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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

Engineer/Principal Agent
Consult Three Architects & Associates (Pty) Ltd
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini

3969
035 572 1399 - Tel Number
086 540 6181 - Fax Number
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Project Manager
Consult Three Architects & Associates (Pty) Ltd
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini

3969
035 572 1399 - Tel Number
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Employer:
Head: Public Works
KZN Department of Public Works
Private Bag X 9041
PIETERMARITZBURG
3200
Tel Number: 035 - 8743233
Fax Number: N/A

Region:
Regional Manager
KZN Department of Public Works
Private Bag X 42
Ulundi
3838
Tel Number: 035-874 3233
Fax Number: N/A

Tender Number: ZNTU01989W
CIDB Grading: 5GB OR HIGHER
ECDP Number: N/A

Project Code: 059196
Document Date: 04 December 2026

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

THE TENDER

1. PART T1: TENDER PROCEDURES

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T2.24	Proof of Unemployment Insurance Fund (2.24)
T2.25	The National Industrial Participation Programme (T2.25)

T2.26	Proof of Registration on the Central Supplier Database (CSD) (T2.26)
T2.27	Certified Proof of CIDB Registration Number (T2.27)
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T2.34	Mandatory Criteria (T2.34)
T2.35	Invitation to Tender - SBD 1 (T2.35)
T2.36	Proof of working capital at least 2.5% of the project value in the form of bank statement with bank stamp from a registered financial institution not older than 3 months or letter from registered financial institution indicating willingness to finance the contractor at a value of 2.5% of the contract value not older than 3 months. (T2.36)
T2.37	Proof of minimum two (2) letters of credit reference not older than 6 months and credit limits with a minimum of R 800 000.00 combined (T2.37).
T2.38	Detailed schedule of resources at all levels, including submission of a detailed organogram of the company, including listing on this organogram the resources within the company that will be dedicated to the project under construction (T2.38)
T2.39	Schedule of years of experience by key personnel, contract Manager, site foreman and health and safety Officer, as listed in the organogram on similar projects (minimum 5 years' experience for key personnel) (T2.39)
T2.40	Schedule of projects involving construction of new building / offices undertaken and successfully completed within applicable CIDB grading of 4 GB OR Higher in the past 5 years by the tendering entity – letters of award and practical completion certificate for projects must
T2.41	Letter of intent to provide an on-demand construction guarantee to a value of 5% of the project value from a registered financial institution. Letter must be on letterhead and must be signed, dated, and stamped. (T2.41)

THE CONTRACT

3. PART C1: AGREEMENT AND CONTRACT DATA

C1.1	Form of Offer and Acceptance
C1.2	Contract Data
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C2.2	Preliminaries
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C3.1	Scope of Works
C3.2	Specification for HIV/AIDS awareness
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C4.1	Site Information

7. DRAWINGS

C5.1	List of Drawings

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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	Joint Venture Agreement
Annexure 6	Health and Safety Specification
Annexure 7	Health and Safety Bill of Quantities
Annexure 8	Builders Lien Agreement
Annexure 9	Geotechnical Investigation Report (If applicable)
Annexure 10	EPWP Employment Contract
Annexure 11	Attendance Register - Infrastructure and Other projects
Annexure 13	

IMPORTANT NOTICE TO TENDERERS

1 Requirement
2 Under
3 The
4 In additio
5 Tender
6 No
7 No
8 Late submissions will not be accepted.
9 Faxed or e-mailed bids are not accepted.

10 Only bidder
11 Bidder
12 The bid will
13 **The tender**
14 The Contract
15 Section 1 is returnable
16 Tenderers who
17 Proof of payme
18 The

Account Name:	KZN PROV GOV-WORKS
Bank Name:	ABSA BANK
Account Number:	4121941044

Bank Code: BUSINESS CHEQUE ACCOUNT
Reference No: Ref No. 14019639

KWAZULU-NATAL PROVINCE
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THE CONTRACT

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C1 - AGREEMENT AND CONTRACT DATA

KWAZULU-NATAL PROVINCE
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ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

FORM OF OFFER AND ACCEPTANCE

FORM OF OFFER AND ACCEPTANCE

Tender No - ZNTU01989W

KWAZULU-NATAL PROVINCE
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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.

KWAZULU-NATAL PROVINCE
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ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

C1.2 - CONTRACT DATA

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

CONTRACT DATA FOR:

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

Tender no: ZNTU01989W

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: ***N/A*** Fax: ***035 - 8743233***

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

[1.1.1.16] **Employers Agent 1**
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini
3969
Tel: ***035 572 1399*** Fax: ***086 540 6181***

Employers Agent 2
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini
3969
Tel: ***035 572 1399*** Fax: ***086 540 6181***

Employers Agent 3
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini
3969
Tel: ***035 572 1399*** Fax: ***086 540 6181***

Employers Agent 4
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini
3969
Tel: ***035 572 1399*** Fax: ***086 540 6181***

Tender no: ZNTU01989W

Employers Agent 5
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini
Jozini
3969
Tel: insert ***035 572 1399*** Fax: ***086 540 6181***

Employers Agent 6
Consult Three Architects & Associates (Pty) Ltd
Agent's service:
Project Manager
Postal address:
Suite 2A, Mahlabeni Park Centre, Makhathini

	Jozini *3969* Tel: insert *035 572 1399* Fax: *086 540 6181*
	Employers Agent 7 *Consult Three Architects & Associates (Pty) Ltd* *Agent's* service: *Project Manager* Postal address: *Suite 2A, Mahlabeni Park Centre, Makhathini* *Jozini* *3969* Tel: insert *035 572 1399* Fax: *086 540 6181*
	Employers Agent 8 *Consult Three Architects & Associates (Pty) Ltd* *Agent's* service: *Project Manager* Postal address: *Suite 2A, Mahlabeni Park Centre, Makhathini* *Jozini* *3969* Tel: insert *035 572 1399* Fax: *086 540 6181*
	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: ***TBA*** ends on ***TBA*** 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: ***11*** *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]	***3 Calendar Months***
[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
						Estimated Extension of time - in working days	2

8 hrs/day*

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

Tender no: ZNTU01989W **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

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

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

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 ZNTU01989W	Project Code 059196

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: **ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**

"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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

PART C2 - PRICING DATA

C2.1 PRICING INSTRUCTIONS GCC FOR CONSTRUCTION WORKS (Second Edition 2010)			
Project title:	**ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**		
Tender no:	**ZNTU01989W**	**Project Code:**	**059196**

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**

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

	Should the Bills of Quantities/Lump Sum Document be a fixed price contract, the following clause must be inserted in the Pricing Instructions: Tenderders are to take note that the contract price adjustments are not applicable to this contract. Tenderders should therefore make provision in the Contract Sum, schedule of rates, etc. for possible price increases during the contract period, as no claims in this regard shall be entertained.

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

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			
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		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			
	Carried forward to collection			R	

		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:..... *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 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. 55% 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 12.5.1 EPWP signage board 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			
	12.5.2 Branding of labour apparel 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) UTILISATION OF A COMMUNITY LIAISON OFFICER 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. Payment for the labour-intensive component of the works 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. Linkage of payment for labour-intensive component of works to submission of project data 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. Applicable labour laws The current Ministerial Determination (also downloadable at www.epwp.gov.za) 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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

PART C2.3 BILL OF QUANTITIES

Item No		Quantity	Rate	Amount

SECTION NO. 2

BILL NO. 1

ALTERATIONS

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

OLD MATERIALS TO BECOME PROPERTY OF THE CONTRACTOR: Old materials from alterations except where described to be re-used or handed over, become the property of the contractor, who must allow credit for same in the Final Summary

OLD MATERIALS TO BE CARTED AWAY: Old materials from the alterations except where described to be re-used or handed over, as well as all rubbish etc. must be regularly carted from the site and not be allowed to accumulate on or around the site.

OLD MATERIALS NOT TO BE REUSED: None of the old materials are to be used for new work except where specifically described as being set aside for re-use.

HANDING OVER OF MATERIALS: Where certain materials or articles from demolitions or alterations are described as to be handed over by the contractor to the Regional Representative or Representative/ Agent such materials or articles shall be properly stored by the contractor, until handing over thereof. The contractor shall obtain an official receipt listing the materials or articles and dates of handing over. If the contractor fails to submit the receipt when requested to do so it shall be deemed that the materials or articles are still in his possession and he will be held liable to the Department for the full replacement value thereof which amount will be deducted from monies due to the contractor.

WORK GROUP 102

REMOVAL OF EXISTING WORK

	Carried Forward			R

				R
	Brought Forward			
	Demolishing and removing			
1	Single storey building with pitched roof, 7.5m x 3.5m on plan and 3m high at eaves, comprising concrete surface bed, brick external walls, brick internal walls and sheet steel roof covering on timber trusses, complete including removal of internal sanitary fittings and plumbing desludging and decommissioning of existing ablution blocks.	No	1	
2	Single storey building with pitched roof, 2.77m x 4m on plan and 3m high at eaves, comprising concrete surface bed, brick external walls, brick internal walls and sheet steel roof covering on timber trusses, complete including removal of internal sanitary fittings and plumbing desludging and decommissioning of existing ablution blocks.	No	2	
3	Break up and set aside existing concrete surface bed or slab for filling.	m3	15	
4	Surplus filling from the demolitions in filling in of existing toilet pits	m3	15	
5	G7 material in 200mm layers compacted to 93% mod. in filling in of existing toilet pits	m3	175	
	Tenderer to note that they are required to provide the desludging certificate prior to be paid for demolition of toilets			
	RELOCATION OF EXISTING CONTAINER ABLUTIONS			
6	Remove and relocate existing container ablution to another site as indicated by department of education size 3.00 x 6.41m.	No	3	
	TEMPORARY BARRIERS, SCREENS, ETC			
	Temporary barriers, screens, etc including removal			
7	Temporary shade cloth screen 2000mm high of 70% green shade cloth including posts, fixing, etc.	m	297	
	Carried Forward			R

	Brought Forward			R
	TEMPORARY GATE			
	Temporary Double swing gate for construction vehicles.			
8	Double swing gate 5000mm wide x 2400mm high with 50 x 38 x 5 mm handle and catch with 15mm diameter hole for padlock.The bottom lock have 2mm washer welded to bar to serve as a stopper and 38 x 50 5mm to be guided with 20mm diameter holes	No	2	
	Carried to Final Summary			R

Item No		Quantity	Rate	Amount

SECTION NO.3

BILL NO 1

EARTHWORKS (PROVISIONAL)

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

Nature of ground

The nature of the ground is assumed to be loose sandy material, therefore "earth", but possibly interspersed with "hard rock" or "soft rock".

The nature of the ground is assumed to be gravel, therefore "earth", but possibly interspersed with "soft rock".

The nature of the ground is assumed to be silty clay with loose river boulders varying in size up to approximately 450mm diameter, therefore "earth", but possibly interspersed with "hard rock".

Trial holes indicate that the nature of the ground is silty clay to a depth of approximately 500mm with fine to medium loose sandy material below, therefore "earth". The trial holes also indicate that the water table is at a maximum depth of approximately 1000mm.

A soils investigation has been carried out on site by the engineer and the report is annexed to these bills of quantities. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth" described in the above report and where conditions of a more difficult character are indicated these are separately measured

Carried Forward R

				R
	Brought Forward			
	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			
	Filling			
	Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any multiple handling of material			
	WORK GROUP 104			
	SITE CLEARANCE ETC			
	Site clearance			
1	Stripping average 100mm thick layer of top soil and stockpiling on site	m2	110	
	EXCAVATIONS			
	Excavation in earth n.e 2m			
2	Reduced levels under floors	m3	1	
3	Raft foundation	m3	14	
	Excavation in earth exceeding 2m and n.e 4m deep			
4	Holes (Pit)	m3	144	
	EXCAVATIONS IN STRATA OF A MORE DIFFICULT CHARACTER			
	Extra over trench and hole excavations in earth for excavation in			
5	Soft rock	m3	17	
6	Hard rock	m3	47	
	Carried Forward			R

				R
	Brought Forward			
	Extra over all excavations for carting away			
7	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	124	
	Risk of collapse of excavations			
8	Sides of trench and hole excavations not exceeding 1,5m deep	m2	36	
9	Sides of trench and hole excavations exceeding 1,5m deep n.e 2m deep	m2	78	
	Keeping excavations free of water			
10	Keeping excavations free of water		Item	
	FILLING ETC			
	Earth filling obtained from the excavations (not compacted)			
11	In prescribed stock piles on site	m3	27	
	Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 93% Mod AASHTO density			
12	Backfilling to trenches, holes, etc	m3	83	
	G5 earth filling supplied by the contractor, compacted to 93% Mod AASHTO density			
13	Under floors, steps, pavings, etc	m3	26	
14	To sides of Pits etc.	m3	39	
	Coarse river sand filling supplied by the contractor			
15	◆Under floors etc	m3	3	
	Compaction of surfaces			
16	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 95% Mod AASHTO density	m2	138	
	Carried Forward			R

				R
	Brought Forward			
	Prescribed density test on filling			
17	"Modified AASHTO Density" test	No	28	
18	"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	28	
	SOIL POISONING			
	Soil insecticide			
19	Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m2	83	
20	To bottoms and sides of trenches etc	m2	131	
	Carried Forward to Summary of Section No. 3			R

Item No		Quantity	Rate	Amount

BILL NO 2

CONCRETE, FORMWORK AND REINFORCEMENT(PROVISIONAL)

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

Cost of tests

The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the architect. The testing shall be undertaken by an independent firm or institution nominated by the contractor and to the approval of the architect. (Test cubes are measured separately)

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. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.

Carried Forward R

	Brought Forward			R
	Formwork to soffits of (solid) slabs etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described			
	Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer fordesign 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"			
	WORK GROUP 110			
	UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES			
	15MPa/20mm concrete			
1	Surface blinding under footings and bases	m3	1	
	REINFORCED CONCRETE			
	25Mpa/20mm concrete			
2	Strip footings	m3	3	
3	Ramps,aprons etc	m3	2	
4	Bases	m3	6	
5	Raft foundation	m3	11	
	WORK GROUP 111			
	SMOOTH FORMWORK (DEGREE OF ACCURACY 1)			
	Smooth formwork to sides:			
6	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	53	
7	Sides of Raft Foundation	m2	36	
	Smooth form work to soffits			
8	Suspended slabs including propping n.e 3.5m high	m2	29	
	Carried Forward			R

				R
	Brought Forward			
	Smooth formwork to sides and soffits:			
9	230x 350mm Concrete Beam below suspended slab	m2	6	
	Smooth Formwork to form:			
10	250 mm Diameter opening.	No	8	
11	110mm Diameter opening.	No	8	
	CONCRETE SUNDRIES			
	Finishing top surface of concrete with a wood trowel.			
12	Surface beds, slabs, etc	m2	80	
	Sikafloor-curehard-24 dry-shake floor hardening agent in accordance with the manufacturer's instructions applied on			
13	Power floated concrete surfaces during the power floating process	m2	45	
	Concrete strength test cubes			
14	Prepare set of six concrete cubes each size 150 x 150 x 150 mm and deliver to an approved laboratory for testing and pay all charges. (Provisional)	Sets	4.0	
	MOVEMENT JOINTS ETC			
	Saw cut Ream out 6mm wide 20mm deep seal,10 x 6 with SIKAFLEX-PRO 2HP on polyethylene backing cord.			
15	6 x 20mm deep saw cut joints in top of concrete	m	10	
	Isolation joints with softboard between vertical concrete and brick surfaces			
16	10mm Joints not exceeding 300mm high or wide	m	28	
17	10mm Joints exceeding 300mm high or wide	m2	6	
	WORK GROUP 114			
	REINFORCEMENT (PROVISIONAL)			
	Carried Forward			R

					R
	Brought Forward				
	High tensile steel reinforcement to structural concrete work				
18	Bars in reinforcement of all sizes	t	3.00		
	Fabric reinforcement				
19	Type 245 fabric reinforcement in concrete surface beds, slabs, etc	m2	86		
	Carried Forward to Summary of Section No. 3				R

Item No			Quantity	Rate	Amount
	BILL NO 3				
	PRECAST CONCRETE				
	Preambles				
	SUPPLEMENTARY PREAMBLES				
	Sizes				
	Blocks, sills, etc measured linear shall be made in suitable lengths. Large size setting out drawings shall be prepared where necessary and submitted to the architect for approval before moulds are made				
	General				
	Where kerbstones, blocks, etc are laid in ground, descriptions shall be deemed to include necessary excavation, filling in and ramming				
	WORK GROUP 112				
	PRECAST CONCRETE ACCESS PANELS				
1	2020 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and 12mm thick x 70mm wide sondorband self-adhesive Flexible wax-and resin-impregnated Polyurethane foam strips at supporting ends of each panel.	No	2		
2	Ditto but 1295 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
3	Ditto but 1025 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
4	Ditto but 1100 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
5	Ditto but 1040 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	8		
	Carried Forward to Summary of Section No. 3				R

Item No		Quantity	Rate	Amount

BILL NO 4

MASONRY

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

BRICKWORK

Sizes in descriptions

Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick

Hollow walls etc

Descriptions of hollow walls shall be deemed to include wall ties and leaving every fifth perpend of the bottom course of the external skin open as a weep hole

Reinforced brick lintels

Lintels shall bear at least 160mm onto adjacent walling. Where such bearing cannot be obtained due to the proximity of adjacent openings the lintel shall be continuous

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

BLOCKWORK

Carried Forward R

Brought Forward R

Concrete masonry units

Blocks shall be either solid or hollow modular dense concrete masonry units in accordance with SABS Specification 1215, having compressive strengths as described

Blockwork

Blockwork shall comply with SABS 0145 "Concrete Masonry Construction"

Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course of the external skin of hollow walls shall be left open as a weep hole

Standard complementary blocks

Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc to solid and hollow walls and for bonding asnecessary

DECORATIVE BLOCKS

Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour

"WINBLOK" MODULAR PRECAST CONCRETE WINDOW SURROUNDS

General

Window surrounds shall be built into brick walls and pointed all round on both sides with 10 x 10mm square recessed joints

Prices shall include for building in as single units or combinations in patterns of two or more window units and for bedding solid all round in mortar and pointing

Note

Aluminium infill windows, glazing and pointing with sealing compound are measured elsewhere

Carried Forward R

Brought Forward R

SAMPLES

Samples of all masonry building units, shall consist of a minimum of 6 units

PAVINGS

Quarry tiles, precast concrete, cement, terrazzo and similar tiles

Tiles shall be of approved manufacture, well burnt or cured, and uniform and true in size, shape and colour

Preparation of concrete floor beds, slabs, etc for pavings

Concrete surfaces shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc is dislodged and swept clean of all loose matter. Surfaces shall then be wetted and kept damp for at least six hours before slushing with 1:2 cement/sand and while still wet, pavings, etc. shall be laid on a 1:4 cement mortar bed not exceeding 25mm thick. Sand shall be clean, sharp river sand

Jointing of pavings

Pavings, etc, shall, except for crazy paving, be laid with continuous joints in both directions

STONEWORK

Slate, marble, granite, etc

Slate, marble, granite, etc is to be best quality stone from an approved quarry, free from cracks and other defects and equal to samples to be submitted to and approved by the architect. Each stone is to hold its full size, square to the back and tobe set on its natural quarry bed

Setting out

Care shall be exercised in setting out the work, the preparation of templates and the checking of the detail drawings. All measurements shall be taken on the site where necessary and the full size setting out of each course shall be done at the yardso as to ensure the proper fitting of each stone

Carried Forward R

Brought Forward R

Before putting any work in hand the contractor is to submit to the architect for his approval details of the manner in which he proposes to set out the slabs and joints in all wall facings, pavings, sills, treads, etc together with samples of grain or pattern matching

Face labours

Face labours are to match samples to be submitted to and approved by the architect

Arrises are to be clean and sharp except to treads and thresholds where they are to be slightly rounded

Bedding and jointing

Slate, marble, granite and other floor paving and wall linings are to be bedded solidly on the mortar thicknesses described and are to have tightly fitting butt joints unless otherwise stated

Where stonework is to be fixed with adhesive, the adhesive is to be "TAL Goldstar/Bond" (mixed 20kg/5 litre) for external use or where white or light coloured marble is used, "TAL Goldstar" for internal use or other approved. The contractor will be liable for any defects to the slate, marble and granite arising from the use of the adhesive

Where soffit linings are suspended the suspension system must be concealed and must be submitted to the architect for approval before work commences

Where tolerance screws are required these are to be stainless steel expanding bolt type with matching stainless steel bracket and PVC clad dowel with nuts and washers etc

Damaged work

Any damaged stonework shall be discarded and replaced at the contractor's expense. No touching up will be permitted except in exceptional cases, with the architect's consent

Carried Forward R

				R
	Brought Forward			
	Descriptions			
	Descriptions of stonework shall be deemed to include preparatory work, labours to backs, beds and joints, templates, mortices for bolts etc and for hoisting and setting in position, bedding, jointing and pointing, casing and protecting from injury and cleaning down at completion			
	Descriptions of recessed pointing to stonework shall be deemed to be square recessed, hollow recessed, weathered pointing, etc			
	WORK GROUP 116			
	FOUNDATIONS			
	Brickwork of NFX bricks (14 MPa nominal compressive strength) in class 1 mortar			
1	Piers	m3	2	
2	Half brick walls	m2	4	
3	One brick wall to Pits.	m2	86	
	SUPERSTRUCTURE			
	Brickwork of NFP bricks in class II mortar			
4	Half brick walls	m2	23	
5	Half brick wall in beamfilling.	m2	5	
6	Piers	m3	4	
7	One brick walls	m2	133	
	Facebrick			
	Corobrick Firelight Satin FBX facing bricks and pointing with 6 mm square recessed joints			
8	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	123	
9	Extra over brickwork for face brickwork in beamfilling.	m2	5	
	Carried Forward			R

				R
	Brought Forward			
10	Face brick on edge window cill set sloping and slightly projecting on bottom edge in 1:5 cement mortar including cutting and fitting between reveals, fair splay cutting under and pointing on top, edge and projecting soffit (In No. 28)	m	6	
11	Face brick cut soldier course window head, formed with cant bricks170mm high, bedded in 1:5 cement mortar including cutting and fitting between reveals and pointing on top and front face.	m	16	
12	Face brick soldier course band 160mm wide to top of one brick wall bedded in 1:5 cement mortar including pointing to sides and faces	m	7	
13	Fair raking cutting.	m	11	
	BRICKWORK SUNDRIES			
	Bagging of 1:3 cement and sand mixture			
14	Bag outer face or inner skin of brick wall to receive bitumen paint (elsewhere measured)	m2	98	
	Brickwork reinforcement			
15	75mm Wide reinforcement built in horizontally	m	135	
16	150mm Wide reinforcement built in horizontally	m	1 820	
	Concrete prestressed fabricated lintels			
17	110 x 75mm Lintels in lengths not exceeding 3m	m	16	
18	110 x 75mm Lintels in lengths not exceeding 3m n.e 4.5m	m	49	
	Galvanised hoop iron cramps, ties, etc			
19	30 x 1,6mm Cramp 500mm long with one end fixed to wood and other end built into brickwork	No	22	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 5				
	WATERPROOFING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 120				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
1	In walls	m2	21		
	One layer of 250 micron "Consol Plastics Gunplas USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape"				
2	Raft foundation	m2	74		
3	Under Pit base slab.	m2	33		
	Pit Linings				
4	Floors	m2	32		
	One coat Sikafloor®-156 and three coats Sikagard®-63 N or other equally approved waterproofing wall system as approved by the Employer on				
5	Apply two Sika Cemflex coats to external pit wall.	m2	53		
6	Internal Pit Walls	m2	84		
	Apply 3 mm sikagard 720 EPOCEM on green or damp concrete and one coat sikafloor-156 to manufactures specification.				
7	Pit Slab.	m2	32		
	Carried Forward			R	

	Brought Forward			R
	Two coats "Brixeal" bitumen emulsion waterproof coating			
8	On bagged brick walls	m2	98	
	SEALANTS ETC			
9	Silicon pointing to aluminium windows	m	41	
	SIKAFELX PRO 2HP or other equally approved sealing compound including backing cord, bond breaker, primer, etc			
10	6 x 10mm In saw cut joints in floors	m	14	
11	10 x 10mm Isolation joints in floors	m	40	
12	10 x 10mm Construction joint joints in floors	m	6	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 6				
	ROOF COVERINGS ETC				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 124				
	PROFILED METAL SHEETING AND ACCESSORIES				
	Safintra 0.50mm thick WIDEDEK AZ150 G550 pre-painted interlocking roof sheeting fixed to 75 x 50mm SA pine purlins at 1200mm centres (purlins elsewhere measured) with 2 x galvanised hurricane clip screws fixed at each intersection to premanufactured gang nail type SA pine trusses (trusses elsewhere measured)				
1	Roof coverings with pitches not exceeding 50 degrees	m2	71		
2	0.5mm thick ridge capping	m	10		
3	0,5mm Thick cover flashing piece to roofing 375mm girth twice times bent, including notching over ribs	m	20		
4	Ditto but purpose made tile to end of ridge	No	4		
5	Hole through metal roof sheeting for and flashing around 110mm pipe with Fibreglass and sealing with resin	No	8		
6	Moulded narrow or broad rib polyethelene filler blocks	m	35		
	ROOF AND WALL INSULATION				
	"Sisalation 420" heavy industrial grade aluminium foil based insulation				
7	Insulation laid taut over purlins (at approximately 1,80m centres) and fixed concurrent with roof covering, including taped laps and nylon straining wires	m2	68		
	Carried Forward			R	

	Brought Forward			R
	Sundries			
8	"Sondor" Eave Polycloser	m	42	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 7				
	CARPENTRY AND JOINERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 126				
	ROOFS, ETC				
	Plate nailed timber roof truss construction				
	Timber roof truss **prices are to include for the design, supply,wind categoy as per SANS 10160 and erection of the trusses** into position complete including bolts, connectors, connections, etc.The dimensions of the trusses given in the following descriptions are nominal and the actual measurements for the design and manufacture of the trusses must be taken on site to match existing.The truss spans given are measured horizontally between the outer faces of the wall plates. Permanent bracing and runners have not been measured in accordance with the Standard System of Measuring Builder's Work and are measured as an item, the price of which is to include for the design, supply and fixing of necessary permanent bracing and runners.				
	Monoplaner Prefabricated Connector Plate Roof Trussesat 1600mm maximum centres with a pitch of 25 Degrees and suitable for EVERITE Nutec Bigsix corrugated roof sheeting or other equal approved wth 50 x 76mm purlins(elsewhere measured) at 1050mm centres and Gypsum plasterboard ceiling (Gypsum plasterboard ceiling elsewhere measured) with brandering at 450mm centres				
1	Truss size 5 100mm span x 1100mm high with 450mm overhang on both sides	No	11		
	Sawn softwood				
2	38 x 114mm Wall plates	m	31		
3	38 x 114mm Bracing	m	35		
	Carried Forward			R	

				R
	Brought Forward			
4	50 x 76mm Purlins, bolted	m	84	
	Structural Timber			
5	45 x 145mm treated pine beams, ends treated with two coats flintkote and built 200mm deep into brickwork.	m	10	
	Sundries			
6	Hurrican clips	No	176	
	TR1 and TR2 Certificates			
7	Allow for TR1 and TR2 certification of all trusses		Item	
	EAVES, VERGES, ETC			
	"Everite" medium density plain nutec-cement			
	'Everite Nutec' fibre cement socket less barge boards (Product no. 721-800):			
8	80 x 200mm Barge boards including H-profile jointing strips	m	13	
	"Everite Nutec" medium density fibre cement fascia boards (Product No. 041-202).			
9	15 x 225mm Fascias including Pvc H-profile jointing strips	m	21	
	DOORS, ETC			
	SABS 545 Solid core doors with vertical tongue and groove boarding on both sides and hardwood edging both vertical sides			
10	44mm Door size 813 x 2032mm high	No	6	
	TDM Hardwood door with double top & bothom rails,tounge and groove boarding in v-joint rail,20x 150mm middle ledge,20 x 225mm bottom ledge and 20 x 110mm braces			
11	44mm Door size 813 x 2032mm high	No	3	
	FRAMED FRAMES, ETC			
	Carried Forward			R

	Brought Forward			R
	Timber frames			
12	108 x 44mm rebated timber door frames for 813x 2032mm door with 5 x 5 mm inner rebate and 14 x 14mm chamfered outward exposed edge for stiles and top frame securely retro fixed to walls	No	9	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 8				
	IRONMONGERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 132				
	HINGES, BOLTS, ETC				
	Approved				
1	1.5 pairs 108mm brass butt hinges	Pairs	11.0		
	LOCKS				
	"Union"				
2	Union 2261-76SS 4 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	3		
3	Union 2277-78SS 3 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	6		
4	Facility indicator bolt, code 37651RH	No	9		
	"Chairman Industries cc" grab rails				
5	Ref DL3 Stainless Steel Dogleg Side rail with centre flange (three in total) with Satin Polished Finish, plugged and screwed to wall.	No	1		
6	Ref SR5-500mm Stainless Steel Flushvalve Back Rail with Satin Polished finish, plugged and screwed to wall.	No	1		
	SUNDRIES				
	Toilet Roll Holder				
7	Two toilet roll holder,lockable mild white still or similar approved size 14cm x 12.5cm x 27.5cm, weight 1.05kg,capacity 2 x toilet rolls.	No	8		
	Carried Forward				R

				R
	Brought Forward			
	Hat and Coat Hook			
8	Union AL684-05AS hat and coat hook	No	9	
	Door Closer			
9	Union 87001SS door stop	No	9	
	Door signs or numbers to be of an approved grey ultra high impact acryllic plastic construction plugged to wall or screwed to door with 15mm countersunk raised head chromium plated screws at each corner or hung from ceilings with two chromium plated chains			
10	200 x 70 x 2.5mm Sign with 40mm high letters to centre of main door leaf 1850mm above ffl (Allow for 10 Letters)	No	11	
	SIGNAGE			
11	Pareplegic sign size 150mm x 150mm dorma	No	1	
12	Female sign WBH 2314 size150x150mm with rounded corners and polished edges - white ABS plastic with black engraved International cloakroom door signage. 4xflush screwed and epoxy glued at 1500mm high and centre to each toilet entrance door.	No	1	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 9				
	METALWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 136				
	HOT DIP GALVANISED STEEL WINDOWS				
	The following units refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adherred to in all respects and all prices are to include all glass, ironmongery,, fixing,sealing etc				
1	Standard window size 533 x 654mm	No	8		
2	Standard window size 899 x 457mm	No	2		
	BURGLAR BARS				
	The following in hot dip galvanised after fabrication steel burglar bars comprising of 40 x 12mm EN8 flat steel framing and intermediate posts with 19mm diameter EN8 horizontal steel bars at 138mm centres welded to frame, frame drilled at 276mm centres for 12mm diameter expansion bolts, refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adhered to in all respects and all prices are to include all assembly, setting up, building in, etc.				
3	Burglar bar to suit opening size 533 x 654mm	No	8		
4	Burglar bar to suit opening size size 899 x 457mm	No	2		
	STANDARD PRESSED STEEL DOOR FRAMES				
	1,2mm Double rebated frame suitable for one brick walls complete with crimped lugs for building in 2 x 100mm galvanised and welded loose pin hinges				
5	Frame for door 813 x 2032mm high	No	9		
	Carried Forward			R	

	Brought Forward			R
	HOT DIP GALVANISED STEEL POSTS			
6	90mm Ø x 3mm wall thickness hollow Circular galvanized steel stanchion with 90mmØ x 3mmthick top closure piece, with 75 longx42Øx3mm distance piece supporting a 149mmhigh x 49 wide x 5mm thick steel bracket for fixing the 145 x 45mm roof support-beam with two 12mmø galvanized bolts securely spot welded and touched up with cold galvanizing. Base plate size 250 x 250 x 3mm welded to the bottom end of the post and set in 450 x 450x 650mm deep concrete footing. (footings elsewhere measured)	No	3	
	HOT DIP GALVANISED CHANNEL			
7	149 x 49 x 5mm galvanised steel L channel fixed to walls with 10 x 140mm corrosion resistant expansion bolt at 600mm centres	m	5	
8	140 x 60 x15mm galvanised steel U channel mounted wall with 10 x 410mm corrosion resistant expansion bolts @ 600mm centres	m	5	
	HOT DIP GALVANISED STEEL GATES			
9	Hot dip galvanised single gate size 877mm long x 2225mm high overall, formed of 50 x 30 x 2,5mm thick rectangular hollow section frame with 50 x 30 x 2,5mm thick rectangular hollow section middle rail and 38 x 38 x 2,5mm thick square hollow section tube Diametergonal braces in between, all sections welded together, with 25 x 25 x 2mm thick square tube bolt frame with 12mm Diameter. x 85mm long bolt (bolt formed of 85mm long high tension solid round bar welded to 76 x 25 x 5mm plate with 14mm Diameter. drilled hole), including drilling hole size 18mm Diameter. through square tube gate frame for bolt opening, with and including three pin hinges (size 25mm Diameter. x 80mm long overall) with 15mm dia. x 30mm long pin and 25mm dia. sheath welded to gate and post	No	2	
	Carried Forward to Summary of Section No. 3			R

PROTOTYPE 4A-F
Bill No. 9
METALWORK
Makhoba & Associates

Item No			Quantity	Rate	Amount
	BILL NO 10				
	PLASTERING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 142				
	SCREEDS				
	Screeds on concrete				
1	30mm Thick on floors and landings	m2	47		
2	30mm Thick on Pits base slab.	m2	33		
	INTERNAL PLASTER				
	Cement plaster on brickwork				
3	On superstructure internal walls	m2	185		
4	On Pit walls.	m2	99		
5	In narrow widths not exceeding 300m wide	m2	3		
	Carried Forward to Summary of Section No. 3			R	

Item No			Quantity	Rate	Amount
	BILL NO 11				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 146				
	RAINWATER DISPOSAL				
	Marley vynadeep or other equally approved uPVC Rainwater goods				
1	146 x 93mm Half round eaves gutters	m	21		
2	Long-arm –Swan-neck100 Bend combination	No	4		
3	Extra for stopped end	No	4		
4	Extra for outlet for 75mm pipe	No	4		
5	80mm Diameter rainwater pipes	m	14		
6	Extra for bend	No	8		
7	Extra for shoe	No	4		
8	Spreader for 75mm pipe	No	4		
	WORK GROUP 148				
	SANITARY FITTINGS				
9	Atlas VIP toilet with and including Atlas VIP 200 inlet funnel or similar approved	No	8		
10	Atlas Viking handwash basin or similar approved	No	6		
	TRAPS ETC				
	Carried Forward			R	

				R
	Brought Forward			
	Rubber traps, etc.:			
11	40 x 40mm 'Flexitrap' butyl rubber deep seal 'P' or 'S' trap jointed to waste outlet fitting and to PVC pipe including coupling clamps, etc.	No	6	
	TAPS, VALVES, ETC			
	Brass			
12	Cobra Water tech 15mm chrome plated elbow action raised nose pillar tap with blue indicator for cold water (Code: 503-21B), manufactured in accordance with SANS 226:2004 Type 2 (BS 5412).	No	1	
13	No.KM2 15mm pillar tap with blue inlay.	No	7	
14	20mm Stopcock.	No	2	
	SANITARY PLUMBING			
	PVC pipes			
15	40mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	18	
16	50mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	18	
17	110mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	65	
18	110mm stubstacks with pvc cap fixed to external walls	m	7	
	Extra over uPVC pipes for fittings			
19	40mm Fittings	No	15	
20	50mm Fittings	No	13	
21	110mm Fittings	No	19	
	WATER SUPPLY			
	Class 2 Copper Pipes			
	Carried Forward			R

				R
	Brought Forward			
	Extra over class 2 copper pipes for brass compression fittings			
22	20mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	35	
23	15mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	23	
	Extra over class 2 copper pipes for brass compression fittings			
24	20mm Fittings	No	20	
25	15mm Fittings	No	12	
	The following in polywater pipes			
26	12mm pipes	m	8	
	The following in JoJo 5500 litre capacity tanks (Stromy sky ME 5513 in colour)			
27	5500L litre Jojo horizontal water storage tank fitted with access lid and inlet hole, with and including flanged or screwed connections for inlet, 15mm outlet and 15mm overflow pipes, hoist and set in position on plinth (elsewhere measured), approximately 1000mm high above ground level	No	1	
	Carried Forward to Summary of Section No. 3			R

Item No			Quantity	Rate	Amount
	BILL NO 12				
	GLAZING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 150				
	6.38mm thick laminated safety glass panels. All edges of the glazing panels to be treated and fully sealed with Betaseal to avoid delamination and penetrating stains.				
1	Panes not exceeding 0,1m2.	m2	4		
	MIRRORS				
2	Polished Stainless steel mirror (1 mm thick) Size: 400x300x1.0mm vertically above each basin 670mm above floor - screw fixed with countersunk stainless steel Philips screws on four corners. Rear surface of the mirror and plastic wall-plugs securely epoxy-glued to wall	No	6		
	Carried Forward to Summary of Section No. 3			R	

Item No			Quantity	Rate	Amount
	BILL NO 13				
	PAINTWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 152				
	PAINTWORK, ETC TO NEW WORK ON				
	FLOATED PLASTER SURFACES WITH				
	One coat Dulux trade alkali resistant plaster primer, apply one Dulux Trade universal undercoat and two coats full strength,dulux pearlglo solvent based enamel (or similar approved)				
1	Internal walls	m2	185		
	CONCRETE SURFACES WITH				
	Apply one coat , and, while it is still wet, sprinkle dry, washed river sand over the surface, stop and apply undercoat to seal the surface. Allow overnight drying and apply one finishing coat				
2	Concrete floors	m2	35		
	FIBRE-CEMENT SURFACES WITH				
	Two coats pure acrylic paint on				
3	Fascias and barge boards	m2	9		
	METAL SURFACES WITH				
	Clean with galvanised iron cleaner,apply one coat galvanised iron primer,one coat undercoat and two coats enamel				
4	Door frame	m2	13		
	Carried Forward			R	

				R
	Brought Forward			
5	Security gates	m2	7	
	Global Roofing 0,60mm "Klip-Lok 700" concealed fix galvanized roof sheeting with "Chromadek" finish on one side including KL700 clips fixed to timber purlins according to manufacturer's intructions			
	WOOD SURFACES WITH			
	Two coats oil wood primer on			
6	Backs of frames, linings, etc not exceeding 300mm wide	m	15	
	One coat Dulux Supergrip primer wood primer,one coat Dulux Trade Universal Undercoat,two coats Dulux Pearlglo Waterbased Enamel paint on			
7	Door frames	m2	13	
8	Doors	m2	32	
	Prepare and apply two coats carbolineum on:			
9	Roof timbers.	m2	69	
	Carried Forward to Summary of Section No. 3			R

SECTION SUMMARY - PROTOTYPE 4A-F

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Carried to Final Summary R

Item No		Quantity	Rate	Amount

SECTION NO.4

BILL NO 1

EARTHWORKS(PROVISIONAL)

SECTION 3

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

Nature of ground

The nature of the ground is assumed to be loose sandy material, therefore "earth", but possibly interspersed with "hard rock" or "soft rock".

The nature of the ground is assumed to be gravel, therefore "earth", but possibly interspersed with "soft rock".

The nature of the ground is assumed to be silty clay with loose river boulders varying in size up to approximately 450mm diameter, therefore "earth", but possibly interspersed with "hard rock".

Trial holes indicate that the nature of the ground is silty clay to a depth of approximately 500mm with fine to medium loose sandy material below, therefore "earth". The trial holes also indicate that the water table is at a maximum depth of approximately 1000mm.

A soils investigation has been carried out on site by the engineer and the report is annexed to these bills of quantities. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth" described in the above report and where conditions of a more difficult character are indicated these are separately measured

Carried Forward R

				R
	Brought Forward			
	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			
	Filling			
	Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any multiple handling of material			
	WORK GROUP 104			
	SITE CLEARANCE ETC			
	Site clearance			
1	Stripping average 100mm thick layer of top soil and stockpiling on site	m2	100	
	EXCAVATIONS			
	Excavation in earth n.e 2m			
2	Reduced levels under floors	m3	1	
3	Raft foundation	m3	16	
	Excavation in earth exceeding 2m and n.e 4m deep			
4	Holes (Pit)	m3	74	
	EXCAVATIONS IN STRATA OF A MORE DIFFICULT CHARACTER			
	Extra over trench and hole excavations in earth for excavation in			
5	Soft rock	m3	10	
6	Hard rock	m3	36	
	Carried Forward			R

				R
	Brought Forward			
	Extra over all excavations for carting away			
7	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	68	
	Risk of collapse of excavations			
8	Sides of trench and hole excavations not exceeding 1,5m deep	m2	46	
9	Sides of trench and hole excavations exceeding 1,5m deep n.e 2m deep	m2	51	
	Keeping excavations free of water			
10	Keeping excavations free of water		Item	
	FILLING ETC			
	Earth filling obtained from the excavations (not compacted)			
11	In prescribed stock piles on site	m3	27	
	Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 93% Mod AASHTO density			
12	Backfilling to trenches, holes, etc	m3	57	
	G5 earth filling supplied by the contractor, compacted to 93% Mod AASHTO density			
13	Under floors, steps, pavings, etc	m3	27	
14	To sides of Pits etc.	m3	26	
	Coarse river sand filling supplied by the contractor			
15	◆Under floors etc	m3	2	
	Compaction of surfaces			
16	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 95% Mod AASHTO density	m2	78	
	Carried Forward			R

				R
	Brought Forward			
	Prescribed density test on filling			
17	"Modified AASHTO Density" test	No	16	
18	"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	16	
	SOIL POISONING			
	Soil insecticide			
19	Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m2	90	
20	To bottoms and sides of trenches etc	m2	84	
	Carried Forward to Summary of Section No. 4			R

Item No		Quantity	Rate	Amount
	BILL NO 2			
	CONCRETE, FORMWORK AND REINFORCEMENT(PROVISIONAL)			
	Preambles			
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)			
	SUPPLEMENTARY PREAMBLES			
	Cost of tests			
	The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the architect. The testing shall be undertaken by an independent firm or institution nominated by the contractor and to the approval of the architect. (Test cubes are measured separately)			
	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. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.			
	Carried Forward		R	

	Brought Forward			R
	Formwork to soffits of (solid) slabs etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described			
	Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer fordesign 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"			
	WORK GROUP 110			
	UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES			
	15MPa/20mm concrete			
1	Surface blinding under footings and bases	m3	1	
	REINFORCED CONCRETE			
	25Mpa/20mm concrete			
2	Strip footings	m3	3	
3	Ramps,aprons etc	m3	2	
4	Bases	m3	3	
5	Raft foundation	m3	12	
	WORK GROUP 111			
	SMOOTH FORMWORK (DEGREE OF ACCURACY 1)			
	Smooth formwork to sides:			
6	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	32	
7	Sides of Raft Foundation	m2	24	
	Smooth form work to soffits			
8	Suspended slabs including propping n.e 3.5m high	m2	12	
	Carried Forward			R

				R
	Brought Forward			
	Smooth formwork to sides and soffits:			
9	230x 350mm Concrete Beam below suspended slab	m2	6	
	Smooth Formwork to form:			
10	250 mm Diameter opening.	No	3	
11	110mm Diameter opening.	No	3	
	CONCRETE SUNDRIES			
	Finishing top surface of concrete with a wood trowel.			
12	Surface beds, slabs, etc	m2	60	
	Sikafloor-curehard-24 dry-shake floor hardening agent in accordance with the manufacturer's instructions applied on			
13	Power floated concrete surfaces during the power floating process	m2	45	
	Concrete strength test cubes			
14	Prepare set of six concrete cubes each size 150 x 150 x 150 mm and deliver to an approved laboratory for testing and pay all charges. (Provisional)	Sets	3.0	
	MOVEMENT JOINTS ETC			
	Saw cut Ream out 6mm wide 20mm deep seal,10 x 6 with SIKAFLEX-PRO 2HP on polyethylene backing cord.			
15	6 x 20mm deep saw cut joints in top of concrete	m	10	
	Isolation joints with softboard between vertical concrete and brick surfaces			
16	10mm Joints not exceeding 300mm high or wide	m	28	
17	10mm Joints exceeding 300mm high or wide	m2	6	
	WORK GROUP 114			
	REINFORCEMENT (PROVISIONAL)			
	Carried Forward			R

				R
	Brought Forward			
	High tensile steel reinforcement to structural concrete work			
18	Bars in reinforcement of all sizes	t	2.00	
	Fabric reinforcement			
19	Type 245 fabric reinforcement in concrete surface beds, slabs, etc	m2	67	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 3				
	PRECAST CONCRETE				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	SUPPLEMENTARY PREAMBLES				
	Sizes				
	Blocks, sills, etc measured linear shall be made in suitable lengths. Large size setting out drawings shall be prepared where necessary and submitted to the architect for approval before moulds are made				
	General				
	Where kerbstones, blocks, etc are laid in ground, descriptions shall be deemed to include necessary excavation, filling in and ramming				
	WORK GROUP 112				
	PRECAST CONCRETE ACCESS PANELS				
1	1240 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and 12mm thick x 70mm wide sondorband self-adhesive Flexible wax-and resin-impregnated Polyurethane foam strips at supporting ends of each panel.	No	4		
2	Ditto but 1100 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
	Carried Forward to Summary of Section No. 4				R

Item No		Quantity	Rate	Amount

BILL NO 4

MASONRY

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

BRICKWORK

Sizes in descriptions

Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick

Hollow walls etc

Descriptions of hollow walls shall be deemed to include wall ties and leaving every fifth perpend of the bottom course of the external skin open as a weep hole

Reinforced brick lintels

Lintels shall bear at least 160mm onto adjacent walling. Where such bearing cannot be obtained due to the proximity of adjacent openings the lintel shall be continuous

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

BLOCKWORK

Carried Forward R

Brought Forward R

Concrete masonry units

Blocks shall be either solid or hollow modular dense concrete masonry units in accordance with SABS Specification 1215, having compressive strengths as described

Blockwork

Blockwork shall comply with SABS 0145 "Concrete Masonry Construction"

Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course of the external skin of hollow walls shall be left open as a weep hole

Standard complementary blocks

Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc to solid and hollow walls and for bonding asnecessary

DECORATIVE BLOCKS

Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour

"WINBLOK" MODULAR PRECAST CONCRETE WINDOW SURROUNDS

General

Window surrounds shall be built into brick walls and pointed all round on both sides with 10 x 10mm square recessed joints

Prices shall include for building in as single units or combinations in patterns of two or more window units and for bedding solid all round in mortar and pointing

Note

Aluminium infill windows, glazing and pointing with sealing compound are measured elsewhere

Carried Forward R

Brought Forward R

SAMPLES

Samples of all masonry building units, shall consist of a minimum of 6 units

PAVINGS

Quarry tiles, precast concrete, cement, terrazzo and similar tiles

Tiles shall be of approved manufacture, well burnt or cured, and uniform and true in size, shape and colour

Preparation of concrete floor beds, slabs, etc for pavings

Concrete surfaces shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc is dislodged and swept clean of all loose matter. Surfaces shall then be wetted and kept damp for at least six hours before slushing with 1:2 cement/sand and while still wet, pavings, etc. shall be laid on a 1:4 cement mortar bed not exceeding 25mm thick. Sand shall be clean, sharp river sand

