



# INDEPENDENT DEVELOPMENT TRUST

Contract No.: DoEEC/06/2021

A Tender for Category 7GB or higher CIDB Registered Contractors

## MGOMANZI SPS

LOCATED IN BIZANA, EASTERN CAPE PROVINCE

Name of Tenderer : \_\_\_\_\_

NAME OF DULY AUTHORIZED PERSON: \_\_\_\_\_

ADDRESS : \_\_\_\_\_

TEL. NUMBER : \_\_\_\_\_

CELL NUMBER : \_\_\_\_\_

FAX NUMBER : \_\_\_\_\_

E-MAIL : \_\_\_\_\_

CRS NUMBER : \_\_\_\_\_

CSD NUMBER : \_\_\_\_\_

**ISSUED BY:**

**Independent Development Trust**  
Palm Square Business Centre  
Bonza Bay Road  
Beacon Bay

Tel: (043) 711 6000

**PREPARED BY:**

**MMDP Quantity Surveyors**  
P O Box 8370  
Nahoon  
2410

Tel: (043) 721 0667



## **INDEPENDENT DEVELOPMENT TRUST**

The project comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

**AT**

## **MGOMANZI SPS**

**LOCATED IN MBIZANA, EASTERN CAPE**

**TENDER NO: DoEEC/06/2021**

**CLOSING DATE: 3 February 2022 @ 11:00**

### **ISSUED**

#### **Independent Development Trust**

Palm Square Business Park Bonza Bay Road  
Silverwood House  
Beacon Bay  
East London  
5241  
Tel: (043) 711 6000

### **PREPARED**

#### **MMDP Quantity Surveyors**

1<sup>st</sup> Floor Hammermill House  
The Quarry Office Park  
Selborne  
East London  
5201  
Tel: (043) 721 0667





## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

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C3	Scope of Work
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C4	Site Information
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# INDEPENDENT DEVELOPMENT TRUST

## BID NOTICE No: DoEEC/06/2021: 10<sup>th</sup> December 2021

**Note: BID closes on Thursday, 3<sup>rd</sup> February 2022 @ 11:00**

The Independent Development Trust on behalf of the Provincial Department of Education (DoE) hereby invites prospective service providers to submit bids for construction works on the projects in the Eastern Cape Province as listed below.

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

Name of Projects	Town	IDT Project Number	EMIS Number	Compulsory Site Briefing Meeting	CIDB Grading	Principal Agent
Mgomanzi SPS 31.0375100 South;29.88110 833	Bizana	DOE15EC AR007	200500666	14 <sup>th</sup> January 2022 on site at 11h00 (refer to page 0386 for directions)	7GB or higher	Wayne Buss Ikamva Architects 0825744741/ 0397275502

**Compulsory Site Briefing Meeting** will take place.

Bid Documents which must be completed and submitted are available for download on IDT website: [www.idt.org.za/business-opportunities/current tender, bulletin:](http://www.idt.org.za/business-opportunities/current-tender-bulletin)  
[www.ectreasury.gov.za](http://www.ectreasury.gov.za), iTender: [www.cidb.org.za](http://www.cidb.org.za), eTender on: [www.etenders.gov.za](http://www.etenders.gov.za)  
from **Friday 10 December 2021**. All documents must be downloaded and printed by the bidders from the abovementioned sites.

**Bidders shall meet the following compulsory requirements before being evaluated further on functionality, price and B-BBEE:**

### **Mandatory Requirements/Documents:**

- Valid copy of a Letter of Good Standing (Workman's Compensation, COIDA) or FEM Letter of Good Standing; If a Joint Venture, then all partners must submit their own (COIDA) Registration Certificate.
- Original certified ID copy.
- Contractor's Certified Copy of Registration of Incorporation or Company Registration Documents (CIPC)
- **Fully Completed and Signed Standard Bidding Documents:**

- ✓ Invitation to Bid (SBD 1)
- ✓ Declaration of Interest (SBD 4)
- ✓ Preference Points Claim Forms (SBD 6.1)
- ✓ Local Production and Content (SBD 6.2) (including all the annexures C. Bidders must return Annexure C. All blank spaces must be completed. Bidders to indicate items that are not applicable.)
- ✓ Declaration of Bidder's Past Supply Chain Management Practices(SBD 8)
- ✓ Certificate of Independent Bid Determination (SBD 9)
- Signed and fully completed Original Certificate/Affidavit of Authority for Signatory
- Signed Joint Venture or consortium Agreement Between Parties showing project sharing percentage (where applicable) signed by all parties.
- Proof of valid and active CIDB grading designation certificate (Joint Ventures Must submit **valid and active** consolidated CIDB grading registration certificate)
- Fully completed Signed Form of Offer and Acceptance.
- Fully priced and completed Bills of Quantities, Electrical and Mechanical Installations.
- Attendance of compulsory tender briefing meeting and signing of the attendance register.
- Subcontracting commitment of a minimum of 30% of the value of the contract to an EME or QSE with at least 51% ownership by black people.
- Tender to provide proof of professional registration of the lead project contracts manager as Pr. Construction Manager or Pr. SACPCMP.
- No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties
- Tenderers or contractors must submit proof of subcontracting arrangement between the main tenderer and the subcontractor.
- Proof of subcontracting arrangement to be provided by a tenderer may include a subcontracting agreement between main tenderer and the sub-contractor alongside with the following:
  - ✓ CIDB Grading
  - ✓ Signed Subcontracting Agreement by all parties

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

**Non-Mandatory Returnable Documents:**

1. B-BBEE Certificate (Original Certified Copy)
2. Tax Compliance Letter with a unique pin
3. Acknowledgement of Addenda to the tender document.
4. Proof of Central Supplier Database (CSD) registration – CSD Number (Joint Ventures must submit CSD both JV partners)
5. For JV/Consortium partnership; must submit consolidated B-BBEE SANAS certificate. Failure to submit will result in no points awarded for B-BBEE
6. Reference letters must be signed and stamped by Principal Agent or Client.

### **Local Production and Content (SBD 6.2)**

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

<b>Steel Construction Materials</b>	<b>Components</b>	<b>Local Content Threshold</b>
Fabricated Structural Steel	Latticed steelwork, reinforcement steel, columns beams, plate girders, rafters, bracing, cladding supports, stair stringers & treads, ladders, steel flooring, floor grating, handrailing & balustrading, scaffolding, ducting, gutters, launders, downpipes and trusses	100%
Joining / Connecting Components	Gussets, cleats, stiffeners, splices, cranks, kinks, doglegs, spacers, tabs and brackets	100%
Frames	Doors and Windows	100%
Roof and Cladding	Bare steel cladding, galvanised steel cladding, colour coated cladding	100%
Fasteners	Bolts, nuts, rivets and nails	100%
Wire Products	All fencing products: all barbed wire and mesh fencing, fabric/mesh reinforcing, gabions, wire rope/strand and chains, welding electrodes, nails/tacks, spring and screws	100%
Ducting & Structural Pipework	Non-conveyance tubing fabricated from steel sheeting and plate with structural supports	100%
Gutters, downpipes & launders	Fabricated materials made from sheeting associated with roof drainage systems	100%

- Bidders are further notified that bids in respect of steel and components for construction must contain a specific bidding condition which states that:
- Only locally produced or locally manufactured steel products and components for construction with a stipulated minimum threshold for local production and content will be considered.
- If the quantity of steel products and components for construction required cannot be wholly sourced from South African (SA) based manufacturers and/or at the designated local content threshold stipulated in the above table at any time, bidders and the procuring entities should obtain a written exemption from the DTI. The DTI, in consultation with the procuring organ of state and the local industry, will consider the exemption applications on a case-by-case basis.
- Bidders must clearly indicate in their bids the quantities to be supplied and the level of local content for each product.
- The exchange rate to be used for the calculation of local production and content must be the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date of advertisement of bid; and only the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:2011 must be used to calculate local content.
- The local content (LC) expressed as a percentage of the bid price must be calculated in accordance with the formula disclosed in SBD 6.2 inserted in the bid document
- Preferences are offered to Tenderers who have a proven track record in the building industry with special emphasis on similar facilities. Only Tenderers who are competent in the advertised work, will be evaluated **on an 90/10 criteria**

based on the Treasury Regulations of 2017, where functionality will be evaluated as follows:

- Criteria Points Allocation

## Evaluation Criteria

### **STAGE 2– Functionality**

Bidders are to obtain a minimum of **70** points of the total functionality points to be considered for the next stage

## **FUNCTIONALITY**

<b>Evaluation Criteria</b>	<b>Points Allocation</b>
Relevant Previous Experience on completed projects of a similar nature and value in the last ten (10) years	35 points
Capacity to Deliver	20 points
Qualifications, Skills and Experience of project key resources	20 points
Project Schedule	15 points
Project Schedule Project Specific OHS	10 points
<b>Total</b>	<b>100 points</b>
NB: Minimum qualifying functionality threshold is <b>70 points out 100</b>	

## **DESCRIPTION OF FUNCTIONALITY FOR ALLOCATION OF POINTS:**

### **1. Previous Experience: Relevant Previous Experience on completed projects of a similar nature and value in the last ten years (35 points)**

- A. Track Record (15 points)
- B. Signed and stamped client References (20 points)

### **2. Capacity to Deliver (20 points)**

- A. Current Commitments (10 points)
- B. Plant (10 points)

### **3. Capability Resources: Qualification and Competencies (20 points)**

- A. Capability Resources (5 points)
- B. Qualification and Key Staff (10 points)
- C. Years of Experience (5 points)

### **4. Programme Schedule (15 points)**

### **5. Project Specific OHS (10 points)**

- A. Submission of project specific OHS
- B. Qualification of personnel

### **STAGE 3– Price and B-BBEE**

In order to claim and be awarded B-BBEE points bidders must submit an original certified copy of B-BBEE certificate issued by a SANAS accredited agency or by the Company and Intellectual Property Commission (CIPC). In cases of a Joint Venture, an original consolidated B-BBEE certificate issued by SANAS accredited verification agency will be accepted.

**(Failure to submit will render Bidder scoring Nil points in this regard)**

B-B BEE points are allocated as follows:

	POINTS
Price	90 points
B-BBEE status Level Contributor	10 points
<b>TOTAL</b>	<b>100 points</b>

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

**For enquiries, please contact:**

PROVINCE		CONTACT PERSON FOR ENQUIRIES	CONTACT NUMBERS	EMAIL ADDRESSES
Eastern Cape				
		Ikamva-Wayne Buss	082 574 4741	Kokstad@ikamva-architects.co.za
	SCM Queries	Mamikie Mashele (SCM)	015 295 0000 IDT	MamikieM@idt.org.za

### **DEPOSIT/RETURN OF BID DOCUMENTS:**

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

<p><b>BID DOCUMENTS MAY BE POSTED TO:</b></p> <p><b>N/A</b></p>	<p><b>OR</b></p>	<p><b>DEPOSITED IN THE BID BOX AT:</b></p> <p><b>INDEPENDENT DEVELOPMENT TRUST, PALM SQUARE BUSINESS PARK, SILVERWOOD HOUSE, BONZA BAY ROAD, BEACON BAY, EAST LONDON</b></p>
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## INDEPENDENT DEVELOPMENT TRUST

### T1.1 Tender Notice and Invitation to Tender

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

It is estimated that tenderers should have a CIDB contractor grading of **7GB or higher**

Documents will be available from the **Friday 10 December 2021**.

**Bid Documents which must be completed and submitted are available for download on IDT website: [www.idt.org.za/business-opportunities/](http://www.idt.org.za/business-opportunities/) current tender, bulletin: [www.ectreasury.gov.za](http://www.ectreasury.gov.za), iTender: [www.cidb.org.za](http://www.cidb.org.za), eTender on: [www.etenders.gov.za](http://www.etenders.gov.za) from Friday 10 December 2021. All documents must be downloaded and printed by the bidders from the abovementioned sites.**

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

**Mamikie Mashele / Wayne Buss**

Tel No 043 711 6000 / 039 727 5502

E- mail [Mamikiem@idt.org.za](mailto:Mamikiem@idt.org.za) or [Kokstad@ikamva-architects.co.za](mailto:Kokstad@ikamva-architects.co.za)

Or

**Frikkie Bezuidenhout**

Tel No 043 721 0667

E- mail [Frikkie@mmdp.co.za](mailto:Frikkie@mmdp.co.za)

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

#### INDEPENDENT DEVELOPMENT TRUST OFFICES

Palm Square Business Park  
Bonza Bay Road  
Silverwood House  
Beacon Bay  
East London  
5241

**Tender**

1

**Part T1: Tendering procedures**

**T1.1 Tender Notice and Invitation to Tender**

**BID No: DoEEC/06/2021**



## **COMPULSORY BRIEFING SESSION**

**14 January 2022 at 11H00, Mbongweni, EC443- Mbizana, DC44-Alfred Nzo District Municipality**  
(refer to page 0386 for directions)

## **TENDER CLOSE**

The closing date and time for receipt of tenders is **3 February 2022 @ 11:00**.

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

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### **PLEASE NOTE THE FOLLOWING IMPORTANT DATES**

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- **Compulsory Briefing Session: 14 January 2022 at 11H00, Mbongweni, EC443- Mbizana, DC44-Alfred Nzo District Municipality**
- **Tender Closing Date: 3 February 2022 @ 11:00**

## INDEPENDENT DEVELOPMENT TRUST

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### T1.2 Tender Data

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

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

#### The additional conditions of tender are:

Clause number	Tender Data for BID NO: DoEEC/06/2021
F.1.1	The employer is the <b>Independent Development Trust, Eastern Cape Province</b>
F.1.2	The tender documents issued by the employer comprises: T1.1 Tender notice and invitation to tender T1.2 Tender data T2.1 List of returnable documents T2.2 Returnable schedules <b>Part 1: Agreements and contract data</b> C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Form of Guarantee C1.4 Adjudicator's appointment <b>Part 2: Pricing data</b> C2.1 Pricing instructions C2.2 Activity schedules / Bills of Quantities <b>Part 3: Scope of work</b> C3 Scope of work <b>Part 4 : Site information</b> C4 Site information
F.1.4	The employer's agent is:  Name: <b>Ikamva Architects</b> Address: 3 Voorwaarts Rd, Kokstad, 4700 Tel: 039 727 5502 Fax:039 – 727 4220 E-mail: kokstad@ikamva-architects.co.za

- F.2.1 Only those tenderers who are registered with the CIDB, or are capable of being so prior to the evaluation of submissions, in a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **Grade 7GB or higher class** of construction work, are eligible to submit tenders.

Joint ventures are eligible to submit tenders provided that:

1. every member of the joint venture is registered with the CIDB;
2. the lead partner has a contractor grading designation in the Grade **7GB** or higher class of construction work; and
3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a **(7GB or higher ) General Building** class of construction work.

- F.2.7 There shall be a compulsory briefing with representatives of the employer on 14 January 2022 at 11h00, Mbongweni, EC443-Mbizana, DC44-Alfred Nzo District Municipality

- F.2.12 No alternative tender offers will be considered

- F.2.13.3 Parts of each tender offer communicated on paper shall be submitted as one original (i.e. no copies should be submitted).
- F.2.13.5 The employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:
- F.2.15.1

**Location of tender box: Physical address: -**

**INDEPENDENT DEVELOPMENT TRUST OFFICES**

Palm Square Business Park  
Bonza Bay Road  
Silverwood House  
Beacon Bay  
East London  
5241

**Identification details:**

**Project no: BID No: DoEEC/06/2021**

**Title: Mgomanzi SPS**

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

**Closing date: 3 February 2022**

**Closing time: 11:00**

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

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

- F.2.17 The contract duration is **18 Months** from date of Site Handover.

