cables, unless otherwise specifically directed, shall be laid at a depth of 600 mm below ground level. Trenches shall not be less than 300 mm wide for one to three cables, and the width shall be increased where more than three cables are to be laid together so that the cables may be placed at least 75 mm throughout the run.

The Contractor shall take all necessary precautions to prevent trenching work being in any way a hazard to the public and to safeguard all structures, roads, sewer works, or other property from risk of subsidence and damage.

15.2 **Cable Joints**

Joints in underground cable runs will not be permitted unless unavoidable and at the discretion of the Head : Works. Where cable joints are unavoidable, the cable jointer is to work efficiently and cleanly and so that each end of the cables to be joined may have a minimum of 0,9 m of slack disposed in a loop without stress. Back-filling under joints must be firmly tamped to prevent any subsequent settling.

15.3 **Bedding**

In trenches made in intermediate, hard rock, or boulder material, the cables shall be laid on a 75 mm thick bed of earth and be covered with a 150 mm layer of earth before the trench is filled in. The Contractor to supply all earth required for trench filling.

15.4 **Laying**

Cables shall be removed from the cable drum in such a way that no twisting, tension or mechanical damage is caused, and must be adequately supported at short intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts, to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after the drawing in of the cables.

15.5 **Back Filling**

Back filling after bedding (see Clause 15.3) is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150 mm. The surface is to be made good a required.

Back filling of cable trenches must not be commenced until after the cable trenches and laid cable(s) have been inspected by the Head : Works. Where a Contractor fails to observe this requirement he may, at the discretion of the Head : Works, be required to re-open such cable trenches for inspection at his own expense.

15.6 **Protection of Cables**

Where so directed by the Head : Works, concrete or other warning covers shall be placed over cables above the top bedding layer. Cable pipes when directed are to be installed at road and other crossings.

15.7 **Marking of Cables**

Cable marking tape is to be supplied by the Contractor and is to be laid 150 mm below ground over a cable run and as may be directed by the Head : Works to give early indication of underground cable runs.

15.8 **Joints and Termination of Cables**

Joints in underground cables and terminations shall be made by means of "Scotch Cast" or other approved epoxy-resin pressure type jointing kits. Low tension PVC cables are to be made off with sealing glands and materials designed for this purpose, which must be of approved make.

15.9 **Sealing of Paper Insulated Cable Ends**

Where cables are cut and not immediately made off, the ends must be sealed without delay. If cables are cut and the ends not immediately made off or sealed, the cable may be rejected and the Contractor will be required to replace it at his own expense.

15.10 **Earth Wires**

Except where specifically directed otherwise, earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such earth continuity conductors shall be bare copper wire of a cross sectional area in accordance with the Code of Practice 0142 but shall not be less than 4 mm^2 nor more than 70 mm^2. The earth continuity conductor is to be bonded to the cable armouring, and to the lead sheath if any, at each termination, as well as to the local earth bard. The earth wire must be secured to the cable at 1,8 m centers.

15.11 **Opening Up of Existing Cables**

Where it is necessary to expose existing buried cables for any purpose, or to excavate in the vicinity of existing buried cables, pipes, etc, every care is to be exercised and only labourers experienced in such work, and duly warned by the Contractor, shall be employed thereon.

15.12 **Definitions for Classifying of Excavation**

(a) Soft Excavation – shall be excavation in material that can be efficiently removed by a back-acting excavator of flywheel power approximately 0,10kW per millimeter of tinned-bucket width, without the assistance of pneumatic tools such as paving breakers, or that can be efficiently loaded without prior ripping or stockpiling by a rubber tyred front-end loader approximately 15T mass and a flywheel power of approximately 100kW.

(b) Intermediate Excavation – shall be excavation in material that requires a back-acting excavator of flywheel power exceeding 0,10kW per millimeter of tinned-bucket width and the assistance of pneumatic tools prior to removal by equipment equivalent to that specified in (a) above.

(c) Hard Rock Excavation – shall be excavation in material that cannot be efficiently removed without blasting or without wedging and splitting prior to removal.

(d) Class A Boulder Excavation – shall be excavation in materials containing more than 40% by volume of boulders of sizes between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: (1) Excavation of solid boulders or lumps of size exceeding 20 cubic meter will be classified as hard rock excavation.

(2) Excavation of fissured or fractured rock will not be classed as boulder excavation but as hard rock intermediate excavation according to the nature of the material.

(e) Class B Boulder Excavation – shall be excavation of boulders only in a material containing 40% or less by volume of boulders of size between 0,03 cubic meter and 20 cubic meter in a matrix of softer material or smaller boulders.

Note: Those boulders that required individual drilling and blasting in order to be loaded by a back-acting excavator as specified in (a) above, or by a track type front-end loader, will each be separately classed as Class B Boulder Excavation.

16. EARTHING

16.1 Main Earthing

The type of main earthing shall be as required by the Supply Authority, if other than the Head : Works and in any case as directed by the Head : Works who may require additional earthing to meet test standards.

Where required, an earth mat is to be provided, the minimum size, unless otherwise specified, being constructed from copper straps 950 x 25 x 3 mm at 230 mm centers and braced at all intersections. Alternatively or additionally earth rods or trench earths may be required, as the Head : Works may direct, and installed according to his instructions.

All earth electrodes and connections thereto must be approved "in-situ" by the Head : Works before back-filling.

The electrical installation shall not be earthed by means of the lightning arrester earth electrode, if such is included in the installation, but may be bonded thereto.

16.2 Earthing in Installations

The installation shall be effectively earthed in accordance with the relevant sections of the Code of Practice 0142 and the requirements of the Supply Authority.

All hot and cold water and waste pipes are to be effectively bonded by means of 12 x 1,5 mm solid copper tape (perforated tape or wire will not be permitted), clamped by means of brass bolts and nuts. Bonding tapes exceeding 75 mm in length must be fixed to the wall by means of No. 6 x 20 mm brass screws and plastic plugs not exceeding 150 mm centers. Main earth copper tapes where installed less than 2,5 m from ground level, must be run in 20 mm diameter conduit securely saddled to the wall.

Gutters and down pipes are to be bonded by means of 6 mm round headed brass bolts, with nuts and washers. Self-tapping screws are not permitted.

Connections from the earth bar or terminal on the main board must be made to a visible cold water main, the incoming service conductor, if any, and the earth mat or plate (where such is required) by means of either 12 x 1,5 mm solid copper tape or bare 25 mm^2 copper wire, or such larger conductor as the Head : Works may direct. From each distribution board separate earth conductors are to be taken to the main earth bar or terminal on the main board. Each conductor shall consist to stranded copper conductors drawn into the conduit together with the distribution

board feeders. The size of the earth conductors to be in accordance with the requirements of the Code of Practice 0142 or as specified.
Earthing clips shall be made of not less than 0,9 mm thick copper strips not less than 12 mm wide. They are to be complete with 25 x 7,7 mm brass bolts, washers and nuts and must be constructed so that the clips will fit firmly to the conduit without any additional packing.

Adjustable earth clips are not permitted.

17. EXISTING BUILDINGS

17.1 Occupied Buildings

Where work is to be carried out in occupied buildings the Contractor must arrange to carry out the installation with as little interruption to services and discomfort to the occupants as possible.

17.2 Temporary Connections

Temporary connections shall be provided where necessary for continuity of services, and as directed by the Head : Works. The contractor must ensure that such connections are both electrically safe and free from physical hazard.

17.3 Old Materials

Unless otherwise specified all existing materials removed by the Contractor shall remain the property of the Head : Works and are to be handed to the Head : Works.

17.4 Making Good

Any damage which may be done to the plaster work, floors, ceilings, wood and paint work, furniture and other equipment in the building, etc, during the progress of the electrical installation shall be repaired and made good by the Contractor to the satisfaction of the Head : Works.

18. COMPLETION

18.1 Balancing of Load

The Contractor is required to balance the load as equally as possible over multi-phase supplies.

18.2 Tests

The installation shall be tested by the Contractor as the service progresses or as required by the Head : Works and upon completion, for earth continuity and insulation. The final test before the taking over of the installation shall be made in the presence of the Head : Works.

The mandatory "Certificate of Compliance" shall be issued by the Contractor to the Supply Authority, with a copy to the Head : Works prior to first delivery being taken.

18.3 **Labelling**

All circuits and apparatus on switchboards shall be suitably correctly labeled by means of engraved plastic labels (white lettering on black), which are to be either bolted or screwed to the equipment panel, or fitted in channeling provided below the switch gear.

Sub-circuits are to be numbered and a legend detailing the circuits is to be framed and fitted to the door of the distribution board.

All other equipment is to be individually labeled to indicate the function.

All switchboards are to be fitted with a label on which the designation of the board is clearly indicated.

A separate engraved label depicting the origin and cable/conductor size shall be fixed below the main switch.

18.4 **Finishes**

Covers for all boxes, expansion boxes, etc, shall be finished to match the paint work of the ceiling or wall surface or as specified.

18.5 **Site Drawing**

On all completed new work or where specifically called for in the Tender Document, the Contractor shall, on completion of the works, submit to the Head : Works, a marked up site plan indicating the exact underground cable reticulation.

19. POWER DUCTING FOR SCHOOL SCIENCE LABORATORIES

The ducting shall be "Ductline 3" supplied by Messrs. Lascon Lighting, 102 Malbourne Road, P.O. Box 2479, Durban 4000: Telephone 031-2075081 or other approved.

20. SPEAKER AND MICROPHONE OUTLETS

Speaker and microphone outlets are to conform to the following details:

1. Speaker outlet – To have one flat and one round pin.

2. Microphone outlet – To have one round pin only.

Both female and male parts to be supplied and installed by the Contractor.

21. BELLS AND BUZZERS

21.1 **Bells**

Bells for schools and hostels shall be 220 Volt AC or 24 Volt DC as specified for the service. They are to be of robust construction encased in a sturdy cast metal weather-proof case. They are to operate on the frequency of the supply. They shall have an adjustable stabilizing spring, gold-silver contact points and 150 mm gongs.

21.2 **Doorbells, Buzzers and Bell Transformers**

These will be as specified for each service.

21.3 **Bell Pushes**

Except where otherwise specified, bell pushes shall be of the flush type suitable for mounting in a standard 100 x 50 mm box. They shall be clearly marked as a bell push and shall be fitted with satin finished anodized aluminium cover plates.

22. **SIGNAL TIMERS**

22.1 **Primary Schools**

The timer shall be designed to automatically signal the start and finish of school periods by the switching of a bell circuit and is to comply with the following specification:

1. The mechanism may be synchronous motor or quartz movement driven with a 24 hour dial or digital time read-out suitable for operation on a 220V 50Hz supply and is to be provided with a spring or battery reserve of a least 24 (twenty four) hours.

2. The unit is preferably to have minute to minute timing for a 24 (twenty four) hour period although 5 (five) minute intervals are acceptable, and is to be provided with Weekend lockout. Signal periods shall be adjustable from 5 – 45 seconds.

3. The unit shall be housed in a metal or plastic case with detachable front cover suitable for wall mounting.

4. Timers with punch tape programming are not acceptable.

22.2 **High Schools and Colleges**

Timers for these institutions shall generally be as for Primary Schools but are to have at least 3 (three) separate programmes and be fitted with three push buttons for independent manual operations for testing of each programme, plus an on/off switch for each programme, which does not affect the running of the clock.

23. **CLOCKS**

Electric clocks shall be of the quartz electronic battery operated type, with a dial of 250 mm diameter. The dial shall be white, with distinctive minute markings and chapters shall be black Arabic figures. Time adjustment shall be simple. Where mains operated electronic clocks are specified, these shall be of the synchronous self starting type, suitable for a 200 – 250 V 50 Hz AC supply

24. **TIME SWITCHES**

The time switch shall consist of a single pole switch with silver to silver or other approved contacts operated by a quartz movement with a 24 hour reserve.

A suitable 24 hour, night and day dial, with hour indicator and two adjustable strikers, one OFF and one ON must be provided. The whole mechanism is to be totally enclosed in a dust proof case.
The current rating shall be required and the switch is to be suitable for operation on 220 volt 50 Hertz AC supply. Time switches used for under floor heating are to be fitted with weekend cut-out.

25. **MOULDED CASE CIRCUIT BREAKERS (INCLUDING MINIATURE)**

Circuit breakers shall be of the size and type as directed and specified for the service. They shall comply with SABS Specification 156 and SABS IEC 60947-2.

26. **SWITCHES: ON-LOAD FAULT MAKING (CIRCUIT BREAKER TYPE) WITHOUT TRIPS**

The switches shall be triple pole, hand operated, panel mounting air break type, having continuous current rating as specified and suitable for operation of 380 – 440 Volt 50 Hz AC system.

The contacts are to be of silver alloy and the switch mechanism shall be of the quick-make, quick-break type.

27. **SWITCHBOARD EQUIPMENT**

Switchboard equipment such as switches, circuit breakers, etc, shall be as directed and specified in the detail specification for the service.

Circuit breaker equipment of SABS IEC 60934.

28. **FUSE-SWITCH UNITS (WITH HRC FUSES)**

The fuse-switch unit is to be of the double pole, or triple pole or triple pole with neutral link type, and of the required current rating, as specified for the service and must be in accordance with BS EN 60947-3.

The fuse links must be fully isolated when the switch is in the open position, and interlocks must be provided to prevent the switch being operated with the cover open.

The fuse links shall comply with SABS Specification 172 and SABS IEC 60269-1 to 4.

29. **BUS-BAR COPPER**

Bus-bar copper must be fully in accordance with Tables A1 and A2 of SABS 1473-2 and SABS IEC 60439-2.

30. **SPECIFICATION COMPLIANCE**

The complete installation shall comply with the requirements of this specification. Should any differences or contradictions exist between this Specification and the detailed requirements for a specific installation, then the detailed requirements shall take precedence.

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 3
LIGHTNING PROTECTION SPECIFICATIONS

LIGHTNING PROTECTION INSTALLATION

GENERAL SPECIFICATION

1. SATISFACTORY INSTALLATION

The whole of the installation shall be carried out in accordance with:

(a) The latest S.A.B.S. Code of Practice for the Protection of Structures against Lightning - S.A.B.S. 03 ; SABS IEC 61024 (1) , 61024 (1 -1); SABS IEC 61312 (1) ; SABS IEC 61662 & NRS 042.

(b) The KwaZulu-Natal Department of Works General Electrical Specification.

(c) The Municipal By-Laws and any other special requirements as deemed necessary by the Local Supply Authority;

(d) Local Fire Regulations.

2. S.A.B.S. APPROVED DRAWINGS

SABS Approved drawings are not required for this project.

3. TEST ON COMPLETION

Upon completion of the lightning protection system, the following tests shall be witnessed by an appointed representative of the Employer. The results shall be recorded on suitable test certificates which must be signed by both the Contractor and the Employers representative. A sketch must be included on each test certificate indicating the positions of each earth electrode in relation to some permanent reference point. It must also indicate the positions at which tests were carried out, the type of test and the results of these tests.

3.1 Earth Resistance Test

The Earth Resistance Test shall involve measuring the resistance to earth of each rod-type electrode, or group of rod-type electrodes, or trench earth which would normally be connected to one down-conductor or earth terminal. This test must be made with the electrodes completely disconnected from any part of the structure or lightning protection system.

3.2 Electrical Continuity Tests

(a) **External Down-Conductors**

Electrical continuity between the lower ends of external down-conductors which must all be disconnected from the earthing system during the test shall not exceed 1 (one) ohm.

(b) Metallic Services

Electrical continuity between any metallic structures of services (e.g. rainwater pipes) which form an integral part of the lightning protection system shall not exceed 1 (one) ohm. These tests should be carried out with all other components of the lightning protection system disconnected from the component being tested.

4. DESCRIPTION OF MATERIAL

4.1 Air Terminals and Down-conductors

All conductors must be in accordance with the requirements of BSS 1474 or American Standards Specification 6063. All aluminium conductors shall have a cross-section area of not less than 30 mm^2 (domestic dwelling only) or 50 mm^2 for all other applications. The dimensions of flat section conductors to be 20 mm x 3 mm. Where conductors are mounted in stand-off guides, the cross-section area of the conductor must be not less than 70 mm^2 to give adequate mechanical strength.

4.2 Conductor Guides

The conductor must be mounted in aluminium alloy guides conforming with the material specification given in 4.1 above. The guides must allow for free longitudinal movement of the conductor to cater for expansion and contraction of the system caused by temperature variation. The minimum thickness of any part of the guide shall not be less than 3 mm. The guides must be securely attached to the structure using two stainless steel screws and plugs, the use of plated screws is not permitted.

The conductor system shall be supported in guides so that an air gap exists at all times between the aluminium and the surface of the structure, the guides being seated upon plastic or other similar insulating material. Should conductors be installed directly upon the surface of concrete or cement plaster, an insulating strip is to be installed over its whole length to prevent contact between the two surfaces. Guides shall be installed to support the conductor at intervals not exceeding 1,2 metres horizontally or 1,5 metres vertically.

N.B.: No part of an aluminium conductor system must be allowed to come into direct contact with concrete or cement plaster as this may cause the aluminium to corrode.

4.3 Expansion Loops

Where conductors are installed horizontally without deviation from a straight line over long distances, expansion loops must be provided at distances not exceeding 30 metres. These expansion loops must have a cross-sectional area which is at least equal to that of the conductor.

4.4 Protection of Down-conductors

Where external down-conductors are installed in areas which are readily accessible to the public, the lower ends of the conductors shall be enclosed in a semi-rigid insulating material. In the case of a circular section conductor this shall comprise a 2 metre length of 20 mm diameter P.V.C. conduit. This conduit shall be securely attached to the wall by means of galvanized steel saddles fixed with stainless steel screws and plugs, spaced at intervals not exceeding 1 m. Where a flat section conductor is used this shall be covered by a similar length of 25 mm P.V.C. conduit. The lower end of the conduit shall be positioned as close as practicable to ground level, i.e. immediately above an aluminium to copper joint. The ends of the conduit shall not be sealed.

4.5 Earthing Electrodes

Earthing electrodes must consist of either copper-clad steel rods not less than 12 mm in diameter and having a minimum copper thickness of 0,20 mm driven into the ground, or a 50 mm^2 (35 mm^2 for domestic dwellings) bare copper conductor buried in a trench, or a combination thereof. Where copper clad steel electrodes are used they must have a suitable bond between the steel core and copper exterior to prevent moisture ingress between the two metals. Where it is necessary to extend earth rods, an electrolytically compatible corrosion resistant, coupling device, which prevents ingress or moisture into the joint shall be used. The copper conductor below the down-conductor joint shall be covered by a semi-rigid P.V.C. conduit for a distance of approximately 200 mm above ground and 400 mm below ground.

4.6 **Joints Above Ground**

Circular section aluminium conductors shall be jointed by aluminium ferrules or lugs which are securely crimped into place. Aluminium lugs must be bolted together using 10 mm diameter aluminium bolts and washers. The material specification for these components must conform with that laid down in paragraph 4.1. Alternatively heavily tinned copper lugs and ferrules may be used. The lugs should be joined together by means of 10 mm diameter copper, brass or bronze bolts and washers. Care should be taken to inhibit corrosion where dissimilar metals are used by thoroughly cleaning the surfaces of the metal before assembly and subsequently sealing the joint with an inert tenacious compound or tape.

Flat section aluminium conductors shall be joined by double riveting, using aluminium rivets which comply with the material specification laid down in 4.1. Alternatively 2 x 6 mm diameter stainless steel bolts, nuts and washers may be used. Fold over type bends will not be permitted.

Down-conductors are to be terminated approximately 200 mm above finished ground level. Circular section aluminium is to be jointed to a 50 mm^2 (35 mm^2 in the case of domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10 mm diameter copper, brass or bronze nuts, bolts and washers.

N.B. : Under no circumstances shall aluminium conductors be buried in the ground.

4.7 **Joints Below Ground**

A joint in the stranded copper conductor which forms part of the earthing system must be made by using a crimped copper ferrule clamping (not lugs) using two copper line taps of suitable dimensions, or exothermic welding. The copper earth conductor must be joined to an earth rod by either clamping, using a standard earth rod clamp or copper line tap or by exothermic welding. Joints which are made between dissimilar metals (i.e. copper conductor to galvanized steel water main), must be thoroughly cleaned before assembly. They shall be rendered watertight using waterproof adhesive tape on a suitable compound for a minimum distance of 200 mm in all directions from the joint.

4.8 **Bonds**

Where it is necessary to bond the aluminium conductor to any other metallic surface, this must be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.

5. GENERAL INSTALLATION PROCEDURE

5.1 **Air Terminals for Non-metallic Pitched Roofs**

Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys must be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternatively it should have a conductor installed in the form of a closed loop upon the upper surface. The conductors are to follow the outer contour of the stack and must be bonded at a convenient point to the nearest component of the air terminal system.

N.B. : This bond may run in a horizontal or downward direction, but under no circumstances must any part of it run above horizontal.

Conductors may be dead-ended (i.e. have one end free and unbonded), providing that the length of such a conductor does not exceed 10 metres and that the unbonded end is either at the same level or higher than the bonded end. This technique may be used where ridge conductors are installed over dormer windows, etc.

In all cases where metallic gutters have been installed along the eaves of a pitched roof, these must be bonded to the air terminal system. Where metallic gutters do not exist, however, a conductor must be installed over the surface of the roof at eaves level to which the remainder of the air terminal system is to be bonded, with the following exceptions :

(a) Where the maximum distance from the ground level to the eaves of the building is less than 4 metres and the pitch of the roof is more than 1 in 2 (27° from the horizontal).

(b) Where the maximum distances from ground level to the eaves is less then 7 metres and the pitch of the roof is more than 1 in 1,5 (34° from the horizontal).

(c) Where the distance from the ground level to the eaves is more than 7 metres and the pitch of the roof is more than 1 in 1 (i.e. the included angle at the apex of the roof is less than 90°).

Under these circumstances eaves conductors need not be installed.

Any non-metallic objects which protrude above the general roof lines, such as Cape Dutch gable ends, must be protected as described above with a suitable air terminal system. Any metallic objects which protrude above the general roof line, such as hot water expansion pipes must be bonded as directly as possible to the nearest eaves conductor, gutter or other part of the lightning system.

N.B. : These bonding conductors must run in a horizontal or preferably a downward direction, from the vent pipe, etc., to the lightning protection system.

5.2 Air Terminals for Metallic Pitched Roofs

Buildings with roofs covered with electrically continuous metal sheets do not require separate air terminals but must be earthed via down conductors generally as described in 5.6 and 5.7. Any non-metallic objects projecting above the general roof line must be separately protected as described in 5.1 and bonded to the metal roof covering.

5.3 Air Terminals for Non-metallic flat or Mono-pitched Roofs

For flat or mono pitched roofs of non-metallic construction the air terminal system must consist of aluminium alloy conductors installed around the outer perimeter of each section of the roof structure. These conductors must be installed on top of parapet walls if these exist. Lift motor rooms, tank rooms, penthouses, etc., which protrude above the general roof line must have air terminal conductors installed around the outer perimeter of each roof slab or parapet wall. Any metallic objects which protrude above the roof line, such as expansion pipes, signs, flag poles, handrails, etc., must be bonded directly to the nearest component of the lightning protection system as described in 5.1.

N.B. : It is not permissible for the ends of conductors to be bonded directly to the perimeter air terminal system if the latter is installed upon a parapet wall having a height exceeding 500 mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

5.4 Air Terminals for Metallic flat or Mono Pitched Roofs

Metallic flat or mono pitched roofs do not require separate air terminal conductors, providing that there is electrical continuity between the metallic roofing sheets, (see 5.2). A metallic roof surrounded by a non-metallic parapet wall shall have conductors installed at the top of the parapet wall and these must be bonded to the metallic roof at intervals not exceeding 20 metres. If the parapet wall is clad with metal over its upper surface or a handrail is installed which affords good electrical continuity, separate air terminal conductors need not be installed. Under these circumstances the metal handrail or cladding must be bonded to the metal roof covering at intervals not exceeding 20 metres.

All non-metallic covering such as slates, tiles, asbestos cement sheeting, etc., supported by a steel structure being electrically continuous throughout may be treated as being of a complete metal construction. In these circumstances no separate air terminal system need be installed providing the steel roof structure is bonded to earth at intervals given in 5.5.

5.5 Down Conductors for Non-metallic Structures

Down conductors must be installed at regular intervals around structures and to run as directly as possible between the air terminal and earthing system. They must, where practicable, be positioned at the external corners of the structure. The maximum separating distance between down conductors around the perimeter of the structure must not exceed 30 metres. In the case of very tall buildings having a slender base (i.e. chimney stacks, water towers, etc.), a minimum of two down conductors must be installed.

The lower ends of down conductors are to be terminated and bonded to the earthing system approximately 200 mm above finished ground level. Under no circumstances must aluminium conductors be buried underground. Test joints must be provided between the down conductors and earthing system. Down conductors must run vertically between the air terminal and earthing systems. Where this is impracticable, their course may be deviated to run at any angle up to and including horizontal.

Where it is necessary to run conductors horizontally over the upper surface of a structural protrusion, such as an exposed concrete slab, the conductor may run down vertically over the edge of the slab and return to the main structure, so that the distance between the upper and lower conductors exceeds one third of the length of the horizontal run. Looped down conductors are not permitted. Down conductors must not run over the underside of large overhangs which are less than 6 metres above ground level, or other areas where people are likely to be present during a thunderstorm.

External or internal metallic rainwater pipes may be used as down conductors providing these are of substantial section and are jointed by screwing one length into another or welding. Thin gauge galvanized steel pipes whose sections are held together by friction, rivets or screws must not form part of a lightning protection system.

5.6 Down conductors for reinforced concrete framed structures

The steel reinforcement of this type of structure may be used in place of down conductors. Where the reinforcing system is used, the air terminal system must be bonded to it at a maximum of 30 metre intervals using steel clamps. This bond may be achieved by clamping, with a steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor must terminate at a corrosion resistant metallic terminal such as Grade 316 stainless steel.

The reinforcing system of prefabricated concrete buildings must not be used unless special provision is made for bonding the various prefabricated sections together.

The terminals should be mounted flush with the face of the concrete. An aluminium alloy bond must then be taken from the air terminal system and be connected to the stainless steel terminal by means of a heavily tinned crimp lug for circular section aluminium, or a suitable bi-metallic joint in the case of flat section aluminium. A similar system must be used to bond the reinforcing system at ground level to the earthing system at points directly below the air terminal bonds. Here copper conductors must be used as the external bonding material.

Under no circumstances must copper, or other non-ferrous material be allowed to come into contact with steel reinforcing bars, as this may cause severe corrosion and subsequent structural damage. The lightning protection system must not be bonded to any part of the structure which is electrically isolated from the remainder of the building, i.e. cantilevered sections. In these circumstances, or where it is otherwise impracticable to use the reinforcing system, external down conductors must be installed as described in 5.5.