Jointing of pavings

Pavings, etc, shall, except for crazy paving, be laid with continuous joints in both directions

STONEWORK

Slate, marble, granite, etc

Slate, marble, granite, etc is to be best quality stone from an approved quarry, free from cracks and other defects and equal to samples to be submitted to and approved by the architect. Each stone is to hold its full size, square to the back and tobe set on its natural quarry bed

Setting out

Care shall be exercised in setting out the work, the preparation of templates and the checking of the detail drawings. All measurements shall be taken on the site where necessary and the full size setting out of each course shall be done at the yardso as to ensure the proper fitting of each stone

Carried Forward R

Brought Forward

Before putting any work in hand the contractor is to submit to the architect for his approval details of the manner in which he proposes to set out the slabs and joints in all wall facings, pavings, sills, treads, etc together with samples of grain or pattern matching

Face labours

Face labours are to match samples to be submitted to and approved by the architect

Arrises are to be clean and sharp except to treads and thresholds where they are to be slightly rounded

Bedding and jointing

Slate, marble, granite and other floor paving and wall linings are to be bedded solidly on the mortar thicknesses described and are to have tightly fitting butt joints unless otherwise stated

Where stonework is to be fixed with adhesive, the adhesive is to be "TAL Goldstar/Bond" (mixed 20kg/5 litre) for external use or where white or light coloured marble is used, "TAL Goldstar" for internal use or other approved. The contractor will be liable for any defects to the slate, marble and granite arising from the use of the adhesive

Where soffit linings are suspended the suspension system must be concealed and must be submitted to the architect for approval before work commences

Where tolerance screws are required these are to be stainless steel expanding bolt type with matching stainless steel bracket and PVC clad dowel with nuts and washers etc

Damaged work

Any damaged stonework shall be discarded and replaced at the contractor's expense. No touching up will be permitted except in exceptional cases, with the architect's consent

Carried Forward

				R
	Brought Forward			
	Descriptions			
	Descriptions of stonework shall be deemed to include preparatory work, labours to backs, beds and joints, templates, mortices for bolts etc and for hoisting and setting in position, bedding, jointing and pointing, casing and protecting from injury and cleaning down at completion			
	Descriptions of recessed pointing to stonework shall be deemed to be square recessed, hollow recessed, weathered pointing, etc			
	WORK GROUP 116			
	FOUNDATIONS			
	Brickwork of NFX bricks (14 MPa nominal compressive strength) in class 1 mortar			
1	Piers	m3	2	
2	Half brick walls	m2	4	
3	One brick wall in Pits.	m2	47	
	SUPERSTRUCTURE			
	Brickwork of NFP bricks in class II mortar			
4	Half brick walls	m2	12	
5	Half brick wall in beamfilling.	m2	3	
6	Piers	m3	4	
7	One brick walls	m2	147	
	Facebrick			
	Corobrick Firelight Satin FBX facing bricks and pointing with 6 mm square recessed joints			
8	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	113	
9	Extra over brickwork for face brickwork in beamfilling.	m2	3	
	Carried Forward			R

				R
	Brought Forward			
10	Face brick on edge window cill set sloping and slightly projecting on bottom edge in 1:5 cement mortar including cutting and fitting between reveals, fair splay cutting under and pointing on top, edge and projecting soffit (In No. 28)	m	3	
11	Face brick cut soldier course window head, formed with cant bricks170mm high, bedded in 1:5 cement mortar including cutting and fitting between reveals and pointing on top and front face.	m	12	
12	Face brick soldier course band 160mm wide to top of one brick wall bedded in 1:5 cement mortar including pointing to sides and faces	m	7	
13	Fair raking cutting.	m	13	
	BRICKWORK SUNDRIES			
	Bagging of 1:3 cement and sand mixture			
14	Bag outer face or inner skin of brick wall to receive bitumen paint (elsewhere measured)	m2	74	
	Brickwork reinforcement			
15	75mm Wide reinforcement built in horizontally	m	68	
16	150mm Wide reinforcement built in horizontally	m	1 290	
	Concrete prestressed fabricated lintels			
17	110 x 75mm Lintels in lengths not exceeding 3m	m	12	
18	110 x 75mm Lintels in lengths not exceeding 3m n.e 4.5m	m	17	
	Galvanised hoop iron cramps, ties, etc			
19	30 x 1,6mm Cramp 500mm long with one end fixed to wood and other end built into brickwork	No	16	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 5				
	WATERPROOFING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 120				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
1	In walls	m2	16		
	One layer of 250 micron "Consol Plastics Gunplas USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape"				
2	Raft foundation.	m2	88		
3	Under Pit Base.	m2	14		
	Pit Linings				
4	Floors	m2	14		
	One coat Sikafloor®-156 and three coats Sikagard®-63 N or other equally approved waterproofing wall system as approved by the Employer on				
5	Apply two Sika Cemflex coats to external pit wall.	m2	30		
6	Internal Pit Walls	m2	38		
	Apply 3 mm sikagard 720 EPOCEM on green or damp concrete and one coat sikafloor-156 to manufactures specification.				
7	Pit Slab.	m2	14		
	Carried Forward			R	

				R
	Brought Forward			
	Two coats "Brixeal" bitumen emulsion waterproof coating			
8	On bagged brick walls	m2	74	
	SEALANTS ETC			
9	Silicon pointing to aluminium windows	m	13	
	SIKAFELX PRO 2HP or other equally approved sealing compound including backing cord, bond breaker, primer, etc			
10	6 x 10mm In saw cut joints in floors	m	10	
11	10 x 10mm Isolation joints in floors	m	40	
12	10 x 10mm Construction joint joints in floors	m	9	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 6				
	ROOF COVERINGS ETC				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 124				
	PROFILED METAL SHEETING AND ACCESSORIES				
	Safintra 0.50mm thick WIDEDEK AZ150 G550 pre-painted interlocking roof sheeting fixed to 75 x 50mm SA pine purlins at 1200mm centres (purlins elsewhere measured) with 2 x galvanised hurricane clip screws fixed at each intersection to premanufactured gang nail type SA pine trusses (trusses elsewhere measured)				
1	Roof coverings with pitches not exceeding 50 degrees	m2	53		
2	0.5mm thick ridge capping	m	8		
3	0,5mm Thick cover flashing piece to roofing 375mm girth twice times bent, including notching over ribs	m	32		
4	Ditto but purpose made tile to end of ridge	No	4		
5	Hole through metal roof sheeting for and flashing around 110mm pipe with Fibreglass and sealing with resin	No	3		
6	Moulded narrow or broad rib polyethelene filler blocks	m	35		
	ROOF AND WALL INSULATION				
	"Sisalation 420" heavy industrial grade aluminium foil based insulation				
7	Insulation laid taut over purlins (at approximately 1,80m centres) and fixed concurrent with roof covering, including taped laps and nylon straining wires	m2	51		
	Carried Forward			R	

	Brought Forward				R
	Sundries				
8	"Sondor" Eave Polycloser	m	32		
	Carried Forward to Summary of Section No. 4				R

Item No			Quantity	Rate	Amount
	BILL NO 7				
	CARPENTRY AND JOINERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 126				
	ROOFS, ETC				
	Plate nailed timber roof truss construction				
	Timber roof truss **prices are to include for the design, supply,wind categoy as per SANS 10160 and erection of the trusses** into position complete including bolts, connectors, connections, etc.The dimensions of the trusses given in the following descriptions are nominal and the actual measurements for the design and manufacture of the trusses must be taken on site to match existing.The truss spans given are measured horizontally between the outer faces of the wall plates. Permanent bracing and runners have not been measured in accordance with the Standard System of Measuring Builder's Work and are measured as an item, the price of which is to include for the design, supply and fixing of necessary permanent bracing and runners.				
	Monoplaner Prefabricated Connector Plate Roof Trusses at 1600mm maximum centres with a pitch of 25 Degrees and suitable for EVERITE Nutec Big six corrugated roof sheeting or other equal approved wth 50 x 76mm purlins(elsewhere measured) at 1050mm centres and Gypsum plasterboard ceiling (Gypsum plasterboard ceiling elsewhere measured) with brandering at 450mm centres				
1	Truss size 5 100mm span x 1100mm high with 450mm overhang on both sides	No	8		
	Sawn softwood				
2	38 x 114mm Wall plates	m	21		
3	38 x 114mm Bracing	m	25		
	Carried Forward			R	

				R
	Brought Forward			
4	50 x 76mm Purlins, bolted	m	63	
	Structural Timber			
5	45 x 145mm treated pine beams, ends treated with two coats flintkote and built 200mm deep into brickwork.	m	7	
	Sundries			
6	Hurrican clips	No	128	
	TR1 and TR2 Certificates			
7	Allow for TR1 and TR2 certification of all trusses		Item	
	EAVES, VERGES, ETC			
	"Everite" medium density plain nutec-cement			
	'Everite Nutec' fibre cement socket less barge boards (Product no. 721-800):			
8	80 x 200mm Barge boards including H-profile jointing strips	m	13	
	"Everite Nutec" medium density fibre cement fascia boards (Product No. 041-202).			
9	15 x 225mm Fascias including Pvc H-profile jointing strips	m	16	
	DOORS, ETC			
	SABS 545 Solid core doors with vertical tongue and groove boarding on both sides and hardwood edging both vertical sides			
10	44mm Door size 813 x 2032mm high	No	3	
	TDM Hardwood door with double top & bothom rails,tounge and groove boarding in v-joint rail,20x 150mm middle ledge,20 x 225mm bottom ledge and 20 x 110mm braces			
11	44mm Door size 813 x 2032mm high	No	2	
	FRAMED FRAMES, ETC			
	Carried Forward			R

	Brought Forward			R
	Timber frames			
12	108 x 44mm rebated timber door frames for 813x 2032mm door with 5 x 5 mm inner rebate and 14 x 14mm chamfered outward exposed edge for stiles and top frame securely retro fixed to walls	No	5	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 8				
	IRONMONGERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 132				
	HINGES, BOLTS, ETC				
	Approved				
1	1.5 pairs 108mm brass butt hinges	Pairs	5.0		
	LOCKS				
	"Union"				
2	Union 2261-76SS 4 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	2		
3	Union 2277-78SS 3 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	3		
4	Facility indicator bolt, code 37651RH	No	3		
	"Chairman Industries cc" grab rails				
5	Ref DL3 Stainless Steel Dogleg Side rail with centre flange (three in total) with Satin Polished Finish, plugged and screwed to wall.	No	1		
6	Ref SR5-500mm Stainless Steel Flushvalve Back Rail with Satin Polished finish, plugged and screwed to wall.	No	1		
	SUNDRIES				
	Toilet Roll Holder				
7	Two toilet roll holder,lockable mild white still or similar approved size 14cm x 12.5cm x 27.5cm, weight 1.05kg,capacity 2 x toilet rolls.	No	3		
	Carried Forward			R	

				R
	Brought Forward			
	Hat and Coat Hook			
8	Union AL684-05AS hat and coat hook	No	3	
	Door Closer			
9	Union 87001SS door stop	No	5	
	Door signs or numbers to be of an approved grey ultra high impact acryllic plastic construction plugged to wall or screwed to door with 15mm countersunk raised head chromium plated screws at each corner or hung from ceilings with two chromium plated chains			
10	200 x 70 x 2.5mm Sign with 40mm high letters to centre of main door leaf 1850mm above ffl (Allow for 10 Letters)	No	5	
	SIGNAGE			
11	Male sign WBH 2313 size152x152mm with rounded corners and polished edges - white ABS plastic with black engraved International cloakroom door signage. 4xflush screwed and epoxy glued at 1500mm high and centre to each toilet entrance door	No	2	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 9				
	METALWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 136				
	HOT DIP GALVANISED STEEL WINDOWS				
	The following units refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adherred to in all respects and all prices are to include all glass, ironmongery,, fixing,sealing etc				
1	Standard window size 533 x 654mm	No	3		
2	Standard window size 899 x 457mm	No	2		
	BURGLAR BARS				
	The following in hot dip galvanised after fabrication steel burglar bars comprising of 40 x 12mm EN8 flat steel framing and intermediate posts with 19mm diameter EN8 horizontal steel bars at 138mm centres welded to frame, frame drilled at 276mm centres for 12mm diameter expansion bolts, refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adhered to in all respects and all prices are to include all assembly, setting up, building in, etc.				
3	Burglar bar to suit opening size 533 x 654mm	No	3		
4	Burglar bar to suit opening size size 899 x 457mm	No	2		
	STANDARD PRESSED STEEL DOOR FRAMES				
	1.2mm Double rebated frame suitable for one brick walls complete with crimped lugs for building in 2 x 100mm galvanised and welded loose pin hinges				
5	Frame for door 813 x 2032mm high	No	5		
	Carried Forward			R	

	Brought Forward			R
	HOT DIP GALVANISED STEEL POSTS			
6	90mm Ø x 3mm wall thickness hollow Circular galvanized steel stanchion with 90mmØ x 3mmthick top closure piece, with 75 longx42Øx3mm distance piece supporting a 149mmhigh x 49 wide x 5mm thick steel bracket for fixing the 145 x 45mm roof support-beam with two 12mmø galvanized bolts securely spot welded and touched up with cold galvanizing. Base plate size 250 x 250 x 3mm welded to the bottom end of the post and set in 450 x 450x 650mm deep concrete footing. (footings elsewhere measured)	No	1	
	HOT DIP GALVANISED CHANNEL			
7	149 x 49 x 5mm galvanised steel L channel fixed to walls with 10 x 140mm corrosion resistant expansion bolt at 600mm centres	m	5	
8	140 x 60 x15mm galvanised steel U channel mounted wall with 10 x 410mm corrosion resistant expansion bolts @ 600mm centres	m	5	
	HOT DIP GALVANISED STEEL GATES			
9	Hot dip galvanised single gate size 877mm long x 2225mm high overall, formed of 50 x 30 x 2,5mm thick rectangular hollow section frame with 50 x 30 x 2,5mm thick rectangular hollow section middle rail and 38 x 38 x 2,5mm thick square hollow section tube Diameter gonal braces in between, all sections welded together, with 25 x 25 x 2mm thick square tube bolt frame with 12mm Diameter. x 85mm long bolt (bolt formed of 85mm long high tension solid round bar welded to 76 x 25 x 5mm plate with 14mm Diameter. drilled hole), including drilling hole size 18mm Diameter. through square tube gate frame for bolt opening, with and including three pin hinges (size 25mm Diameter. x 80mm long overall) with 15mm dia. x 30mm long pin and 25mm dia. sheath welded to gate and post	No	2	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 10				
	PLASTERING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 142				
	SCREEDS				
	Screeds on concrete				
1	30mm Thick on floors and landings	m2	20		
2	30mm Thick on Pits base slab.	m2	14		
	INTERNAL PLASTER				
	Cement plaster on brickwork				
3	On superstructure internal walls	m2	114		
4	On Pit walls.	m2	38		
5	In narrow widths not exceeding 300m wide	m2	3		
	Carried Forward to Summary of Section No. 4			R	

Item No			Quantity	Rate	Amount
	BILL NO 11				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 146				
	RAINWATER DISPOSAL				
	Marley vynadeep or other equally approved uPVC Rainwater goods				
1	146 x 93mm Half round eaves gutters	m	16		
2	Long-arm –Swan-neck100 Bend combination	No	4		
3	Extra for stopped end	No	4		
4	Extra for outlet for 75mm pipe	No	4		
5	80mm Diameter rainwater pipes	m	14		
6	Extra for bend	No	8		
7	Extra for shoe	No	4		
8	Spreader for 75mm pipe	No	4		
	WORK GROUP 148				
	SANITARY FITTINGS				
9	Atlas VIP toilet with and including Atlas VIP 200 inlet funnel or similar approved	No	3		
10	Atlas Viking handwash basin or similar approved	No	3		
	Carried Forward			R	

				R
	Brought Forward			
11	Atlas Plastics Viking 509AP white Urinal with Atlas 497AP Lilydome waterless waste and Atlas mini P-Trap. Urinal three times securely bolted to wall with 8mmø corrosion resistant expansion bolts - and bolt shank epoxy-glued to bolt-holes	No	6	
	TRAPS ETC			
	Rubber traps, etc.:			
12	40 x 40mm 'Flexitrap' butyl rubber deep seal 'P' or 'S' trap jointed to waste outlet fitting and to PVC pipe including coupling clamps, etc.	No	9	
	TAPS, VALVES, ETC			
	Brass			
13	Cobra Water tech 15mm chrome plated elbow action raised nose pillar tap with blue indicator for cold water (Code: 503-21B), manufactured in accordance with SANS 226:2004 Type 2 (BS 5412).	No	1	
14	No.KM2 15mm pillar tap with blue inlay.	No	6	
15	20mm Stopcock.	No	2	
	SANITARY PLUMBING			
	PVC pipes			
16	40mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	15	
17	50mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	18	
18	110mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	25	
19	110mm stubstacks with pvc cap fixed to external walls	m	1	
	Extra over uPVC pipes for fittings			
20	40mm Fittings	No	15	
	Carried Forward			R

				R
	Brought Forward			
21	50mm Fittings	No	13	
22	110mm Fittings	No	11	
	WATER SUPPLY			
	Class 2 Copper Pipes			
	Extra over class 2 copper pipes for brass compression fittings			
23	20mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	21	
24	15mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	15	
	Extra over class 2 copper pipes for brass compression fittings			
25	20mm Fittings	No	40	
26	15mm Fittings	No	32	
	The following in polywater pipes			
27	12mm pipes	m	4	
	The following in JoJo 5500 litre capacity tanks (Stromy sky ME 5513 in colour)			
28	5500L litre Jojo horizontal water storage tank fitted with access lid and inlet hole, with and including flanged or screwed connections for inlet, 15mm outlet and 15mm overflow pipes, hoist and set in position on plinth (elsewhere measured), approximately 1000mm high above ground level	No	1	
	Carried Forward to Summary of Section No. 4			R

Item No			Quantity	Rate	Amount
	BILL NO 12				
	GLAZING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 150				
	6.38mm thick laminated safety glass panels. All edges of the glazing panels to be treated and fully sealed with Betaseal to avoid delamination and penetrating stains.				
1	Panes not exceeding 0,1m2.	m2	3		
	MIRRORS				
2	Polished Stainless steel mirror (1 mm thick) Size: 400x300x1.0mm vertically above each basin 670mm above floor - screw fixed with countersunk stainless steel Philips screws on four corners. Rear surface of the mirror and plastic wall-plugs securely epoxy-glued to wall	No	3		
	Carried Forward to Summary of Section No. 4				R

Item No			Quantity	Rate	Amount
	BILL NO 13				
	PAINTWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	PAINTWORK, ETC TO NEW WORK ON				
	WORK GROUP 152				
	FLOATED PLASTER SURFACES WITH				
	One coat Dulux trade alkali resistant plaster primer, apply one Dulux Trade universal undercoat and two coats full strength,dulux pearlglo solvent based enamel (or similar approved)				
1	Internal walls	m2	114		
	CONCRETE SURFACES WITH				
	Apply one coat , and, while it is still wet, sprinkle dry, washed river sand over the surface, stop and apply undercoat to seal the surface. Allow overnight drying and apply one finishing coat				
2	Concrete floors	m2	18		
	FIBRE-CEMENT SURFACES WITH				
	Two coats pure acrylic paint on				
3	Fascias and barge boards	m2	8		
	METAL SURFACES WITH				
	Clean with galvanised iron cleaner,apply one coat galvanised iron primer,one coat undercoat and two coats enamel				
4	Door frame	m2	7		
	Carried Forward			R	

				R
	Brought Forward			
5	Security gates	m2	7	
	Global Roofing 0,60mm "Klip-Lok 700" concealed fix galvanized roof sheeting with "Chromadek" finish on one side including KL700 clips fixed to timber purlins according to manufacturer's intructions			
	WOOD SURFACES WITH			
	Two coats oil wood primer on			
6	Backs of frames, linings, etc not exceeding 300mm wide	m	15	
	Prepare and three coats exterior varnish sanded between coats			
7	Lath screen	m2	8	
	One coat Dulux Supergrip primer wood primer,one coat Dulux Trade Universal Undercoat,two coats Dulux Pearlglo Waterbased Enamel paint on			
8	Door frames	m2	7	
9	Doors	m2	18	
	Prepare and apply two coats carbolineum on:			
10	Roof timbers.	m2	47	
	Carried Forward to Summary of Section No. 4			R

SECTION SUMMARY - PROTOTYPE 4A-M

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Carried to Final Summary R

Item No		Quantity	Rate	Amount

SECTION NO.5

BILL NO 1

EARTHWORKS (PROVISIONAL)

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

Nature of ground

The nature of the ground is assumed to be loose sandy material, therefore "earth", but possibly interspersed with "hard rock" or "soft rock".

The nature of the ground is assumed to be gravel, therefore "earth", but possibly interspersed with "soft rock".

The nature of the ground is assumed to be silty clay with loose river boulders varying in size up to approximately 450mm diameter, therefore "earth", but possibly interspersed with "hard rock".

Trial holes indicate that the nature of the ground is silty clay to a depth of approximately 500mm with fine to medium loose sandy material below, therefore "earth". The trial holes also indicate that the water table is at a maximum depth of approximately 1000mm.

A soils investigation has been carried out on site by the engineer and the report is annexed to these bills of quantities. Descriptions of excavations shall be deemed to include all ground conditions classifiable as "earth" described in the above report and where conditions of a more difficult character are indicated these are separately measured

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

Carried Forward R

				R
	Brought Forward			
	Filling			
	Notwithstanding the reference to prescribed multiple handling in clause 1 page 6 of the Standard System of Measuring Building Work, prices for filling and backfilling shall include for all selection and any multiple handling of material			
	WORK GROUP 104			
	SITE CLEARANCE ETC			
	Site clearance			
1	Stripping average 100mm thick layer of top soil and stockpiling on site	m2	84	
	EXCAVATIONS			
	Excavation in earth n.e 2m			
2	Reduced levels under floors	m3	1	
	Excavation in earth exceeding 2m and n.e 4m deep			
3	Holes (Pit)	m3	90	
4	Raft foundation	m3	10	
	EXCAVATIONS IN STRATA OF A MORE DIFFICULT CHARACTER			
	Extra over trench and hole excavations in earth for excavation in			
5	Soft rock	m3	11	
6	Hard rock	m3	40	
	Extra over all excavations for carting away			
7	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	75	
	Risk of collapse of excavations			
8	Sides of trench and hole excavations not exceeding 1,5m deep	m2	28	
	Carried Forward			R

				R
	Brought Forward			
9	Sides of trench and hole excavations exceeding 1,5m deep n.e 2m deep	m2	58	
	Keeping excavations free of water			
10	Keeping excavations free of water		Item	
	FILLING ETC			
	Earth filling obtained from the excavations (not compacted)			
11	In prescribed stock piles on site	m3	27	
	Earth filling obtained from the excavations and/or prescribed stock piles on site, compacted to 93% Mod AASHTO density			
12	Backfilling to trenches, holes, etc	m3	54	
	G5 earth filling supplied by the contractor, compacted to 93% Mod AASHTO density			
13	Under floors, steps, pavings, etc	m3	24	
14	To sides of Pits etc.	m3	24	
	Coarse river sand filling supplied by the contractor			
15	Under floors etc	m3	2	
	Compaction of surfaces			
16	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 95% Mod AASHTO density	m2	73	
	Prescribed density test on filling			
17	"Modified AASHTO Density" test	No	14	
18	"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	14	
	SOIL POISONING			
	Carried Forward			R

	Brought Forward			R
	Soil insecticide			
19	Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m2	66	
20	To bottoms and sides of trenches etc	m2	88	
	Carried Forward to Summary of Section No. 5			R

Item No		Quantity	Rate	Amount
	BILL NO 2			
	CONCRETE, FORMWORK AND REINFORCEMENT(PROVISIONAL)			
	Preambles			
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)			
	SUPPLEMENTARY PREAMBLES			
	Cost of tests			
	The costs of making, storing and testing of concrete test cubes as required under clause 7 "Tests" of SABS 1200 G shall include the cost of providing cube moulds necessary for the purpose, for testing costs and for submitting reports on the tests to the architect. The testing shall be undertaken by an independent firm or institution nominated by the contractor and to the approval of the architect. (Test cubes are measured separately)			
	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. The vertical strutting shall be carried down to such construction as is sufficiently strong to afford the required support without damage and shall remain in position until the newly constructed work is able to support itself.			
	Carried Forward			R

	Brought Forward			R
	Formwork to soffits of (solid) slabs etc shall be deemed to be to slabs not exceeding 250mm thick unless otherwise described			
	Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer fordesign 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"			
	WORK GROUP 110			
	UNREINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES			
	15MPa/20mm concrete			
1	Surface blinding under footings and bases	m3	1	
	REINFORCED CONCRETE			
	25Mpa/20mm concrete			
2	Strip footings	m3	3	
3	Ramps,aprons etc	m3	2	
4	Bases	m3	4	
5	Raft foundation	m3	8	
	WORK GROUP 111			
	SMOOTH FORMWORK (DEGREE OF ACCURACY 1)			
	Smooth formwork to sides:			
6	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	37	
	Smooth form work to soffits			
7	Suspended slabs including propping n.e 3.5m high	m2	16	
	Carried Forward			R

				R
	Brought Forward			
	Smooth formwork to sides and soffits:			
8	230x 350mm Concrete Beam below suspended slab	m2	6	
	Smooth Formwork to form:			
9	Sides of Raft Foundation	m2	24	
10	250 mm Diameter opening.	No	4	
11	110mm Diameter opening.	No	4	
	CONCRETE SUNDRIES			
	Finishing top surface of concrete with a wood trowel.			
12	Surface beds, slabs, etc	m2	65	
	Sikafloor-curehard-24 dry-shake floor hardening agent in accordance with the manufacturer's instructions applied on			
13	Power floated concrete surfaces during the power floating process	m2	35	
	Concrete strength test cubes			
14	Prepare set of six concrete cubes each size 150 x 150 x 150 mm and deliver to an approved laboratory for testing and pay all charges. (Provisional)	Sets	3.0	
	MOVEMENT JOINTS ETC			
	Saw cut Ream out 6mm wide 20mm deep seal,10 x 6 with SIKAFLEX-PRO 2HP on polyethylene backing cord.			
15	6 x 20mm deep saw cut joints in top of concrete	m	10	
	Isolation joints with softboard between vertical concrete and brick surfaces			
16	10mm Joints not exceeding 300mm high or wide	m	28	
17	10mm Joints exceeding 300mm high or wide	m2	6	
	WORK GROUP 114			
	REINFORCEMENT (PROVISIONAL)			
	Carried Forward			R

	Brought Forward			R
	High tensile steel reinforcement to structural concrete work			
18	Bars in reinforcement of all sizes	t	1.61	
	Fabric reinforcement			
19	Type 245 fabric reinforcement in concrete surface beds, slabs, etc	m2	61	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 3				
	PRECAST CONCRETE				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	SUPPLEMENTARY PREAMBLES				
	Sizes				
	Blocks, sills, etc measured linear shall be made in suitable lengths. Large size setting out drawings shall be prepared where necessary and submitted to the architect for approval before moulds are made				
	General				
	Where kerbstones, blocks, etc are laid in ground, descriptions shall be deemed to include necessary excavation, filling in and ramming				
	WORK GROUP 112				
	PRECAST CONCRETE ACCESS PANELS				
1	1100 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and 12mm thick x 70mm wide sondorband self-adhesive Flexible wax-and resin-impregnated Polyurethane foam strips at supporting ends of each panel.	No	2		
2	Ditto but 1120 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
3	Ditto but 1300 x 375 x 100mm thick precast concrete pit latrine access panel complete with concealed key holes on sides and rubber seal on soffits	No	2		
4	Ditto but 2080 x 375 x 100mm thick precast concrete pit latrine access panel	No	2		
	Carried Forward to Summary of Section No. 5			R	

Item No		Quantity	Rate	Amount

BILL NO 4

MASONRY

Preambles

TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)

SUPPLEMENTARY PREAMBLES

BRICKWORK

Sizes in descriptions

Where sizes in descriptions are given in brick units, "one brick" shall represent the length and "half brick" the width of a brick

Hollow walls etc

Descriptions of hollow walls shall be deemed to include wall ties and leaving every fifth perpend of the bottom course of the external skin open as a weep hole

Reinforced brick lintels

Lintels shall bear at least 160mm onto adjacent walling. Where such bearing cannot be obtained due to the proximity of adjacent openings the lintel shall be continuous

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

BLOCKWORK

Carried Forward R

Brought Forward R

Concrete masonry units

Blocks shall be either solid or hollow modular dense concrete masonry units in accordance with SABS Specification 1215, having compressive strengths as described

Blockwork

Blockwork shall comply with SABS 0145 "Concrete Masonry Construction"

Surfaces to be plastered shall have joints raked out to a depth of at least 10mm to provide a key. Cavities of hollow walls shall be kept free of mortar droppings or other undesirable matter. Every second perpend of the bottom course of the external skin of hollow walls shall be left open as a weep hole

Standard complementary blocks

Descriptions of blockwork shall be deemed to include standard complementary blocks such as corner, three-quarter, half and quarter blocks required in the construction of corners, reveals, jambs, ends, etc to solid and hollow walls and for bonding asnecessary

DECORATIVE BLOCKS

Blocks shall be of approved manufacture, sound, well burnt or cured and uniform and true in size, shape and colour

"WINBLOK" MODULAR PRECAST CONCRETE WINDOW SURROUNDS

General

Window surrounds shall be built into brick walls and pointed all round on both sides with 10 x 10mm square recessed joints

Prices shall include for building in as single units or combinations in patterns of two or more window units and for bedding solid all round in mortar and pointing

Note

Aluminium infill windows, glazing and pointing with sealing compound are measured elsewhere

Carried Forward R

Brought Forward R

SAMPLES

Samples of all masonry building units, shall consist of a minimum of 6 units

PAVINGS

Quarry tiles, precast concrete, cement, terrazzo and similar tiles

Tiles shall be of approved manufacture, well burnt or cured, and uniform and true in size, shape and colour

Preparation of concrete floor beds, slabs, etc for pavings

Concrete surfaces shall be hacked (preferably by mechanical means) until all laitance, dirt, oil, etc is dislodged and swept clean of all loose matter. Surfaces shall then be wetted and kept damp for at least six hours before slushing with 1:2 cement/sand and while still wet, pavings, etc. shall be laid on a 1:4 cement mortar bed not exceeding 25mm thick. Sand shall be clean, sharp river sand

Jointing of pavings

Pavings, etc, shall, except for crazy paving, be laid with continuous joints in both directions

STONEWORK

Slate, marble, granite, etc

Slate, marble, granite, etc is to be best quality stone from an approved quarry, free from cracks and other defects and equal to samples to be submitted to and approved by the architect. Each stone is to hold its full size, square to the back and tobe set on its natural quarry bed

Setting out

Care shall be exercised in setting out the work, the preparation of templates and the checking of the detail drawings. All measurements shall be taken on the site where necessary and the full size setting out of each course shall be done at the yardso as to ensure the proper fitting of each stone

Carried Forward R

Brought Forward R

Before putting any work in hand the contractor is to submit to the architect for his approval details of the manner in which he proposes to set out the slabs and joints in all wall facings, pavings, sills, treads, etc together with samples of grain or pattern matching

Face labours

Face labours are to match samples to be submitted to and approved by the architect

Arrises are to be clean and sharp except to treads and thresholds where they are to be slightly rounded

Bedding and jointing

Slate, marble, granite and other floor paving and wall linings are to be bedded solidly on the mortar thicknesses described and are to have tightly fitting butt joints unless otherwise stated

Where stonework is to be fixed with adhesive, the adhesive is to be "TAL Goldstar/Bond" (mixed 20kg/5 litre) for external use or where white or light coloured marble is used, "TAL Goldstar" for internal use or other approved. The contractor will be liable for any defects to the slate, marble and granite arising from the use of the adhesive

Where soffit linings are suspended the suspension system must be concealed and must be submitted to the architect for approval before work commences

Where tolerance screws are required these are to be stainless steel expanding bolt type with matching stainless steel bracket and PVC clad dowel with nuts and washers etc

Damaged work

Any damaged stonework shall be discarded and replaced at the contractor's expense. No touching up will be permitted except in exceptional cases, with the architect's consent

Carried Forward R

	Brought Forward			R
	Descriptions			
	Descriptions of stonework shall be deemed to include preparatory work, labours to backs, beds and joints, templates, mortices for bolts etc and for hoisting and setting in position, bedding, jointing and pointing, casing and protecting from injury and cleaning down at completion			
	Descriptions of recessed pointing to stonework shall be deemed to be square recessed, hollow recessed, weathered pointing, etc			
	WORK GROUP 116			
	FOUNDATIONS			
	Brickwork of NFX bricks (14 MPa nominal compressive strength) in class 1 mortar			
1	Piers	m3	2	
2	Half brick walls	m2	9	
3	One brick wall in Pits.	m2	52	
	SUPERSTRUCTURE			
	Brickwork of NFP bricks in class II mortar			
4	Half brick walls	m2	4	
5	Half brick wall in beamfilling.	m2	3	
6	Piers	m3	4	
7	One brick walls	m2	104	
	Facebrick			
	Corobrick Firelight Satin FBX facing bricks and pointing with 6 mm square recessed joints			
8	Extra over ordinary brickwork for facing in stretcher bond and pointing.	m2	83	
9	Extra over brickwork for face brickwork in beamfilling.	m2	2	
	Carried Forward			R

				R
	Brought Forward			
10	Face brick on edge window cill set sloping and slightly projecting on bottom edge in 1:5 cement mortar including cutting and fitting between reveals, fair splay cutting under and pointing on top, edge and projecting soffit (In No. 28)	m	3	
11	Face brick cut soldier course window head, formed with cant bricks170mm high, bedded in 1:5 cement mortar including cutting and fitting between reveals and pointing on top and front face.	m	5	
12	Face brick soldier course band 160mm wide to top of one brick wall bedded in 1:5 cement mortar including pointing to sides and faces	m	9	
13	Fair raking cutting.	m	13	
	BRICKWORK SUNDRIES			
	Bagging of 1:3 cement and sand mixture			
14	Bag outer face or inner skin of brick wall to receive bitumen paint (elsewhere measured)	m2	53	
	Brickwork reinforcement			
15	75mm Wide reinforcement built in horizontally	m	38	
16	150mm Wide reinforcement built in horizontally	m	975	
	Concrete prestressed fabricated lintels			
17	110 x 75mm Lintels in lengths not exceeding 3m	m	9	
18	110 x 75mm Lintels in lengths not exceeding 3m n.e 4.5m	m	22	
	Galvanised hoop iron cramps, ties, etc			
19	32 x 1,2mm Galvanised hoop iron roof tie 600mm girth with each end fixed to timber	No	14	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 5				
	WATERPROOFING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 120				
	DAMPPROOFING OF WALLS AND FLOORS				
	One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
1	In walls	m2	10		
	One layer of 250 micron "Consol Plastics Gunplas USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape"				
2	Raft foundation	m2	55		
3	Under Pit base slab.	m2	19		
	Pit Linings				
4	Floors	m2	16		
	One coat Sikafloor®-156 and three coats Sikagard®-63 N or other equally approved waterproofing wall system as approved by the Employer on				
5	Internal Walls	m2	49		
6	Apply two Sika Cemflex coats to external pit wall.	m2	35		
	Apply 3 mm sikagard 720 EPOCEM on green or damp concrete and one coat sikafloor-156 to manufactures specification.				
7	Pit Slab.	m2	18		
	Carried Forward			R	

	Brought Forward			R
	Two coats "Brixeal" bitumen emulsion waterproof coating			
8	On bagged brick walls	m2	53	
	SEALANTS ETC			
9	Silicon pointing to aluminium windows	m	12	
	SIKAFELX PRO 2HP or other equally approved sealing compound including backing cord, bond breaker, primer, etc			
10	6 x 10mm In saw cut joints in floors	m	6	
11	10 x 10mm Isolation joints in floors	m	26	
12	10 x 10mm Construction joint joints in floors	m	5	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 6				
	ROOF COVERINGS ETC				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 124				
	PROFILED METAL SHEETING AND ACCESSORIES				
	Safintra 0.50mm thick WIDEDEK AZ150 G550 pre-painted interlocking roof sheeting fixed to 75 x 50mm SA pine purlins at 1200mm centres (purlins elsewhere measured) with 2 x galvanised hurricane clip screws fixed at each intersection to premanufactured gang nail type SA pine trusses (trusses elsewhere measured)				
1	Roof coverings with pitches not exceeding 50 degrees	m2	39		
2	0.5mm thick ridge capping	m	6		
3	0,5mm Thick cover flashing piece to roofing 375mm girth twice times bent, including notching over ribs	m	6		
4	Ditto but purpose made tile to end of ridge	No	2		
5	Hole through metal roof sheeting for and flashing around 110mm pipe with Fibreglass and sealing with resin	No	4		
6	Moulded narrow or broad rib polyethelene filler blocks	m	11		
	ROOF AND WALL INSULATION				
	"Sisalation 420" heavy industrial grade aluminium foil based insulation				
7	Insulation laid taut over purlins (at approximately 1,80m centres) and fixed concurrent with roof covering, including taped laps and nylon straining wires	m2	39		
	Carried Forward			R	

	Brought Forward				R
	Sundries				
8	"Sondor" Eave Polycloser	m	24		
	Carried Forward to Summary of Section No. 5				R

Item No			Quantity	Rate	Amount
	BILL NO 7				
	CARPENTRY AND JOINERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 126				
	ROOFS, ETC				
	Plate nailed timber roof truss construction				
	Timber roof truss **prices are to include for the design, supply,wind categoy as per SANS 10160 and erection of the trusses** into position complete including bolts, connectors, connections, etc.The dimensions of the trusses given in the following descriptions are nominal and the actual measurements for the design and manufacture of the trusses must be taken on site to match existing.The truss spans given are measured horizontally between the outer faces of the wall plates. Permanent bracing and runners have not been measured in accordance with the Standard System of Measuring Builder's Work and are measured as an item, the price of which is to include for the design, supply and fixing of necessary permanent bracing and runners.				
	Monoplaner Prefabricated Connector Plate Roof Trussesat 1600mm maximum centres with a pitch of 25 Degrees and suitable for EVERITE Nutec Bigsix corrugated roof sheeting or other equal approved wth 50 x 76mm purlins(elsewhere measured) at 1050mm centres and Gypsum plasterboard ceiling (Gypsum plasterboard ceiling elsewhere measured) with brandering at 450mm centres				
1	Truss size 5 100mm span x 1100mm high with 450mm overhang on both sides	No	5		
	Sawn softwood				
2	38 x 114mm Wall plates	m	10		
3	38 x 114mm Bracing	m	15		
	Carried Forward			R	

				R
	Brought Forward			
4	50 x 76mm Purlins, bolted	m	48	
	Structural Timber			
5	45 x 145mm treated pine beams, ends treated with two coats flintkote and built 200mm deep into brickwork.	m	3	
	Sundries			
6	Hurrican clips	No	80	
	TR1 and TR2 Certificates			
7	Allow for TR1 and TR2 certification of all trusses		Item	
	EAVES, VERGES, ETC			
	'Everite Nutec' fibre cement socket less barge boards (Product no. 721-800):			
8	80 x 200mm Barge boards including H-profile jointing strips	m	13	
	"Everite Nutec" medium density fibre cement fascia boards (Product No. 041-202).			
9	15 x 225mm Fascias including Pvc H-profile jointing strips	m	12	
	DOORS, ETC			
	SABS 545 Solid core doors with vertical tongue and groove boarding on both sides and hardwood edging both vertical sides			
10	44mm Door size 813 x 2032mm high	No	4	
	TDM Hardwood door with double top & bothom rails,tounge and groove boarding in v-joint rail,20x 150mm middle ledge,20 x 225mm bottom ledge and 20 x 110mm braces			
11	44mm Door size 813 x 2032mm high	No	2	
	Wrought meranti			
12	44mm Door size 813 x 1026mm high	No	4	
	FRAMED FRAMES, ETC			
	Carried Forward			R

	Brought Forward			R
	Timber frames			
13	108 x 44mm rebated timber door frames for 813x 2032mm door with 5 x 5 mm inner rebate and 14 x 14mm chamfered outward exposed edge for stiles and top frame securely retro fixed to walls	No	3	
14	108 x 44mm rebated timber door frames suitable for half door with 5 x 5 mm inner rebate and 14 x 14mm chamfered outward exposed edge for stiles and top frame securely retro fixed to walls	m	6	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 8				
	IRONMONGERY				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 132				
	HINGES, BOLTS, ETC				
	Approved				
1	1.5 pairs 108mm brass butt hinges	Pairs	6.0		
	LOCKS				
	"Union"				
2	Union 2261-76SS 4 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	3		
3	Union 2277-78SS 3 lever upright lock with and including Union AL684 - 05AS bishop lever furniture	No	3		
4	Facility indicator bolt, code 37651RH	No	4		
	"Chairman Industries cc" grab rails				
5	Ref DL3 Stainless Steel Dogleg Side rail with centre flange (three in total) with Satin Polished Finish, plugged and screwed to wall.	No	1		
6	Ref SR5-500mm Stainless Steel Flushvalve Back Rail with Satin Polished finish, plugged and screwed to wall.	No	1		
	SUNDRIES				
	Toilet Roll Holder				
7	Two toilet roll holder,lockable mild white still or similar approved size 14cm x 12.5cm x 27.5cm, weight 1.05kg,capacity 2 x toilet rolls.	No	4		
	Carried Forward			R	

				R
	Brought Forward			
	Hat and Coat Hook			
8	Union AL684-05AS hat and coat hook	No	4	
	Door Closer			
9	Union 87001SS door stop	No	6	
	Door signs or numbers to be of an approved grey ultra high impact acryllic plastic construction plugged to wall or screwed to door with 15mm countersunk raised head chromium plated screws at each corner or hung from ceilings with two chromium plated chains			
10	200 x 70 x 2.5mm Sign with 40mm high letters to centre of main door leaf 1850mm above ffl (Allow for 10 Letters)	No	1	
	SIGNAGE			
11	Pareplegic sign size 150mm x 150mm dorma	No	1	
12	Female sign size 150mm x 150mm dorma DSS-131	No	1	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 9				
	METALWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 136				
	HOT DIP GALVANISED STEEL WINDOWS				
	The following units refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adherred to in all respects and all prices are to include all glass, ironmongery,, fixing,sealing etc				
1	Standard window size 533 x 654mm	No	4		
2	Standard window size 899 x 457mm	No	1		
	BURGLAR BARS				
	The following in hot dip galvanised after fabrication steel burglar bars comprising of 40 x 12mm EN8 flat steel framing and intermediate posts with 19mm diameter EN8 horizontal steel bars at 138mm centres welded to frame, frame drilled at 276mm centres for 12mm diameter expansion bolts, refer to the Architects diagrams, details and specifications bound into the back of these bills of quantities and must be adhered to in all respects and all prices are to include all assembly, setting up, building in, etc.				
3	Burglar bar to suit opening size 533 x 654mm	No	4		
4	Burglar bar to suit opening size size 899 x 457mm	No	1		
	STANDARD PRESSED STEEL DOOR FRAMES				
	1,2mm Double rebated frame suitable for one brick walls complete with crimped lugs for building in 2 x 100mm galvanised and welded loose pin hinges				
5	Frame for door 813 x 2032mm high	No	2		
	Carried Forward			R	

	Brought Forward			R
	HOT DIP GALVANISED STEEL POSTS			
6	90mm Ø x 3mm wall thickness hollow Circular galvanized steel stanchion with 90mmØ x 3mmthick top closure piece, with 75 longx42Øx3mm distance piece supporting a 149mmhigh x 49 wide x 5mm thick steel bracket for fixing the 145 x 45mm roof support-beam with two 12mmø galvanized bolts securely spot welded and touched up with cold galvanizing. Base plate size 250 x 250 x 3mm welded to the bottom end of the post and set in 450 x 450x 650mm deep concrete footing. (footings elsewhere measured)	No	1	
	HOT DIP GALVANISED CHANNEL			
7	149 x 49 x 5mm galvanised steel L channel fixed to walls with 10 x 140mm corrosion resistant expansion bolt at 600mm centres	m	1	
	HOT DIP GALVANISED STEEL GATES			
8	Hot dip galvanised single gate size 877mm long x 2225mm high overall, formed of 50 x 30 x 2,5mm thick rectangular hollow section frame with 50 x 30 x 2,5mm thick rectangular hollow section middle rail and 38 x 38 x 2,5mm thick square hollow section tube Diametergonal braces in between, all sections welded together, with 25 x 25 x 2mm thick square tube bolt frame with 12mm Diameter. x 85mm long bolt (bolt formed of 85mm long high tension solid round bar welded to 76 x 25 x 5mm plate with 14mm Diameter. drilled hole), including drilling hole size 18mm Diameter. through square tube gate frame for bolt opening, with and including three pin hinges (size 25mm Diameter. x 80mm long overall) with 15mm dia. x 30mm long pin and 25mm dia. sheath welded to gate and post	No	2	
	HOT DIP GALVANISED CHANNEL			
9	149 x 49 x 5mm galvanised steel L channel fixed to walls with 10 x 140mm corrosion resistant expansion bolt at 600mm centres	m	5	
10	140 x 60 x15mm galvanised steel U channel mounted wall with 10 x 410mm corrosion resistant expansion bolts @ 600mm centres	m	5	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 10				
	PLASTERING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 142				
	SCREEDS				
	Screeds on concrete				
1	30mm Thick on floors and landings	m2	18		
2	30mm Thick on Pits base slab.	m2	19		
	INTERNAL PLASTER				
	Cement plaster on brickwork				
3	On superstructure internal walls	m2	84		
4	On Pit walls.	m2	44		
5	In narrow widths not exceeding 300m wide	m2	1		
	Carried Forward to Summary of Section No. 5			R	

Item No			Quantity	Rate	Amount
	BILL NO 11				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 146				
	RAINWATER DISPOSAL				
	Marley vynadeep or other equally approved uPVC Rainwater goods				
1	146 x 93mm Half round eaves gutters	m	12		
2	Long-arm –Swan-neck100 Bend combination	No	4		
3	Extra for stopped end	No	4		
4	Extra for outlet for 75mm pipe	No	4		
5	80mm Diameter rainwater pipes	m	14		
6	Extra for bend	No	8		
7	Extra for shoe	No	3		
8	Spreader for 75mm pipe	No	4		
	WORK GROUP 148				
	SANITARY FITTINGS				
9	Atlas VIP toilet with and including Atlas VIP 200 inlet funnel or similar approved	No	4		
10	Atlas Viking handwash basin or similar approved	No	3		
	TRAPS ETC				
	Carried Forward			R	

				R
	Brought Forward			
	Rubber traps, etc.:			
11	40 x 40mm 'Flexitrap' butyl rubber deep seal 'P' or 'S' trap jointed to waste outlet fitting and to PVC pipe including coupling clamps, etc.	No	3	
	TAPS, VALVES, ETC			
	Brass			
12	Cobra Water tech 15mm chrome plated elbow action raised nose pillar tap with blue indicator for cold water (Code: 503-21B), manufactured in accordance with SANS 226:2004 Type 2 (BS 5412).	No	1	
13	No.KM2 15mm pillar tap with blue inlay.	No	6	
14	20mm Stopcock.	No	2	
	SANITARY PLUMBING			
	PVC pipes			
15	40mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	9	
16	50mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	10	
17	110mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	28	
18	110mm stubstacks with pvc cap fixed to external walls	m	1	
	Extra over uPVC pipes for fittings			
19	40mm Fittings	No	12	
20	50mm Fittings	No	10	
21	110mm Fittings	No	11	
	WATER SUPPLY			
	Carried Forward			R