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

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

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

<b>No</b>	<b>Gate Keeper (Compulsory) Criteria</b>	<b>Gate Keeper Criteria Description</b>
1	Proof of authority to sign the document must be submitted e.g. company resolution.	Proof of authority to sign the document must be submitted on Company Letterhead e.g. company resolution.
2	Letter of good standing/Copy of registration (COIDA/FEM) from the Department of Labour	Valid Letter of Good Standing (Workman's Compensation, COIDA) or FEM Letter of Good Standing. If JV all partners must submit
3	CIDB Grading Certificate.	Required valid and active CIDB Grading equivalent for the works. JV's to submit consolidated CIDB Grading.
4	Fully & Duly Completed Detailed Bill of Quantities (BOQ), Written In Black Ink	All items in the original Bill of Quantities must be priced (rates and amounts and totals) with the exception of preliminaries (contractor can select options in line with the PBA JBCC March 2005 Edition 4.1), written in Ink. No Copies, no correctional fluids, erasable pen or a lead pencil must be used in the BOQ. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties. All blanks spaces to be completed.
5	Consortium / Joint Venture Agreement	<b>If Applicable</b> , JV Agreement signed by all parties of the JV. and signed & stamped by the commissioner of oaths.
6	Duly Completed Form of Offer	Fully & Duly Completed and Signed form of offer and witnessed. All blanks spaces must be completed.
7	Duly completed and signed Invitation to BID, Part A and B (SBD 1)	Fully & Duly Completed and signed Invitation to BID, Part A and B (SBD 1). All blank spaces must be completed. Bidders to indicate items that are not applicable.
8	Duly completed Declaration of Interest (SBD 4)	Fully & Duly Completed and Signed Declaration of Interest Form (SBD 4). All blank spaces must be completed. Bidders to indicate items that are not applicable.
9	Declaration of Bidders Past SCM Practices (SBD 8)	Fully & Duly Completed and Signed SBD 8 Form. All blanks spaces must be completed. Bidders to indicate items that are not applicable.
10	Certificate of Independent Bid Determination (SBD 9)	Fully & Duly Completed and Signed SBD 9 Form. All blanks spaces must be completed. Bidders to indicate items that are not applicable.
11	Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1)	Fully & Duly Completed and Signed Preference points claim form in terms of PPPFA, Procurement Regulations 2017 (SBD 6.1). All blanks spaces must be completed. Bidders to indicate items that are not applicable.
12	Duly Completed and Signed Local content form (SBD 6.2)	<p>Fully &amp; Duly Completed and Signed Local content form (SBD 6.2) including all the annexures C, D &amp; E. Bidders must return Annexure C. Annexure D &amp; E to be kept by the bidder for verification/audit upon appointment. All blanks spaces must be completed. Bidders to indicate items that are not applicable.</p> <p>Only locally (South Africa) manufactured product that meet the stipulated minimum threshold for local content will be considered (Preferential Procurement Regulations 2017).</p> <p>A Bid that fails to meet the stipulated threshold for local production and content is unacceptable and will be disqualified</p>
13	No Copies, no correctional fluids, erasable pen or a lead pencil will be	No Copies, no correctional fluids, erasable pen or a lead pencil will be used on any of the submitted forms. Only black ink must

	used on any of the submitted forms. Only black ink must be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.	be used to complete documents. Any mistakes must be neatly crossed out and countersigned by all relevant parties.
14	30% subcontracting is a Condition of Tender	<p>IDT has decided to apply pre-qualifying criteria for this bid in terms of regulation 4(1) (c) of the Preferential Procurements Regulations of 2017 that only tenderers sub-contracting a minimum of 30% to any (one or more) of the following:</p> <ul style="list-style-type: none"> <li>a) An Exempted Micro Enterprise (EMEs) or Qualifying Small Enterprise (QSEs) which is at least 51% owned by black people who are women or</li> <li>b) An EMEs or which is at least 51% owned by black's people with disabilities; or</li> <li>c) An Exempted Micro Enterprise (EMEs) or Qualifying Small Enterprise (QSEs) which is at least 51% owned by black people who are youth.</li> </ul> <p>Tenderers or contractors must submit proof of subcontracting agreement which is signed and stamped by commissioner of oaths between the main tenderer and the subcontractor. The following must be attached to the subcontracting agreement;</p> <ul style="list-style-type: none"> <li>• Proof of BBBEE status of the subcontractor</li> <li>• CIDB Grading</li> <li>• CSD Registration</li> <li>• Signed and stamped by the Commissioner of Oaths Subcontracting Agreement.</li> </ul> <p>Should the bidder subcontract more than one bidder, the consolidated percentage must equate to 30% allocated for subcontracting.</p> <p>NB: The Tenderers who fail to comply with this requirement would be considered as being not acceptable and will be disqualified and will not be considered for further evaluation or award</p>

**Instruction notes:**

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

### 4.3.3 Functionality Criteria

Variables	Total Points	Criteria	Description Of Criteria	Points
<u>Functionality Points</u>	100			
Experience on similar scale projects	15	Very good	Points allocated for proven records of accomplishment based on the similar scale of previous projects executed by tenderer .	15
		Good		12.5
		Satisfactory		10
		Poor		5
		Not acceptable		0
Client References	20	Very good	Points allocated for previous client references and submission in relation to nature of work in Relevant Experience (Returnable schedule) of the Bid Document.	20
		Good		15
		Satisfactory		10
		Poor		5
		Not acceptable		0
Qualifications & competencies of key staff	20	Very Good	Points allocated for required competencies and qualifications of allocated personnel for the projects in consideration	20
		Good		15
		Satisfactory		10
		Poor		5
		Very poor		1
		Not submitted		0
Project Specific Programme schedule and cash flow	15	Very good	Points allocated for turn-around projects delivery period and detail project submission by tenderer/bidder in consideration	15
		Good		12.5
		Satisfactory		10
		Poor		5
		Unacceptable		0
Schedule / Availability of Plant & Equipment	10	Very good	Points allocated for the availability of key required plant & Equipment for the project in consideration	10
		Good		7.5
		Poor		3
		Unacceptable		0
Current Commitments	10	Very good	Points allocated for specifying Current Commitments	10
		Good		7,5
		Satisfactory		5
		Poor		3
		Unacceptable		0
Safety Health & Environmental Quality ( SHEQ) Project Specific Plan	10	Very good	Points allocated for submission and Projects specific SHEQ plan	10
		Good		7.5
		Satisfactory		5
		Poor		3
		Not acceptable		0

**Notes:**

1. Bidders are required to score minimum points of 70 (70%) for Functionality stated in tender data.
2. Bidders who fail to meet the required minimum number of points for functionality stated in the tender data will not be evaluated further.
3. Bidders who fail to submit information as per the returnable schedules will not be allocated points.

**The functionality will be scored using the following values:**

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

<b>Evaluation Criteria</b>	<b>Points Allocation</b>
Relevant Previous Experience on completed projects of a similar nature and value in the last ten (10) years	35 points
Capacity to Deliver	20 points
Qualifications, Skills and Experience of project key resources	20 points
Project Schedule	15 points
Project Schedule Project Specific OHS	10 points
<b>Total</b>	<b>100 points</b>
<b>NB: Minimum qualifying functionality threshold is 70 points out 100</b>	

**DESCRIPTION OF FUNCTIONALITY FOR ALLOCATION OF POINTS:**

**1. Previous Experience: Relevant Previous Experience on completed projects of a similar nature and value in the last ten years (35 points)**

- A. Track Record (15 points)
- B. Signed and stamped client References (20 points)

**2. Capacity to Deliver (20 points)**

- A. Current Commitments (10 points)
- B. Plant (10 points)

**3. Capability Resources: Qualification and Competencies (20 points)**

- A. Capability Resources (5 points)
- B. Qualification and Key Staff (10 points)
- C. Years of Experience (5 points)

**4. Programme Schedule (15 points)**

**5. Project Specific OHS (10 points)**

- A. Submission of project specific OHS
- B. Qualification of personnel



**Experience on similar scale projects:**

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

<b>Value of work (4GB)</b>	<b>Rating</b>
3.1m and above	Very Good
2.1m – 3m	Good
1.1m – 2m	Satisfactory
0.51m – 1m	Poor
0m – 0.5m	Not Submitted

<b>Value of work (6GB)</b>	<b>Rating</b>
10.1m and above	Very Good
5.1m – 10m	Good
3.1m – 5m	Satisfactory
1.1m – 3m	Poor
0m – 1m	Not Submitted

<b>Value of work (7GB)</b>	<b>Rating</b>
20.1m and above	Very Good
10.1m – 20m	Good
5.1m – 10m	Satisfactory
2.1m – 5m	Poor
0m – 2m	Not Submitted

**Nature of work evaluation**

<b>Nature of Work</b>	<b>Rating</b>
Construction of major and renovations of Hospitals, Clinics, Schools, Libraries, Hotels, Malls, shopping Complex, Courts, Office blocks, Town Houses, prisons, Church, Civic center	Very Good
Construction and renovation of Residential Houses and Community hall, indoor sport complex and stadia	Good
Construction and renovations of Enviro-loo toilets, Low cost houses (RDP), Taxi Rank.	Satisfactory
Construction and renovations of residential household toilets (VIP toilets)	Poor
Engineering Projects (Water, Transport, Traffic Engineering, Electrical & Mechanical Projects).	No points

## Qualifications & Key Personnel

<b>Qualifications and Competencies of Key Projects Resources</b>	<b>20</b>	Very Good (Score 100)	Points allocated for required competencies & Built Environment qualification of allocated personnel for the project in consideration. Required Key Project Resources; Verification Certificate from SAQA must be attached for International qualifications in order to get points  <b>1. Project Manager:</b>  <b>2. Site Agent:</b>	20
		Good (Score 90)		15
		Satisfactory (Score 70)		10
		Poor (Score 40)		5
		Very Poor (Score 10)		1
		Not Submitted (0)		0

Education	Project Manager (List a minimum of 1 for each)		
	Professionally Registered Personnel (CV, Proof of registration, Proof of qualifications (Building=Pm, Arch ,QS .Civil, PM,CE,))		20
	Non Registered Personnel (with Degree, Proof of Qual + CV)		15
	Non Registered Personnel (Diploma, Proof of Qual + CV)		10
	Non Registered Personnel (Certificates, Proof of Qual + CV)		1
Competence	Years of Experience-1 to 2 (Degree/Diploma, Proof of qualifications + CV)		1
	Years of Experience-3 to 5 (Degree/Diploma, Proof of qualifications + CV)		10
	Years of Experience-5 to 6 (Degree/Diploma, Proof of qualifications + CV)		15
	Years of Experience-above 6 (Degree/Diploma, Proof of qualifications + CV)		20
Site Agent (List a minimum of 1 for each)			
Education	Registered Personnel (Degree/Diploma, Proof of qualifications + CV)		20
	Non Registered Personnel (Degree/Diploma, Proof of qualifications + CV)		10
Competence	Years of Experience-1 to 2 (Degree/Diploma, Proof of qualifications + CV)		1
	Years of Experience-3 to 5 (Degree/Diploma, Proof of qualification + CV)		10
	Years of Experience-above 6 (Degree/Diploma, Proof of qualification + CV)		20

## Schedule / Availability of Plant & Equipment

<b>Plant and Equipment</b>	<b>Description (With proof of ownership /rental )</b>
Plant and Equipment 1	Heavy duty machinery, TLBs, Excavators, Rollers
Plant and Equipment 2	Trucks, 6- 10 trucks, Water tanks
Plant and Equipment 3	LDVs, Bakkies
Plant and Equipment 4	Scaffolding, Trestles, Step Ladders, Concrete Mixers, Generators, Jack Hammer
Plant and Equipment 5	Spades, Shovels, Wheel Barrows
Plant and Equipment 6	Hand tools, Screw Drivers, Trowel, Hammers, Drills, Grinders

<b>Plant &amp; Equipment</b>	<b>10</b>	Proof of any Required P&E Submitted (Owned)	In order to demonstrate capacity to deliver on time the tenderers will need to demonstrate the following: (i) Having access to the minimum required Plant and Equipment for the project at hand (ii) Demonstrate whether such Plant & Equipment is Owned or will be Rented with proof of available plant and equipment (iii) Submit Proof thereof of such Plant & Equipment in existence (iv) P&E Submitted Without Proof-Rental letter without indicating the available plant/equipment	10
		Proof of any Required P&E Submitted (Rental ) with the Lessee's ownership documents		7,5
		P&E Submitted Without Proof		3
		Not Submitted		0

### **Client References**

The Tenderer shall provide details of his performance on each of the previous projects listed in the "Relevant Experience" returnable schedule. "Client Reference Scorecards" will be completed, signed by each of the respective Clients and principal agents and stamped by both the client and the principal agent for the projects listed in the "Relevant Experience" returnable schedule.

### **Contracting Document**

JBCC Series 2000 PBA March 2005, Edition 4.1

#### 4.3.4. Preferential procurement system

90/10 preferential procurement system to be utilized as per PPPFA 2017. The project is above R50m.

Variables	Total Points	Criteria	Description Of Criteria	Points
<u>B-BBEE</u>	<u>10</u>	B-BBEE Contributor level 1	Points allocated to entities who are contributing towards the empowerment of black people (a SANAS accredited B-BBEE Certificate MUST be submitted with the bid documents before any points can be allocated)	10
		B-BBEE Contributor level 2		9
		B-BBEE Contributor level 3		8
		B-BBEE Contributor level 4		5
		B-BBEE Contributor level 5		4
		B-BBEE Contributor level 6		3
		B-BBEE Contributor level 7		2
		B-BBEE Contributor level 8		1
		Non-compliant contributor	Bidders to submit Original Sworn Affidavit B-BBEE or SANAS certified copies not older than 6 months).  Joint Ventures / Consortia entities must submit a consolidated B-BBEE certificate from SANAS-Accredited verification agency in order to qualify for points for their B-BBEE status level as an incorporated entity. Sworn affidavits for joint ventures will not be considered.	0
Financial Offer / Price:				
Financial Offer/Price	90	Formula=2 Option 1,A=(1-{p-pm/pm})	Formula used to calculate financial offer/price points	
		Pm=The comparative Price offer of the mean/average quantifying tenderer		
		P=The comparative offer of the tender under consideration		
	100			

#### **BBBEE**

A bidder must submit proof of B-BBEE status level of contributor. A tenderer failing to submit proof of B-BBEE status level of contribution or is a non-compliant contributor to B-BBEE may not be disqualified, but may only score points out of 90 for price; and scores 0 points out of 10 for B-BBEE.

Bidders who qualify as EMEs should submit Original Sworn affidavit signed by the EME representative and attested by a Commissioner of oaths.

Joint Ventures / Consortia entities must submit a consolidated B-BBEE certificate from SANAS-Accredited verification agency in order to qualify for points for their B-BBEE status level as an unincorporated entity. Including EMEs and QSE, sworn affidavit Joint Venture will not be considered as is not valid

## 1. LIST OF RETURNABLE SCHEDULES

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

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

**Notes:**

1. Tenderers are required to score minimum points of 70 for Functionality stated in tender data.
2. Tenderers who fail to meet the required minimum number of points for functionality stated in the tender data will not be evaluated further.
3. Tenderers who fail to submit information as per the returnable schedules will not be allocated points.

## T2.1.20 EVALUATION SCHEDULE: CLIENT REFERENCES

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

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

**PROJECT NAME and SCOPE OF WORK:**

**Principal agent:** .....

**Client:** ..

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....

**Principal Agent Firm:** .....

**Telephone:** .....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**

**T2.1.20 EVALUATION SCHEDULE: REPORT ON CONTRACTOR'S COMPETANCE & PERFORMANCE ON A SIMILAR PROJECT FOR TENDER RECOMMENDATION PURPOSES**

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

**PROJECT NAME and SCOPE OF WORK:**

**Principal agent:**.....

**Client:** .....

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....  
.....

**Principal Agent Firm:** .....

**Telephone:**.....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**



**T2.1.20 EVALUATION SCHEDULE: REPORT ON CONTRACTOR'S COMPETANCE & PERFORMANCE ON A SIMILAR PROJECT FOR TENDER RECOMMENDATION PURPOSES**

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

**PROJECT NAME and SCOPE OF WORK:**

**Principal agent:**.....

**Client:** .....

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....  
 .....

**Principal Agent Firm:** .....

**Telephone:**.....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**

**T2.1.20 EVALUATION SCHEDULE: REPORT ON CONTRACTOR'S COMPETANCE & PERFORMANCE  
ON A SIMILAR PROJECT FOR TENDER RECOMMENDATION PURPOSES**

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

**PROJECT NAME and SCOPE OF WORK:**

**Principal agent:**.....

**Client:** .....

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....  
.....

**Principal Agent Firm:** .....

**Telephone:**.....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**

**T2.1.20 EVALUATION SCHEDULE: REPORT ON CONTRACTOR'S COMPETENCE & PERFORMANCE ON A  
SIMILAR PROJECT FOR TENDER RECOMMENDATION PURPOSES**

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

<b>PROJECT NAME and SCOPE OF WORK:</b>
--

**Principal agent:** .....

**Client:** ..

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....  
 .....

**Principal Agent Firm:** .....

**Telephone:** .....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**

**T2.1.20 EVALUATION SCHEDULE: REPORT ON CONTRACTOR'S COMPETENCE & PERFORMANCE ON A SIMILAR PROJECT FOR TENDER RECOMMENDATION PURPOSES**

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

**PROJECT NAME and SCOPE OF WORK:**

**Principal agent:**.....

**Client:** .....

**Contract Amount:** .....

**Contract Duration:** .....

**Actual Contract Duration:** .....

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

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

.....  
 .....

**Principal Agent Firm:** .....

**Telephone:**.....

**PA Signature:** .....

**Date:** .....

**Stamp**

**Client Signature:** .....

**Date:** .....

**Stamp**

**Relevant Experience (Returnable schedule)**

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

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

### **Record of Addenda to tender documents**

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

Attach additional pages if more space is required.

Signed

Date

Name

Position

Identity  
number

Tenderer

## **SCHEDULE OF PLANT AND EQUIPMENT**

The following are lists of major items of relevant equipment that I / we presently own or lease and will have available for this contract if my / our tender is accepted. **(Please attach proof of ownership of plant owned)**

- (a) Details of major equipment owned by me / us and immediately available for this contract.

PLANT AND EQUIPMENT	DESCRIPTION ( <i>type, size, capacity etc</i> )	LICENSE NUMBER	YEAR OF MANUFACTURE
<i>Plant and Equipment 1</i>			
<i>Plant and Equipment 2</i>			
<i>Plant and Equipment 3</i>			
<i>Plant and Equipment 4</i>			
<i>Plant and Equipment 5</i>			
<i>Plant and Equipment 6</i>			

***Attach additional pages if more space is required***

- (b) Details of major equipment that will be hired, or acquired for this contract if my / our tender is accepted

PLANT AND EQUIPMENT	DESCRIPTION ( <i>type, size, capacity etc</i> )	LICENSE NUMBER	HOW ACQUIRED	
			HIRE/ BUY	SOURCE
<i>Plant and Equipment 1</i>				
<i>Plant and Equipment 2</i>				
<i>Plant and Equipment 3</i>				
<i>Plant and Equipment 4</i>				
<i>Plant and Equipment 5</i>				
<i>Plant and Equipment 6</i>				

***Attach additional pages if more space is required***

The Tenderer undertakes to bring onto site without additional cost to the Employer any additional plant not listed but which may be necessary to complete the contract within the specified contract period.

***Failure to complete this form properly and correctly, will lead to the conclusion that the tenderer does not have the necessary plant and equipment resources at his disposal, which will prejudice his tender.***

SIGNATURE: ..... IDENTITY NUMBER: .....

(of person authorised to sign on behalf of the Tenderer)

DATE:.....

## REFERENCES

The following is a statement of traceable, current References (suppliers and/or plant hire):

[illegible]

SIGNATURE: ..... IDENTITY NUMBER: .....

(of person authorised to sign on behalf of the Tenderer)

DATE:.....



## **KEY PERSONNEL**

In terms of the Project Specification and the Conditions of Tender, unskilled workers may only be brought in from outside the local community if such personnel are not available locally.