5.7 Down conductors for steel framed structures

Where the framework of a building is constructed of structural steel columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30 metres. The upper ends of the columns must be bonded to the air terminal systems and the lower ends to the earthing system.

5.8 Earthing by means of vertically installed rod type electrodes

Rod-type electrodes must be driven into the ground at a position directly below each down connector. The maximum earthing resistance of each electrode or number of electrodes bonded to any one down conductor shall not exceed N X 30 ohms, where N equals the total number of down conductors which are bonded to a common air terminal system, or 200 ohms whichever is the lower value.

The minimum horizontal separating distance between rod-type electrodes bonded together must not be less than their installed depth. The upper ends of installed rod-type electrodes are to be terminated approximately 500 mm below finished surface level. A 50 mm^2 copper bonding conductor must be installed to run between each earthing electrode system and the lower ends of the adjacent down conductors. A joint is to be made between each of these bonding conductors and the down conductors at a position approximately 200 mm above finished ground level. These bonding conductors must be installed in P.V.C. conduit securely affixed to the wall (see 3.4). The length of this P.V.C. conduit must be approximately 600 mm and must be installed so that approximately 200 mm protrudes above ground level, the remainder being buried into the soil.

5.9 Earthing by means of metallic water mains

Where two or three down conductors are installed the water mains may serve as an earth terminal for one of these. Where three of more down conductors are installed the water mains may serve as an earth terminal for two of these. Regardless of whether the water mains are used as an earth terminal or not, the incoming metal water pipe must be bonded to the lightning protection earthing system underground.

5.10 Earthing by means of trench type electrodes

Where the soil conditions prevent the satisfactory installation of rod-type electrodes, a trench earth system must be installed. This method is to comprise a 50 mm^2 stranded copper conductor installed horizontally into a trench at a depth of 500 mm below finished ground level. The conductor is to follow the general outline of the structure to be protected and be installed 1 metre away from the outside walls. Where the building stands on rocky ground, the trench earth may be attached to the lower part of the wall in areas where rock protrudes through the soil. The conductor must, however, be buried wherever possible as described above.

Each down conductor must be bonded to the trench earth system as directly as possible by means of a copper conductor.

Trench earth systems must have a maximum earth resistance of 30 ohms. An isolated length of trench earth mat must be bonded to the down conductor system in such a way as to reduce the length of dead-ends to the minimum.

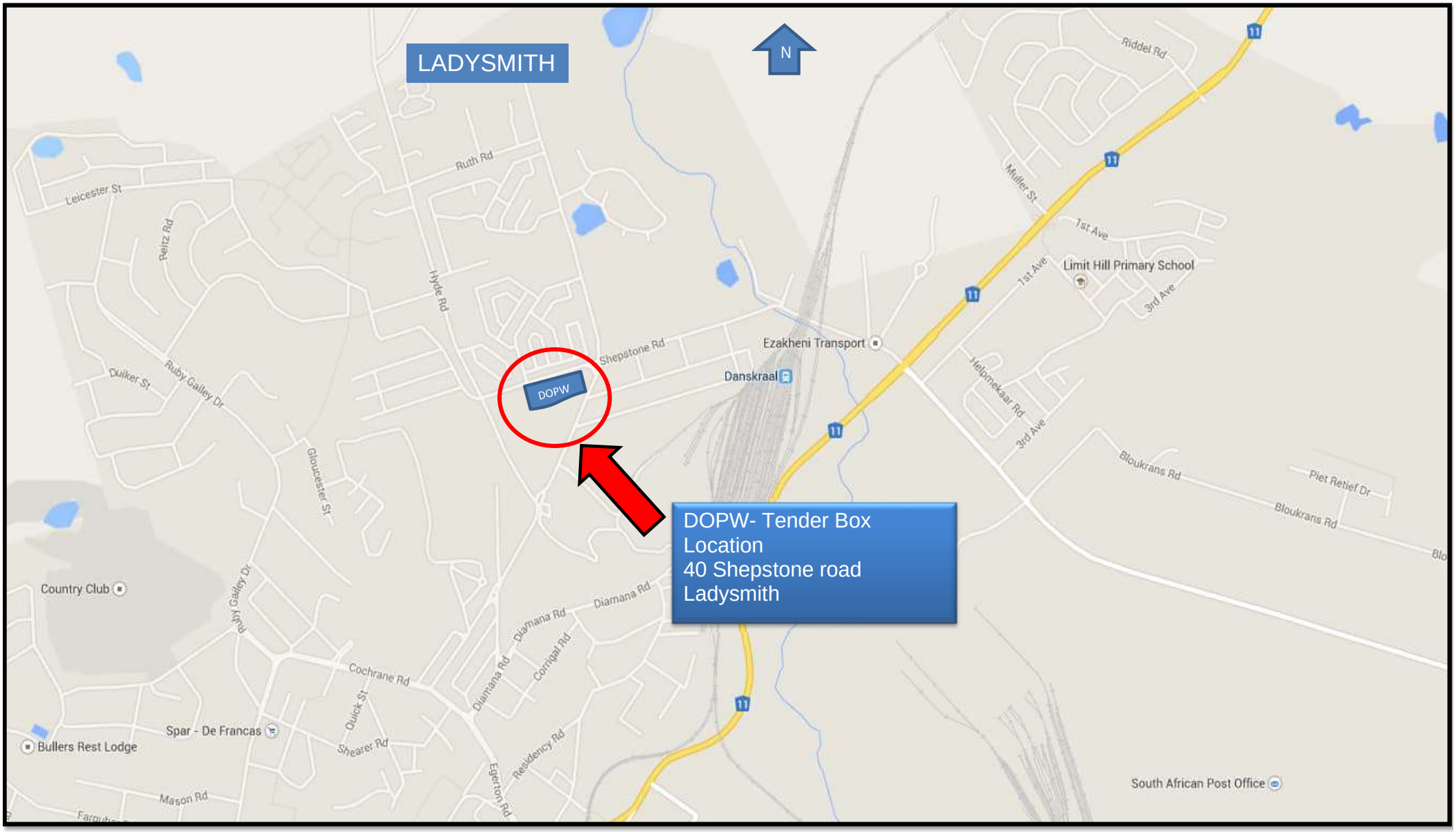
Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe must be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

N.B. : The maximum useful length of a dead-ended trench earth is 80 metres.

KWAZULU-NATAL PROVINCE
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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

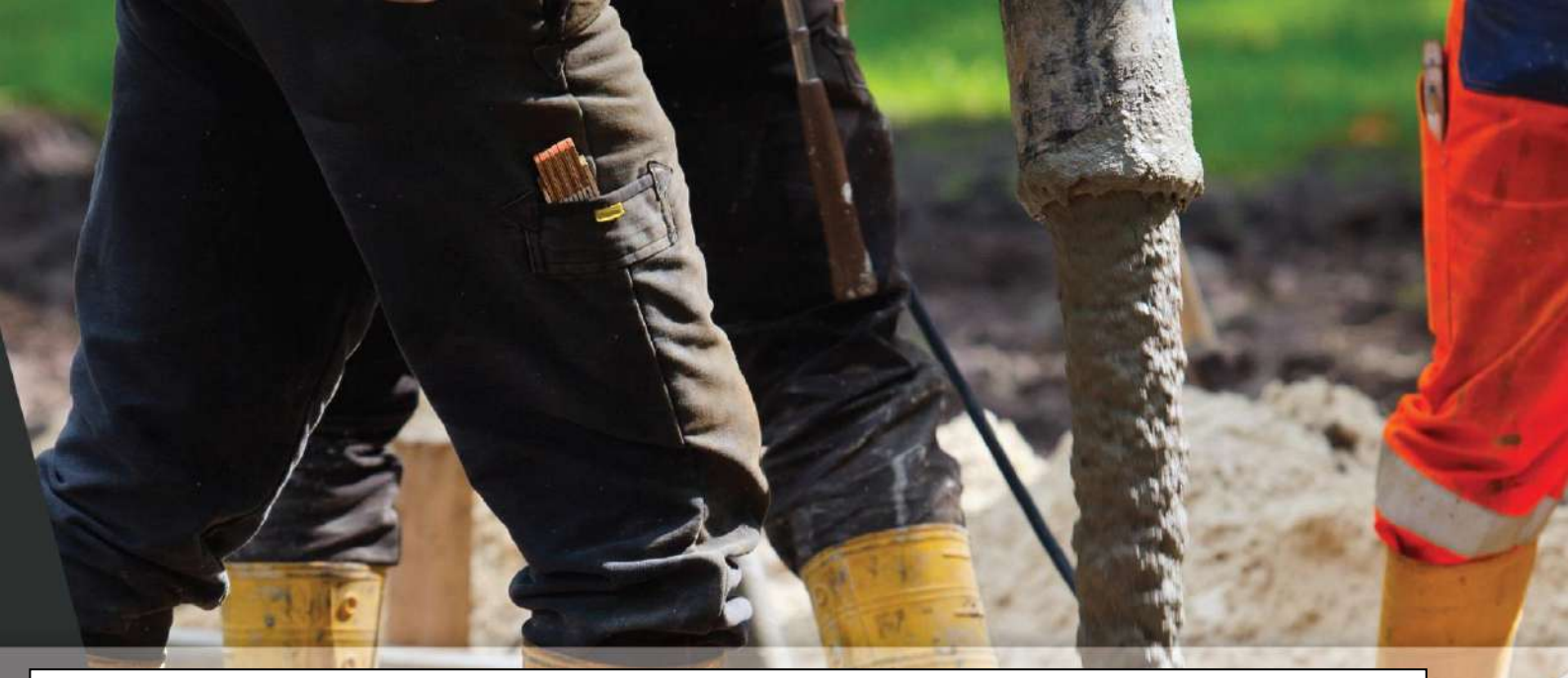
ANNEXURE 4
MAP OF BID SUBMISSION LOCATION


LADYSMITH
N
DOPW
DOPW- Tender Box
Location
40 Shepstone road
Ladysmith
Riddel Rd
Ruth Rd
Leicester St
Reitz Rd
Hyde Rd
Muller St
1st Ave
Limit Hill Primary School
3rd Ave
Shepstone Rd
Ezakheni Transport
Danskraal
Duiker St
Ruby Gailey Dr
Helpmekaar Rd
Gloucester St
Bloukrans Rd
Piet Retief Dr
Country Club
Diamana Rd
Cochrane Rd
Corrigal Rd
Quick St
Spar - De Francas
Bullers Rest Lodge
Shearer Rd
Residency Rd
Egerton Rd
Mason Rd
South African Post Office
11

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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 5
GEOTECHNICAL REPORT



KwaZulu-Natal
PUBLIC WORKS

GEOTECHNICAL INVESTIGATION FOR THE TOILET BLOCKS AT SINENHLANHLA COMBINED SCHOOL IN WATERSMEET, KWA-ZULU NATAL PROVINCE



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EXECUTIVE SUMMARY

This report presents the results of the geotechnical investigation carried out at Sinenhlanhla Combined Primary School, a site earmarked for construction of toilet blocks. The investigation included two test pits, four dynamic cone penetrometer tests, a percolation test and laboratory testing of soil samples. Sinenhlanhla Combined School is in Watersmeet, a subtle township of Ladysmith. The school forms part of the uThukela District Municipality in the province of Kwa-Zulu Natal.

The site is underlain by blue to dark-grey shale of the Volksrust Formation. This investigation involved a review of available data, a field inspection, a comprehensive test pit excavation programme, soil profiling and sampling. The geotechnical investigation revealed the site to be underlain by hillwash silt, overlying Nodular Ferricrete at depths 0.27m and 0.41m below existing ground level.

No groundwater seepage was observed in the test pits.

For the purposes of geotechnical site zonation, the site is sub-divided into (soil) Site Class Sub-Areas defined in terms of SAICE's loading conditions and composite site classes using 'H' (active soils), 'C' (collapse soils), 'S' (settlement soils) and 'R' (rock) designations defined in the report.

Based on the information from trial pitting and laboratory testing, the site soils can be classified as **C/H1**. Foundations for the new toilet blocks should consider potential movement arising from expansive soils. Modified normal foundation solution is recommended.

According to the National Building Regulations Act No. 103 of 1977, the rate of application of effluent to subsoil is not permitted. Because of poor percolation values achieved it is recommended that VIP toilets are not constructed. Urine-diversion or Ventilated vault toilets are recommended. If the mentioned solutions are not practical, VIPs should be lined to prevent contamination of the ground.

GEOTECHNICAL INVESTIGATION FOR THE PROPOSED TOILET BLOCKS AT SINENHLANHLA COMBINED SCHOOL IN WATERSMEET: UTHUKELA DISTRICT MUNICIPALITY, KWA-ZULU NATAL PROVINCE

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Appendix 3	Percolation Test Results

ABBREVIATIONS AND DEFINATIONS

NHBRC	National Home Builders Registration Council
AASHTO	American Association of State Highway and Transportation
Mod. AASHTO	Modified AASHTO MDD
MDD	maximum dry density
OMC	optimum moisture content
CBR	California Bearing Ratio
UCS	Unconfined Compressive Strength
GM	grading modulus
PI	plasticity index
PI (0.425)	PI of the particle fines portion
PI (whole)	PI of whole sample
LL	liquid limit
LS	linear shrinkage
TP	test pit
H	active soils
C	collapse soil
kPa	kilopascal (s)
km	kilometre (s)
m	metre (s)
mm	millimetre (s)
°C	Degrees Celsius
N	Wienart N-value
No.	Number
GM	silty gravels
GC	clayey gravels
SM	silty sands
SC	clayey sands
EGL	existing ground level
avg	average

GEOTECHNICAL INVESTIGATION FOR THE PROPOSED TOILET BLOCKS AT SINENHLANHLA COMBINED SCHOOL IN WATERSMEET: UTHUKELA DISTRICT MUNICIPALITY, KWA-ZULU NATAL PROVINCE

1. INTRODUCTION

This document reports on the findings of the geotechnical investigation for the proposed construction of toilet blocks at Sinenhlanhla Combined School. This investigation was conducted to assess the geotechnical conditions and constraints that underlie the site with regards to design of foundations and sanitation systems.

The report therefore documents an overview of the geotechnical properties and characteristics of the surficial and sub-surficial soils underlying the area that is earmarked for construction. Foundation recommendations are provided for the proposed development. The report also describes the process that was undertaken during the geotechnical investigation.

2. TERMS OF REFERENCE

Gudunkomo Investments & Consultingwas appointed by AECOM to undertake geotechnical site investigation in accordance with the terms of reference contained in the appointment letter, dated 24th of April 2017. The report focuses on the geotechnical site investigation aimed at determining various geotechnical properties of the near surface soil horizons in accordance with SAIEG guidelines, SANS guidelines and guidelines for Human Settlement Planning and Design (Red Book).

3. INFORMATION & LITERATURE USED

Information from the following literature and guidelines were used in the investigation and assessment of the site:

- Geological Map of the GSO: Scale 1: 250 000 Sheet – Geological series 2828 Harrismith & Google Images.
- "Soil Survey for Engineering", by Brink, Partridge and Williams (1982).
- "Code of Practice: Assessment of the performance of housing units in South Africa" published by the Joint Structural Division of SAICE and IStructE (2000).
- "Guidelines for Urban Engineering Geological Investigations" published by South African Institute of Engineering Geologists (1997).
- "Revised Guide to Soil Profiling for Civil Engineering Purposes in Southern Africa" by Jennings et al (1973).
- "Collapsible Soils" by Schwartz, K. (1985). The Civil Engineer in South Africa, July, pp 379 - 393.
- "Prediction of Heave from the Plasticity Index and Percent Fraction of Soils" by Van der Merwe, D.H. (1964). The Civil Engineer in South Africa, June, pp 103 – 107.
- "Code of Practice: Foundations and Superstructures for Single Storey Residential Buildings of Masonry Construction" published by the Joint Structural Division of SAICE and IStructE (1995).
- "Guidelines for Human Settlement Planning and Design" Published by CSIR Building and Construction Technology (2000).
- "Identification of Problematic Soils in Southern Africa" Published by Department of Public Works (2007).

4. SITE DESCRIPTION

4.1 Location

The site for the proposed development, Sinenhlanhla Comined School is in Watersmeet approximately 26.6 km north of Ladysmith in the Kwa-Zulu Natal Province. Sinenhlanhla Combined School sits at latitude and longitudinal coordinates 28°21’48.1”S and 29°44’56.8”E respectively (see Figure 1).



Figure 1: Sinenhlanhla Combined Primary School (sourced from Google Earth).

4.2 Topography and Drainage

Topographically, the site slopes towards the south-west. The most important factor in the stable development of the site is the control and removal of both surface water and groundwater from the site. It is important that the design of the storm water management system allows for the drainage of accumulated surface water. At present, no drainage has been provided for and occurs by sheetwash in a south-westerly direction.

4.3 Climate

Ladysmith’s climate is classified as warm and temperate. When compared with winter, the summers have much more rainfall. About 740mm of precipitation falls annually. In Ladysmith, the average annual temperature is 18.3°C. Precipitation is lowest in July, with an average of 7mm. In January, the precipitation reaches its peak, with an average of 140mm. At an average temperature of 23.1°C,

January is the hottest month of the year. At 11.1°C on average, June is the coldest month of the year. The variation in the precipitation between the driest and wettest months is 133mm. During the year, the average temperatures vary by 12.0°C.

Weinerts climatic N-value for the area is less than 5 (N<5); this implies that chemical decomposition will be the dominant mode of weathering.

4.4 Site Geology

According to the Geological Map Series, 2828 Harrismith; Sinenhlanhla Combined School is situated on the Volkrust Formation comprising blue to drak-grey shale.

The general geology of the site comprises hillwash silt, overlying Nodular Ferricrete at depths 0.27m and 0.41m below existing ground level.

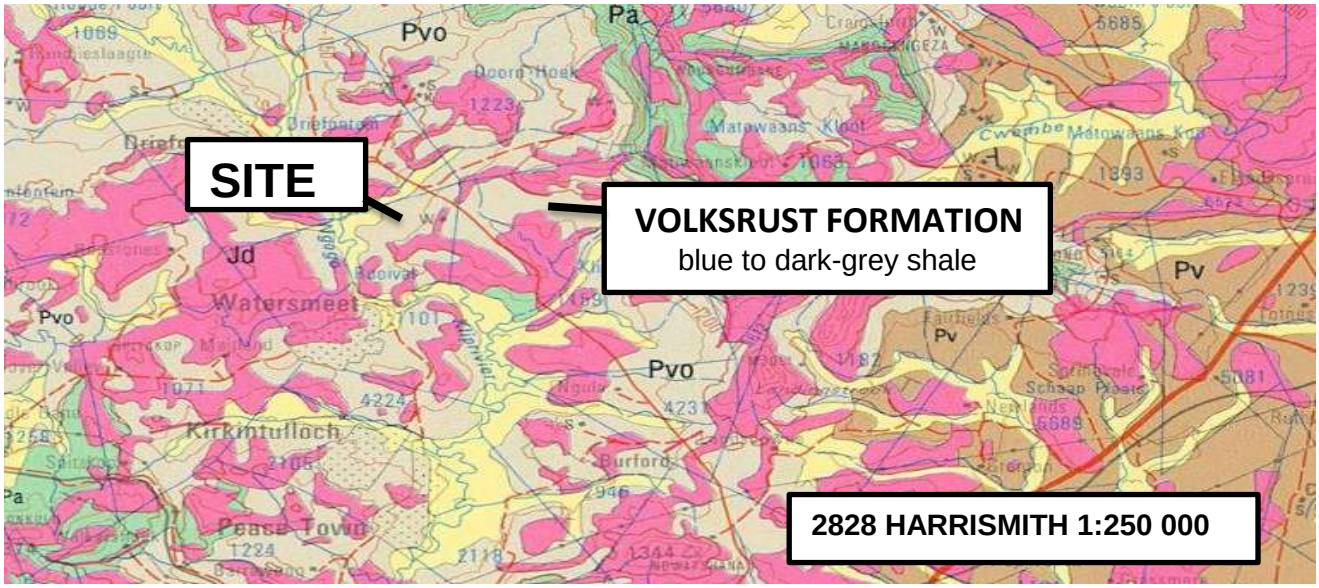


Figure 2: Site Geology.

Table 1: Lithology and Lithostratigraphic Unit of Area.

LITHOLOGY	LITHOSTRATIGRAPHIC UNIT
Blue to dark-grey shale	Volksrust Formation. Karoo Sequence

5. METHOD OF INVESTIGATION

The investigation process was divided into three stages which included:

5.1 Desk Study

The investigation process generally begins with desk study where evaluation of available information is conducted. The existing information includes geotechnical reports of the area and/or its surrounds, geology maps, topographic maps and aerial photography of the site.

5.2 Field Reconnaissance

The desk study process was followed by field reconnaissance investigation which mainly involved a walk over survey. The walk over survey was undertaken to develop a clearer perspective of the actual site conditions including the layout of the area, accessibility, geomorphology, geology, etc. Some of the pertinent information evaluated such as outcrop/scattered outcrop, storm water runoff, etc., are mapped during this reconnaissance stage. Citing of test pit positions was also conducted during this investigation phase.

5.3 Field Investigation

The fieldwork for the investigation was carried out on the 10th of May 2017 and comprised the following:

- Test Pits
- Dynamic Cone Penetrometer (DCP) tests; and
- Percolation Test

5.3.1 Test Pits

Two test pits, designated TP1 and TP2, were excavated using hand tools at the positions given in Figure 3. The test pits were advanced to depths 0.88m (TP1) and 1.01m (TP2) below existing ground level (EGL). These test pits were strategically located to give representative soil conditions of the area. A registered professional engineer inspected and logged the ground profiles as recommended by SAIEG (1996) and according to the MCCSSO method of profiling by Jennings *et al*. Test pit profiling is a visual method of assessing the soil characteristics of a site to classify it according to its geotechnical zones to give guidance on issues such as appropriate foundation designs to be utilized.



Figure 3: Test Pit Positions (sourced from Google Earth)

Two disturbed soil samples were retrieved from test pits and submitted to Civilab Soil and Material Testing laboratory for foundation indicator testing including particle size distributions and Atterberg limits. One disturbed sample was submitted for a road indicator test. Due to the stiffness of the clayey soils on site undisturbed samples could not be retrieved for laboratory testing. The laboratory tests are conducted to assist with the purpose of classification, description, and delineation of homogenous zones. Copies of detailed TP profiles are given in Appendix 1.

5.3.2 Dynamic Cone Penetrometer (DCP) Tests

Four DCP tests, designated DCP1 through DCP4, were conducted at Sinenhlanhla Combined Primary School. All DCP tests were conducted on surface, bar DCP1 at the positions illustrated in Figure 4. DCP1 was executed within TP1. The DCP tests were advanced to refusal depths. These tests were undertaken to provide the indication of the bedrock and consistency of the soils overlying the site.



Figure 4: DCP Test Positions (sourced from Google Earth)

The site classification system is discussed in the Code of Practice for Foundations and Superstructures for single storey Residential Buildings of Masonry Construction compiled by the Joint Structural Division of the SAICE and the IStructE and SAICE's Guidelines for Urban Engineering Geological Investigations. For the purposes of new toilet blocks, the foundation designs are recommended in terms of single story masonry structures with bearing pressures of not more than 50kPa. The results of the DCP tests are included in Appendix 2 together with Estimated Allowable Safe Bearing Pressure (EASBP) values. The DCP test results have been used to derive EASBP's for the subsoils.

5.3.3 Percolation Test

In-situ percolation test was executed at Sinenhlanhla Combined School, within 0.88m deep TP1 as per the provisions of SANS 10400-P: 2010. The percolation test measures the rate at which clean water, under constant or nearly constant hydraulic head, percolates into the surrounding soil in both the vertical and horizontal direction. The test is designed to quantify the rate at which water moves into the soil. Percolation will therefore change as moisture conditions changes. Percolation test results are given in Appendix 3.

6. RESULTS

6.1.1 Test Pits

The soil profile is reasonably uniform across the entire site and may be subdivided into the following horizons. No groundwater seepage was observed in any of the test pits.

Table 2: General description of soil horizons with depths to base of horizon

HORIZON	DEPTH*	DESCRIPTION
Transported	0.34m avg. (0.27m – 0.41m)	Slightly moist, grey brown speckled, medium dense, intact, silt.
Ferricrete	0.95m avg. (0.88m – 1.01m)	Slightly moist, yellow red blotched, very dense, shattered, sand.

*Depth given to base of horizon from present ground level. Figures in brackets denote range

FIGURE 5: Typical soil profile characterizing Sinenhlanhla Combined Primary School.





6.1.2 Dynamic Cone Penetrometer (DCP) Tests

Four DCP tests were conducted at Sinenhlanhla Combined Primary School. All DCP tests were conducted on surface, bar one. DCP1 was executed within TP2. The DCP tests were advanced to refusal depths. These DCP tests were conducted on dry material.

From the DCP tests conducted on surface, an empirical EASBP value of 204.8 kPa was derived. The site soils are predominantly very dense soils characterized by high EASBP values. From the DCP test conducted in TP1, exaggerated EASBP values (>450 kPa) were derived.

6.1.3 Percolation Test

The average time for water level to drop 25mm was found to be greater than 30minutes. According to the National Building Regulations Act No. 103 of 1977, the rate of application of effluent to subsoil is not permitted.

Because of poor percolation values achieved it is recommended that VIP toilets are not constructed. Urine-diversion or Ventilated vault toilets are recommended.

6.1.4 Laboratory Results

Three representative disturbed soil samples were retrieved from the selected soil horizons for laboratory testing. Foundation indicator testing including Atterberg limits as well as grading analysis was conducted on the soil samples. The samples were submitted to Civilab Soils and Material Testing laboratories for testing. The results of the foundation indicator and road indicator tests are given in Appendix 2 and summarised in Table 3 and Table 4 respectively.