	Brought Forward			R
	Class 2 Copper Pipes			
22	20mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	11	
23	15mm Pipe and fixing to walls, floors, in roofs, soffit of concrete slab, in chases (including chases), in concrete, etc.	m	12	
	Extra over class 2 copper pipes for brass compression fittings			
24	20mm Fittings	No	8	
25	15mm Fittings	No	12	
	The following in polywater pipes			
26	12mm pipes	m	4	
	The following in JoJo 5500 litre capacity tanks (Stromy sky ME 5513 in colour)			
27	5500L litre Jojo horizontal water storage tank fitted with access lid and inlet hole, with and including flanged or screwed connections for inlet, 15mm outlet and 15mm overflow pipes, hoist and set in position on plinth (elsewhere measured), approximately 1000mm high above ground level	No	1	
	Carried Forward to Summary of Section No. 5			R

Item No			Quantity	Rate	Amount
	BILL NO 12				
	GLAZING				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 150				
	6.38mm thick laminated safety glass panels. All edges of the glazing panels to be treated and fully sealed with Beta seal to avoid de lamination and penetrating stains.				
1	Panes not exceeding 0,1m2.	m2	2		
	MIRRORS				
2	Polished Stainless steel mirror (1 mm thick) Size: 400x300x1.0mm vertically above each basin 670mm above floor - screw fixed with countersunk stainless steel Philips screws on four corners. Rear surface of the mirror and plastic wall-plugs securely epoxy-glued to wall	No	3		
	Carried Forward to Summary of Section No. 5			R	

Item No			Quantity	Rate	Amount
	BILL NO 13				
	PAINTWORK				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	PAINTWORK, ETC TO NEW WORK ON				
	WORK GROUP 152				
	FLOATED PLASTER SURFACES WITH				
	One coat Dulux trade alkali resistant plaster primer, apply one Dulux Trade universal undercoat and two coats full strength,dulux pearlglo solvent based enamel (or similar approved)				
1	Internal walls	m2	98		
	CONCRETE SURFACES WITH				
	Apply one coat , and, while it is still wet, sprinkle dry, washed river sand over the surface, stop and apply undercoat to seal the surface. Allow overnight drying and apply one finishing coat				
2	Concrete floors	m2	19		
	FIBRE-CEMENT SURFACES WITH				
	Two coats pure acrylic paint on				
3	Fascias and barge boards	m2	7		
	METAL SURFACES WITH				
	Clean with galvanised iron cleaner,apply one coat galvanised iron primer,one coat undercoat and two coats enamel				
4	Door frame	m2	11		
	Carried Forward			R	

	Brought Forward			R
5	Security gates	m2	7	
	WOOD SURFACES WITH			
	Two coats oil wood primer on			
6	Backs of frames, linings, etc not exceeding 300mm wide	m	14	
	One coat Dulux Supergrip primer wood primer,one coat Dulux Trade Universal Undercoat,two coats Dulux Pearlglo Waterbased Enamel paint on			
7	Door frames	m2	11	
8	Doors	m2	28	
	Prepare and apply two coats carbolineum on:			
9	Roof timbers.	m2	34	
	Carried Forward to Summary of Section No. 5			R

SECTION SUMMARY - PROTOTYPE 1A-R

Bill No		Page No	Amount
1	EARTHWORKS (PROVISIONAL)	92	
2	CONCRETE, FORMWORK AND REINFORCEMENT(PROVISIONAL)	96	
3	PRECAST CONCRETE	97	
4	MASONRY	103	
5	WATERPROOFING	105	
6	ROOF COVERINGS	107	
7	CARPENTRY AND JOINERY	110	
8	IRONMONGERY	112	
9	METALWORK	114	
10	PLASTERING	115	
11	PLUMBING AND DRAINAGE(PROVISIONAL)	118	
12	GLAZING	119	
13	PAINTWORK	121	

Carried to Final Summary R

Item No			Quantity	Rate	Amount
	SECTION NO.6				
	BILL NO 1				
	EXTERNAL WORKS, ETC.(PROVISIONAL)				
	Preambles				
	TheTenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (2008 Edition)				
	WORK GROUP 104 (EARTHWORKS)				
	SITE CLEARANCE, ETC.				
	Removal of surface vegetable matter				
1	Allow for digging up, carting and depositing all grass, rubbish, debris, building rubble, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc to existing pond on site.	m2	720		
	Removal of Topsoil				
2	Excavate average 150mm deep to remove topsoil and deposit on site in spoil heap for future use .	m2	720		
	BULK EARTHWORKS				
	Rates for open face excavation shall include for the formation of battered banks as required for lateral support and for ramps for the removal of excavated material.				
	General				
	Earthworks are to be executed in accordance with SABS 1200 DM, SABS 1200 D or SABS 1200 DA 1979 "Earthworks (Small Works)" as applicable. Consolidations are to be done at optimum moisture content. Measuring and payment items are to be disregarded.				
	Carried Forward			R	

				R
	Brought Forward			
	Excavate to reduce levels in open face 1,50 m deep extreme and deposit in areas of fill (Cut to Fill), well watered and consolidated in layers not exceeding 150 mm thick to obtain 95% modified AASHTO dry density under			
3	Building platforms, walkways and open areas	m3	246	
	Extra over bulk excavation in pickable material for basements, reduced levels, etc. for :			
4	Excavating in soft rock.	m3	25	
5	Ditto, in hard rock.	m3	12	
	Imported Filling			
6	Approved G5 natural crushed stone from commercial sources as filling over site in layers not exceeding 150 mm thick compacted to 93% Modified AASHTO density.	m3	162	
7	Extra over all excavations for carting surplus excavated material from spoil heaps and spreading, levelling and lightly compacting on site where directed average 200 m from the excavations.(Measured nett- no allowance for bulking).	m3	246	
	Sundries			
8	Allow for keeping bulk excavations free from water or mud.		Item	
	In-situ soils tests			
9	"Modified AASHTO Density" test	No	1	
10	"Natural California Bearing Ratio" test	No	1	
11	"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	1	
12	"Indicator" test (Grading and Atterberg Indicators)	No	1	
	Prescribed density tests on filling			
13	"Modified AASHTO Density" test	No	8	
14	"Natural California Bearing Ratio" test	No	2	
	Carried Forward			R

				R
	Brought Forward			
	CONCRETE WALKWAYS			
	Earthworks			
15	Excavate in earth to reduce levels not exceeding 2 m deep.	m3	48	
16	Extra over all excavations for carting surplus excavated material from the site.	m3	48	
17	Scarify ground to a depth of 150 mm and re-compact to 90% Mod. AASHTO density.	m2	165	
18	Approved G7 natural crushed stone as base course 150 mm thick compacted to 98% Modified AASHTO density under pavings	m3	33	
19	Termite and ant proofing of ground surfaces under pavings, etc.	m2	165	
	WORK GROUP 110 (CONCRETE)			
	Concrete			
20	Cement concrete 15 MPa/20mm stone in blinding	m3	8	
21	Cement concrete 30 MPa/20mm stone in walkways	m3	17	
22	Cement concrete 30 MPa/20mm stone in thickening to edge of walkway	m3	13	
	WORK GROUP 111 (FORMWORK)			
	Formwork			
23	Extra for floating off smooth tops of pavings to falls with a wood float and finish with a transverse broom-swept stippled finish.	m2	165	
24	Semi smooth formwork to sides, edges and risers of surface beds not exceeding 300mm high or wide	m	330	
	Construction and saw cut joints			
25	Vertical Isolation joint through surface beds not exceeding 300 mm thick including all necessary formwork.	m	110	
	Carried Forward			R

				R
	Brought Forward			
26	6mm wide x 20mm deep Flexible sealant "Sikaflex-Pro 2HP" or other approved sealant on polyethylene backing cord in expansion joint between edges of concrete paving.	m	110	
	WORK GROUP 114 (REINFORCEMENT)			
	Reinforcement			
27	Reference 193 welded mesh reinforcement lapped 300mm at edge of adjoining sheets and bound with annealed wire and laying in concrete surface beds (Measured nett - no allowance made for laps)	m2	352	
	WORK GROUP 116(MASONRY)			
	Brick inlays			
	200 x 100 x 50mm Concrete brick pavers of contrasting colour			
28	Concrete brick pavers as expansion joint laid on edge bedded in 1:6 cement mortar between concrete paving	m	70	
	WORK GROUP 120(WATERPROOFING)			
	Waterproofing			
	One Layer 250 Micron Waterproof Sheeting			
29	One layer 250 micron polyethylene waterproof sheeting in accordance with SABS 952 Type C lapped 150 mm at joints and sealed with pressure sensitive tape and laying under paving.	m2	319	
	CONCRETE APRONS			
	WORK GROUP 104 (EARTHWORKS)			
	Earthworks			
30	Excavate in earth to reduce levels not exceeding 2 m deep.	m3	30	
31	Extra over all excavations for carting surplus excavated material from the site.	m3	30	
32	Scarify ground to a depth of 150 mm and re-compact to 90% Mod. AASHTO density.	m2	100	
	Carried Forward			R

				R
	Brought Forward			
33	Approved G5 natural crushed stone as base course 150 mm thick compacted to 98% Modified AASHTO density under pavings	m3	15	
34	Termite and ant proofing of ground surfaces under pavings, etc.	m2	100	
	WORK GROUP 110 (CONCRETE)			
	Concrete			
35	Cement concrete 30 MPa/20mm stone in surface bed	m3	10	
	WORK GROUP 111 (FORMWORK)			
	Formwork			
36	Formwork to edges, risers, ends and reveals not exceeding 300mm high or wide	m	120	
37	Extra for floating off smooth tops of aprons to falls with a wood float.	m2	100	
	10mm Thick Jointex or other approved compressible joint filler			
38	10mm Joints not exceeding 300mm high	m	85	
	WORK GROUP 114 (REINFORCEMENT)			
	Reinforcement			
39	Reference 193 welded mesh reinforcement lapped 300mm at edge of adjoining sheets and bound with annealed wire and laying in concrete surface beds (Measured nett - no allowance made for laps)	m2	100	
	WORK GROUP 120(WATERPROOFING)			
	Waterproofing			
	Approved polysulphide sealing compound including backing cord, bond breaker, primer etc.:			
40	10mm Wide x 10mm deep in vertical expansion joints between concrete and concrete or brick surfaces, including raking out expansion joint filler as necessary	m	85	
	OPEN STORMWATER CHANNELS			
	Carried Forward			R

				R
	Brought Forward			
	WORK GROUP 104 (EARTHWORKS)			
	Earthworks			
41	Excavate for channel not exceeding 1m deep	m3	30	
42	Extra over excavation in earth for channel for excavation in soft rock	m3	3	
43	Ditto, in hard rock.	m3	2	
44	Extra over all excavations for carting away from the site surplus excavated material	m3	30	
45	Keep the rainwater channel excavations free from water		Item	
46	Scarify ground to a depth of 150 mm and re-compact to 90% Modified AASHTO density.	m2	100	
47	Approved G5 natural crushed stone as base course 150 mm thick compacted to 95% Modified AASHTO density under pavings	m3	15	
	WORK GROUP 110 (CONCRETE)			
	Concrete			
48	Cement concrete 30 MPa/20mm stone in stormwater channel	m3	10	
	WORK GROUP 111 (FORMWORK)			
	Formwork			
49	Semi smooth formwork to sides, edges and risers of stormwater channel not exceeding 300mm high or wide	m	182	
50	Extra for floating off smooth tops of stormwater dished drains to falls with a wood float	m2	100	
	10mm Thick Jointex or other approved compressible joint filler			
51	10mm Joints not exceeding 300mm high	m	182	
	WORK GROUP 114 (REINFORCEMENT)			
	Carried Forward			R

				R
	Brought Forward			
	Reinforcement			
52	Reference 193 welded mesh reinforcement lapped 300mm at edge of adjoining sheets and bound with annealed wire and laying in concrete stormwater channels (Measured nett - no allowance made for laps)	m2	100	
	WORK GROUP 120(WATERPROOFING)			
	Waterproofing			
53	10mm Wide x 10mm deep in vertical expansion joints between concrete and concrete or brick surfaces, including raking out expansion joint filler as necessary	m	182	
	OVERFLOW CHANNEL			
	WORK GROUP 104 (EARTHWORKS)			
	Earthworks			
54	Excavate to reduce levels in pickable material not exceeding 2m deep for overflow channel	m3	5	
55	Scarify ground to a depth of 150 mm and re-compact to 90% Modified AASHTO density.	m2	11	
56	Extra over all excavations for carting away from the site surplus excavated material	m3	5	
57	Approved G5 natural crushed stone consolidated in 150 mm thick layers and compacted to 95% Modified AASHTO density in stormwater channel overflow berm	m3	2	
	WORK GROUP 146 (DRAINAGE)			
	Reno Mattresses of 2,7mm diameter PVC coated galvanised wire boxes laced together and filled with broken stone			
58	300mm Thick Reno mattress formed of 3500 x 1000mm boxes properly bonded in accordance with the manufacturers instructions, the last 300mm to be buried into insitu ground.	No	3	
	WORK GROUP 110 (CONCRETE)			
	Carried Forward			R

				R
	Brought Forward			
	Concrete			
59	Cement concrete 30 MPa/19mm stone in reno mattress kicker beam or holding down strip	m3	2	
	RETAINING WALL			
	WORK GROUP 104 (EARTHWORKS)			
	Earthworks			
	The following in retaining walls **(as per attached Engineers retaining wall detail "TYP" 1):**			
60	Excavate in earth not exceeding 2m deep for retaining wall footings	m3	24	
61	Extra over excavations for excavating in soft rock	m3	2	
62	Extra over excavations for excavating in hard rock	m3	1	
63	Risk of collapse to sides of trench and hole excavations not exceeding 1,5m deep	m2	60	
64	Risk of collapse to sides of trench and hole excavations exceeding 1,5m deep	m2	108	
65	Cart away surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor.	m3	24	
66	Backfilling to trenches, holes, etc compacted to 98% MOD AASASHTO density	m3	41	
	WORK GROUP 110 (CONCRETE)			
	Concrete			
67	Concrete class 25MPa/19 in footings	m3	13	
	WORK GROUP 116(MASONRY)			
68	230mm Brick retaining wall in 1:5 cement mortar in stretcher bond	m2	135	
69	Extra over ordinary brickwork for **"Corobrick Firelight Satin FBX"** face brick retaining wall	m2	135	
	Carried Forward			R

				R
	Brought Forward			
70	Face brick soldier course band 160mm wide to top of one brick wall bedded in 1:5 cement mortar including pointing to sides and faces	m	135	
71	Bagging of 1:3 cement and sand mixture on the inner skin of brick wall to receive bitumen paint (elsewhere measured)	m2	135	
72	150mm Wide reinforcement built in horizontally	m	794	
	WORK GROUP 120(WATERPROOFING)			
	Waterproofing			
73	Two coats "Brixeal" bitumen emulsion waterproof coating on bagged surface	m2	135	
	WORK GROUP 114 (REINFORCEMENT)			
	Reinforcement			
74	High tensile steel reinforcement to concrete footings	t	3	
	WORK GROUP 146 (DRAINAGE)			
	Weepholes			
75	Supply and lay 50mm Diameter uPVC pipe through brick wall 230mm thick	No	20	
76	Supply and lay 19mm loose stones to form a drainage pocket 300 x 300 x 300mm in size at one end of each weep pipe, wrapped around with "Kaytech U24" or similar approved geofabric material	No	20	
	GREY WATER DISPOSAL			
	Class 34 uPVC pipes laid in and including class B bedding, compacted selected fill blanket, excavations and backfilling.			
77	110mm uPVC Pipes	m	134	
	Extra over uPVC pipes for fittings			
78	110mm fittings	No	65	
	Carried Forward			R

	Brought Forward			R
	Sundries			
79	110mm PVC gulley trap, head, grate and precast concrete gulley surround frame size 360 x 360mm set on concrete	No	6	
	INSPECTION CHAMBERS, MANHOLES, ETC			
	Supply and construct pre-cast concrete manholes, complete with cover and frame and and heavy duty precast concrete lid as per drawings within the following depth ranges (depth measured from invert level to top of the manhole)			
	1000mm dia. Manholes			
80	Over 1.5m up to 2.5m	No	4	
	SOAKAWAY			
81	1500 x 1500 x 2300mm deep french drain/soak away filled with 20-100mm washed stones covered with A6 Bidim wrap including 110mm diameter inlet pipe,300mm insitu material top layer and hipped imported material as specified by the engineer.	No	3	
	EROSION PROTECTION			
	Kaytech Soilsaver or other approved jute netting soil erosion protection matting			
82	Kaytech Soilsaver or other approved jute netting soil erosion protection matting in 1,22m wide rolls lapped 150mm at joints, pegged down to soil embankments at 1m grid intervals in both directions with 500mm long notched to snag fabric, all in accordance with the manufacturer's instructions	m2	560	
	Carried to Final Summary			R

Item No			Quantity	Rate	Amount
	SECTION NO.7				
	BILL NO 1				
	PRELIMINARIES & GENERALS				
	WORK GROUP 160 (ELECTRICAL INSTALLATION)				
	CONTRACTUAL ITEMS				
1	Provision of securities		Item		
2	Provision of Insurance		Item		
3	Allowance of twelve months guarantee of works		Item		
4	Provision of compliance certificates	No	3		
5	Other contractual items not detailed above		Item		
	FIXED COST ITEMS				
6	Establishment of offices on site		Item		
7	Establishment of storage facilities on site		Item		
8	Establishment of ablution facilities on site		Item		
9	Maintenance of offices, storage facilities and ablutions		Item		
10	Removal of storage of all facilities on completion of work		Item		
11	Other fixed costs not detailed above		Item		
	TIME RELATED ITEMS				
12	Project Supervision		Item		
13	Project Administration		Item		
14	Other overheads(travel, accomodation., etc)		Item		
15	Other time related items not detailed Above		Item		
16	Health and Safety representative of the electrical sub-contract, who should also be an accredited person registered as an installation electrician.		Item		
	Carried Forward			R	

	Brought Forward			R
	GENERAL ITEMS			
17	Training of clients representative(s) at ' practical completion"		Item	
18	Training of clients representative(s) at 'end of defects liability period"		Item	
19	Provision of record drawings		Item	
20	Provision of operating and maintenance manuals	No	3	
21	Other General Items not detailed above		Item	
	Carried Forward to Summary of Section No. 7			R

Item No			Quantity	Rate	Amount
	BILL NO 2				
	LV RETICULATION				
	WORK GROUP 160 (ELECTRICAL INSTALLATION)				
	LT DISTRIBUTION				
	DISTRIBUTION BOARDS				
	'Supply the following Distribution Boards complete with all switchgear, accessories as specified on the schematic layouts, all fitted in the factory and tested, including delivery to Site and off-loading but excluding cable terminations.				
1	'DB-A	No	1		
	'Install and connect up, including earthing and conduit terminations but excluding cable terminations.				
2	'DB-A	No	1		
	'CABLES and EARTH WIRE (PROVISIONAL)				
	'Rates to include for supply, delivery and installation via sleeves, cable tray or fixed to surface but excluding terminations, joints, cable trays or sleeves for 600/1000 Volts cables and earth wires:-				
	'PVC/PVC/SWA/ECC/PVC/ copper cables				
3	'6 mm² x 2 core	m	20		
4	'4mm² x 2 core	m	370		
	'CABLE TERMINATIONS				
	'Supply, delivery, installation and labour for making-off, terminating and connecting cables and earth wires including glands, shrouds, lugs and connections for the following cables and earth wires:-				
	'PVC/PVC/SWA/ECC/PVC/ copper cables				
5	'6mm² x 2 core	No	2		
	Carried Forward			R	

	Brought Forward			R
6	'4mm² x 2 core	No	8	
	'EARTHING AND BONDING			
7	'Earth and Bond the complete all the distribution boards in accordance with the Specifications and SANS Standards.		Item	
	'TEST AND COMMISSION			
8	'Test and Commission the complete installation in accordance with the Specifications and SANS Standards		Item	
9	'Issue a Certificate of Compliance (CoC) in accordance with the SANS 10142-1 (2017) requirements per DB.		Item	
	Carried Forward to Summary of Section No. 7			R

Item No			Quantity	Rate	Amount
	BILL NO 3				
	CABLE LADDER AND SLEEVES				
	WORK GROUP 160 (ELECTRICAL INSTALLATION)				
	SLEEVES				
	Supply and install the following underground sleeves				
1	50mm Diameter	m	3		
2	50mm Diameter slow radius bends	No	6		
3	75mm Diameter	m	335		
4	75mm Diameter slow radius bends	No	12		
	'EXCAVATION				
	'Excavate and backfill of a sleeve trench 600mm deep x 300mm wide including 200mm deep bedding material and compacting.				
5	'Ordinary material	m3	300		
6	'Extra over rate for soft rock	m3	50		
7	'Extra over rate for hard rock	m3	20		
	'SUNDRIES				
8	'Earth and Bond the complete Cable Racking distribution installation in accordance with the Specifications and SANS Standards.		Item		
	Carried Forward to Summary of Section No. 7			R	

Item No			Quantity	Rate	Amount
	BILL NO 4				
	LIGHTING AND SMALL POWER				
	WORK GROUP 160 (ELECTRICAL INSTALLATION)				
	'CONDUITS				
	'Supply and install PVC conduit complete with all accessories including couplings, bending, fixings and waste fixed as specified.				
1	20mm Conduit	m	360		
	'CONDUIT BOXES				
	'Supply and install boxes complete with all accessories, including conduit terminations				
2	'60 mm round, 60 mm deep PVC box for 20 mm conduit fixed in sofit or brickwork or ceiling void	No	60		
3	'100 x 50 x 50 mm galv. box, flush mounted in brickwork	No	5		
4	'100 x 100 x 50 mm galv. box, flush mounted in brickwork	No	1		
	'CONDUCTORS AND CABLES				
	'Supply and install PVC insulated copper conductors in required colours drawn into conduit or in trunking				
5	'1.5 mm²	m	1 080		
6	'2.5 mm²	m	4		
7	'4 mm²	m	4		
	'OCCUPANCY SENSORS				
	'Suppy, deliver and store the following occupancy sensor complete with all accessories				
8	'Occupancy sensor complete	No	12		
	'LIGHT SWITCHES				
	Carried Forward			R	

				R
	Brought Forward			
	'Flush mounted switch unit complete with cover plate and all accessories			
9	'16A, Single Lever, One Way	No	1	
10	'16A, 2 Lever, 1 Way	No	1	
11	'16A, 1 Lever, 2 Way	No	1	
12	'Photocell	No	4	
	'LIGHT FITTINGS			
	'Suppy, deliver and store the following light fittings complete; inclusive of lamps			
13	'Type B	No	36	
	'Install, fix and connect to surfaces as indicated, inclusive of lamps:			
14	'Type B	No	36	
	'ISOLATORS			
	'Supply and install isolators mounted as specified complete with cover plate and all accessories			
15	' 20 Amp Double pole surface isolators installed surface on wall, weather proof	No	4	
16	'30 Amp Double Pole Surface isolators installed surface on wall	No	2	
	'EARTHING AND BONDING			
17	'Earth and Bond the complete Bill No.2 installation in accordance with the Specifications and SANS Standards.		Item	
	'TEST AND COMMISIONING			
18	'Test and Commision the complete Bill No.2 installation in accordance with the Specifications and SANS Standards.		Item	
	Carried Forward to Summary of Section No. 7			R

Item No		Quantity	Rate	Amount
	BILL NO 5			
	LIGHTNING PROTECTION			
	WORK GROUP 160 (ELECTRICAL INSTALLATION)			
1	Allow for a provisional amount for installation of lightning protection in ablution blocks.	Item		
	Carried Forward to Summary of Section No. 7		R	

SECTION SUMMARY - ELECTRICAL INSTALLATION

Bill No		Page No	Amount
1	PRELIMINARIES & GENERAL	134	
2	LV RETICULATION	136	
3	CABLE LADDER AND SLEEVES	137	
4	LIGHTING AND SMALL POWER	139	
5	LIGTHNING PROTECTION	140	

Carried to Final Summary R

Item No		Quantity	Rate	Amount
	OCCUPATIONAL HEALTH & SAFETY			R
	Carried to Final Summary			R

SECTION NO.6 (OCCUPATIONAL HEALTH AND SAFETY)

HEALTH AND SAFETY IMPLEMENTATION AND MANAGEMENT COSTING

Due to the nature of this project, the contractor must keep this page updated as work progresses. Items may be added or deleted if required.

ITE	DESCRIPTION	UNIT	QUAN-TITY	MONTHS(Indicative	RATE	AMOUNT(a)x(b)
1	**MEDICALS**					
1.1	Pre-employment medical	Nr.				
1.2	Psychological medical for working at heights	Nr.				
1.3	Psychological medical for working motorized equipment & construction machinery	Nr.				
1.4	Re-medicals – yearly (When required)	Nr.				
	OTHER ITEMS					
	TOTAL					
2	**PERSONAL AND GENERAL PROTECTIVE EQUIPMENT**					
2.1	Overalls Blue (X2, SABS Approved)					
2.2	Hard Hats					
2.3	Safety Boots/Shoes. Steel toecap Gumboots					
2.4	Gloves					
2.5	Hearing Protection					
2.6	Eye Protection					
2.7	Reflective vests					
2.8	Orange Star Netting - 1.2m High	m				
2.9	Orange Plastic Road cones	Nr.				
2.10	Plastic Reinforce Caps (Rebar)	Nr.				
2.11	Dust masks	Nr.				
	OTHER ITEMS					
	TOTAL					
3	**FIRE FIGHTING**					
3.1	Fire extinguishers - 4.5Kg	Nr.				
3.2	Training	Nr.				
3.3	Surveys	Nr.				
3.4	Other - Drip trays	Nr.				
	OTHER ITEMS					
	TOTAL					
4	**HEALTH AND SAFETY PERSONNEL**					
4.1	Part -Time Safety Officer, Registered with SACPCMP (To visit site once a week to conduct audits and inspections)	Nr.				
4.2	Full time Safety Representatives (if meet the threshold)	Nr.				
4.3	Fire Watcher	Nr.				
4.4	First Aider	Nr.				
4.5	Construction Phase SHE Plan					
	OTHER ITEMS					
	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	Running water	Nr.				
	OTHER ITEMS					
	TOTAL					
6	**FALL PREVENTION / PROTECTION**					
6.1	Safety harnesses with double lanyards	Nr.				
6.2	Lanyard extenders	Nr.				
6.3	Scaffold hooks	Nr.				
6.4	Lifelines and vertical fall arrest systems	Nr.				
6.5	Scaffolding – material, erection and inspection (Estimate for project)	Nr.				
6.6	Temporary hand railing material and kick flats	Nr.				
6.7	Inspection for approval of equipment	Nr.				
6.8	Chin Straps/Toolbags/Wrist straps	Nr.				
	OTHER ITEMS	Item				
	TOTAL					
7	**VEHICLE / MOBILE EQUIPMENT UPGRADE FOR USE ON SITE**					
7.1	Raised lights	Nr.				
7.2	Rotating orange light	Nr.				
7.3	Flag as per procedure	Nr.				
7.4	Fire extinguisher - 4.5Kg	Nr.				
7.5	First aid box	Nr.				
7.6	Reflector tape	m				
7.7	Danger Tape	Rolls				
7.8	Signage	Nr.				
7.9	Roll over & fall over protection	N/A				
7.10	Safety belts for all passengers (LDV)	N/A				
7.11	Wheel; Chocks	N/r				
7.12	Directional control Signage	N/r				
	OTHER ITEMS					
	TOTAL					
8	**LIFTING MACHINERY AND EQUIPMENT (When required)**					
8.1	Annual inspections and load testing as per legal requirement	Nr.				
8.2	Certification of all lifting gear during the course of the project	Nr				
8.3	Third Party Inspections	N/r				
8.4	Inspections for approval of equipment (AIA)	N/r				
8.5	Slings	N/r				
8.6	Chains	N/r				
	OTHER ITEMS					

	TOTAL					
9	**INSURANCES**					
9.1	COID cover for the project	Nr.				
9.2	Liability insurances	Nr.				
	OTHER ITEMS					
	TOTAL					
10	**FIRST AID**					
10.1	First aid boxes	Nr.				
10.2	Rescue equipment and stretchers (When required)	Nr.				
10.3	Replenishment of boxes and other supplies	Nr.				
10.4	Hazchem Spill kits (When required)	Nr.				
	OTHER ITEMS					
	TOTAL					
11	**TRAINING**					
11.1	SHE Representative	Nr.				
11.2	Supervisor A2 (No cost)	Nr.				
11.3	First Aid Level 2	Nr.				
11.4	Fire Fighting	Nr.				
11.5	Legal Liability (Construction Manager & Construction Supervisor)	Nr.				
11.6	Scaffold Inspector					
11.7	Scaffold Erector					
11.8	Basic Working at Heights (For employees conducting working at height activities)					
	OTHER ITEMS					
	TOTAL					
12	SIGNAGE					
12.1	All signage as required by law: regulatory, warning and information	Nr				
	OTHER ITEMS					
	TOTAL					
13	ELECTRICAL (When required)					
13.1	Locks required for lockouts	Nr.				
13.2	Tags	N/r				
13.3	Permit Books	N/r				
13.4	Callipers	N/r				
13.5	Key Safes	N/r				
	OTHER ITEMS					
	TOTAL					
14	PLANT & SCAFFOLDING (When required)					
14.1	Telescopic Hoist	month				
14.2	TH-Driver	month				
14.3	Scaffolding	month				
	OTHER ITEMS					
	TOTAL					
	Carried to Final Summary					

SECTION SUMMARY - OCCUPATIONAL HEALTH & SAFETY

Bill No		Page No	Amount
	HEALTH & SAFETY		
1	OCCUPATIONAL HEALTH & SAFETY	142	
	Carried to Final Summary		R

FINAL SUMMARY

Section No		Page No		Amount
1	PRELIMINARIES & GENERAL	17		
2	ALTERATIONS(ALTERATIONS)	20		
3	PROTOTYPE 4A-F	54		
4	PROTOTYPE 4A-M	88		
5	PROTOTYPE 1A-R	122		
6	SITE WORKS	132		
7	ELECTRICAL INSTALLATION	141		
8	OCCUPATIONAL HEALTH & SAFETY	143		
	Sub Total		R	
	ADD:Value added Tax @ 15%		R	
	Carried to Form of Tender		R	

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

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:	**ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**		
Tender no:	**ZNTU01989W**	**Project Code:**	**059196**

SECTION 1

1 EXTENT OF THE WORKS

1.1 EMPLOYERS OBJECTIVES

The upgrade of the various school's existing sanitation infrastructure including associated external works.

1.2 OVERVIEW OF THE WORKS

The upgrade of the school's existing sanitation infrastructure, constructing new toilet blocks etc, including external works and temporary hoarding.

1.3 EXTENT OF THE WORKS

Upgrade the existing school sanitation infrastructure which may include demolitions while the existing school is in operation, including external works, and new walkways, etc. and switching over to the new system upon completion as descibed in the architects drawings and the attached bills of quantities

1.4 LOCATION OF THE WORKS

374 D Section, Paul Pietersburg

1.5 TEMPORARY WORKS

All temporary work to comply with the Occupational Health and safety Act (Act 85 of 1993)

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, 2022, 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 14 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:**
	Consult Three Architects & Associates (Pty) Ltd
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 will invalidate the tender. 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: 059196
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
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ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

PART C4. SITE INFORMATION

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

Project title:	**ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**		
Tender No.	**ZNTU01989W**	**Project Code:**	**059196**

C4.1 Site Information

C4.1 GENERAL

(a) The existing school grounds are located in an area which is dominated by gently rolling hills. The site is relatively open and existing structures are mostly positioned in the lower northern section of the site. Open areas are typically grassed over and free of obstruction. The site slopes gently from north to south with structures being placed on small cut and fill platforms. Existing structures on site comprise single storey units ranging from concrete (3x) block and stone (1x) construction to prefabricated (1x).

(b) Specific requirements must be described.

(c) Any additional site information such as location, improvements on site, adjacent buildings, environmental issues, etc. must be described in detail herein. If project is phased, indicate the phased work procedure with a colour coded site plan or graphical key or sorts.

C4.2 GEOTECHNICAL INVESTIGATION REPORT

(a) Included

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

PART C5 - DRAWINGS / ANNEXURES

C5.1 - LIST OF DRAWINGS/ANNEXURES

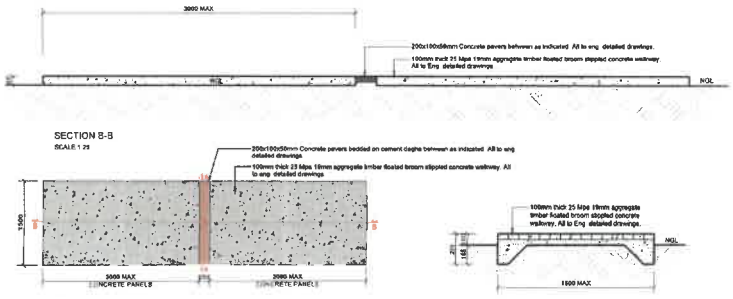
ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

Tender No.:	ZNTU01989W	Project Code:	059196

(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
201505-KHM-001	SITE DEVELOPMENT PLANS
201505-100-PROTOTYPE 1A-R	FLOOR PLAN,ROOF PLAN;SECTIONS AND ELEVETIONS
201505-102-PROTOTYPE 1A-R	SCHEDULES AND DETAILS
201505-150-PROTOTYPE 4A-F	FLOOR PLAN DETAILS
201505-151-PROTOTPE 4A-F	ELEVATIONS
201505-150-PROTOTYPE 4A-M	FLOOR PLAN DETAILS
201505-151-PROTOTPE 4A-M	ELEVATIONS AND SECTIONS
201505-153-PROTOTPE 4A-M	SCHEDULES
2023-35/-01	HARD SURFACES, STORMWATER AND GREY LAYOUT
2023-35/-02	HARD SURFACES, STORMWATER AND GREY LAYOUT



GENERIC WALKWAY PLAN
Scale: AS INDICATED

LEGEND	
EXISTING BUILDINGS	Not part of the sanitation programme.
PROPOSED NEW ABLUTIONS	Proposed new ablutions
RENOVATIONS	Existing ablutions to be renovated
TO BE DEMOLISHED	Existing ablutions to be demolished
PROPOSED NEW WALKWAYS	Proposed new 100mm thick 25 Mpa 19mm aggregate timber floated broom stippled concrete walkway with 200x100x50mm concrete pavers between as indicated All to Eng. detailed drawings.
	Existing boundary fence
	Proposed new hoarding

PROTOTYPES	
TYPE	BLOCK NAME
PROTOTYPE 1-AR	BLOCK A
PROTOTYPE 4-AF	BLOCK B
PROTOTYPE 4-AM	BLOCK C

EMIS No.	SCHOOL NAME
5501173086	KHAMBULA COMBINED SCHOOL

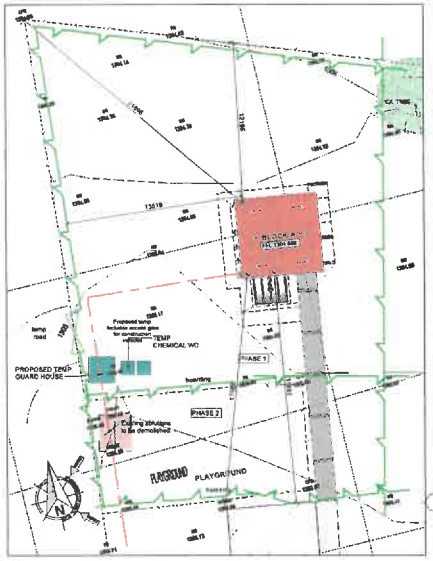
ENROLMENT: No of Grade R learners: 20 | No of learners Grade 1 - 12: 230

TABLE 2: DBE Minimum Norms and Standards

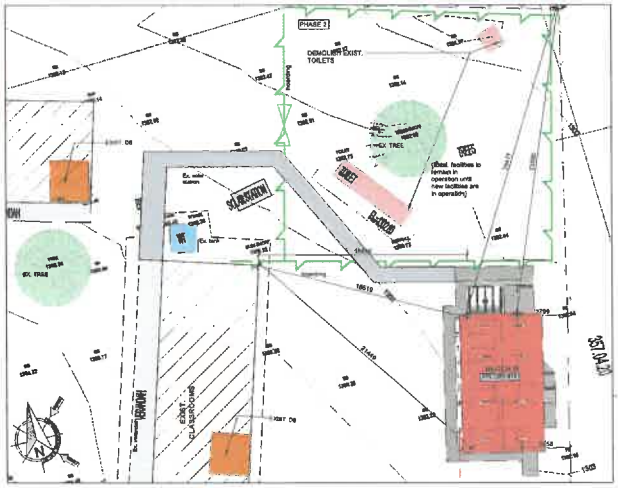
The facilities shown below are the minimum requirement as per DBE Minimum Norms and Standards and have been stipulated from the National Building Regulations (SANS 10400- P:2010) Table 6 (Personnel) and Table 7 (Learner)

SANITATION FACILITIES	Norms			Actual			Required		
	Toilet Seats	Urinals	Wash Basins	Toilet Seats	Urinals	Wash Basins	Toilet Seats	Urinals	Wash Basins
Girls' facilities	6		6				6		6
Boys' facilities	3	6	3				3	6	3
Female Teachers' facilities	2		2				2		2
Male Teachers' facilities	1	2	1				1	2	1
Disabled Toilets (Males+ toilet)	1		1				1		1
Grade R Toilets									
Grade R Teachers' Toilets									
TOTALS	13	8	13	0	0	0	13	8	13

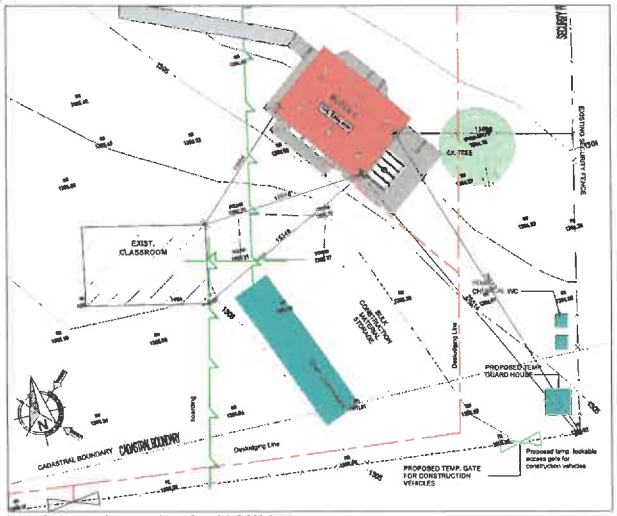
Norm Ratios		Actual Ratios	
Learner Toilet Ratio	Learner Wash basin	Learner Toilet Ratio	Learner Wash basin
1:17	1:20	0:00	0:00



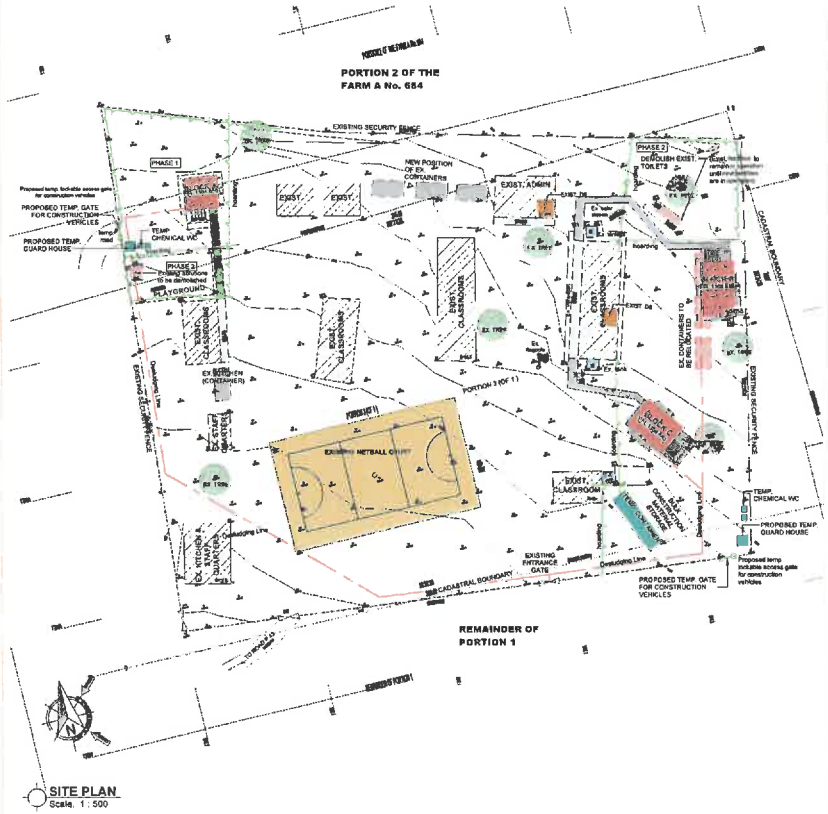
SITE SETTING OUT PLAN BLOCK A
Scale: 1 : 200



SITE SETTING OUT PLAN BLOCK B
Scale: 1 : 200



SITE SETTING OUT PLAN EAST - BLOCK C
Scale: 1 : 200



SITE PLAN
Scale: 1 : 500

IMPORTANT NOTE:
THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY PART OF THE WORK. ERRORS, DISCREPANCIES OR OMISSIONS ARE TO BE REPORTED TO THE ARCHITECT FOR CLARIFICATION.

GENERAL NOTES:

SITE ACCESS
Main access to the construction yard to be arranged on site. Where direct access from the approach road is convenient and all other access options exhausted but via the abutting property, the contractor to arrange with adjoining owner a public works to gain access across such land.

HOARDING & ACCESS GATE
HOARDING - 1800mm high from ground level
Final hoarding and gates to be erected before any work may commence on the site.