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

CATEGORY OF EMPLOYEE	NUMBER OF PERSONS					
	KEY PERSONNEL, PART OF THE CONTRACTOR'S ORGANISATION		KEY PERSONNEL TO BE IMPORTED IF NOT AVAILABLE LOCALLY		UNSKILLED PERSONNEL TO BE RECRUITED FROM LOCAL COMMUNITY	
	HDI	NON-HDI	HDI	NON-HDI	HDI	NON-HDI
Site Agent, Project Managers						
Foremen, Quality Control and Safety Personnel						
Technicians, Surveyors, etc						
Artisans and other Skilled workers						
Plant Operators						
Others:..... ..... ..... ..... ...						

The Tenderer shall attach hereto the *curricula vitae*, in the form included hereafter, of at least the site agent and the project manager. The information is necessary for evaluation of the tender.

SIGNATURE: ..... IDENTITY NUMBER: .....

(of person authorised to sign on behalf of the Tenderer)

DATE:.....

*This section must be completed in full and aligned to attachments, organogram submitted  
failure to do so will result in no allocation of points*

**CURRICULUM VITAE OF KEY PERSONNEL (COMPULSORY)**

*(CVs and Certified Qualifications that are not older than 6 months are required only for site agent and contract or project manager).*

**CV FOR CONTRACT OR PROJECT MANAGER**

<b>Name:</b>	<b>Date of birth:</b>
<b>Profession:</b>	<b>Nationality:</b>
<b>Qualifications:</b>	
<b>Professional Registration Number:</b>	
<b>Name of Employer (firm):</b>	
<b>Current position:</b>	<b>Years with firm:</b>
<b><u>Employment Record:</u></b>	
<b><u>Experience Record Pertinent to Required service:</u></b>	

**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

SIGNATURE: ..... IDENTITY NUMBER: .....

*(of person authorised to sign on behalf of the Tenderer)*

DATE:.....

**CV FOR SITE AGENT**

<b>Name:</b>	<b>Date of birth:</b>
<b>Profession:</b>	<b>Nationality:</b>
<b>Qualifications:</b>	
<b>Professional Registration Number:</b>	
<b>Name of Employer (firm):</b>	
<b>Current position:</b>	<b>Years with firm:</b>
<b><u>Employment Record:</u></b>	
<b><u>Experience Record Pertinent to Required service:</u></b>	

**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....  
SIGNATURE OF THE INCUMBANT IN THE SCHEDULE

.....  
DATE

.....  
INCUMBANT'S IDENTITY NUMBER

**CV FOR TECHNICIAN / ARTISAN**

<b>Name:</b>	<b>Date of birth:</b>
<b>Profession:</b>	<b>Nationality:</b>
<b>Qualifications:</b>	
<b>Professional Registration Number:</b>	
<b>Name of Employer (firm):</b>	
<b>Current position:</b>	<b>Years with firm:</b>
<b><u>Employment Record:</u></b>	
<b><u>Experience Record Pertinent to Required service:</u></b>	

**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....  
SIGNATURE OF THE INCUMBANT IN THE SCHEDULE

.....  
DATE

.....  
INCUMBANT'S IDENTITY NUMBER

**CV FOR FOREMAN**

<b>Name:</b>	<b>Date of birth:</b>
<b>Profession:</b>	<b>Nationality:</b>
<b>Qualifications:</b>	
<b>Professional Registration Number:</b>	
<b>Name of Employer (firm):</b>	
<b>Current position:</b>	<b>Years with firm:</b>
<b><u>Employment Record:</u></b>	
<b><u>Experience Record Pertinent to Required service:</u></b>	

**Certification:**

I, the undersigned, certify that, to the best of my knowledge and belief, this data correctly describes me, my qualifications and my experience.

.....  
SIGNATURE OF THE INCUMBANT IN THE SCHEDULE

.....  
DATE

.....  
INCUMBANT'S IDENTITY NUMBER

## **PRELIMINARY PROGRAMME**

The Tenderer shall **attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this Contract**. The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of his Tender.

**NOTE: ONLY COMPUTIRSED PRELIMINARY PROGRAM WILL BE CONSIDERED**

### **PROGRAMME (EXAMPLE ONLY)**

ACTIVITY	MONTHS									
	1	2	3	4	5	6	7	8	9	10

*[Note: The programme must be based on the completion time as specified in the Contract Data. No other completion time that may be indicated on this programme will be regarded as an alternative offer, unless it is listed in Table (b) of Form I hereafter and supported by a detailed statement to that effect, all as specified in the Tender Data]*

The following aspects of the preliminary programme will be considered:

- Programme Heading
- The programme is specific and tailored for the execution of the project, is comprehensive and is logically correct
- The activities are well articulated with headings and sub headings and show relevant milestones
- The activities that occur simultaneously are showing
- The activities that depend on each other are linked
- The activities that required stages are indicated
- Milestones are shown
- There are resources aligned / embedded to the programme
- Cause and effect of the programme can be determined such that the critical path is shown
- The lead times and lag times are clear and being considered for ordering of materials and staffing requirements
- Non-Working Days and Been Taken Into Consideration
- Has the Programme been divided into Phases
- The Cash Flow to Relate to the Programme
- The programme to show resource histogram
- The Resource Histogram to Show Unskilled Labour

SIGNATURE: ..... IDENTITY NUMBER: .....

(of person authorised to sign on behalf of the Tenderer)

DATE:.....

## PART A

### INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE INDEPENDENT DEVELOPMENT TRUST					
BID NUMBER:	DoEEC/06/2021	CLOSING DATE:	3 February 2022	CLOSING TIME:	11:00
DESCRIPTION	<p>Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.</p> <p>The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining &amp; Nutrition Centre, Science ,Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical &amp; Mechanical Installation, Demolitions of existing buildings, etc.</p>				
BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED					
Palm Square Business Park					
Bonza Bay Road, Silverwood House					
Beacon Bay					
EAST LONDON 5241					
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			TECHNICAL ENQUIRIES MAY BE DIRECTED TO:		
CONTACT PERSON	Mamikie Mashele		CONTACT PERSON	Wayne Buss	
TELEPHONE NUMBER	043 711 6000		TELEPHONE NUMBER	039 727 5502	
FACSIMILE NUMBER			FACSIMILE NUMBER		
E-MAIL ADDRESS	Mamikie MasheleEmail		E-MAIL ADDRESS	Kokstad@ikamva-architects.co.za	
SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		OR	CENTRAL SUPPLIER DATABASE No:	MAAA
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE	[TICK APPLICABLE BOX]  <input type="checkbox"/> Yes <input type="checkbox"/> No		B-BBEE STATUS LEVEL SWORN AFFIDAVIT		[TICK APPLICABLE BOX]  <input type="checkbox"/> Yes <input type="checkbox"/> No

**[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/ SWORN AFFIDAVIT (FOR EMES & QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]**

<p><b>a) ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>[IF YES ENCLOSE PROOF]</p>	<p><b>b) ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?</b></p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>[IF YES, ANSWER THE QUESTIONNAIRE BELOW]</p>
--	---	---	---

**QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS**

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)? ☐ YES ☐ NO

DOES THE ENTITY HAVE A BRANCH IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA? ☐ YES ☐ NO

DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA? ☐ YES ☐ NO

IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION? ☐ YES ☐ NO

**IF THE ANSWER IS “NO” TO ALL OF THE ABOVE, THEN IT IS NOT A REQUIREMENT TO REGISTER FOR A TAX COMPLIANCE STATUS SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 BELOW.**



## PART B

### TERMS AND CONDITIONS FOR BIDDING

<b>1. BID SUBMISSION:</b>
1.1. BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2. ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED- (NOT TO BE RE-TYPED) OR IN THE MANNER PRESCRIBED IN THE BID DOCUMENT.
1.3. THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT, 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE JOINT BUILDING CONTRACT COMMITTEE (JBCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.
1.4. THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A JBCC AGREEMENT.
<b>2. TAX COMPLIANCE REQUIREMENTS</b>
2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VERIFY THE TAXPAYER'S PROFILE AND TAX STATUS.
2.3 APPLICATION FOR TAX COMPLIANCE STATUS (TCS) PIN MAY BE MADE VIA E-FILING THROUGH THE SARS WEBSITE WWW.SARS.GOV.ZA.
2.4 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.5 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.6 WHERE NO TCS PIN IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.
2.7 NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE, COMPANIES WITH DIRECTORS WHO ARE PERSONS IN THE SERVICE OF THE STATE, OR CLOSE CORPORATIONS WITH MEMBERS PERSONS IN THE SERVICE OF THE STATE."

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

SIGNATURE OF BIDDER: .....

CAPACITY UNDER WHICH THIS BID IS SIGNED: .....  
(Proof of authority must be submitted e.g. company resolution)

DATE: .....

## DECLARATION OF INTEREST

1. Any legal person, including persons employed by the state<sup>1</sup>, or persons having a kinship with persons employed by the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid (includes a price quotation, advertised competitive bid, limited bid or proposal). In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons employed by the state, or to persons connected with or related to them, it is required that the bidder or his/her authorised representative declare his/her position in relation to the evaluating/adjudicating authority where-
  - the bidder is employed by the state; and/or
  - the legal person on whose behalf the bidding document is signed, has a relationship with persons/a person who are/is involved in the evaluation and or adjudication of the bid(s), or where it is known that such a relationship exists between the person or persons for or on whose behalf the declarant acts and persons who are involved with the evaluation and or adjudication of the bid.
2. **In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.**
  - 2.1 Full Name of bidder or his or her representative: .....
  - 2.2 Identity Number: .....
  - 2.3 Position occupied in the Company (director, trustee, shareholder<sup>2</sup>): ..... ..
  - 2.4 Company Registration Number: .....
  - 2.5 Tax Reference Number: .....
  - 2.6 VAT Registration Number: .....
  - 2.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

<sup>1</sup>"State" means –

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

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

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

**2.7.1** If so, furnish the following particulars:

Name of person / director / trustee / shareholder/ member: .....  
Name of state institution at which you or the person connected to the bidder is employed : .....  
Position occupied in the state institution: .....

Any other particulars:

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

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

**2.7.2.1.1** If yes, did you attached proof of such authority to the bid document? **YES / NO**

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

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

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

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

**2.8.1** If so, furnish particulars:

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

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

**2.9.1** If so, furnish particulars.

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

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

**2.10.1** If so, furnish particulars.

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

**2.11** Do you or any of the directors / trustees / shareholders / members **YES/NO**

of the company have any interest in any other related companies whether or not they are bidding for this contract?

2.11.1 If so, furnish particulars:

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

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

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

### 4 DECLARATION

I, THE UNDERSIGNED (NAME) ..... CERTIFY  
THAT THE INFORMATION FURNISHED IN PARAGRAPHS 2 and 3 ABOVE IS CORRECT  
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF  
PARAGRAPH 23 OF THE GENERAL CONDITIONS OF CONTRACT SHOULD THIS  
DECLARATION PROVE TO BE FALSE.

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of bidder

**NOTE: Failure of a tenderer to fully complete and sign this part of this SBD form in full will invalidate the tender**

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

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

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

### 1. GENERAL CONDITIONS

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

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

1.21.2

- a) The value of this bid is estimated to exceed R50 000 000 (all applicable taxes included) and therefore the 90/10 preference point system shall be applicable; or
- b) The 90/10 preference point system will be applicable to this tender

1.3 Points for this bid shall be awarded for:

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

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

	POINTS
PRICE	90
B-BBEE STATUS LEVEL OF CONTRIBUTOR	10
<b>Total points for Price and B-BBEE must not exceed</b>	<b>100</b>

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

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

## 2. DEFINITIONS

- (a) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (b) **“B-BBEE status level of contributor”** means the B-BBEE status of an entity in terms of a code of good practice on black economic empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (c) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of goods or services, through price quotations, advertised competitive bidding processes or proposals;
- (d) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (e) **“EME”** means an Exempted Micro Enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (f) **“functionality”** means the ability of a tenderer to provide goods or services in accordance with specifications as set out in the tender documents.
- (g) **“prices”** includes all applicable taxes less all unconditional discounts;
- (h) **“proof of B-BBEE status level of contributor”** means:
  - 1) B-BBEE Status level certificate issued by an authorized body or person;
  - 2) A Sworn affidavit as prescribed by the B-BBEE Codes of good practice;
  - 3) Any other requirement prescribed in terms of the B-BBEE Act;
- (i) **“QSE”** means a qualifying small business enterprise in terms of a code of good practice on black economic empowerment issued in terms of section 9 (1) of the Broad-Based Black Economic Empowerment Act;
- (j) **“rand value”** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

## 3. POINTS AWARDED FOR PRICE

### 3.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

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

$$\begin{array}{ccc} \mathbf{80/20} & \mathbf{or} & \mathbf{90/10} \\ P_s = 80 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) & \text{or} & P_s = 90 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \end{array}$$

Where

- P<sub>s</sub> = Points scored for price of bid under consideration
- P<sub>t</sub> = Price of bid under consideration
- P<sub>min</sub> = Price of lowest acceptable bid

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

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

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

#### 5. BID DECLARATION

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

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

- 6.1 B-BBEE Status Level of Contributor: . = (maximum of 10)  
(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 4.1 and must be substantiated by relevant proof of B-BBEE status level of contributor.)

#### 7. SUB-CONTRACTING

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

(*Tick applicable box*)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

- 7.1.1 If yes, indicate:

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

**(Tick applicable box)**

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

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

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

## 8. DECLARATION WITH REGARD TO COMPANY/FIRM

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

8.2 VAT registration number:.....

8.3 Company registration number:.....

8.4 TYPE OF COMPANY/ FIRM

Y Partnership/Joint Venture / Consortium

Y One person business/sole propriety

Y Close corporation

Y Company

Y (Pty) Limited

[TICK APPLICABLE BOX]

8.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

.....

.....



8.6 COMPANY CLASSIFICATION

- ☐ Manufacturer  
☐ Supplier  
☐ Professional service provider  
☐ Other service providers, e.g. transporter, etc.  
[TICK APPLICABLE BOX]

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

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

- i) The information furnished is true and correct;
- ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;
- iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 6.1, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- iv) If the B-BBEE status level of contributor has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
  - (a) disqualify the person from the bidding process;
  - (b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
  - (c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
  - (d) recommend that the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted by the National Treasury from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and
  - (e) forward the matter for criminal prosecution.

WITNESSES

1. ....  
2. ....

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

DATE: .....  
ADDRESS .....

## DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT FOR DESIGNATED SECTORS

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

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

### 1. General Conditions

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

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

Where

x is the imported content in Rand

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

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

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

1.6 A bid may be disqualified if –

- (a) this Declaration Certificate and the Annex C (Local Content Declaration: Summary Schedule) are not submitted as part of the bid documentation; and

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

3.

Item	Description of Service	Stipulated Threshold	Minimum
A	Roof Sheeting	100%	
B	Reinforcing bars	100%	
C	Window Frames	100%	
D	Door Frames	100%	
E	Gutters and Downpipes	100%	
F	Wire Products	100%	
G	Fasteners	100%	
H	School Furniture	100%	

3. Does any portion of the services, works or goods offered have any imported content?

(Tick applicable box)

YES	<input type="checkbox"/>	NO	<input type="checkbox"/>
-----	--------------------------	----	--------------------------

- 3.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.5 of the general conditions must be the rate(s) published by SARB for the specific currency at 12:00 on the date of advertisement of the bid.

The relevant rates of exchange information is accessible on [www.reservebank.co.za](http://www.reservebank.co.za).

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

Currency	Rates of exchange
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

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

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

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

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

**IN RESPECT OF BID NO.** .....

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

.....  
NB

1 The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

2 Guidance on the Calculation of Local Content together with Local Content Declaration Templates (Annex C, D and E) is accessible on <http://www.thdti.gov.za/industrial-development/ip.jsp>. Bidders should first complete Declaration D. After completing Declaration D, bidders should complete Declaration E and then consolidate the information on Declaration C. **Declaration C should be submitted with the bid documentation at the closing date and time of the bid in order to substantiate the declaration made in paragraph (c) below.** Declarations D and E should be kept by the bidders for verification purposes for a period of at least 5 years. The successful bidder is required to continuously update Declarations C, D and E with the actual values for the duration of the contract.

I, the undersigned, ..... (full names),

do hereby declare, in my capacity as .....

of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that:

- (i) the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286:2011; and
- (ii) the declaration templates have been audited and certified to be correct.