Table 3: FOUNDATION INDICATOR TEST RESULTS. SINENHLANHLA COMBINED PRIMARY SCHOOL

Sample No.	Depth (m)	Horizon Sampled	ATTERBERG LIMITS				GM	0,425mm (%)	2mm (%)	4,75mm (%)	%Clay	%Silt	%Sand	%Gravel	Potential Expansiveness	Material Code & Classification
			LL (%)	PI 0,425	PI (whole)	LS (%)										
TP1/2	0.55	Pedogenic	31	12	8	6.0	0.99	63	80	94	28	25	27	20	Low	A-6 (5) CL
TP2/2	0.50	Pedogenic	37	16	7	7.5	1.56	43	63	82	11	23	29	37	Low	A-6 (2) CL

Table 4: ROAD INDICATOR TEST RESULTS. SINENHLANHLA COMBINED PRIMARY SCHOOL

Sample No.	Depth (m)	Horizon sampled	ATTERBERG LIMITS				GM	0,425 mm (%)	2 mm (%)	4,75 mm (%)	% Silt and Clay	% Fine Sand	% Coarse Sand	Material Classification
			LL (%)	PI 0,425	PI (whole)	LS (%)								
TP1/3	0.50	Pedogenic	41	17	8	8.5	1.61	43	57	79	69	6	24	A-7-6 (3)

7. EVALUATION OF GEOTECHNICAL PROPERTIES

The report focuses on the geotechnical site investigation aimed at determining various geotechnical properties of the near surface soil horizons in accordance with SANS guidelines and guidelines for Human Settlement Planning and Design (Red Book), with emphasis on foundation recommendations for the new toilet blocks. Geotechnical properties relevant to the development that were evaluated include:

- **Collapsing settlement** – Soils that exhibit sudden settlement under load when the soil is wetted. These soils are also characterised by a voided structure and exhibit high infiltration/permeability rates.
- **Consolidation settlement** – The vertical settlement or decrease in soil volume that occurs in a soil under applied static load owing to the slow time-related reduction in volume of the voids.
- **Compressible soils** – A soil whose bulk volume may gradually decrease with time when subjected to an applied load.
- **Groundwater table** – Areas where a shallow groundwater table may be encountered.
- **Problem soils** – Areas that may occur in marshy zones, deep unconsolidated fills, and/or areas that may be underlain by dolomite related instabilities, etc.

Table 5 below gives the basis of the site soil classification that was applied during the investigation. The table was adapted according to the site classification system detailed in the SAIGE Guidelines and the Code of Practice by the Joint Structural Division SAICE and IStructE. The designation for the excavatibilty class was further subdivided in this document to allow for various levels of difficulty in excavation.

Table 5: Residential site class designation (adopted from NHBRC Home Building Manual)

GEOTECHNICAL CATEGORY AND SITE CLASS DESIGNATION	GEOTECHNICAL CHARACTERISTICS
Active soils (heave/shrink) - (H) H H1 H2 H3	Expected range of total movement at surface: < 5 mm 5 – 15 mm 15 – 30 mm > 30mm
Collapsible Soils – (C) C C1 C2	Expected range of total movement at surface: < 5 mm 5 – 10 mm > 10 mm
Compressible soils (S) S S1 S2	Expected range of total movement at surface: < 5 mm 5 – 15 mm > 15 mm
Excavation – (R) r1 r2 r3	 sub outcrop scattered outcrop and sub-outcrop outcrop, scattered outcrop and sub-outcrop
P – Problem soils	Dolomitic Areas, marshy areas, contaminated areas, abandoned borrow areas, land fill, mining subsidence and mine waste fill, shallow undermined areas, exploration pits or adits.

8. GEOTECHNICAL EVALUATION

8.1 Groundwater table

No groundwater seepage was observed in test pits.

A perched groundwater table normally presents a problem of rising damp on engineering structures therefore appropriate remedial measures such as damp proofing need to be implemented in areas where a shallow/perched water table is anticipated.

8.2 Active soils/ Cohesive soils

These are soils that change in volume by expanding or shrinking as a result of change in moisture content and are denoted as expansive soils (**H)** according to the SAICE/SAIGE site classes. The expansive soils can be classified as H, H1, H2 or H3 according to the severity of the predicted/anticipated volume change. The prediction of volume change was conducted using Van der Merwe's. This method gives swell differences between dry state and full saturation.

From the Foundation Indicator tests carried out all the horizons tested displayed a "low" potential expansiveness classification. Sinenhlanhla Combined Primary School sits on illite-dominated soil. This type of soil is moderately active. From site observations, it is therefore anticipated that the site will exhibit low heaving potential (degree of expansion) with low swelling pressures.

8.3 Collapsing soils

Collapse and/or consolidation settlement soils denoted as **C** are soils that have a potential for collapse and are commonly open-textured with a high void ratio (Brink, 1985). These soils may include 'loose', 'medium dense' to 'soft' fine colluvial material, aeolian sands as well as residual soils that are derived from gneiss. The occurrence of a collapsible soil fabric is limited to very specific geological conditions which generally lead to the formation of silty sand or sandy silt with a low percentage of clay sized particles.

The soil horizons encountered during soil profiling of the test pits are very dense and exhibited a shattered structure. From the site observations, it is therefore anticipated that the site will exhibit some collapse potential.

8.4 Excavatability

Excavatability of the ground relates to the degree of difficulty at which the ground can be excavatedfor foundations as well as for services. Areas of poor/hard excavatability are characterised by outcrop, near-surface bedrock, hardpan pedocretes, etc. Although these areas present favourable founding conditions they also present a high cost factor with regard to services installation.

All transported soils classify as soft to intermediate excavations in terms of the definitions contained in SANS 1200 DA. These soft materials can be removed by hand tools. Thereafter, it is considered that intermediate to hard ferricrete excavations can be expected at depths 0.27m and 0.41m below EGL.

8.5 Slope Instability

On the site, there are no major man-made slopes and therefore related slope stability problems are not anticipated.

8.6 Subsidence

There is no past or current undermining activity beneath the site; therefore, the potential for mining subsidence is not foreseen. Areas of fill such as dumping of ash or refuse and peat deposits per se, normally give rise to loosely compacted materials and the potential for uneven settlement. Such areas of dump/fill material were not encountered on this site. If such areas are encountered during services installation or foundation excavation, the Competent Person must be consulted in order that appropriate remedial measures may be recommended and implemented at that stage. All rubble and dump material must be removed prior to construction. The borrow area may be backfilled with engineered fill with appropriate compaction method.

8.7 Problem soils

Problem soils such as dolomite and/or marshy areas were not observed or encountered across the site.

8.8 Impact on Building Structures

- **Expansive Soil**

The vertical movements of expansive clay below foundations depend upon changes in moisture content. The change in moisture content in the soil below foundations may commence from the start of construction, because the vegetation that existed before construction used to reduce the moisture content though their root systems and the drying effect of the sun is also stopped. The moisture content therefore tends to increase underneath the structure from the time of construction. Sudden moisture changes due to leaking water or sewer pipes also severely impact on the soil moisture condition.

All these moisture changes are time-related and therefore result in differential movements below the structural foundations which may be up or down and these movements are ongoing.

- **Collapsible Soil**

Structures that have been constructed on collapsible soil, without the potential problem having been recognised, may function satisfactory for many years. However, with time the wet services deteriorate and leaks or blockages occur, or poor stormwater drainage results in frequent ponding of water against the foundations. This will gradually trigger collapse of the grain structure in the soil below the foundations leading to differential settlement and cracking of walls as well as floors. Depending on where the settlement occurs, in terms of the structural layout, the cracks should be wider at the bottom, although the reverse may be true at the external corners.

- **Pedogenic materials**

Pedogenic materials may not be consistent in occurrence, both vertically and horizontally due to the conditions under which they develop and due to the variations in the stages of development at a location. This may lead to variable foundation conditions and hence differential settlement of foundations, which can cause damage to structures.

If shallow hardpan pedogenic materials are present, the cost of the hard excavation will impact on the project cost. Softer layers of pedogenic material may also be present below a well-developed hardpan layer, which could cause settlement with time.

9. CONCLUSIONS AND RECOMMENDATIONS

Based on the interpretation of the field investigation results, the following recommendations are provided to assist in the construction of toilet blocks:

- Two test pits were excavated using hand tools on site. The test pits were advanced to depths 0.88m (TP1) and 1.01m (TP2) below EGL and displayed a uniform soil profile.

- The site soils are predominantly very dense soils characterized by high EASBP values. From the DCP tests conducted on surface, an EASBP value of 204.8 kPa was derived. The site soils are predominantly very dense soils characterized by high EASBP values. From the DCP test conducted in TP1, exaggerated EASBP values (>450 kPa) were derived.

- The soil horizons encountered during soil profiling of the test pits were very dense and exhibited a shattered structure. From the site observations, it is therefore anticipated that the site will exhibit some collapse potential and low expansive potential.

- No groundwater seepage was observed in both test pits.

- Based on the information presented above and laboratory tests, the site soils can be classified as **C/H1**. Foundations for the new toilet blocks should consider potential differential settlement arising from movement of collapsible soils and expansive soils. Modified normal foundation solution is recommended. It should be founded at a minimum depth of 0,7m.

- Because of poor percolation values achieved it is recommended that VIP toilets are not constructed. Urine-diversion or Ventilated vault toilets are recommended. If the mentioned solutions are not practical, VIPs should be lined to prevent contamination of the ground.

Gudunkomo
Sinenhlanhla
2017-H-590

Materiaal Analoog / Material Analogue				Opsomming van Toetsresultate / Summary of Test Results																											
Gat Nr / Hole No	Diepte (m) / Depth (m)	Monster Nr / Sample No.	Beskrywing / Description	Sifanalise (% Deurgelaat) Sieve Analysis (% Passing)										Grondbindstof Analise / Soil Mortar Analysis			Atterberg Konstantes Constants			G M	TRB Klas Class	Gewys/Mod AASHTO		K D V C B R		K D V / E D S C B R / U C S					TRH 14 Klas Class
				63.0 mm	53.0 mm	37.5 mm	26.5 mm	19.0 mm	13.2 mm	4.75 mm	2.0 mm	0.425 mm	0.075 mm	G S C S	F S	Mat < 0.075 mm	V G L L	P I	L K L S			OVG OMC	Mod	Verd Vog Comp Moist	Swel Swell	100 %	98%	95%	93%	90%	
TP 1/3	0.5m	590-2		100	100	100	100	100	100	79	57	43	39	24	7	69	41	17	8.5	1.61	A-7-6 (3)	13.0	1972	12.9	0.5	21.1	20.0	16.9	14.1	10.8	G8

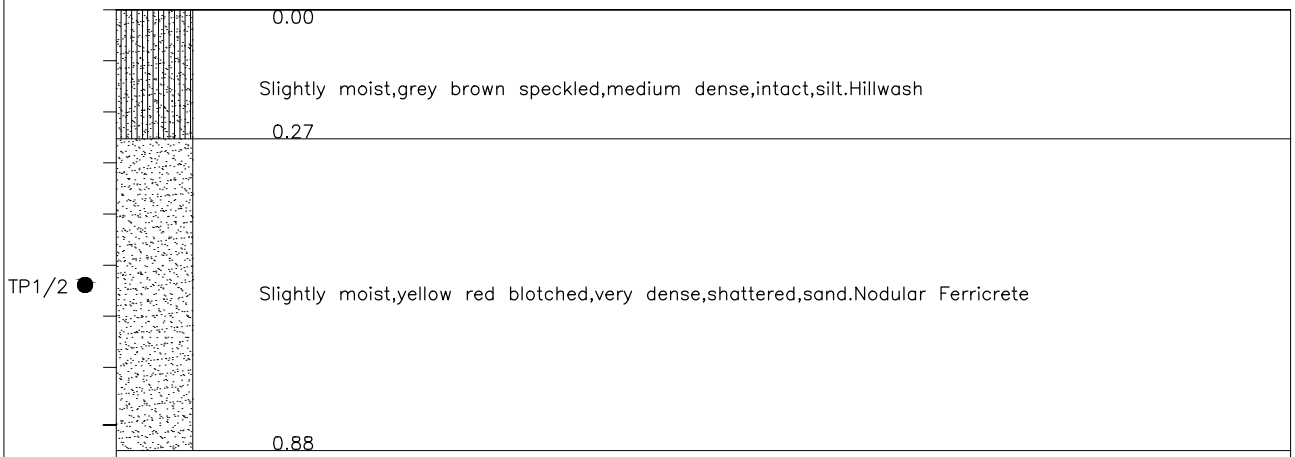
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HOLE No.
TP1
Sheet 1 of 1

SOIL PROFILE

PROJECT: SINENHLANHLA CP SCHOOL

CLIENT: AECOM.



NOTES:

1. Roots present
2. No water seepage visible
3. Disturbed sample TP 1/2 taken at 1.55m

MACHINE : hand dug (manual)

PROFILED BY : Manqobq Zondo

HOLE No.: TP1

DIAMETER : Trench
DATE DRILLED : 26/05/2017
DATE PROFILED : 27/05/2017
INCLINATION : Vertical

ELEVATION: 787m
LATITUDE : 28° 21' 48.1" S
LONGITUDE : 29° 44' 56.8" E
Y: -73436.480
X: 3138938.365

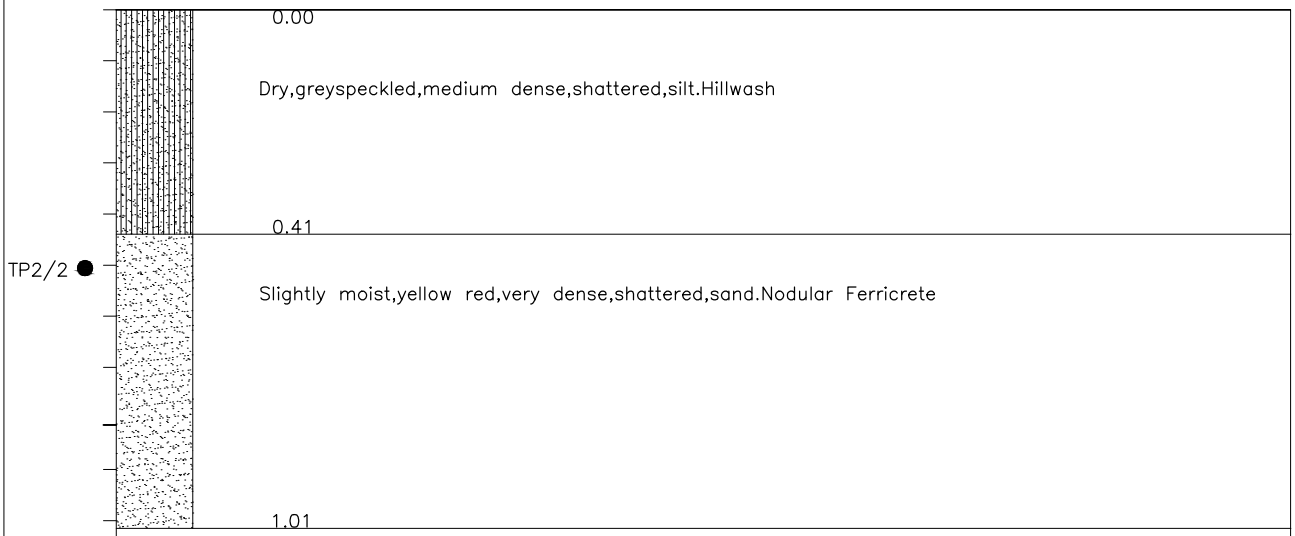
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HOLE No.
TP2
Sheet 1 of 1

SOIL PROFILE

PROJECT: SINENHLANHLA CP SCHOOL

CLIENT: AECOM.



NOTES:

1. Roots present
2. No water seepage visible
3. Disturbed sample TP 2/2 taken at 0.5m

MACHINE : hand dug (manual)

PROFILED BY : Manqobq Zondo

HOLE No.: TP2

DIAMETER : Trench
DATE DRILLED : 26/05/2017
DATE PROFILED : 27/05/2017
INCLINATION : Vertical

ELEVATION: 1152m
LATITUDE : 28° 21' 48.0" S
LONGITUDE : 29° 44' 57 " E
Y: −73441.927
X: 3138938.399

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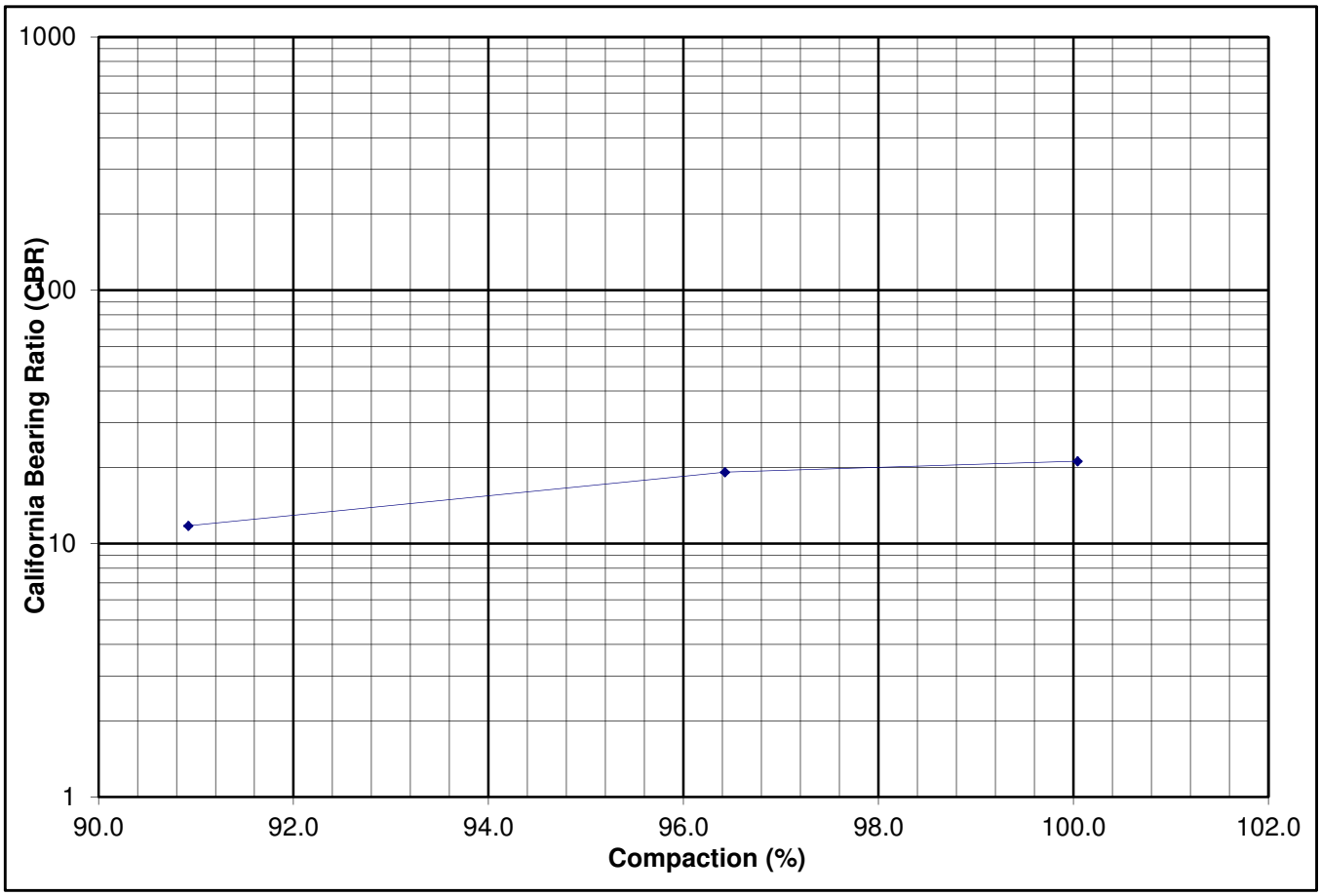
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California Bearing Ratio Results

Project:	Gudunkomo - Sinenhlanhla CP		
Project No.:	2017-H-590	Date:	19 Jun 2017
Field Reference:	TP 1/3	Lab. Sample Ref:	590-2
Depth (m):	0.5	Remarks:	
Description:	-		

CBR at			Swell	Final Moisture Content	Mod AASHTO Data		CBR Compaction Data		
2.54 (mm)	5.08 (mm)	7.62 (mm)	(%)	(%)	Max Dry Density (kg/m³)	Optimum Moisture (%)	Dry Density (kg/m³)	Com-paction (%)	Moisture Content (%)
21	18	16	0.5	15.8	1972	13.0	1973	100.0	12.9
19	17	15	0.6	16.4			1902	96.4	
12	12	11	0.7	17.6			1793	90.9	

Interpolated Data	**Compaction**	**90%**	**93%**	**95%**	**98%**	**100%**
	CBR	**11**	**14**	**17**	**20**	**21**



The samples were tested in accordance with Method A8 of TMH1 of 1986
The results reported relate only to the samples tested.
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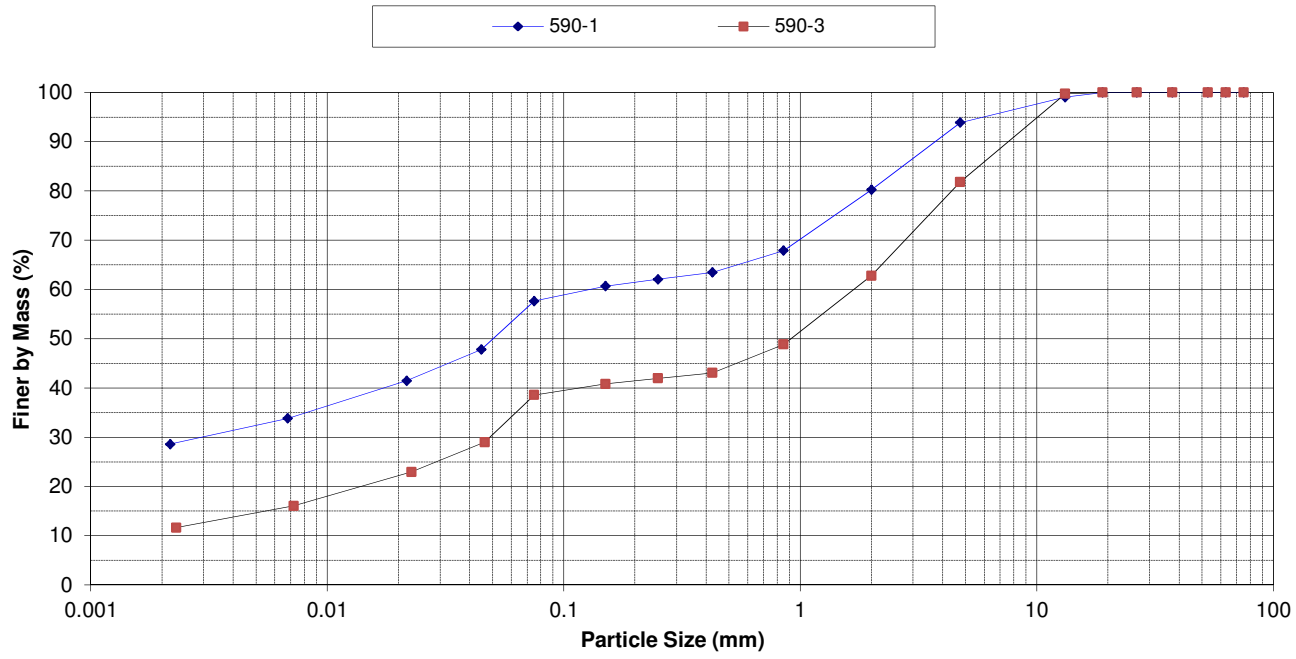
Foundation Indicator Test Data

Project	Gudunkomo - Sinenhlanhla CP		
Project No.	2017-H-590	Date	19 June 2017

Sample No.	590-1	590-3	
Field Ref. No.	TP 1/2	TP 2/2	
Depth	0.55m	0.5m	
Sieve size	%Passing	% Passing	% Passing
75.00	100	100	
63.00	100	100	
53.00	100	100	
37.50	100	100	
26.50	100	100	
19.00	100	100	
13.20	99	100	
4.75	94	82	
2.00	80	63	
0.85	68	49	
0.425	63	43	
0.25	62	42	
0.15	61	41	
0.075	58	39	
0.04	47	28	
0.02	41	22	
0.006	33	15	
0.002	28	11	

Sample No.	590-1	590-3	
%Gravel	20	37	
%Sand	27	29	
%Silt	25	23	
%Clay	28	11	
NMC %	Not Tested	Not Tested	
Liquid Limit	31	37	
Plasticity Index	12	16	
Linear Shrink.	6.	7.5	
Overall P.I.	8	7	
Grading Modulus	0.99	1.56	
H.R.B.	A-6 (5)	A-6 (2)	
Unified	CL	SC	
Weston swell (%) at 1 kPa			

Analysis as per method D422 of ASTM of 1985
The results reported relate only to the samples tested.
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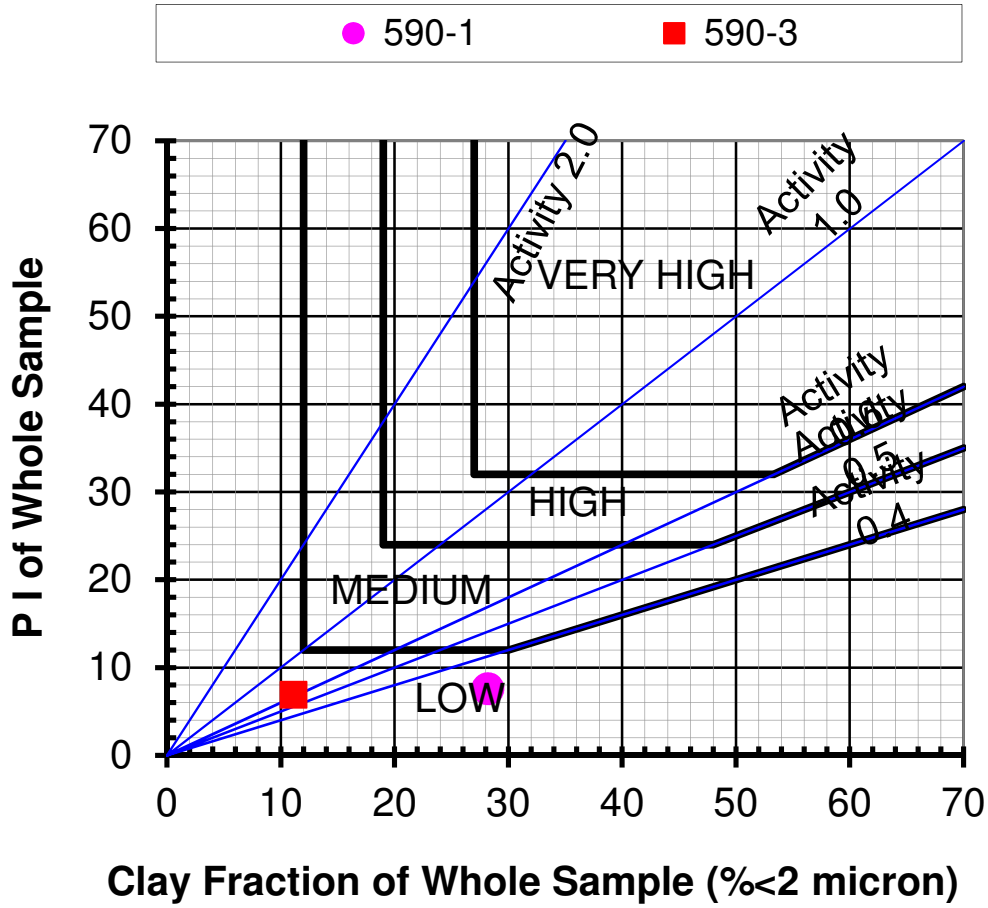