MAIN WELDED MESH FENCE
2.5mm diameter galvanized straining wires securely tied to 100-120mm by 2.7m long 6mm Gumpole posts at 3.3m centres with wire clamps and 10-nailed stable nails at top midway and at the bottom of the fence

WELDED MESH: 1980mm x100x50x2 5mm lightly galvanized standard mesh fence. Securely and neatly clamp fixed to straining wires and to gum poles with galv staples ready to receive the shade cloth covering
FOR A FULL DESCRIPTION REFER TO THE SPECIFICATION

VEHICULAR ACCESS GATE: 4 200mm wide x 1800mm high double swing-gates. Pair of gates of 43mm/h tubular galv steel with steel rail anti-sag bars and galv welded mesh and shade cloth covering as for the fence. Securely pin-hinged on two individual and separate 120mm/h gum-pole posts secured in 450x1 60x900mm deep concrete footings

SHADE CLOTH COVERING
Knitted (or similar) Permeable Netting knitted from plastic mesh fabric, manufactured from High Density Polyethylene, high quality pigments and UV stabilisers. Colour: Dark Green. Cover factor 95%. Width 1.8 metre to be the height of hoarding, in Lengths of 50 metre + to serve as visual barrier and to avoid in dust control
Damages and sagging to be repaired during the full course of the construction period for the project
The total hoarding fence structure to be kept clean and to be maintained for the full duration of the contract period and only removed as and when directed by the Architect.
FOR A FULL DESCRIPTION REFER TO THE SPECIFICATION

CIVIL WORKS:
All civil works to be strictly executed as per the Civil Engineer's drawings and specifications and is subject to approvals from the engineer as the work progresses.
Final positions of septic tanks, soak-aways and trench drains to be determined on-site in conjunction with the Principal Agent the Engineer and the Health & Safety Agent

STRUCTURAL WORK
All structural work to be strictly executed as per the Engineer's drawings and specifications and is subject to approvals from the engineer as the work progresses

Revisions Record

No	Date	Description	Rev by
-	-	-	-

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Consultant
Name
Signature Date
Consultant

C3A
Consult Three Architects & Associates

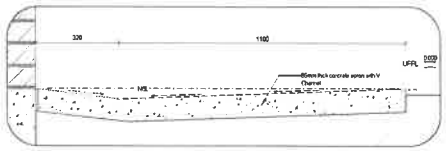
DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
KHAMBULA COMBINED SCHOOL
ZULULAND DISTRICT MUNICIPALITY
EDUMBE LOCAL MUNICIPALITY
27°37'59.85"S 30°41'4.61"E

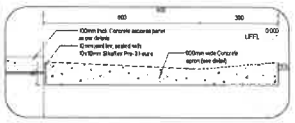
Drawing Description
SITE DEVELOPMENT PLAN

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Scale: As Indicated | Date: 2023.08.11
Consultant Drawing Number: 201505 - KHM - 001 | Revision: 00
WIMS No: WIMS NO: 059196
STAMPED BY PLANS APPROVAL COMMITTEE

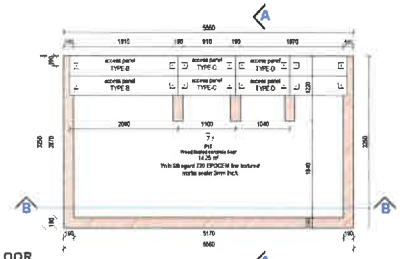
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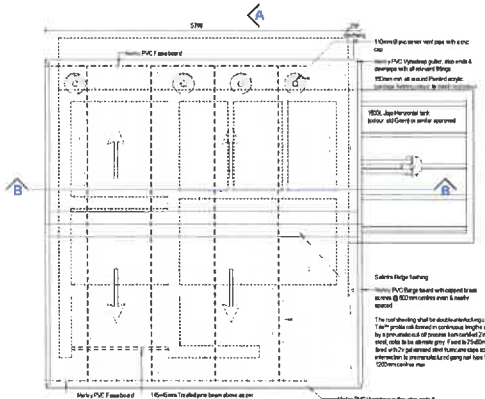
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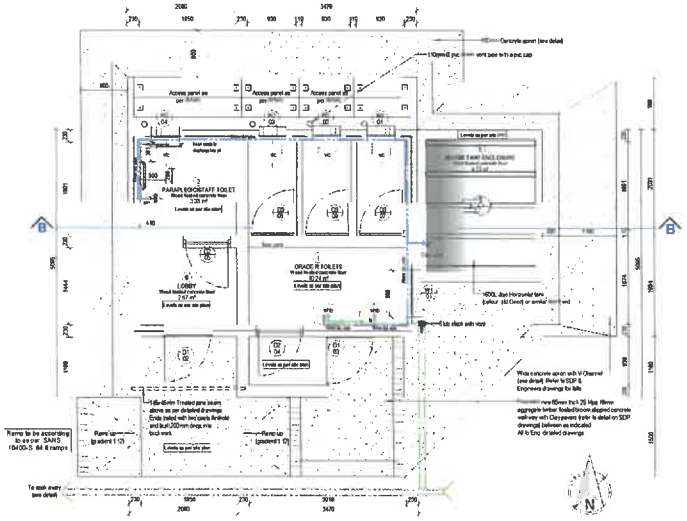
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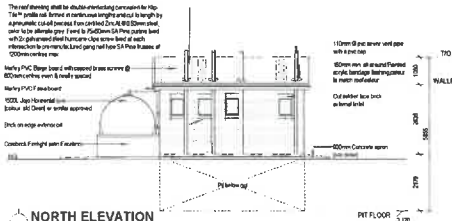
PIT FLOOR
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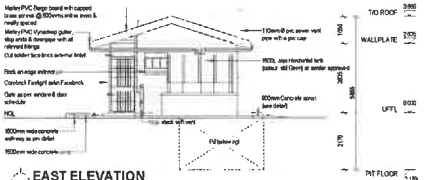
ROOF PLAN
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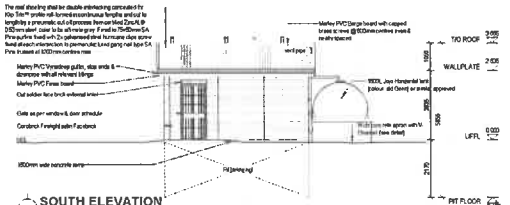
FLOOR PLAN
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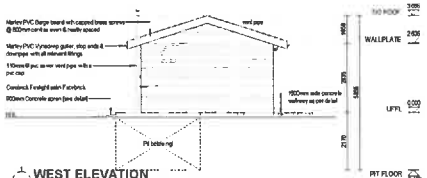
NORTH ELEVATION
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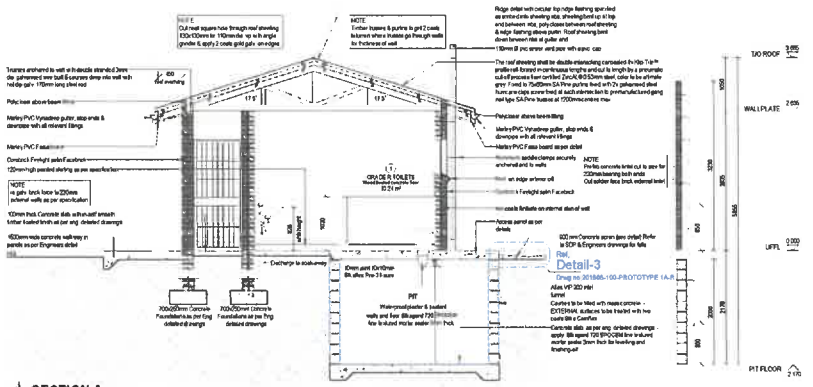
EAST ELEVATION
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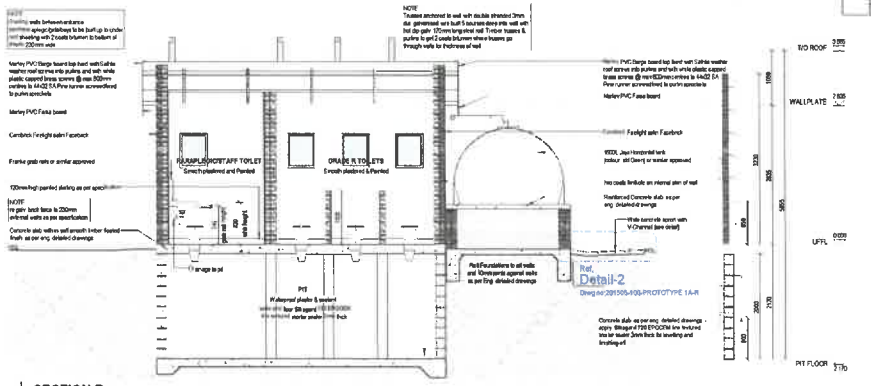
SOUTH ELEVATION
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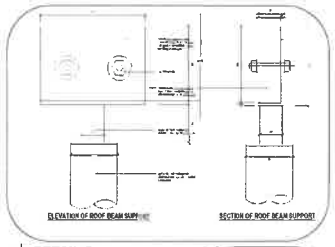
WEST ELEVATION
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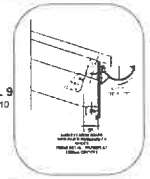
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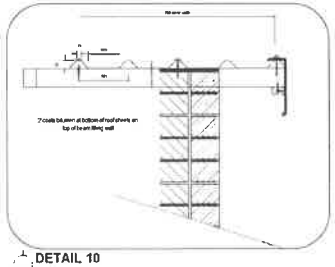
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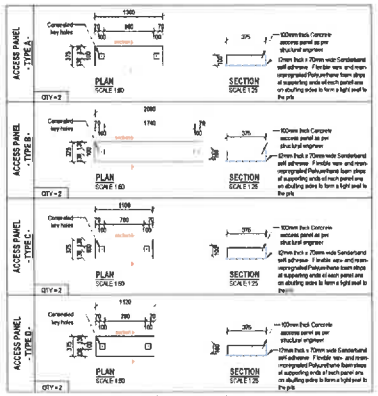
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DETAIL 9
Scale: 1 : 10

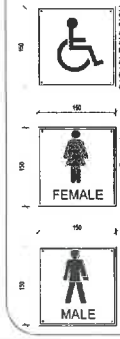


DETAIL 10
Scale: 1 : 10



All panels to be sized / reinforced as per engineer's specifications

SIGNAGE



150x150mm white ABS plastic with square corners and standard international symbols, black engraved, male, female and paraplegic signage as for WBH B3344, 3345, 3346, fixed with 35mm long flat-head stainless screws - plastic fugged to walls above the entrance openings.
The rear of signage-pates and the plastic wall plugs epoxy glued to walls.

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Revisions Record

Nr	Date	Description	Rev. by

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by: Consultant

Name

Signature / Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
NORTH COAST SCHOOL SANITATION PROGRAMME

PROPOSED PROTOTYPE 1 A-R

Drawing Description
FLOOR PLAN, ROOF PLAN, SECTIONS AND ELEVATIONS

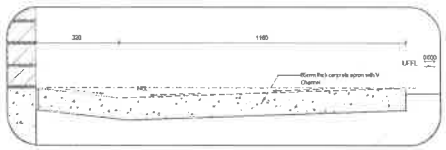
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Date: 07.02.2017

Consultant Drawing Number
201505-100-PROTOTYPE 1A-R
Revision

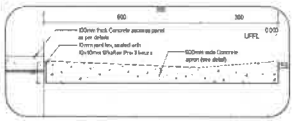
WIMS No
WIMS NO.

STAMPED BY PLANS APPROVAL COMMITTEE

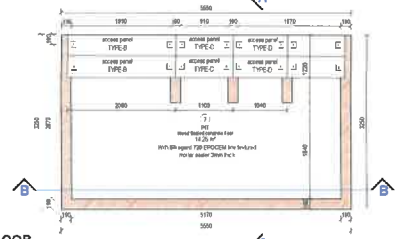
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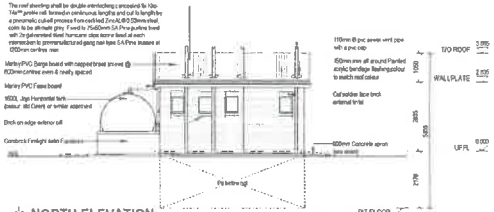
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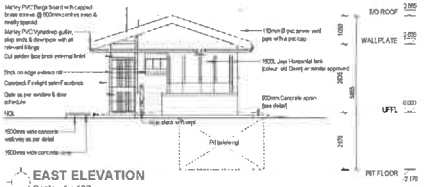
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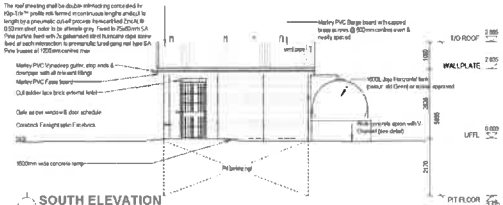
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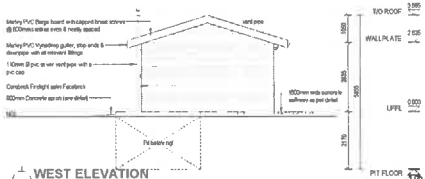
NORTH ELEVATION
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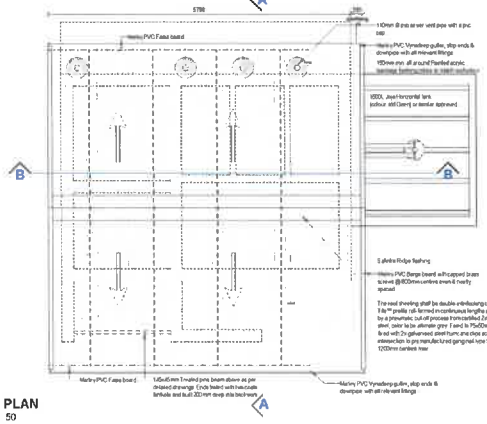
EAST ELEVATION
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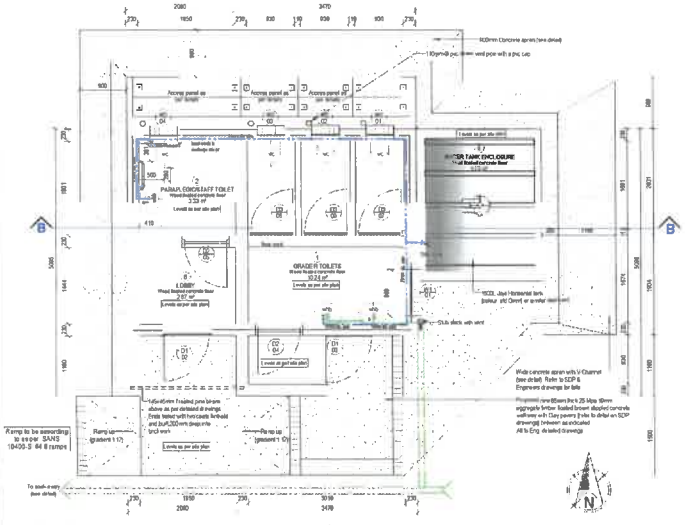
SOUTH ELEVATION
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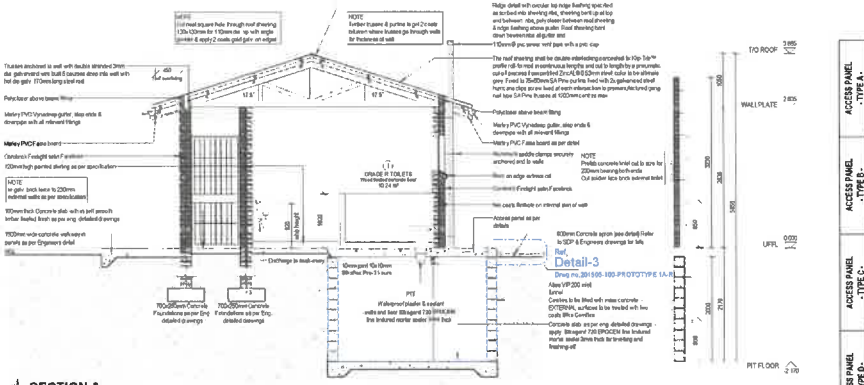
WEST ELEVATION
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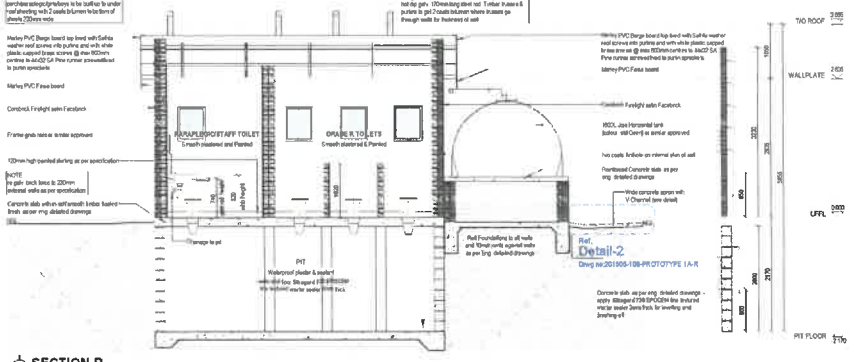
ROOF PLAN
Scale: 1 : 50



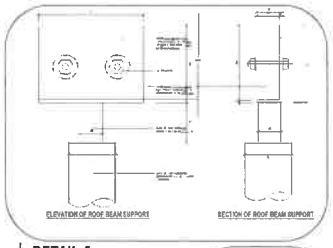
FLOOR PLAN
Scale: 1 : 50



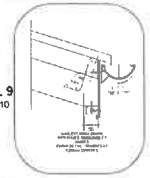
SECTION A
Scale: 1 : 50



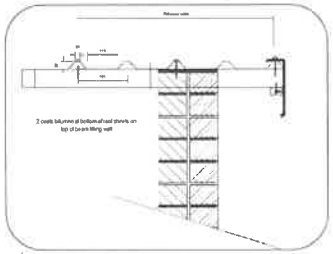
SECTION B
Scale: 1 : 50



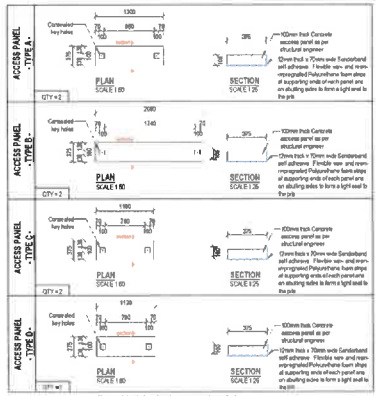
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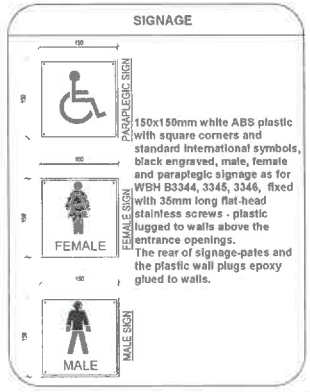


DETAIL 9
Scale: 1 : 10



DETAIL 10
Scale: 1 : 10





SIGNAGE

150x150mm white ABS plastic with square corners and standard international symbols, black engraved, male, female and paraplegic signage as for WSH B3344, 3345, 3346, fixed with 35mm long flat-head stainless screws - plastic plugged to walls above the entrance openings.
The rear of signage-pates and the plastic wall plugs epoxy glued to walls.

IMPORTANT NOTE:
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Revisions Record

Nr	Date	Description	Rev by

CLIENT DEPARTMENT SIGNATURES
FACILITY STAMP

FACILITY MANAGER
INFRASTRUCTURE MANAGER
GENERAL MANAGER

Checked by Consultant:
Name
Signature
Date
Consultant

C3A
Consult Three Architects
Registered Architects | Interior Designers | Project Managers
Telephone: 033 342 4444 | Fax: 086 695 2444 | Cell: 082 444 3444
Postal: P.O. Box 1234 | Pietermaritzburg | 3200
tel: +27 33 342 4444 fax: +27 86 695 2444 cell:
e-mail: c3a@mweb.co.za
Registration Number: 2002 / 567 / 23 | vat no: 4000 0000 00 00

DEPARTMENT OF PUBLIC WORKS
NO PUBLIC WORKS
NORTH COAST REGION

Project
NORTH COAST SCHOOL SANITATION PROGRAMME

PROPOSED PROTOTYPE 1 A-R

Drawing Description
FLOOR PLAN, ROOF PLAN, SECTIONS AND ELEVATIONS

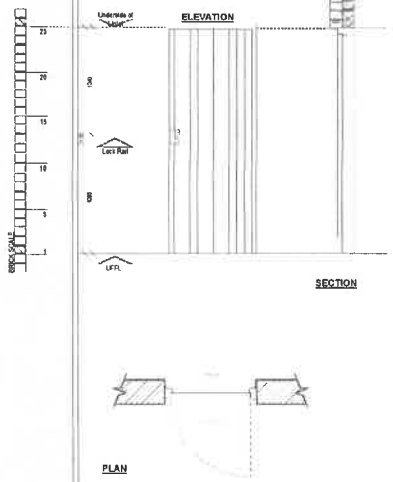
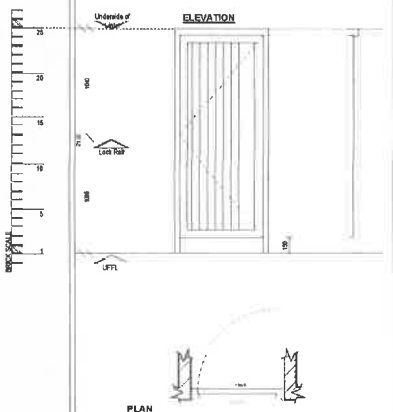
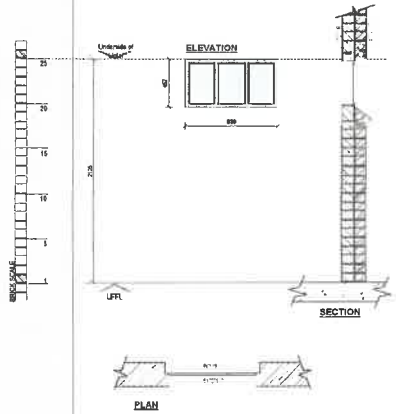
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Date: 07 02 2017

Consultant Drawing Number
201505-100-PROTOTYPE 1A-R
Revision

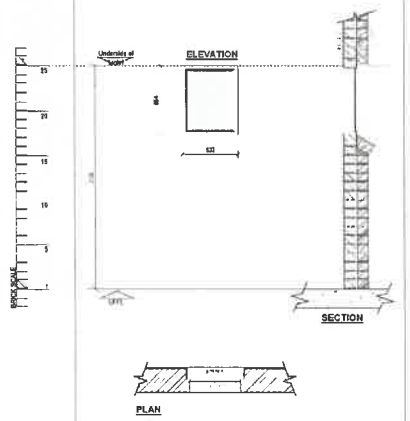
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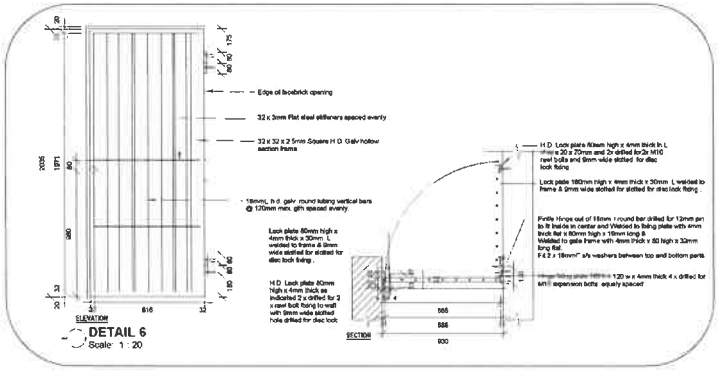
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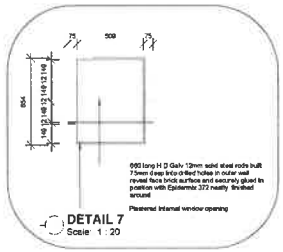
DOOR TYPE:	D1	DOOR TYPE:	D2	DOOR TYPE:	D3	DOOR TYPE:	W1
							
DOOR & FRAME:	As Indicated	DOOR & FRAME:	Frame : Robmeg or equally approved 1,2mm Pre Galvanised pressed steel screwed doublle rebated door frame to suit door size 813 x 2032mm high, for 230mm wall Note. Frame to be prepared for hinges by other elsewhere specified Door 2032x813x40mm TDM hardwood doorswith double top & bottom rails, tounge and groove boarding in v-joint rail, 20x150mm middle ledge, 20x225mm bottom ledge and 20x110mm braces Apply wood primer, one coat undercoat and two coats gloss paint or similar approved	DOOR & FRAME:	44mm Thick solid timber door with vertical V/g boarding on both sides & hardwood edging both vertical sides. All to comply with the SABS 545. Make sure surface is clean, dry & dust free, apply primer, undercoat and finish with two coats of Plascon Enamel Doors & Iimns Standard approved hardwood 108x44mm rebated, 5x5mm inner rebate and 14x14mm chamfered outward exposed edge for stiles and top lreme securely retro-fixed to walls - 12x12mm quadrants all round in-side - prepared for paintwork	DOOR & FRAME:	Standard 889x457mm Bottom hung opening inwards hot dipped galvanised steel windows as per Steel windows 2000 or similar approved Refer to spec 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 8
GLAZING:	N/A	GLAZING:	N/A	GLAZING:	N/A	GLAZING:	6.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	2	QUANTITIES:	2	QUANTITIES:	3	QUANTITIES:	1
IRONMONGERY SET:	Refer to spec	IRONMONGERY SET:	1x UNION or equally approved 4 Lever Mortice Sash Lock (2277) fitted in accordance with manufacturers recommendations.	IRONMONGERY SET:	1 set ASSA ABLOY or equally approved surface mount indicator bolt in stainless steel finish, code CH2104 fitted in accordance with manufacturers recommendations.	IRONMONGERY SET:	Refer to spec

SEE DETAIL 6 REGARDING THE GATE

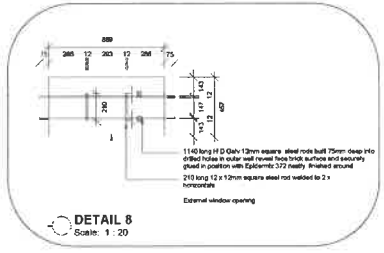
DOOR TYPE:	W2
	
DOOR & FRAME:	Standard 533x864mm top hung hot dipped galvanised steel windows as per Steel windows 2000 or similar approved Refer to spec 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 7
GLAZING.	6.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	4
IRONMONGERY SET:	Refer to spec



DETAIL 6
Scale 1 : 20



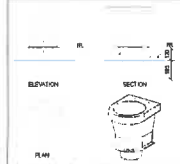
DETAIL 7
Scale 1 : 20



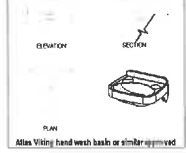
DETAIL 8
Scale 1 : 20

GENERAL NOTE:
REFER TO FINISHING SPECIFICATIONS

SANITARY



Atlas VIP toilet & Atlas VIP 200 Inlet funnel or similar



Atlas Viking hand wash basin or similar approved

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Revisions Record

No	Date	Description	Rev by
01	2020/10/14	Roof specification revised and truss spacing to be at max 1760mm centers	AS
02	2019/09	1 Vertical Joie change to Horizontal Joie 2 Water Tank cover omitted	RS

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by: Consultant

Name

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
NORTH COAST SCHOOL SANITATION PROGRAMME

PROPOSED PROTOTYPE 1 A-R

Drawing Description
SCHEDULES AND DETAILS

Drawn B Isaac
Scale: As indicated Date: 08/2018

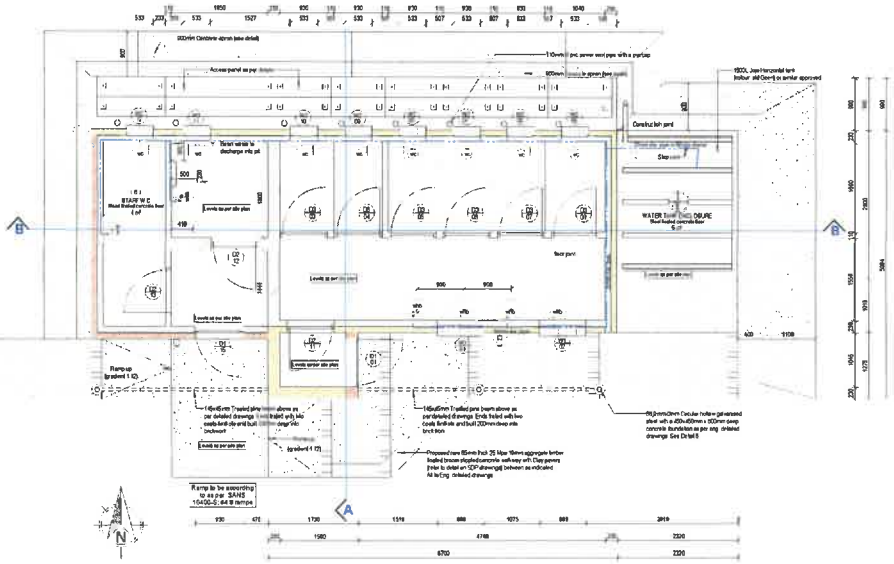
Consultant Drawing Number
201505-102-PROTOTYPE 1A-R Revision 02

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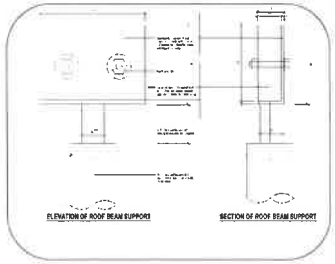
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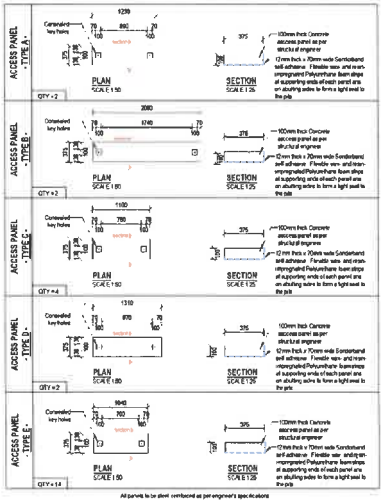
IMPORTANT NOTE:
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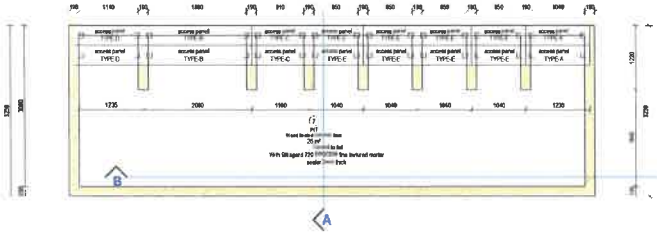


FLOOR PLAN
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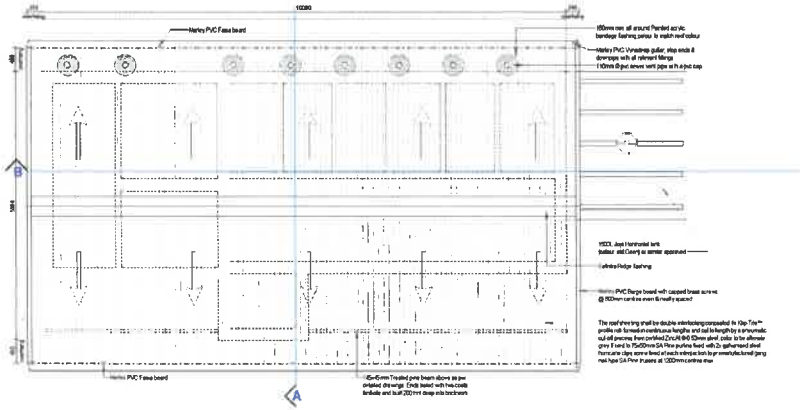


DETAIL 5
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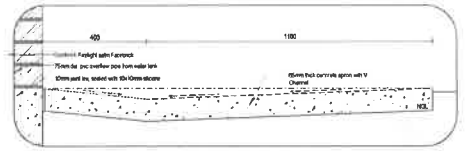




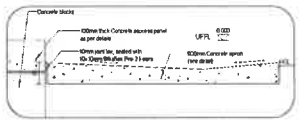
PIT FLOOR
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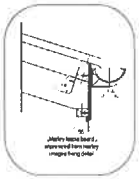
ROOF PLAN
Scale: 1 : 50



DETAIL 2
Scale: 1 : 10

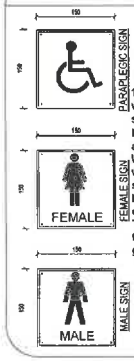


DETAIL 3
Scale: 1 : 10



DETAIL 9
Scale 1 : 10

SIGNAGE



150x150mm white ABS plastic with square corners and standard International symbols, black engraved, male, female and parapiegic signage as for WBH B3344, 3345, 3346, fixed with 35mm long flat-head stainless screws - plastic lugged to walls above the entrance openings.
The rear of signage-pates and the plastic wall plugs epoxy glued to walls.

SIGNAGE
Scale: 1 : 5

Revisions Record

No	Date	Description	Rev. by

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Consultant
Name

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS

NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description
Floor plans & Details

Drawn B User
Scale As indicated Date 25-04-2018

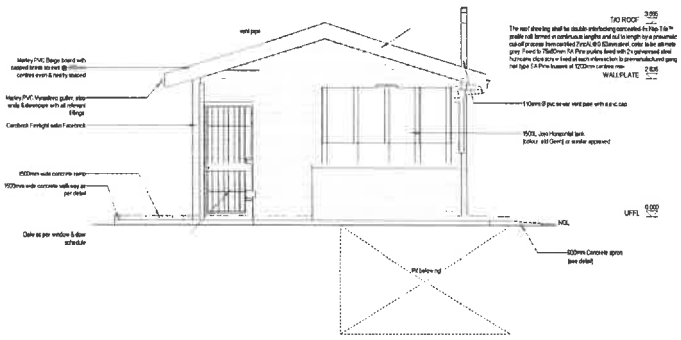
Consultant Drawing Number
201505-150-PROTOTYPE 4A - F

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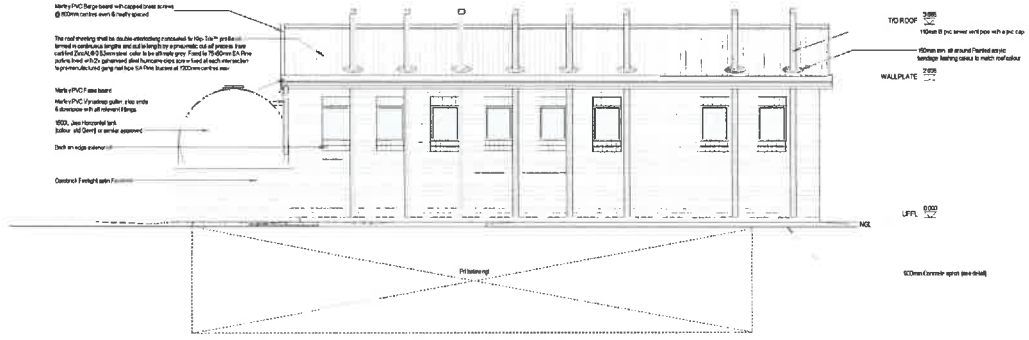
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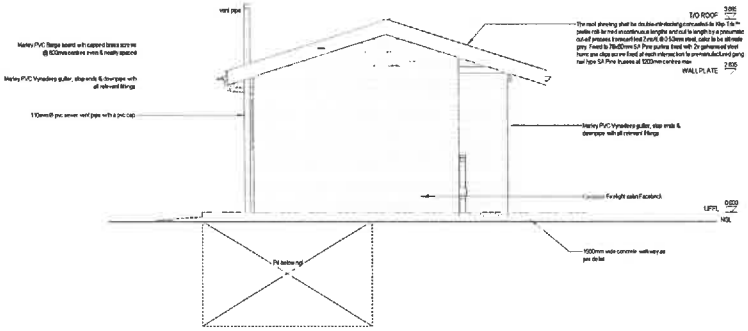
IMPORTANT NOTE
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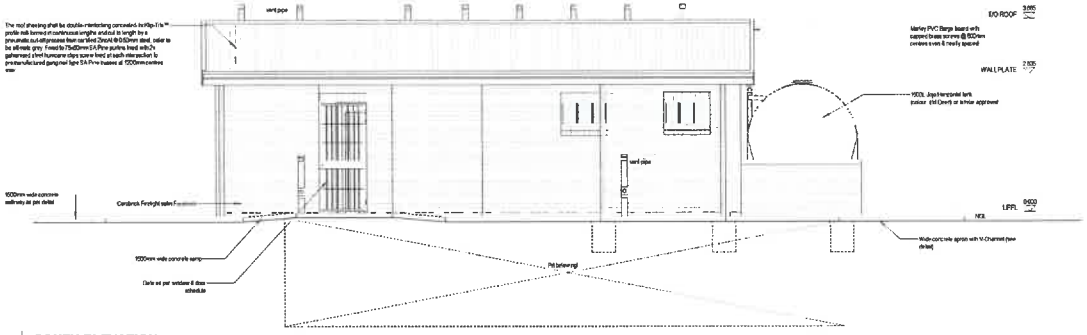
EAST ELEVATION
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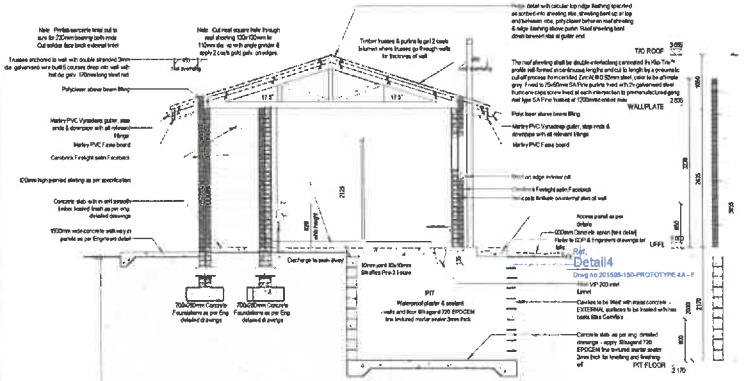
NORTH ELEVATION
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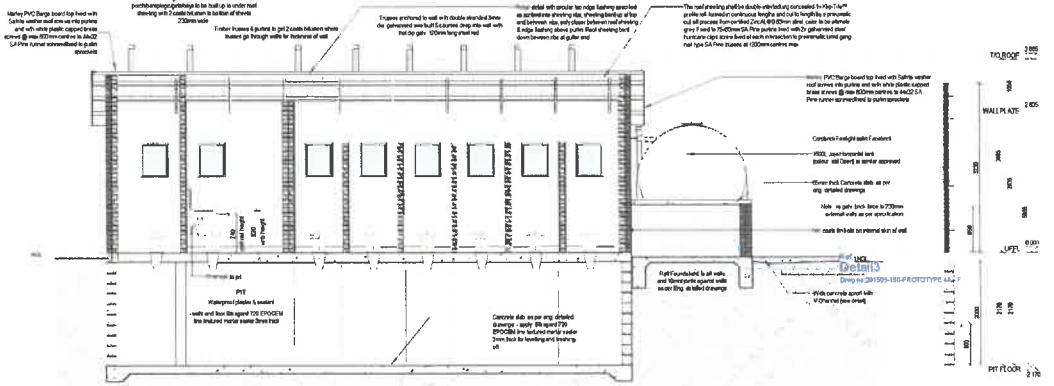
WEST ELEVATION
Scale 1 : 50



SOUTH ELEVATION
Scale 1 : 50



SECTION A
Scale 1 : 50



SECTION B
Scale 1 : 50

Revisions Record

No.	Date	Description	Per. by

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Consultant

Name.

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description
Elevations

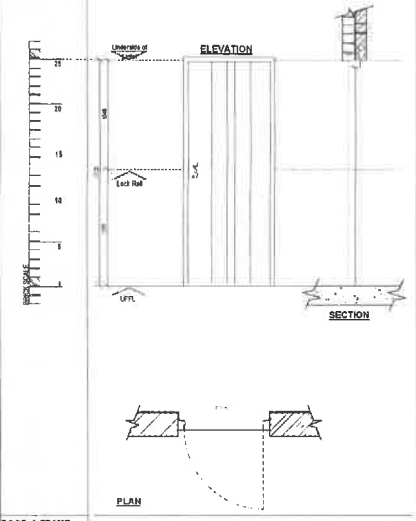
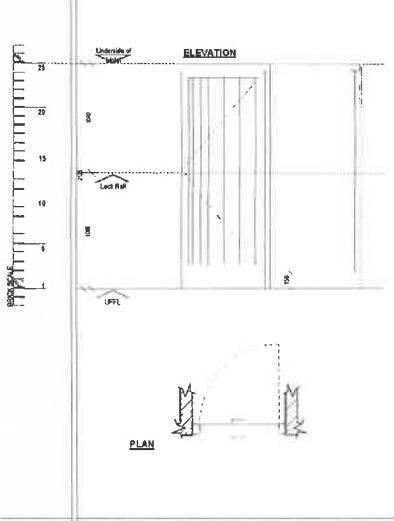
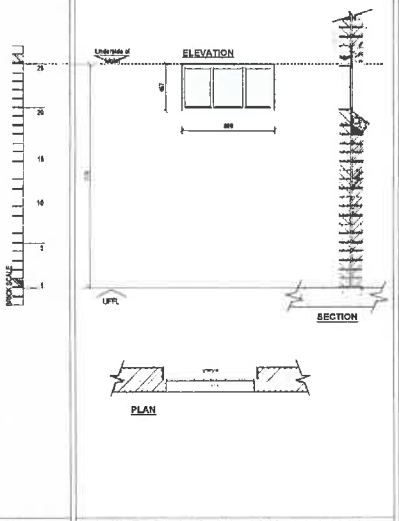
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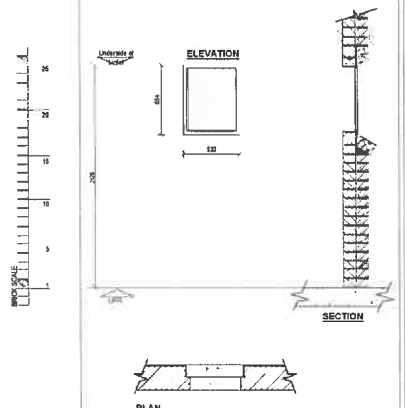
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201505-151-PROTOTYPE 4A - F

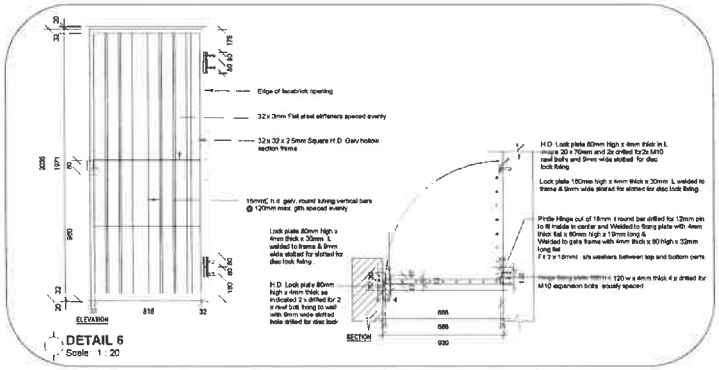
WIMS No
WIMS NO: 201422

STAMPED BY PLANS APPROVAL COMMITTEE

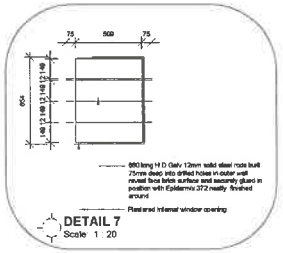
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DOOR TYPE:	D1	DOOR TYPE:	D2	DOOR TYPE:	D3	DOOR TYPE:	W1
							
	SEE DETAIL 6 REGARDING THE GATE		ELEVATION, SECTION, PLAN		ELEVATION, PLAN		ELEVATION, SECTION, PLAN
DOOR & FRAME:	As Indicated	**DOOR & FRAME:**	Frame: Robmeg or equally approved 1,2mm Pre Galvanised pressed steel screeded double rebated door frame, to suit door size 813 x 2032mm high, for 230mm wall. Note: Frame to be prepared for hinges by other elsewhere specified Door :2032x813x40mm TDM hardwood doorswith double top & bottom rails, lounge and groove boarding in v-joint rail, 20x150mm middle ledge, 20x225mm bottom ledge and 20x110mm braces Apply wood primer, one coat undercoat and two coats gloss paint or similar approved	**DOOR & FRAME:**	44mm Thick solid lember door with vertical t/g boarding on both sides & hardwood edging both vertical sides All to comply with the SABS 545. Make sure surface is clean, dry & dust free, add primer, undercoat and finish with two coats of Plascon Enamel Doors & Inmr Standard approved hardwood 108x44mm rebated. 5x5mm inner rebate and 14x14mm chamfered outward exposed edge for stiles and top frame securely retro-fixed to walls - 12x12mm quadrants all-round in-side - prepared for paintwork	**WINDOW FRAME:**	Standard 583x457mm Bottom hung Opening Inwards hot dipped galvanised steel windows as per Steel windows 2000 or similar approved 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 8
GLAZING:	N/A	**GLAZING:**	N/A	**GLAZING:**	N/A	**GLAZING:**	5.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	02	**QUANTITIES:**	03	**QUANTITIES:**	06	**QUANTITIES:**	02
IRONMONGERY SET:	Refer to spec	**IRONMONGERY SET:**	1x UNION or equally approved 4 Lever Mortice Sash Lock (2277) fitted in accordance with manufacturers recommendations	**IRONMONGERY SET:**	1 set ASSA ABLOY or equally approved surface mount indicator bolt in stainless steel finish, code CH2104 fitted in accordance with manufacturers recommendations.	**IRONMONGERY SET:**	Refer to spec

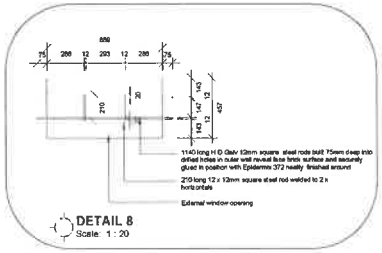
DOOR TYPE:	W2
	
	ELEVATION, SECTION, PLAN
WINDOW FRAME:	Standard 533x854mm top hung hot dipped galvanised steel windows as per Steel windows 2000 or similar approved 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 7
GLAZING:	6.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	06
IRONMONGERY SET:	Refer to spec



DETAIL 6
Scale 1 : 20



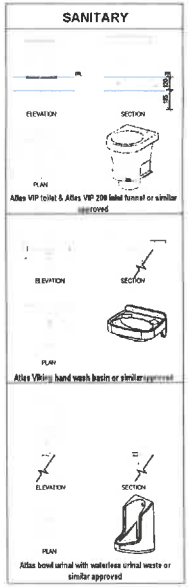
DETAIL 7
Scale 1 : 20



DETAIL 8
Scale 1 : 20

GENERAL NOTE:
REFER TO FINISHING SPECIFICATIONS

SANITARY



IMPORTANT NOTE:
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Revisions Record

No	Date	Description	Rev. by

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by: Consultant

Name

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description:
Schedules

Drawn By:
Scale As indicated Date 26.04.2018

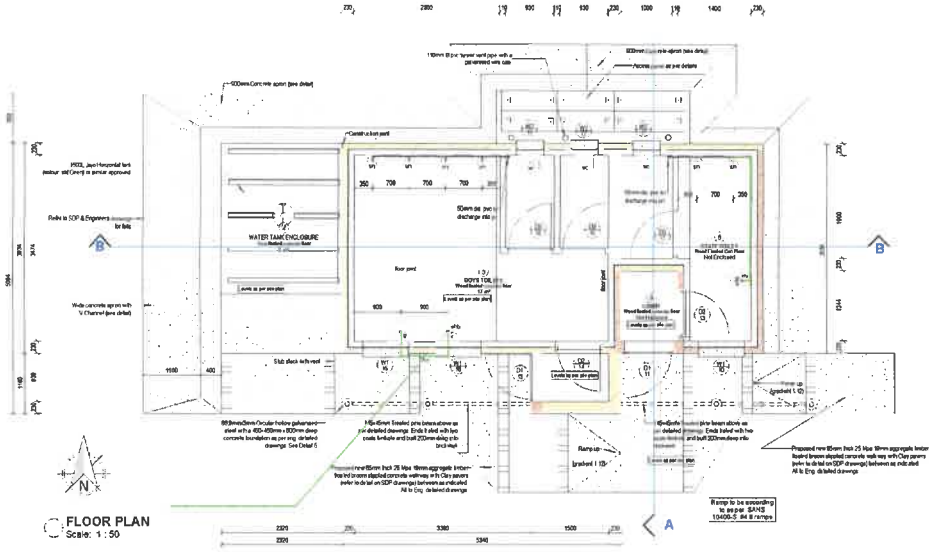
Consultant Drawing Number
201506-153-PROTOTYPE 4A - F Revision

Wims No
WIMS NO. 201422

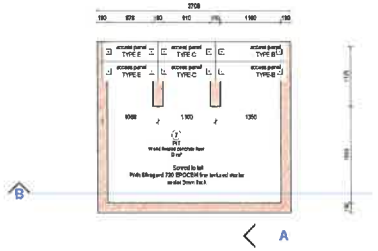
STAMPED BY PLANS APPROVAL COMMITTEE

2020/01/16 10:31:15

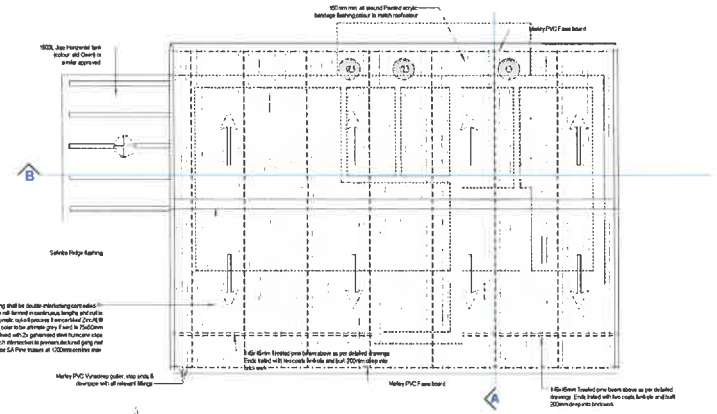
IMPORTANT NOTE:
THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING ANY PART OF THE WORK. ERRORS, DISCREPANCIES OR OMISSIONS ARE TO BE REPORTED TO THE ARCHITECT FOR CLARIFICATION.



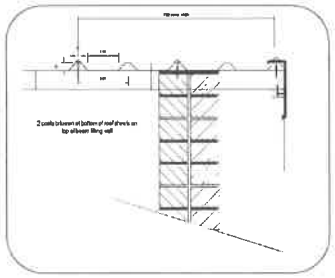
FLOOR PLAN
Scale: 1 : 50



PIT FLOOR
Scale: 1 : 50

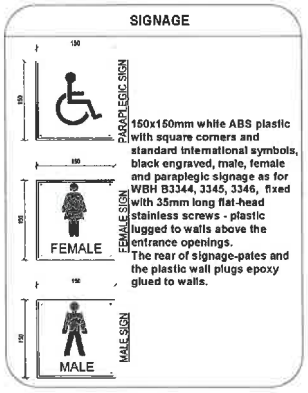


ROOF PLAN
Scale: 1 : 50



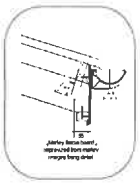
DETAIL 10
Scale: 1 : 10

SIGNAGE

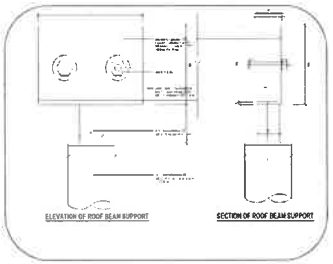


150x150mm white ABS plastic with square corners and standard international symbols, black engraved, male, female and paraplegic signage as for WBH B3344, 3345, 3346, fixed with 35mm long flat-head stainless screws - plastic lugged to walls above the entrance openings.
The rear of signage-pates and the plastic wall plugs epoxy glued to walls.