(c) The local content percentage (%) indicated below has been calculated using the formula given in clause 3 of SATS 1286:2011, the rates of exchange indicated in paragraph 4.1 above and the information contained in Declaration D and E which has been consolidated in Declaration C:

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

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

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

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

**SIGNATURE:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**WITNESS No. 1** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**WITNESS No. 2** \_\_\_\_\_

**DATE:** \_\_\_\_\_

### Local Content Declaration - Summary Schedule

**Note: VAT to be excluded from all calculations**

(C7)	Specified local content %
------	---------------------------

Pula	0	EU	0	GBP	0
------	---	----	---	-----	---


### Calculation of local content

## Tender summary

Bill Page No.	Tender item no's	List of items	Tender price - each (excl VAT)	Exempted imported value	Tender value-net of exempted imported content	Imported value	Local value	Local content % (per item)
	(C8)	(C9)	(C10)	(C11)	(C12)	(C13)	(C14)	(C15)
		Roof Sheetting						
		Reinforcing bars						
		Window Frames						
		Door Frames						
		Gutters and Downpipes						
		Wire Products						
		Fasteners						
		School Furniture						
							(C20) Total tender value	R 0
							(C21) Total Exempt imported content	R 0
							(C22) Total Tender value net of exempt imported content	R 0
							(C23) Total Imported content	R 0
							(C24) Total local content	R 0
							(C25) Average local content % of tender	
	Date:							

Annex D												SATS 1286.2011
<b>Imported Content Declaration - Supporting Schedule to Annex C</b>												
(D1)	Tender No.	DoEEC/06/2021					Note: VAT to be excluded from all calculations					
(D2)	Tender description:	MgomanziSPS										
(D3)	Designated Products:											
(D4)	Tender Authority:											
(D5)	Tendering Entity name:											
(D6)	Tender Exchange Rate:	Pula		EU	R 9.00	GBP	R 12.00					
<b>A. Exempted imported content</b>				<b>Calculation of imported content</b>						<b>Summary</b>		
Tender item no's	Description of imported content	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Exchange Rate	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Exempted imported value	
(D7)	(D8)	(D9)	(D10)	(D11)	(D12)	(D13)	(D14)	(D15)	(D16)	(D17)	(D18)	
										0		
										0		
(D19) Total exempt imported value										R	-	
											This total must correspond with Annex C - C 21	
<b>B. Imported directly by the Tenderer</b>				<b>Calculation of imported content</b>						<b>Summary</b>		
Tender item no's	Description of imported content	Unit of measure	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Tender Qty	Total imported value	
(D20)	(D21)	(D22)	(D23)	(D24)	(D25)	(D26)	(D27)	(D28)	(D29)	(D30)	(D31)	
										0		
(D32) Total imported value by tenderer										R	-	
<b>C. Imported by a 3rd party and supplied to the Tenderer</b>				<b>Calculation of imported content</b>						<b>Summary</b>		
Description of imported content	Unit of measure	Local supplier	Overseas Supplier	Foreign currency value as per Commercial Invoice	Tender Rate of Exchange	Local value of imports	Freight costs to port of entry	All locally incurred landing costs & duties	Total landed cost excl VAT	Quantity imported	Total imported value	
(D33)	(D34)	(D35)	(D36)	(D37)	(D38)	(D39)	(D40)	(D41)	(D42)	(D43)	(D44)	
										0		
										0		
(D45) Total imported value by 3rd party										R	0	
<b>D. Other foreign currency payments</b>				<b>Calculation of foreign currency payments</b>					<b>Summary of payments</b>			
Type of payment	Local supplier making the payment	Overseas beneficiary	Foreign currency value paid	Tender Rate of Exchange								
(D46)	(D47)	(D48)	(D49)	(D50)								
(D52) Total of foreign currency payments declared by tenderer and/or 3rd party												
(D53) Total of imported content & foreign currency payments - (D32), (D45) & (D52) above								R 0				
Signature of tenderer from Annex B											This total must correspond with Annex C - C 23	
Date:												

## Annex E

## Local Content Declaration - Supporting Schedule to Annex C

(E1)	Tender No.	DoEEC/06/2021
(E2)	Tender description:	Mgomanzi SPS
(E3)	Designated products:	
(E4)	Tender Authority:	
(E5)	Tendering Entity name:	

Note: VAT to be excluded from all calculations

Local Products (Goods, Services and Works)	Description of items purchased	Local suppliers	Value
	(E6)	(E7)	(E8)
(E9) Total local products (Goods, Services and Works)			R -

(E10)	Manpower costs	( Tenderer's manpower cost)	R -
(E11)	Factory overheads	(Rental, depreciation & amortisation, utility costs, consumables etc.)	R -
(E12)	Administration overheads and mark-up	(Marketing, insurance, financing, interest etc.)	R -

(E13) Total local content R -  
This total must correspond with Annex C - C24

Signature of tenderer from Annex B

Date:



## DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

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

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector?  (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the <i>audi alteram partem</i> rule was applied).	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? <b>To access this Register enter the National Treasury's website, <a href="http://www.treasury.gov.za">www.treasury.gov.za</a>, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.</b>	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?	Yes <input type="checkbox"/>	No <input type="checkbox"/>

4.3.1	If so, furnish particulars:		
4.4	Was any contract between the bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes <input type="checkbox"/>	No <input type="checkbox"/>
4.4.1	If so, furnish particulars:		

**SBD 8**

### CERTIFICATION

**I, THE UNDERSIGNED (FULL NAME).....**

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

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

.....  
**Signature**

.....  
**Date**

.....  
**Position**

.....  
**Name of Bidder**

**NOTE: Failure of a tenderer to fully complete and sign this part of this SBD form in full will invalidate the tender**

### CERTIFICATE OF INDEPENDENT BID DETERMINATION

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

<sup>1</sup> Includes price quotations, advertised competitive bids, limited bids and proposals.

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

## CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

---

(Bid Number and Description)

in response to the invitation for the bid made by:

---

(Name of Institution)

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

I certify, on behalf of: \_\_\_\_\_ that:

(Name of Bidder)

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

- (b) geographical area where product or service will be rendered (market allocation)
  - (c) methods, factors or formulas used to calculate prices;
  - (d) the intention or decision to submit or not to submit, a bid;
  - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
  - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
  9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
  10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

.....  
Signature

.....  
Date

.....  
Position

.....  
Name of Bidder

**NOTE: Failure of a tenderer to fully complete and sign this part of this SBD form in full will invalidate the tender**

## INDEPENDENT DEVELOPMENT TRUST

### C1.1 Form of Offer and Acceptance

#### Offer

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

#### Mgomanzi SPS

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

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

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

.....

..... Rand (in words);

R ..... (in figures)

This offer may be accepted by the employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the tenderer before the end of the period of validity stated in the tender data, whereupon the tenderer becomes the party named as the contractor in the conditions of contract identified in the contract data.

Signature .....	Date .....
Name .....	Identity number .....
Capacity .....	

#### for the tenderer

(Name and .....  
address of .....  
organization) .....

Name and .....  
signature .....  
of witness .....

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

By signing this part of this form of offer and acceptance, the employer identified below accepts the tenderer's offer. In consideration thereof, the employer shall pay the contractor the amount due in

accordance with the conditions of contract identified in the contract data. Acceptance of the tenderer's offer shall form an agreement between the employer and the tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

The terms of the contract, are contained in:

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

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

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

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

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

Signature .....	Date .....
Name .....	Identity number .....
Capacity .....	
<b>for the Employer</b>	<b>INDEPENDENT DEVELOPMENT TRUST</b> Palm Square Business Park Bonza Bay Road Silverwood House Beacon Bay East London 5241
Name and signature of witness .....	Date .....

## Schedule of Deviations

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

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

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



## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

### C1.2 Contract Data for BID NO: DoEEC/06/2021

The Conditions of Contract are clauses 1 to 41 of the **JBCC Series 2000 Principal Building Agreement (Edition 4.1 March 2005)** published by the Joint Building Contracts Committee.

Copies of these conditions of contract may be obtained from the Association of South African Quantity Surveyors (011-3154140), Master Builders Association (011-205-9000; 057-3526269) South African Association of Consulting Engineers (011-4632022) or South African Institute of Architects (051-4474909; 011-4860684; 053-8312014;)

The JBCC Principal Building Agreement makes several references to the Contract Data for specific data, which together with these conditions collectively describe the risks, liabilities and obligations of the contracting parties and the procedures for the administration of the Contract. The Contract Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the JBCC Principal Building Agreement.

Each item of data given below is cross-referenced to the clause in the JBCC Principal Building Agreement to which it mainly applies.

**The additions, deletions and alterations to the JBCC Principal Agreement are:**

Clause	Additions, deletions and alterations
1.1	<p>Replace the following definitions in <b>DEFINITIONS AND INTERPRETATIONS</b> with the following wording:</p> <p><b>AGREEMENT</b> means the agreement arising from the signing of the Form of Offer and Acceptance by the parties.</p> <p><b>BILLS OF QUANTITIES</b> means the document drawn up in accordance with the Pricing Instructions contained in the Pricing Data.</p> <p><b>CONSTRUCTION PERIOD</b> means the period commencing on the date of site hand over and ending on the date of practical completion.</p> <p><b>CONTRACT DOCUMENTS</b> means the Agreement and all documents referenced therein.</p> <p><b>CONTRACT DRAWINGS</b> means the drawings listed in the Scope of Work.</p> <p><b>CONTRACT SUM</b> means the total of prices in the Form of Offer and Acceptance.</p> <p><b>SCHEDULE</b> means the variables listed in the Contract Data.</p> <p><b>CORRUPT PRACTICE</b> means the offering, giving, receiving and soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution</p> <p><b>FRAUDULENT PRACTICE</b> 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 practice 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.</p> <p><b>INTEREST</b> means the interest rates applicable to this contract, whether specifically indicated in the relevant clauses or not, will be the 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).</p> <p><b>SECURITY</b> means the form of security provided by the <b>employer</b> or <b>contractor</b>, as stated in the <b>schedule</b>, from which the <b>contractor</b> or <b>employer</b> may recover expense or loss.</p>

- 1.6 Any notice given may be delivered by hand, sent by prepaid registered post or telefax. Notice shall be presumed to have been duly given when:  
Delete sub-clause 1.6.4
- 3.5 Delete sub-clause 3.5
- 3.6 Delete sub-clause 3.6.
- 3.7 Add to the end thereof:  
  
The **contractor** shall supply and keep a copy of the **JBCC Series 2000 Principal Building Agreement** and Preliminaries applicable to this contract on the site, to which the **employer, principal agent and agents** shall have access at all times.
- 3.9 Delete sub-clause 3.9
- 3.10 Replace the second reference to "**principal agent**" with the word "**employer**".
- 4.3 No clause
- 5.1.2 Under clause 41 – include reference 32.6.3; 34.3; 34.4 and 38.5.8 in terms of which the **employer** has retained its authority and has not given a mandate to the **principal agent** and in terms of which the **employer** shall sign all documents.
- 9 Clause 9.0 is amended by adding Clause 9.1.4:  
  
The **contractor** indemnifies and holds harmless the **employer** against all liability, losses, claims, damages, penalties, actions, proceedings or judgments (collectively referred to as "Losses") arising from any infringement of letters, patent design, trademark, name, copyright or other protected rights in respect of any machine, plant, work, materials, thing, system or method of using, fixing, working or arrangement used or fixed or supplied by the **contractor**, but such indemnity shall not cover any use of the equipment of part thereof otherwise than in accordance with the provisions of the specification. All payments and royalties payable in one sum or by installments or otherwise shall be included by the **contractor** in the price and shall be paid by him to those to whom they may be payable. The **contractor** shall reimburse the **employer** for all legal and other costs and expenses, including without limitation attorney's fees on attorney-client scale incurred by the **employer** in connection with investigation, defending or settling any Losses in connection with pending or threatening litigation in which the **employer** is a party.
- 10.5 Add the following as 10.5:  
  
**Damage to the works**  
  
(a) Without any way limiting the **contractor's** obligations in terms of the contract, the **contractor** shall  
bear the full risk of damage to and/or destruction of the **works** by whatever cause during construction of the **works** and hereby indemnifies and holds harmless the **employer** against any such damage. The **contractor** shall take such precautions and security measures and other steps for the protection and security of the **works** as the **contractor** may deem necessary.  
  
(b) The **contractor** shall at all times proceed immediately to remove or dispose of any debris arising from damage or destruction of the **works** and to rebuild, restore, replace and/or repair the **works**.  
  
(c) The **employer** shall carry the risk of damage to or destruction of the **works** and materials paid for by  
The **employer** that is the result of the expected risks as set out in 10.6.  
  
(d) Where the **employer** bears the risk in terms of this contract, the **contractor** shall, if requested to do so, reinstate any damage or destroyed portions of the **works** and the costs of such reinstatement shall be measured and valued in terms of 32.0 hereof.
- 10.6 Add the following as 10.6:

### **Injury to Persons or loss of or damage to Properties**

- (a) The **contractor** shall be liable for and hereby indemnifies the **employer** against any liability, loss, claim or proceeding whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever arising out of or in the course of or caused by the execution of the **works** unless due to any act or negligence of any person for whose actions the **employer** is legally liable.
- (b) The **contractor** shall be liable for and hereby indemnifies the **employer** against any liability, loss, claim or proceeding consequent upon loss of or damage or to any moveable, or immoveable property or personal property or property contiguous to the **site**, whether belonging to or under the control of the **employer** or any other body or person, arising out of or in the course of or by reason of the execution of the **works** unless due to any act or negligence of any person for whose actions the **employer** is legally liable.
- (c) The **contractor** shall upon receiving a **contract instruction** from the **principal agent** cause the same to be made good in a perfect and workmanlike manner at his own cost and in default thereof the **employer** shall be entitled to cause it to be made good and to recover the cost therefore from the **contractor** or to deduct the same from amounts due to the **contractor**.
- (d) The **contractor** shall be responsible for the protection and safety of such portions of the premises placed under his control by the **employer** for the purpose of executing the **works** until the issue of the **certificate of practical completion**.
- (e) Where the execution of the **works** involves the risk of removal of or interference with support to adjoining properties including land or structures or any structures to be altered or added to, the **contractor** shall obtain adequate insurance and will remain adequately insured or insured to the specific limit stated in the contract against the death of or injury to persons or damage to such property consequent on such removal or interference with the support until such portion of the **works** has been completed.
- (f) The **contractor** shall at all times proceed immediately at his own cost to remove or dispose of any debris and to rebuild, restore, replace and / or repair such property and to execute the **works**.

10.7 Add the following as 10.7:

### **HIGH RISK INSURANCE**

In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable subsurface conditions which might result in catastrophic ground movement evident by sinkhole or doline formation the following will apply:

#### **10.7.1 Damage to the works**

The **contractor** shall, from the **commencement date** of the **works** until the date of the **certificate of practical completion**, bear the full risk of and hereby indemnifies and hold harmless the **employer** against any damage to and/or destruction of the **works** consequent upon a catastrophic ground movement as mentioned above. The **contractor** shall take such precautions and security measures and other steps for the protection of the **works** as he may deem necessary.

When so instructed to do so by the **principal agent**, the **contractor** shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the **works** and to rebuild, replace and/or repair the **works**, at the **contractor's** own costs.

#### **10.7.2 Injury to persons or loss of or damage to property**

The **contractor** shall be liable for and hereby indemnifies and holds harmless the **employer** against any liability, loss, claim or proceeding arising at any time during the period of the contract whether

arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above.

The **contractor** shall be liable for and hereby indemnifies the **employer** against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable, or immovable property or property contiguous to the **site**, whether belonging to or under the control of the **employer** or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of construction.

10.7.3 It is the responsibility of the **contractor** to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.7.1 and 10.7.2. Without limiting the **contractor's** obligations in terms of the contract, the **contractor** shall, within twenty-one (21) **calendar days** of the **commencement date** but before commencement of the **works** submit to the **employer** proof of such insurance policy, if requested to do so.

10.7.4 The **employer** shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred subsequent upon the **contractor's** default of his obligations as set out in 10.7.1, 10.7.2 and 10.7.3. Such losses or damages may be recovered from the **contractor** or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the **employer** and the **contractor** and for this purpose all these contracts shall be considered on indivisible whole.

15.1.4 Add 15.1.4 as follows:

An acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), within twenty-one (21) **calendar days** of date of acceptance of the tender.

15.2.1 Under 41: Amend to read as follows:

Give the **contractor** possession of the **site** within ten (10) **working days** of the **contractor** complying with the terms of 15.1

20.1.3 No clause.

21 Replace sub-clauses 21.1.2 to 21.1.4 and 21.2 to 21.6 with the following:

The **contractor** and **principal agent** shall appoint a **selected subcontractor** in accordance with the provisions of the Scope of Work.

29 Clause 29.0 is amended by: -

i) The addition of the following clauses: -

Clause 29.9

"Revision to the date for **practical completion** shall only be considered when work on the critical path of the agreed programme for the works is delayed."

ii) Clause 29.10 – Acceleration

Clause 29.10.1

Irrespective of whether or not the **principal agent** rules that the **contractor** is entitled to an extension of time or a revision of the date for **practical completion**, the **principal agent** shall nevertheless, at any time, be entitled to instruct the **contractor** in writing to accelerate the progress of the remaining **works** to ensure that the **works** are completed by the original date for **practical completion** or revised date as the case may be.

Clause 29.10.2

Upon receipt of such instruction, the **contractor** shall take all necessary steps to ensure that the **works** are completed timeously including the provision by him of additional resources, plant, manpower, etc. and the working overtime or additional overtime beyond that contemplated at the time of tender (at all times adhering to the regulations and requirements of all authorities) and by all other adequate and proper means and methods. The **contractor** shall prove that such steps are being taken if called upon to do so.

Clause 29.10.3

The **contractor's** entitlement to compensation arising out of or in respect of any revision to the

date for **practical completion** that may have been granted by the **principal agent** or alternatively where the **principal agent** has instructed the **contractor** to accelerate, shall be adjudicated strictly in terms of clause 32.

- 30.1 Replace reference to 36.3 at end of sentence with 36.0
- 31.12 Delete "Payment shall be subject to the **employer** giving the **contractor** a **tax** invoice for the amount due."
- 32.5.1 Add the following to the end of each of these clauses: "... due to no fault of the **contractor**."  
32.5.4  
32.5.7
- 32.12 Delete sub-clause
- 34.2 Add # next to 34.2
- 34.13 Replace "seven (7) **calendar days**" with "thirty-one (31) **calendar days**" and delete the words "subject to the **employer** giving the **contractor** a **tax** invoice for the amount due"
- 36.1 Add the following clauses 36.1.3 to 36.1.5 under 36.1 to read as follows:
- 36.1.3 The **contractor's** refusal or neglect to comply strictly with any of the conditions of contract.
- 36.1.4 The **contractor's** estate being sequestrated, liquidated or surrendered in terms of the insolvency laws in force with the Republic of South Africa.
- 36.1.5 The **contractor**, in the judgment of the **employer**, has engaged in **corrupt** or **fraudulent practices** in competing for or in executing the contract.
- 36.3 Replace "**principal agent**" with "**employer**".
- 37.3.5 Replace "ninety (90)" with "one hundred and twenty (120)".  
38.5.4
- 39.3.5 Add the following words at the end thereof: "within one hundred and twenty (120) **working days** of completion of such a report."
- 1.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 41.1.3 the definitions for  
(41.1.3) **CONSTRUCTION PERIOD** and **INTEREST**. Sub-clause 1.1 definitions will apply (see contract data)
- 10.1 Delete in the Substitute Provisions (41.0 State Clauses) clauses 10.1, 10.2 and 10.4 so that the  
10.2 provisions of sub-clauses 10.1, 10.2 and 10.4 of the non-**state** clauses will apply to the **state**.  
10.4  
(41.0)
- 11.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 11.1 so that the provisions of clause  
(41.0) 11.1 of the non-**state** clause will apply to the **state**.
- 12.1 Delete in the Substitute Provisions (41.0 State Clauses) clause 12.1 so that the provisions of clause  
(41.0) 12.1 of the non-**state** clause will apply to the **state** and replace "**contractor**" in clause 10.1 in the Substitute Provisions (41.0 State Clauses) with "The party responsible in terms of 12.1"
- 12.2 Amend the first part of the first sentence in clause 12.2 of the Substitute Provisions (41.0 State  
(41.0) Clauses) to read "Where the **contractor** is responsible for insurances, the **contractor** shall ....."
- 31.11.1 Delete in the Substitute Provisions (41.0 State Clauses) sub-clauses 31.11.1 and 31.11.2 so that the  
31.11.2 provisions of sub-clause 31.11.1 of the non-**state** clause will apply to the **state**.  
(41.0)
- 36.7 Add in the Substitute Provisions (41.0 State Clauses) as clauses 36.7, 37.5 and 39.5, the following:  
37.5 Notwithstanding any clause to the contrary, on cancellation of this agreement either by the **employer**  
39.5 or the **contractor**, or for any reason whatsoever, the **contractor** shall on written instruction,  
(41.0) discontinue with the **works** on a stated date and withdraw himself from the **site**. The contractor shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or

on the grounds of any other right whatsoever.