Remarks:

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Activity Diagram After D H van der Merwe



Plotted Values:

Sample	Clay Frac	PI
590-1	28.2	7.6
590-3	11.1	6.9

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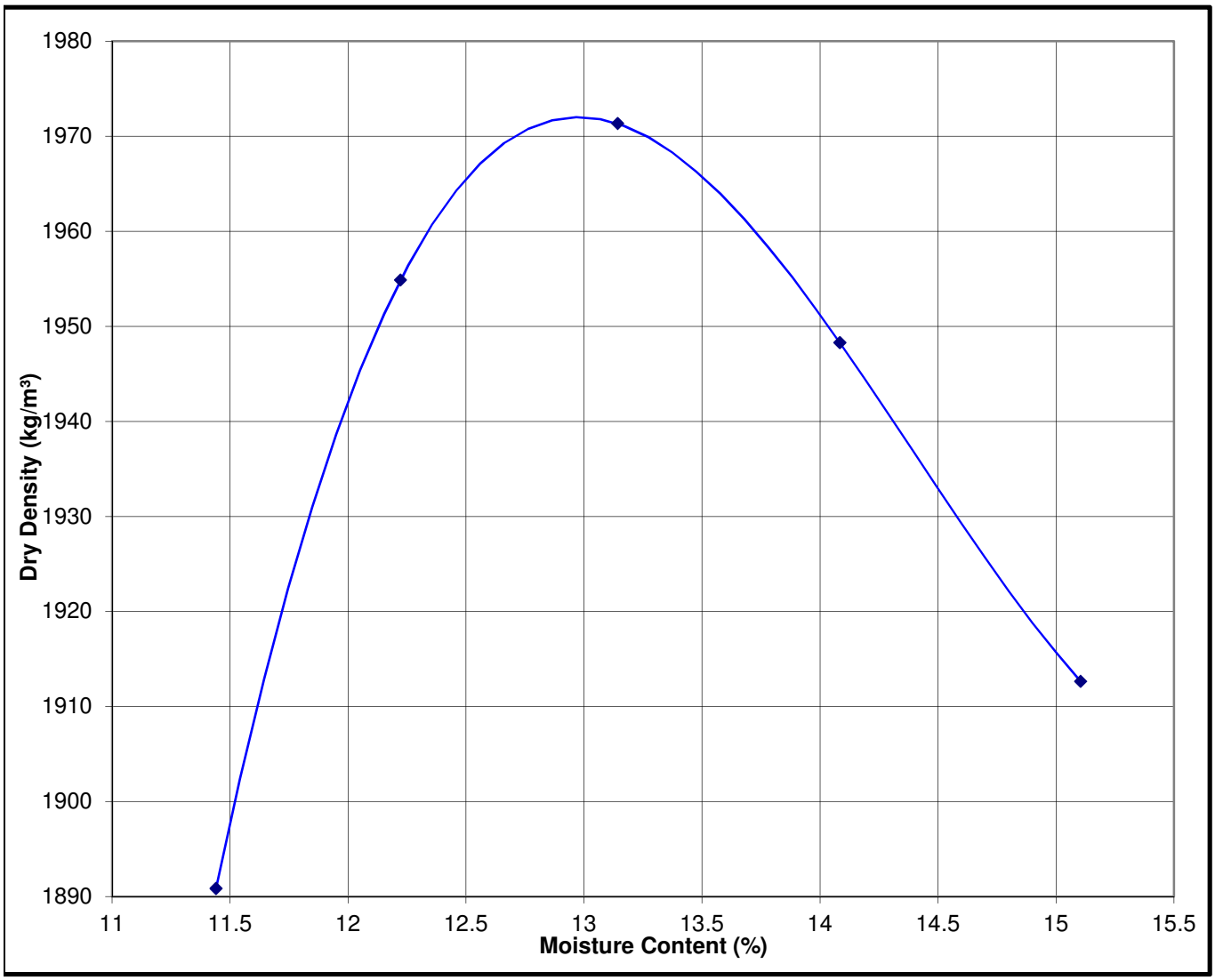
Moisture Density Relationship

Project:	Gudunkomo - Sinenhlanhla CP		
Project No.:	2017-H-590	Date:	14 June 2017
Field Reference:	TP 1/3	Laboratory Ref.:	590-2
Depth (m):	0.5	Remarks:	
Description:	-		

Compactive Effort: **Mod. AASHTO**

Percent Water Content (%):	11.4	12.2	13.1	14.1	15.1				
Dry Density (kg/m^3):	1891	1955	1971	1948	1913				

Maximum Dry Density:	**1972 kg/m^3**	**Optimum Moisture Content:**	**13.0 %**



Analysis according to Method A7 of TMH1 of 1986.
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Remarks:

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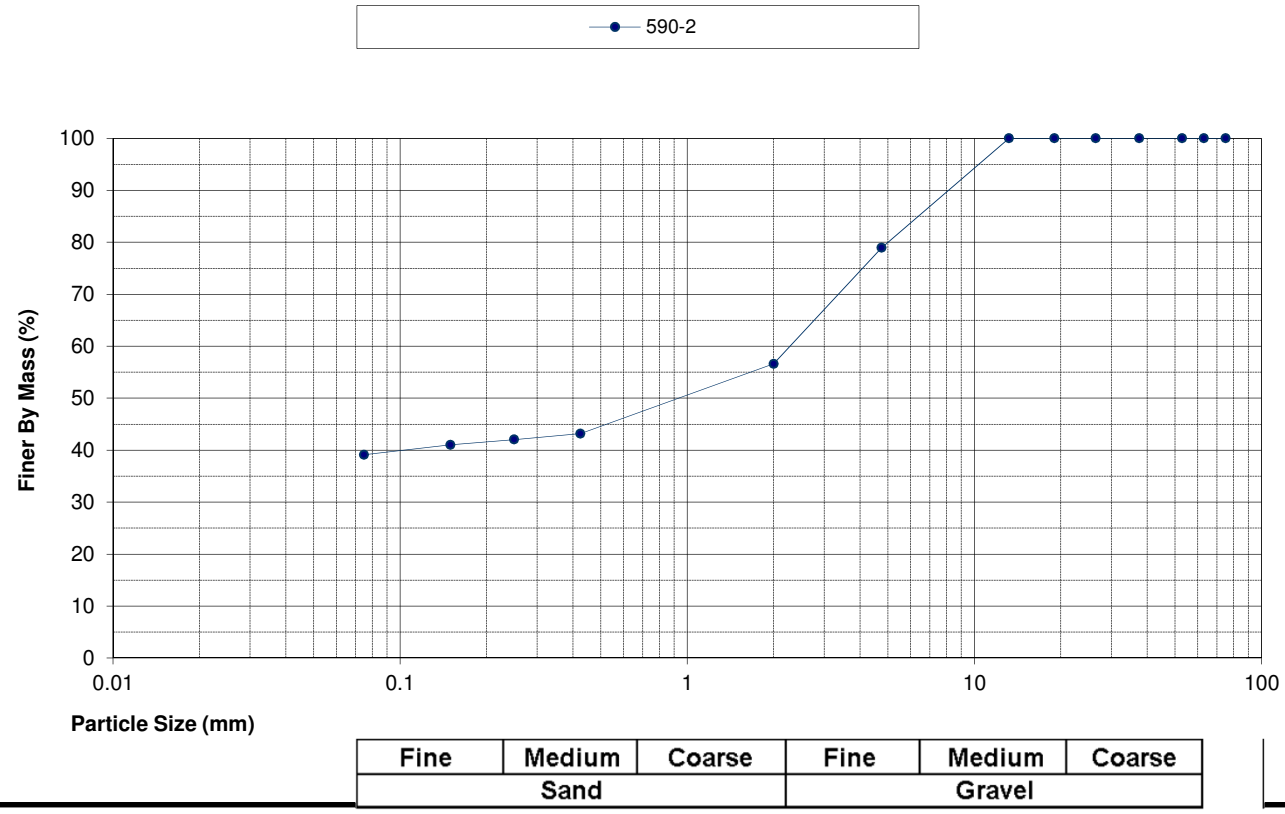
Road Indicator Test Data

Project	Gudunkomo - Sinenhlanhla CP		
Project No.	2017-H-590	Date	19 June 2017

Sample No.	590-2		
Field Ref. No.	TP 1/3		
Depth	0.5m		
Sieve size	%Passing	% Passing	% Passing
75.00	100		
63.00	100		
53.00	100		
37.50	100		
26.50	100		
19.00	100		
13.20	100		
4.75	79		
2.00	57		
0.425	43		
0.25	42		
0.15	41		
0.075	39		

Sample No.	590-2		
%Coarse Sand	24		
%Fine Sand	7		
%Silt and Clay	69		
NMC %	Not Tested		
Liquid Limit	41		
Plasticity Index	17		
Linear Shrink.	8.5		
Overall P.I.	8		
Grading Modulus	1.61		
H.R.B.	A-7-6 (3)		

The results reported relate only to the samples tested.
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Analyses according to methods A1(a), A2, A3 and A5 of TMH1 (1986) and method A4 of TMH1 (1970).
Remarks:

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Reg.no: 2016/153520/07
VAT no: 4610245864

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Email: info@gudunkomo.co.za

Client	**AECOM**
Project	**Schools Sanitation Program**
School Name	**Sinenhlanhla Combined Primary School**
Date of Test	**10/05/2017**
Field Technician	**Moalusi Tlhapi**
Pit / Hole No.	**1**
Position	**28°21'48.1"S 29°44'56.8"E**

PERCOLATION TEST REPORT

Water Table	Soil Legend	Depth (mm)	SOIL DESCRIPTION Moisture; Colour; Consistency; Structure; Soil Texture; Origin
		0 – 270	Slightly moist, grey brown speckled, medium dense, intact, silt. Hillwash
		270 - 880	Slightly moist, yellow red blotched, very dense, shattered, sand. Nodular ferricrete

Percolation Rate: Average Time for water level to drop 25mm = > 30min

Percolation Rate: Average Time for 25mm Fall of Test Water Level			RATE OF APPLICATION OF EFFLUENT TO SUBSOIL INFILTRATION AREAS, LITRES PER m2 OF FRENCH DRAIN WALL AREA PER DAY	CATEGORY
	0 to 3	Minutes	108 Maximum	
	3 to 5	Minutes	108 – 100	
	6 to 10	Minutes	99 – 80	
	11 to 15	Minutes	79 -65	
	16 to 20	Minutes	64 – 53	
	21 to 26	Minutes	52 – 40	
	27 to 30	Minutes	NOT PERMITTED	X

TESTED IN ACCORDANCE WITH NATIONAL BUILDING REGULATIONS ACT NO. 103 OF 1977

For Gudunkomo:_____

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 6
JOINT VENTURE AGREEMENT

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Joint Venture Agreement
(March 2004)
(First Edition of CIDB document 1017)

1. **PREAMBLE**

This agreement is made and entered into by and between

_____

_____

_____

of the first part and

_____

_____

_____

of the second part and

_____

_____

_____

of the third part.

(allow for additional parties as necessary).

Whereas the foregoing parties have resolved to form a Joint Venture under the title of

_____

_____

_____

for the exclusive purposes of securing and/or executing the Contract to be awarded by

(name of Employer)

to the KZN Department of Public Works in respect of the following project:

for *(brief description of Contract)*

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

Now it is hereby agreed as follows :

2. DEFINITIONS AND INTERPRETATION

2.1 Definitions

The following words and expressions shall have the meanings indicated, except where the context otherwise requires. Defined terms and words are, in general, signified in the text of the Agreement by the use of capital initial letters, but the absence of such letters does not necessarily signify that a term, or word, is not defined.

'Agreement' means the agreement between the Members of the Joint Venture and includes this model form of agreement together with the Preamble, Specific Provisions, if any, Schedules 'A', 'B' and 'C' and any relevant Documents prepared prior to the signing of the Agreement and appended thereto.

'Contract' means the contract with the Employer for the supply of the Deliverables, for the purposes of securing and executing which, the Joint Venture has been formed.

'Deliverables' means the works and/or services, equipment, materials, goods, etc. to be furnished by the Joint Venture to the Employer in terms of the Contract.

'Document' means any written, drawn, typed, printed, or photographic material, which relates to the Agreement.

'Employer' means the person, or body, which is to award the Contract and will employ the Joint Venture if it is awarded the Contract.

'Joint Venture' means the joint venture formed by the Members in accordance with the Agreement.

'Management Committee' means the body established in terms of the Agreement to manage all aspects of the work of the Joint Venture in securing and executing the Contract and in meeting the provisions for the Agreement.

'Member' means a person, or body which, being a party to the Agreement, is a member of the Joint Venture.

'Member's Interest' means the proportion expressed as a percentage, which the total monetary value of all resources provided and contributions made by a Member towards the execution by the Joint Venture of the Contract bears to the total of such values by all Members and, unless otherwise indicated in the Agreement, represents the extent to which the Member participates in the fortunes of the Joint Venture.

'Representative' means the person representing a Member on the Management Committee.

'Schedules' means Schedules 'A', 'B' and 'C' which set out general, financial and other information relating to the Members and the obligations, duties, rights, risks and benefits arising from their participation in the Joint Venture.

'Specific Provisions' means the variations, if any, required to this standard form of agreement for the specific purposes of the Agreement.

2.2 Interpretation

Unless inconsistent with the context, an expression in the Agreement which denotes:

- any gender shall include the other genders
- a natural person shall include a juristic person and vice versa
- the singular shall include the plural and vice versa

2.3 Headings

The headings to clauses of the Agreement shall not be considered part thereof, nor shall the words they contain be taken into account in the interpretation of any clause.

2.4 Law

The Agreement shall be construed in accordance with and governed by the laws of the Republic of South Africa and the English language versions shall prevail.

2.5 Language

English shall be exclusively used by the Members in the preparation of Documents unless otherwise indicated.

2.6 Conflict between Agreement and Contract

Should any provision of the Agreement be in conflict with the terms of the Contract, the Agreement shall be amended to the approval of the Management Committee so as to eliminate the conflict.

3. JOINT VENTURE GENERAL

3.1 Establishment and Purpose

The Joint Venture established by the Members in terms of the Agreement is an unincorporated association with the exclusive purposes of securing and executing the Contract for the benefit of the Members.

3.2 Termination

The operation of the Joint Venture and the validity of the Agreement shall terminate if and when it becomes evident that the Joint Venture will not be awarded the Contract, or, if the Joint Venture secures the Contract, when all obligations and rights of the Joint Venture and the Members in connection with the Contract and the Agreement have ceased and/or been satisfactorily discharged.

Unless otherwise decided by the Management Committee, the Agreement shall not terminate if a Member changes its name, or is taken over by, or merged with, another body.

This agreement will terminate when any one of the Members resigns, are liquidated or opts out of this agreement and the Joint Venture will be in breach of contract with the Employer and their contract could be cancelled.

3.3 Exclusivity

Unless otherwise agreed by the Management Committee, or provided for in the Contract no Member shall engage in any activity related to the Contract other than as a Member of the Joint Venture and Members shall ensure that their subsidiaries and other bodies over which they have control comply with this requirement.

3.4 Participation of Members

Except as may otherwise be stipulated in the Agreement, each Member shall be responsible for all costs incurred by it prior to the date of inception of the Agreement.

Subsequent to the date of inception of the Agreement, each Member shall, participate in the operations, risks, responsibilities and fortunes of the Joint Venture including, inter alia, the provision of funding, sureties, guarantees, insurances, human and other resources and participation in profits and losses to the extents indicated in the Schedules. Participation in any aspect not covered in the Schedules shall, if an agreement cannot be reached between the Members, be to the same extents as indicated by the Members Interests.

3.5 Management

The affairs of the Joint Venture shall be directed and controlled by the Management Committee, as set out in Section 4 hereof.

3.6 Confidentiality

All matters relating to the Agreement and the Contract shall be treated by the Members as confidential and no such matter shall be disclosed to any third party without the prior written approval of the Management Committee.

No Member shall be party to the dissemination of publicity relating to the Contract, or the Agreement, without the prior written approval of the Management Committee and the Employer.

3.7 Assignment

No Member shall cede, assign, or in any other way make over any of its rights, or obligations, under the Agreement without the prior written consent of the Management Committee.

3.8 Subcontracting

No Member shall subcontract any obligation, work or duty for which it is, itself, responsible in terms of the Agreement without the prior written consent of the Management Committee.

3.9 Variations to Agreement

No variation, modification, or waiver of any part of the Agreement shall be of any force, or effect, unless unanimously agreed by the Members and reduced to writing.

3.10 Liability

Each Member warrants that it will indemnify the other Members against all legal liabilities arising out of, or in connection with the performance of its obligations under the Agreement.

It is acknowledged by the Members that they may be held jointly and severally liable in respect of claims against the Joint Venture by the Employer or third parties.

4. MANAGEMENT OF JOINT VENTURE

4.1 General

The affairs of the Joint Venture shall be directed, controlled and managed by the Management Committee, which, within the terms of the Agreement and the Contract, shall have full authority to bind the Members in all matters relating to the affairs of the Joint Venture.

Communication between the Joint Venture and the Employer, or third parties, relating to the Contract shall be conducted exclusively by the Management Committee, or by such person as it may delegate to perform this function.

The Management Committee shall have the power to appoint a project manager and/or such other persons as it may see fit to appoint for the purpose of executing the Contract and may delegate such of its powers, responsibilities and duties as it may consider necessary, or desirable, to persons or bodies appointed or seconded for this purpose.

Such administrative functions as are necessary to ensure the effective operation of the Management Committee shall be performed by its chairman.

4.2 Management Committee

4.2.1 *Composition*

The Management Committee shall, unless otherwise agreed by all the Members, consist of one Representative of each Member and each Member shall be obliged, at all times, to maintain a Representative on the Management Committee.

Each member shall, not later than three working days after the signing of the Agreement, appoint its Representative and notify the other Members of the name and contact details of the Representative. Such Representative shall have the power to bind the Member that he represents in all matters relating to the execution of the Contract and the performance of the Agreement.

A Member shall be entitled, after giving the other Members not less than three working days written notice of his intention to do so, appoint, remove and/or replace, an alternate who shall, at any meeting of the Management Committee from which the Representative whom he represents is absent, be vested with all rights and powers and subjected to all the obligations of the absent Representative.

The chairman of the Management Committee shall be the Representative of the Member which has the largest Member's Interest. If two, or more, Members have the same, largest Member's Interest, the chairmanship shall rotate between the Representatives of such Members at three monthly intervals, the order of rotation to be determined by ballot.

Notwithstanding the foregoing, the chairmanship of the Management Committee may be determined, or changed, at any time by unanimous decision of the Management Committee.

No remuneration shall be paid by the Joint Venture to Representatives or their alternates for serving on the Management

4.2.2 *Meetings*

Meetings of the Management Committee shall take place at such times and places as the Management Committee may determine, provided that the chairman shall convene a meeting of the Management Committee to be held not later than ten working days after he has been requested, in writing, by a Member to do so. Not less than five working days written notice of any meeting of the Management Committee shall be given to all Representatives and their alternates.

The Management Committee may permit, or invite, persons other than Representatives or alternates to attend any of its meetings, but such persons shall not have voting rights.

4.2.3 *Decisions*

Each Representative shall have one vote on the Management Committee and where, in terms of this clause, a casting vote is required, this shall be exercised by the chairman.

All decisions of the Management Committee shall, desirably, be unanimous. Accordingly, if unanimity cannot, initially, be achieved in regard to a decision, the meeting at which that decision is sought shall be adjourned for a period of 48 hours to enable Representatives to consult with their principals. If, on resumption of the adjourned meeting, unanimity can still not be achieved, the decision, provided it is not one requiring unanimity of the Members, shall be taken by majority vote and, in the event of a tie, the chairman shall exercise a casting vote.

A Member not satisfied with a majority decision of the Management Committee may declare a dispute, to be dealt with in terms of Clause 8 hereof, but the majority decision shall, nevertheless, be implemented with immediate effect.

Decisions of the Management Committee, whether taken at a meeting, or otherwise, shall be recorded in written minutes, which shall be distributed by the chairman to reach the Representatives not later than five working days after those decisions were taken. Such minutes shall be deemed to have been affirmed by the Representatives unless written notice of dissent is received by the chairman not later than three working days after receipt of the minutes by the Representative.

4.2.4 Powers and duties

The functions, responsibilities and powers of the Management Committee shall include, inter alia, those listed below:

4.2.4.1 Formulating overall policy in regard to the achievement of the objectives of the Joint Venture.

4.2.4.2 Managing the day to day affairs of the Joint Venture.

4.2.4.3 Monitoring, directing and co-ordinating the activities of the Members to ensure that the objectives of the Joint Venture are achieved and that the obligations and responsibilities of the individual Members are met.

4.2.4.4 Monitoring and controlling the financial affairs of the Joint Venture and ensuring that proper books of account and financial records relating to affairs of the Joint Venture are maintained in an approved form and submitted to the Management Committee for approval at regular intervals, which shall not be longer than one month.

4.2.4.5 Determining the necessity for and the details of any changes in the duties and responsibilities of Members provided that any resulting changes in Members' Interests shall be unanimously approved by the Members.

4.2.4.6 Determining the terms and conditions of employment of personnel and the emoluments applicable to staff seconded to the Joint Venture by the Members.

4.2.4.7 Controlling and approving the appointment of all subcontractors.

4.2.4.8 Procuring, after the completion of the Contract and the release of all bonds, guarantees and sureties given in respect of the performances of the Joint Venture and the Members, the preparation and auditing of a final set of accounts, on the basis of which the final profits, or losses, attributable to the individual Members shall be determined and any necessary adjustments effected.

5 RESOURCES OF JOINT VENTURE

The resources to be utilised by the Joint Venture in securing and executing the Contract shall, insofar as these are to be provided directly by the Members, be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Member's Interests are not, except with the unanimous approval of the Members, affected thereby.

Similarly, specific areas of responsibility of the Members for the performance of work and the provision of facilities shall be as set out in the Schedules and may, from time to time, be amended by decision of the Management Committee, provided that the Members' Interest are not, except with the unanimous approval of the Members, affected thereby.

5.1 Schedule 'A' (General)

Schedule 'A' shall contain general information relating to the Joint Venture including, inter alia, the following :

1. The Employer's name and address.
2. A brief description of the Contract and the Deliverables.

3. The name, physical address, communications addresses and domicilium citandi et executandi of each Member and of the Joint Venture.
4. The Members' Interests.
5. A statement indicating whether, or not, Specific Provisions apply to the Agreement.
6. A schedule of insurance policies which must be taken out by the Joint Venture and by the individual Members.
7. A Schedule of sureties, indemnities and guarantees that must be furnished by the Joint Venture and by the individual Members.

8. Details of the persons, who, in the event of failure by the Members to reach agreement on the appointments of mediator and arbitrator, will nominate appointees to these positions in terms of Clauses 8.2 and 8.3.

5.2 Schedule 'B' (Financial)

Schedule 'B' shall contain information regarding the financial affairs of the Joint Venture including, inter alia, the following :

1. The working capital required by the Joint Venture and the extent to which and manner whereby this will be provided and/or guaranteed by the individual Members from time to time.
2. The banking accounts that are to be opened in the name of the Joint Venture and the manner in which these are to be operated.

3. The rates of interest that will be applicable to amounts by which Members are in debit, or credit, to the Joint Venture.

4. The names of the auditors and others, if any, who will provide auditing and accounting services to the Joint Venture.

5. The intervals at which interim financial accounts and forecasts will be prepared for approval by the Management Committee.

6. Insofar as not covered in Schedule 'C', the basis on which contributions of various types by the Members towards the work of the Joint Venture in securing, executing, managing and satisfactorily completing the Contract, will be valued.

7. The basis on which profits and/or surplus cash will, if available from time to time, be distributed to Members.
8. The basis upon which losses, if any, are to be apportioned to Members.

5.3 Schedule 'C' (Contributions by Members)

Schedule 'C' shall set out the contributions of various types, other than cash, that will be made by the individual Members towards the work and obligations of the Joint Venture and shall, as far as possible, indicate the monetary values to be placed on such contributions, which may include, inter alia, the following :

1. Staff seconded to the Joint Venture.
2. Work carried out and services provided to, or on behalf of, the Joint Venture.
3. Plant, equipment, facilities etc. made available for use by the Joint Venture.
4. Materials and goods supplied to, or on behalf of, the Joint Venture.
5. Licences, sureties, guarantees and indemnities furnished to, or on behalf of, the Joint Venture.
6. Joint Venture Disclosure form required for the Contract.

6. BREACH OF AGREEMENT

If a Member breaches any material provision of the Agreement, or delays or fails to fulfil its obligations in whole, or in part, and does not remedy the situation within fourteen calendar days of receipt of notice from the Management Committee, or another Member, to do so, the other Members shall have the right, without prejudice to any other rights arising from the default, to summarily terminate the Agreement and re-assign the defaulting Member's rights and obligations in the Joint Venture as they see fit and withhold any moneys due to the defaulting member by the Joint Venture.

Each Member shall indemnify the other Members against all losses, costs and claims which may arise against them in the event of the Agreement being terminated as a result of breach of the Agreement by the said Member.

7. INSOLVENCY OF MEMBER

Should a Member be placed in liquidation, or under judicial management, whether provisionally or finally, or propose any compromise with its creditors, the other Members shall be entitled to proceed in terms of Clause 6, as if the Member had breached the Agreement.

8. DISPUTES

8.1 Settlement

The Members shall negotiate in good faith and make every effort to settle any dispute, or claim, that may arise out of, or relate to, the Agreement.

If agreement cannot be reached, an aggrieved Member shall, if he intends to proceed further in terms of Clause 8.2 hereof, advise all other Members in writing that negotiations have failed and that he intends to refer the matter to mediation in terms of Clause 8.2.

8.2 Mediation

Not earlier than ten working days after having advised the other Members, in terms of Clause 8.1, that negotiations in regard to a dispute have failed, an aggrieved Member may require that the dispute be referred, without legal representation, to mediation by a single mediator.

The mediator shall be selected by agreement between the Members, or, failing such agreement, by the person named for this purpose in Schedule 'A'. The costs of the mediation shall be borne equally by all Members.

The mediator shall convene a hearing of the Members and may hold separate discussions with any Member and shall assist the Members in reaching a mutually acceptable settlement of their differences through means of reconciliation, interpretation, clarification, suggestion and advice. The Members shall record such agreement in writing and thereafter they shall be bound by such agreement.

The mediator is authorised to end the mediation process whenever in his opinion further efforts at mediation would not contribute to a resolution of the dispute between the Members.

8.3 Arbitration

Where a dispute or claim is not resolved by mediation, it shall be referred to arbitration by a single arbitrator to be selected by agreement between the Members or, failing agreement, to be nominated by the person named for this purpose in Schedule 'A'.