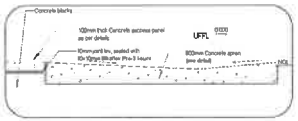
SIGNAGE
Scale: 1 : 5



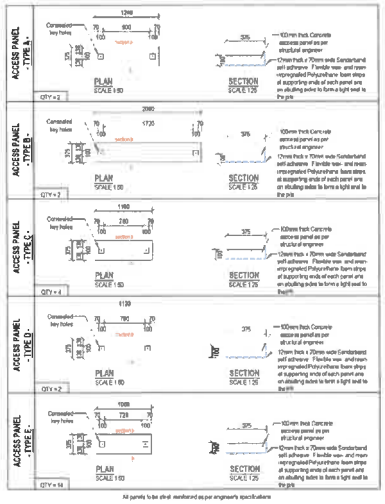
DETAIL 9
Scale: 1 : 10



DETAIL 5
Scale: 1 : 5



DETAIL 3
Scale: 1 : 10



All panels to be shot sheathed as per engineer's specifications

Revisions Record

Nr	Date	Description	Rev

CLIENT DEPARTMENT SIGNATURES

FACILITY STAFF

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Consultant

Name

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description
Floor plans Details

Drawn: B Isaac
Scale: As indicated
Date: 25-04-2016

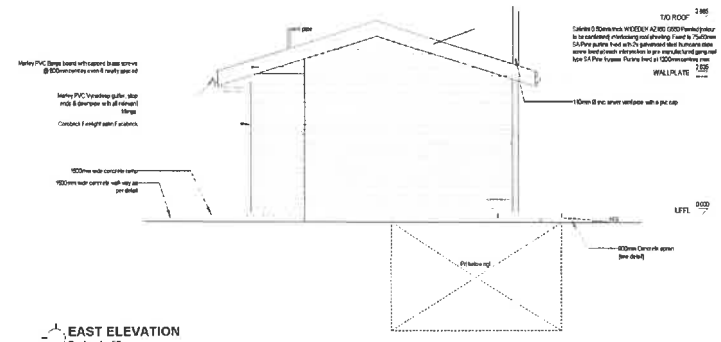
Consultant Drawing Number
201505-150-PROTOTYPE 4A - M
Revision

WIMS No
WIMS NO 201422

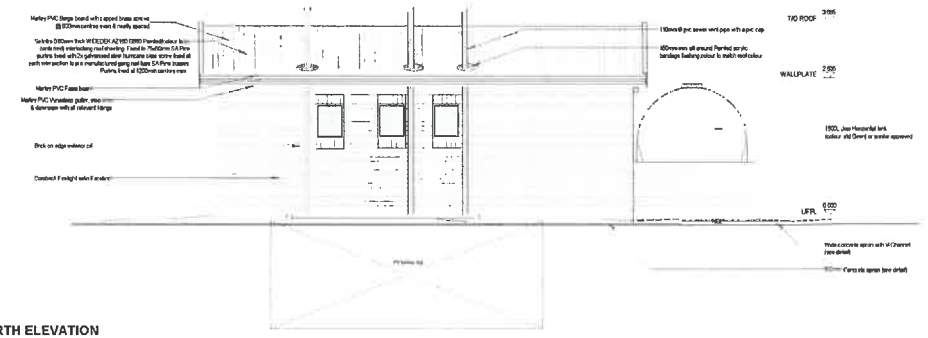
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2020/10/03 10:17:46

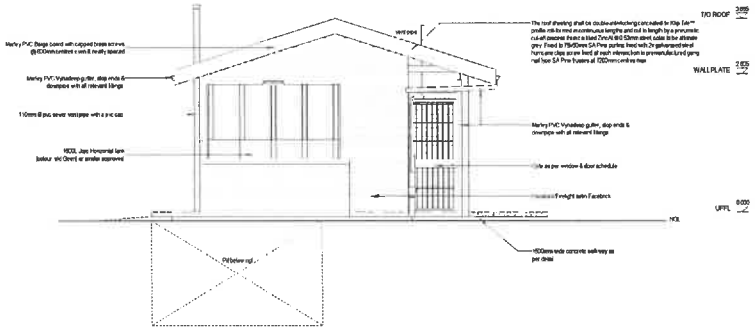
IMPORTANT NOTE:
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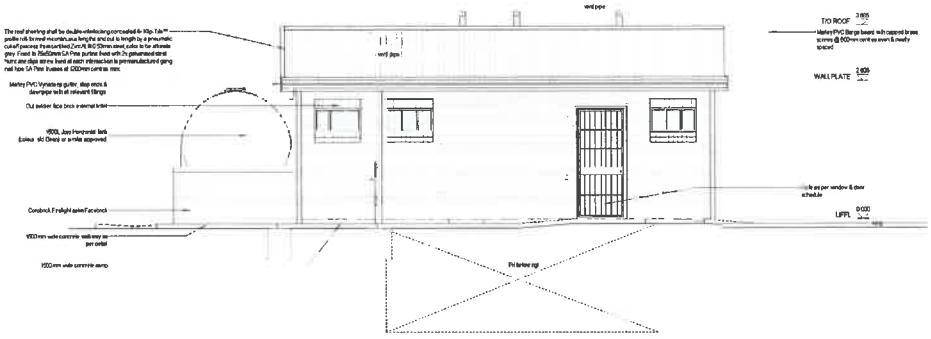
EAST ELEVATION
Scale 1 : 50



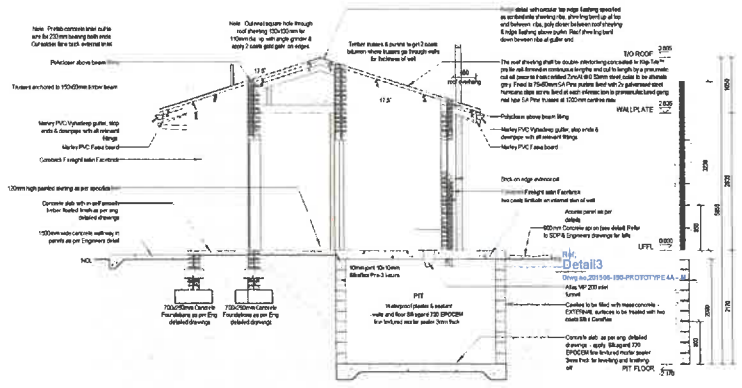
NORTH ELEVATION
Scale 1 : 50



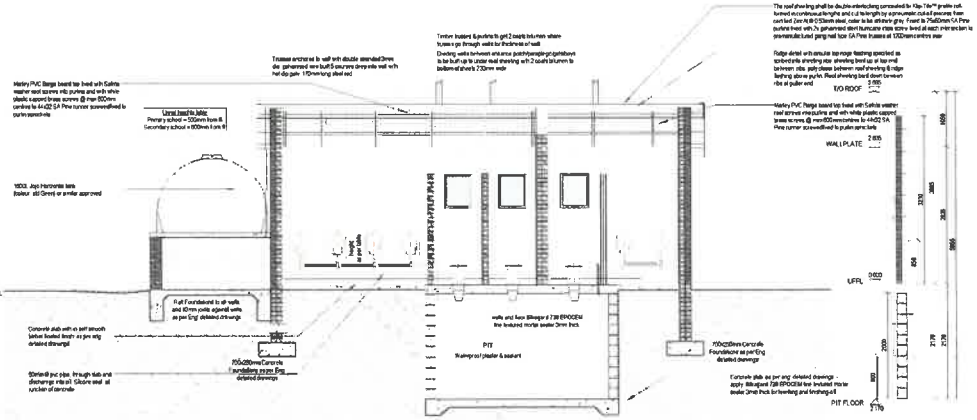
WEST ELEVATION
Scale 1 : 50



SOUTH ELEVATION
Scale 1 : 50



SECTION A
Scale 1 : 50



SECTION B
Scale 1 : 50

Revisions Record

No	Date	Description	Rev

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by: Consultant

Name

Signature Date

Consultant

C3A
Consult Three Architects

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS

NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description
Elevations & Sections

Drawn B Isaac
Scale 1 : 50 Date 05-04-2016

Consultant Drawing Number 201505-151-PROTOTYPE 4A - M Revision

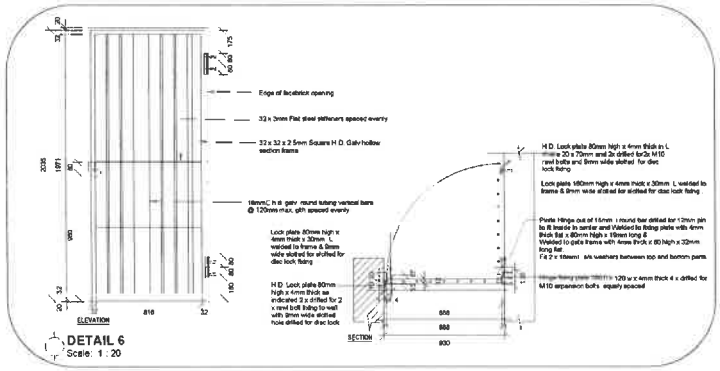
WIMS No
WIMS NO: 201422

STAMPED BY PLANS APPROVAL COMMITTEE

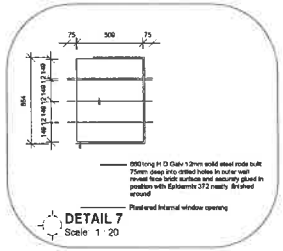
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DOOR TYPE:	D1	DOOR TYPE:	D2	DOOR TYPE:	D3	DOOR TYPE:	W1
	SEE DETAIL 6 REGARDING THE GATE		ELEVATION, SECTION, PLAN		ELEVATION, PLAN		ELEVATION, SECTION, PLAN
DOOR & FRAME:	As Indicated	DOOR & FRAME:	Frame Robmeg or equally approved 1,2mm Pre Galvanised pressed steel screwed double rebated door frame, to suit door size 813 x 2032mm high, for 230mm wall. Note: Frame to be prepared for hinges by other elsewhere specified Door 2032x813x40mm TDM hardwood doorswith double top & bottom rails, tounge and groove boarding in v-joint rail, 20x150mm middle ledge, 20x225mm bottom ledge and 20x110mm braces. Apply wood primer, one coat undercoat and two coats gloss paint or similar approved	DOOR & FRAME:	44mm Thick solid timber door with vertical lig boarding on both sides & hardwood edging both vertical sides. All to comply with the SABS 545. Matte sure surface is clean, dry & dust free, add primer, undercoat and finish with two coats of Plascon Enamel Doors & Items Standard approved hardwood 108x44mm rebated, 5x5mm inner rebate and 14x14mm chamfered outward exposed edge for stiles and top frame securely retro-fixed to walls - 12x12mm quadrants all-round in-side - prepared for paintwork	DOOR & FRAME:	Standard 889x457mm Bottom hung Opening Inwards hot dipped galvanised steel windows as per Steel windows 2000 or similar approved 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 8
GLAZING:	N/A	GLAZING:	N/A	GLAZING:	N/A	GLAZING:	6.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	2	QUANTITIES:	2	QUANTITIES:	3	QUANTITIES:	3
IRONMONGERY SET:	Refer to spec	IRONMONGERY SET:	1x UNION or equally approved 4 Lever Mortice Sash Lock (2277) fitted in accordance with manufacturers recommendations	IRONMONGERY SET:	1 set ASSA ABLOY or equally approved surface mount indicator bolt in stainless steel finish, code CH2104 fitted in accordance with manufacturers recommendations	IRONMONGERY SET:	Refer to spec

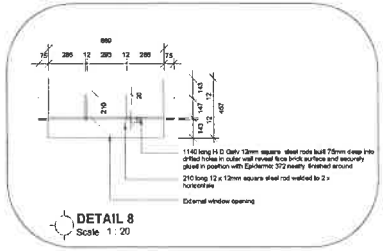
DOOR TYPE:	W2
	ELEVATION, SECTION, PLAN
DOOR & FRAME:	Standard 533x654mm top hung hot dipped galvanised steel windows as per Steel windows 2000 or similar approved 10mm Galvanised Burglar bars or similar approved AS PER DETAIL 7
GLAZING:	6.38mm Obscure Normal strength intruderprufe laminated safety glass
QUANTITIES:	3
IRONMONGERY SET:	Refer to spec



DETAIL 6
Scale: 1 : 20



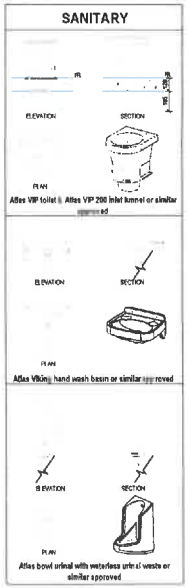
DETAIL 7
Scale 1 : 20



DETAIL 8
Scale 1 : 20

GENERAL NOTE:
REFER TO FINISHING SPECIFICATIONS

SANITARY



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Revisions Record

No.	Date	Description	Rev. by

CLIENT DEPARTMENT SIGNATURES

FACILITY STAMP

FACILITY MANAGER

INFRASTRUCTURE MANAGER

GENERAL MANAGER

Checked by Consultant

Name

Signature Date

Consultant

C3A

DEPARTMENT OF PUBLIC WORKS
HEAD PUBLIC WORKS
NORTH COAST REGION

Project
SCHOOL SANITATION PROGRAMME
1
Enter address here
Owner
Project Status

Drawing Description
Schedules

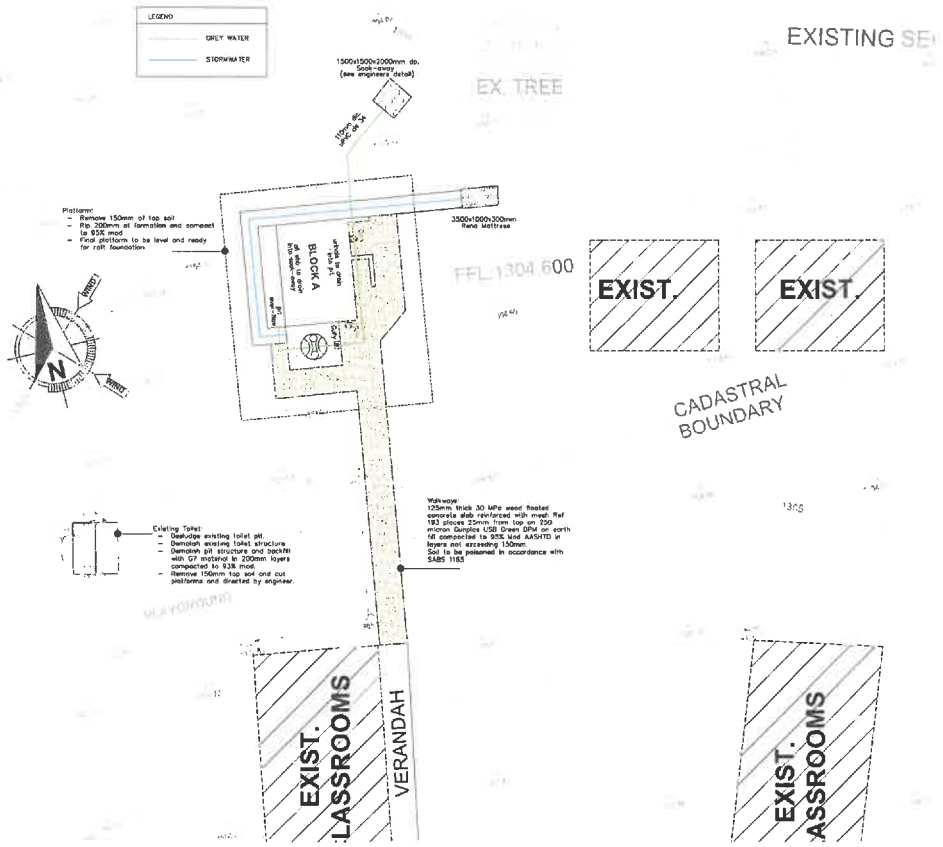
Drawn B Isaac
Scale As indicated Date 28-04-2016

Consultant Drawing Number
201505-153-PROTOTYPE 4A - M

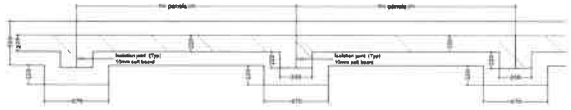
WIMS No
WIMS NO 201422

STAMPED BY PLANS APPROVAL COMMITTEE

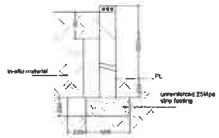
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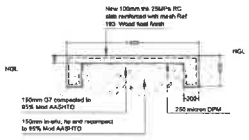
HARD SURFACES, STORMWATER AND GREY WATER LAYOUT PLAN
scale 1:100



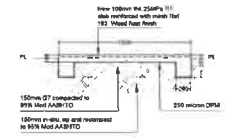
FOUNDATION LAYOUT PLAN
SCALE 1:25



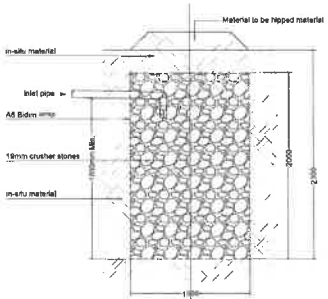
SECTION THROUGH R/WALL
SCALE 1:25



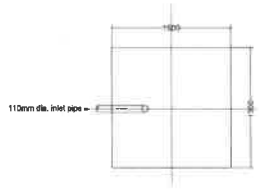
Sloped Surface (Typ.)
scale 1:25



Flat Surface (Typ.)
scale 1:25



SOAKAWAY DETAIL
SCALE 1:25



SEWER NOTES

1. All material and workmanship must comply with the requirements of the latest relevant SANS requirements.
2. All construction to be done in accordance the municipal standard specifications.
3. This drawing must be read with standard drawings (if applicable)
4. Final position of services to be determined on site.

SANITATION SPECS.:
1. All pipes to be Class 34 uPVC (unless otherwise specified)
2. All construction to be in accordance with SANS 1200

Revisions Record			
No	Date:	Description:	Rev by:
T	19-06-2023	TENDER	SAM

Client Department Signature

Facility Stamp

Facility Manager

Infrastructure Manager

General Manager

Checked by Professional Consultant

Name

Signature Date

Consultant

MASUKE
DESIGN + PROJECTS
15 Forest Drive, Umhlanga Rocks,
UMHLANGA 4319
Cell: 076 882 0272 / 083 2400 748 FAX: 086 617 6466
www.masuke.com sophie@masuke.com

Client

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL
NORTH COAST REGION

Project

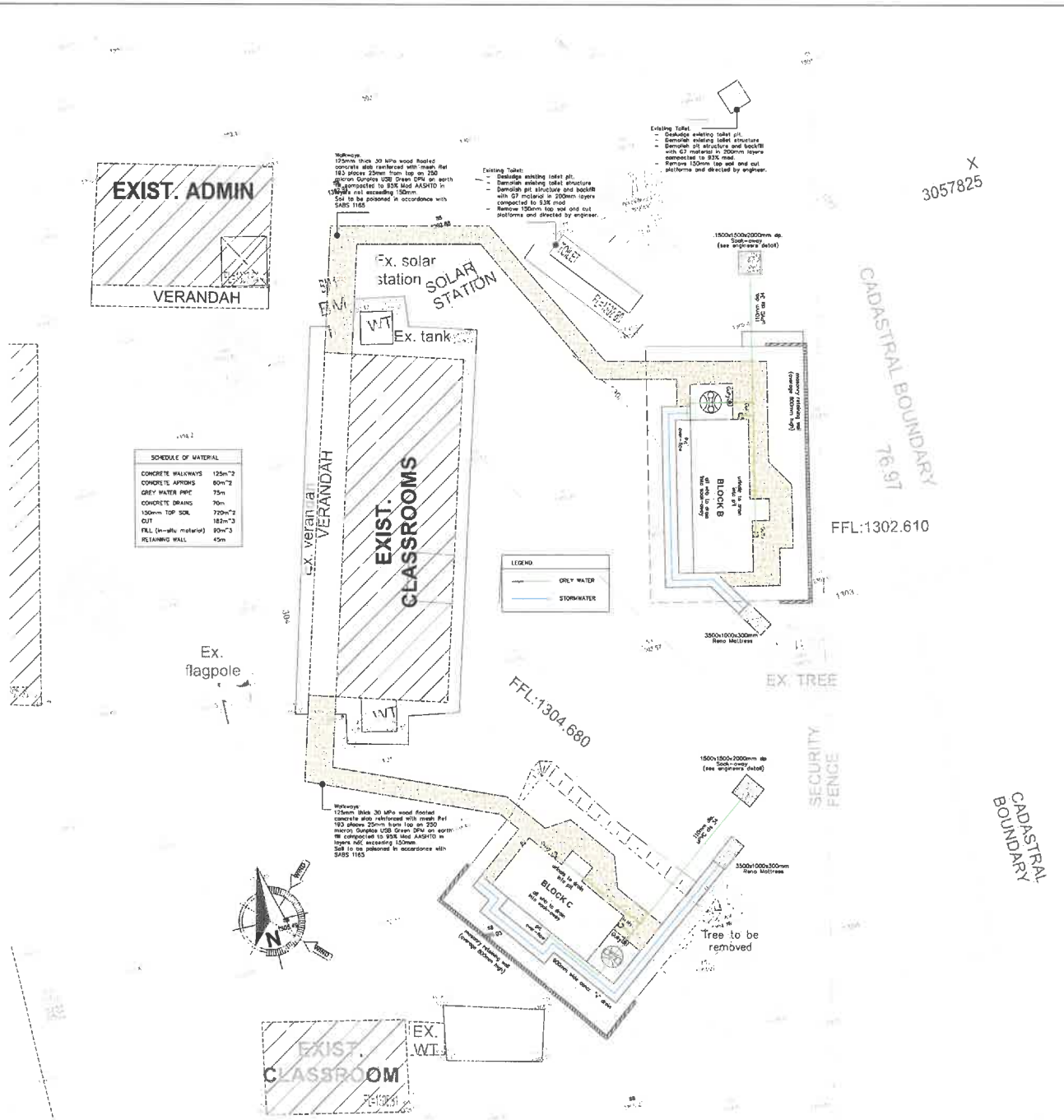
NORTH COAST SCHOOL SANITATION PROGRAMME
PHASE 2:
KHAMBULA COMBINED SCHOOL: BLOCK C
ZULULAND DISTRICT MUNICIPALITY
EDUMBE LOCAL MUNICIPALITY

Drawing Description

HARD SURFACES, STORMWATER AND GREY WATER LAYOUT PLAN AND DETAILS

Drawn	S.M	Date	June 2023
Scale@	As Shown		
Consultant Drawing Number	2023-35/00-01	Revision	T
DOPW Drawing Number	WIMS NO/059196	Paper Size	A0

Stamped by Plans Approval Committee



HARD SURFACES, STORMWATER AND GREY WATER LAYOUT PLAN
scale 1:100

SEWER NOTES:

1. All material and workmanship must comply with the requirements of the latest relevant SANS requirements.
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Revisions Record			
No	Date	Description	Rev by
T	19-06-2023	TENDER	SAM

Client Department Signatures

Facility Stamp

Facility Manager

Infrastructure Manager

General Manager

Checked by Professional Consultant

Name

Signature Date

Consultant

maZUKE
DESIGN + PROJECTS
15 Forest Drive, Umhlanga Rocks
UMHLANGA 4319
Cell: 076 500 8272 / 061 3958 748 FAX: 086 619 3686
www.mazuke.com admin@mazuke.com

Client

public works
Department:
Public Works
PROVINCE OF KWAZULU-NATAL
NORTH COAST REGION

Project

NORTH COAST SCHOOL SANITATION PROGRAMME
PHASE 2:
KHAMBULA COMBINED SCHOOL: BLOCKS B and C
ZULULAND DISTRICT MUNICIPALITY
EDUMBE LOCAL MUNICIPALITY

Drawing Description

HARD SURFACES, STORMWATER AND GREY WATER LAYOUT PLAN AND DETAILS

Drawn: S M Date: June 2023

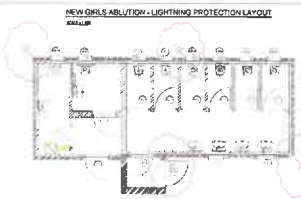
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Consultant Drawing Number: 2023-35/99-02 Revision: T

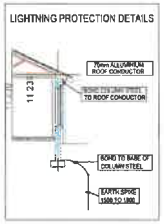
DPWR Drawing Number: WIMS NO: 059196 Size: A0

Stamped by Plans Approval Committee

NEW GIRLS ABLUTION - LIGHTNING PROTECTION LAYOUT



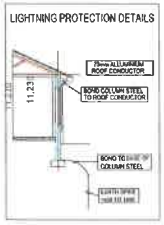
LIGHTNING PROTECTION DETAILS



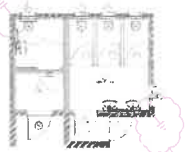
NEW BOYS ABLUTION - LIGHTNING PROTECTION LAYOUT



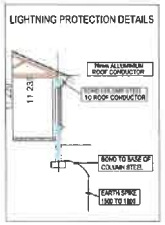
LIGHTNING PROTECTION DETAILS

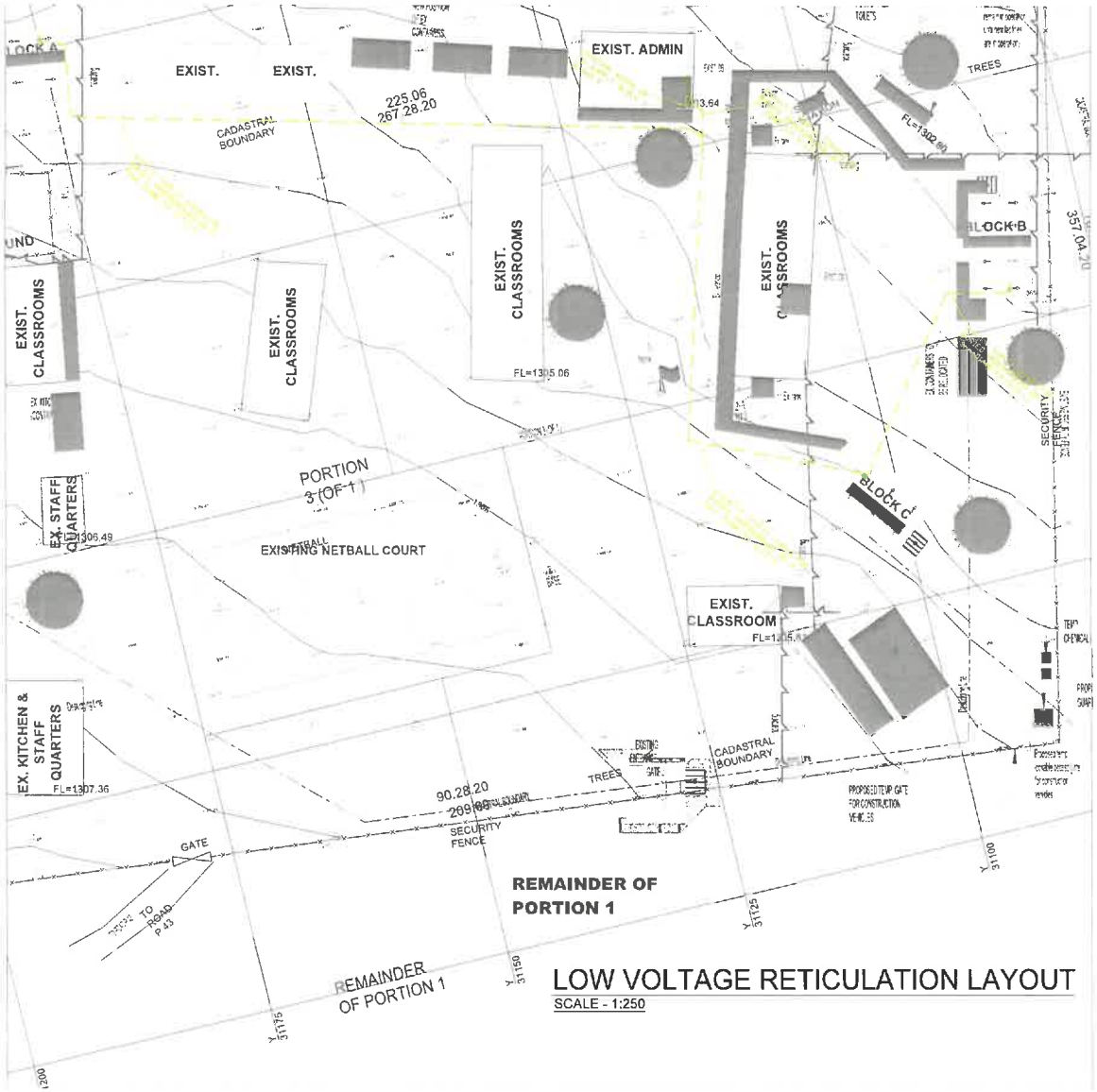


NEW GRADE R ABLUTION - LIGHTNING PROTECTION LAYOUT



LIGHTNING PROTECTION DETAILS



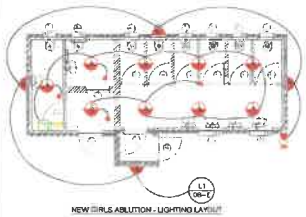


LOW VOLTAGE RETICULATION LAYOUT

SCALE - 1:250



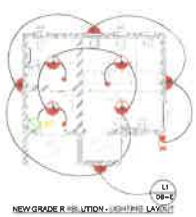
CONNECTION TO THE EXISTING DB



NEW GIRLS ABLUTION - LIGHTING LAYOUT



NEW BOYS ABLUTION - LIGHTING LAYOUT



NEW GRADE R ABLUTION - LIGHTING LAYOUT

DO NOT SCALE

LIGHTING LEGEND

15W, LED BULKHEAD ALUMINIUM LIGHTTING, WALL MOUNTED SURFACE

15W, LED BULKHEAD ALUMINIUM LIGHTTING, WALL MOUNTED AT 2200MM

OCCUPANCY SENSOR, SURFACE MOUNTED AND TIMER SET TO 15 MINUTES

FOR TENDER

FMJN INJULA ELECTRICAL

KwaZulu-Natal PUBLIC WORKS

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES

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ANNEXURES 1 - Model Preambles for Trades 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:

Contract Reference Number:

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 $50m^3$ 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

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.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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 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.

.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.

3 Flexible Conduit

Flexible conduit shall be of the plastic covered metal type complete with brass connectors to the approval of the Head : Works.

INSTALLATION OF CONDUIT

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 **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.

3 **In Concrete Slabs**

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.

.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.

5 **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.

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.

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.

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.

WIRING

PVC Insulated Single Core Medium Voltage Conductor

1

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 mm²	
Bells circuits	1,5 mm²	
Clock circuits	1,5 mm²	
Incinerator circuits	2,5 mm²	with 2,5 mm² insulated earth wire
Ironing circuits	2,5 mm²	with 2,5 mm² insulated earth wire
Plug circuits	4,0 mm²	with 2,5 mm² insulated earth wire
Geyser circuits	4,0 mm²	with 2,5 mm² insulated earth wire
Heater circuits	4,0 mm²	with 2,5 mm² insulated earth wire

Stove	10 mm²	with 6,0 mm² insulated earth wire
Motor circuits		
Up to 4kW single phase	4,0 mm²	with 2,5 mm² insulated earth wire
Up to 11kW three phase	4,0 mm²	with 2,5 mm² 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.

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.

2. DISTRIBUTION BOARDS

2.1 Approval

The Head : Works must approve the details of construction proposed and all equipment within distribution boards: Works before manufacture is commenced.

2.2 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.

2.3 Surface Mounting Distribution Boards

These shall be generally manufactured in accordance with SABS 1765, with two panels as for flush boards.

2.4 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.

2.5 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.

4. CONNECTIONS TO OUTLETS

4.1 General

Where connectors are used to connect to the wiring of luminaires and other appliances, the connectors shall comply with SABS Specification 1239.

4.2 Connection to Stoves

4.2.1 General

The connection to an electric stove, unless otherwise specified shall consist of 2 x 10 mm² conductors and a 6 mm² 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.

.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.

.3 Connections to Hot-water Cylinders

The connections to hot-water cylinders not exceeding 3kW loading shall consist of 2 x 4 mm² PVC conductors and 1 x 2,5 mm² 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.

4.5 **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.

.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.

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.

5.1 **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.

.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.

.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.

.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.

5.7 **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.

5.8 **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.

.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.

.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 mm² nor more than 70 mm². 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.

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.

EARTHING

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 mm² 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.

EXISTING BUILDINGS

.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.

.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.

.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.

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.

8.3 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.

.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.

.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.

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 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.

5. **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.

6. **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.

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.

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 3 - Lightning Protection Specification

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 mm² (domestic dwelling only) or 50 mm² 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 mm² 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 mm² (35 mm² 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 of 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.

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.

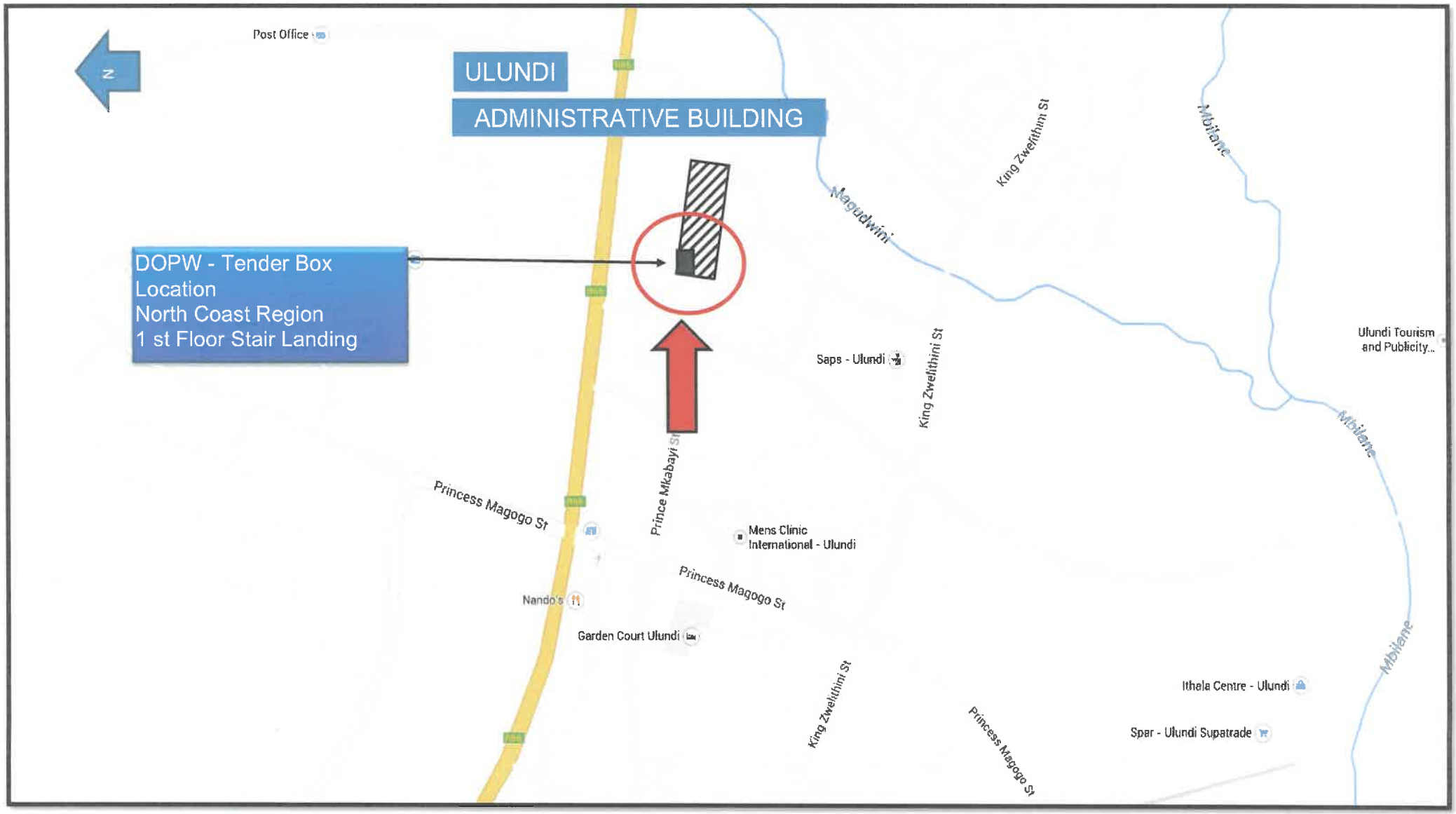
Should trench earths be installed beneath pathways where people are likely to be present during a thunderstorm, a plastic, bitumastic or ceramic pipe must be installed having a length similar to the width of the pathway and the trench earth conductor run inside it.

N.B. : The maximum useful length of a dead-ended trench earth is 80 metres.

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 4 - Map of Tender submission location


N
ULUNDI
ADMINISTRATIVE BUILDING
DOPW - Tender Box
Location
North Coast Region
1 st Floor Stair Landing
Post Office
Maguduwini
King Zwelithini St
Mbilane
Saps - Ulundi
Ulundi Tourism and Publicity...
Prince Mkabayi St
Princess Magogo St
Mens Clinic International - Ulundi
Nando's
Garden Court Ulundi
Ithala Centre - Ulundi
Spar - Ulundi Supatrade

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ANNEXURES 5 - Joint Venture Agreement

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Annexure 5

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)*

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

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 Committee,

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 6 - H & S Specification

REFERENCE NR	CHSM/ 059196
REVISION	00
DATE	September 2026

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

Occupational Health and Safety Specification

(OHSE SPEC)

PROJECT NAME	Khambula Combined School
PROJECT ADDRESS	Khambula Area/ Bivane Paulpietersburg
WIMS NR:	059196
CLIENT:	Department of Education
PREPARED BY:	PP Zulu

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1.	Abbreviations
AIA	Approved Inspection Authority
ALARP	As low As Reasonably Practicable
BRA	Baseline Risk Assessment
BOQ	Bill of Quantities
COIDA	Compensation for Occupational Injuries and Diseases Act.
CHSM	Construction Health and Safety Manager
CHSR	Client Health and Safety Representative
CR	Construction Regulations
CWP	Construction Work Permit
DMR	Driven Machinery Regulations
DEL	Department of Employment and Labour
FEMA	Federated Employers Mutual Association
FPP	Fall Protection Plan
GAR	General Administration Regulations
GSR	General Safety Regulations
HCSR	Hazardous Chemical Substances Regulations
HIRA	Hazard Identification and Risk Assessment
H&S	Health and Safety
JSA	Job Safety Analysis
MSDS	Material Safety Data Sheet
OH	Occupational Health
OHSA	Occupational Health and Safety Act, Act 85 of 1993
PC	Principal Contractor

PPE	Personal Protective Equipment
Pr CHSA	Professionally Registered Health and Safety Agent
RAMS	Risk Assessment and Method Statement
RTA	Road Traffic Safety Act, Act 93 of 1996
SABS	South African Bureau of Standards
SACPCMP	South African Council for Project and Construction Management Professions.
SARTSM	South African Road Traffic Safety Manual, Chapter 2. Volume 13
SANS	South African National Standards
SSHSS	Site Specific Health and Safety Specification
SSHSP	Site Specific Health and Safety Plan
SWP	Safe Work Procedure

2. Definitions

"Occupational Health Practitioner" Doctor or Nurse registered and in Good Standing with the Health Professions Council of South Africa and has a tertiary qualification in Occupational Health Nursing.

"Medical Surveillance" Planned program of periodic examination/medicals of employees by an occupational health practitioner.

"Act" Means, unless the context indicates otherwise, the Occupational Health and Safety Act, 85 of 1993.

"Agent (*Pr. CHSA*)" means a competent person who acts as a representative for a client in terms of Regulation (5)5 of the Construction Regulations of 2014.

"Audit" Means a systematic examination of documents, equipment, physical on-site conditions etc. to evaluate the levels of compliance with clients OHS requirements, applicable legislative requirements, and the achievement of a safe working environment for Employees, as well as not posing a risk to other persons and the environment.

"Baseline Risk Assessment" (BRA)" A wide encompassing risk assessment performed by the client of anticipated construction activities to execute the anticipated scope of work pertaining to the project.

"CR" refers to the Construction Regulations 2014.

"Client" in terms of this document means Department of Public Works, Kwazulu-Natal.

"CHSR" Means Client Health and Safety Representative, an in-house employee appointed by the Client to oversee the Health and Safety Management of a project.

"CHSM" means Construction Health and Safety Manager.

"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 is familiar with the OHS Act, Act 85 of 1993 and with the applicable regulations made under the Act.

"Construction Health and Safety Officer" Means a person deemed competent by SACPCMP under the relevant category of registration appointed by the Principal Contractor to oversee the Safety, Health and Environmental Management on-site.

"Construction Manager (*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 Plant" Encompasses all types of plant including but not limiting to, cranes, piling equipment, boring machines, excavators, dewatering equipment, and road vehicles with or without lifting equipment.

"Construction Site" means a workplace 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

a) 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 of 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.

"Designer" Means a competent person as defined by the Construction Regulations of 2014 appointed by the Client or the Principal Contractor as Agent to design and/or supervise and/or monitor construction work on their behalf.

"Fall Protection Plan" (FPP) means a documented plan, which includes:

a) Identification of hazards and risks pertaining to the risk of falling taking the nature of the work and its environment in consideration;

b) The procedures and methods to be applied to eliminate the risk or to reduce it to a level which is as low as reasonably practicable; and

c) A rescue plan and procedures.

"Fall Prevention Equipment" Means equipment used to prevent persons, tools, equipment, machinery materials etc from falling from a "fall risk" position, including personal protective equipment, body harness, body belts, lanyards, lifelines or physical equipment, guardrails, screens, barricades, signage anchorages or similar equipment.

"Fall Risk" means any potential exposure to falling either from, off, over or into.

"Hazard" Means a source, situation, feature, activity, or anything else which has got the potential to cause harm, injury, death, environmental damage, business interruption etc.

"Hazard Identification and Risk Assessment (HIRA)" Means a document, which identifies hazards, assesses the risks and identifies the control measures, which are to be used to mitigate or reduce to a level which is as low as reasonably practicable the occurrence of hazards and risks during construction, use, operation and eventual demolition phases of a project.

"Hazardous Chemical Substance (HCS)" Means any toxic, harmful, corrosive, irritant or asphyxiating substance, or a mixture of substances, for which an occupational exposure limit is prescribed, or an occupational exposure limit is not prescribed, but which creates a hazard to health and the environment.

Induction Training: Means once off introductory training on general health and safety issues given to all employees and visitors to the site before commencement of work on site.

"Issue based Risk Assessment" Means a Risk Assessment based upon a specific issue/activity/item which could be instituted in response to the high priority risks identified in the Baseline Risk Assessment, Programme Risk Assessment or even after a near miss or actual loss event.

"Job Safety Analysis (JSA)" Means an analysis of a specific job or task according to a pre-determined procedure which helps to integrate accepted SHE principles and practises into a particular task or activity. Each step of the JSA is to identify potential hazards and to recommend the safest way to do the job.

"Medical Certificate of Fitness" means a certificate contemplated in regulation 7(8) of Construction Regulations of 2014.

"Method Statement (MS)" also known as a Safe Work Method Statement (SWMS), or Safe Work Procedure (SWP) is a document developed because of the outcome of a risk assessment by the contractor, which contains details of how each task should be performed safely.

"Principal Contractor (PC)" means an employer appointed by the client to perform construction work, but may also include the responsibility of designing or overseeing the design process.

"RAMS" Means Risk Assessments and Method Statement.

"Risk" Means the probability or likelihood that the possible harm, injury, death etc. potential of a hazard could be realized with a consequence attached.

"SHE" Means Safety, Health and Environmental.

"Site": Means the area handed over to the Principal Contractor for the purposes of construction work. Where there is no demarcated boundary it will include all adjacent areas, which are reasonably required for the activities for the Principal Contractor and approved for such use by the Designer and/or the Client.

"Site Specific Health and Safety File (SSHSF)" Means a file specifically pertaining to a site containing all health and safety documentation relating to the project as per the requirements of the Construction Regulations of 2014 and/or the SSHSS.

"Site Specific Health and Safety Plan (SSHSP)" means a detailed site, activity, or project specific documented plan in accordance with the client's OHSE specification indicating how health and safety will be managed during the project.

"Site Specific Health and Safety Specification (SSHSS)" means a site, project specific document prepared by the client pertaining to all health and safety requirements related to construction work.

3. KEY REFERENCES

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)
Construction Regulations, 2014
Electrical Installation Regulations, 2009
Environmental Regulations for Workplaces, 1987
Facilities Regulations, 2004
General Safety Regulations, 1986
Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)
South African Roads Traffic Safety Manual (SARTSM) Chapter 2, Volume 13 of 1999
Road Traffic Safety Act No. 93 of 1996 (as amended)
National Building Regulations and Building Standards Act, 1977
National Environmental Management Act, 1998
ISO 45001 Occupational Health and Safety Management Systems
Applicable South African National Standards (SANS) e.g. SANS Code 10400, SANS 10085
Regulations for Hazardous Chemical Agents, 2021

Borehole Sites and Operations Regulations 1995
Local Municipal By-Laws

4. INTRODUCTION AND PURPOSE

The *KwaZulu Natal Department of Public Works* is deemed as the "Client" in terms of the definitions of the Construction Regulations of 2014 as published in *Government Gazette No. 37305*.The Construction Regulations of 2014 in terms of *CR(5)(1)* stipulates that that the Client must prepare a suitable, sufficiently documented and coherent ,SSHSS, for the intended construction work based on the Baseline Risk Assessment, (BRA) which in turn is based on the Scope of Work and several other related factors such as hazards and risks identified by the designer. It must be noted that for ease of reading the term "He/His" will be descriptive of both male and female gender throughout this document

Purpose

The purpose of this SSHSS identifies the health and safety requirements the contractor needs to comply with. It will be periodically reviewed and updated (if necessary) to address and / or include:

- Changes in legislation;
- Client requirements;
- Leading practices;
- Lessons learnt from incidents; and
- Unforeseen issues.

This SSHSS also forms an integral part of the contract between the Client and the PC. It identifies and encompasses the working environment, practices and behaviors expected of all parties who have roles to play in the successful completion of this project. The SSHSS provides guidelines to comply with the Occupational Health and Safety Act, Act 85 of 1993 (OHS Act) as amended, The Construction Regulations of 2014, other applicable legislative requirements, and applicable best practices. It aims to ensure compliance with applicable legislative requirements as indicated above and secondly to form the basis for the PC to develop his/her SSHSP.

As with any other plan for it to be implemented and managed effectively it requires the allocation of sufficient funds and resources, human and others, to achieve the objectives set out in the plan. In line with this requirement, Construction Regulation 5(1) (g) also requires the Client to ensure that the Principal Contractor has made adequate provisions for the cost of Health and Safety Measures in their tenders. The PC will be required to submit a Bills of Quantities (BOQ) with his SSHSP, which can be found under the Annexures section of this document which will be evaluated at the time of the evaluation of the SSHSP to satisfy the requirements of CR 5(1)(g).

This specification covers the requirements for eliminating and/or mitigating health and safety risks, injuries, accidents, and incidents on site to a level which is as low as reasonably practicable (ALARP). It addresses legal compliance, hazard identification, risk management and the promotion of a positive health and safety culture within the project. This specification also makes provision for the protection of persons other than those employed by the PC as stipulated by Sec 9 of the OHS Act, Act 85 of 1993.