- 40.2.1 Delete in the Substitute Provisions (41.0 State Clauses) clauses 40.2.1, 40.2.2, 40.3, 40.4, 40.5 and  
40.2.2 40.6 and replace with the following:  
40.3  
40.4  
40.5  
40.6  
(41.0)
- 40.1 Should any dispute between the **employer**, his **agents** or **principal agent** on the one hand and the contractors on the other arise out of this **agreement**, such dispute shall be referred to adjudication.
- 40.2 Adjudication shall be conducted in accordance with the edition of the JBCC Rules for Adjudication current at the time when the dispute is declared. The party, which raises the dispute, shall select three adjudicators from the panel of adjudicators published by the South African Institution of Civil Engineering or Association of Arbitrators (Southern Africa), determine their hourly fees and confirm that these adjudicators are available to adjudicate the dispute in question. The other party shall then select within 7 days one of the three nominated adjudicators, failing which the chairman for the time being of the Association of Arbitrators (Southern Africa) shall nominate an adjudicator. The **adjudicator** shall be appointed in terms of the Adjudicators Agreement set out in C1.4.
- 40.3 If provided in the **schedule**, a dispute shall be finally settled by a single Arbitrator to be agreed on between the parties or, failing such agreement within 28 days after referring the dispute to Arbitration, an Arbitrator nominated by the chairman for the time being of the Association of Arbitrators (Southern Africa). Any such reference shall be deemed to be a submission to the arbitration of a single arbitrator in terms of the Arbitration Act (Act No 42 of 1965, as amended), or any legislation passed in substitution therefore. In the absence of any other agreed procedure, the arbitration shall take place in accordance with the Rules for the Conduct of Arbitrations issued by the Association of Arbitrators (Southern Africa) which are current at the time of the referral to arbitration. The Arbitrator shall, in his award, set out the facts and the provisions of the contract on which his award is based.
- 40.4 If the **schedule** provides for court proceedings to finally resolve disputes, disputes shall be determined by court proceedings.

The additions to the JBCC Principal Agreement are:

Clause	Additions	
A1	<b>A1.0</b>	<b>Labour intensive component of the works</b>
	<b>A1.1</b>	<b>Payment of labor-intensive component of the works.</b> Payment for works identified in the Scope of Work as being labor-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.
	<b>A1.2</b>	<b>Applicable labour laws</b> The Ministerial Determination, Special Public Works Programme, issued in terms of the Basic Conditions of Employment Act of 1997 by the Minister of Labour in Government Notice N° 35310 04 May 2012, as reproduced below, shall apply to works described in the Scope of Work as being labour intensive and which are undertaken by unskilled or semi-skilled workers.
	<b>1</b>	<b>Introduction</b>
	1.1	This document contains the standard terms and conditions for workers employed in elementary occupations on a Special Public Works Programme (SPWP). These terms and conditions do NOT apply to persons employed in the supervision and management of a SPWP.
	1.2	In this document – (a) “department” means any department of the State, implementing agent or contractor; (b) “employer” means any department, implementing agency or contractor that hires workers to work in elementary occupations on a SPWP; (c) “worker” means any person working in an elementary occupation on a SPWP; (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 an SPWP; (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.
	<b>2</b>	<b>Terms of Work</b>
	2.1	Workers are employed on a temporary basis or contract basis.
	<b>3</b>	<b>Normal Hours of Work</b>
	3.1	An employer may not set tasks or hours of work that require a worker to work– (a) more than forty hours in any week; (b) on more than five days in any week; and (c) for more than eight hours on any day.
	3.2	An employer and worker may agree that a worker will work four days per week. The worker may then work up to ten hours per day.
	<b>4</b>	<b>Meal Breaks</b>
	4.1	A worker may not work for more than five hours without taking a meal break of at least thirty minutes duration.
	4.2	An employer and worker may agree on longer meal breaks.
	4.3	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.
	4.4	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.
	<b>5</b>	<b>Special Conditions for Security Guards</b>
	5.1	A security guard may work up to 55 hours per week and up to eleven hours per day.
	5.2	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.
	<b>6</b>	<b>Daily Rest Period</b>
		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.
	<b>7</b>	<b>Weekly Rest Period</b>
		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").
	<b>8</b>	<b>Sick Leave</b>
	8.1	Only workers who work four or more days per week have the right to claim sick-pay in terms of this clause.
	8.2	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.
	8.3	A worker may accumulate a maximum of twelve days' sick leave in a year.
	8.4	Accumulated sick-leave may not be transferred from one contract to another contract.
	8.5	An employer must pay a task-rated worker the worker's daily task rate for a day's sick leave.
	8.6	An employer must pay a time-rated worker the worker's daily rate of pay for a day's sick leave.
	8.7	An employer must pay a worker sick pay on the worker's usual payday.
	8.8	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.
	8.9	A medical certificate must be issued and signed by a medical practitioner, a qualified nurse or a clinic staff member authorized to issue medical certificates indicating the duration and reason for incapacity.
	8.10	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.
	<b>9</b>	<b>Maternity Leave</b>
	9.1	A worker may take up to four consecutive months' unpaid maternity leave.
	9.2	A worker is not entitled to any payment or employment-related benefits during maternity leave.
	9.3	A worker must give her employer reasonable notice of when she will start maternity leave and when she will return to work.
	9.4	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.
	9.5	A worker may begin maternity leave –



		<ul style="list-style-type: none"> <li>(a) four weeks before the expected date of birth; or</li> <li>(b) on an earlier date – <ul style="list-style-type: none"> <li>(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</li> <li>(ii) if agreed to between employer and worker; or</li> </ul> </li> <li>(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.</li> </ul>
	9.6	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.
	<b>10</b>	<b>Family responsibility leave</b>
	10.1	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 -
		<ul style="list-style-type: none"> <li>(a) when the employee's child is born;</li> <li>(b) when the employee's child is sick;</li> <li>(c) in the event of a death of – <ul style="list-style-type: none"> <li>(i) the employee's spouse or life partner;</li> <li>(ii) the employee's parent, adoptive parent, grandparent, child, adopted child, grandchild or sibling.</li> </ul> </li> </ul>
	<b>11</b>	<b>Statement of Conditions</b>
	11.1	<p>An employer must give a worker a statement containing the following details at the start of employment –</p> <ul style="list-style-type: none"> <li>(a) the employer's name and address and the name of the SPWP;</li> <li>(b) the tasks or job that the worker is to perform; and</li> <li>(c) the period for which the worker is hired or, if this is not certain, the expected duration of the contract;</li> <li>(d) the worker's rate of pay and how this is to be calculated;</li> <li>(e) the training that the worker will receive during the SPWP.</li> </ul>
	11.2	An employer must ensure that these terms are explained in a suitable language to any employee who is unable to read the statement.
	11.3	An employer must supply each worker with a copy of these conditions of employment.
	<b>12</b>	<b>Keeping records</b>
	12.1	Every employer must keep a written record of at least the following –
		<ul style="list-style-type: none"> <li>(a) the worker's name and position;</li> <li>(b) in the case of a task-rated worker, the number of tasks completed by the worker;</li> <li>(c) in the case of a time-rated worker, the time worked by the worker;</li> <li>(d) payments made to each worker.</li> </ul>
	12.2	The employer must keep this record for a period of at least three years after the completion of the SPWP.
	<b>13</b>	<b>Payment</b>
	13.1	An employer must pay all wages at least monthly in cash or by cheque or into a bank account.
	13.2	A worker may not be paid less than the minimum wage rate of R95 per day or per task. This will be adjusted annually on the 1 <sup>st</sup> of November in line with inflation (available CPI as provided by Stats SA six (6) weeks before implementation)
	13.3	A task-rated worker will only be paid for tasks that have been completed.

	13.4	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.
	13.5	A time-rated worker will be paid at the end of each month.
	13.6	Payment must be made in cash, by cheque or by direct deposit into a bank account designated by the worker.
	13.7	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.
	13.8	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.
	13.9	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.
	13.10	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.
	<b>14</b>	<b>Deductions</b>
	14.1	An employer may not deduct money from a worker's payment unless the deduction is required in terms of a law.
	14.2	An employer must deduct and pay to the SA Revenue Services any income tax that the worker is required to pay.
	14.3	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 law, court order or arbitration award concerned.
	14.4	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.
	<b>15</b>	<b>Health and Safety</b>
	15.1	Employers must take all reasonable steps to ensure that the working environment is healthy and safe.
	15.2	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) obey all health and safety rules of the SPWP; (d) use any personal protective equipment or clothing issued by the employer; (e) report any accident, near-miss incident or dangerous behavior by another person to their employer or manager.
	<b>16</b>	<b>Compensation for Injuries and Diseases</b>

	16.1	It is the responsibility of the employers (other than a contractor) to arrange for all persons employed to be covered in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
	16.2	A worker must report any work-related injury or occupational disease to their employer or manager.
	16.3	The employer must report the accident or disease to the Compensation Commissioner.
	16.4	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.
	<b>17</b>	<b>Termination</b>
	17.1	The employer may terminate the employment of a worker for good cause after following a fair procedure.
	17.2	A worker will not receive severance pay on termination.
	17.3	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.
	17.4	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 for the balance of the 24-month period.
	17.5	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 for the balance of the 24-month period.
	<b>18</b>	<b>Certificate of Service</b>
	18.1	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) (d) the work performed by the worker; (e) any training received by the worker as part of the SPWP; (f) the period for which the worker worked on the SPWP; (g) any other information agreed on by the employer and worker.
<b>A2</b>	<b>A2.0</b>	<b>Mandatory Sub-Contracting (Only for projects above R 30 Million)</b>
	<b>A2.1</b>	The Contractor must sub-contract 30% of the work to Domestic Sub-Contractors. The Sub-Contractors shall have a CIDB grading.
		The Contractor shall, directly after appointment and without delay, enter into domestic sub-contracts with the Domestic Sub-Contractors and forward a copy of these agreements to the Principal Agent. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.
		The Contractor will be responsible for all assistance and training required by the Sub-Contractor/s to complete the Project successfully. Irrespective of the mandatory sub-contracting requirement of this contract, the Contractor will at all times be the responsible party in accordance with the conditions of contract.
<b>A3</b>		
<b>A4</b>	<b>A4.0</b>	<b>Attendance to Domestic Sub-Contractors in terms of clauses A2 above</b>
	<b>A4.1</b>	The attendance of to the Domestic Sub-Contractor appointed in terms of clauses A2 above shall be

		priced under the relevant specific preliminaries item in the Preliminaries Section of the Bills of Quantities.
<b>A5</b>	<b>A5.0</b>	
	<b>A5.1</b>	
<b>A6</b>	<b>A6.0</b>	<b>Expanded Public Works Programme</b>
	<b>A6.1</b>	The Contractor will be required to employ staff which satisfies the EPWP requirements as per the Guidelines for the implementation of labor-intensive infrastructure projects.

## Part 1: Contract Data Completed by the Employer

Clause	Item and data
1.2	<p>The Employer is Independent Development Trust</p> <p>Postal address:</p> <p>PO Box 5279, BEACON BAY 5241</p> <p>Tel: 043 711 6000                      Fax: 043 748 5370</p> <p>Physical address:</p> <p>Palm Square Business Park, Silverwood House, Bonza Bay Rd., EAST LONDON</p>
5.1	<p>The Principal Agent is Ikamva Architects</p> <p>Agent's service:</p> <p>Principal Agent</p> <p>Postal address:</p> <p>PO Box 1992, KOKSTAD 4700</p> <p>Tel: 039 727 5502                      Fax: 039 727 4220</p>
5.2	<p>Agent (1) is Ikamva Architects</p> <p>Agent's service:</p> <p>Architects</p> <p>Postal address:</p> <p>PO Box 1992, KOKSTAD 4700</p> <p>Tel: 039 727 5502                      Fax: 039 727 4220</p>
5.3	<p>Agent (2) is Mokate Monk &amp; du Plessis</p> <p>Agent's service:</p> <p>Quantity Surveyors</p> <p>Postal address:</p> <p>PO Box 8370, Nahoon, EAST LONDON 5210</p> <p>Tel: 043 721 0667</p>
5.4	<p>Agent (3) is: CSE Consulting</p> <p>Agent's service:</p> <p>S/C Engineers</p> <p>Postal address:</p> <p>Postnet Suite 420, PO Box 2052, KOKSTAD 4700</p> <p>Tel: 039 727 1373                      Fax: 086 240 4464</p>

5.5

Agent (4) is: AKM & Associates

Agent's service:

Electrical Engineers

Postal address:

PO Box 314, KOKSTAD 4700

Tel: 043 726 2955      Fax: 043 727 1084

- 1.1 **The Works comprises** the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.
- The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc
- 1.1 THE **SITE** IS LOCATED AT MGOMANZI SENIOR PRIMARY SCHOOL, IN MBIZANA, EASTERN CAPE PROVINCE
- 1.1 The **Works** or installations to be undertaken by **direct contractors** comprises
- 22.2 N/A
- 41.0 The Employer is an organ of **State**
- 31.11.2
- 11.2
- 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.
  - Lateral support insurance is to be effected by the **contractor**
  - Payment will be made for materials and goods
  - Extended **defects** liability period will apply to the following elements:  
NOT APPLICABLE
- 31.4.2
- 26.1.2
- 15.2.1 Possession of the **site** is to be given on the date in the schedule providing the **employer** with **construction guarantees** in accordance with the provisions of 14.0.
- 15.3 The period for the commencement of the **works** after the **contractor** takes possession of the site is ten (10) **working days**.
- For the **works** as a whole:  
The date for **practical completion** is **18 months** after contractual commencement date  
The **penalty** per **calendar day** is **0.0175 per R100** of the contract value
- 1.2 The law applicable to the agreement shall be that of the Republic of South Africa.
- 10.1; 10.2 and 12.1 Contract insurance is to be effected by the **contractor**.
- 10.1 Contract works insurance is to be effected by the **contractor** for a sum not less than the
- 10.2 **contract sum plus 20%** with a deductible in an amount that the **contractor** deems
- 12.1 appropriate.
- 10.1 Supplementary insurance is required. Such insurance shall comprise a Coupon Policy for
- 10.2 Special Risks issued by the South African Special Risk Insurance Association.
- 12.1
- 11.1, 12.1 Public liability insurance to be effected by the **contractor** for an amount of **R10, 000,000.00** with a deductible in an amount as determined by the contractor's insurance company.
- 11.2, 12.1 Support insurance to be effected by the **contractor** for the sum of **NOT APPLICABLE** with a deductible in an amount that the **contractor** deems appropriate.
- 3.3, 15.1.3, 31.16.2 A waiver of the **contractor's** lien or right of continuing possession is not required.
- 3.7 Three copies of the construction documents are to be supplied to the **contractor** free of charge.

- 3.4 JBCC Engineering General Conditions are not to be included in the contract document.
- 31.5.3 The contract value is to be adjusted using CPAP indices. The base month for the application of CPAP is the month of the closing of the tender and the following alternative indices are applicable:
- 31.3 There is no latest day of the month for the issue of an interim payment certificate.
- 14.5 The employer will not provide advanced payments against an advanced payment guarantee.
- 14.2 and 14.4 The **construction guarantee** is to be a fixed guarantee in an amount of 10% of the contract sum and payment reduction
- 40.0 Dispute resolution shall be by adjudication  
~~or~~  
~~Dispute determinations shall be by arbitration~~

## Part 2: Contract Data completed by the Contractor

### Clause Item and data

- 1.2 The name of the Contractor is. ....
- The address of the contractor is:
- Telephone: .....
- Facsimile: .....
- Address (physical): .....
- .....
- .....
- Address (postal): .....
- .....
- .....



## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

### C1.3 Construction Guarantee

#### GUARANTOR DETAILS AND DEFINITIONS

Guarantor means .....

...

Physical address .....

...

.....

...

Guarantor's signatory 1 ..... Capacity .....

...

Guarantor's signatory 1 ..... Capacity .....

...

Employer means **The Independent Development Trust**

Contractor means .....

...

Agent means **Ikamva Architects**

Works means **DoEEC/06/2021 – Mgomanzi SPS** comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

Site means **The designated site to be shown to the contractor is at MGOMANZI SENIOR PRIMARY SCHOOL IN MBIZANA, EASTERN CAPE PROVINCE**

Agreement means **the JBCC Series 2000 Principal Agreement Edition 4.1 Code 2101 March 2005**

Contract Sum i.e. the total of prices in the Form of Offer and Acceptance inclusive of VAT

Amount in figures R .....

Amount in words .....

(Rand)

Guaranteed Sum means the maximum aggregate amount of R .....

...

Amount in words .....