The Member requiring referral to arbitration shall notify the other Members, in writing, thereof, not later than thirty calendar days after the mediator has expressed his opinion, failing which the mediator's opinion shall be deemed to have been accepted by all Members and shall be put into effect.

Arbitration shall be conducted in accordance with the provisions of the Arbitration Act No. 42 of 1965, as amended, and in accordance with such procedure as may be agreed by the Members or, failing such agreement, in accordance with the rules for the Conduct of Arbitrations published by the Association of Arbitrators and current at the date that the arbitrator is appointed.

The decisions of the arbitrator shall be final and binding on the Members, shall be carried into immediate effect and, if necessary, be made an order of any court of competent jurisdiction.

9. DOMICILIUM

The Members choose domicilium citandi et executandi for all purposes of and in connection with the Agreement as stated in Schedule 'A'. A Member shall be entitled to change his domicilium from time to time, but such change shall be effective only on receipt of written notice of the change by all other Members.

Member No. 1

Thus done and signed at _____ this _____ day of _____20___

For and on behalf of_____*[Company]*

by *[name]* _____ who warrants his authority to do so.

_____

As witnesses 1. _____ As witnesses 2. _____

Member No. 2

Thus done and signed at _____ this _____ day of _____20___

For and on behalf of_____*[Company]*

by *[name]* _____ who warrants his authority to do so.

_____

As witnesses 1. _____ As witnesses 2. _____

Member No. 3

Thus done and signed at _____ this _____ day of _____20___

For and on behalf of_____*[Company]*

by *[name]* _____ who warrants his authority to do so.

_____

As witnesses 1. _____ As witnesses 2. _____

[Allow for additional parties as necessary].

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 7
HEALTH AND SAFETY SPECIFICATION

12 October 2022

KWAZULU-NATAL PROVINCE

PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Occupational Health and Safety Specification

(OHSE SPEC)

Project Name: WATER AND SANITATION PROGRAMME FOR DEPARTMENT OF EDUCATION

WIMS no.:

OHS Rep.: S.C. Mkhize

Region: MIDLANDS REGION

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1. Introduction

The *KwaZulu Natal Department of Public Works* is deemed as the" Client" in terms of the definitions of Construction Regulations of 2014as published in *Government Gazette No. 37305*.TheConstruction Regulations of 2014under *CR (5) (1)* stipulates that that the client must prepare a suitable, sufficiently documented and coherent site specific Occupational Health and Safety Specification for the intended construction work based on the baseline risk assessment.

The purpose of this Occupational Health and Safety Specification document (which hereinafter will be referred to as OHSE Spec)is to provide designers and the successful tenderer with essential OHS information to ensure effective safety management during the design and construction phase of the project.

This OHSE Spec forms an integral part of the contract between the Client and the Principal Contractor, so as to ensure compliance with the Occupational Health and Safety Act, Act 85 of 1993 and its applicable regulations and must serve as the basis for the Principal Contractor to develop his/her Project Safety, Health and Environmental Management Plan. As with any other plan for it to be implemented and managed effectively it requires the allocation of sufficient funds to achieve the objectives set out in the plan. In line with this requirement Construction Regulation 5(1)(g) requires the Client to ensure that the Principal Contractor has made adequate provisions for the cost of Health and Safety Measures in their tenders.

It must be noted that this OHSE Spec as much as it is detailed it is not exhaustive and the onus is on the Principal Contractors to ensure that they comply with Section 8 of the OHS Act, Act 85 of 1993 which states that "*Every Employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees*." this means that Principal Contractors as they are employers in their own right must at all times ensure continuous assessments are done for continued provision and maintenance of a healthy and safe working environment.

2. Definitions

For the purpose of the OHSE Spec, the abbreviations or definitions given hereunder shall apply and the reference to on gender will also apply to the other gender.

"CR" refers to the Construction Regulations 2014

"Agent (*Pr.CHSA*)" means a competent person who acts as a representative for a Client in terms of regulation (5)5.

"Client" means Department of Public Works

"Competent person" means a person who-

(a) Has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific for that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualifications Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and

(b) Is familiar with the OHS Act, Act 85 of 1993 and with the applicable regulations made under the Act;

"ConstructionManager (*Site Agent*)" means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site;

"Construction Site" means a work place where construction work is being performed;

"Construction Supervisor" means a competent person responsible for supervising construction activities on a construction site;

"Construction Vehicle" means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

"Construction work" means any work in connection with –

(a) The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or
(b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

"Construction Work Permit" means a document issued in terms of regulation 3 of the Construction Regulations 2014;

"Contractor" means an employer who performs construction work;

"Demolition Work" means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives;

"Fall Protection Plan" means a documented plan, which includes and provides for-

(a) All risks relating to working from a fall risk position, considering the nature of work undertaken;

(b) The procedures and methods to be applied in order to eliminate the risk of falling; and

(c) A rescue plan and procedures;

"Health and Safety File" means a file, or other record containing the information in writing required by these Regulations;

"Health and Safety Plan" means a site, activity or project specific documented plan in accordance with the client's health and safety specification;

"Health and Safety Specification" means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work;

"Medical Certificate of Fitness" means a certificate contemplated in regulation 7(8) of Construction Regulations 2014;

"Principal Contractor" means an employer appointed by the client to perform construction work;

“Safety Officer” – a person deemed competent by SACPCMP under the relevant category of registration.

"Professional Engineer or Professional Certificated Engineer" means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000);

3. Scope of Application

This OHSE Specification document stipulates the minimum Occupational Health, Safety, and Environmental requirements that the tenderer need to address in his/her OHSE Plan. This Specification also addresses legal compliance, hazard identification, risk assessment, risk control, and the promotion of a Health and Safety culture amongst those working on the project.

This Specification also makes provision for the protection of persons other than employees. This OHSE Spec is exclusively applicable to the following project pending any change of scope which may necessitate changes to the OHSE Specification;

WATER AND SANITATION PROGRAMME FOR DEPARTMENT OF EDUCATION

This OHSE Specification further seeks to achieve the following;

a) To provide Principal Contractors with the Structure of the Detailed OHSE Plans they will have to prepare and submit for this project. *See Annexure A*

b) Provide the overarching framework within which the Principal Contractor is required to demonstrate compliance with certain requirements for occupational health and safety established by the Occupational Health and Safety Act, Act 85 of 1993, all applicable regulations and Client Specific Requirements. *See Annexure B*

c) To bring to the attention of the Bidding Principal Contractors that they need to make an undertaking that the costs for executing the project includes the costs of complying with the OHS Act, Act 85 of 1993, all applicable regulations including Client Specific requirements. Such undertaking is made by appending signatures on the OHS Declaration for Tenders. *See Annexure C (Replace T2.6)*

d) Ensure that the Principal Agent as the Professional Service Provider appointed by the Department to manage the project on its behalf in terms of the Conditions of Contract applicable to this project ensures that the contents of this document and the attached Baseline Risk Assessment are taken into consideration during design by all professions appointed and that the OHSE Specification is incorporated into the tender documents. *See Annexure D*

4. Contractual Issues

Acceptance by the Principal Contractor of the contract with KZN DOPW shall constitute acknowledgement that the Principal Contractor has familiarised him/herself with the

contents of the OHSE Spec and that he/she will comply with all its obligations in respect thereof.

Due to fact that this document is based on legislative requirements, the Client requires that all Contractors comply with the requirements of this document and all other relevant legislative requirements not covered by this document.

The Client or its duly appointed Construction H&S Agent reserves the right to stop any Principal Contractor or Sub-Contractors from working whenever Safety, Health or Environmental requirements are being violated as required by regulation 5(1)(q). Any resultant costs of such work stoppages will be for the relevant Contractor's account.

The requirements as specified by the Client in this document must not be deemed to be exhaustive and the Client reserves the right to make changes as and when the Client deems fit to address issue of OHSE Compliance.

The Client will not entertain any claim of any nature whatsoever which arises as a result of costs incurred or delays being experienced due to the Contractor not complying with the requirements of this document and/or any other applicable legislative requirements imposed on the Contractor.

5. Administrative Requirements

a) Notification of Construction Work

The successful tenderer must at least within 07 working days before commencing with construction work notify the Provincial Director in writing using Annexure "2". A copy of the notification once stamped by a DoL Official must be submitted to the client prior to commencing with construction work.

6. Appointment of a Fulltime/ Part time Safety Officer

The Principal Contractors will have to appoint a competent Construction H&S Officer as per the following criteria;

- *Full Time Safety Officer shall be appointed and will be onsite at all times*

Annexure A

Structure of the Detailed OHSE Plan

A detailed OHSE Plan is to be submitted by the successful tenderer as per section 8 above. The following are the minimum standard legal documentation that must form part of the OHSE Plan based on the risks attached in executing this project –

WATER AND SANITATION PROGRAMME FOR DEPARTMENT OF EDUCATION

1. The notification to commence with construction work made to the Provincial Director of Labour using Annexure 2.(*Filled in only to be submitted on approval of the Safety Plan*)
2. Letter of Good Standing with Compensation Commissioner or Compensation insurer
3. The Contractor's Health, Safety &Environmental Policy, signed by the chief executive officer, which outlines the Contractor's OHSE compliance objectives and how they will be achieved.
4. Pre-Construction risk assessment
5. Relevant checklists and registers.
6. Site specific OHSE Organogram
7. Preliminary Induction Program
8. Environmental Management Plan
9. Demolition Plan (Where applicable)
10. Proof of competency for the following legal appointees;
    - *10.1. Construction Manager –(Detailed CV reflecting qualification, relevant experience and references from previous clients)*
    - *10.2. Construction Work Supervisor - Detailed CV reflecting qualification, relevant experience and references from previous clients.*
    - *10.3. Construction H&S Officer – proof of registration with SACPCMP will be required*
    - *10.4. Risk Assessor – SAMTRAC or equivalent*
    - *10.5. Fall Protection Planner - SAQA US 229994 or equivalent*
    - *10.6. Electrician – wireman's licence*

Legal appointments to be appointed	
Prior Site Handover	After Site Handover on commencement with Construction work
• Construction Manager • Construction Work Supervisor • Assistant Construction Work Supervisors • Construction H&S Officer • Risk Assessor • Fall Protection Planner • Demolition Work Supervisor	• Scaffold Erectors • Scaffold Inspectors • Excavation inspector • Explosive actuated fastening device controller • First Aider • Emergency co-ordinator • Fire Marshalls • Fire team members • Portable Electrical tool inspector • Hand tools inspector • Housekeeping inspector • Stacking and storage inspector • Temporary electrical installation inspector • Temporary works inspector • Mobile plant Operator • Flammable liquids Storage Inspector • Hazardous substance storage inspector

Annexure B

Client Specific Requirements

Items	Client Specific Requirements
Site Office location	• The location of the site office should be in an area that will not require visitors to pass through or enter area where construction work is active and will not require the re-location of the office as the project progresses.
Public Safety	• When working in a occupied facility the contractors risk assessment and subsequent safe work method statement must take into consideration the negative effect the Contractors activities may have on the health and safety of the occupants of the facility and make provisions for the implementation of all reasonably practicable measures to ensure the health and safety of the occupants of the building.
Extreme weather conditions	• If the weather condition poses a threat to the health & safety of employees be it extreme heat, cold, lighting or any adverse weather condition appropriate safety measures have to be taken.
Change to scope of work	• Should there be changes to the original scope of work, the Principal Agent must inform appointed Construction Health and Safety Agent to effect changes to the OHSE Specification.
Safety Plan Submission	• The successful Tenderer must submit a copy of the detailed OHSE Plan for approval and keep the original for onsite use during construction. The principal Contractor will not be allowed to start site establishment before his/her SHE Plan has been approved in writing.
Bylaws	• ThePrincipal Contractor must incorporate any aspects of the Local Municipal bylaws which affect the, Safety and Environmental wellbeing of the employees and the public into his/her OHSE Plan and ensure compliance to such bylaws.
Risk assessment for construction work	• To comply with CR(9) and to also address environmental issues *See the attached baseline risk assessment to be considered by both the designer and the principal contractor.*
Fall protection	• To comply with CR (10), • Edge protection and protection of floor openings need to be of such a manner as to properly protect employees from falling off elevated positions or falling into floor openings
Structures	• To comply with CR (11)
Temporary work	• To comply with CR (12)
Excavations	• To comply with CR(13) and the following; • If the risk exists of a person in an excavation being enclosed in an event of a collapse the following will apply; shoring sufficient to prevent enclosure, any excavatedmaterial must be placed at least 1metre from the edge and at the maximum angle of repose to the horizontal. • No excavation may affect the stability of any adjoining structure or road unless steps have been taken as identified by an Engineer or a Technologist. • Adequate provisions must be made to ensure that water is drained from excavations where water may enter such excavations as a result of seepage or rain

	• All excavations made by the Principal or Sub Contractors must be barricaded by means of solid barricading and barricading tape may only be used to make such barricading more visible
Scaffolding	• To comply with CR(16) and the following; • Scaffolding Inspectors and Scaffolding Erectors must be different individuals. • Scaffold Harness must be used on Scaffolding, normal Harnesses may not be used on scaffolding • Sufficient Scaffolding material e.g., tags, trapdoors etc. need to be on site as determined by the activities on site • Scaffold bases may not be supported by materials such as bricks and chipboard. Suitable material needs to be used as per SANS 10085
Explosive actuated fastening device	• To comply with CR (21)
Construction vehicles and mobile plant	• To comply with CR (23) and the following;
Electrical installations and machinery on construction sites	• To comply with CR (24)
Use and temporary storage of flammable liquids on construction sites	• To comply with CR (25)
Water environments	• To comply with CR (26)
Housekeeping and general safeguarding on construction sites	• To comply with CR (27) and the following; • Contractor to designate areas for placing refuse and rubble prior to being removed from site • Contractor must implement a daily task site clean-up for all activities these should cover work areas, stairways, walkways etc. to free of any construction debris obstruction. • Refuse to be separated for recycling purposes • Hazardous materials such as asbestos may not be included in general rubble and need to be disposed of as per applicable legislative requirements
Stacking and storage on construction sites	• To comply with CR (28)
Fire precautions on construction sites	• To comply with CR (29) and the following; • No smoking may be permitted on site except in designated smoking areas

Construction employees' facilities	• To comply with CR (30) and the following; • Gender signs to be placed at appropriate locations • All welfare facilities to be kept in a hygienic condition at all times • Employees to be trained in good hygiene practices
Public Safety & Signage	• The Principal Contractor engaged in construction work must ensure that each person working on or visiting a site, and the general public in the vicinity of the construction site, shall be made aware of the dangers likely to arise from onsite activities and the precautions to be observed to avoid or minimise those dangers. • Appropriate signage shall be posted at conspicuous points within and around the perimeter of the site. The steps to comply with this requirement must be outlined in the OHSE Plan. • The public or visitors may only be permitted on site if they go through an appropriate health and safety induction detailing hazards and risks they may be exposed to and what measures are in place to control these hazards and risks • The entire project site must be secured against unauthorized access and provided with appropriate warning signage. Where roadways or walkways must be encroached or closed due to work, adequate barriers shall be installed to safely redirect the flow of vehicles and pedestrians and protect them from construction activities. • Whenever it is necessary to maintain public use of work areas (such as sidewalks, ramps, entrances to buildings, corridors, or stairways), the public shall be protected with appropriate guardrails, barricades, temporary fences, overhead protection, or temporary partitions and hoarding. The public must also be adequately protected from any work created hazards, such as excavations. Appropriate warnings, signs, warning lights and instructional safety signs shall be conspicuously posted and placed where necessary. • The public must also be protected from falling debris and objects from the project site. Overhead protection shall be provided that will fully protect the public and be capable of withstanding the maximum forces that could be applied from potential falling objects. Special attention shall also be given to developing adequate means to protect against wind-blown debris and construction-related materials.
On Site Health and Safety Training & Induction	• The Principal Contractor shall ensure that all site personnel and visitors undergo a risk-specific health & safety induction training session before starting work or being permitted to enter the site. A record of attendance shall be kept in the health & safety file. • The Principal Contractor shall ensure that, on site periodic toolbox talks take place at least once per week. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the health & safety file. The above should also cover all sub-contractors that are onsite. • All Contractors have to comply with this minimum requirement. Environmental issues to be included in toolbox talks where required.
General Record Keeping	• The Principal Contractor and all Sub Contractors must keep and maintain Health and Safety records to demonstrate compliance with this Specification, The OHS Act 85/1993; and with the Construction Regulations of 2014. The Principal Contractor shall ensure that all

	records of incidents/accidents, training, inspections; audits, etc. are kept in a health & safety file held in the site office, which must be present on site at all times. The Principal Contractor must ensure that every Sub Contractor opens its own health & safety file, maintains the file and makes it available on request.
Health &Safety Audits, Monitoring and reporting	• The Client or its duly appointed Agent shall conduct monthly health & safety audits. The Principal Contractor is obligated to conduct similar audits on all Sub Contractors appointed by them at least once a month. Detailed audit reports must be presented and discussed at all levels of project management meetings and a copy of such audit will be provided to the Client or its duly appointed Agent within 7 working days of such audit. Copies of the Client's audit reports shall be kept in the Principal Contractors Health & Safety File.
Emergency Procedures	• The Principal Contractor shall submit a detailed Emergency Plan for approval by the Client prior to commencement on site. The plan shall detail the response procedure including the following key elements: 1. List of key competent personnel; 2. Details of emergency services; 3. Actions or steps to be taken in the event of the specific types of emergencies; 4. Information on hazardous material/situations.
First Aid Boxes and First Aid Equipment	• The appointed First Aider(s) to be in possession of a valid first aid training certificate Level 2. Valid certificates are to be kept in the Site Safety File. All Sub Contractors with more than 5 employees shall supply their own first aid box, except if otherwise agreed upon between Principal and Sub- Contractor in writing.
Accident / Incident Reporting and Investigation	• Injuries are to be categorised into Near miss, first aid, LTI, fatal etc. Fatal accidents to be reported in addition to applicable legislative requirements to the Client or its duly appointed Agent with immediate effect. The Principal Contractor must stipulate in its construction phase OHSE Plan how it will handle each of these categories. When reporting injuries to the Client, these categories shall be used. The Principal Contractor shall investigate all injuries, with a report being forwarded to the Client immediately. All Sub- Contractors have to report on the abovementioned categories of injuries to the Principal Contractor at least monthly. All categories of incidents/accidents must be in the Statistics Section of the Monthly Audit Reports, submitted to the Client or it's duly appointed Agent.
Hazards and Potential Situations	• The Principal Contractor shall immediately notify other Sub Contractors as well as the Client of any hazardous or potentially hazardous situations that may arise during performance of construction activities. • Should a hazardous situation require work stoppages, the work must be stopped and corrective steps taken such as the issue of Written Safe Work Procedures and the issue of Personal Protective Equipment.
Personal Protective Equipment (PPE) and Clothing	• The Principal Contractor must ensure that all workers are issued with the required PPE as required by the risks associated with the activities they perform .The minimum PPE to be worn on site will be Safety Shoes/Boots, Hard Hats, Overalls. No Visitors may enter the site without Safety Shoes/Boots and Hardhats. The Principal Contractor and all Sub Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times.All employees issued with PPE to be

	trained in correct use, records of training and issue to be kept in the Site SHE File .Procedure to be in place to deal with: • 1 Lost or stolen PPE; • 2 Worn out or damaged PPE replacement. • 3. Employees not utilising PPE as required • The above procedure applies to Principal Contractors and their appointed Sub- Contractors, as they are all employers in their own right.
Permits	1) The Principal Contractor shall prepare and issue the required written permits relating to but not limited to the following: • Hot Work • Roof Work; and • Electrical work (both temporary and permanent) • Confined Space Entry 2) The Principal Contractor must ensure that where permits are required that they are properly implemented and adhered to.
Speed Restrictions and Protections	Unless otherwise stipulated, the maximum speed limit on sites must be limited to 10 km/h. 1) Vehicle movement routes on site must be clearly indicated where applicable. 2) Signage to ensure the safe movement of vehicles on site, as well as to ensure the health and safety of all employees and visitors on site, must be displayed in strategic locations.
Hazardous Chemical Substances (HCS)	1) To comply with Hazardous Chemical Substances Regulations as published in Government Notice No. R. 1179 dated 25 August 1995. 2) In addition to the abovementioned, Material Safety Data Sheets must be kept on site for all materials, which may contain hazardous chemical substances
Vessels under Pressure (VUP)	To comply with Pressure Equipment Regulations as published in Government Notice R. 734 dated 15 July 2009.
Fire Extinguishers and Fire Fighting Equipment	1) The Principal Contractor and Sub-Contractors must allow for and provide adequate provision of regularly serviced temporary fire fighting equipment located at strategic points on site, specific for the classes of fire likely to occur. 2) The appropriate notices and signs must be allowed for and be erected as required 3) Contractors may not utilize fire protection equipment belonging to the Client without prior consent
Ladders and Ladder Work	1) The Principal Contractor must allow for and ensure that all ladders are inspected at least monthly, are in a good safe working order, are the correct height for the task, extend at least 1m above the landing, are fastened and secured and are placed at a safe angle. 2) Records of inspections must be kept in a register on site.
General Machinery	To comply with Driven Machinery Regulations as published in Government Notice No. R. 1010 dated 18 July 2003
Portable Electrical Tools and Hand Tools	1) The Principal Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in a safe working order. 2.) The Principal Contractor shall ensure that all portable electrical Equipment, is clearly numbered, inspected by a Competent

	appointed person and records of such inspections to be kept on record in an appropriate register on the site SHE file 3) The Principal Contractor shall allow for and ensure the following in relation to hand Tools: That a "Competent Person" undertakes routine inspections and records are kept on site. That only authorized trained persons use the tools. That safe working procedures apply. That PPE is provided and used.
High Voltage Electrical Equipment Installations and Equipment	1) All Employees must be made aware of the presence and location of High Voltage Equipment such as underground cables and overhead lines, and ensure that the necessary precautionary steps are taken where work has to be executed in the vicinity of such equipment. 2) Precautionary measures such as Isolation and Lock-Out of electrical systems or the use of electrically isolated tools must be used.
Adequate Lighting	All Contractors must allow for and ensure that adequate lighting is provided to allow for work to be carried out safely.
Transportation of Workers	1) In addition to CR 23 the following will apply The Principal Contractor and Sub-Contractors shall not: • Transport persons together with goods or tools unless there is an appropriate area or section of the vehicle in which to store such goods. • Transport persons on the back of trucks except if a proper canopy (properly covering the sides and top) has been provided with suitable seating areas. • Permit workers to stand or sit on the edge of the transporting vehicle. • Transport workers in LDVs unless they are closed/covered and have the correct number of seats for the passengers • No driver may transport more than six people on the back of a 1 Ton LDV and more than four passengers on the back of a ½ Ton LDV. 2) The driver of any LDV may not permit more than two passengers to occupy the cab of any LDV. 3) Drivers of such vehicles must have a valid driver'slicense for the code of vehicle being driven by them. 4) No servicing of vehicles will be permitted on a Construction Site.No Vehicles or machinery leaking oil will be permitted on site due to the risk posed to the environment. 5) Any oil or diesel spilled on site must be cleaned up as per accepted environmental practice In the event that Earth Moving Machinery is present on site the following must be adhered to: • Drivers of vehicles must be instructed to avoid parking behind earth moving machinery in order to ensure that their vehicles are visible to the operators of earth moving machinery. • Rightof way must be afforded to earth moving machinery at all times. • Vehicles must only be permitted to park, where possible, in designated areas

Occupational Hygiene	1) Occupational exposure is a major problem and all Contractors must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards. 2) All Contractors must prevent inhalation, ingestion and absorption of any harmful chemical or biological agents 3) Water to be utilized for drinking purposes may only be drawn from taps designated for drinking water purposes. Fire hydrants and fire hose reels may not be utilized for drinking water purposes.
Environmental Management	• The Principal Contractor and Sub-Contractors must comply with the requirements of NEMA Act……. • The Principal Contractor must develop a waste management plan, implement and maintained it onsite • Cement mixing to be done at a predetermined location on site which must include a solid, slab, and bunded edges to prevent runoff • Contaminated run off water from the site must be treated such as to ensure that it does not pose a risk to the environment • Any material which may have a harmful effect when disposed of by normal means must be disposed of in an appropriate manner to eliminate its harmful effect on the environment after disposal. • The Principal Contractor must allow for and ensure that adequate procedures are implemented and maintained to ensure that waste generated is placed in suitable receptacles and removed from the site promptly. • Plans to deal with spillages must be in place and maintained. • No waste materials (liquid or solid) may be disposed of in drains. • No burning of waste material may take place on site as such material being burned may result in pollution of the air or give off toxic vapours which could be harmful to the health of employees or any other person present on site.
Alcohol and other Drugs	• No alcohol and other drugs will be allowed on site without the express permission of the Principal Contractor • No person may be under the influence of alcohol or any other drugs while on the construction site. • Any person on the construction site who is on prescription drugs must inform his/her Employer accordingly and the Employer shall in turn report this to the Principal Contractor immediately. • Any person on the construction site who is suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her Employer, who in turn must report this to the Principal Contractor forthwith. • Any person on the construction site who is suspected of being under the influence of alcohol or other drugs must be removed from site immediately and be instructed to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

Combating and or mitigating measures to Prevent COVID 19 Virus pandemic	"Section 8(2) (b) requires such steps as may be reasonable practicable to eliminate or mitigate any hazards before resorting to Personal Protective Equipment (PPE). • Contractor must conduct hazard identification and risk assessment (HIRA) to determine the level of risk & exposure of the virus. In addition a safe working procedure to mitigate or eliminate the virus must be communicated to all workers. • All employees and visitors to undergo a pre-screening process on the symptoms of COVID 19 before entering the site which is not limited to those developed by Department of Health. • Isolation of employees from work area by keeping a distance of 1.5 metres apart, increasing the ventilation rates in the work area. • Cleaning and Disinfection of worker's transport regularly on daily basis. • Provide resources and a work environment that promotes personal hygiene through issuing of Hand soap and portable clean water, 70% containing alcohol based- hand rub sanitizer, disinfectants, disposable bins, etc. • Provision of PPE including gloves, face shield, goggles, face masks, etc • Trainings and display of awareness post would be essential.

Annexure C

CONTRACTOR'S SAFETY, HEALTH AND ENVIRONMENTAL DECLARATION FOR TENDERS

INTRODUCTION

In terms of *Construction Regulation 5(1)(h)* of the *Construction Regulations of February 2014* a Contractor may only be appointed to perform construction work if the Client is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the *Occupational Health and Safety Act, Act 85 of 1993* and the Construction Regulations of February 2014. In line with this requirement the Contractor is required to read through this document carefully, sign it and submit it with his/her Tender.

DECLARATION

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification attached in the tender document.

2. I hereby declare that my company and its employees has the necessary competency and resources to safely carry out the construction work under this contract in compliance with the

Occupational Health and Safety Act, Act 85 of 1993,the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification.