It will also be noted that this document specifies certain recommendations, which should be followed so that the health and safety of all persons who may be potentially at risk and the potential risk to the environment may receive the same priority as other facets of the project such as Time, Cost and Quality.

It must be noted that this SSHSS as much as it is detailed is not exhaustive and the onus is on the PC to ensure that it complies with Section 8 of the OHS Act, Act 85 of 1993 which reads as follows:
Sec 8(2)(d) "Establishing as far as reasonably practicable what hazards to the Health and Safety of persons are attached to any work which is performed, and he shall as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work in order to protect the health and safety of persons, he shall provide the necessary means to apply such precautionary measures..", this means that Principal Contractors as an employer in his/her own right must at all times ensure continuous Hazard Identification and Risk Analysis (HIRA) and the implementation of appropriate risk reduction and/or elimination measures so as to strive towards the implementation and continued provision and maintenance of a healthy and safe working environment. The SSHSS is a performance specification aimed at ensuring that the Client and any persons enter into an agreement with achieves an acceptable level of SHE performance.

5. SCOPE OF APPLICATION

This SHE Specification is exclusively applicable to the following project:

KHAMBULA COMBINED SCHOOL
WATER AND SANITATION PROJECT

5.1 SITE LOCATION



- Province - KwaZulu Natal
- District Municipality - Zululand
- Local Municipality - eDumbe
- GPS Cordinates - -27.828678, 30.798156
- Street Address/ Directions - Khambula Area/ Bivane Paulpietersburg

5.2. DRAFT SUMMARY SCOPE OF WORK

The scope includes but is not limited to:

- Site Establishment:
- Remedial work to existing structure:
- Renovation of existing ablution blocks which include new fittings, painting, ceiling and electrical repairs etc.
- Remedial works to existing covered or uncovered walkways

Construction work:

- Excavations for new ablution
- Bricklaying and plastering
- Fitting of trusses and roof sheeting
- Electrical installation
- Fitting of taps and basins
- Fitting gutters and downpipes.
- Strom water drainage (V-drains and aprons)
- Construction of covered or uncovered walkways
- Construction of new retaining walls (unstable works only)
- Installation of Jo-jo tank including concrete stand base
- Construction of soak-aways or conservancy tank
- Installation of new borehole
- Desludging of existing toilets

5.3 THE PROJECT TEAM

The Project Team is as follows:

Initials and Surname	Discipline	Organisation	Cellular number	E-mail address
Ms. S Magwaza	DPWI	Project Manager	064 738 1459	Silondiwe.Magwaza@kznworks.gov.za
Ms. P Zulu	DPWI	CHSR	067 594 3892	Petronella.Zulu@kznworks.gov.za

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 include 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***

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 professionals appointed and that the OHSE Specification is incorporated into the tender documents. ***See Annexure D***

Contractual Issues

Acceptance by the Principal Contractor of the contract with KZN DOPW shall constitute acknowledgement that the Principal Contractor has familiarized 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/ Client Health and Safety Representative (CHSR) 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.

6. REQUIREMENTS PERTAINING TO SITE SPECIFIC HEALTH AND SAFETY PLAN SUBMISSION

The PC shall prepare a documented SSHSP as per CR 7(1) (a) based on the information / requirements contained in this specification, applicable legislative requirements and demonstrate how he is going to implement health and safety requirements during the construction process. It must cover all activities that will be carried out on the project site, from

mobilization and set-up through to Close-out. The SSHSP must include all documentation required in terms of The Act, Regulations, and this specification for the purpose of evaluation and approval.
The PC must refer to Annexure C of the SSHSS to familiarize himself with the requirements pertaining to the contents of his SSHSP to be submitted to the CHSR for approval. Failure to comply with the requirements of Annexure C may result in unnecessary delays in the SSHSP approval process. The PC must keep the original SSHSP and submit a copy for evaluation and approval purposes, which will be kept by the CHSR for filling and referencing purposes.
Upon approval of the PC's SSHSP, the CHSR will issue the final letter of SSHSP approval as required by CR 7(1)(a) and confirm his appointment as required by CR 5 1(k). The PC must file the letter on his SSHSF. It must be noted that Construction work may not commence until an official letter issued by the CHSR has been issued. The PC shall be responsible for ensuring that adequate information is submitted as supporting documentation with his completed documentation.
The approved SSHSP included in the SSHSF as well as this SSHSS must always be kept on site and include all documentation required in terms of The Act and this specification. It must be kept in mind that All Subcontractors must open their own SSHSP's and files. These health and safety files shall be approved in writing by the PC's CHSO, as required by CR 7. 1 (c)(x), a copy of which must be filed on the Subcontractors as well as the PC's Health and Safety File. The Sub-Contractor must also be appointed in terms of CR 7. (c)(v). The Subcontractor's Health and Safety Files will also be subjected to evaluation by the CHSR when conducting an Audit in addition to the evaluation by the CHSO.

It is of the utmost importance that the PC takes note of the following when submitting his SSHSP for approval **in addition to the requirements of Annexure A**:

- Completion and submission of Annexure C "Health and Safety Declaration" to the effect that he has the competence and necessary resources to carry out the work safely in compliance with the Occupational Health and Safety Act and its Regulations.

- A valid Letter of Good Standing.

- Two detailed Risk Assessments and Method Statements (RAMS) of two priority hazards as identified by the Risk Profile of anticipated construction activities for review by the CHSR, with evidence of the CHSO input to enable the CHSR to evaluate the Risk Assessors competency in terms of being able to conduct sufficient Risks Assessments and subsequent Method Statements.

- Valid Proof of Competencies, including CV's of Key Appointments.

7. ANNEXURE

7.1.	ANNEXURE A: OHSE PLAN STRUCTURE SSHSP submitted for approval and SSHSF layout requirement.

Number	Item	To be submitted with SSHSP for approval	Comments
1.	INDEX	Yes	None
2.	SSHSP Approval Letter and Appointment letter.	No	To be filled in SSHSF after issuing by CHSR
3.	Letter of Good Standing	Yes	To be kept up to date and filled in SSHSF
4.	Notification of Construction Work	Yes	To be submitted to DEL for recording, stamped copy forwarded to Client before SHE Plan Approval Letter will be issued. No work will be able to commence until letter has been issued including site establishment. work. to be filled in the SSHSF
5.	Signed and dated SHE Management Plan	Yes	To be filled in SSHSF
6.	Organogram	Yes	To be placed on the SSHSF, kept updated
7.	Signed and dated Health and Safety Policies	Yes	To include communication Register and filled in SSHSF
8.	Site Layout Plan	Yes	To be kept updated and filled in SSHSF
9.	Signed and dated Emergency Plan	Yes	To be kept updated and filled in SSHSF
10.	Signed and dated Environmental Management Plan	Yes	To be kept updated and filled in SSHSF
11.	Signed and dated Personal Hygiene and Infectious Disease Management Plan.	Yes	To be kept updated and filled in SSHSF.
12.	Signed and dated Fall Prevention Plan	Yes	To be reviewed prior to work being conducted and filled in SSHSF with communication record.
13.	Two signed and dated risk assessments of priority risks as per the risk profile.	Yes	To be submitted with SSHSP for evaluation. To filed in SSHSF and reviewed prior to work being conducted.
14.	Two signed and dated Method Statements/ Safe Work Method Statements for the two priority risk assessments as per item 11.	Yes	To be submitted with SSHSP for evaluation. To filed in SSHSF and reviewed prior to work being conducted.

15.	Risk assessments and Method Statements.	Yes	To be kept on SSHSF with communication records
16.	Daily Safe Task Instruction (DSTI)	No	To be signed off at the start and end of shift with communication record, to be kept in SSHSF.
17.	Induction Course	Yes	To be reviewed, kept updated and include communication record register.to be filled in SSHSF.
18.	Toolbox talks	Yes	To include communication register and filled in SSHSF.
19.	PPE Issue Record	Yes	To include training in correct use etc. and filled in SSHSF.
20.	Sub – Contractor Monthly Audit records	No	To be discussed at SHE Committee meeting, closed out and kept on SSHSF.
21.	External Audit Reports	No	To be discussed at SHE Com meetings, Internal meetings etc. and filed in SSHSF.
22.	Self-Audit Format	Yes	To be completed monthly, forwarded to team members at least 7 days before progress meeting, to report on close out at the meeting. Filed on the SSHSF.
23	Sub- Contractor Appointments and scope and list	No	To be kept on SSHSF
24.	Section 37(2) Agreements	Yes	To be kept on SSHSF.
25.	Copy of Construction Regulations	Yes	To be kept on SSHSF.
26.	Construction Manager (CR 8(1))	Yes	Including CV / Proof of Competency. to be kept in the SSHSF.
27.	SHE Officer (CR 8(5))	Yes	Including CV / Proof of Competency and SACPCMP Registration. to be kept in SSHSF.
28.	Construction Supervisor (CR 8(7))	Yes	Including CV/Proof of Competency. to be kept in SSHSF.
29.	Risk Assessor (CR 9 (1))	Yes	Including CV/Proof of Competency. to be kept in SSHSF.
30.	Fall Prevention Planner (10 (1)(a))	Yes	Including CV / Proof of Competency. to be kept in SSHSF.
31.	Temporary Works Designer (CR 12(1))	No	Including CV/Proof of Competency. to be kept in SSHSF.
32.	Temporary Works Supervisor (CR 12(2))	No	Including CV/ Proof of Competency. to be kept in SSHSF
33.	Excavation Supervisor (CR 13(1)(a))	Yes	Including CV/Proof of Competency. to be kept in SSHSF
34.	Demolition work Supervisor (14(1)) (when required)	Yes	Including CV / Proof of Competency. to be submitted with Demolition Plan. to be kept in SSHSF
35.	ScaffoldSupervisor (CR 16(1))	Yes	Proof of Competency. to be kept in SSHSF

36.	Scaffold Erector (CR 16 (2))	Yes	Proof of Competency. to be kept in SSHSF
37.	Scaffold Inspector (CR16(2))	Yes	Proof of Competency. to be kept in SSHSF
38.	Suspended Platform Supervisor (CR 17(1))	No	Proof of Competency. to be kept in SSHSF
39.	Construction vehicle and Mobile Plant Operator (CR23(1)(d))	Yes	Proof of Competency, medical fitness etc. to be kept in SSHSF
40.	Temporary Electrical Installation Inspector (CR 24(d))	Yes	Proof of Competency. to be kept in SSHSF
41.	Stacking and storage Inspector (CR 28 (a))	Yes	Appointment, to be kept in SSHSF
42.	Fire Equipment Inspector (CR 29(h))	No	Including basic fire- fighting training proof of competency
43.	Fire Team Member (CR 29 (i))	No	Including basic fire- fighting training proof of competency
44.	Portable Electrical Equipment Inspector (EMR 9)	No	Appointment to be kept in the SSHSF
45.	Accident Incident Investigator (GAR 9(2))	Yes	Including CV/ Proof of Competency. to be kept in SSHSF
46.	First Aider GSR (3(4))	Yes	Including at least Level 2 First Aid Competency. to be kept in the SSHSF
47.	Welding/Flame cutting equipment Inspector (GSR 9)	No	Appointment to be kept in the SSHSF
48.	Ladder Inspector (GSR 13 (a))	No	Appointment to be kept in the SSHSF.
49.	Hazardous Chemical Substances Supervisor (HCSR 3(3))	No	Appointment to be kept in the SSHSF.
50.	Hand Tool Inspector (Sec 8(2)(a))	No	Appointment to be kept in the SSHSF.
51.	SHE Representative (Sec 17) (when meet threshold)	No	Including proof of Competency. To be filled in SSHSF
52.	Sub-Contractor (CR 7(1)(c)	No	As per applicable legislative requirements
53.	Electrical Contractor (EIR 6)	No	Including proof of Professional registration
	Registers as required by scope of work, equipment, facilities etc.		

7.2.	ANNEXURE B OHSE CLIENT SPECIFIC REQUIREMENTS SITE SPECIFIC OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT (IN ALPHABETICAL ORDER)
7.2.1.	Accident, Incident Investigation
7.2.2.	Alcohol and Drugs
7.2.3.	Appointments.
7.2.4.	Consultation, Communication and Liaison
7.2.5.	Close-out requirements
7.2.6.	COIDA
7.2.7.	Competency and Training
7.2.8.	Construction Supervision
7.2.9.	Defects Reporting and Correction
7.2.10.	Delivery and Placement of Containers, Park Homes etc.
7.2.11.	DSTI's
7.2.12.	Electrical Connections
7.2.13.	Emergency Drills and Evacuation Procedures
7.2.14.	Environmental Management Plan
7.2.15.	Edge Protection
7.2.16.	Excavations
7.2.17.	Extreme Weather Conditions
7.2.18.	Fall Prevention Plan and Planning
7.2.19.	First Aid Boxes and Equipment
7.2.20.	Fire Extinguishers, Precautions and Fighting
7.2.21.	Fuel and Flammable Liquids
7.2.22.	General Record Keeping
7.2.23.	Hand Tools

7.2.24.	Hazardous Chemical Substances
7.2.25.	Hazard Identification and Risk Analysis (HIRA)
7.2.26.	Hazards and Potentially Hazardous Situations
7.2.27.	Health and Safety Audits, Monitoring, Reporting and Statistics
7.2.28.	Health and Safety Disciplinary Procedure
7.2.29.	Health and Safety Management Notice Board
7.2.30.	Health and Safety Organogram
7.2.31.	Health and Safety Plan Submission
7.2.32.	Health and Safety Policy
7.2.33.	Health and Safety Training
7.2.34.	Heat Stress and Sun Protection
7.2.35.	Housekeeping
7.2.36.	Incident and Injury Management
7.2.37.	Induction Training
7.2.38.	Ladders, Portable
7.2.39.	Lighting
7.2.40.	Manual Handling of Materials
7.2.41.	Maintenance
7.2.42.	Medical Fitness / Fitness to work
7.2.43.	Method Statements, Safety (SMS)(SWP'S)
7.2.44.	Noise
7.2.45.	Notices
7.2.46.	Notification of Construction Work
7.2.47.	Occupational Hygiene (Personal Hygiene and Infectious Diseases)
7.2.48.	Permits to Work
7.2.49.	Personal Protective Equipment. (PPE)
7.2.50.	Plant and Machinery

7.2.51.	Planned Task Observations
7.2.52.	Portable Electrical Tools
7.2.53.	Public Safety and Security
7.2.54.	Risk Assessment of Plant and Equipment
7.2.55	Roof Work
7.2.56.	Safety Meetings: Pre- Start, Review etc.
7.2.57.	Safety, Health and Environmental Representatives and Committee's
7.2.58.	Safety Officer (CHSO), Roles and Responsibilities
7.2.59.	Signage
7.2.60.	Site Clearance
7.2.61.	Site Establishment
7.2.62.	Site Layout Plan
7.2.63.	Site Specific Safety Rules
7.2.64.	Smoking on Site
7.2.65.	Speed restrictions and Protections
7.2.66.	Stacking and Storage of materials
7.2.67.	Sub-Contractors
7.2.68.	Transportation of Workers
7.2.69.	Trespassing
7.2.70.	Toolbox Talks
7.2.71.	Vehicles and Traffic Management
7.2.72.	Ventilation
7.2.73.	Vibration
7.2.74.	Visitors to Site
7.2.75.	Waste Management
7.2.76.	Water Management
7.2.77.	Welding, Grinding, Cutting etc.

7.2.78.	**Welfare Facilities**
7.2.79.	**Working at Heights**

LISTED BELOW PLEASE FIND SITE SPECIFIC OCCUPATIONAL HEALTH AND SAFETY STIPULATIONS IN ALPHABETICAL ORDER. IT MUST BE NOTED THAT SOME ITEMS MAY BE OF MORE DETAIL THAN OTHERS, THE REASON BEING THAT DUE TO THE LEVEL OF RISK ASSOCIATED WITH THESE ITEMS THAT MORE DETAILED INFORMATION IS NEEDED TO BE BROUGHT TO THE PC'S ATTENTION, BUT THIS MUST NOT BE SEEN AS AN INDICATOR THAT OTHER ITEMS ARE OF LESS IMPORTANCE.

7.2.1.	**Accident, Incident Investigations**

All Injuries sustained on the site are to be categorized into the following categories:

- first aid.
- medical attendance (Doctor).
- disabling; and
- fatal injuries

The PC must manage Accident/ Incidents. A procedure for the management of all health and safety accidents/Incidents must be drawn up and implemented. This procedure must define the responsibilities, methodologies and processes that must be followed for:

- Reporting an incident/accident.
- Investigating an incident/accident.
- Analysing an incident/accident to determine the root cause.
- Identifying and implementing corrective actions to prevent a recurrence; and
- Communicating information concerning an incident to relevant persons and / or groups.

A documented, detailed investigation report must be submitted within 7 days to the Project Team which as a minimum includes the following:

- The date, time, and location of the accident.
- Witness statements, including residential and contact details.
- A detailed description of the accident, including photographs.
- The Initials, Surnames, residential and contact details of any injured person/s.
- Injury details (if applicable).
- A summary of the first aid and / or medical treatment provided (if applicable).
- The status of any injured persons (if applicable).
- The root causes of the incident; and
- Detailed corrective actions, including responsible persons and target dates for implementation.

A Near Hit/Mis is an incident which may have the potential to cause harm, injury or damage and need therefore to be reported and investigated to prevent the potential negative effect it may have been realised.

The contractor/ Supervisor/Employee must report each incident that occurs (including Near Hits/Mis) to

the CHSO without delay. Preliminary details must be recorded on the same workday or shift on which an incident occurs. In the event of a significant incident, with the potential to cause serious injury, harm or damage taking place, work must cease and may only resume once the necessary actions, including the re-evaluation of any relevant risk assessments have been taken to reduce the risk of recurrence. Work may only be permitted to recommence once formal authorisation has been granted by the CHSO after consultation with the CR 8(1).

In the event of a person requiring First aid such cases must also be recorded in the First Aid Dressing Register. All accidents /Incident investigation reports and related documentation must be recorded on the safety file. All disabling and fatal accidents must immediately be reported to the CHSR telephonically after they occur followed by an e-mail notifying the CHSR of accident.

All incidents as described in Section 24 of the OHS Act must be reported in the prescribed period and manner to the Department of Employment and Labour. Copies of Section 24 reports, including WCL 2 forms must be forwarded to the CHSR.

The PC must on a monthly basis include in his Self-Audit Report all injuries sustained on site with the required remedial measures taken. Accident/ Incidents and the identified Root Causes with the recommended corrective measures must be included on the agenda of Safety Committee Meetings for discussion and reported back on at the next progress meeting.

7.2.2.	**Alcohol and Drugs**

A fit-for-work policy must be in place, incorporating zero tolerance for any drugs (including prescribed medication with an intoxicating effect) or alcohol in the system of a driver or operator. Drug and alcohol testing must be part of all medical fitness assessments for the issue of medical fitness certificates.

No alcohol and other drugs will be allowed on site. 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 medication must inform the CHSO officer or the safety representative accordingly. A register must be kept of all persons on prescription medication with the contact details of the medical practitioner prescribing such medication.

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 the CHSO or Safety Representative.

Any person on the construction site who is suspected of being under the influence of alcohol or other intoxicating drugs must be removed from site. He must be instructed at the time of being removed from site to report the next day for a preliminary inquiry. A full disciplinary process must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the PC for his records.

7.2.3	**Appointments**

The PC shall make appointments as per the Act and its Regulations; structured and guided by the scope of works and its associated risks. The PC must refer to Annexure A for a list of appointments which may

be applicable to his Safety Management Structure.

The contractor shall comply with OH&S Act – Section 8, 9, 13 and 16 and the Construction Regulations 2014.The Contractor must nominate and appoint a responsible person on site to whom KZN DPWI may refer in connection with the Works. (OH&S Act - 16 Section (2)).

The Principal Contractor must ensure that the performance of all specified Works is supervised throughout by a qualified and competent appointed representative of the Contractor, who have experience in the type of work specified. (OH&S Act –Construction Reg. 8 (1)).

Note: No work may commence and/or continue without Management Appointees present on site.

All health and safety appointments must be made in writing and kept on the SSHSF. Where appointments have lapsed or new appointments have been made, such previous appointments and the new appointments must be kept in the SSHSF. Expired appointments may not be discarded or destroyed.

All SHE Appointments must be reflected on the Site SHE Organogram, which must be kept up to date, filed on the SSHSF and displayed in the Site Office.

It is acknowledged that the PC may need to allocate more than one appointment to certain staff members. This practice may only take place if health and safety standards would not be negatively affected, with the CHSR reserving the right to specify otherwise if deemed that it may affect health and safety standards.

Mandatory Appointment of a registered (SACPCMP) Construction Health and Safety Officer on part-time basis. One visit per week (to conduct internal audits, inspections and to attend progress meetings)

7.2.4	**Consultation, Communication and Liaison**

The PC must establish and maintain effective communication and consultative processes, allowing for a two-way dialogue for the duration of the project to ensure that:

- All personnel are kept up to date regarding health and safety matters e.g., Hazards and risks, incidents and lessons learnt, leading practices, performance against objectives, etc.
- General health and safety awareness levels are kept high.
- Prompt feedback is given to personnel about health and safety issues or concerns that they raise; and
- Relevant, and often critical, health and safety-related information e.g., design changes, instructions, reporting of hazardous conditions or situations, etc. is effectively disseminated.

This can be achieved by means of Toolbox Talks, Project Safety Meetings, Health, and Safety Awareness Programs etc.

7.2.5	**Closeout Requirements**

In terms of CR7(1)(e) and CR7(2)(b) the PC must hand over a consolidated SHE File to the Client when Construction work ceases, and the PC hands the site back to the Client. The Sub-Contractors appointed by

the PC are required to do the same for the PC when exiting the site after completion of their work. The onus is on the PC to allow adequate time to ensure the correctness and approval by the CHSR of the files prior to exiting the Site.

The following list is an example of what should be included in the Close out files but is not exhaustive. The CHSR may require further information at the time of completion of the project and the PC will have to ensure that all instructions are met. All records from the start of the project must be included. Daily or monthly inspection records are not required unless they are related to an accident. All records must be in electronic format and submitted to the CHSR for approval in adequately formatted lists and folders. The Layout should be logical and in the same order as in the site files. Upon final approval of the files by the CHSR, two hard copies of the electronic files must be handed over to the CHSR unless otherwise indicated by the CHSR.

Health and Safety close out file requirements.

PC File to include the following:

- Copy of Notification of Construction Work/Construction Permit, stamped by DOL.
- Client SHE Specification.
- Principal Contractor's SHE Plan.
- Client Letter of SHE Plan Approval.
- Organograms (Original and amended.)
- List of SHE Legal Appointments (Originals and amended).
- List of all employees employed on a permanent or contractual basis over the duration of the contract, PPE receipt records.
- Medical Fitness Certificates for all employees.
- Letters of Good Standing for the Project.
- Incident/ Accident Records.
- NCR's.
- CHSR Health and Safety Audits.
- Risk Assessments.
- Method Statements.
- Safe Work Procedures etc.
- List of all Subcontractors.

Sub-Contractor Files to include the following:

- SHE Plan.
- SHE Plan Approval letter issued by the PC.
- Organogram/s (Original and amended).
- List of SHE Appointments (Original and Amended).
- All employees employed on a permanent or contractual basis over the duration of the contract receipt records.
- Medical Certificates of Fitness for all employees.
- PC and own audits.
- Mandatory Agreements (if applicable).
- Risk Assessments.
- Method Statements.

- Safe Work Procedures
- Letters of Good Standing.
- Incident Records.
- Non-Conformance records.

PC to include in it's SHE File the following documentation if not being attended to by other discipline of PSP Team:

- All drawings for temporary structures (suspended beams etc.).
- All operating manuals for any systems that require on-going maintenance, and
- Copies of test results, policies, and procedures for environmental monitoring (silica, noise, dust etc.).

Defect and Liability Period

The H&S files must be kept 'live' for the defect and liability period by the Principal Contractor, including those of their Subcontractors. Any work required during the defect and liability period will require an assessment of the H&S file by the PC's CHSO prior to any work commencing.

7.2.6.	COIDA

The PC must ensure that all employees are fully covered in terms of the COID Act, either through the Workmen's Compensation Commissioner or another registered approved institution and that such cover will remain valid for the duration of the project. Failure to keep his/her cover valid will result in instructions to cease construction work being issued.

The PC must ensure that all Sub-Contractors appointed by him are fully covered in terms of the COID Act, or another institution as indicated above, and that such cover must remain valid for the duration of their contractual relationship with the PC.
The PC must have Public Liability Cover, which must adequately make provisions for any losses because of his and/or his employee's acts and/or omissions, which must remain valid for the duration of the project.

7.2.7.	Competence and Training

The CEO (OHSA S16.1) of the PC will be overall responsible for the appointment of competent Construction Managers and site staff for the duration of the project unless it has been delegated to the Section 16.2 Appointee. All legal appointments are to be made with relevance to the type of work to be performed and kept current with the project programme. The PC, all contract employees, and their supervision, must be in possession of the required qualifications or licences where the activities they must perform require such qualifications or licences.

The following Health and Safety competencies are applicable to certain appointments:
Sec 16.2 and CR 8.1: Supervisors Safety Course (IRCON) or equivalent and Legal Liability Course.
Safety Officer: SAMTRAC / Nebosh/ National Diploma in Safety Management, or equivalent.
SACPCMP CHSO Registration and Relevant Experience.
Safety Representatives: SAQA Accredited SHE Representative Training Course.

Risk Assessor: SAMTRAC / Lex Nexis 3 week SHE Management Course / Nebosh or SAQA accredited Risk Assessors Course
First Aider: SAQA accredited Level 2 First Aid Course.

Where operations are being performed such as Crane Operations, Riggers, Scaffold Erectors, and Inspectors all such operators must be in possession of proof of qualifications, which is in compliance with Legislation, National qualifications Framework, Act 2000: Act No 67 of 2000, or similar industry standard where legislation does not prescribe such training. It must be noted that course providers used for training purposes must be accredited course providers.

Training must be given to each employee, including sub-contractor employees, to equip them with knowledge and skills, understanding of the hazards and the risks as well as mitigating measures to enable such employee as far as it is reasonably practicable to perform his duties in a safe manner.

Specific competency profiles and selection criteria (fitness for work) must be developed for all roles where significant health or safety risk exists.

A formal training needs analysis must be carried out based on the competency profiles and a training matrix must be developed for the project. Competency-based training must be provided and include operational controls (procedures and work instructions), management of change, and emergency response. All employees must hold and maintain the required competencies (including appropriate qualifications, certificates, and licences) and are under competent supervision.

A site-specific induction and orientation programme that highlights health and safety requirements, procedures, and significant hazards, risks and associated control measures must be in place for all new employees and visitors. Personnel must be trained in new or amended standards, rules, SWMS/SWP's ,

Risk Assessments etc. Refresher training must be conducted where required e.g., where employees are found disregarding rules etc. Records must be kept of training, qualifications, experience etc. Whenever training is given follow-ups must be conducted to evaluate the efficiency of the training.

7.2.8.	**Construction Supervision**

As indicated in the previous paragraphs the CEO (OHSA S16.1) of the PC will be overall responsible for the appointment of competent Construction Managers and site staff for the duration of the project. These appointments will be tasked with different supervisory responsibilities to ensure the provision of a safe working environment. The PC is again reminded to refer to Annexure A to determine what Supervisory Appointments need to be made taking into consideration the scope of work, Legislative requirements etc. Note must also be taken of at which stage certain appointments need to be made. The construction team is to ensure the appointed CHSO is kept up to date with all planned activities, to ensure all H&S requirements are met.

The principal contractor must appoint a full-time competent person as the construction manager Cr 8(1) with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in an absence of the construction manager, an alternative must be appointed by the principal constructor.

A construction manager must in writing appoint a full-time construction supervisor responsible for construction activities and ensuring occupational health and safety compliance on the construction site.

7.2.9.	**Defects reporting and correction**

The purpose of any inspection is to determine deviations in need of remedial action. Where defects are identified during any routine inspection, pre-start check or during operation or use of any tools, equipment, motor vehicle, tools, or equipment, etc. needs to be reported immediately.

Steps need to be taken to remedy such defects reported for the purpose of repairing such tools, equipment, etc. Where such remedial action cannot be actioned, immediate measures such as the fitting of Tags, taking out of service etc. need to be applied to limit further use until repairs/replacements have been completed and re-inspection carried out. Such defect reports must be done in writing.

7.2.10.	**Delivery and Placing of Containers. Park homes etc.**

The PC must ensure compliance with OHS Act, Sec 8 and Cr 22. The items must be placed according to the predetermined positions indicated on the Site layout Diagram. Soil conditions, overhead hazards etc need to be taken into consideration when doing Risk Assessments and developing the required method statements. Only trained competent workers and supervisors may be used to execute and supervise the work operations.

7.2.11.	**DSTI's**

The Daily Safe Task Instruction, DSTI, forms a critical part of the Risk Management process No work may be conducted on site without a valid DSTI signed off by the relevant signatories. Supervisors must have the competency to be able to complete DSTI's correctly and the work area must be inspected at the end of the shift.

A DSTI is a pre-start discussion amongst the members of a work team, led by the appointed supervisor, aimed at anticipating hazards and potential risks associated with the activities planned for the day or shift, and ensuring that the necessary control measures are in place to prevent incidents.

At the start of each day or shift, prior to the start of any work, each appointed supervisor must inspect the work area which he is responsible for and ensure that it is safe. He must then conduct a DSTI with his work team specifically concerning the tasks that they will be performing during the day or shift. The relevant SWMS/SWP for the activity must be used as the basis for the discussion. The correct work method must be reiterated, and the identified hazards, risks and control measures must be discussed with the team allowing team members to contribute to the discussion.

Any team member arriving late must first be taken through the information that was discussed prior to his arrival before being permitted to start working. If the work method changes or scope changes

after activities have already begun, the DSTI must be revisited and updated with the team, and the changes must be signed off by the relevant CHSO.

Every member of the work team must sign the DSTI attendance register. The attendance records must be kept and maintained in the contractor's SSHSF.

7.2.12.	Electrical connections

The PC must implement and comply with OH&S Act, Electrical Installation Regulations and Construction Reg 24. All electrical installations must be carried out by an appointed and qualified certified Electrical Installation Electrician. A Certificate of Compliance (COC) must be issued and kept on the SSHSF. Temporary Electrical Installations must be inspected on a weekly basis and recorded in an appropriate register, which must be kept in the SSHSF.

7.2.13.	Emergency drills and evacuations and Procedures

The PC must develop, implement, test, and maintain an Emergency Response Plan, incorporating emergency evacuation procedures that focus specifically on the contractor's team and work activities. The plan must be risk-based and must detail the procedures that must be followed when responding to all potential emergency scenarios such as a medical emergency including first aid response, a fire, an explosion, a hazardous substance spill, rescue from height, rescue from a confined space, etc.

Consideration must be given to the procedures of other occupants on the premises and their emergency procedures to ensure that in the event of an emergency that the PC's Emergency procedure does not hinder or clash with their procedures. Details of any arrangements with external emergency response service providers must be included.

The plan must be adequately resourced to ensure effective implementation. These resources must include appropriate personnel, external emergency response service providers, emergency response equipment, and warning devices. All equipment and warning devices must be identified, maintained, and tested to always ensure availability.

An Emergency Response Team (ERT) responsible for the implementation, management and execution of the Emergency Response Plan must be established. The roles and responsibilities of each team member must be clearly defined in the plan. Each team member must receive appropriate training to ensure that each role is performed competently.

The process for managing incident communication, notification, and reporting must be incorporated into the Emergency Response Plan. The person responsible must be clearly identified, and the protocols for communicating with internal and external stakeholders must be defined.

At project work site:

- A suitable evacuation alarm (siren) must be provided. All persons working in an area where an evacuation alarm is sounded must respond to it immediately.
- Suitable fire-fighting equipment must be provided and maintained, and personnel must be trained in fire-fighting procedures and the use of fire-fighting equipment.
- Suitable first aid equipment and supplies must be provided and maintained, and an adequate

number of appropriately trained First Aiders with kits must be in place.

- Emergency assembly points positioned in safe locations away from containers, plant and equipment must be designated and conspicuously signposted. In the event of an evacuation, all persons, personnel, and visitors, must assemble and be accounted for at these emergency assembly points.
- All personnel must receive awareness training on the applicable emergency response procedures, and all visitors entering the site must be properly instructed in these procedures as part of their induction training.
- The emergency response procedures must be displayed on noticeboards.
- A Site Layout Plan indicating evacuation routes, emergency assembly point locations, and the positioning of emergency equipment (fire extinguishers, first aid boxes, etc.) must be prominently displayed in all offices, boardrooms, noticeboards, and in other locations on the site as may be required.
- An up-to-date list of emergency telephone numbers must be compiled and maintained. A copy of this list must be posted at each site entrance, in each office, and notice board.
- Emergency response drills must be conducted to test the effectiveness of the emergency procedures and equipment, as well as the knowledge and proficiency of the response personnel. Where appropriate, drills must include liaison with and the involvement of external emergency response service providers. A variety of emergency scenarios must be tested including, but not limited to, medical emergencies, fires, rescues, and hazardous substance spills. A drill must be carried out one month after site establishment and six-monthly thereafter. Each drill must be monitored, and the outcomes (highlights and shortcomings) must be documented. Corrective actions must be identified and implemented to address the shortcomings, and the Emergency Response Plan and associated procedures must be amended as required.

7.2.14.	**Environmental Management**

The PC must take all precautionary steps to prevent any pollution because of his activities. Matters such as waste disposal, cement run-off, not permitting vehicles leaking oil and fuel on site, not permitting disposal of water used for cleaning paintbrushes into normal wastewater disposal lines, not permitting the burning of materials etc. must be addressed in his Environmental Management Plan.

Workers must be familiarised with the contents of the Environmental Management Plan as part of the Induction. The PC's Environmental Management Plan must be submitted with his SSHSP for approval.

7.2.15.	**Edge Protection**

Persons falling over open edges can result in severe injuries. The PC's responsible person must ensure that edge protection forms part of the Fall Protection Plan. Edge protection must be able to withstand the load imposed of an average worker's weight should the worker lean against such edge protection. All edges which pose a fall risk to persons must be protected. Barricading tape or snow netting is not deemed as suitable edge protection and may only be used to highlight such edges.

Activities, which may create temporary open edges such as the removal of drain covers must be always supervised whilst open or be cordoned off with temporary suitable barricading.

7.2.16.	Excavations

The PC must implement and comply with Construction Regulation 13 OH&S Act - General Safety Regulation 13. All excavation work must be conducted under the Supervision of an appointed competent person. Excavations must be fitted with barricading which will be able to withstand the load of the weight of an average worker should he lean or accidentally fall against such barricading. Barricading must be constructed to provide access points for workers to enter and exit and the removal of excavated material without leaving other sections of the excavation exposed.

When excavations are necessary across roadways or pathways where necessary, "Detour" notices and detour routes must be provided. Should such Detours have a negative impact on other occupants of the premises the execution of the excavations plus the implementation of detour routes must be communicated to the responsible person for the other occupants of the premises at least 7 working days prior to such excavation work taking place.

Warning signs and flashing warning lights at night must be provided in suitable positions to warn any persons approaching the area of the location and extent of any excavation should such excavations be accessible by other occupants or members of the public. Where the possibility exists of unknown hidden services where excavations are conducted, such risks must be communicated and the required risk reduction measures implemented such as the digging of pilot holes, use of detection equipment and insulated tools.

All excavations must be registered, inspected daily before commencement of work, after inclement weather, certified safe, and recorded accordingly in the appropriate register. No loose material may be stored within 1 meter from the edge of the excavation and more than 45 degrees to the angle of repose.

7.2.17.	Extreme weather conditions

Adverse weather conditions can lead to loss of life and damage to structures and plants. The PC must develop an emergency plan which stipulates measures how to mitigate the impact such weather conditions can have. The Contractors' Emergency Plan must include procedures to be followed for adverse weather conditions such as high winds, Lightning, Flooding etc. Response measures must be communicated to the appropriate Supervisory Staff including materials required such as ropes, shutter board etc.
In the event of impending adverse weather or other conditions, Emergency response Staff and Supervisory Staff must be made aware of the impending weather conditions and the possible need to implement the required response measures.

7.2.18.	Fall Protection Plan and Planner

PC to comply with OHS Act, Sec 8 and CR10. When there is a risk of falling off, into or over a risk assessment must be carried out regardless of the potential fall distance. The PC shall appoint a competent Fall Protection Planner. The Fall Protection Planner shall have the following minimum qualifications:

- Fall Arrest Course (Accredited to SAQA Unit Standard 229998)
- Fall Protection Planner (Accredited to SAQA Unit Standard 229994)

An appropriate, project specific FPP, developed by the appointed competent appointed Fall Prevention Planner must be developed, and submitted as an annexure to the SSHSP when submitting the SSHSP for approval by the CHSR. The following aspects as a minimum must be included in the FPP:

- Risk Assessment identifying areas where a Fall Risk may exist as well as the required mitigating measures e.g., Signage, Edge Protection, Hard Barricading etc.
- Permit system for working at heights.
- Prevention measures for falling tools or equipment, and persons, and link to emergency plan regarding rescue.

7.2.19.	**First Aid Boxes and Equipment**

The PC complies with GSR 3. The contractor shall ensure that competent First Aiders is appointed and present on site. All First Aiders must have a level 2 First Aid certificate. Where Sub-Contractors are appointed, they need to comply with GSR 3 and have trained, competent First Aiders on site. If they do not have trained competent First aiders, they may enter into a First Aid Agreement with the PC to provide such services, subject to the PC having enough First Aiders on site as well as First Aid Equipment. The

written agreement entered with Sub-Contractors must be kept on the PC as well as the Sub-Contractors SSHSF.

Adequately maintained First Aid equipment compliant with Statutory Safety Regulations must be available on site. The contents of First Aider kit must always comply with minimum amount as per Annexure to GSR. Records of First Aid Treatment administered must be kept in an appropriate register.

The Location of the First Aid facilities must be indicated with the required SABS approved Symbolic Safety Signage posted at the entrances to such facilities. The name of the First Aider must be displayed in addition to Symbolic Safety Signage.

7.2.20.	**Fire Extinguishers, Precautions and Fighting**

The PC must ensure that the location of fixed Fire Extinguishing Equipment is indicated on his Site Layout plan and in his Emergency Plan. The procedure to be followed in the event of a fire must be translated into the languages of all workers on site, posted on notice boards, communicated to workers and records kept of such communication.

All work involving the generation of a Fire Risk may only be executed upon the issue of a Hot Work permit, which includes the presence of Fire Extinguishing equipment and checking for smoldering materials.

Fire precautions on construction sites in addition to the requirements of CR 29 must include Good Housekeeping, the keeping of minimum amounts of Flammable liquids etc. SABS compliant signage such

as "No Smoking" "No Naked Flames" etc. posted where appropriate.

Sufficiently trained persons such as Supervisors need to be available on site to be able to perform fire-extinguishing exercises and use equipment correctly persons involved with activities such as welding, grinding etc. must be able to perform fire-extinguishing exercises when required.

All Fire extinguishing Equipment must be serviced annually, numbered, on registered and inspected by a trained competent person at least every six months. All fire extinguishing equipment which has been discharged or damaged in any way must be sent off site and be attended to by a SABS accredited Service Agent.

7.2.21.	**Fuel and Flammable liquids**

The PC must ensure compliance with OH&S Act - General Safety Regulation 9 and Temporary Storage of Flammable liquids on Construction Sites, Construction Regulation Reg.25.

Storage areas must be provided with a bund wall to contain 110% of the maximum volume of the containers stored in the area. Drip trays of sufficient size must be provided at tap off points.
Storage Containers must be clearly marked with a "Flammable Liquid, No Smoking & No naked Flame" signs, be clearly marked to indicate contents of the tank and bonded to prevent static electricity sparks being generated. An adequate number of dry chemical fire extinguishers, each with a minimum capacity of 4.5kg, must be provided,

Before any fuel-driven plant or equipment is refueled, it must be switched off, and no refueling may take place where machinery is kept running. Refueling must take place at designated safe areas and appropriate warning signs installed.

The Contractor must ensure that storage areas must be designated at a safe distance from other buildings. It must be kept free from all combustible materials and must be constructed from brick/ mortar/steel, no timber or similar combustible materials may be used.

The following SABS compliant Symbolic Safety Signage need to be displayed: "No Smoking" and" No Naked Flames", Fire extinguisher and Location signs.

7.2.22.	**General Record Keeping**

The PC and Subcontractors must keep and maintain Health and Safety records to demonstrate compliance with the Clients SSHSS, OHS Act, Act 85 of 1993 and the Construction Regulations of 2014. The PC must ensure that records of all incidents/accidents, training, inspections, audits etc. are kept in the SSHSF held in the Site Office.

THE SSHSF must always be present on site. The PC must ensure that every sub-contractor opens and maintains his own SSHSF under the control of the PC's person responsible.

7.2.23.	**Hand Tools**

Hand Tools and its use can contribute to accidents and incidents. The PC must ensure that all Hand Tools brought onto and used on site are safe for use. Hand tools must be inspected by an appointed competent person at least once a month and the results of such inspections to be recorded on an

appropriate register. If hand tools are found to be unsafe, it needs to be removed, tagged unsafe for use and removed from site.

No Makeshift hand tools may be brought onto and used on site. If found such hand tools must be removed from site with immediate effect and/or disposed of.

7.2.24.	**Hazardous Chemical Substances (HCS)**

The PC must comply with the Hazardous Chemical Substances Regulations as published in Government Notice No. R. 1179 dated 25 August 1995 and amendments thereto. No HCS may be permitted to be brought on site without an MSDS. The PC must ensure that all the necessary use and storage precautions are taken and that the required safety equipment, first aid measures etc. is available.
All employees required to use HCS, or products containing Hazardous Chemical Substances must be adequately and comprehensively trained with regard to the requirements of the Hazardous Chemical Regulations including the potential sources of exposure and the potential risks to their health caused by exposure.
MSDS's for all Hazardous Chemical Substances must be kept on site in the SSHSF and recorded in a HCS Register.

7.2.25.	**Hazard Identification and Risk Assessment (HIRA)**

The PC must comply with Sec 8 of the Act and CR 9 by allowing for and ensuring that Site-Specific HIRA's are conducted by an Appointed Competent Person. Supervisory staff must be equipped with the required skills to do HIRA's.

The purpose of a RA is to firstly identify main activities which form part of the construction process, then its sub activities, then the hazards associated with the sub-activities, the risks associated with the sub-activity hazards, then determining the Pure Risk level by using a risk matrix, propose risk reduction/control measures and then re-evaluating the effect such risk reduction/control measures have had on the risk level once again using a risk matrix to calculate the Residual Risk Rating ,which must be as low as reasonably practicable (ALARP) and finally communicating the hazards, residual risks, risk reduction/control measures etc. to the workforce. In the form of a SWMS/ SWP.

Please refer to item 9 at the beginning of this document for details regarding the submission of Risk Assessments and the approval process.

The PC and its appointed competent person will be responsible for the evaluation and approval of HIRA's developed by their appointed Sub-Contractors and must be as a minimum of the same standard as required by the CHSA. If at the time of an Audit or any other time being present on site, it is found that HIRA's and/or SWMS/SWP used by Sub-Contractors are of a sub-standard level the CHSR will issue instructions to cease work which is applicable to such sub- standard RA's and/or SWMS until amended to a satisfactory level.

The PC must ensure that all persons who could be negatively affected by hazards and risks associated with construction operations are informed and trained according to the hazards and risks and are conversant with the Safe Work Procedures, control measures and other related rules.

If the CHSR identifies alternative hazardous activities or risks for which a Risk Assessment was not performed or was not identified as part of a Risk Assessment Process, the PC will be required to implement corrective measures before being permitted to continue with work.

It must be noted that although the CHSR may approve RAMS, the responsibility rests with the PC as the employer in terms of Sec 8 of the Act to ensure the correctness of such RAMS and the required mitigation measures etc.

7.2.26.	Hazards and Potentially Hazardous Situations

The PC must immediately notify other Sub-Contractors and/or occupants of the site where work is being conducted 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 conducting of new RA's, amending RA's the development of new SWMS, amendment of existing SWMS's, barricading, signage etc.

7.2.27.	Health and Safety Audits, Monitoring, Reporting and Statistics

The CHSR shall strive to at least once a month or at closer intervals as determined necessary for the duration of the contract conduct Health and Safety Audits of the work operations. The audit shall consist of a detailed audit of physical site activities and administration of Health and Safety. Copies of the audit reports will be forwarded to the Project Leader and the PC within seven working days. Copies of the Audit report must be kept in the SSHSF. The CHSR may at any time visit the site for an Audit without prior notification to the contractor.

The CHSO must conduct monthly Self-Audits including all the sub-contractors on site at the time of the audit as approved at the time of the SSHSP approval. The results of the Self Audits must be made available to all members of the project team at least 7 days before the following progress meeting. At the progress meeting the CHSO must report on his findings and closing out of deviations.

Issues such as injury and incident records e.g., Near misses, First Aid, Medical Cases, and the Disabling Injury Frequency Rates must be included in the audit report. Copies of self-audit reports must be kept is the SSHSF.

7.2.28.	Health and Safety Disciplinary Procedure

The PC is responsible for maintaining discipline on site in terms of his employees, sub-contractor employees and visitors. In line with this requirement, the PC will be required to have a documented Disciplinary Procedure, which must be communicated to all persons working on site. Where a breach of a Site Health & Safety Rule or The PC's Safety Procedure is identified, the Contractor must ensure that disciplinary action is initiated against such contravening Persons/s in accordance with the documented procedure. Depending on the nature of the breach and the nature of such presence on site, the process as outlined below could be used:

- First breach – verbal warning/counselling

- Second breach – written warning/counselling
- Third breach - appropriate disciplinary action taken such as Suspension Without Pay/Termination of Service, penalties etc.

All disciplinary steps taken in terms of OHS such as NCR's issued must be included in the PC's monthly, SHE Audit report submitted to the CHSR and other team members.

7.2.29.	**Health and Safety Management Information Notice Board**

The PC must provide a Safety Management Information Notice Boards (SMI boards) as a minimum near the site office and if possible, in other areas e.g., eating and changing areas, with the following information posted:

- Supervisors Photos and Contact details.
- First Aider Photo and Contact detail.
- Valid, completed DSTI/S for the day's activities.
- Emergency Procedure.
- Any other information as required by the CHSR.

7.2.30.	**Health and Safety Organogram**

An organogram outlining the Health and Safety Management Structure as per appointments under the OHS Act and the Regulations must be included in the SSHSP and kept in the SSHSF. The Organogram must also be displayed in the Site Office.

Any changes to the appointments as per the approved Organogram must result in the Organogram being revised. All previous organograms must be kept in the SSHSF and not be discarded. The initials and Surname of appointees. Including the description of their appointment must be reflected on the Organogram.

7.2.31.	**Health and Safety Plan and Submission**

The PC must submit a detailed SSHSP based on this document known as the SSHSS. The contents of the SSHSP can be found under Annexure A of this document. Note must be taken of the required documentation which needs to be submitted as part of the SSHSP.

Failure to submit the required documentation as required by Annexure A may result in a delay of the SSHSP approval process. When submitting the SSHSP to the Client/or its duly appointed representative the PC's CHSO must contact the CHSR appointed to this project, who's contact details can be found under the heading "Item 5.3: The Project Team" to arrange a sit-down meeting to discuss the PC's SSHSP to work towards approving the SSHSP.