(Rand)

**1** The Guarantor's liability shall be limited to the amount of the Guaranteed Sum as follows:

<b>GUARANTOR'S LIABILITY</b>	<b>PERIOD OF LIABILITY</b>
Maximum Guaranteed Sum (not exceeding 10 % of the contract sum) in the amount of: ..... ..... (Rands) (R.....)	From and including the date of issue of this Construction Guarantee and up to and including the date of the only practical completion certificate or the last practical completion certificate where there are sections, upon which this Construction Guarantee shall expire.

**2** The Guarantor hereby acknowledges that:

**2.1** Any reference in this Guarantee to the Agreement 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 surety ship.

**2.2** Its obligation under this Guarantee is restricted to the payment of money.

**3** Subject to the Guarantor's maximum liability referred to in clauses 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in sub-clauses 3.1 to 3.3:

**3.1** A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Principal Agent in an interim or final payment certificate has not been made in terms of the Agreement and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of sub-clause 3.2

**3.2** 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) calendar days has elapsed since the first written demand in terms of sub-clause 4.1 and that the sum certified has still not been paid therefore the Employer calls up this Guarantee and demands payment of the sum certified from the Guarantor.

**3.3** A copy of the said payment certificate, which entitles the Employer to receive payment in terms of the Agreement of the sum certified in clause 3.

**4** Subject to the Guarantor's maximum liability referred to in clause 1, the Guarantor undertakes to pay 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 Guarantee stating that:

- 4.1** The Agreement has been cancelled due to the Contractor's default and that the Guarantee is called up in terms of clause 4. The demand shall enclose a copy of the notice of cancellation; or
- 4.2** A provisional sequestration or liquidation court order has been granted against the Contractor and that the Guarantee is called up in terms of clause 4. The demand shall enclose a copy of the court order.
- 5** It is recorded that the aggregate amount of payments required to be made by the Guarantor in terms of clauses 3 and 4 shall not exceed the Guarantor's maximum liability in terms of clause 1.
- 6** Where the Guarantor is a registered insurer and has made payment in terms of clause 4, 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 the Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this 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.
- 7** Payment by the Guarantor in terms of clause 3 or 4 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
- 8** The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer deems fit and the Guarantor shall not have the right to claim his release from this Guarantee on account of any conduct alleged to be prejudicial to the Guarantor
- 9** The Guarantor chooses the physical address as stated above for all purposes in connection herewith.
- 10** This Guarantee is neither negotiable nor transferable and shall expire in terms of clause 1, or payment in full of the Guaranteed Sum or on the Guarantee expiry date, whichever is the earlier, 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
- 11** This Guarantee, with the required demand notices in terms of clauses 3 or 4, shall be regarded as a liquid document for the purpose of obtaining a court order.
- 12** Where this Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at ..... Date .....

Guarantor's  
Signatory 1 ..... Guarantor's  
Signatory 2 .....

Identity number ..... Identity number .....

Witness 1 ..... Witness 2 .....

Guarantor's seal or stamp

## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

## ADJUDICATOR'S AGREEMENT

This agreement is made on the . . . . . day of ..... between:

..... (name of company / organisation)

of .....

..... (address)

and

..... (name of company / organisation)

of .....

..... (address)

(the Parties) and

..... (name)

of .....

..... (address)

(the Adjudicator).

Disputes or differences may arise/have arisen\* between the Parties under a Contract dated . . . . .

. . . and known as. ....

and these disputes or differences shall be/have been\* referred to adjudication in accordance with the JBCC 2000 Adjudication Rules, (hereinafter called "the Procedure") and the Adjudicator may be or has been requested to act.

\* Delete as necessary

**IT IS NOW AGREED** as follows:

- 1 The rights and obligations of the Adjudicator and the Parties shall be as set out in the JBCC 2000 Adjudication Rules.
- 2 The Adjudicator hereby accepts the appointment and agrees to conduct the adjudication in accordance with the JBCC 2000 Adjudication Rules..
- 3 The Parties bind themselves jointly and severally to pay the Adjudicator's fees and expenses as set out in the Contract Data.
- 4 The Parties and the Adjudicator shall at all times maintain the confidentiality of the adjudication and shall endeavour to ensure that anyone acting on their behalf or through them will do likewise, save with the consent of the other Parties which consent shall not be unreasonably refused.
- 5 The Adjudicator shall inform the Parties if he intends to destroy the documents which have been sent to him in relation to the adjudication and he shall retain documents for a further period at the request of either Party.

SIGNED by:	SIGNED by:	SIGNED by:
Name:	Name:	Name:
ID:	ID:	ID:
who warrants that he / she is duly authorized to sign for and on behalf of the first Party in the presence of	who warrants that he / she is duly authorized to sign for and behalf of the second Party in the presence of	the Adjudicator in the presence of
Witness	Witness:	Witness:
Name:	Name	Name:
Address:	Address:	Address:
Date:	Date:	Date:

#### Contract Data

1	The Adjudicator shall be paid at the hourly rate of R .....in respect of all time spent upon, or in connection with, the adjudication including time spent traveling.
2	The Adjudicator shall be reimbursed in respect of all disbursements properly made including, but not restricted to: (a) Printing, reproduction and purchase of documents, drawings, maps, records and photographs. (b) Telegrams, telex, faxes, and telephone calls. (c) Postage and similar delivery charges. (d) Travelling, hotel expenses and other similar disbursements. (e) Room charges. (f) Charges for legal or technical advice obtained in accordance with the Procedure.
3	The Adjudicator shall be paid an appointment fee of R ..... This fee shall become payable in equal amounts by each Party within 14 days of the appointment of the Adjudicator, subject to an Invoice being provided. This fee will be deducted from the final statement of any sums which shall become payable under item 1 and/or item 2 of the Contract Data. If the final statement is less than the appointment fee the balance shall be refunded to the Parties.
4	The Adjudicator is/is not* currently registered for VAT.
5	Where the Adjudicator is registered for VAT it shall be charged additionally in accordance with the rates current at the date of invoice.
6	All payments, other than the appointment fee (item 3) shall become due 31 days after receipt of invoice,

\* Delete as necessary

## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

### C2.1 Pricing Instructions

- 1 The Bills of Quantities have been drawn up in accordance with the Standard System of Measuring Building Work (as amended) published and issued by the Association of South African Quantity Surveyors (Sixth Edition (Revised)), 1999. Where applicable the:
  - a) Civil engineering work has been drawn up in accordance with the provisions of the latest edition of SABS 1200 Standardized Specifications for Civil Engineering Works.
  - b) Mechanical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Refrigeration, Air-Conditioning and Ventilation Installations, published by the South African Association of Quantity Surveyors, July 1990).
  - c) electrical work has been drawn up in accordance with the provisions of the Model Bills of Quantities for Electrical Work, published by the South African Association of Quantity Surveyors, (July, 2005).
- 2 The agreement is based on the JBCC Series 2000 Principal Building Agreement, prepared by the Joint Building Contracts Committee, Edition 4.1, and March 2005. The additions, deletions and alterations to the JBCC Principal Building Agreement as well as the contract specific variables are as stated in the Contract Data. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.
- 3 Preliminary and general requirements are based on the various parts of the JBCC Series 2000 Preliminaries as prepared by the Joint Building Contracts Committee, Edition 4.1, and March 2005. The additions, deletions and alterations to the various parts of the JBCC Series 2000 Preliminaries as well as the contract specific variables are as stated in the Specification Data in the Scope of Work. Only the headings and clause numbers for which allowance must be made in the Bills of Quantities are recited.
- 4 It will be assumed that prices included in the Bills of Quantities are based on Acts, Ordinances, Regulations, By-laws, International Standards and National Standards that were published 28 days before the closing date for tenders. (Refer to [www.stanza.org.za](http://www.stanza.org.za) or [www.iso.org](http://www.iso.org) for information on standards).
- 5 The prices and rates in these Bills of Quantities are fully inclusive prices for the work described under the items. Such prices and rates cover all costs and expenses that may be required in and for the execution of the work described in accordance with the provisions of the Scope of Work, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the Contract Data, as well as overhead charges and profit. These prices will be used as a basis for assessment of payment for additional work that may have to be carried out.
- 6 The drawings listed in the Scope of Works used for the setting up of these Bills of Quantities are

	kept by the quantity surveyor and can be viewed at any time during office hours up until the completion of the works.
7	Reference to any particular trademark, name, patent, design, type, specific origin or producer is purely to establish a standard for requirements. Products or articles of an equivalent standard may be substituted.
8	The rates contained in the Bills of Quantities will apply irrespective of the final quantities of the different classes and kinds of work actually executed.
9	Rates for work of similar description occurring in different sections of the Bills of Quantities shall be identical.
10	An item against which no price is entered will be considered to be covered by the other prices or rates in the Bills of Quantities. A single lump sum will apply should a number of items be grouped together for pricing purposes.
11	Where any item is not relevant to this specific contract, such item is marked N/A (signifying "not applicable")
12	The Contract Data and the standard form of contract referenced therein must be studied for the full extent and meaning of each and every clause set out in Section 1 (Preliminary and General) of the Bills of Quantities
13	The Bills of Quantities is not intended for the ordering of materials. Any ordering of materials, based on the Bills of Quantities, is at the Contractor's risk.
14	The amount of the Preliminary and General Section to be included in each monthly payment certificate shall be assessed as an amount prorated to the value of the work duly executed in the same ratio as the preliminaries bears to the total of prices excluding any contingency sum, the amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract.
15	Where the initial contract period is extended, the monthly charge shall be calculated on the basis as set out in 14 but taking into account the revised period for completing the works.
16	The amount or items of the Preliminary and General Section shall be adjusted to take account of the theoretical financial effect which changes in time or value (or both) have on this section. Such adjustments shall be based on adjustments in the following categories as recorded in the Bills of Quantities: <ul style="list-style-type: none"> <li>a) an amount which is not to be varied, namely Fixed (F)</li> <li>b) an amount which is to be varied in proportion to the contract value, namely Value Related (V); and</li> <li>c) an amount which is to be varied in proportion to the contract period as compared to the initial construction period excluding revisions to the construction period for which no adjustment to the contractor is not entitled to in terms of the contract, namely Time Related (T).</li> </ul>
17	Where no provision is made in the Bills of Quantities to indicate which of the three categories in 12 apply or where no selection is made, the adjustments shall be based on the following breakdown: <ul style="list-style-type: none"> <li>a) 10 percent is Fixed;</li> <li>b) 15 percent if Value Related</li> <li>c) 75 percent is Time Related.</li> </ul>
18	The adjustment of the Preliminary and General Section shall apply notwithstanding the actual employment of resources in the execution of the works. The contract value used for the adjustment of the Preliminary and General Section shall exclude any contingency sum, the

amount for the Preliminary and General Section and any amount in respect of contract price adjustment provided for in the contract. Adjustments in respect of any staged or sectional completion shall be prorated to the value of each section.

- 19 All work is to be constructed using labor-intensive methods. The use of plant to provide such works, other than plant specifically provided for in the scope of works, is a variation order to the contract
- 20 Payment for items, which are designated to be constructed under labour-intensively, will not be made unless they are constructed using labor-intensive methods. Any unauthorized 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.
- 21 The tenderer is to acquaint himself as to the specific requirements of this tender as contained in additional clauses A1 to A6 to the JBCC Principal Agreement as incorporated in the Contract Data. These clauses may be priced under the relevant Preliminaries items in SECTION C: SPECIFIC PRELIMINARIES of the Preliminaries Bill. No claim will be entertained due to the failure of the tenderer to allow for these requirements



## **INDEPENDENT DEVELOPMENT TRUST**

Mgomanzi SPS comprises the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

## **MGOMANZI SPS**

### **C2.2 Bills of Quantities**

Mgomanzi SPS - 0092

P. No. : P9005810

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Mgomanzi Primary School

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Items not priced in these Preliminaries shall be deemed to be included elsewhere in these Bills of Quantities.

## **SECTION A: JBCC PRINCIPAL BUILDING AGREEMENT**

### **DEFINITIONS**

#### **1 A1.0 DEFINITIONS AND INTERPRETATION**

Clause 1.0

Clause 1.1 Definition of "**Commencement Date**" is added:

"**COMMENCEMENT DATE**" means the date that the possession of the site is given to the Contractor.

Clause 1.1 Definition of "**Construction Guarantee**" is amended by replacing it with the following:

"**CONSTRUCTION GUARANTEE**" means a 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 **schedule**.

Clause 1.1 Definition of "**Construction Period**" is amended by replacing it with the following:

"**CONSTRUCTION PERIOD**" means the period commencing on the **date that possession of the site is given to the Contractor** and ending on the date of **Practical Completion**.

Clause 1.1 Definition of "**Corrupt Practice**" is added:

"**CORRUPT PRACTICE**" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

Clause 1.1 Definition of "**Fraudulent Practice**" is added:

"**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 practice 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.

Clause 1.1 Definition of "**Interest**" is amended by replacing it with the following:

"**INTEREST**" means the interest rates applicable on this contract, whether specifically indicated in the relevant clauses or not, will be the 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).

**Carried to Collection**

Section No. 1  
 PRELIMINARIES  
 Bill No. 1  
 PRELIMINARIES

R

Clause 1.1 Definition of "**Principal Agent**" is amended by replacing it with the following:

"**PRINCIPAL AGENT**" means the person or entity appointed by the **Employer** and named in the **schedule**. In the event of a **Principal Agent** not being appointed, then all the duties and obligations of a **Principal Agent** as detailed in the **agreement** shall be fulfilled by a representative of the **Employer** as named in the **schedule**.

Clause 1.1 Definition of "**Security**" is amended by replacing it with the following:

"**SECURITY**" means the form of security provided to the **Employer** by the **Contractor**, as stated in the **schedule**, from which the **Contractor** or **Employer** may recover expense or loss.

Clause 1.6 is amended by replacing the words "prepaid registered post, telefax or e-mail" with "prepaid registered post or telefax"

Clause 1.6.4 is amended by replacing it with the following:

No clause

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

## **OBJECTIVE AND PREPARATION**

### **2 A2.0 OFFER, ACCEPTANCE AND PERFORMANCE**

Clause 2.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### **3 A3.0 DOCUMENTS**

Clause 3.0

Clause 3.2.1 is amended by replacing "14.1" with "14.0"

Clause 3.7 is amended by the addition of the following:

The **Contractor** shall supply and keep a copy of the **JBCC** Series 2000 Principal Building Agreement and Preliminaries applicable to this contract on the **site**, to which the **Employer**, **Principal Agent** and **Agents** shall have access at all times

Clause 3.10 is amended by replacing the second reference to "**Principal Agent**" with the word "**Employer**".

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

## **PRELIMINARIES**

Carried to

Collection

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**4 A4.0 DESIGN RESPONSIBILITY**

Clause 4.0

Clause 4.3 is amended by replacing it with the following:

No clause

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**5 A5.0 EMPLOYER'S AGENTS**

Clause 5.0

Clause 5.1.2 is amended to include clauses 32.6.3, 34.3, 34.4 and 38.5.8 in terms of which the **Employer** has retained its authority and has not given a mandate to the **Principal Agent** and in terms of which the **Employer** shall sign all documents.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**6 A6.0 SITE REPRESENTATIVE**

Clause 6.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**7 A7.0 COMPLIANCE WITH REGULATIONS**

Clause 7.0

Note: A separate clause has been included in Section C : Specific Preliminaries of the **Bills of Quantities** for the **Contractor** to have the opportunity to price for all the requirements of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**8 A8.0 WORKS RISK**

Clause 8.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**9 A9.0 INDEMNITIES**

Clause 9.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

Bill No. 1  
PRELIMINARIES

Carried to Collection



10 A10.0 WORKS INSURANCES

Clause 10.0

Clause 10.0 is amended by the addition of the following clauses:

10.5 Damage to the Works

- (a) Without in any way limiting the **Contractor's** obligations in terms of the contract, the **Contractor** shall bear the full risk of damage to and/or destruction of the works by whatever cause during construction of the works and hereby indemnifies and holds harmless the **Employer** against any such damage. The **Contractor** shall take such precautions and security measures and other steps for the protection and security of the works as the **Contractor** may deem necessary.
- (b) The **Contractor** shall at all times proceed immediately to remove or dispose of any debris arising from damage to or destruction of the works and to rebuild, restore, replace and/or repair the works.
- (c) The **Employer** shall carry the risk of damage to or destruction of the works and material paid for by the **Employer** that is the result of the excepted risks as set out in 10.6
- (d) Where the **Employer** bears the risk in terms of this contract, the **Contractor** shall, if requested to do so, reinstate any damage or destroyed portions of the works and the costs of such reinstatement shall be measured and valued in terms of 32.0 hereof.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

10.6 Injury to Persons or loss of or damage to Properties

- (a) The **Contractor** shall be liable for and hereby indemnifies the **Employer** against any liability, loss, claim or proceeding whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever arising out of or in the course of or caused by the execution of the works unless due to any act or negligence of any person for whose actions the **Employer** is legally liable.
- (b) The **Contractor** shall be liable for and hereby indemnifies the **Employer** against any liability, loss, claim or proceeding consequent upon loss of or damage to any moveable or immovable or personal property or property contiguous to the site, whether belonging to or under the control of the **Employer** or any other body or person, arising out of or in the course of or by reason of the execution of the works unless due to any act or negligence of any person for whose actions the **Employer** is legally liable.
- (c) The **Contractor** shall, upon receiving a **contract instruction** from the **Principal Agent**, cause the same to be made good in a perfect and workmanlike manner at his own cost and in default thereof the **Employer** shall be entitled to cause it to be made good and to recover the cost thereof from the **Contractor** or to deduct the same from amounts due to the **Contractor**.