3. I hereby confirm that adequate provisions has been made in my tender to cover the cost of all Safety, Health and Environmental duties and responsibilities imposed on me by the Occupational Health and Safety Act, Act 85 of 1993, the Construction Regulations of February 2014 and the Construction Safety, Health and Environmental Specification.

4. I confirm that I may not commence with any part of construction work under the contract until my Construction Safety, Health and Environmental Plan has been approved in writing by the Client.

5. I hereby confirm that copies of the following documentation will be kept on site for viewing and inspection purposes for the duration of the construction work:

   a) Client's Construction Safety, Health and Environmental Specification
   b) Approved Construction Safety, Health and Environmental Plan
   c) Occupational Health and Safety Act, Act 85 of 1993, and
   d) Construction Regulations of February 2014.

6. I agree that my failure to complete and execute this declaration to the satisfaction of the Client will mean that I am unable to comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and Construction Regulations 2014, and accept that my tender will be rejected.

Signature:……. Date:…….
(*Person duly authorised to sign on behalf of Tenderer*)

Annexure D

Baseline Risk Assessment

Please note that this is a Baseline Risk Assessment and not a detailed Risk Assessment.

Activities as listed below may not be in the sequence preferred by the Contractor or may be conducted at the same time

Project:	WATER AND SANITATION PROGRAMME FOR DEPARTMENT OF EDUCATION								
REF N0			RISK ASSESSOR	S.C. MKHIZE	REVISION	1	DATE	12/10/2022	
Likelihood		Consequence		RISK VALUE= LIKELYHOOD X CONSEQUENCE	RISK RANKING Score	RANKING			
Rare	1	Negligible	1		0-5	1			
Unlikely	2	Minor	2		6-10	2			
Possible	3	Moderate	3		11-16	3			
Likely	4	Major	4		17-20	4			
Almost certain	5	Severe	5		21-25	5			
MAIN ACTIVITY									
REF NO	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number

MAIN ACTIVITY	Site establishment								
REF NO 1	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
1.1	Clearing of vegetation including cutting of trees (manually)	1.Venomous snakes/ insects 2.Poisonous Vegetation 3. Sharp objects 4.Hot climatic conditions etc.	1.Snake bites, death 2. Skin rashes. Death 3. cuts, abrasions 4. Heat exhaustion etc.	None	None	3x5=15	HIRA, Appointed Competent Supervision and Management, Training, PPE, Method Statements, regular water intake etc.	1X5 =5	1
1.2	Clearing vegetation including cutting of trees (Mechanically)	1.Venomous snakes, and insects 2.Poisonous vegetation 3.Hot Climatic conditions, 4.Dust 5.Noise 6.Vibration 7.Moving vehicles 8. HCS etc.	1.Snake bites ,skin rashes death, 2. Skin rashes. 3. Heat exhaustion 5.Dust inhalation 6. Work related upper limb disorder 7.Fractures, death, damage 8. Dermatitis etc.	None	None	3x5-15	HIRA, Appointed Competent Supervision and Management, Training, PPE,Flagmen, Method Statements, regular breaks etc.	1X5 =5	1

1.3	Loading/Off-loading materials and equipment (Mechanical)	1.Uncontrolled movement of loads 2. Limbs caught between surfaces 3.Heated surfaces, 4. HCS 5. Sharp edges. 6.Moving vehicles.	1.Fractures,death,damage 2. Abrasions. Fractures, Cuts. 3.Burns 4. Dermatitis 5. Cuts 6.Vehicle/property Equipment damage, Fractures, Death etc.	1.Contamination of resources – oil leaks, fuel spillage	1.Death, Fractures , Damage etc.	4x5=20	HIRA,,Competent Management, Competent Supervision, safe systems of work, competent operators, Flagmen, Medical Fitness Certificates ,Vehicle maintenance records, signage and barricading, training. PPE etc.	3x3=9	2
1.4	Loading/Off Loading materials and equipment (Manual)	1.Uncontrolled Movement. 2.Sharp edges 3.Caught Between Surfaces 4.Falling Materials 5.Incorrect Lifting methods 6. Spillage etc.	1.Muscular strain 2.Cuts, abrasions 3.Brusing, fractures 4.Crushing ,cuts 5.Lower back injuries 6. Dermatitis etc.	1.Contamination of resources due to spillage of HCS if present	none	4x5=20	HIRA,,Competent Management, Competent Supervision, safe systems of work, competent operators, Medical Fitness Certificates ,Vehicle maintenance records, signage and barricading, training in collect lifting methods, PPE etc.	3x3=9	2

REF NO	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
1.5	Fencing/ Hoarding the site	1.ManualHandling 2.Struck by 3.Sharp edges 4.Physical exertion 5.Tripping & Fall 6. Hidden services , etc.	1. Muscular strain 2.Brusing, fractures 3.Cuts, abrasion 4.Dehydration 5.Fractures, grazing 6. Electrocution, death etc.	None	1.Tripping, cuts etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work, competent operators, Cable Detection Equipment usage, Medical Fitness Certificates, signage and barricading, training. PPE etc.	1x2=2	1
1.6	Positioning of equipment and site office on site (mechanical)	1.Uncontrolled movement of loads 2. Limbs caught between surfaces 3.Heated surfaces, 4. HCS 5. Sharp edges. 6.Moving vehicles.	1.Fractures,death,damage 2. Abrasions. Fractures, Cuts. 3.Burns 4. Dermatitis 5. Cuts 6.Vehicle/property Equipment damage, Fractures, Death etc.	1.Contamination of resources – oil leaks, fuel spillage	1.Death, Fractures , Damage etc.	4x5=20	HIRA,,Competent Management, Competent Supervision, safe systems of work, competent operators Flagmen, Medical Fitness Certificates ,Vehicle maintenance records, signage and barricading, training. PPE etc.	3x3=9	2

REF NO 1	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
1.7	Electrical Connection to the Site Office	1.Electricity 2.Sharp edges, 3.Physical Exertion 4. Poor working posture etc.	1. Electrocution, death 2.Cuts 3.Muscular strain, etc.	None	None	4x5=20	HIRA ,Competent Supervision and Management, Insulated tools ,Lock out, testing and tagging , permit issue, PPE etc.	2x3=6	2
1.8	Water connection to site office area	1.Sharp edges ,2.Hot climatic conditions, 3.Physical exertion, 4.Poor working posture etc.	1.Cuts, 2. Heat stroke, 3.Muscular strain, 4. Back strain etc.	None	None	2x2=4	HIRA, Competent Management, Competent Supervision, safe systems of work, Medical Fitness Certificates, training. PPE etc.	1x1=1	1

MAIN ACTIVITY	CONSTRUCTION OF NEW ABLUTION FACILITIES								
REF NO 2	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.1	Site Clearance Setting Out and Levelling	1.Tripping, 2.struck by object, 3.bumping against 4.Snake Bites ,	1.Backstrain 2. dust inhalation 3.cuts and abrasions 4.injuries	none	none	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work, Medical Fitness Certificates, training. PPE etc.	2x1=2	1
2.2	Excavation for Ablution Pit and (mechanical)	1.Noise 2.Dust 3. Heated surfaces 4.HCS 5.Moving Machinery 6.Underground Services, etc.	1.Noise induced hearing Loss 2.Dust inhalation 3.Burns 4.Dermatitis 5.Electricution 6.Fractures , death etc.	1.Contamination of resources – fuel and oil spillage etc.	Noise exposure, dust inhalation	4x5=20	HIRA, identification of existing services through Pre-Design investigation findings or Report, Engineer's Approval, Competent Management, Competent Supervision, safe systems of work, maintenance records, Competent Operators Medical Fitness Certificates, continuous housekeeping signage and solid barricading, training. PPE etc.	3x3=9	2

REF NO 2	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.3	Excavation for Sub-structure Trenching (Manual)	1.Physical exertion 2.Sharp edges 3.Dust 4.Abrasive Materials 5.Hot climatic Conditions 6.Bump against Etc.	1.Muscular strain 2.Cuts, lacerations 3. Dust inhalation 4.Abrasions 5.Heat exhaustion 6. Bruising etc.	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work, Tools and equipment inspections , continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1
2.4	Compaction (Mechanical)	1.Noise, 2.Dust 3.Vibration 4.Heated surfaces, 5.High impact Moving Components HCS etc.	1.Noise induced hearing loss, 2.Dust Inhalation 3.White finger syndrome 4.Burns 5. Fractures etc.	1.Spillage of oil/diesel-contamination of natural resources	1.Noise exposure etc.	4x5=20	HIRA, Competent Management, Competent Supervision, safe systems of work, maintenance records. Tools and equipment inspections, Competent Operators Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	3x3=9	2

REF NO 2	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.5	Soil poisoning	1.HCS 2.Hot climatic conditions etc.	1.HCS ingestion, inhalation and absorption 2. Heat exhaustion etc.	1.Spillage of HCS-contamination of natural resources	1.Exposure to HCS due to poor control and work procedures and possible medical reaction	3x5=15	HIRA, Competent Management, Competent Supervision, safe systems of work, MSDS. Tools and equipment inspections, Competent Operators Medical Fitness Certificates, continuous housekeeping, signage, barricading, training. PPE etc.	3x3-9	2
2.6	Steel Reinforcement	1.Physical exertion 2. Cuts, 3.Fracture 4. Poor working posture	1.Muscular strain 2.Dematitis 3. Dehydration	None	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x1=2	1

REF NO 2	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.4	Formwork	1.Physical exertion 2. Cuts, 3.Fracture 4. Poor working posture 5.Wood dust	1.Muscular strain 2.Dematitis 3. Dehydration 4. Respiratory infection	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	3x1=3	1
2.5	Cement mixing & Concrete pouring	1.HCS, 2. Physical exertion 3.Repetitive motion, 4.Climatic conditions etc.	1.Dermatitis 2.Muscular strain 3.Heat Exhaustion etc.	1.Discarding of unused cement-contamination of natural resources	None	2x2=4	HIRA, Competent Management, Competent Supervision, safe systems of work, maintenance records. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	1x1=1	1
2.6	Brickwork	1.Abrasive surfaces 2.Poor working posture 3.Hot climatic conditions 4.Cement Dust 4.HCS etc.	1. Abrasions 2.Muscular strain 3.Heat exhaustion 4.Dermatitis 5. Lung Infection, etc.	1.Discarding of unused cement-contamination of natural resources	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	2x2=4	1

REF NO	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.7	Scaffold erection and use	1.Physical exertion 2.Elevated work, 3. Hot climatic conditions 3. Struck by etc.	1.Muscular strain 2. Fractures, death 3.Heat exhaustion, 4.Cuts etc.	None	Struck by falling material, tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1
2.8	Plaster on Walls	1.Abrasive surfaces 2.Poor working posture 3.Hot climatic conditions 4.Falls 5. Cement Dust 6.HCS etc.	1. Abrasions 2.Muscular strain 3.Heat exhaustion 4.Dermatitis 5.Lung infection 6. Fracture and Death etc.	1.Discarding of unused cement-contamination of natural resources	None	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	3x2=6	2

REF NO	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
2.9	Installation of Roof trusses, Purlins and Roof Sheeting	1.Falls 2.Struck by falling objects 3.sharp edges 4. Climatic conditions 5.Manual Handling	1.Muscular strain, 2.Muscular strain 3.Cuts 4.Heat exhaustion 5. Facture and Death etc,	None	None	4x5=20	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc. Suspend work on gables and roof on extremely windy days and clear all personnel	3x3=9	2
2.10	Formwork for Walkways	1.Physical exertion 2. Cuts, 3.Fracture 4. Poor working posture 5.Wood dust	1.Muscular strain 2.Dematitis 3. Dehydration 4. Respiratory infection	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	3x1=3	1

	Cement mixing & Concrete pouring on walkways	1.HCS, 2. Physical exertion 3.Repetitive motion, 4.Climatic conditions etc.	1.Dermatitis 2.Muscular strain 3.Heat Exhaustion etc.	1.Discarding of unused cement-contamination of natural resources	None	2x2=4	HIRA, Competent Management, Competent Supervision, safe systems of work, maintenance records. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	1x1=1	1

4	Finishes								
REF NO 4	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
4.1	Fitting of Door and Window frames	1.Struck by Items 2.Hands Caught in between areas 3.falling objects 4.sharp edges 4. Noise, Dust, etc	1.Muscular Strain 2. Dermatitis 3. Heat exhaustion 4. Lung infection	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	1x1=1	1
4.2	Hanging of doors on the door frame	1.Struck by Items 2.Hands Caught in between areas 3.falling objects 4.sharp edges 4. Noise, Dust, etc	1.Muscular Strain 2. Dermatitis 3. Heat exhaustion 4. Lung infection	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	1x1=1	1
4.3	Mirror Fitting	1.Glass particles 2.Sharp Objects 3.falling items 4.hands caught in between	1.Eye infection 2.Cuts 3.Severe injuries 4.Abrasion	None	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	3x1=3	1

4.4	Fitting of Facia/ Badge Boards& Securing of gutters	1.Elevated work 2.Slippery surface 3.Over extension 4.Incorrect positioning 5. Climatic conditions etc.	1.Fractures, death 2. Heat exhaustion , etc.	None	1.Struck by falling material ,tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1
4.5	Painting	1.Repetitive Motion 2.HCS 3. High environmental temperatures	1.Muscular Strain 2. Dermatitis 3. Heat exhaustion	Contamination of natural resources due to wrong disposal of waste	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	1x1=1	1
	Fitting of Facia and Badge Boards	1.Elevated work 2.Slippery surface 3.Over extension 4.Incorrect positioning 5. Climatic conditions etc.	1.Fractures, death 2. Heat exhaustion , etc.	None	1.Struck by falling material ,tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1

	Ladder usage	1.Elevated work 2.Slippery surface 3.Over extension 4.Incorrect positioning 5.Hot climatic conditions etc.	1.Fractures, death 2. Heat exhaustion , etc.	None	1.Struck by falling material ,tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1
	Scaffold erection and use	1.Physical exertion 2.Elevated work, 3. Hot climatic conditions 3. Struck by etc.	1.Muscular strain 2. Fractures, death 3.Heat exhaustion, 4.Cuts etc.	None	Struck by falling material, tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1

DEMOLITION OF EXISTING ABLUTION FACILITIES									
REF NO 5	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
5.1	Desludging or Emptying of Septic Tank	1.Physical Exertion 2.Sewer Fumes 3. Manual Handling 4. Moving Vehicles	1.Muscular strain 2.Cuts, lacerations 3. Hepatitis B 4.Abrasions 5.Heat exhaustion 6. Bruising	Contamination of natural resources due to waste split	None	3x3= 9	HIRA, Competent Supervision, safe systems of work, Tools and equipment inspections, Competent Operators Medical Fitness Certificates, housekeeping signage, barricading, training. PPE etc.	1x2= 2	1
5.2	Hoarding Off the Demolition structure	1.Manual Handling 2.Elevated Platform 3.Falling Objects 4.Hidden Services	1.Muscular Strain 2.Factures 3.Injuries 4.Electricution	None	None	2x2=4	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.,	2x2=4	5
5.3	Striping and Lowering of Roof	1.Heavy loads difficult to grasp items 2.Incorrect lifting methods, caught between etc.	1.Muscular strain, 2.lower back injuries , etc.	None except if item is dropped and poses an environmental risk due to its chemical properties	None	1x2=2	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.,	1x1=1	1

REF NO 5	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
5.4	Scaffolding	1.Falls from height, 2.Dropping of items, 3.Sharp edges, 4.Scaffolding collapse, etc	1.Back strain, 2.Bruising 3.Cuts 4.Abrasions 5. Broken bones, 6.death etc.	none	None	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.,	2x2=4	1
5.5	Demolition of existing Brick or Block Structure	1.Falls from height, 2.Dust 3.Noise 4. Caught in between Demolished structure	1.Fractures & Death 2.Lung infection 3.NIHL 4.Injuries & Fatality	Noise & Dust	Noise & Dust		HIRA, Demolition Plan, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.,		

MAIN ACTIVITY	Plumbing								
REF NO 6	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
6.1	Chiselling and chasing	1.Repetitive motion 2.Sharp edges 3.Struck by 4.Noise, 5. Flying particles etc.	1.Muscular strain 2.Fractures 3.Noise induced hearing loss etc.	None	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	1x1=1	1
6.2	Sanitary Fittings	1.Abrasive surfaces 2.Poor working posture	1. Abrasions 2.Muscular strain	None	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	2x1=2	1

MAIN ACTIVITY	REPAIRS TO EXISTING ABLUTIONS								
REF NO 7	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
7.1	Cutting, grinding & chiselling on walls	1.Unidentified power lines 2.Flying particles 3.Dust 4. Noise	1.Electricution 2.Eye injuries 3.Lung infection 4.NIHL	None	Noise & Dust	2x3=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	2x1=2	1
7.2	Brick Work	1.Abrasive surfaces 2.Poor working posture 3.Hot climatic conditions 4.Cement Dust 5.HCS etc.	1. Abrasions 2.Muscular strain 3.Heat exhaustion 4.Dermatitis 5. Lung Infectionetc.	1.Discarding of unused cement-contamination of natural resources	None	3x3=9	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	2x2=4	1

7.3	Scaffold erection and use	1.Physical exertion 2.Elevated work, 3. Hot climatic conditions 3. Struck by etc.	1.Muscular strain 2. Fractures, death 3.Heat exhaustion, 4.Cuts etc.	None	Struck by falling material, tripping etc.	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, barricading, training. PPE etc.	2x2=4	1
7.4	Plaster on Walls	1.Abrasive surfaces 2.Poor working posture 3.Hot climatic conditions 4.Falls 5. Cement Dust 6.HCS etc.	1. Abrasions 2.Muscular strain 3.Heat exhaustion 4.Dermatitis 5.Lung infection 6. Fracture and Death etc.	1.Discarding of unused cement-contamination of natural resources	None	3x4=12	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	3x2=6	2
7.5	Painting	1.Repetitive Motion 2.HCS 3. High environmental temperatures	1.Muscular Strain 2. Dermatitis 3. Heat exhaustion	Contamination of natural resources due to wrong disposal of waste	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	1x1=1	1

INSTALLATION OF PORTABLE WATER BOREHOLE									
REF NO 8	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
8.1	Setting out of Borehole	1.Tripping, 2 struck by, 3 bumping against,	1.Backstrain, 2. Dust inhalation, 3. Cuts and abrasions	none	none	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work, Medical Fitness Certificates, training. PPE etc.	2x1=2	1
8.2	Drilling	1.Struck by flying objects, 2.Electricity, 3.Hazardous substance 4. Dust & noise	1.Electrocution, 2.Lung Infection, 3. Noise induced hearing loss, 4. Muscle strain, 5. Eyes Injuries	Contamination of natural resources (spillages)	dust , noise	3x3= 9	HIRA, Competent Supervision, safe systems of work, Tools and equipment inspections, Competent Operators Medical Fitness Certificates, housekeeping signage, barricading, training. PPE etc.	1x2= 2	1
8.3	Installation of the unit	1.Struck by items, 2.Hands caught between areas, 3. Falling items, 4. Sharp edges	1.Cuts, 2.Abrasions, 3 Fractures, 4.Severe injuries, death	None	None	3x2=6	HIRA, Competent Management, Competent Supervision, safe systems of work. Tools and equipment inspections, Medical Fitness Certificates, continuous housekeeping signage, training. PPE etc.	2x1=2	1

GENERAL SITE ACTIVITIES									
REF NO 6	SUB ACTIVITY	HAZARDS SHE	HEALTH RISK	ENVIRO MENTAL RISK	PUBLIC RISK	PURE RISK	RECOMMENDED RISK CONTROL MEASURE	RESIDUAL RISK	Risk Prioritisation Number
6.1	Housekeeping	1.Repetitive motion 2.Dust, 3. Excessive environmental temperatures etc.	1.Muscular strain, 2.Dust inhalation 3.Heat exhaustion etc.	None	None	2x2=4	Hira, Training, PPE e.g. respiratory protection , etc.	2x2=4	5
6.2	Lifting and Lowering	1.Heavy loads difficult to grasp items 2.Incorrect lifting methods, caught between etc.	1.Muscular strain, 2.lower back injuries , etc.	None except if item is dropped and poses an environmental risk due to its chemical properties	None	1x2=2	HIRA ,Training , etc.	1x1=1	1
6.3	Painting	1.Poor working posture 2.Repetitive motion 3.Hazardous chemical substances etc.	1.Dermatitis 2.Muscular strain etc.	Contamination of natural resource, spillage and disposal	None	1x2=2	HIRA, Training, Supervision, PPE etc.	1x2=2	1
6.4	Ladder work	1. Elevated position, 2.Incorrect positioning, 3.Poor location slippery surfaces etc.	1.Fractures 2.Death etc.	None	Minor bruising etc.	1x4=4	HIRA, Training, Supervision, PPE etc.	2x2=4	1

6.5	Use of Portable Electrical equipment	1.Electricity, 2.Faulty equipment, 3.High speed rotating equipment, 4.Tripping 5. Vibration, 6. Noise etc.	1.Electro-caution 2.Cuts, 3.Abrasions 4.Noise induced hearing loss etc.	None	Noise exposure, fractures, bruising	1x4=4	HIRA, Training, Supervision, PPE etc.	2x1=2	1
6.6	Driving vehicles on site	1.Collisions 2.Flammable substances etc.	1.Fractures 2.Death, etc.	Contamination of resource due to fuel and oil leakage etc.	Fractures, death, etc.	3x4=12	HIRA, Training, Supervision, PPE etc.	2x2=4	1
6.7	Extension cords	1.Electricity 2.Tripping hazards	1.Electrocution , 2.Fractures etc	none	None	1x2=2	HIRA, Training, Supervision, PPE etc.	1x1=1	1
6.8.	Hand tools	1.Tripping 2.Struck by items 3.Bumping against, 4.Abrasions 5.Sharp edges 6.Caught between surfaces 7. Flying metal particles etc	1.Cuts 2.Bruising 3.Foreign material in eyes etc.	none	None	1x4=4	HIRA, Training, Supervision, PPE etc.	2x1=2	1
6.9	Scaffolding erection, dismantling	1.Falls from height, 2.Dropping of items, 3.Sharp edges, 4.Scaffolding collapse, etc	1.Back strain, 2.Bruising 3.Cuts 4.Abrasions 5. Broken bones, 6.death etc.	none	None	3x4=12	HIRA, Training, Supervision, PPE etc.	2x2=4	1

HEALTH AND SAFETY IMPLEMENTATION COSTING

Contractor to give a breakdown of his Health and Safety costs on this sheet.

ITEM	DESCRIPTION	UNIT	QUAN-TITY	MONTHS (Indicative)	RATE	AMOUNT
			(a)		(b)	(a) x (b)
1	MEDICALS					
1.1	Pre-employment medical	Nr.	-			
1.2	Re-medicals - yearly	Nr.	-			
	TOTAL					
2	**PERSONAL PROTECTIVE EQUIPMENT**					
2.1	Overalls	Nr.				
2.2	Hard Hats	Nr.				
2.3	Safety boots/shoes	Nr.				
2.4	Gloves	Nr.				
2.5	Gumboots steel toe cap	Nr.				
2.6	Safety glasses	Nr.				
2.7	Reflector Bibs	Nr.				
2.8	Barricading Material	M				
2.9	Dust masks	Box 20				
	TOTAL					
3	**FIRE FIGHTING**					
3.1	Fire extinguishers - 4.5Kg	Nr.				
3.2	Surveys - Annual Service	Nr.				
	TOTAL					
4	**HEALTH AND SAFETY PERSONNEL**					
4.1	Safety Manager	Nr.				
4.2	Safety Officer	Nr.				
4.3	Construction Phase Safety, Health, Environmental and Waste Management Plan	Nr.				
	TOTAL					
5	**FACILITIES**					
5.1	Provision of ablution facilities	Nr.				
5.2	Service and maintenance of ablution facilities	Nr.				
5.3	Provision of eating areas	Nr.				
5.4	Cleaning of Lay down and other storage areas	Nr.				
5.5	Wash hand basin	Nr.				
5.6	Hot and Cold running water	Nr.				
5.7	Degreasing & Toilet soap	Nr.				
	TOTAL					

6	**FALL PREVENTION / PROTECTION**					
6.1	Safety harnesses with double lanyards	Nr.				
6.2	Safety harnesses with Scaffold hooks	Nr.				
6.3	Lifelines and vertical fall arrest systems	Nr.				
6.4	Scaffolding – material, erection and inspection (Estimate for project)	Nr.				
6.5	Temporary hand railing material and kick flats	Nr.				
6.6	Chin Straps	Nr.				
	TOTAL					
7	**FIRST AID**					
7.1	Replenishment of boxes and other supplies	Nr				
	TOTAL					
8	**TRAINING**					
8.1	SHE Representative	Nr.				
8.2	First Aid Level 1	Nr.				
8.3	Fire Fighting	Nr.				
	TOTAL					
9	**SIGNAGE**					
9.1	All Signage as required by Law, regulatory, warning and information	Nr.				
9.2	Posters for awareness	Nr.				
	TOTAL					
10	**ELECTRICAL**					
10.1	Replacement of Locks required for lockouts	Nr.				
10.2	Replacement of tags	Nr.				
10.3	Replacement for Permit books	Nr.				
10.4	Replacement of Callipers	Nr.				
	TOTAL					
11	**OTHERS (Project Specific)**					
11.1		Nr.				
	TOTAL					
	GRAND TOTAL TO BE CARRIED TO THE PRELIMINARIES AND GENERAL IN BILL OF QUANTITIES					

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 8
BUILDERS LIEN AGREEMENT

WAIVER OF CONTRACTOR'S LIEN

DEFINITIONS

Contractor: _____

Employer: Head: Public Works (KZN Department of Public Works: Province of KwaZulu-Natal)

Agreement: GCC FOR CONSTRUCTION WORKS - SECOND EDITION 2010

Works (description): **DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**

Site: Region: Uthukela District Municipality

AGREEMENT

The Contractor waives, in favour of the Employer, any lien or right of retention that is or may be held in respect of the Works to be executed on the Site

Thus done and signed at _____ on _____
[Date]

_____ _____
Name of signatory Capacity of signatory

_____ _____
As witness For and on behalf of the contractor who by signature hereof warrants authorisation hereto

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DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 9
ADDITIONAL SPECIFICATIONS - EPWP NYS

ADDITIONAL SPECIFICATION - EPWP

SL **EMPLOYMENT AND TRAINING OF EPWP BENEFICIARY ON THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) Infrastructure Projects:**

CONTENTS

SL 01 SCOPE
SL 02 TERMINOLOGY AND DEFINITIONS
SL 03 APPLICABLE LABOUR LAWS
SL 04 EXTRACTS FROM MINISTERIAL DETERMINATION REGARDING EPWP
SL 05 EMPLOYER'S RESPONSIBILITIES
SL 06 PLACEMENT OF RECRUITED EPWP BENEFICIARY
SL 07 TRAINING OF YOUTH WORKERS
SL 08 BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA
SL 09 CONTRACTUAL OBLIGATIONS IN RELATION TO EPWP BENEFICIARY
SL 10 PROVINCIAL RATES OF PAY
SL 11 MEASUREMENTS AND PAYMENT
EXAMPLE EPWP EMPLOYMENT AGREEMENT

SL 01 SCOPE

This project is part of the Expanded Public Works Programme aims to train young people and provide them with practical work experience as part of this programme. Youth aged between 18 and 35 will be recruited and trained in skills relevant to the work to be done on this project. These youth will have to be employed by the contractor as part of this project so that they can gain their work experience on these projects. The training of the youth will be coordinated and implemented by a separate service provider. This service provider will provide the contractor with a list of all the youth and the training each of these youth have received. The Contractor will be required to employ all of these youth for a minimum period of 6 months. Furthermore the Contractor will be required to supervise these youth to ensure that the work they perform is of the required standard. If necessary the contractor's staff will be required to assist and mentor the youth to ensure that they are able to perform the type of work they need to do to the satisfactory standards required. The contractor will not be required to employ all youth in the programme at the same time, but may rotate the youth on the project, as long as all youth are employed for the minimum duration stated earlier.