It must be noted that no evaluation or approval of the PC's SSHSP will take place without engaging with the CHSO.

7.2.32.	**Health and Safety Policy**

The Safety, Health and Environment Policy signed by the Chief Executive Officer must form a part of the SSHSP. The policy must outline Health and Safety objectives and set out how they will be achieved and implemented during construction.

The Policy must, in addition to being part of the SSHSP and being kept on the SSHSF also be communicated to all employees, copies of such communication must be kept on the SSHSF. A copy of the Health and Safety Policy but must also be displayed in the Site Office.

7.2.33.	**Health and Safety Training**

The PC must ensure that all site personnel and Visitors attend a site-specific health and safety induction training session before starting work or being permitted entrance onto the site.

Employee Induction training must also include training on the risks associated with the work to be executed, method statements (SWP's) and emergency procedures. Visitor Induction training must include items such as site safety and health risks, steps to follow in the event of emergency, restricted areas and on the site and health and safety rules.

A record of attendance reflecting the signature of all training must be kept in the SSHSF. Employees and Visitors must carry proof of induction training whilst being on site, which may be a nametag or sticker, displayed on a hardhat. The PC must ensure that none of his employees, or sub-contractor employees, including transport and delivery Contractors entering the site delivering materials and/or equipment, may proceed to enter the Site or any operations area until they have received all training required under applicable laws and regulations, including, but not limited to, work activity inductions and Site-specific induction etc.

Induction Training is generally valid for 1 year but should the contents of the training previously rendered change then follow-up training must be rendered irrespective of the fact that induction training may still be valid.

The PC must prepare and present to all its employees its own Contractors Induction training, explaining the PC's SSHSP, Rules, the obligations imposed by the Occupational Health and Safety Act and Regulations, as well as a Site Specific Induction, which must as a minimum consist of an introductory briefing explaining the nature of the work, the general hazards which may be encountered during the operation, and the particular hazards attached to their own function within the site.

7.2.34.	**Heat Stress and Sun Protection**

The PC must ensure compliance with the OHS Act- Environmental Regulations 2(4). Heat stress can form part of many work activities associated with construction work. Where work is of a physical nature, and/or is conducted in excessive ambient or radiant temperatures the PC must implement measures such as rest breaks, provision of adequate amounts of water, scheduling work to coincide with cooler times during the day such as in the mornings and late in the afternoons.

Workers who are exposed to excessive ambient or radiant temperatures can suffer from a lack of ability to concentrate with resultant injuries becoming a probability.

The PC must ensure that all personnel are protected from excessive sunlight exposure by means of the use of long sleeve shirts, long trousers, brims to safety helmets, UV factored sunscreen and shade structures etc.

7.2.35.	**Housekeeping**

The PC must implement and ensure compliance with the requirements of Construction Reg. 27.

The PC must ensure that all work areas are kept in a neat and tidy state, free of debris and rubbish, at all times. Unless otherwise directed, the PC must dispose of all debris, rubbish, spoil, and hazardous waste off site in a designated and authorized area or facility.

The PC must keep in mind that poor housekeeping does not only contribute to the creation of an unsafe working environment but also a poor image of the project and its management, as well as the department as the client. In the event where housekeeping standards are not maintained or implemented the CHSR may issue instructions to cease, work until housekeeping is of an acceptable standard without the Client entertaining any extension of time claims or cost claims by the PC. **Keeping the site in a neat and orderly condition always is the sole responsibility of the PC.**

Regular safety/housekeeping inspections on at least a weekly basis to ensure maintenance of satisfactory housekeeping standards must be conducted by the PC and the results of each inspection documented and the recorded. Records of such inspections to be kept on the SSHSF for viewing by the CHSR. The PC must ensure that all supervisory staff are made aware of their responsibility to monitor and manage housekeeping in their respective areas of responsibility.

DSTI's must make provisions for checking that work areas are left in a neat and tidy fashion at the end of each shift. The CHSO must be on a random basis after signing off on DSTI's at the end of shifts

inspect such work areas to verify that such work areas are left in a neat and tidy condition. Should it be found that DSTI's are not a true reflection of the condition the work area was left in, the Supervisor must be engaged regarding the matter and if it is found to be a repeated situation, disciplinary measures must be implemented.

Waste disposal and general refuse disposal areas must be made available and barricaded off. The PC **MUST** ensure that refuse removal frequencies are in line with waste /refuse generation frequencies. If waste/refuse generation rates increase the removal frequencies must increase, no overflowing waste/refuse disposal areas will be tolerated.

Employees must, as part of the hazard communication process on DSTI's, be made aware of the hazards and risks created due to poor housekeeping practices. Incidents of poor housekeeping practices and poor levels of supervisory enforcement of good housekeeping practices must be considered as part of offenses which may require steps to be followed as part of the PC's disciplinary process.

7.2.36.	**Incident and Injury Management**

The PC must implement and ensure compliance with OH&S Act - General Administrative Regulations 6 and 8. This section must be read in conjunction with item 10.1 Accident, Incident Investigation.

The PC must have in position prior to site establishment and have submitted with his SSHSP for approval by CHSR suitable /sufficiently documented accident/ incident reporting system/procedure that is following all applicable statutory requirements.

Any incident or "near miss" involving the PC or its subcontractor's or any third party's personnel, property, plant or equipment, must with immediate effect be verbally reported to the CHSR by the PC's CHSO whether injury to personnel or damage to property or equipment resulted from such incident or "near miss". The verbal reporting must be followed within 48 hours by a brief written report stating the known facts and conditions, including a preliminary assessment of the most likely potential consequence of the incident in the circumstances, as well as the preventative measures to be implemented by the end of the shift. The abovementioned procedure does not exempt the PC from providing accident reports required by Statutory Authorities.

In the event of any serious incident resulting in a fatality, or permanent disability, the incident scene must be left untouched until witnessed by a representative of the SAP. This requirement does not mean that First Aid cannot be administered, or the scene is made safe. In the event where items or equipment must be moved to assist in removing injured person/s photographs detailing the scene of the accident must be taken if possible before the scene is disturbed preclude immediate first aid being administered and the scene being made safe.

Names and contact details of witnesses to the accident must be taken by the CHSO or a SHE Representative delegated with such responsibility by the CHSO ASAP after arriving at the scene of the accident to assist in the accident investigation procedure.

Failure by the PC's SHE Officer to provide the CHSR with the abovementioned report within the specified timeframe as required will result in the Construction Manager (CR 8.1) being required to submit to the CHSR with a letter indicating the reasons as to the required report not being submitted as well as when the report will be submitted which may not exceed 72 hours from the time of the incident. Failure to comply with the abovementioned requirements at the discretion of the CHSR may result in instructions to cease work being issued until the detailed report as required has been submitted.

In the event where an injury has taken place such injury must be managed by ensuring that appropriate medical treatment is provided to ensure that the injured person has the opportunity as far as is reasonably practicable taking the injuries sustained into consideration to return to a level of good medical fitness and be able to resume his normal day to day activities whatever they may be.

The PC must ensure that suitably qualified medical persons/practitioners must treat all injured persons.

7.2.37.	**Induction Training**

Each employee and person wishing to enter the site must attend all mandatory Health and Safety Induction Training applicable to the project. No employee or visitor will be permitted to enter any project work site until he has attended this training. Each employee and visitor must carry proof that he has completed the induction training and may be removed from site if such proof cannot be produced on request.

All visitors must receive a visitor induction briefing before entering any project work site. However, this induction does not permit a visitor to enter a site unescorted. Visitors must be always accompanied by an appropriate senior employee who has been fully inducted.

7.2.38.	**Ladders, Portable**

The PC must comply with OH&S Act - General Safety Regulation 13A. PC to ensure that:

- All ladders used on the site is constructed and used in compliance with the OH&S Act and Regulations.
- Ladders, which provide access to a working platform, must extend at least one meter above the platform where it provides access, and is secured to prevent slipping.
- Timber ladders must not be painted other than with clear preserving oils, clear varnishes etc.
- Damaged ladders must be removed from the work area, tagged unsafe and removed from site.
- All ladders must be tagged with a clearly visible tag or numbered which is recommended to be positioned below the second rung from the top, logged in a register and inspected by a competent person.
- All portable ladders when in use must be held by an assistant or properly tied down.
- All persons using ladders must be trained in the correct, safe use of ladders.

7.2.39.	**Lighting**

The PC must implement and comply with OH&S Act – Environmental Regulations, Schedule E of the Regulation.

The PC must ensure that natural lighting is inadequate to provide workers with a safe working environment. Lighting issues must be addressed by providing artificial lighting in all work areas and walkways.

Portable lights must be of a robust construction, have adequate stability and be fitted with a mechanical guard to protect the lamp. No makeshift lights such as overhead fluorescent tube type of lighting may be positioned on floors or leaned against walls. Cables and plugs must be in good condition and properly routed, preferably overhead to prevent tripping hazards.

Where work activities include wet processes, cables and lights must be suitable to be used in such wet environments. All lighting must be electrically safe for use in terms of construction, cables etc.

It must be kept in mind that where lighting is of the "plug in" and "Plug out" type it is classified as Portable Electrical Equipment and must be accordingly numbered, inspected, and recorded on a Portable Electrical Equipment Register.

In the event where night work will be conducted Illumination checks must be performed to ensure conformance to minimum lighting requirements and the provision of emergency lighting must be addressed in the event of power failures.

7.2.40.	**Manual handling of materials**

The PC must ensure that no employees are required or permitted to lift or move by hand any object that

is likely to create a risk of injuries being sustained by such employees. The shape weight etc of the items to be lifted must be considered and where required issues such as training in correct lifting methods, use of PPE use of alternative lifting methodologies must be considered.

Any handling or lifting task that can only be done manually must be planned and rehearsed before the task is done. If more than one person is involved in a task a communication procedure must be agreed in advance. Lowering the load must be done in a controlled manner. Dropping a load is dangerous and must be avoided.

As a guideline 25 kg is the limit of what a person can safely handle. Where there are loads exceeding 25 kg the risk of handling the load must be mitigated to ensure minimal potential for any injury.

When mechanical lifting aids are provided, they should be used.

Extra care should be taken when lifting awkwardly shaped objects.

Position the feet correctly. The feet should be placed hip-width apart to provide a large base. One foot should be put forward and to the side of the object, which gives better balance.

Bend or 'unlock' the knees and crouch to the load. The weight will then be safely taken down by the spine and the strong leg muscles will do the work.

Get a firm grip. The roots of the fingers and the palm of the hand should grip the load. This keeps the load under control and permits it to be distributed more evenly.
The following should be considered when conducting the Risk Assessment with regards Manual Handling and taking into consideration the task factors, physical demands and tools involved in the task:

- Load weight / frequency.
- Hand distance from lower back.
- Asymmetrical trunk / load.
- Postural constraints.
- Grip on the load.
- Floor surface.
- Environmental factors.
- Carry distance.
- Obstacles in route the load must be carried.

Team Manual Handling:

- Load weight.
- Hand distance from lower back.
- Vertical lift region.
- Trunk twisting / sideways bending.
- Postural constraints.
- Grip on the load.
- Floor surface.
- Environmental factors.
- Communication, co-ordination, and control.

7.2.41.	**Maintenance**

All equipment and structures on site, whether it is fixed or temporary, must be maintained at intervals

no longer than that recommended by the manufacturer, under a planned maintenance system to ensure the safety of personnel who are responsible for operating or using the equipment.

Proof of all current tests and maintenance certificates relating to cranes, lifting beams, pulley blocks, lifting gear and slings must be kept on site in the SSHSF and be available for inspection by any person authorized to do so.

7.2.42.	**Medical Fitness/ Fitness for work**

The PC must ensure compliance with CR 7(1) (g) and that all his personnel as well as those of Sub-Contractors appointed by him are healthy and medically fit for their respective assignments and keep proof of such medical fitness on the SSHSF. The PC must ensure that all persons required to have a certificate of medical fitness must be in possession of such certificates prior to being permitted to assume their duties on site. Should employees be found on site without a valid medical fitness certificate at the time of the CHSR conducting an audit, such employee must be removed from site and the CHSR may at his discretion issue instructions to cease work.

All medicals to include the Annexure 3 form as per the Construction Regulations 2014 signed and stamped by the occupational medical practitioner. The PC must ensure that only suitably qualified occupational health practitioners issue medical certificates.

Should a worker's scope of work change, or he be required to work outside the scope of work for which his medical certificate has been issued, he may not be permitted to do such work until an updated medical fitness certificate has been issued.

The PC must develop and implement a programme to manage employee fitness for work for all employees working on the project. Working hours must be managed in compliance with applicable legislation. An exit medical from a previous project or site must not be deemed as a valid medical.

The medical examinations carried out for all drivers and operators must include testing and assessment of medical conditions that could affect the safe operation of vehicles or equipment. Specific testing and questioning must be carried out to determine whether an individual:

- Suffers from epilepsy or any other medical condition deemed to be a risk by the occupational medical practitioner.
- Makes use of chronic medication that could affect performance
- Is colour-blind.
- Has poor day or night vision.

The medical examinations carried out for employees that are required to work at height must include testing and questioning to determine if an individual suffers from epilepsy, hypertension (high blood pressure) or any other medical condition deemed to be a risk (with regard to working at height) by the occupational medical practitioner.

7.2.43.	**Method Statements, Safety (SMS)/ Safe work procedures (SWP)**

SMS's/SWP must be in line with the associated Risk Assessments. The SMS's/SWP's must detail in a step-by- step and methodical manner on how the task is to be done from beginning to the end and

must indicate what tools/equipment will be used at each stage and/or how the work area is to be accessed. The Task Items listed in the SMS's/SWP must tie up exactly with the task items being assessed in the Risk Assessment document.

Acceptance of a SMS by the CHSR does not relieve the PC of his responsibility for ensuring full compliance with SSHSS and any applicable legislation.

7.2.44.	Noise

The PC must implement and comply with OH&S Act - Environmental Regulation 7 and the Noise Induced Hearing Loss (NIHL) 2003 Regulations.

The PC must meet statutory requirements regarding limitation of noise emitted by machines and equipment. When personnel are required to operate such equipment, noise level exposure at the operator position must not exceed an equivalent level of 85-dB (A) or more during normal working conditions without the required mitigating measures being implemented.

Employees working in the vicinity must not be subjected to an equivalent continuous level of 85-dB (A) during normal operating conditions. The PC must comply with time periods and PPE requirements where applicable.

Consideration must be taken of the fact that the sound level at any work/site boundary caused by mobile equipment must not exceed the nighttime background level pre-existing the operation of the equipment. **At no time must the noise emission of the equipment or activities cause the sound level at the nearest residence, hospital ward or adjacent structure to exceed 40-dB (A).**

Sound levels must be measured in accordance with SANS 10083, with due allowance being made for tonal or impulsive components. A plot plan of project or plant must be drawn up to identify the measuring points with date, time, and frequency duration of measurement.

Symbolic safety signs, warning employees and visitors regarding the hazard of noise in the area, shall be erected at all entrances to the area and in a position where it must be clearly visible.

7.2.45.	Notices

If the PC receives any notice issued by any relevant Government Authority concerning Health and Safety, he must immediately upon receipt of such notice comply with the requirements of such notice. The PC must provide the CHSR with copies of any such notices, correspondence or directions of whatsoever nature issued by the abovementioned Government Authority concerning Health and Safety within 2 hours of the dispatch and/or receipt of such notice, correspondence, or direction.

7.2.46.	Notification of Construction Work

Notification of Construction Work

The PC must submit an Annexure 2, "Notification of Intention to Commence Construction Work" to the closest Department of Labour office, have it stamped provide the CHSR with a copy. A copy must be kept on the SSHSF for inspection purposes. Submitting a copy to the CHSR does not constitute

permission to proceed with construction work.

Should construction work extend past the completion date reflected on the submitted Annexure A, the PC must inform Department of Labour accordingly and file the amended Annexure A on the SSHSF.

It must be noted that no work of any nature may take place on site until permission to proceed with site Handover has been received from the Project Leader after receipt of letter from CHSR.

7.2.47.	Occupational Hygiene (Personal Hygiene and infectious Disease Management)

The PC must ensure that its personnel and subcontractor's personnel is able to maintain and maintain high standards of hygiene, personal and in connection with the performance of the work. All work areas must be kept in a clean and tidy state. Waste disposal must be facilitated by providing sufficient waste collection receptacles and the correct disposal frequencies to prevent waste build up.

Employees must be trained on the contents of the Personal Hygiene and Infectious Disease Management Plan which must identify any anticipated hazardous biological agents which may be present in the work environment, trained in measures to protect themselves in terms of personal hygiene and provided with the necessary means to minimise the risk of contracting the harmful effects associated with such hazardous biological agents.

All Resting and Eating areas must be kept in a clean, tidy condition as well as being positioned away from contaminants and hazards. No eating and drinking may take place outside the designated eating or in office areas. Facilities for hand washing must be made easily accessible for persons to wash hands when leaving the construction area and entering the construction site offices.

7.2.48.	Permit to work

The PC must implement a permit-to-work system to control identified high-risk activities such as:

- Major lifting operations.
- Hot work.
- Cold work in areas where operational plant or equipment can pose a threat.
- Working in confined spaces.
- Excavation work (cable clearance permit).
- Use of a hazardous substance, e.g., lead.
- Roof work etc.

Permits to work must list the specific conditions and hazards involving the specific task. Only authorized competent persons may issue and sign off Permits-to-work.

7.2.49.	Personal Protective Equipment (PPE)

The PC must implement and comply with OH&S Act – General Safety Regulation 2. It must be kept in mind that PPE must only be the last resort in addressing risks. All Contractors' personnel on site and visitors, must always use the following minimum personal safety equipment which must be compliant

with relevant SABS codes. Each item of PPE supplied for use on the project site(s) must be designed and manufactured in accordance with the relevant South African National Standard, ISO standard, or other recognized international standard.

Visitors (minimum PPE)

- Hard Hat,
- Reflective vest and
- Safety Boots.

If required due to on-site risks,

- Eye Protection,
- Hearing Protection,
- Respiratory Protection

No Visitor, regardless of title or position may be permitted to enter the construction site without the minimum PPE which is a Hardhat, Reflective Vest and Safety Boots. Should the CHSR when present on site find any person without the minimum PPE, he may issue instructions to cease construction work.

On site Workers.

- Suitable protective clothing (Overalls for all employees working on-site)
- Personnel exposed to noise levels exceeding 85dB (A), SANS 11451 approved hearing protection.
- Gloves, (Type appropriate to risks or recommended by product manufacturers).
- Eye Protection/Face shields, (Appropriate to risks or recommended by product/equipment manufacturers).
- Leather spats, (Appropriate to risks or recommended by product/equipment manufacturers).
- Safety harnesses, (Where work is conducted from a Fall Risk Position).

Additional PPE requirements must be determined through hazard identification and risk assessment. This hazard-specific PPE (such as hand protection, hearing protection and respiratory protection) must be worn as required (e.g., when in a certain area, when performing a certain task, or when working with a certain substance).

The correct PPE must always be worn:

- In accordance with site requirements (as indicated at the entrances to a project site and at the entrances to buildings and/or designated areas on the premises).
- In zone areas (e.g., noise zones and respiratory zones).
- As required by a Safe Work Procedure, a risk assessment, or a Material Safety Data Sheet (MSDS).

PPE must be provided to the employees by the PC and Contractor at no cost to the employee. Due to hygiene risks associated with interchanging PPE Site visitors wishing to gain access to the site must have their own personal PPE.

Should a worker not have the required PPE he may not be permitted to work. Employees must be trained in the correct use and how to take care of PPE. Supervisors need to as part of the pre-shift inspections when conducting DSTI's check that employees have the required PPE and that it is in good condition.

If an item of PPE has worn out, has become damaged, or is found to be defective in any way, it must be replaced by the contractor. Employees must be provided with facilities which enable them to store their PPE e.g., lockers.

Employees who wear prescription spectacles (i.e., require corrective lenses) must make use of either:

- Prescription safety glasses (with permanent fixed side shields) that conform to the requirements of a recognized national or international standard (e.g., CSA, ANSI, or equivalent), or
- Over-spec safety glasses or goggles.

Any person who refuses to wear PPE as required must be removed from the site.
Symbolic signs indicating mandatory PPE requirements must be prominently displayed at the entrances to a project site and at the entrances to buildings and / or designated areas on the premises where additional PPE is required. These signs must comply with SANS 1186.
The PC must ensure the:

- Control the issuing and replacement of PPE.
- Maintenance of a register as proof that items of PPE have been issued to Individuals with signatures of receipt of PPE.
- Keeping adequate quantities of replacement PPE on site.
- Carrying out regular inspections to ensure that PPE is being used correctly, is being maintained in a good, serviceable, and hygienic state, and is not being shared between employees.

7.2.50.	**Plant and Machinery**

The PC must ensure that he controls **all plants and equipment when entering and exiting the site**. Daily monitoring of all plants and equipment is required prior to commencing work, on issue and prior to use. A full list of hired and own plant must be available for inspection at each audit.

All daily inspection records are to be filed in the SSHSF and must not be more than one week behind. Only competent, medically fit plant operators must be permitted to operate plants. Medical certificates of fitness must be filled in the SSHSF. No unauthorized person may be permitted to operate or use plant.

Lifting equipment, plants or material that require annual load testing by AIA, are to comply with the Driven Machinery Regulations (2015). Operators must be adequately trained and certified to operate mobile cranes or crane trucks. Certificates and registers are to be placed in the SSHSF.
Each contractor making use of plant and machinery on the project site must develop, document, and implement SWMS that will ensure the safe use and operation of such equipment.

For all plant and machinery, the following documentation must be kept in the Equipment Profile:

- Test records and certificates.
- Inspection records.
- Maintenance records; and
- Details of any modifications or repairs made.

7.2.51.	Planned Task Observations

PLANNED TASK OBSERVATIONS

All contractors and sub-contractor supervisors must perform Planned Task Observations (PTO's) to verify that the control measures that have been identified in SWMS's (and associated Risk Assessments) are being adhered to and are being properly implemented, and to provide guidance where deviations are noted.

Each supervisor must complete at least one PTO per day involving one or more employees in his work team.

When an unsafe act or condition is identified, the supervisor must coach the work team to correct the act or condition in line with the Safe Work Procedure.

Where valid changes to the work method are identified, the supervisor must ensure that the SWMS/SWP and Risk Assessment are updated to reflect the current practice.

7.2.52.	Portable Electrical Tools

The PC to ensure compliance with EMR 10. PC to ensure safe Portable Electrical Equipment is used on site. The PC is required ensure that all portable electrical equipment is to be inspected by a qualified electrician. The inspection includes:

- Supply cabling distribution boards, fixed lighting, and portable appliances monthly or more frequently if required by frequency of use.
- Extension leads, welding machines, compressors, pumps, and portable hand- tools on a weekly basis.

All sub-Contractor equipment must be inspected and tested at the same intervals as indicated above. The PC must implement a management system to ensure effective inspection and control over equipment such as a monthly colour coding tagging system. Tagging must be durable and be able to withstand the stressors associated with working in a construction environment.
A record book/register must be kept reflecting the following:

- Item unique number.
- Items inspected.
- Deviations identified.
- Signature Of Inspector.
- Date of inspection.

In addition to the abovementioned, the PC must ensure the following:

- Only trained authorized persons use the Tools.
- That equipment is inspected at the start and end of each shift and included in the DSTI.
- That damaged, unsafe equipment is removed from service, tagged unsafe for use until repaired and returned to service.

7.2.53.	Public Safety and Security

Hoarding/Fencing

The PC must hoard/enclose the construction site to prevent unauthorized entry and disruption to the site where required. The hoarding must be as follows:

- The hoarding/ enclosure must be at least **1.8-meter-high** and must enclose the entire parameter of the site.
- It must be constructed of material, which must be able to prevent unauthorized persons from entering the site such as welded mesh/ diamond mesh and 80% shade cloth.
- A Lockable gate must be at least 1.8 meters in height as well a security staff member to control access.
- Hoarding parameters must be as per project's decanting plan.

Warning / informative signs

The entrance of the site must have easily visible construction safety warning signs posted which must contain as a minimum of the following information:

- Construction activities ahead/ Construction Site.
- No unauthorized entry.
- Different Types of Personal Protective Equipment required for the site as per risk assessments.
- Speed limit (10 km/h), unless otherwise stipulated.
- Visitors to report to the site office.
- Where applicable the Construction Permit Number issued by DEL.

Appropriate warning signs must also be posted in different locations of the site to create awareness of danger e.g., demolition in progress sign, required PPE and deep excavations signs etc.
Informative signs indicating the Emergency Assembly Point/s, location of fire extinguishing equipment and first aid equipment must be displayed where required.

Location of site office

The location of the site office should be in an area that will not require visitors to pass through or enter areas where construction work is active and will not require the re-location of the office as the project progresses. The location of the site office must be included in the Site Layout Plan submitted with the SSHSP.

7.2.54.	Risk Assessment of Plant and Equipment

The Pc must ensure that Risk assessments of plant and equipment is undertaken and documented before arrival at site, after major service, after modification, and before use in an unusual operating mode or conditions. The RA's must be undertaken by a suitably qualified and experienced person.

RA's for equipment mobilising to Site must be conducted prior to the equipment arriving on Site, and must consider, where applicable, potential for entanglement in moving parts, crushing or striking by moving or falling objects, cutting or stabbing by sharp objects, high pressure fluids, electrical shock or burns, burns from hot or cold surfaces, slips, trips and falls, ergonomic design of access and egress , seating, vibration, noise, exhaust fumes, etc.

The identification of hazards should consider normal operations, abnormal or unusual operations,

breakdowns, and servicing operations. Particular attention must be given to fall protection attachment points when there is a requirement to work where a fall risk exists for activities such as repairs to equipment due to breakdowns. Where repairs to earthmoving equipment must take place on site the risk assessments must include provisions to deal with oil, diesel, and coolant spillages.

The PC must maintain all Plant and Equipment in good order and condition. Where equipment becomes inoperable due to breakdowns or other reasons and is being replaced by other equipment the same RA' requirements will be applicable to such replacement equipment.

The CHSR may inspect items of plant or equipment brought to site by the PC for use on site. Should the CHSR deem that it is inadequate, faulty, unsafe or in any other way unsuitable for the safe and satisfactory execution of the work for which it is intended, he must advise the Contractor in writing and the Contractor must forthwith remove or have repaired the item from the site and replace it with a safe and adequate substitute which does not entitle the PC to any additional claims or extension of time in respect of delays caused by the CHSR's instructions.

7.2.55.	**Roof Work**

The PC must ensure compliance with OH&S Act - General Safety Regulation 10. Safe access for gaining access on to roofs must be provided which can be ladders, scaffolding, man-cages, or elevated work platforms. Man-cages and elevated work platforms may only be used where scaffolding, and ladders is not suitable.

A lifeline, consisting of a steel wire rope, the diameter which has been calculated to suit the span and the number of persons attached to it must be erected on the ridge of the structure including the use of a mechanical device, e.g., turnbuckle, for tensioning the wire rope.
The lifeline to be erected/installed must be recorded on register, and checked daily by a suitably qualified, competent, appointed person. Employees working on the roof must be clipped onto the lifeline via their safety harnesses. No work may be permitted during rain or windy conditions more than 30 kph.

Roof structures must not be overloaded with bundles of roofing materials. Only bundles for immediate use must be stacked onto the roof structure. Bundles must be sufficiently secured to the structure to prevent it from being blown away or falling off. No materials may be permitted to be stored on the roof structure over weekends or holidays.

7.2.56.	**Safety meetings: Pre-start, Review etc.**

The PC must ensure compliance with OH&S Act, Section 19. Weekly Toolbox meetings must be conducted with employees. Topics for Toolbox Meetings must be pertinent to the site, equipment used, activities performed, SHE committee resolutions. Records of contents of Toolbox Meetings as well as attendance records must be kept on the SSHSF.

The PC must conduct at least one formal Health and Safety Meeting per month or at shorter intervals if required by the CHSR. Safety Representative Inspection report's contents must be discussed in addition to items such as Safety Statistics for the Month, PPE Issues, training requirements, CHSR Audit reports

and results etc.

Daily Safe Task Instructions (DSTI) briefings must take place with each work team before the start of each shift. Hazards and risks as well as the required risk reduction measures must be communicated to workers. The Supervisor, CHSO and workers must sign the DSTI before work commences. At the end of the shift after the required close out check and singing, the DSTI's must be signed off and filed.

Weekly Safety Review Meetings in all safety-related aspects of the week must be conducted. OHS must be a standing item on Planning and Progress Meeting Agenda's and attended by the CHSO.

7.2.57.	SHE Representatives and Committees

The PC and Sub-Contractors comply with Section 16 and 17 of the Act by allowing for and ensuring that Health and Safety Representative(s) whom, after consultation, have been appointed and trained to carry out their functions.

The appointments must be in writing and the Health and Safety Representative must carry out regular inspections, keep records and report all findings to the CHSO. The CHSO must co-ordinate at least monthly H&S Committee meetings and attend all H&S committee meetings held by the Contractors. The CHSO shall ensure that H&S is discussed at all internal production or progress meetings. Issues arising from the H&S committee meetings are to be discussed at internal meetings, as well as all H&S related issues, incidents, non-conformances, and penalties issued (if applicable).

Feedback from the CHS committee and close-out of findings is imperative. Minutes of meetings must be kept for all H&S interventions and meetings. Minutes of meetings must be filed on the SSHSF.

7.2.58.	Safety Officer (CHSO) Roles and Responsibilities

The Contractors' Construction Health & Safety Officer is responsible for assisting with legal compliance for his 16 (2) Appointee and Construction Manager 8(1). He must report functionally to the KZN DPWI CHSR. The PC must ensure that the CHSO performs the following duties:

- To assist in the control of all health and safety related aspects of on site.
- Assist and co-ordinate the development of the SSHSP.
- Attend Project Planning Meetings.
- Assessment and approval of Sub-Contractors SSHSP's.
- Facilitation of Site HS Meetings.
- Identification of Hazards and risks relevant to the construction project through regular co-ordinated site inspections.
- Establish and maintain HS communication structures, systems, and distribution of HS specific documents to sub-contractors, compiling of project specific emergency preparedness documentation and supervising testing and evaluation of emergency preparedness plans.
- Conducting of induction training sessions.
- Evaluation of compliance by sub-contractors to project specific HS Plans and Client specification through inspections and audits.
- Overseeing the reporting and investigation of project related incidents.
- Overseeing the maintenance of all HS related records.

- Participation in management reviews of HS Systems.
- Draft analysis of trend analysis to identify system deficiencies and incident trends, outline relevant improvements and incorporate changes into the HS management system.
- Reviewing and updating the SHE Plan.
- Ensuring that all staff, visitors, sub-contractors etc comply with the site rules and procedures.
- Ensure that no new workers or Contractors commences work without prior approval of their SSHSP or any other documentation as per required applicable legislative documentation.
- Ensuring that no work will be permitted to be performed without a valid RA and where required Method Statement as agreed with CHSR until such documentation has been approved by the CHSR.
- Any other duties as agreed between Construction Manager and/or CHSR.

7.2.59.	**Signage**

The Pc must ensure that signage is posted on site as per site risks, legislative requirements e.g., General Safety Regulations or SANS, prohibiting entrance, specifying PPE requirements, location of First Aid Station and Fire Fighting Equipment etc. Signage must be noted on the site layout plan indicating where fixed/temporary signage is required.

Temporary electrical signage is to be included for the temporary electrical supplies. All rules or signage provided by the PC must be adhered to. Where possible wording on signage must be in English and isiZulu.

7.2.60.	**Site Clearance**

Site Clearance activities will vary depending on the condition of the site in terms of it being overgrown, if trees must be removed if redundant materials must be removed from site etc. All site clearance activities irrespective of what it entails must be conducted under supervision and subjected to the Risk Assessment Process as well as the development of SMS's (SWP's).
Where the site is overgrown with vegetation, RA's must make provisions for the presence of snakes, poisonous vegetation, sharp objects, open trenches and excavations and insects. All tools, equipment, vehicles and machinery must be in safe working conditions and operated by competent trained persons. Employees must be provided with the required PPE.

7.2.61.	**Site Establishment**

Site establishment can only be deemed complete when the site is enclosed, signage is posted, welfare facilities have been provided, containers have been placed etc. Upon site establishment being deemed as complete the PC must refer to the "Site Establishment Checklist" under item 12.6.1 which can be found under Annexures at the end of this document. Only once all items have been ticked as being present/completed can the PC proceed with other construction activities.

The checklist as indicated above must be signed by the CHSO and the CR8.1/CR8.7 and submitted to the CHSR. Should the CHSR conduct a site visit/audit and find that site establishment was not completed before commencing with other construction activities the CHSR may issue instructions to cease construction work until all outstanding items have been attended to.

7.2.62.	Site Layout Plan

The PC must ensure that a Site Layout Plan is developed and submitted with the SSHSP as indicated in Annexure C of this document. This document must indicate items such as Location of the Site Office, Laydown areas, Location of welfare facilities, Traffic routes, location of first aid and emergency equipment etc. After Site establishment and as the project progresses the plan must be updated if required and a copy provided to the CHSR. The Location Plan must be displayed at the entrance to the site as well as at the site office.

7.2.63.	Site Specific Health and Safety Rules

The PC must provide and ensure implementation and compliance with the following Site-Specific Health and Safety Rules and requirements:

- Safe Access and Egress to be provided to and from work areas.
- Good Housekeeping and Stacking Practices to be implemented and always maintained.
- Continuous cleaning to take place especially at the end of the shift and be recorded in DSTI "close out "Section.
- Safe and orderly routing of electrical cables and air hoses to prevent tripping of persons must be always enforced.
- Rigging Studies must be conducted for all heavy and/or difficult lifts.
- No lifting of loads in windy conditions exceeding 30 km/h depending on RA, Rigging Study, dimensions and weight of the load and lifting capability of the crane.
- Prohibition of certain activities in wet conditions e.g. un-shored excavations, use of portable electrical equipment, elevated work, roof work etc.
- Employees may not be transported on the back of a bakkie and or truck, unless fitted with a canopy and separated by means of a barrier from tools and equipment.
- All elevated work must include compulsory use of Lifelines (unless secured to an approved fixing point), Safety Harnesses & Fall Arrestors including a height rescue system and training of rescuers. To comply with SABS-EN –353-355,358,360-365,795,813&SABS033, 1833, 341,564-567,892,1891,12277 and 4878 -Fall Right SA standards or equivalent - always attached in elevated positions and use of double lanyards.
- Scaffolding must comply with SANS 10085 standards. Scaffold inspectors and Erectors may not be the same person. Access ladders must be erected on the inside of frames, staggered every 2 meters with a safe landing platform. Trapdoors must be provided on working platform. Scaffold must remain tagged "Unsafe for use" until certified "Safe for use". If modified to be re-tagged "Unsafe for use: until certified 'Safe for use".
- Where required work benches must be provided for onsite work.
- Barricading must be able to sustain loads imposed on it, should a fully grown person fall against it or lean against it, solid frame covered with orange netting to highlight presence.
- Tools and equipment used in working at heights to be secured by use of lanyards/Tool belts.
- Minimum PPE required to permit entry onto site: Safety boots, Hard Hat and Reflective Vest.
- When grinding, welding and gas cutting operations take place Shields and extinguishers must be used to contain sparks and control fire spread. Fire watchers are to be posted whenever Hot Work is conducted.
- Guide ropes must be used whenever lifting operations are conducted.

- Flagmen must wear reflective vests.
- Heavy mobile plant and earth moving equipment must be fitted with rotating lights and operated with lights on and functional reverse hooters and/back up alarms.
- Concrete buckets to be fitted with safety Chains and opening wheels.
- All portable generators and welding machines with electrical outlet sockets must be fitted with earth leakage switches.
- All electrical items used in wet conditions must be fitted with waterproof caravan type plug fittings.
- No machinery e.g. grinder designed with guards may be operated without guards unless approved by CHSR.
- All Self- Propelled mobile machines must be fitted with Fire Extinguishers, Revolving Lights and Back-up and Reverse Hooters.
- All oxygen –acetylene cylinders must be fitted with Flashback Arrestors and proper, good condition hoses and clamps in a trolley equipped with a fire extinguisher.
- Supervision ratios between Foreman and workers not to exceed 1:15 ratio.
- Staff to always wear appropriate PPE with sufficient replacements to being available.
- All employees on site carry identification e.g. ID cards reflecting the following information:
- Initials and surname.
- Designation.
- Company number.
- Name of Employer,
- and proof of induction, sticker on hardhat unless otherwise agreed with CHSR.

Welfare Facilities to:

- Be protected from environmental conditions such as rain, sun, and wind.
- Tables and Chairs to be provided in eating areas.
- Refuse bins for disposal of food containers and food scraps.
- Hand-washing facilities.
- Portable toilets 1:10 ratio.
- Separate male and female toilets with doors that can be locked from the inside.
- Running water, soap, and toilet paper to be always available at toilets.
- All facilities to be always kept in neat hygienic condition.

7.2.64.	**Smoking on site**

The PC may not permit any person to smoke on site unless in designated area, which has clearly been identified by means of signage being posted indicating it as the designated smoking area which has been selected in accordance with applicable legislative requirements. Applicable receptacles must be provided for the disposal of cigarettes buts to ensure good housekeeping standards are maintained and prevent accidental fires being started.

7.2.65.	**Speed Restrictions and Protections**

The maximum speed limit on site shall be limited to 10 km/h unless otherwise agreed upon with the CHSR. Vehicle movement routes on site must be clearly indicated where applicable and indicated on the Site Layout Plan.

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.

7.2.66.	**Stacking and Storage of Materials**

The PC must ensure compliance with CR 28 and General Safety Regulations 8. Stacking and Storage must take place under the supervision of an appointed competent person.

Storage areas must be designated, kept neat and under control. Inspections of stacking and storage areas must be done and recorded on a register which must be kept on the SSHSF. Adequate stacking, storage and lay down areas must be provided on site. If unauthorized persons can enter an area where materials are stacked, such area must be barricaded off to prevent access to such area. Stacks should not exceed the height to width ratio of 3:1.

Hazardous chemical substances must be stored in dry storerooms as per the specifications of their material safety data sheets.
No materials may be stored outside the site perimeter, unless agreed to in writing with the CHSR and Project Leader.

7.2.67.	**Sub-Contractors**

All Sub – Contractors shall be responsible for their own Health and Safety on site. The PC shall sign Section 37(2) mandatory agreements with the Sub – Contractors for the works, which stipulate the arrangements and procedures to ensure compliance by the Sub-Contractor and his/her employees with the requirements of the OHS Act, Act 85 of 1993, CR and the SSHSS.

All subcontractors must have their own SSHSP applicable to the scope of work they will be performing on site, which has been approved in writing by the PC's CHSO. Records of such approval letters must be kept on the PC's as well as the Sub-Contractors SSHSF.

The PC **may not** permit any Sub-Contractor to start working on site without his SSHSP being approved. The PC's failure to ensure compliance with any of the abovementioned and to monitor Sub – Contractor's compliance on site may be seen as failure by the PC to enforce good SHE Practices, Compliance with the Act, CR and this SSHSS may result in the CHSR issuing instructions to cease work.

7.2.68.	**Transportation of Workers**

The PC and Sub-Contractors shall not:

- Transport persons together with goods or tools unless there is an appropriate area or section of the vehicle separated/partitioned off from the area where workers are seated in which to store such goods or tools.
- 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 light duty vehicle (LDV) 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.
- The driver of any LDV may not permit more than two passengers to occupy the cab of any LDV. Drivers of such vehicles must have a valid driver's license for the code of vehicle being driven by them.

7.2.69.	Trespassing

The PC and his employees may not trespass on any land/area outside the limits of the site, as indicated at the time of Site Handover, and must communicate such requirement to his sub-contractors. The PC must ensure that all fences are maintained during the Contract.

The PC and his employees are required to work only in the specified construction areas and access to these areas is only by specified routes. Should access routes change due to work related issues on site such routes with applicable restrictions must be communicated to the employees. Changes in routes must go with the required barricading and signage to prevent unauthorized persons from using such routes to access the site where such routes may enable unauthorized persons from entering the site, Where changes in routes may have a negative impact on the day-to-day functions of persons other than that of the PC such changes in routes must take place in consultation with such affected parties.

7.2.70.	Toolbox Talks

The contractor must prepare a Toolbox Talk on a weekly basis and must share it with all personnel for which the contractor is responsible (including all sub-contractors). Toolbox Talks must address health and safety issues that are relevant to the work performed on the project site and must include information and / or knowledge sharing, lessons learnt from incidents that have occurred, information concerning specific hazards and / or risks and control measures to prevent injury, etc.

Attendance records must be kept and maintained in the contractor's SSHSF.

7.2.71.	Vehicles and Traffic Management

The PC must ensure compliance with OHS Act- Construction Regulations 23 and that all vehicles entering the site, moving around on the site, parked on site, and exiting the site does so in a safe manner. In addition to the abovementioned, the following must be adhered to:

- Vehicles parked outside the site area must be parked in such a way as to not obstruct the movement of public vehicles nor put the public in danger in any way.
- Contractor's vehicle drivers must comply with all safety directions and speed signs.
- Drivers must ensure that vehicle loads are properly secured before setting the vehicle in motion.
- The Contractor must only permit the authorized, necessary number of vehicles on site.
- Traffic rules and signs such as speed signs; stop signs must be always obeyed.
- No vehicles may be left with the engine running or the keys in the ignition.
- Warning signage must be posted on the outside of site entrances of the site to make road users aware of vehicles entering or exiting the site.

7.2.72.	Ventilation

The PC must implement and comply with OH&S Act Environmental Regulation 5. Any activity/task, which generates excessive dust such floor sanding, or fumes, such as welding where natural ventilation is not sufficient to ensure the provision of a safe working environment must include the use of an exhaust extraction system. Care must be taken to ensure that outlets of exhaust extraction systems do not pose a risk to the health and safety of other persons on or outside the site or contaminate other ventilation system intakes.

7.2.73.	Vibration

As far as it is reasonably practicable, exposure to vibration must be eliminated. However, if this is not possible, short-term solutions to decrease exposure include:

- Reducing the vibration levels.
- Removing the person from the vibrating equipment / tools.
- Reducing the period that the person works with the vibration equipment e.g., at least 40 minutes break after 20 minutes working with a machine that vibrates excessively.

To reduce exposure to vibration:

- Consider buying equipment that operates effectively at lower speeds.
- Buy equipment with built-in damping materials.
- Buy lighter tools if they are available - they require less of a grip.
- Maintain the equipment.
- Make sure equipment is balanced and there are no worn parts.
- Use remote controls when they are available.
- Workers must be informed to reduce their grip on the equipment when it is safe. The less time they have their hands on the equipment the better. They need to relax their hands during these brief breaks.

7.2.74.	Visitors to Site

The PC must ensure that all Visitors to the site are subjected to a site-specific safety induction training session prior to being allowed access to site. Visitors are required to conform to the Site PPE requirements and should arrive at site with the appropriate PPE, with the minimum being safety boots/shoes, hard hat and a vest.
Visitors must not be permitted to roam around on site without being accompanied by a representative of the PC, so as to make them aware of on-site hazards, risks, No-Go areas etc.

7.2.75.	Waste Management

The PC must ensure that a Waste Management Plan must be developed which must be submitted with the SSHSP as indicated in Annexure C. It must be kept in mind that a site with areas overflowing with waste creates health hazards, attracts rodents and a poor image of the company.
Sufficient receptacles and designated stored areas must be provided which must be cleared frequently. Consideration must be taken of the types of waste generated and where required waste separation must form part of the Waste Management Plan. Environmentally hazardous waste such as empty paint

tins, fluorescent light fittings, asbestos etc. must be disposed of in line with applicable legislative requirements.

7.2.76.	Water Management

The PC must keep in mind that South Africa is a country with limited water resources. Water may only be obtained on site, as per contract stipulations. The PC may not make unauthorized water connections. Where water is brought onto site by means of water tankers the PC must ensure that the water is suitable for its intended use.

The PC must communicate to all workers the importance of water conservation and management. Run-off water from washing and cleaning activities must be managed in a controlled manner to not create areas where water becomes stagnant contributing to the creation of areas for mosquitos to breed. Run-off water must also not contribute to the creation of slippery surfaces. It is recommended that taps are of the press-button type to reduce water wastage.
No hazardous substances such as paints, oils etc. may be disposed of into drains, and sewers.

7.2.77.	Welding, Grinding, Cutting etc.

The PC must comply with the requirements of the OHS Act-Construction Regulation 29. The Pc must also ensure the following:

- That all equipment used is in a safe working condition.
- The Hot Work Permits have been issued by the appointed Competent Person.
- That where required the necessary screens have been erected to protect against harmful rays and sparks.
- The presence of close proximity fire extinguishing equipment.
- Dampening down takes place where required.

7.2.78.	Welfare Facilities

The PC must implement and comply with Construction Regulation 30. PC to ensure:

- Sufficient chemical ablution facilities on site where connection to existing sewer systems is not possible.
- Separate facilities must be provided for males and females with gender signs posted at entrance or on door.
- Ablutions must be serviced weekly as a minimum.
- Safe drinking water must be provided for employees.
- Safe, clean storage areas for workers personal belongings and clothing need to be provided.

7.2.79.	Working at Heights

The PC must implement and comply with OH&S Act - General Safety Regulation 6 & Construction Regulation 10. Note: The following must be implemented in conjunction with the requirements for Elevated Work and the Fall Protection Plan as covered earlier in this document:

- If personnel are required to work in any area which is not guarded, which has a fall risk, either above or below ground, fall protection equipment must be provided and utilized by the personnel. Fall protection includes Safety harnesses and double lanyards with the correct hooks, approved lifelines, or other approved means.
- All harnesses must comply with SABS/EN/EC Standards and must be in a" good state", inspected using a comprehensive inspection checklist, and "in-date" as per manufacturing guideline.
- All persons working in a fall risk position, e.g., scaffolding, formwork/false work, support work, roof work, etc. must be trained to work at heights with a minimum of an Accredited Fall Arrest Course compliant to applicable SAQA Unit Standards.
- The supervisor of the work relating to the fall risk area must be trained at a minimum level of a SAQA Accredited Fall Arrest and Basic Rescue Course.
- A Rescue Kit (Contents of the Rescue Kit as per the Fall Protection Plan, and as determined by the type of working from a fall risk position that is being conducted on site) must be always available on site.
- The site must have at least one Accredited Fall Arrest Rescue Co-Coordinator on site who will co-ordinate the rescue operation.

7.3	ANNEXURE C CONTRACTORS HEALTH AND SAFETY DECLARATION

CONTRACTORS HEALTH AND SAFETY DECLARATION FOR TENDERS

Project Name: Khambula Combined School
WIMS Number: 059196
Client: Department of Education

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 Site-Specific Health and Safety Specification attached in the tender document.

2. I hereby declare that my company and its employees have 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 Site-Specific Health and Safety Specification

4. I confirm that I may not commence with any part of construction work under the contract until the Client has approved my OH&S Plan in writing.

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 Site-Specific Health and Safety Specification
b) Approved Construction Occupational Health and Safety Plan
c) Occupational Health and Safety Act, Act 85 of 1993, and
d) Construction Regulations of February 2014.
e) Any other documentation as specified in the SSHSS or as required by the CHSR.