Carried to Collection

R

Section No. 1  
 PRELIMINARIES  
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- (d) The **Contractor** shall be responsible for the protection and safety of such portions of the premises placed under his control by the **Employer** for the purpose of executing the works until the issue of the **Certificate of Practical Completion**.
- (e) Where the execution of the works involves the risk of removal of or interference with support to adjoining properties, including land or structures or any structures to be altered or added to, the **Contractor** shall obtain adequately insurance and will remain adequately insured or insured to the specific limit stated in the contract against the death of or injury to persons or damage to such property consequent on such removal or interference with the support until such portion of the works has been completed.
- (f) The **Contractor** shall at all times proceed immediately at his own cost to remove or dispose of any debris and to rebuild, restore, replace and/or repair such property and to execute the works.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 10.7 High risk insurance

In the event of the project being executed in a geological area classified as a "High Risk Area", that is an area which is subject to highly unstable subsurface conditions that might result in catastrophic ground movement evident by sinkhole or do line formation the following will apply:

#### 10.7.1 Damage to the works

The **Contractor** shall, from the commencement date of the works until the date of the **Certificate of Practical Completion** bear the full risk of and hereby indemnifies and holds harmless the **Employer** against any damage to and/or destruction of the works consequent upon a catastrophic ground movement as mentioned above. The **Contractor** shall take such precautions and security measures and other steps for the protection of the works as he may deem necessary.

When so instructed to do so by the **Principal Agent**, the **Contractor** shall proceed immediately to remove and/or dispose of any debris arising from damage to or destruction of the works and to rebuild, restore, replace and/or repair the works, at the **Contractor's** own costs.

#### 10.7.2 Injury to persons or loss of or damage to property

The **Contractor** shall be liable for and hereby indemnifies and holds harmless the **Employer** against any liability, loss, claim or proceeding arising at any time during the period of the contract whether arising in common law or by statute, consequent upon personal injuries to or the death of any person whomsoever resulting from, arising out of or caused by a catastrophic ground movement as mentioned above.

Carried to Collection

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The **Contractor** shall be liable for and hereby indemnifies the **Employer** against any and all liability, loss, claim or proceeding consequent upon loss of or damage to any moveable or immovable or personal property or property contiguous to the site, whether belonging to or under the control of the **Employer** or any other body or person whomsoever arising out of or caused by a catastrophic ground movement, as mentioned above, which occurred during the period of the contract.

**10.7.3** It is the responsibility of the **Contractor** to ensure that he has adequate insurance to cover his risk and liability as mentioned in 10.7.1 and 10.7.2. Without limiting the **Contractor's** obligations in terms of the contract, the **Contractor** shall, within twenty one (21) calendar days of the commencement date but before commencement of the works, submit to the **Employer** proof of such insurance policy, if requested to do so.

**10.7.4** The **Employer** shall be entitled to recover any and all losses and/or damages of whatever nature suffered or incurred consequent upon the **Contractor's** default of his obligations as set out in 10.7.1; 10.7.2 and 10.7.3. Such losses or damages may be recovered from the **Contractor** or by deducting the same from any amounts still due under this contract or under any other contract presently or hereafter existing between the **Employer** and the **Contractor** and for this purpose all these contracts shall be considered one indivisible whole.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

# 11 A11.0 LIABILITY INSURANCES

Clause 11.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

# 12 A12.0 EFFECTING INSURANCES

Clause 12.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

# 13 A13.0 No clause

# 14 A14.0 SECURITY

Clause 14.0

Clauses 14.1 - 14.8 are amended by replacing them with the following:

14.1 In respect of contracts with a **contract sum** up to R1 million, the **security** to be provided by the **Contractor** to the **Employer** will be a payment reduction of five per cent (5%) of the value certified in the **payment certificate** (excluding VAT).

14.1.1 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(A).

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**14.1.2** The **Employer** shall be entitled to recover expense and loss from the payment reduction in terms of 33.0 provided that the **Employer** complies with the provisions of 33.4 in which event the **Employer's** entitlement shall take precedence over his obligations to refund the payment reduction security or portions thereof to the **Contractor**.

14.2 In respect of contracts with a **contract sum** above R1 million, the **Contractor** shall have the right to select the **security** to be provided in terms of 14.3, 14.4, 14.5, 14.6, or 14.7 as stated in the **schedule**. Such **security** shall be provided to the **Employer** within twenty one (21) **calendar days** from **commencement date**. Should the **Contractor** fail to select the **security** to be provided or should the **Contractor** fail to provide the **Employer** with the selected **security** within twenty one (21) **calendar days** from **commencement date**, the **security** in terms of 14.7 shall be deemed to have been selected.

14.3 Where **security** as a cash deposit of ten per cent (10%) of the **contract sum** (excluding VAT) has been selected:

**14.3.1** The **Contractor** shall furnish the **Employer** with a cash deposit equal in value to ten per cent (10%) of the **contract sum** (excluding VAT) within twenty one (21) **calendar days** from **commencement date**.

**14.3.2** Within twenty one (21) **calendar days** of the date of **Practical Completion** of the works the **Employer** shall reduce the cash deposit to an amount equal to three per cent (3%) of the **contract value** (excluding VAT), and refund the balance to the **Contractor**.

**14.3.3** Within twenty one (21) **calendar days** of the date of **Final Completion** of the works the **Employer** shall reduce the cash deposit to an amount equal to one per cent (1%) of the **contract value** (excluding VAT) and refund the balance to the **Contractor**.

**14.3.4** On the date of payment of the amount in the final **payment certificate**, the **Employer** shall refund the remainder of the cash deposit to the **Contractor**.

**14.3.5** The **Employer** shall be entitled to recover expense and loss from the cash deposit in terms of 33.0 provided that the **Employer** complies with the provisions of 33.4 in which event the **Employer's** entitlement shall take precedence over his obligations to refund the cash deposit security or portions thereof to the **Contractor**.

14.3.6 The parties expressly agree that neither the **Employer** nor the **Contractor** shall be entitled to cede the rights to the deposit to any third party.

14.4 Not Applicable

14.4.1 The **Contractor** shall furnish the **Employer** with an acceptable variable construction guarantee equal in value to ten percent (10%) of the contract sum(excluding VAT) within twenty-one (21) calendar days from commencement date

14.4.2 The Variable Construction Guarantee shall reduce and expire in terms of the Variable Construction Guarantee form included in the invitation to tender

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14.4.3 The **Employer** shall return the Variable Construction Guarantee to the **Contractor** within fourteen (14) calendar days of it expiring

14.4.4 Where the **Employer** has a right of recovery against the **Contractor** in terms of 33.0, the **Employer** shall issue a written demand in terms of the Variable Construction Guarantee

14.5 Where **security** as a fixed **construction guarantee** of five per cent (5%) of the **contract sum** (excluding VAT) and a five per cent (5%) payment reduction of the value certified in the **payment certificate** (excluding VAT) has been selected:

14.5.1 The **Contractor** shall furnish a fixed **construction guarantee** to the **Employer** equal in value to five per cent (5%) of the **contract sum** (excluding VAT).

14.5.2 The fixed **construction guarantee** shall come into force on the date of issue and shall expire on the date of **Practical Completion**.

14.5.3 The **Employer** shall return the fixed **construction guarantee** to the **Contractor** within fourteen (14) **calendar days** of it expiring.

14.5.4 The payment reduction of the value certified in a **payment certificate** shall be in terms of 31.8 (A) and 34.8

14.5.5 Where the **Employer** has a right of recovery against the **Contractor** in terms of 33.0, the **Employer** shall be entitled to issue a written demand in terms of the fixed **construction guarantee** or may recover from the payment reduction or may do both.

14.6 Where **security** as a cash deposit of five per cent (5%) of the **contract sum** (excluding VAT) and a payment reduction of five per cent (5%) of the value certified in the **payment certificate** (excluding VAT) has been selected:

14.6.1 The **Contractor** shall furnish the **Employer** with a cash deposit equal in value to five per cent (5%) of the **contract sum** (excluding VAT) within twenty one (21) **calendar days** from **commencement date**.

14.6.2 Within twenty one (21) **calendar days** of the date of **Practical Completion** of the works, the **Employer** shall refund the cash deposit in total to the **Contractor**.

14.6.3 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(A).

14.6.4 Where the **Employer** has a right of recovery against the **Contractor** in terms of 33.0, the **Employer** may issue a written notice in terms of 33.4 or may recover from the payment reduction or may do both

14.7 Where **security** as a payment reduction of ten per cent (10%) of the value certified in the **payment certificate** (excluding VAT) has been selected:

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14.7.1 The payment reduction of the value certified in a **payment certificate** shall be *mutatis mutandi* in terms of 31.8(B).

14.7.2 The **Employer** shall be entitled to recover expense and loss from the payment reduction in terms of 33.0, provided that the **Employer** complies with the provisions of 33.4 in which event the **Employer's** entitlement shall take precedence over his obligations to refund the payment reduction or portions thereof to the **Contractor**.

14.8 Payments made by the guarantor to the **Employer** in terms of the fixed or variable **construction guarantee** shall not prejudice the rights of the **Employer** or **Contractor** in terms of this **agreement**.

14.9 Should the **Contractor** fail to furnish the **security** in terms of 14.2, the **Employer**, in his sole discretion and without notification to the **Contractor**, is entitled to change the **Contractor's** selected form of **security** to that of a ten per cent (10%) payment reduction of the value certified in the **payment certificate** (excluding VAT), where after 14.7 shall be applicable.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

## **EXECUTION**

### **15 A15.0 PREPARATION FOR AND EXECUTION OF THE WORKS**

Clause 15.0

Clause 15.1.1 is amended by replacing it with:

No Clause

Clause 15.1.2 is amended by replacing it with:

The **security** selected in terms of 14.0

Clause 15.1 is amended by the addition of the following clause:

15.1.4 An acceptable health and safety plan, required in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), within fourteen (14) **calendar days** of **commencement date**.

Clause 15.2.1 is amended by replacing it with the following clause:

Give the **Contractor** possession of the **site** within ten (10) **working days** of the **Contractor** complying with the terms of 15.1.4

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

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[illegible]

**16 A16.0 ACCESS TO THE WORKS**

Clause 16.0

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

**17 A17.0 CONTRACT INSTRUCTIONS**

Clause 17.0

Clause 17.1.11 is amended by deleting the words "and the appointment of **nominated** and **selected sub-contractors**".

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

**18 A18.0 SETTING OUT OF THE WORKS**

Clause 18.0

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

**19 A19.0 ASSIGNMENT**

Clause 19.0

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

**20 A20.0 NOMINATED SUB-CONTRACTORS**

Clause 20.0

Clause 20.1.3 is amended by replacing it with the following:

No Clause

Note: See item B9.1 hereinafter for adjustment of attendance on **nominated sub-contractors** executing work allowed for under provisional sums.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

N/A

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**21 A21.0 SELECTED SUB-CONTRACTORS**

Clause 21.0

Clause 21 is amended by replacing it with:

No Clause

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**22 A22.0 EMPLOYER'S DIRECT CONTRACTORS**

Clause 22.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**23 A23.0 CONTRACTOR'S DOMESTIC SUB-CONTRACTORS**

Clause 23.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**COMPLETION**

**24 A24.0 PRACTICAL COMPLETION**

Clause 24.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**25 A25.0 WORKS COMPLETION**

Clause 25.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

**26 A26.0 FINAL COMPLETION**

Clause 26.0

Clause 26.1.2 is amended by inserting "#" next to 26.1.2

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

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27	<b>A27.0 LATENT DEFECTS LIABILITY PERIOD</b>  Clause 27.0  Fixed:_____Value related:_____Time related:_____	Item
28	<b>A28.0 SECTIONAL COMPLETION</b>  Clause 28.0  Fixed:_____Value related:_____Time related:_____	N/A
29	<b>A29.0 REVISION OF DATE FOR PRACTICAL COMPLETION</b>  Clause 29.0  Clause 29.2.5 is amended by replacing it with:  No clause  Fixed:_____Value related:_____Time related:_____	Item
30	<b>A30.0 PENALTY FOR NON-COMPLETION</b>  Clause 30.0  The penalty per calendar day shall be R0.0175 cents per R100.00 of the tendered amount (excluding VAT)  Fixed:_____Value related:_____Time related:_____	Item
<b><u>PAYMENT</u></b>		
31	<b>A31.0 INTERIM PAYMENT TO THE CONTRACTOR</b>  Clause 31.0  Clause 31.5.2 is amended by replacing "14.7.1" with "14.0"  Clause 31.8 as amended by replacing it with the following two alternative clauses:  <b>Alternative A</b>  31.8(A) Where a <b>security</b> is selected in terms of 14.1; 14.5 or 14.6, the value of the <b>works</b> in terms of 31.4.1 and <b>materials and goods</b> in terms of 31.4.2 shall be certified in full. The value certified shall be subject to the following percentage adjustments:	
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Mgomanzi Primary School  
DOE15ECAR007



31.8 (A).1 Ninety-five per cent (95%) of such value in interim **payment certificates** issued up to the date of **Practical Completion**.

31.8(A).2 Ninety-seven per cent (97%) of such value in interim **payment certificates** issued on the date of **Practical Completion** and up to but excluding the date of **Final Completion**.

31.8(A).3 Ninety-nine per cent (99%) of such value in interim **payment certificates** issued on the date of **Final Completion** and up to but excluding the final **payment certificate** in terms of 34.6.

31.8(A).4 One hundred per cent (100%) of such value in the final **payment certificate** in terms of 34.6 except where the amount certified is in favour of the **Employer**. In such an event the payment reduction shall remain at the adjustment level applicable to the final **payment certificate**.

#### **Alternative B**

31.8(B) Where **security** is a payment reduction in terms of 14.7 has been selected, the value of the **works** in terms of 31.4.1 and **materials and goods** in terms of 31.4.2 shall be certified in full. The value certified shall be subject to the following percentage adjustments:

31.8(B).1 Ninety per cent (90%) of such value in interim **payment certificates** issued up to the date of **Practical Completion**.

31.8(B).2 Ninety-seven per cent (97%) of such value in interim **payment certificates** issued on the date of **Practical Completion** and up to but excluding the date of **Final Completion**.

31.8(B).3 Ninety-nine per cent (99%) of such value in interim **payment certificates** issued on the date of **Final Completion** and up to but excluding the final **payment certificate** in terms of 34.6

31.8(B).4 One hundred per cent (100%) of such value in the final **payment certificate** in terms of 34.6 except where the amount certified is in favour of the **Employer**. In such an event the payment reduction shall remain at the adjustment level applicable to the final **payment certificate**.

Clause 31.9 is amended by changing **twenty-one (21)** calendar days with **thirty (30)** calendar days

Clause 31.12 is amended by deleting the following:

Payment shall be subject to the **Contractor** giving the **Employer** a tax invoice for the amount due.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

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### 32 A32.0 ADJUSTMENT TO THE CONTRACT VALUE

Clause 32.0

Clause 32.1.3 Add the following to the end of the clause: "Clause 5.1 of the JBCC CPAP shall be deemed to be amended as follows:

Xe = the value of the index applicable to such work group and the valuation period for the month in which the payment certificate is dated

Clauses 32.5.1, 32.5.4 and 32.5.7 are amended by the addition of the following at the end of the sentence:

"due to no fault of the **Contractor**"

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

### 33 A33.0 RECOVERY OF EXPENSE AND LOSS

Clause 33.0

Clause 33.2 Add the following clauses 33.2.9 to 33.2.13:

Clause 33.2.9 The **Contractor's** failure or neglect to commence with the works on the dates prescribed in the contract

Clause 33.2.10 The **Contractor's** failure or neglect to proceed with the works in terms of the contract

Clause 33.2.11 The **Contractor's** failure or neglect for any reason to complete the works in accordance with the contract

Clause 33.2.12 The **Contractor's** refusal or neglect to comply strictly with any of the conditions of contract or any contract instructions and/or orders in writing in terms of the contract

Clause 33.2.13 The **Contractor's** estate being sequestrated; liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

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34	<p><b>A34.0 FINAL ACCOUNT AND FINAL PAYMENT</b></p> <p>Clause 34.0</p> <p>Clause 34.1 is amended by removing "#" next to 34.1</p> <p>Clause 34.2 is amended by inserting "#" next to 34.2</p> <p>Clause 34.8 is amended by deleting the words "where <b>security</b> as a fixed <b>construction guarantee</b> in terms of 14.4 has been selected or where payment reduction has been applied in terms of 14.7.1"</p> <p>Clause 34.13 is amended by replacing "seven (7) <b>calendar days</b>" with "thirty (30) <b>calendar days</b>" and deleting the words "subject to the <b>Employer</b> giving the <b>Contractor</b> a tax invoice for the amount due".</p> <p>Fixed:_____Value related:_____Time related:_____</p>		
35	<p><b>A35.0 PAYMENT TO OTHER PARTIES</b></p> <p>Clause 35.0</p> <p>Fixed:_____Value related:_____Time related:_____</p>		
	<p><b><u>CANCELLATION</u></b></p>		
36	<p><b>A36.0 CANCELLATION BY EMPLOYER - CONTRACTOR'S DEFAULT</b></p> <p>Clause 36.0</p> <p>Clause 36.1 is amended by the addition of the following clauses:</p> <p>36.1.3 refuses or neglects to comply strictly with any of the conditions of contract.</p> <p>36.1.4 estate being sequestrated, liquidated or surrendered in terms of the insolvency laws in force within the Republic of South Africa.</p> <p>36.1.5 in the judgement of the <b>Employer</b>, has engaged in <b>corrupt</b> or <b>fraudulent practices</b> in competing for or in executing the contract.</p> <p>Clause 36.3 is amended by removing the reference to "No clause" and replacing the words "<b>Principal Agent</b>" with "<b>Employer</b>".</p> <p>Clause 36.0 is amended by the addition of the following clause:</p>		
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36.7 Notwithstanding any clause to the contrary, on cancellation of this **agreement** either by the **Employer** or the **Contractor**; or for any reason whatsoever, the **Contractor** shall on written instruction, discontinue with the **works** on a date stated and withdraw himself from the **site**. The **Contractor** shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or on the grounds of any other right whatsoever.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 37 A37.0 CANCELLATION BY EMPLOYER - LOSS AND DAMAGE

Clause 37.0

Clause 37.3.5 is amended by replacing "ninety (90)" with "one-hundred and twenty (120)".