This specification contains the standard terms and conditions for workers employed in elementary occupations and trained on a Expanded Public Works Programme (EPWP) for the Infrastructure Programme.

SL 02 TERMINOLOGY AND DEFINITIONS

SL 02.01 TERMINOLOGY

(a) EPWP The Code of Good Practice for Expanded Public Works Programmes, which has been gazetted by the Department of Labour, and which provides for special conditions of employment for these EPWP projects. In terms of the Code of Good Practice, the workers on these projects are entitled to formal training, which will be provided by training providers appointed (and funded) by the Department of Labour. For projects of up to six months in duration, this training will cover life-skills and information about other education, training and employment opportunities.

(b) EPWP Expanded Public Works Programme, a National Programme of the government of South Africa, approved by Cabinet.

(c) UYF Umsobumvu Youth Fund.

(d) DOL Department of Labour.

SL 02.02 DEFINITIONS

(a) "employer" means the contractor or any party employing the worker / beneficiary under the EPWP Programme.

(b) "client" means the Department of Public Works.

(c) " worker / trainee" means any person working or training in an elementary occupation on a EPWP.

SL 03 APPLICABLE LABOUR LAWS

In line with the Expanded Public Works Programme (EPWP) policies, the Ministerial Determination, Special Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of labour in government Notice No. R63 of 25 January 2002, of which extracts have been reproduced below in clauses SL 04 shall apply to works described in the scope of work and which are undertaken by unskilled or semi-skilled workers. The Code of Good Practise for Employment and Conditions of Work for Expanded Public Works Programmes, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice No. R64 of 25 January 2002 shall apply to works described in the scope of work and which unskilled or semi-skilled workers undertake.

SI 04 EXTRACTS FROM MINISTERIAL DETERMINATION REGARDING EPWP

SL 04.01 <u>DEFINITIONS</u>

(a) "department" means any department of the State, implementing agent or contractor;

(b) "employer" means any department that hires workers to work in elementary occupations on a EPWP;

(c) "worker" means any person working in an elementary occupation on a EPWP;

(d) "elementary occupation" means any occupation involving unskilled or semi-skilled work;

(e) "management" means any person employed by a department or implementing agency to administer or execute a EPWP;

(f) "task" means a fixed quantity of work;

(g) "task-based work" means work in which a worker is paid a fixed rate for performing a task;

(h) "task-rated worker" means a worker paid on the basis of the number of tasks completed;

(i) "time-rated worker" means a worker paid on the basis of the length of time worked

(j) "Service Provider" means the consultant appointed by Department to coordinate and arrange the employment and training of labour on EPWP infrastructure projects.

SL 04.02 <u>TERMS OF WORK</u>

(a) Workers on a EPWP are employed on a temporary basis.

(b) A worker may NOT be employed for longer than 24 months in any five-year cycle on a EPWP.

(c) Employment on a EPWP does not qualify as employment and a worker so employed does not have to register as a contributor for the purposes of the Unemployment Insurance Act 30

SL 04.03 NORMAL HOURS OF WORK

(a) An employer may not set tasks or hours of work that require a worker to work–

(i) more than forty hours in any week
(ii) on more than five days in any week; and
(iii) for more than eight hours on any day.

(b) An employer and a worker may agree that the worker will work four days per week. The worker may then work up to ten hours per day.

(c) A task-rated worker may not work more than a total of 55 hours in any week to complete the tasks (based on a 40-hour week) allocated to him.

Every work is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

SL 04.04 MEAL BREAKS

(a) A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

(b) An employer and worker may agree on longer meal breaks.

(c) A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

SL 04.05 SPECIAL CONDITIONS FOR SECURITY GUARDS

(a) A security guard may work up to 55 hours per week and up to eleven hours per day.

(b) A security guard who works more than ten hours per day must have a meal break of at least one hour duration or two breaks of at least 30 minutes duration each.

SL 04.06 DAILY REST PERIOD

Every worker is entitled to a daily rest period of at least eight consecutive hours. The daily rest period is measured from the time the worker ends work on one day until the time the worker starts work on the next day.

SL 04.07 WEEKLY REST PERIOD

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work (“emergency work”).

SL 04.08 WORK ON SUNDAYS AND PUBLIC HOLIDAYS

(a) A worker may only work on a Sunday or public holiday to perform emergency or security work.

(b) Work on Sundays is paid at the ordinary rate of pay.

(c) A task-rated worker who works on a public holiday must be paid –

(i) the worker’s daily task rate, if the worker works for less than four hours;
(ii) double the worker’s daily task rate, if the worker works for more than four hours.

(d) A time-rated worker who works on a public holiday must be paid –

(i) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;

(ii) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

SL 04.09 SICK LEAVE

(a) Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.

(b) A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

(c) A worker may accumulate a maximum of twelve days' sick leave in a year.

(d) Accumulated sick-leave may not be transferred from one contract to another contract.

(e) An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

(f) An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.

(g) An employer must pay a worker sick pay on the worker's usual payday.

(h) Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is –

(i) absent from work for more than two consecutive days; or

(ii) absent from work on more than two occasions in any eight-week period.

(i) A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

(j) A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

SL 04.10 MATERNITY LEAVE

(a) A worker may take up to four consecutive months' unpaid maternity leave.

(b) A worker is not entitled to any payment or employment-related benefits during maternity leave.

(c) A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

(d) A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

(e) A worker may begin maternity leave –

(i) four weeks before the expected date of birth; or

(ii) on an earlier date –

(1) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or

(2) if agreed to between employer and worker; or

(iii) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

(f) A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

(g) A worker who returns to work after maternity leave, has the right to start a new cycle of twenty-four months employment, unless the EPWP on which she was employed has ended.

SL 04.11 FAMILY RESPONSIBILITY LEAVE

(a) Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances -

(i) when the employee's child is born;

(ii) when the employee's child is sick;

(iii) in the event of the death of –

(1) the employee's spouse or life partner

(2) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling

SL 04.12 STATEMENT OF CONDITIONS

(a) An employer must give a worker a statement containing the following details at the start of employment –

(i) the employer's name and address and the name of the EPWP;

(ii) the tasks or job that the worker is to perform;

(iii) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;

(iv) the worker's rate of pay and how this is to be calculated;

(v) the training that the worker may be entitled to receive during the EPWP.

(b) An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.

(c) An employer must supply each worker with a copy of the relevant conditions of employment contained in this specification.

(d) An employer must enter into a formal contract of employment with each employee. A copy of a pro-forma is attached at the end of this specification.

SL 04.13 KEEPING RECORDS

(a) Every employer must keep a written record of at least the following –

(i) the worker's name and position;

(ii) in the case of a task-rated worker, the number of tasks completed by the worker;

(iii) in the case of a time-rated worker, the time worked by the worker;

(iv) payments made to each worker.

(b) The employer must keep this record for a period of at least three years after the completion of the EPWP.

SL 04.14 PAYMENT

(a) A task-rated worker will only be paid for tasks that have been completed.

(b) An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer. Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

(c) A time-rated worker will be paid at the end of each month and payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

(d) Payment in cash or by cheque must take place –

(i) at the workplace or at a place agreed to by at least 75% of the workers; and

(ii) during the worker's working hours or within fifteen minutes of the start or finish of work;

(e) All payments must be enclosed in a sealed envelope which becomes the property of the worker.

(f) An employer must give a worker the following information in writing –

(i) the period for which payment is made;

(ii) the number of tasks completed or hours worked;

(iii) the worker's earnings;

(iv) any money deducted from the payment;

(v) the actual amount paid to the worker.

(g) If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.

(h) If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

SL 04.15 DEDUCTIONS

(a) An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

(b) An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

(c) An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement law, court order or arbitration award concerned.

(d) An employer may not require or allow a worker to –

(i) repay any payment except an overpayment previously made by the employer by mistake;

(ii) state that the worker received a greater amount of money than the employer actually paid to the worker; or

(iii) pay the employer or any other person for having been employed.

SL 04.16 HEALTH AND SAFETY

(a) Employers must take all reasonable steps to ensure that the working environment is healthy and safe and that all legal requirements regarding health and safety are strictly adhered to.

(b) A worker must:

(i) work in a way that does not endanger his/her health and safety or that of any other person;

(ii) obey any health and safety instruction;

(iii) obey all health and safety rules;

(iv) use any personal protective equipment or clothing issued by the employer;

(v) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

SL 04.17 COMPENSATION FOR INJURIES AND DISEASES

(a) It is the responsibility of employers to arrange for all persons employed on a EPWP to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.

(b) A worker must report any work-related injury or occupational disease to their employer or manager.

(c) The employer must report the accident or disease to the Compensation Commissioner.

(d) An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

SL 04.18 TERMINATION

(a) The employer may terminate the employment of a worker provided he has a valid reason and after following existing termination procedures.

(b) A worker will not receive severance pay on termination.

(c) A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

(d) A worker who is absent for more than three consecutive days without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

(e) A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available for the balance of the 24-month period.

SL 04.19 CERTIFICATE OF SERVICE

(a) On termination of employment, a worker is entitled to a certificate stating –

(i) the worker's full name;
(ii) the name and address of the employer;
(iii) the SPWP on which the worker worked;
(iv) the work performed by the worker;
(v) any training received by the worker as part of the EPWP;
(vi) the period for which the worker worked on the EPWP;
(vii) any other information agreed on by the employer and worker.

SL 05 EMPLOYER'S RESPONSIBILITIES

The employer shall adhere to the conditions of employment as stipulated in the *Code of Good Practice for Employment and Conditions of Work for Expanded Public Works Programmes* . Over and above the conditions stipulated above, he shall be responsible to:

(a) formulate and design a contract between himself/ herself and each of the recruited EPWP beneficiary, ensuring that the contract does not contravene any of the Acts stipulated in South African Law, e.g. Basic Conditions of Employment Act, etc. (A copy of a pro-forma contract is attached at the end of this specification);

(b) screen and select suitable candidates for employment from the priority list of EPWP beneficiary provided by the Umsobumvu Youth Fund (UYF);

(c) ensure that the recruited EPWP beneficiary are made available to receive basic life skills training which will be conducted and paid for by the Umsobumvu Youth Fund;

(d) ensure that all EPWP beneficiary receive instruction on safety on site prior to them commencing with work on site;

(e) ensure that all EPWP beneficiary are covered under workmen's compensation for as long as they are contracted to the contractor. Payment to the Compensation Commissioner shall be the responsibility of the contractor;

(f) assist in the identification and assessment of potential EPWP beneficiary to undergo advanced technical training in respective trades;

(g) test and implement strict quality control and to ensure that the health and safety regulations are adhered to;

(h) provide all EPWP beneficiary with the necessary protective clothing as required by law for the specific trades that they are involved in.

(i) provide overall supervision and day-to-day management of EPWP beneficiary and/or sub-contractors; and

(j) ensure that all EPWP beneficiary are paid their wages on time through a pre-agreed payment method as stipulated in the contract with the EPWP beneficiary.

SL 06 PLACEMENT OF RECRUITED EPWP BENEFICIARY

Employers will be contractually obliged to:

(a) employ EPWP beneficiary from targeted social groups from the priority list provided by the Service Provider/ Umsobumvu Youth Fund.

(b) facilitate on-the-job training and skills development programmes for the EPWP beneficiary;

(c) achieve the following minimum employment targets:

(i) 55% people between the ages of 18 and 35

(ii) 55% women;

(iii) 2% people with disabilities.

(d) brief EPWP beneficiary on the conditions of employment as specified in sub clause SL 04.09 above;

(e) enter into a contract with each EPWP beneficiary, which contract will form part of the Employment Agreement;

(f) allow EPWP beneficiary the opportunity to attend life skills training through DOL. This shall be arranged at the beginning of the contract;

(g) ensure that payments to EPWP beneficiary are made as set out in sub clauses SL 04.14 and SL 04.15 above.

(h) set up of personal profile files as prescribed by EPWP beneficiary and as set out in sub clause SL 04.13 above.

(i) in addition to (h)
- a copy of the I.D;
- qualifications;
- career progress;
- EPWP Employment Agreement, and
- list of small trade tools;

must be included in the EPWP beneficiary's personal profile file.

SL 07 TRAINING OF EPWP BENEFICIARY

Three types of training are applicable, namely

- Life skills;
- On the job training and
- Technical Skills training.

Training will be implemented by training instructors accredited by DOL and/or CETA :

- EPWP beneficiary shall be employed on the projects for an average of 6 months.
- EPWP beneficiary shall be deployed on projects in the vicinity of their homes. The same arrangements as for other workers regarding accommodation, subsistence and travel shall be applicable to EPWP beneficiary.

(a) Life skills training

All EPWP beneficiary are entitled to undergo life skills training. Training of this module will be flexible enough to meet the needs of the employer. Training should take place immediately after site hand-over and during the period of site establishment and pre-planning before actual construction starts, alternatively this will be spread over the duration of the contract period. The contractor will be required to work closely with the person to schedule the training sessions so that the timing of the training is aligned with the contractors work schedule and his demand for workers.

(b) On-the job training

The Employer shall provide EPWP beneficiary with on-the-job training to enable them to fulfil their employment requirements. The employer shall also be expected to closely monitor the job performance of EPWP beneficiary and shall identify potential EPWP beneficiary for skills development programmes.

(c) Technical skills training

The Employer shall assist in identifying EPWP beneficiary for further training. These EPWP beneficiary will undergo further technical training to prepare them for opportunities as semi-skilled labourers.

Such training will comprise of an off-site theoretical component and practical training on-site. The contractor will be responsible for on-site practical work under his supervision. EPWP beneficiary who graduate from the first phase of the training programme will be identified and given opportunities to register for skills development programmes. These can ultimately result in a accredited qualification. The programme will consist of theoretical instruction away from the construction site as well as on-site practical work under the supervision of the employer. Candidates will be entitled to employment to complete all training modules.

SL 08 BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA

SL 08.01 <u>PREAMBLE</u>

The *Code of Good Practise for Employment and Conditions of Work for Expanded Public Works Programmes* encourages:

- optimal use of locally-based labour in a Expanded Public Works Programme (EPWP);
- a focus on targeted groups which consist of namely youth, consisting of women, female-headed households, disabled and households coping with HIV/AIDS; and
- the empowerment of individuals and communities engaged in a SPWP through the provision of training.

SL 08.02 BENEFICIARY (EPWP BENEFICIARY) SELECTION CRITERIA

(a) The EPWP beneficiary of the programmes should preferably be non-working individuals from the most vulnerable sections of disadvantaged communities who do not receive any social security pension income. The local community must, through all structures available, be informed of and consulted about the establishment of any EPWP

(b) In order to spread the benefit as broadly as possible in the community, a maximum of one person per household should be employed, taking local circumstances into account.

(c) Skilled artisans from other areas may be employed if they have skills that are required for a project and there are not enough persons in the local communities who have those skills or who could undergo appropriate skills training. However, this should not result in more than 20% of persons working on a programme not being from local communities.

(d) Programmes should set participation targets for employment with respect to youth, single male- and female-headed households, women, people with disabilities, households coping with HIV/AIDS, people who have never worked, and those in long-term unemployment.

(e) The proposed targets as set out in sub clause SL 06 (c)

- 55% youth from 18 to 35 years of age;
- 55% women;
- 2% disabled.

SL 09 CONTRACTUAL OBLIGATIONS IN RELATION TO YOUTH LABOUR

The EPWP beneficiary to be employed in the programme (EPWP) shall be directly contracted to the employer. Over and above the construction and project management responsibilities, the employer will be expected to perform the tasks and responsibilities as set out in clause SL 05 above.

SL 10 PROVINCIAL RATES OF PAY

It is stipulated that youth workers on the EPWP receive a minimum of R 1 000 per month whilst working and R 600 per month whilst on training in ALL provinces. Should EPWP beneficiary be attending training whilst employed by the contractor, the contractor will still be responsible for payment to the EPWP beneficiary whilst at training.

SL 11 MEASUREMENTS AND PAYMENT

The number of EPWP beneficiary specified for this contract that will receive life skills training is 50 and technical training is 50

SL 11.01 PAYMENT FOR TRAINING OF EPWP BENEFICIARY (TARGET:- 50 EPWP BENEFICIARY)

SL 11.01.01 Skills development and Technical training for EPWP beneficiary for an average of 10 days ……(Prov.Sum)……..Unit: R/EPWP beneficiary

The above item is only applicable if DoL does not fund the Technical Training PRIOR to site handover.

SL 11.01.02 Penalty due to not meeting the target as in SL 11.01.01……..Unit: EPWP beneficiary

LESS R 2000 per EPWP beneficiary

SL 11.02 PAYMENT FOR TRAVELLING AND ACCOMMODATION DURING OFF-SITE TRAINING

SL 11.02.01 Life skills training for 26 days:

01 Travelling (based on 50 km/EPWP beneficiary) ……Unit: km

02 Accommodation……..(Prov.Sum)…..Unit: R/EPWP beneficiary

03 Profit and attendance…… Unit: %

SL 11.02.02 Skilled development and Technical training:

01 Travelling (based on 50 km/EPWP beneficiary)……..Unit: km

02 Accommodation…….(Prov.Sum)….Unit: R/EPWP beneficiary

03 Profit and attendance …….. Unit: %

The units of measurement for sub items SL 11.02.01 (01) and SL 11.02.02 (01) above shall be the distance travelled in km by the EPWP beneficiary trained off site. The tendered rate shall include full compensation to safely transport the youth workers to and from the training venue/s.

The unit of measurement for sub items SL 11.02.01 (02) and SL 11.02.02 (02) above shall be the amounts in Rand expended for accommodation and daily meal allowances for the EPWP beneficiary trained off site that must be arranged by the contractor. Amounts quoted shall be corrected according to re-measurement based on actual invoices.

The tendered percentages under sub items SL 11.02.01 (03) and SL 11.02.02 (03) will be paid to the contractor on the value of each payment pertaining to the accommodation and advance meal allowances to cover his expenses in this regard.

SL 11.03 ALTERNATIVE WORKERS FOR THE PERIOD OF OFF-SITE TRAINING

SL 11.03.01 Life skills training for 26 days …… Unit: worker-days

SL 11.03.02 Skilled development and Technical training for EPWP beneficiary for (…….) days…….. Unit: worker-days

The unit of measurement shall be the number of EPWP beneficiary replaced while in training multiplied by the number of days absent from the site.

The rates tendered shall include full compensation for additional replacement labour during periods of off-site training.

SL 11.04 EMPLOYMENT OF EPWP BENEFICIARY

SL 11.04.01 Employment of EPWP beneficiary……...(Prov.Sum)¼.Unit: R/ worker-month

SL 11.04.02 Employment of EPWP beneficiary……...(Prov.Sum)¼.Unit: R/ worker-month

The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R ……. multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for the training shall be excluded from this item. This item is based on 6 months appointment for EPWP beneficiary.

SL 11.05 PROVISION OF EPWP DESIGNED OVERALLS TO EPWP BENEFICIARY

SL 11.05.01 Supply EPWP designed overalls to EPWP beneficiary …….. (Prov.Sum)…….Unit: R

EPWP beneficiary overalls should be orange (top and bottom) as per EPWP specification with the exception of Correctional Services contracts where the EPWP beneficiary top would be blue and the bottom orange.

SL 11.05.02 Profit and attendance…….. Unit: %

An amount has been provided in the Schedule of Quantities under sub item SL 10.05.01 for the supply of EPWP designed overalls, as per the specification provided by the EPWP unit, arranged by the Service Provider. The Engineer will have sole authority to spend the amounts or part thereof. The tendered percentage under sub items SL 10.05.02 will be paid to the contractor on the value of each payment pertaining to the supply of overalls to cover his expenses in this regard.

SL 11.06 PROVISION OF SMALL TOOLS FOR EPWP BENEFICIARY

SL 11.06.01 Provide all EPWP beneficiary with prescribed tools for their respective trades. Specification for the mentioned tools to be provided by the EPWP Service Provider. These tools will become the property of the EPWP beneficiary after the completion of the programme.....(Prov.Sum)….Unit: **R 500-00** /youth worker

SL 11.06.02 Profit and attendance…….. Unit: %

SL 11.07 APPOINTMENT OF EPWP BENEFICIARY TEAM LEADER/S

SL 11.07.01 Appointment of (_____) EPWP beneficiary team leader/s for the duration of the contract…….(Prov.Sum)……..... Unit: R / EPWP beneficiary team leader

The EPWP beneficiary Team Leader will act as CLO/PLO to facilitate the project work between the EPWP beneficiary and the contractor. Umsobumvu Youth Fund can assist with the sourcing of EPWP beneficiary Team Leader for employment by the contractor.

SL 11.08 LIAISON WITH SERVICE PROVIDER ……Unit: hours

The tendered rate shall include full compensation for the cost of liaising with the Service Provider and Social Facilitators on all issues regarding the works.

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ANNEXURE 10
EPWP BILLS OF QUANTITIES

PAGE NO	ITEM NO	DESCRIPTION	UNIT	QUANTITY	RATE	AMOUNT
1		BILL NO 2				
1		EMPLOYMENT AND TRAINING OF LABOUR ON THE EPWP BENEFICIARY INFRASTRUCTURE PROJECTS				
1		PREAMBLES				
1		Tenderers are advised to study the Additional Specification SL: Employment and training of Labour on the Expanded Public Works Programme (EPWP) Infrastructure Projects as bound elsewhere in the Bills of Quantities and then price this Bill accordingly				
1		TRAINING OF EPWP BENEFICIARY				
1		(TARGET: 50 EPWP BENEFICIARY)				
1		Skills development and Technical training:				
1	1	Skills development and technical training for EPWP beneficiary for an average of 10 days (ref. SL11.01.01)	Item	1		
1	2	Penalty due to not meeting the target as in SL 11.01.02	Y/Work	R 2 000.00		
1		TRAVELLING AND ACCOMMODATION DURING OFF SITE TRAINING:				
1		Life skills training for 26 days (ref. SL 11.02.01)				
1	3	Travelling (based on 50km/EPWP beneficiary)	km	2500		
1	4	Profit and attendance on Items 1, 2 & 3	%			
1		EMPLOYMENT OF EPWP BENEFICIARY				
1	5	Employment of EPWP beneficiary (30 youth) [New Office Block]	Item	1		
1		The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 100/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 6 months appointment for EPWP beneficiary				
1	6	Employment of EPWP beneficiary(40 youth) [Parking garage]	Item	1		
		TOTAL CARRIED TO SUMMARY				

			UNIT	QUANTITY	RATE	AMOUNT
2		The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 110/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 12 months appointment for EPWP beneficiary				
2	7	Employment of EPWP beneficiary (30 youth) [Conference Centre & Canteen]	Item	1		
2		The unit of measurement shall be the number of EPWP beneficiary at the statutory labour rates of R 120/day multiplied by the period employed in months and the rate tendered shall include full compensation for all costs associated with the employment of EPWP beneficiary and for complying with the conditions of contract. The cost for training shall be excluded from this item. This item is based on 12 months appointment for EPWP beneficiary				
2		PROVISION OF EPWP DESIGNED OVERALLS TO YOUTH WORKERS				
2	8	Supply EPWP designed overalls to EPWP beneficiary (ref. SL 11.05.01) for 100 workers	Item	1		
2	9	Profit and attendance on Items 5 - 8 (ref. SL 11.05.02)	%	7.5		
2		PROVISION OF SMALL TOOLS FOR EPWP BENEFICIARY				
2	10	Supply of small tools to EPWP beneficiary. Specification to be supplied by the EPWP-NYS Serviced Provider for the respective trades (ref. SL 11.06.01) for 100 workers	Item	1		
2	11	Profit and attendance (ref. SL 11.06.02)	%	7.5		
2		APPOINTMENT OF YOUTH TEAM LEADERS				
2	12	Appointment of EPWP beneficiary Team Leaders for the duration of the contract (ref. SL 11.07)	Item	1		
2	13	Liaison with Service Provider (ref. SL 11.08)	Hrs	30		
2	14	Profit and attendance on Items 12 & 13	%	7.5		
		FINAL TOTAL CARRIED TO PRELIMINARY AND GENERAL IN BILL OF QUANTITIES				

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ANNEXURE 11
SCOPE OF WORKS - EPWP

SCOPE OF WORKS IN RESPECT OF WORK RELATING TO THE EXTENDEND PUBLIC WORKS PROGRAMME (EPWP)

Project title:	**DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**		
Project Code:	**064234**	EPWP NO:	**0**

Introductory notes:

1. The works, or parts of the works will be constructed using labour-intensive methods only in terms of this specification. 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.

2. 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.

DESCRIPTION OF THE WORKS

Employer's objectives

The employer's objectives are to deliver public infrastructure using labour-intensive methods in accordance with EPWP Guidelines.

Labour-intensive works

Labour-intensive works comprise the activities described in the Labour-Intensive Specification. Labour-intensive works shall be constructed/maintained using local workers who are temporarily employed in terms of the scope of work.

LABOUR-INTENSIVE COMPETENCIES OF SUPERVISORY AND MANAGEMENT STAFF

Contractors shall only engage supervisory and management staff in labour-intensive works that have completed the skills programme including Foremen/ Supervisors at NQF level 4 "National Certificate: Supervision of Civil Engineering Construction Processes" and Site Agent/ Manager at NQF level 5 "Manage Labour-Intensive Construction Processes" or equivalent QCTO qualifications (See Appendix C). at NQF outlined in Table 1. (See GUIDELINES FOR THE IMPLEMENTATION OF LABOUR-INTENSIVE INFRASTRUCTURE PROJECTS UNDER THE EXPANDED PUBLIC WORKS PROGRAMME (EPWP) -THIRD EDITION 2015)

Emerging contractors shall have personally completed, or be registered on a skills programme for the NQF level 2 unit standard. All other site supervisory staff in the employ of emerging contractors must have completed, or be registered on a skills programme for the NQF level 2 unit standards or NQF level 4 unit standards. Table 1: Skills programme for supervisory and management staff.