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 Tender

7.4	ANNEXURE D BASELINE RISK ASSESSMENT

Please note that this is a Baseline Risk Assessment, Contractor to perform detailed Issue Based and Continuous Risk Assessments in sequence of the activities anticipated of being performed.

Project:	KHAMBULA COMBINED SCHOOL WIMS NO: 059196

REF N0	059196	RISK ASSESSOR	P.P ZULU	REVISION	00	DATE	09/2026

Likelihood		Consequence		RISK = 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

Ref Nr	Activity	Potential Hazard	Potential Risk	S	H	E	Pure Risk	Mitigation Measures	Residual Risk	Risk Ranking
1.	Vehicles accessing and exiting the site	1.1. Vehicles can run out of control due to mechanical failure etc.	1.1. Collisions with pedestrians, buildings, other vehicles. etc.	x			4x5=20	1.1. Vehicle Maintenance records plus pre-trip inspection to be available before permitting vehicle on site etc.be available before permitting vehicle on site.	2x5=10	2

		1.2. Medically unfit operator.	1.2. Medically unfit operator could cause collisions, death, injury etc.	x			4x5=20	1.2. Medical fitness certificate to be available before site entry etc.	2x5=10	2
		1.3. Load falling off vehicle.	1.3. Striking persons, other vehicles or structures etc.	x			3x4=12	1.3. Load securing must be inspected before trip and before entering the site etc.	2x2=4	1
		1.4. Incompetent operator.	1.4. Incompetence can lead to collisions, death, injury etc.	x			4x5=20	1.4. Driver proof of competence before entrance to site etc.	2x5=10	2
		1.5. Vehicle leaking fuel and oil.	1.5. Contamination of natural resources, roadway damage.			x	2x2=4	1.5. Maintenance records, pre-trip inspections	1x1=1	1
	TOTALS		PURE RISK				76	RESIDUAL RISK	35	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
2.	Manual Offloading of materials	2.1. Sharp Edges	2.1. Cuts to hands etc.	x			3x3=9	2.1 Use of hand Protection etc.	2x1=2	1
		2.2. Incorrect Lifting methods	2.2. Back strain, injury etc.	x			3x2=6	2.2. Training in correct lifting methods etc.	2x2=4	1

		2.3. Hands caught between surfaces.	2.3. Bruising, Fractures etc.	x			3x2=6	2.3. Awareness Training etc.	2x1=2	1
		2.4. Flammable substances	2.4. Fires, Explosions Burns etc.	x			3x3=9	2.4. Storage in correct sealed containers etc.	1x1=1	1
		2.5. Spillage of fuel	2.5. Contamination of soil etc.			x	3x2=6	2.5. Storage in correct sealed containers etc.	1x1=1	1
	TOTALS		PURE RISK				36	RESIDUAL RISK	10	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
3.	Clearing Vegetation	3.1. Use of Brush Cutters by incompetent operators	3.1. Contact with high speed, sharp edges resulting in cuts and lacerations etc.	x			3x4=12	3.1. Training of operators etc.	2x2=2	1
		3.2. Use of slashers by incompetent users	3.2. Sharp edges resulting in cuts etc.	x			3x3=9	3.2. Training of users etc.	2x2=2	1
		3.3. Venomous snakes and poisonous insects	3.3. Respiratory failure, organ failure, death etc.		x		3x5=15	3.3. Snake awareness training and treatment facility identified	3x2=6	2
		3.4. Sharp objects	3.4. Cuts, infections etc.	x	x		1x3=3	3.4. Use of gloves, pre-cut, checks etc.	3x1=3	1

		3.5. Flammable substances	3.5. Fire,explosions, burns etc.	x	x		3x3=9	3.5. Use of approved containers etc.	3x1=3	1
		3.6. Spillages	3.6. Contamination of soil etc.			x	3x6=6	3.6. Training in correct re-fueling procedures	2x1=2	1
	TOTALS		PURE RISK				54	RESIDUAL RISK	18	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
4.	Placement of Containers	4.1. Defective lifting equipment can fail when used.	4.1. Load can detach strike persons, damage container etc.	x			3x5=15	4.1. Load test Certificates for lifting equipment etc.	2x2=4	1
		4.2. Uncontrolled movement of load.	4.2. Load can strike persons or property etc.	x			3x5=15	4.2. Use of guide ropes etc.	2x2=4	1
		4.3. Persons under suspended load.	4.3. Load can crush persons etc.	x			3x5=15	4.3. Barricading lifting zone off. Competent supervision.	1x1=1	1
		4.4. Incorrect placement of containers.	4.4. Re-positioning of load=re-exposure to risks etc.	x			3x3=9	4.4. Planning site Office area layout beforehand etc.	1x1=1	1
	TOTALS		PURE RISK				54	RESIDUAL RISK	10	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**

5.	Erecting fencing/Barricading/Hoarding	5.1Manual Handling of material	5.1. Physical exertion and muscular strain etc.	x			3x3=9	5.1. Training in correct lifting methods etc.	1x1=1	1
		5.2. Material may have sharp edges	5.2. Cuts to hands, skin penetrations etc.	x			3x2=6	5.2. Use of correct hand protection etc.	1x1=1	1
		5.3. Persons/limbs being struck with tools/items.	5.3. Bruising, fractures etc.	x			2x1=2	5.3. Training and Competent supervision etc.	1x1=1	1
		5.4. Unknown location of underground services.	5.4. Accidental contact with electricity/water supplies etc.	x			3x4=12	5.4. Reference to drawings, use of detection equipment etc.	1x2=2	1
		5.5. Hot Environmental Temperatures.	3.5. Heat exhaustion, sunburn etc.	x			3x3=9	5.5. Adequate water supplies, use of sunscreen creams etc.	1x1=1	1
	TOTALS		PURE RISK				38	RESIDUAL RISK	6	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
6.	Stacking and Storage	6.1. Collapse of Stack.	6.1. Collapsing material may injure persons, cause tripping hazards etc.	x			3x3=9	6.1. Inspection of stacks, use of checklist, supervision etc.	1x1=1	1
		6.2. Incorrect dismantling of stacks.	6.2. Stacks collapse could cause hand or feet injuries etc.	x			1x3=3	6.2. Training, supervision etc.	1x1=1	1

		6.3. Incorrect storage of Flammable materials	6.3. Exposure to sun or ignition sources with risk of fire or explosion etc.	x			4x5=20	6.3. Supervision , close proximity fire extinguishers , signage etc.	2x2=4	1
		6.4. Incorrect storage of HCS	6.4. Chemicals can react to others or environmental factors with risk of fire or explosion etc.	x			3x4=12	6.4. Reference to MSDS's, Supervision etc.	2x2=4	1
	TOTALS		PURE RISK				44	RESIDUAL RISK	10	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
7.	Stripping of Roof Sheeting/fixtures (When required)	7.1. Hit by mobile plant, struck by tools, tripping, electrocution	7.1. Fatality, fracture, Heat exhaustion, noise, dust	x	x		5x5=25	7.1. Adequate Training, PPE, safe systems of work and supervision, Authorized vehicle rivers	3x4=12	3
		7.2. Struck by tools, tripping, flying particles, sharp edges	7.2. Cuts, abrasions, fractures	x	x		3x4=12	7.2. Training, PPE, safe systems of work and supervision	2x1=2	1
		7.3. Falls, struck by portable electrical tools, excessive dust inhalation, bumping against objects	7.3. Back strain, cuts, abrasions, Falls, Heat exhaustion, noise, dust etc.	x	x	x	3x3=9	7.3. Fall Protection Plan Trainings employees to work at heights, Training in fall arrest	2x1=2	1

								equipment.		
		7.4. Struck by tools, falls, tripping	7.4. Cuts, abrasions, fractures	x	x	x	5x5=25	7.4. Risk Assessment Training employees; in safe & proper use of hand tools; Wearing required PPE, practice of proper manual lifting of material	3x4=12	3
		7.5. Struck by hand tools, tripping,	7.5. Abrasions, burns, hand injuries, eye injuries, back injury, heat exhaustion	x	x	x	3x3=9	7.5. Training in pre-use inspection, maintenance; Training in using correct tools, inspection; Wearing required PPE *(i.e. Overalls, hard hats, safety*	2x1=2	1

		7.6. Tripping, struck by, bumping against, machine colliding with vehicles &People	7.7. Back strain, heat exhaustion, bruising, cuts, abrasions, death	x	x	x	3x4=12	7.6. Training in pre-use inspection, maintenance; Training in using correct tools, inspection; Wearing required PPE *(i.e. Overalls, hard hats, safety shoes, goggles, etc.)*	2x1=2	1
	TOTALS		PURE RISK				92	RESIDUAL RISK		10
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
8.	Temporary Service Connections	8.1. No information available to ensure safe termination for connection to energy sources	8.1. Contact with energy sources, resulting in burns, death etc.	x			4x4=16	8.1. Obtain drawings, engage with designers on required information, use of testing equipment, LOTO etc.	2x2=4	1
		8.2. Poor quality connections, exposed wiring etc.	8.2. Accidental contact with energized systems etc.	x			3x4=12	8.2. Survey condition, use of testing equipment use of required PPE etc.	2x2=4	1
	TOTALS		PURE RISK				28	RESIDUAL RISK	8	

Ref Nr	Activity	Potential Hazard	Potential Risk	S	H	E	Pure Risk	Mitigation Measures	Residual Risk	Risk Ranking
9.	Chiseling/Hammering	9.1. Use of poor condition hand tools	9.1. Tools breaking during use, causing risk of injuries etc.	x			3x3=9	9.1. Tool inspections, use of checklists, supervision etc.	1x1=1	1
		9.2. Struck by tools when being used	9.2. Incompetent user resulting in incorrect use which can result in injuries etc.	x			2x2=6	9.2. Competent, trained user, inspection Supervision etc.	1x2=2	1
		9.3. Harmful noise	9.3. Impulsive noise could contribute towards noise induced hearing loss etc.		x		3x3=9	9.3. Noise level assessment, use of correct hearing protection (SNR) etc.	1x2=2	1
		9.4. Physical exertion	9.4. Risk of fatigue, muscular strain etc.	x	x		3x1=1	9.4. Regular breaks etc.	1x1=1	1
		9.5. Flying particles	9.5. Risk of flying particles entering the eyes and penetrating the skin etc.	x			3x3=9	9.5. Use of facial protection, long sleeve overalls etc.	1x1=1	1
	Total		Pure Risk				34	Residual Risk	7	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**

10.	Excavation Work (Manual and Mechanical)	10.1. Potential contact with hidden services.	10.1. Electrocution, disruption of services etc.	x	x		4x5=20	10.1. Reference to plans to determine location, consulting with engineer, use of detection equipment etc.	2x2=4	1
		10.2. Use of defective plants.	10.2. Use of defective plants can result in injuries to operator, other persons etc.	x			3x3=9	10.2.Maintenance records, pre-use Inspections etc.	2x2=4	1
		10.3. Use of incompetent operator.	10.3. Incompetent operator could injure himself and other workers etc.	x			3x3=9	10.3. Proof of competency for operators etc.	2x2=4	1
		10.4. Use of operator or workers without medical fitness certificates.	10.4. Operator without required Medical fitness could injure himself and other workers etc.	x			3x3=9	10.4. Medical Fitness Certificate for operator etc.	2x2=4	1

		10.5. Unbarricaded Excavations.	10.5. Persons could fall into excavations sustaining injuries.	x			3x4=12	10.5. Suitable barricading, warning signage, excavation inspections and checklist etc.	1x1=1	1
		10.6. Unshored excavations.	10.6. Collapsed excavation could result in persons being trapped and sustaining injuries etc.	x			4x4=16	10.6. Shoring to be done where risk of collapse exists, consult with engineer etc.	1x1=1	1
		10.7. Water ingress into excavation.	10.7. Could result in Slipping, tripping and drowning etc.	x			3x4=12	10.7. Daily inspections, no entry until drained etc.	3x2=6	2
		10.8. Vehicular movement in close proximity to excavations.	10.8. Could cause collapse resulting in vehicles toppling over, and workers being trapped etc.	x			3x5=15	10.8. Barricading excavations, posting signs, designated vehicular routes etc.	3x3=9	2

		10.9. Use of unsafe hand tools.	10.9. Could result in injuries to hands etc.	x			3x2=6	10.9. Hand tool Inspections and checklists usage etc.	2x1=1	1
		10.10. Incompetent user of hand tools.	10.10. Persons could strike each other with picks or shovels etc.	x			3x3=9	10.10. Training in correct use of hand tools, Supervision to monitor etc.	2x1=2	1
		10.11. Poor ergonomics.	10.11. May result in musculoskel etal injuries etc.	x			3x3=9	10.11. Regular breaks etc.	2x2=4	1
		10.12. Natural elements, sun wind rain.	10.12. Heat stroke, sun burn etc.	x	x		3x2=6	10.12. Monitoring exposure, sufficient drinking water, use of sun screen etc.	2x1=2	1
	Total		Pure Risk				132	Residual Risk	42	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
11.	Use of lifting equipment	11.1 Defective lifting equipment	11.1. Failure of lifting equipment can result in the load detaching causing injuries, damage and even death etc.	x	x		5x5=25	11.1. Ensure load testing and inspection records are available	1x4=4	1

		11.2. Uncontrolled movement of the load	11.2. Failure to control the movement of the load can result in overloading the lifting equipment resulting in failure, striking persons and property etc.	x			5x4=20	11.2. Use of guide ropes and banksman with operator and banksman communi-cation etc.	2x2=4	1
		11.3. Incompetent Operator	11.3. Incompetence of operator could result in failure of equipment, incorrect use etc. resulting in injuries, death, damage etc.	x			3x5=15	11.3. Proof of Competency for operator to be present on site etc.	2x2=4	1
		11.4. Persons under suspended load	11.4. Should the load fall It could result in serious injuries, damage and even death etc.	x			4x5=20	11.4. Lifting zone to be demarcated, Banksma n to raise siren when lifting starts, no authorized person in lifting zone etc.	1x1=1	1

		11.5. Inclement weather	11.5. Could cause control over the load being compromised, resulting in injuries, death or damage etc.	x			3x5=15	11.5. Weather forecasts to be consulted, man specs checked, 30 km/h+ winds, lightning shut down, etc.	2x2=4	1
	Total		Pure Risk				95	RESIDUAL RISK	17	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
12.	Bricklaying and plastering	12.1. Working from a fall risk position	12.1. Falls, fractures, death etc.	x			3x4=12	12.1. Fall arrest equipment, Working at heights training, safe scaffolding etc.	2x3=6	2
		12.2. Skin in contact with abrasive surfaces.	12.2. Abrasions, etc.	x			3x2=6	12.2. Correct gloves usage etc.	2x1=2	1
		12.3. Inhalation of cement and silica containing dust	12.3 Respiratory tract irritation, onset of silicosis etc.	x			3x3=9	12.3. Masks usage when mixing. cutting etc.	2x3=6	2

		12.4. Poor ergonomics	12.4. Physical exertion, back strain/ injuries etc.		x		3x2=6	12.4. Regular break, correct lifting training, load lift limit etc.	2x1=2	1
		12.5. Use of unsafe Scaffolding, overloading etc.	12.5. Collapse, falls, fractures etc.	x			3x4=12	12.5. Competent Electors, inspectors, supervisors etc.	2x3=6	2
		12.6. Poor condition of fall arrest equipment etc.	12.6. Falls, fractures etc.	x			3x4=12	12.6. Training, inspection etc.	2x1=2	1
		12.7. Exposure to harmful natural environmental factors etc.	12.7. Dehydration, heat exhaustion etc.	x			3x2=6	12.7. Regular breaks, long sleeves overalls, hard hat brims etc.	2X1=2	1
	TOTALS		PURE RISK				61	RESIDUAL RISK	24	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
13.	Fitting roof trusses	13.1. Uncontrolled movement of trusses	13.1. Hands caught between, struck by trusses etc.	x			3x3=9	13.1. Competent erectors, supervision. use of stays etc.	2x2=4	1
		13.2. Working from a fall risk position	13.2. Falls, fractures death etc.	x			3x4=12	13.2. Fall arrest equip, working at heights training, etc.	2x3=6	2

		13.3. Untrained erectors	13.3. Falls, struck by trusses etc.	x			3x3=9	13.3. Training, Supervision etc.	2x2=4	1
		13.4. Falling tools	13.4. Struck by tools, cuts, bruising etc.	x			3x2=6	13.4. Tool belts, lanyards etc.	2x1=1	1
		13.5. Use of unsafe scaffolding	13.5. Collapse, falls, fractures etc.	x			3x4=12	13.5. Competent erectors & inspectors etc.	2x3=6	2
		13.6. Physical exertion etc.	13.6. Muscular strain, exhaustion etc.	x			3x2=6	13.6. Work Breaks , good ergonomic practices training etc.	1x2=2	1
	TOTALS		PURE RISK				54	RESUDUAL RISK	23	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
14.	Fitting Roof Sheeting	14.1. Presence of sharp edges	14.1. Cuts, lacerations etc.	x			4x3=12	14.1. Tool inspection, supervision etc.	3X2=6	2
		14.2. Possibility of Slipping at height	14.2. Falls, fractures, death etc.	x			4x4=16	14.2. Correct footwear, fall arrest equipment etc.	2x2=4	1
		14.3. Exposure to harmful natural environmental factors	14.3. Heat exhaustion, dehydration, sunburn etc.	x			3x3=9	14.3. Regular breaks, water intake,	2x1=2	1

		14.4. Poor working posture	14.4. Physical exertion, muscular strain etc.	x			3x2=6	14.4. Regular breaks, Training, Supervision etc.	2x1=2	1
		14.5. Working from a fall risk position	14.5. Falls, fractures Etc.	x			3x4=12	14.5. WAH training, Medical fitness, supervision etc.	2x3=6	2
		14.6. Poor condition hand tools	14.6. Hand injuries, cuts etc.	x			2x2=4	14.6. Gloves, Tool Inspections Etc.	1x2=2	1
		14.7. Poor condition/ incorrectly used fall arrest equipment	14.7. Falls, bruising, death etc.	x			3x4=12	14.7. Inspections, training, supervision etc.	2x2=4	1
		14.8. Poorly erected scaffolding	14.8. Collapse, fractures, bruising etc.	x			3x4=12	14.8. Comp Erectors & Inspectors, Supervision etc.	2x2=2	1
	TOTALS		PURE RISK				137	RESIDUAL RISK	28	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
15.	Fitting Barge boards, gutters and down pipes.	15.1 Working from a fall risk position	15.1. Falls, fractures etc.	x			3x4=12	15.1. WAH training, Medical fitness, supervision etc.	2x3=6	2

		15.2 Dust, noise, vibration.	15.2 Respiratory tract irritation, HAVS, Noise Induced Hearing loss onset etc.		x		3x3=9	15.2. Masks, Hearing protection, gloves etc.	2x2=4	1
		15.3. Abrasive Surfaces, sharp edges.	15.3 Abrasions, cuts etc.	x			3x2=6	15.3. Gloves, Supervision etc.	2x1=2	1
		15.4. Physical exertion.	15.4. Muscular strain, exhaustion etc.	x			3x2=6	15.4. Work Break, good ergonomic practices training etc.	1x2=2	1
	TOTALS		PURE RISK				33	RESIDUAL RISK	14	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
16.	Landscaping (Manual)	16.1. Dust.	16.1. Respiratory tract irritation, eye irritation, allergies reactions etc.	x	x		3x2=6	16.1. Dampening PPE, medical fitness etc.	2X1=2	1
		16.2. Physical Exertion.	16.2. Muscular strain, lower back strain etc.	x			3x2=6	16.2. Medical fitness, training etc.	2X1=2	1
		16.3. Strenuous Climatic. Conditions.	16.3. Dehydration, Heat Exhaustion, Sunburn etc.	x			3x2=6	16.3. Water intake, regular breaks, long sleeve overalls, hard-hat brims etc.	2X1=2	1

	TOTALS		PURE RISK				18	RESIDUAL RISKS	6	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
17.	Retaining wall construction/Paving, aprons/V drains, walkways, floor slabs, tiling etc.	17.1. Sharp edges	17.1. Cuts.	x			3x2=6	17.1. Hand protection, Supervision Etc.	2x1=2	1
		17.2. Physical Exertion.	17.2. Muscular strain.	x			3x2=6	17.2. Training, sufficient labour, supervision etc.	2x2=4	1
		17.3. Poor Working posture.	17.3. Muscular strain, joint strain, back strain.	x			3x3=9	17.3. Regular breaks, knee pads, training, supervision etc.	2x2=4	1
		17.4. Hazardous Chemical Substances .	17.4. Respiratory tract, eye, Skin irritation etc.	x	x		3x2=6	17.4. PPE, Hazard training, Supervision etc.	2x2=4	1
		17.5. Strenuous climatic conditions.	17.5. Heat exhaustion, dehydration, etc.	x	x		3x3=9	17.5. Water intake, work breaks, long sleeve clothing, hard hat brim etc.	2x2=4	1
		17.6. Noise, dust, vibration etc.	17.6. Respiratory tract irritation, HAVS, Onset of noise induced		x		3x3=9	17.6. PPE, Hazard training, noise survey, Supervision	3x2=6	1

			hearing loss etc.					etc.		
	TOTALS		PURE RISK				42	RESIDUAL RISK	24	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
18.	Painting of walls (Internal and External)	18.1. Toxic chemical exposure (Inhaling solvent/ paint fumes).	18.1. Inhaling paint fumes can cause respiratory issues, dermatitis, or organ failure.		x		5x5=25	18.1. Ensure adequate ventilation (use fans when natural ventilation is not available) and use prescribed PPE.	2x3=6	2
		18.2. Falls from heights (working on ladders, scaffolding).	18.2. Fractures and fatalities.		x		5x5=25	18.2. Equipment to be inspected prior to use. Ensure ladders are stable on surfaces, use guardrails on scaffoldings and fall arrest systems when working at heights.	2x3=6	2
		18.3. Ergonomic. strains (awkward postures,	18.3. Musculoskeletal disorders.	x			4x5=20	18.3. Frequent breaks to be taken. Scaffolding to	2x1=2	1

		reaching overhead and repetitive motion)						be used to avoid overreaching. Practice proper lifting techniques.		
		18.4. Accidental ingestion (hand to mouth contact).	18.4. Eating or drinking in painting areas can lead to the ingestion of toxic pigments.		x		5x4=20	18.4. Prohibit eating, drinking, smoking in the workplace. Always wash hands thoroughly before breaks and after the job is finished.	2x1=2	1
	TOTALS		PURE RISK				90	RESIDUAL RISK	16	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
19.	Plumbing (Basin, sink and water pipes connection)	19.1. Exposure to sewage.	19.1. Infections E. coli, hepatitis.		x		4x5=20	19.1. Thorough site inspection to be conducted prior to commencement of any task. Task based risk assessment to conducted. Appropriate PPE to be provided and worn on site.	2x2=4	1

								Adequate ventilation to be provided and maintained. Completely isolate all fluid (water and sewer systems to prevent accidental startup or exposure).		
		19.2. Chemical (toxic adhesives/fumes) exposure.	19.2. Respiratory tract problems.		x		4x5=20	19.2. Adequate ventilation to be provided and maintained.	2x2=4	1
		19.3. Slips, trips and falls.	19.3. Fall injuries	x			4x4=16	19.3. Appropriate PPE to be provided and worn.	2x1=2	1
		19.4. Confined space hazards (working in trenches or crawl spaces).	19.4. Breathing difficulties, Asphyxiation		x		4x4=16	19.4. Permit to work system must be implemented. Oxygen levels to be continuously monitored. Adequate ventilation to	2x1=2	1

								be provided and maintained. Completely isolate all fluid (water and sewer systems to prevent accidental startup or exposure).		
		19.5. Hot works (soldiering and welding).	19.5. (Flying sparks and hot slag) can cause burns and accidental fires.	x			4x4=16	19.5. Mechanical pipe cutter to be used when possible. All flammable and combustible material to be removed. Ensure adequate ventilation. Use appropriate PPE. Inspect equipment before use. Have the fire extinguisher close by.	2x1=2	1
	TOTALS		PURE RISK				88	RESIDUAL RISK	14	

Ref Nr	Activity	Potential Hazard	Potential Risk	S	H	E	Pure Risk	Mitigation Measures	Residual Risk	Risk Ranking
20.	Setup and Drilling of borehole	20.1 Equipment and tools not in place.	20.1. Delays	x			3x3=9	20.1. Tools and equipment checklist. Good communication plan at field. Inventory inspection.	1x2=2	1
		20.2. Heavy machinery exposure to dust, exposure to noise, slips, trips and falls. machinery encountering underground services, loping/ steep ground, rig overturning, topping, sliding, vibration, high pressure systems	20.2. Injury to personnel and property damage- Dust will result to breathing difficulties, noise will result to hearing loss, electrocution.	x	x	x	4x4=16	20.2. Only competent person to conduct drilling activities. Prescribed training to be conducted prior to activity commencement. Appropriate PPE to be used, pre-check borehole locations, report concerns re-gradient. Service plans to be provided by the client where	2x1=2	1

								available, ensure safe gradient. Danger zones around rings and conveyors must be clearly demarcated. Emergency preparedness including First Aid, Fire Extinguishers and Spill containment.		
		20.3. Ground instability	20.3.Borehole collapse	x			4x5=20	20.3. Site investigations (Geotechnical) Proper equipment maintenance. Pre-task safety briefings to be conducted.	2x3=6	2
		20.4.Oil spillage	20.4.Ground water contamination.			x	4x5=20	20.4.Ensure all plants used on site do not leak oil place drip trays under mobile	2x3=6	2

								plant when not in use. Clean oil and diesel spills immediately when observed Always ensure spill kit is available on site. Proper monitoring, ventilation.		
		20.5.Flowline plugging	20.5.Operational delays. Lost circulation/ Mud losses on surface, spills.	x			4x3=12	20.5.Cellar jet contingency plan. Flowline jet. Flowline inclination design. Mud properties.	2x1=2	1
		20.6.Tight hole stuck pipe	20.6.Tool damage. delays, side track.	x			3x3=9	20.6.BHA design shallow phase design. Proper hydraulic.	2x1=2	1
		20.7. Tight hole issue with wireline logging tools.	20.7.Operational delays, wireline stuck, unable to log.	x			3x3=9	20.7.BHA design. Hole cleaning program. Wiper	2x1=2	1
		20.8.Bit balling	20.8.Delays, low ROP, additional trips.	x			3x2=6	20.8.Mud design. Drilling parameters control.	1x1=1	1
		20.9.Lost circulation	20.9.More water requirements.	x			4x3=12	20.9.LCM availability. Hole clean	2x1=2	1

			Mud spills.					practices. Mud design.		
		20.10.Moving parts (Rotating equipment/ machinery)	20.10.Pinch points. Struck-by/ caught in between hazards from rigs, cranes and pipes. Entanglement, amputation and crushing. Manual handling injuries	x			4x5=20	20.10.Fixed guarding, interlock systems, and lockout/ tagout (LOTO) procedures. Training and supervision. Prescribed PPE. Regular inspections to ensure guards and safety devices work correctly.	2x3=6	2
	TOTALS		PURE RISK				133	RESIDUAL RISK	31	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
21.	Electrical Work Electrical fixtures and fittings (Including circuit breaker replacement)	21.1. Working at heights- Fall risk working form ladders/ scaffolding.	21.1. Falls to lower Level- Fractures, injuries etc.	x			4x3=12	21.1.Competent person/ contractor must be appointed of the task. Employees to be trained and record kept.Tool inspection,	3X2=6	2

								supervision etc.		
		21.2. Exposure to live electricity. Faulty cables	21.2. Electrocution disruption of services etc.	x			4x4=16	21.2. Power to be switched off before any electrical work is done.	2x2=4	1
		21.3. Incompetent person conducting electrical installations.	21.3. Electrocution short circuit, fire risk.	x			3x3=9	21.3. Employees to comply with fall protection plan. All electrical work must be approved by designated appointed electrical engineer.	2x1=2	1
	TOTALS		PURE RISK				37	RESIDUAL RISK	12	
Ref Nr	**Activity**	**Potential Hazard**	**Potential Risk**	**S**	**H**	**E**	**Pure Risk**	**Mitigation Measures**	**Residual Risk**	**Risk Ranking**
22.	Desludging of existing toilets	22.1. Direct contact with or splashing of fecal sludge.	22.1.Exposure to harmful bacteria, such as E.Coli, viruses such as hepatitis and parasites. Workers face risk of contracting severe illnesses such as leptospirosis,		x		4x4=16	22.1. Workers must wear waterproof prescribe PPE to prevent direct skin contact. Strict hygiene protocols must be	2x1=2	1

			dermatitis, gastrointestinal infections through skin contact.					enforced. Work clothing to be decontaminated daily.		
		22.2. Exposure to toxic gases, such as hydrogen sulfide and methane.	22.2. Inhilation of poisonous gases can cause rapid asphyxiation, dizziness.		x		4x4=16	22.2. Workers must wear appropriate respirators to prevent gas inhalation. Risk assessment to be conducted prior to starting sludge handling operations.	2X1=2	1
		22.3. Opening heavy septic tank lids, manoeuvring vacuum hoses and working cramped or difficult to access spaces.	22.3. Strains, sprains, and slips.	x			4x3=12	22.3. Safe operational practices. Safe handling practices.	1X1=1	1
		22.4. Spillage, equipment failure, or illegal dumping of raw fecal sludge	22.4. Water supply pollution, community health hazards, can enter open drains		x	x	4x4=16	22.4. Plan for containment of accidental spills. Provide proper	2X1=2	1

								drainage, and maintain access to cleanup materials. Sanitation procedure to be followed.		
	TOTALS		PURE RISK				60	RESIDUAL RISK	7	

7.5.	ANNEXURE E DRAFT OHS BILLS OF QUANTITIES.

HEALTH AND SAFETY IMPLEMENTATION AND MANAGEMENT COSTING

Due to the nature of this project, the contractor must keep this page updated as work progresses. Items may be added or deleted if required.

ITEM	DESCRIPTION	UNIT	QUAN-TITY	MONTHS (Indicative)	RATE	AMOUNT (a)x(b)
1	MEDICALS					
1.1	Pre-employment medical	Nr.				
1.2	Psychological medical for working at heights	Nr.				
1.3	Psychological medical for working motorized equipment & construction machinery	Nr.				
1.4	Re-medicals – yearly (When required)	Nr.				
	OTHER ITEMS					
	TOTAL					
2	**PERSONAL AND GENERAL PROTECTIVE EQUIPMENT**					
2.1	Standard Overalls (X2, SABS Approved)					
2.2	Hard Hats					
2.3	Safety Boots/Shoes. Steel toecap Gumboots					
2.4	Gloves					
2.5	Hearing Protection					
2.6	Eye Protection					
2.7	Reflective vests					
2.8	Orange Star Netting - 1.2m High	m				
2.9	Orange Plastic Road cones	Nr.				
2.10	Plastic Reinforce Caps (Rebar)	Nr.				
2.11	Dust masks	Nr.				
	OTHER ITEMS					
	TOTAL					
3	**FIRE FIGHTING**					
3.1	Fire extinguishers - 4.5Kg	Nr.				
3.2	Training	Nr.				
3.3	Surveys	Nr.				
3.4	Other - Drip trays	Nr.				
	OTHER ITEMS					

	TOTAL					
4	**HEALTH AND SAFETY PERSONNEL**					
4.1	Part -Time Safety Officer, Registered with SACPCMP (To visit site once a week to conduct audits, inspections and attend site meetings)	Nr.				
4.2	Full time Safety Representatives (if meet the threshold)	Nr.				
4.3	Fire Watcher	Nr.				
4.4	First Aider	Nr.				
4.5	Construction Phase SHE Plan					
4.6	Fall protection Planner					
4.7	Risk Assessor					
4.8	Incident Investigator					
	OTHER ITEMS					
	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	Running water	Nr.				
	OTHER ITEMS					
	TOTAL					
6	**FALL PREVENTION / PROTECTION**					
6.1	Safety harnesses with double lanyards	Nr.				
6.2	Lanyard extenders	Nr.				
6.3	Scaffold hooks	Nr.				
6.4	Lifelines and vertical fall arrest systems	Nr.				
6.5	Scaffolding – material, erection and inspection (Estimate for project)	Nr.				
6.6	Temporary hand railing material and kick flats	Nr.				
6.7	Inspection for approval of equipment	Nr.				
6.8	Chin Straps/Toolbags/Wrist straps	Nr.				
	OTHER ITEMS	Item				
	TOTAL					

7	**VEHICLE / MOBILE EQUIPMENT UPGRADE FOR USE ON SITE**					
7.1	Raised lights	Nr.				
7.2	Rotating orange light	Nr.				
7.3	Flag as per procedure	Nr.				
7.4	Fire extinguisher - 4.5Kg	Nr.				
7.5	First aid box	Nr.				
7.6	Reflector tape	m				
7.7	Danger Tape	Rolls				
7.8	Signage	Nr.				
7.9	Roll over & fall over protection	N/A				
7.10	Safety belts for all passengers (LDV)	N/A				
7.11	Wheel; Chocks	N/r				
7.12	Directional control Signage	N/r				
	OTHER ITEMS					
	TOTAL					
8	**LIFTING MACHINERY AND EQUIPMENT (When required)**					
8.1	Annual inspections and load testing as per legal requirement	Nr.				
8.2	Certification of all lifting gear during the course of the project	Nr				
8.3	Third Party Inspections	N/r				
8.4	Inspections for approval of equipment (AIA)	N/r				
8.5	Slings	N/r				
8.6	Chains	N/r				
	OTHER ITEMS					
	TOTAL					
9	**INSURANCES**					
9.1	COID cover for the project	Nr.				
9.2	Liability insurances	Nr.				
	OTHER ITEMS					
	TOTAL					
10	**FIRST AID**					

10.1	First aid boxes	Nr.				
10.2	Rescue equipment and stretchers (When required)	Nr.				
10.3	Replenishment of boxes and other supplies	Nr.				
10.4	Hazchem Spill kits (When required)	Nr.				
	OTHER ITEMS					
	TOTAL					
11	**TRAINING**					
11.1	SHE Representative	Nr.				
11.2	Supervisor A2 (No cost)	Nr.				
11.3	First Aid Level 2	Nr.				
11.4	Fire Fighting	Nr.				
11.5	Legal Liability (Construction Manager & Construction Supervisor)	Nr.				
11.6	Scaffold Inspector					
11.7	Scaffold Erector					
11.8	Basic Working at Heights (For employees conducting working at height activities)					
	OTHER ITEMS					
	TOTAL					
12	**SIGNAGE**					
12.1	All signage as required by law: regulatory, warning and information	Nr				
	OTHER ITEMS					
	TOTAL					
13	**ELECTRICAL (When required)**					
13.1	Locks required for lockouts	Nr.				
13.2	Tags	N/r				
13.3	Permit Books	N/r				
13,4	Callipers	N/r				
13.5	Key Safes	N/r				
	OTHER ITEMS					
	TOTAL					

14	**PLANT & SCAFFOLDING (When required)**					
14.1	Telescopic Hoist	month				
14.2	TH-Driver	month				
14.3	Scaffolding	month				
	OTHER ITEMS					
	TOTAL					

Prepared by: R.R.ZULU

Signature:

Date: 05/09/2026

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 7 - H& S BOQ

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
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ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 8 - Builders Lien

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): **ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**

Site: North Coast Region: Zululand District

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

KWAZULU-NATAL PROVINCE
PUBLIC WORKS
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ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 9 - Geotechnical Report

ground africa
CONSULTING GEOTECHNICAL ENGINEERS

GEOTECHNICAL ASSESSMENT REPORT

NORTH COAST SCHOOLS SANITATION PROGRAMME

KHAMBULA COMBINED SCHOOL
EDUMBE LOCAL MUNICIPALITY
ZULULAND DISTRICT MUNICIPALITY

Requested by
Consult Three Architects

Project GA0422.121/2016
July 2016

GROUND AFRICA CONSULTING GEOTECHNICAL ENGINEERS cc
Reg No: 2009/184903/23
VAT Reg No. 4540254390

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WIMS: 059196	EMIS: 173086	**Khambula Combined School**	
Cluster No. 3	Group 9	Edumbe Local Municipality	Zululand District Municipality
29th June 2016	GPS:	27°38'00.5"S	30°41'04.2"E

SITE DESCRIPTION

The existing school grounds are located in an area which is dominated by gently rolling hills. The site is relatively open and existing structures are mostly positioned in the lower northern section of the site. Open areas are typically grassed over and free of obstruction. The site slopes gently from north to south with structures being placed on small cut and fill platforms. Existing structures on site comprise single storey units ranging from concrete (3x) block and stone (1x) construction to prefabricated (1x). Existing ablution facilities comprise pit latrines. No standpipe is present on site, only a hand drawn well which was operational at the time of the investigation. Two rainwater storage tanks are also present, both of which were empty. The site is enclosed by a new galvanised mesh fence with a main access gate along the higher northern boundary. Vehicle and plant manoeuvrability about the site will be easy.



Picture 1: *Looking north from the higher southern section across the existing school grounds.*



Picture 2: *Looking south across the proposed area for the new single storey ablution block.*

GEOLOGY AND GENERAL GROUND PROFILE

The site is underlain by igneous dolerite rock. Dolerite is an intrusive rock, having formed from pressurised magma being forced through joints and fissures in the surrounding prominent geology. Dolerite in its unweathered state is a dark blue grey, fine to medium grained hard to very hard rock. Dolerite weathers to an olive brown, granular gravel material which is extensively used as road pavement layers. Further advanced weathering produces clay rich soils which are commonly expansive. Weathered dolerite rock and residual dolerite soils commonly include rounded, hard rock boulders termed "corestones" which are a product of foliation type weathering around a central core.

Sedimentary rocks of the Vryheid Formation, Ecca Group, Karoo Supergroup are present in close proximity to the site. The sedimentary rocks comprise mostly light coloured sandstone and subordinate shales which are often near-horizontally bedded.

The site was found to be underlain by deep residual soils which are brownish orange to orange and comprise a slightly shattered clayey silt. Relic core stones comprising dolerite cobbles and boulders were intersected at depths of between 1.3m and 1.5m below present ground level within the residual soils. The residual is capped by a 0.5m thick colluvial horizon which comprises a silty clayey sand.

Colluvial and residual soils intersected on site are not deemed suitable for re-use as engineered fill with alternative sources of material needing to be obtained from local borrow pits or commercial sources.

GEOTECHNICAL CONSTRAINTS AND RISKS

Although manual excavation of the required foundation trenches and deep pits will be possible, it is advised that a standard sized tractor loader backhoe (TLB) be allowed for to expedite the process. Some boulder removal is anticipated within the clayey silt residual soils; however, no hard rock excavation is anticipated. Test pit sidewalls were noted to be stable in a freestanding state at the time of the geotechnical investigation owing to the cohesion provided by the clayey rich soils.

The residual clay rich soils are deemed to be expansive and some long term settlement of the foundations resting on these fine-grained soils can be expected.

GROUND PERMEABILITY AND GROUNDWATER

The underlying, clay and silt rich residual soils are anticipated to be of a low permeability (60mm/hr). Percolation rates stated herein are as per SANS 10400-P: 2010. As such, large soak-pits for the purposes of sewage disposal will not be suitable; albeit if necessitated, extra-large pits could be created to account for the low permeability of the soils. Smaller soak-pits for hand basin and grey water disposal will however be possible.

No groundwater was intersected within the trial hole at the time of the geotechnical investigation. A hand drawn well is present on site indicating the presence of a subsurface water body, which is used for potable consumption, at an undefined depth.

GENERAL FOUNDING RECOMMENDATIONS

Owing to the presence of the deep clay rich residual soils as well as the presence of hard rounded in-situ boulders, foundations will straddle across ground of varying stiffness with differential settlement across the structure being anticipated. As such, it is recommended that the base of foundation trenches are cleaned of all boulders and that an imported layer of G5 granular material be placed and compacted over the exposed natural soil layers.

This granular horizon must be at least 150mm thick and compacted to a minimum of 98% MOD ASSHTO at optimal moisture content (OMC). This layer will serve to assist in providing a uniform founding regime across the foundation footprint. Steel reinforced concrete strip footings can then be placed on the imported granular material layer.

Similarly, surface beds must be placed on an imported granular base course horizon of minimum G5 quality compacted to a minimum of 98% MOD ASSHTO at OMC. The granular base course must be placed on the underlying natural residual soils throughout once these have been pre-prepared through scarification and compaction. Surface beds must remain structurally independent of the surrounding walls.

Foundation embedment should be at least 0.8m below final ground level so that footings rest on clayey silts that remain at a relatively more stable moisture content with corresponding smaller magnitudes of anticipated heave and shrinkage movement.

Considering the Dynamic Cone Penetrometer (DCP) test results and using empirical assessment, an indicative allowable bearing capacity for assumed foundation dimensions and embedment depth has been tabulated below. These are provided to enable preliminary design choices to be made. Further calculation must be undertaken for final foundation design which pertains to the actual foundation dimensions and depth of placement.

Material	Foundation Type	Dimensions (Width)	Minimum Embedment	Allowable Bearing Capacity*
Firm, Clayey Silt - Residual	Strip	0.6m	0.8m	110kPa

**Values based on the assumption that the natural groundwater table remains below the base of foundations*

GROUND AFRICA CONSULTING GEOTECHNICAL ENGINEERS



Frederick Volbrecht *MIEAust CPEng*
Geotechnical Engineer



Sachen Harrichandparsad *Pr.Eng (20100379)*
Bsc. Eng, ECSA,MSAICE, NHBRC

ground africa
CONSULTING GEOTECHNICAL ENGINEERS

TRIAL HOLE PROFILE

CLIENT: Consult Three Architects
PROJECT: Khambula Combined School
PROJECT NO: GA0422.121/2016
LOCATION: Uthungulu District Municipality

HOLE No: TH1
LATITUDE: 27°37'58.2"S
LONGITUDE: 30°41'03.3"E

Sheet 1 of 1

Depth	Description
	Present Ground Surface
0,00	**SILTY CLAYEY SAND** Dry to slightly moist, brownish orange, medium dense, slightly shattered, fine to medium grained, SILTY CLAYEY SAND - Colluvium.
0,50	**CLAYEY SILT** Slightly moist, brownish orange to orange with olive blotches, firm, slightly shattered; CLAYEY SILT - Residual with dolerite boulders at 1.0m - 1.3m.
2,00	End of log



Auger

NOTES:
1: End of hole at 2.0m
2: Hand auger commenced at 1.3m
3: No refusal
4: No sample obtained
5: No groundwater encountered

EXCAVATION METHOD: Manual Excavation and Hand Auger
DATE PROFILED: 6/29/2016
PROFILED BY: NB
CHECKED BY: FCV

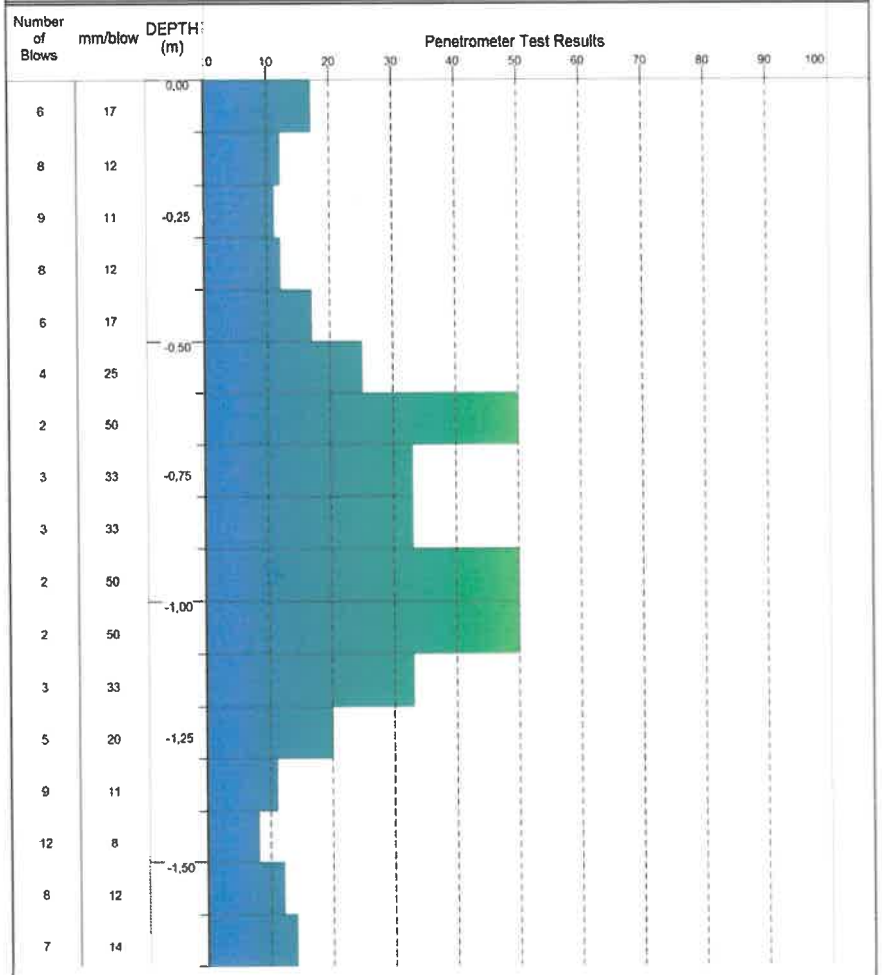
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PENETROMETER TEST RESULTS

CLIENT: Consult Three Architects
PROJECT: Khambula Combined School
PROJECT NO: GA0422.121/2016
LOCATION: Alongside TH1
DEPTH DATUM: At Present Ground Level

TEST No: DCP1
LATITUDE: 27°37'58.2"S
LONGITUDE: 30°41'03.3"E
METHOD: DCP
DATE: 6/29/2016

Number of Blows	mm/blow	DEPTH (m)
6	17	0,00
8	12	
9	11	-0,25
8	12	
6	17	-0,50
4	25	
2	50	
3	33	-0,75
3	33	
2	50	
2	50	-1,00
3	33	
5	20	-1,25
9	11	
12	8	
8	12	-1,50
7	14	



NOTES Refusal at 1.7m
Negative depth values indicate distance beneath depth datum.

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 mm² (domestic dwelling only) or 50 mm² 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 mm² 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 mm² (35 mm² 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.

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
PUBLIC WORKS
REPUBLIC OF SOUTH AFRICA

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 10 - EPWP Employment Contract

(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 week.

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 11 - Attendance Register

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: ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

Project Code: 059196 Tender No ZNTU01989W

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

ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS

ANNEXURES 12 - EPWP DATA

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 DEFINITIONS

(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 TERMS OF WORK

(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 PREAMBLE

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.

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				

SCOPE OF WORKS IN RESPECT OF WORK RELATING TO THE EXTENDEND PUBLIC WORKS PROGRAMME (EPWP)			
Project title:	**ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**		
Project Code:	**059196**	EPWP NO:	**N/A**

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

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.

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: **059196** Project location name (area): _____

Name of Project: **ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED**

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)** Unknow **(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 Scho **(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: **059196**

Name of Project: **ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**

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: _____

Name of Project: **ZNTU 01989 W: DEPARTMENT OF EDUCATION: WIMS NO. 059196: KHAMBULA COMBINED SCHOOL: CONSTRUCTION OF NEW SANITATION INFRASTRUCTURE INCLUDING ASSOCIATED EXTERNAL WORKS**

Project Code: **059196**

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: _____