Table 1: Skills programme for supervisory and management staff

Personnel	NQF level	Unit standard titles	Skills programme description
Team leader / supervisor	2	Apply Labour-Intensive Construction Systems and Techniques to Work Activities	This unit standard must be completed, and
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Water and Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	
Personnel	**NQF level**	**Unit standard titles**	**Skills programme description**
Foreman/supervisor	4	Implement Labour-Intensive Construction Systems and Techniques	This unit standard must be completed, and
		Use Labour-Intensive Construction Methods to Construct and Maintain Roads and Storm water Drainage	any one of these 3 unit standards
		Use Labour-Intensive Construction Methods to Construct and Maintain Water an Sanitation Services	
		Use Labour-Intensive Construction Methods to Construct, Repair and Maintain structures	
Site Agent /Manager (i.e. the contractor's most senior representative that is resident on the site)	5	Manage Labour-Intensive Construction Processes	Skills Programme against this single unit standard
Details of these skills programmes may be obtained from the CETA ETQA manager (e-mail :gerard@ceta.co.za , tel: 011-265 5900)			

EMPLOYMENT OF UNSKILLED AND SEMI-SKILLED WORKERS IN LABOUR-INTENSIVE WORKS

1.1 Requirements for the sourcing and engagement of labour.

1.1.1 Unskilled and semi-skilled 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.

1.1.2 The rate of pay set for the SPWP per task or per day will be an acceptable rate determined by the Department of Labour.

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.

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 1.1.3.

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) that who are not in receipt of any social security pension income

1.1.6 The Contractor shall endeavour to ensure that the expenditure on the employment of unskilled and semi-skilled workers is in the following proportions:

a) 55% women;
b) 55% youth who are between the ages of 18 and 35; and
c) 2% on persons with disabilities.

1.2 Specific provisions pertaining to SANS 1914-5

1.2.1 Definitions

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

1.2.2 Contract participation goals

1.2.2.1 There is no specified contract participation goal for the contract. The contract participation goal shall be measured in the performance of the contract to enable the employment provided to targeted labour to be quantified.

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.

1.2.3 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

1.2.4 Terms and conditions for the engagement of targeted labour

Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts shall be entered into with targeted labour.

1.2.5 Variations to SANS 1914-5

1.2.5.1 The definition for net amount shall be amended as follows:
Financial value of the contract upon completion, exclusive of any value added tax or sales tax which the law requires the employer to pay the contractor.

1.2.5.2 The schedule referred to in 5.2 shall in addition reflect the status of targeted labour as women, youth and persons with disabilities and the number of days of formal training provided to targeted labour.

1.3 Training of targeted labour

1.3.1 The contractor shall provide all the necessary on-the-job training to targeted labour to enable such labour to master the basic work techniques required to undertake the work in accordance with the requirements of the contract in a manner that does not compromise worker health and safety.

1.3.2 The cost of the formal training of targeted labour, will be funded by the local office of the Department of Labour. This training will take place as close to the project site as practically possible. The contractor must access this training by informing the relevant regional office of the Department of Labour in writing, within 14 days of being awarded the contract, of the likely number of persons that will undergo training and when such training is required. The Employer and the Department of Public Works (Fax: 012 3258625/ EPWP Unit, Private Bag X65, Pretoria 0001) must be furnished with a copy of this request.

1.3.3 The contractor shall do nothing to dissuade targeted labour from participating in training programmes and shall take all reasonable steps to ensure that each beneficiary is provided with two days of formal training for every 22 days worked.

1.3.4 An allowance equal to 100% of the task rate or daily rate shall be paid by the contractor to workers who attend formal training, in terms of the above.

1.3.5 Proof of compliance with the above requirements must be provided by the Contractor to the Employer prior to submission of the final payment certificate.

GENERIC LABOUR-INTENSIVE SPECIFICATION

1 Scope

This specification establishes general requirements for activities which are to be executed by hand involving the following:

a) trenches having a depth of less than 1.5 metres
b) storm water drainage
c) low-volume roads and sidewalks

2 Precedence

Where this specification is in conflict with any other standard or specification referred to in the Scope of Works to this Contract, the requirements of this specification shall prevail.

3 Hand excavateable material

Hand excavateable material is material:

a) Granular materials:

i) whose consistency when profiled may in terms of table 1 be classified as very loose, loose, medium dense, or dense; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 15 blows of a dynamic cone penetrometer is required to penetrate 100mm;

b) Cohesive materials:

i) whose consistency when profiled may in terms of table 1 be classified as very soft, soft, firm, stiff and stiff / very stiff; or

ii) where the material is a gravel having a maximum particle size of 10mm and contains no cobbles or isolated boulders, no more than 8 blows of a dynamic cone penetrometer is required to penetrate 100mm;

Note: 1) A boulder, a cobble and gravel is material with a particle size greater than 200mm, between 60 and 200mm.

2) A dynamic cone penetrometer is an instrument used to measure the in-situ shear resistance of a soil comprising a drop weight of approximately 10 kg which falls through a height of 400mm and drives a cone having a maximum diameter of 20mm (cone angle of. 60 degrees with respect to the horizontal) into the material being used.

Table 2: Consistency of materials when profiled

GRANULAR MATERIALS		**COHESIVE MATERIALS**	
CONSISTENCY	**DESCRIPTION**	**CONSISTENCY**	**DESCRIPTION**
Very loose	Crumbles very easily when scraped with a geological pick.	Very soft	Geological pick head can easily be pushed in as far as the shaft of the handle.
Loose	Small resistance to penetration by sharp end of a geological pick.	Soft	Easily dented by thumb; sharp end of a geological pick can be pushed in 30-40 mm; can be moulded by fingers with some pressure.
Medium dense	Considerable resistance to penetration by sharp end of a geological pick.	Firm	Indented by thumb with effort; sharp end of geological pick can be pushed in upto 10 mm; very difficult to mould with fingers; can just be penetrated with an ordinary hand spade.
Dense	Very high resistance to penetration by the sharp end of a geological pick; requires many blows for excavation.	stiff	Can be indented by thumb-nail; slight indentation produced by pushing geological pick point into soil; cannot be moulded by fingers.
Very dense	High resistance to repeated blows of a geological pick.	Very stiff	Indented by thumb-nail' with difficulty; slight indentation produced by blow of a geological pick point.

4 Trench excavation

All hand excavateable material in trenches having a depth of less than 1,5 metres shall be excavated by hand.

5 Compaction of backfilling to trenches (areas not subject to traffic)

Backfilling to trenches shall be placed in layers of thickness (before compaction) not exceeding 100mm. Each layer shall be compacted using hand stampers

a) to 90% Proctor density;

b) such that in excess of 5 blows of a dynamic cone penetrometer (DCP) is required to penetrate 100 mm of the backfill, provided that backfill does not comprise more than 10% gravel of size less than 10mm and contains no isolated boulders, or

c) such that the density of the compacted trench backfill is not less than that of the surrounding undisturbed soil when tested comparatively with a DCP.

6 Excavation

All hand excavateable material including topsoil classified as hand excavateable shall be excavated by hand. Harder material may be loosened by mechanical means prior to excavation by hand.

The excavation of any material which presents the possibility of danger or injury to workers shall not be excavated by hand.

7 Clearing and grubbing

Grass and small bushes shall be cleared by hand.

8 Shaping

All shaping shall be undertaken by hand.

9 Loading

All loading shall be done by hand, regardless of the method of haulage.

10 Haul

Excavation material shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150 m.

11 Offloading

All material, however transported, is to be off-loaded by hand, unless tipper-trucks are utilised for haulage.

12 Spreading

All material shall be spread by hand.

13 Compaction

Small areas may be compacted by hand provided that the specified compaction is achieved.

14 Grassing

All grassing shall be undertaking by sprigging, sodding, or seeding by hand.

15 Stone pitching and rubble concrete masonry

All stone required for stone pitching and rubble concrete masonry, whether grouted or dry, must be collected, loaded, off loaded and placed by hand.

Sand and stone shall be hauled to its point of placement by means of wheelbarrows where the haul distance is not greater than 150m.

Grout shall be mixed and placed by hand.

16 Manufactured Elements

Elements manufactured or designed by the Contractor, such as manhole rings and cover slabs, precast concrete planks and pipes, masonry units and edge beams shall not individually, have a mass of more than 320kg. In addition, the items shall be large enough so that four workers can conveniently and simultaneously acquire a proper handhold on them.

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ANNEXURE 12
EPWP EMPLOYMENT AGREEMENT

(Insert Your Company Logo)

(This shall serve as the cover page on employment contracts for local labour)

EMPLOYMENT AGREEMENT

BETWEEN

[CONTRACTOR NAME].....

AND

[WORKER NAME].....

1. PARTIES

The Parties to this Agreement are -

1.1. Contractor: _____

herein represented by: _____

duly authorised thereto

And

1.2. Mr / Me: _____

[worker's name]

2. DEFINITIONS AND INTERPRETATION

2.1. In this Agreement and any Annexure thereto, unless inconsistent with or otherwise indicated by the context-

"Agreement"	means the contents of this Agreement.
"Company"	means the company that employs the worker
"Department"	means the Department of Public Works
"Worker"	is a person that performs a specific or necessary task or who completes tasks in a certain way
"EPWP"	The Expanded Public Works Programme is a government programme aimed at the alleviation of poverty and unemployment. The programme ensures the full engagement on Labour Intensive Methods of Construction (LIC) to contractors for skills development. The EPWP focuses at reducing unemployment by increasing economic growth by means of improving skills levels through education and training and improving the enabling environment for the industry to flourish.

3. PURPOSE

The purpose of this agreement is to:-

Ensure that the agreement is binding to both the Worker and the Employer.

4. TERMS AND CONDITIONS

- The worker will have no entitlement to the benefits of a full time employee, namely;

_____

_____

- The worker should not have the expectation that this contract will be renewed or extended.
- The worker will be subject to all laws, rules, policies, codes and procedures applicable to the;

_____

- The worker must meet the standards and requirements of the contractor
- The worker must render his/her services during normal working hours of minimum of forty to fifty five hours in any week; which comprise of an eight-hour working day in a five-day

5. REMUNERATION

The worker will receive compensation to the amount of R_____00 which must be paid by the 25th or on the last day of each month.

6. ROLES AND RESPONSIBILITIES

6.1 Employer / Worker

- Work for _____ in terms of the period as specified in the employment agreement contract.
- Be available for and participate in all learning and work experience required by the company.
- Comply with workplace policies and procedures.
- Complete any attendance or any written assessment tools supplied by the contractor to record relevant workplace experience.
- Demonstrate willingness to grow and learn through work experience.

  Provide the following documentation to the employer,

  - Certified identity document not longer than 3 months
  - ID size photos
  - Sign employment contract

6.2 Employer

- Employ the worker for a period specified in the agreement.
- Provide the worker with appropriate work based experience in the work environment.
- Facilitate payments of wages / stipends.
- Keep accurate records of workers.
- Where a worker/ learner is disabled, the employer will have to provide in the additional needs e.g. special materials, learning aids and in some cases physical or professional support (such aids remain the property of the employer).
- Keep up to date records of learning and discuss progress with the intern on a regular basis.
- Apply fair disciplinary, grievance and dispute resolution procedures to the worker.
- Prepare an orientation/ induction course to introduce worker/ learner to the workplace and specific workplace requirements.
- Ensure the daily attendance register is signed by the worker.

7. DURATION.

This agreement commences on: _____

and

expires on: _____

8. BREACH.

If either party commits any breach of the terms of this contract (and fails to rectify it within 30 days of receipt of a written notice calling it to do so, then) the other party shall be entitled to terminate the contract or to claim specific performance without prejudice to any of its other legal rights, including its rights to claim damages.

9. CONDITIONS OF EMPLOYMENT

9.1. Meal Breaks

9.1.1 A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.

9.1.2 An employer and worker may agree on longer meal breaks.

9.1.3 A worker may not work during a meal break. However, an employer may require a worker to perform duties during a meal break if those duties cannot be left unattended and cannot be performed by another worker. An employer must take reasonable steps to ensure that a worker is relieved of his or her duties during the meal break.

9.1.4 A worker is not entitled to payment for the period of a meal break. However, a worker who is paid on the basis of time worked must be paid if the worker is required to work or to be available for work during the meal break.

9.2. Special Conditions for Security Guards (Only applicable to security Guards)

9.2.1 A security guard may work up to 55 hours per week and up to eleven hours per day.

9.2.2 A security guard who works more than ten hours per day must have a meal break of at least one hour or two breaks of at least 30 minutes each.

9.3. Weekly Rest Period

Every worker must have two days off every week. A worker may only work on their day off to perform work which must be done without delay and cannot be performed by workers during their ordinary hours of work ("emergency work").

9.4. Work on Sundays and Public Holidays

9.4.1 A worker may only work on a Sunday or public holiday to perform emergency or security work.

9.4.2 Work on Sundays is paid at the ordinary rate of pay.

9.4.3 A task-rated worker who works on a public holiday must be paid;

(a) the worker's daily task rate, if the worker works for less than four hours;

(b) double the worker's daily task rate, if the worker works for more than four hours.

9.4.4 A time-rated worker who works on a public holiday must be paid

(a) the worker's daily rate of pay, if the worker works for less than four hours on the public holiday;

(b) double the worker's daily rate of pay, if the worker works for more than four hours on the public holiday.

9.5 Sick leave

9.5.1 Only workers who work more than 24 hours per month have the right to claim sick-pay in terms of this clause.

9.5.2 A worker who is unable to work on account of illness or injury is entitled to claim one day's paid sick leave for every full month that the worker has worked in terms of a contract.

9.5.3 A worker may accumulate a maximum of twelve days' sick leave in a year.

9.5.4 Accumulated sick-leave may not be transferred from one contract to another contract.

9.5.5 An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.

9.5.6 An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.

9.5.7 An employer must pay a worker sick pay on the worker's usual payday.

9.5.8 Before paying sick-pay, an employer may require a worker to produce a certificate stating that the worker was unable to work on account of sickness or injury if the worker is

(a) absent from work for more than two consecutive days; or

(b) absent from work on more than two occasions in any eight-week period.

9.5.9 A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorised to issue medical certificates indicating the duration and reason for incapacity.

9.5.10 A worker is not entitled to paid sick-leave for a work-related injury or occupational disease for which the worker can claim compensation under the Compensation for Occupational Injuries and Diseases Act.

9.6. Maternity Leave

9.6.1 A worker may take up to four consecutive months' unpaid maternity leave.

9.6.2 A worker is not entitled to any payment or employment-related benefits during maternity leave.

9.6.3 A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.

9.6.4 A worker is not required to take the full period of maternity leave. However, a worker may not work for four weeks before the expected date of birth of her child or for six weeks after the birth of her child, unless a medical practitioner, midwife or qualified nurse certifies that she is fit to do so.

9.6.5 A worker may begin maternity leave as follows;

(a) four weeks before the expected date of birth; or

(b) on an earlier date

(i) if a medical practitioner, midwife or certified nurse certifies that it is necessary for the health of the worker or that of her unborn child; or

(ii) if agreed to between employer and worker; or

(c) on a later date, if a medical practitioner, midwife or certified nurse has certified that the worker is able to continue to work without endangering her health.

10.6 A worker who has a miscarriage during the third trimester of pregnancy or bears a stillborn child may take maternity leave for up to six weeks after the miscarriage or stillbirth.

9.7. Family responsibility leave

9.7.1 Workers, who work for at least four days per week, are entitled to three days paid family responsibility leave each year in the following circumstances;

(a) when the employee's child is born;

(b) when the employee's child is sick;

(c) in the event of a death of

(i) the employee's spouse or life partner;

(ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.

9.8. Keeping Records

9.8.1 Every employer must keep a written record on site for the duration of the project and three (3) year after completion records should consists of at least the following;

(a) the worker's name and position;

(b) copy of an acceptable worker identification

(c) in the case of a task-rated worker the number of tasks completed by the worker;

(d) in the case of a time-rated worker, the time worked by the worker;

(e) payments made to each worker in a form of Proof of Payment, Payroll registers and the acknowledgement of payment receipt signed by the worker.

9.8.2 The employer must keep this record for a period of at least three years after the completion of the EPWP.

9.9. Payment

9.9.1 An employer must pay all wages at least monthly in cash or by cheque or into a bank account.

9.9.2 A worker may not be paid less than the Ministerial Determination wage rate.

9.9.3 A task-rated worker will only be paid for tasks that have been completed.

9.9.4 An employer must pay a task-rated worker within five weeks of the work being completed and the work having been approved by the manager or the contractor having submitted an invoice to the employer.

9.9.5 A time-rated worker will be paid at the end of each month.

9.9.6 Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.

9.9.7 Payment in cash or by cheque must take place

(a) at the workplace or at a place agreed to by the worker;

(b) during the worker's working hours or within fifteen minutes of the start or finish of work;

(c) in a sealed envelope which becomes the property of the worker.

9.9.8 An employer must give a worker the following information in writing

(a) the period for which payment is made;

(b) the numbers of tasks completed or hours worked;

(c) the worker's earnings;

(d) any money deducted from the payment;

(e) the actual amount paid to the worker.

9.9.9 If the worker is paid in cash or by cheque, this information must be recorded on the envelope and the worker must acknowledge receipt of payment by signing for it.

9.9.10 If a worker's employment is terminated, the employer must pay all monies owing to that worker within one month of the termination of employment.

9.10. Inclement weather

If no work has begun on site, and if an employee has reported for work, the employee will be paid for four hours. Should work be stopped after the first four hours, the employee will be paid for the hours worked. Where the employer has given employees notice on the previous working day that no work will be available due to inclement weather, then no payment will be made.

9.11. Deductions

9.11.1 An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.

9.11.2 An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.

9.11.3 An employer who deducts money from a worker's pay for payment to another person must pay the money to that person within the time period and other requirements specified in the agreement of Law; court order or arbitration

9.11.4 It is the responsibility of the employers to arrange for all persons employed on a Project to be covered in terms of the Unemployment Insurance Fund Contributions Act, 2002 (Act No. 4 of 2002)

9.11.5 An employer may not require or allow a worker to

(a) repay any payment except an overpayment previously made by the employer by mistake;

(b) state that the worker received a greater amount of money than the employer actually paid to the worker; or

(c) pay the employer or any other person for having been employed.

9.12. Health and Safety

9.12.1 Employers must take all reasonable steps to ensure that the working environment is healthy and safe.

9.12.2 A worker must;

(a) work in a way that does not endanger his/her health and safety or that of any other person;

(b) obey any health and safety instruction;

(c) use any personal protective equipment or clothing issued by the employer;

(d) report any accident, near-miss incident or dangerous behaviour by another person to their employer or manager.

9.13. Compensation for Injuries and Diseases

9.13.1 It is the responsibility of the employers to arrange for all persons employed on a Project to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993 as amended by COIDA Act 61, 1997.

9.13.2 A worker must report any work-related injury or occupational disease to their employer or manager.

9.13.3 The employer must report the accident or disease to the Compensation Commissioner.

9.13.4 An employer must pay a worker who is unable to work because of an injury caused by an accident at work 75% of their earnings for up to three months. The employer will be refunded this amount by the Compensation Commissioner. This does NOT apply to injuries caused by accidents outside the workplace such as road accidents or accidents at home.

9.14. Termination

9.14.1 The employer may terminate the employment of a worker for good cause after following a fair procedure.

9.14.2 A worker will not receive severance pay on termination.

9.14.3 A worker is not required to give notice to terminate employment. However, a worker who wishes to resign should advise the employer in advance to allow the employer to find a replacement.

9.14.4 A worker **who is absent for more than three consecutive days** without informing the employer of an intention to return to work will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

9.14.5 A worker who does not attend required training events, without good reason, will have terminated the contract. However, the worker may be re-engaged if a position becomes available.

Notice procedure is as follows;

- One week if employed for four weeks or less
- Two weeks if employed for more than four weeks but not more than a year
- Four weeks of employed for one (1) year or more

9.15. Certificate of Service

9.15.1 On termination of employment, a worker is entitled to a certificate stating;

(a) the worker's full name;
(b) the name and address of the employer;
(c) the Project on which the worker worked; the work performed by the worker;
(d) any training received by the worker;
(e) the period for which the worker worked on the Project; and
(f) any other information agreed on by the employer and worker.

9.16. DOMICILE

The address to which notices and all legal documents may be delivered or served are as follows:

Employee Details

Name & Surname: _____

ID No: _____

Residential Address: _____

_____

Contact No: _____

Date of Employment: _____

To be supervised by: **Main Contractor:** ☐
or Sub Contractor: ☐

Category of employment: **Skilled:** ☐
Semi-skilled: ☐
Unskilled: ☐

For Skilled & Semi-skilled state the trade: _____

Period of employment: Fixed for until when your services are still required on site

I confirm that I have been inducted and fully understand the condition of my appointment.

Employee Signature: _____ **Witness by SGB/CLO:** _____

Signature by Witness: _____

Employer Details

Name & Surname: _____
Designation: _____
Contact No: _____ **Signature:** _____

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 13
ATTENDANCE REGISTER FOR ONSITE WORKS

KWAZULU-NATAL DEPARTMENT OF PUBLIC WORKS

EXPANDED PUBLIC WORKS PROGRAMME

The Attendance Register for on-site Workers

Reporting month: _____ Cell No: _____

Surname: _____ First Name: _____

Project Name: **DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**

Project Code: **064234** Tender No **ZNTL03559W**

IDENTITY NUMBER:

Day	Date	Time In	Signature	Time Out	Signature	Report On Any Formal Training Provided In The Reporting Month
WEEK 1						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 2						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 3						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 4						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
WEEK 5						
MONDAY						
TUESDAY						
WEDNESDAY						
THURSDAY						
FRIDAY						
Total Days worked						

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

ANNEXURE 14
EPWP DATA COLLECTION TOOL FOR PHASE 3 SYSTEM

BUSINESS PLAN

Reference No	
Profile ID	
Project Name	
Project Details	
Project Name	
Project Reference Number	
Project description	
Project Start Date	
Project End Date	
Estimated Budget	
Project Location	
Province	
District/Metro Municipality	
Local Municipality/Metro Region	
Latitude (in decimal format)	
Longitude (in decimal format)	
Public Body Details	
Public body sphere	
Reporting public body that is the project owner (and will report on the project)	
Implementing public body type	
Public body that will implement the project	
IDP reference number allocated to the project	
EPWP Details	
EPWP Sector	
EPWP Program	
EPWP Sub programme	
Budget Amount	
April 2014/March 2015	
April 2015/March 2016	
Total Budget Amount	
Wages	
UIF	
COIDA	
Training	
Administration	
Equipment and materials	
Other	
Describe other	
Outputs and Training	
Output	
Despription	
Target Quantity	
Number of persons to be trained	
Contact person	
Title	
Initials	
First Name	
Surname	
Email	
Tel (Office)	
Fax Number	
Cell Number	
Physical Address 1	
Physical Address 2	
Physical Address 3	
Physical Address 4	
Postal Address 1	
Postal Address 2	
Postal Address 3	
Postal Address 4	

KZN PUBLIC WORKS

Monthly Data collection for LOCAL Labour

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

EXPANDED PUBLIC WORKS PROGRAMME

Name of Contractor: _____ Project Code: **064234** Project location name (area):_____

Name of Project: DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS

Reporting month:_____ Project location (Ward No.):_____

Beneficiary Details																					Experience/Literacy				Location Details				Household Details		
No	First Name	Initial	Surname	ID number												D.O.B	Gender F/M	Disability Y/N	Start Date on the current month	End Date on the current month	Total days worked	Job description	Registered on UIF (Y/N)	Registered with COIDA (Y/N)	Are you receiving any Gov grant? (Y/N)	1st Language	Other Language 1	Other Language 2	Education Level (See Codes below)	Highest Level of Education	Address	Ward No.	Cell No.	Nationality	No. of people in Household	No. of Dependants in Household	No. of Children attending school
1																																			
2																																			
3																																			
4																																			
5																																			
6																																			
7																																			
8																																			
9																																			
10																																			

- Education Levels – use the codes (1,2,3) on the excel spreadsheet
  - **(1)** Unknown **(3)** Grade 1-3 (Sub A – Std 1) **(5)** Grade 5-6 (Std 3-4) ABET 2 **(7)** Grade 9 (Std 7) ABET 4 **(9)** Grade 12 (Std 10)
  - **(2)** No Schoc **(4)** Grade 4 (Std 2) ABET 1 **(6)** Grade 7-8 (Std 5-6) ABET 3 **(8)** Grade 10-11 (Std 8-9) **(10)** Post Matric

Contractor sign:_____ DPW Official/Consultant sign:_____ EPWP Official sign:_____

Designation:_____ Designation:_____ Designation:_____

Date:_____ Date:_____ Date:_____

Contact no:_____ Contact no:_____ Contact no:_____

KZN PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

EXPANDED PUBLIC WORKS PROGRAMME

Worker payment capture form for LOCAL Labour

Name of Contractor: _____ Project Code: **064234**

Name of Project: **DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**

Reporting month: _____

Payment Upload

No.	First Name	Initials	Surname	Identity No.	D.O.B	Job Description	Daily Wage Rate	Total Paid Days	Total Amount Paid	Total days Worked Days
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

Contractor sign:_____
Designation:_____
Date:_____
Contact no:_____

DPW Official/Consultant sign:_____
Designation:_____
Date:_____
Contact no:_____

EPWP Official sign:_____
Designation:_____
Date:_____
Contact no:_____

KZN PUBLIC WORKS

Worker Training capture form for LOCAL Labour

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

EXPANDED PUBLIC WORKS PROGRAMME

Name of Contractor: _____ Project Code: **064234**

Name of Project: **DEPARTMENT OF EDUCATION: SANITATION PROGRAMME FOR SINENHLANHLA PRIMARY SCHOOL : MIDLANDS REGION: UPGRADE TO SANITATION SYSTEMS**

Reporting month: _____

Training														
No	**Name**	**Surname**	**ID No.**	**Job description**	**Course Name**	**Was training Accredited or Non - accredited by a relevant SETA**	**Start date on current month**	**End date on current month**	**Training Days Paid**	**Training Days Not Paid**	**Total Number of Training Days**	**Cost per trainee**	**Is training complete or on - going**	**Name of Training Provider**
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														

Contractor sign: _____

Designation: _____

Date: _____

Contact no: _____

DPW Official/Consultant sign: _____

Designation: _____

Date: _____

Contact no: _____

EPWP Official sign: _____

Designation: _____

Date: _____

Contact no: _____

Location	
Locality Name	
Municipality	
Subplace	
Ward	
Government Facility	
Latitude	
Longitude	
Physical Address/Location	