Clause 37.0 is amended by the addition of the following clause:

37.5 Notwithstanding any clause to the contrary, on cancellation of this **agreement** either by the **Employer** or the **Contractor**; or for any reason whatsoever, the **Contractor** shall on written instruction, discontinue with the **works** on a date stated and withdraw himself from the **site**. The **Contractor** shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or on the grounds of any other right whatsoever.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 38 A38.0 CANCELLATION BY CONTRACTOR - EMPLOYER'S DEFAULT

Clause 38.0

Clause 38.5.4 is amended by replacing "ninety (90)" with "one-hundred and twenty (120)".

Clause 38.0 is amended by the addition of the following clause:

38.7 Notwithstanding any clause to the contrary, on cancellation of this **agreement** either by the **Employer** or the **Contractor**; or for any reason whatsoever, the **Contractor** shall on written instruction, discontinue with the **works** on a date stated and withdraw himself from the **site**. The **Contractor** shall not be entitled to refuse to withdraw from the **works** on the grounds of any lien or right of retention or on the grounds of any other right whatsoever.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 39 A39.0 CANCELLATION - CESSATION OF THE WORKS

Clause 39.0

Clause 39.3.5 is amended by the addition of the following at the end of the sentence: "within one hundred and twenty (120) **working days** of completion of such a report"

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

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## **DISPUTE**

### **40 A40.0 DISPUTE SETTLEMENT**

Clause 40.0

Clause 40.2.2 is amended by replacing "one (1) year" with "three (3) years".

Clause 40.6 is amended by removing the reference to:

No clause

Clause 40.7.1 is amended by replacing "(10)" with "(15)" and by the addition of the following:

Whether or not mediation resolves the dispute, the parties shall bear their own cost concerning the mediation and equally share the costs of the **Mediator** and related costs.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

## **SUBSTITUTE PROVISIONS**

### **41 A41.0 STATE CLAUSES**

Clause 41.0

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

## **CONTRACT VARIABLES**

### **THE SCHEDULE (CONTRACT DATA)**

### **42 A42.0 PRE-TENDER INFORMATION**

Clause 42.0

Tenderers are referred to the document C1.2 - **Contract Data** for variables pertaining to this contract.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

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## **SECTION B: JBCC PRELIMINARIES**

### **B1.0 DEFINITIONS AND INTERPRETATION**

#### **43 B1.1 Definitions and interpretation**

See also clause A1.0 of Section A for additional and/or amended definitions which shall apply equally to this Section.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **B2.0 DOCUMENTS**

#### **44 B2.1 Checking of documents**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **45 B2.2 Provisional Bills of Quantities**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ N/A

#### **46 B2.3 Availability of construction documentation**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **47 B2.4 Interests of agents**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **48 B2.5 Priced documents**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **49 B2.6 Tender submission**

Clause 2.6 is amended by replacing "JBCC Form of Tender" with "Form of Offer and Acceptance".

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **B3.0 THE SITE**

#### **50 B3.1 Defined works area**

Tenderers shall take note that the school will be in operation during the contract period and that all works must be secured from general access.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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**51 B3.2 Geotechnical investigation**

N/A

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**52 B3.3 Inspection of the site**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**53 B3.4 Existing premises occupied**

Tenderers shall take note that the school will be in operation during the contract period and that all works at the temporary accommodation (on the same site) must be secured from general access. The works are as per C3.1 Scope of Works

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**54 B3.5 Previous work - dimensional accuracy**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**55 B3.6 Previous work - defects**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**56 B3.7 Services - known**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**57 B3.8 Services - unknown**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**58 B3.9 Protection of trees**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**59 B3.10 Articles of value**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**60 B3.11 Inspection of adjoining properties**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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#### **B4.0 MANAGEMENT OF CONTRACT**

**61 B4.1 Management of the works**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**62 B4.2 Programme for the works**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**63 B4.3 Progress meetings**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**64 B4.4 Technical meetings**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**65 B4.5 Labour and plant records**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **B5.0 SAMPLES, SHOP DRAWINGS AND MANUFACTURERS' INSTRUCTIONS**

**66 B5.1 Samples of materials**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**67 B5.2 Workmanship samples**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**68 B5.3 Shop drawings**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**69 B5.4 Compliance with manufacturers' instructions**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

#### **B6.0 TEMPORARY WORKS AND PLANT**

**70 B6.1 Deposits and fees**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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**71 B6.2 Enclosure of the works**

Hoarding will be required to isolate the site for the new school; this hoarding has been allowed for in the Bills of Quantities.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**72 B6.3 Advertising**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**73 B6.4 Plant, equipment, sheds and offices**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**74 B6.5 Main notice board**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**75 B6.6 Sub-contractors' notice board**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**B7.0 TEMPORARY SERVICES**

**76 B7.1 Location**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**77 B7.2 Water**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**78 B7.3 Electricity**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**79 B7.4 Telecommunication facilities**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

**80 B7.5 Ablution facilities**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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## **B8.0 PRIME COST AMOUNTS**

### **81 B8.1 Responsibility for prime cost amounts**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

## **B9.0 ATTENDANCE ON N/S SUB-CONTRACTORS**

### **82 B9.1 General attendance**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **83 B9.2 Special attendance**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **84 B9.3 Commissioning - fuel, water and electricity**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

## **B10.0 FINANCIAL ASPECTS**

### **85 B10.1 Statutory taxes, duties and levies**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **86 B10.2 Payment for preliminaries**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **87 B10.3 Adjustment of preliminaries**

Clauses B10.3.1 and B10.3.2 are amended by replacing "within fifteen (15) **working days** of taking possession of the **site**" with "in his priced **Bills of Quantities document** submitted with his tender offer".

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

### **88 B10.4 Payment certificate cash flow**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

## **B11.0 GENERAL**

### **89 B11.1 Protection of the works**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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90	<b>B11.2</b>	<b><i>Protection/isolation of existing/sectionally occupied works</i></b>	Fixed:_____Value related:_____Time related:_____	N/A
91	<b>B11.3</b>	<b><i>Security of the works</i></b>	Fixed:_____Value related:_____Time related:_____	Item
92	<b>B11.4</b>	<b><i>Notice before covering work</i></b>	Fixed:_____Value related:_____Time related:_____	Item
93	<b>B11.5</b>	<b><i>Disturbance</i></b>	Fixed:_____Value related:_____Time related:_____	Item
94	<b>B11.6</b>	<b><i>Environmental disturbance</i></b>	Fixed:_____Value related:_____Time related:_____	Item
95	<b>B11.7</b>	<b><i>Works cleaning and clearing</i></b>	Fixed:_____Value related:_____Time related:_____	Item
96	<b>B11.8</b>	<b><i>Vermin</i></b>	Fixed:_____Value related:_____Time related:_____	Item
97	<b>B11.9</b>	<b><i>Overhand work</i></b>	Fixed:_____Value related:_____Time related:_____	Item
98	<b>B11.10</b>	<b><i>Instruction manuals and guarantees</i></b>	Fixed:_____Value related:_____Time related:_____	Item
99	<b>B11.11</b>	<b><i>As-built information</i></b>	Fixed:_____Value related:_____Time related:_____	Item
100	<b>B11.12</b>	<b><i>Tenant installations</i></b>	Fixed:_____Value related:_____Time related:_____	Item

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## **B12.0 SCHEDULE OF VARIABLES**

101

### **B12.1 Schedule of variables**

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

This **schedule** contains all variables referred to in 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 these **Preliminaries**.

Spaces requiring information must be filled in, shown as "not applicable" or deleted and 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 italicized in [ ] brackets.

#### **12.1 PRE-TENDER INFORMATION**

##### **12.1.1 Provisional Bills of Quantities**

[2.2] The quantities are provisional NO

##### **12.1.2 Availability of construction documentation**

[2.3] Construction documentation is complete YES

##### **12.1.3 Interest of agents**

[2.4] Details: NIL

##### **12.1.4 Defined works area**

[3.1] Details:  
The work area will be pointed out by the **Principal Agent** to the **Contractor** who will sign written acknowledgement therefore before commencing operations.

##### **12.1.5 Geotechnical investigation**

[3.2] Details:  
No Geotechnical Investigation was done, as the scope of work does not require this information

##### **12.1.6 Existing premises occupied**

[3.4] Specific requirements: Tenderers shall take note that the school will be in operation during the contract period and that all works must be secured from general access.

##### **12.1.7 Previous work - dimensional accuracy**

[3.5] Details: N/A

##### **12.1.8 Previous work - defects**

[3.6] Details: N/A

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12.1.9.	<b>Services - known</b>	
[3.7]	Details: Should the <b>Contractor</b> encounter any existing services such as underground cables, pipes or sewer during the execution of the <b>works</b> , he shall notify the <b>Principal Agent</b> immediately and suspend all affected work in the immediate vicinity until instruction to proceed has been given by the <b>Principal Agent</b> .	
12.1.10	<b>Protection of trees</b>	
[3.9]	Specific requirements:	N/A
12.1.11	<b>Inspection of adjoining properties</b>	
[3.11]	Specific requirements:	N/A
12.1.12	<b>Enclosure of the works</b>	
[6.2]	Specific requirements: The <b>Contractor</b> shall enclose the areas of work in accordance with the current regulations applicable	
12.1.13	<b>Offices</b>	
[6.4.3]	Specific requirements: The <b>Contractor</b> shall provide, maintain and remove on completion of the <b>works</b> an office for use during site meetings or other contractual meetings by the teams involved in this project. This office should be suitably insulated and ventilated, provided with electric lighting and fitted with boarded floor, desk, chair, drawing stool, drawing board and lock-up drawers for drawings. The office shall be kept clean and fit for use at all times.	
12.1.14	<b>Main notice board</b>	
[6.5]	Specific requirements: The <b>Contractor</b> shall provide, erect where directed, maintain and remove on completion of the works a standard notice board size 3,3 x 2,89m high. The board shall be securely fixed to and including a suitable supporting structure of timber posts and braces, all sturdy enough to withstand strong winds.	
12.1.15	<b>Sub-contractors' notice board</b>	
[6.6]	A notice board is required:	N/A
12.1.16	<b>Water</b>	
[7.2]	Option A (by <b>Contractor</b> )	YES
	Option B (by <b>Employer</b> - free of charge)	NO
	Option C (by <b>Employer</b> - metered)	NO
12.1.17	<b>Electricity</b>	
[7.3]	Option A (by <b>Contractor</b> )	YES
	Option B (by <b>Employer</b> - free of charge)	NO
	Option C (by <b>Employer</b> - metered)	NO

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12.1.18	<b>Telecommunications</b>		
[7.4]	Telephone	YES	
	Facsimile	YES	
	E-mail	YES	
12.1.19	<b>Ablution facilities</b>		
[7.5]	Option A (by <b>Contractor</b> )	YES	
	Option B (by <b>Employer</b> )	NO	
12.1.20	<b>Protection of existing/sectionally occupied works</b>		
[11.2]	Protection is required	NO	
12.1.21	<b>Special attendance</b>		
[9.2]	<b>Sub-contractor</b> (1) details:		
	<b>Sub-contractor</b> (2) details:		
	<b>Sub-contractor</b> (3) details:		
	<b>Sub-contractor</b> (4) details:		
12.1.22	<b>Protection of works</b>		
[11.1]	Specific requirements:	N/A	
12.1.23	<b>Disturbance</b>		
[11.5]	Specific requirements: <i>The <b>Contractor</b> shall keep the site, structures, etc. well watered during operations to prevent dust and shall provide and erect and remove on completion of the <b>works</b>, all necessary temporary dust screens all to the satisfaction of the <b>Principal Agent</b>.</i>		
12.1.24	<b>Environmental disturbance</b>		
[11.6]	Specific requirements:	N/A	
12.2	<b>POST-TENDER INFORMATION</b>		
12.2.1	<b>Payment of Preliminaries</b>		
[10.2]	Option A (pro-rated) Option B (calculated)		
12.2.2	<b>Adjustment of Preliminaries</b>		
[10.3]	Option A (three categories) Option B (detailed breakdown)		
12.2.3	<b>Additional agreed Preliminaries items</b>		
	Details:	N/A	
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## **SECTION C: SPECIFIC PRELIMINARIES**

**Section C** contains Specific Preliminary items which apply to this contract, except where N/A (Not Applicable) appears against an item.

### 102 **C1 CONTRACT DRAWINGS**

The drawings issued with the tender documents do not comprise the complete set but serve as a guide only for tendering purposes and for indicating the scope of the work to enable the Tenderer to acquaint himself 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 understood by the Tenderer he shall, before submitting his tender, obtain clarification in writing from the **Principal Agent**.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 103 **C2 GENERAL PREAMBLES**

The document "**Government Specifications for Construction (PW371-A) and Particular Specification (PW371-B)**" is obtainable on request from the head office and all regional offices 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.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

Item

### 104 **C3 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**.

If prior written approval for an alternative product is not obtained, the product described shall be deemed to have been tendered for.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_

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105 **C4 IMPORTED MATERIALS AND EQUIPMENT**

Where imported items are listed in the tender documents, the Tenderer shall provide all the information called for, failing which the price of any such item, materials or equipment shall be excluded from currency fluctuations.

Notwithstanding any provisions elsewhere regarding the adjustment of contract prices, the price of any item, material or equipment listed in terms of this clause shall be excluded from the **Contract Price Adjustment Provisions** (if applicable).

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

106 **C5 VIEWING THE SITE IN SECURITY AREAS**

The **site** is situated in a security area and the Tenderer must arrange with the School Principal or other responsible person to obtain permission to enter the **site** for tendering purposes.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ N/A

107 **C6 HIV/AIDS AWARENESS**

It is required of the **Contractor** to thoroughly study the HIV/AIDS Specification that must be read together with and is deemed to be incorporated under this Section of the **Bills of Quantities**.

The **Contractor** must take note that compliance with the HIV/AIDS Specification is compulsory. In the event of partial or total non-compliance, the **Principal Agent**, notwithstanding the provisions of Clause A31 or any other clause to the contrary, reserve the right to delay issuing any progress payment certificate until the **Contractor** provides satisfactory proof of compliance. The **Contractor** shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

108 **C6.1 AWARENESS CHAMPION**

Selection, appointment, briefing and making available of an Awareness Champion including provision of all relevant services, all in accordance with the HIV/AIDS Specification.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

109 **C6.2 AWARENESS WORKSHOPS**

Selection and appointment of a competent Service Provider approved by the **Principal Agent**, provision of a **Service Provider Workshop Plan** and a suitable venue, conducting of awareness workshops by means of traditional and/or modern multi-media techniques, including follow-up courses, making available all tuition material and performing assessment procedures, all in accordance with the HIV/AIDS Specification.

Fixed: \_\_\_\_\_ Value related: \_\_\_\_\_ Time related: \_\_\_\_\_ Item

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110 **C6.3 POSTERS, BOOKLETS, VIDEOS, ETC.**

Provision, displaying, maintaining and replacing when necessary of four plastic laminated posters, booklets and educational videos, etc. for the duration of the **construction period**, all in accordance with the HIV/AIDS Specification.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_ Item

111 **C6.4 ACCESS TO CONDOMS**

Provision and maintenance of condom dispensers fixed in position, including male and female condoms, replenishing male and female condoms on a daily basis as required for the duration of the **construction period**, all in accordance with the HIV/AIDS Specification.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_ Item

112 **C6.5 MONITORING**

Monitoring HIV/AIDS awareness of workers, providing the **Principal Agent** with access to information including making available all reports, thoroughly completed and reflecting the correct information, for the duration of the **construction period** and close out, all in accordance with the HIV/AIDS Specification.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_ Item

113 **C7 OCCUPATIONAL HEALTH AND SAFETY ACT**

The **Contractor** shall comply with all the requirements set out in the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.

It is required of the **Contractor** to thoroughly study the Health and Safety Specification that must be read together with and is deemed to be incorporated under this Section of the Bills of Quantities.

The **Contractor** must take note that compliance with the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is compulsory. In the event of partial or total non compliance, the Principal Agent, notwithstanding the provisions of clause A31.0 of Section A or any other clause to the contrary, reserves the right to delay issuing any progress payment certificate until the **Contractor** provides satisfactory proof of compliance. The **Contractor** shall not be entitled to any compensation of whatsoever nature, including interest, due to such delay of payment.

Provision for pricing of the Occupational Health and Safety Act, Construction Regulations and Health and Safety Specification is made under this clause and it is explicitly pointed out that all requirements of the aforementioned are deemed to be priced hereunder and no additional claims in this regard shall be entertained.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_ Item



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114 **C8 REPORTING BY CONTRACTOR**

The **Contractor** is required to complete the attached **Contractor's Monthly Report** which is to be submitted together with the **Contractor's** payment claim.

Payment of the **Contractor** is conditional on this information being accurate and timeously provided.

Payment shall be subject to the **Employer** giving the **Contractor** a tax invoice for the amount due.

The **Contractor** is to take note of the following requirements -

At the bottom of the **Monthly Contractor's Report**, the **Site Agent**, **CLO** or **Contractor** must sign the document as proof that the people indicated have worked the number of days.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

Item

115 **C9 ADMINISTRATION**

The **Contractor** must allow for **all costs** (including any profit or attendance) associated with the administration, appointment, training and/or payment of the CLO, Built Environment Interns, Training of Local Labour, Students **as applicable** and included in this tender document (refer **PROVISIONAL SUMS** section). No additional claims in this regard shall be entertained.

Fixed:\_\_\_\_\_Value related:\_\_\_\_\_Time related:\_\_\_\_\_

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2	Existing standard steel flag pole with concrete post approximately 200mm thick complete	No	1		
3	Existing concrete slab, etc. size 3000 x 3000 x 50mm thick	No	1		
4	Existing steel solar panel and steel stand with concrete base approximately 300mm thick, overall size 2000 x 2000 x 4000mm high	No	1		
5	Existing water tank and stand complete with concrete slab, etc. size 3000 x 3000 x 50mm thick	No	4		
<b><u>Demolish and remove existing structures including levelling out area[s] where demolitions took place:</u></b>					
6	Existing pit ablutions structure complete with all components, foundations, etc. comprising of concrete surface bed, 230mm external and 115mm internal walls, IBR roof covering on timber trusses, complete with 1000 x 1000 x 1000mm water tank and stand, aprons around, size 6000 x 3500mm on plan (2500mm high at eaves) including breaking up and fill in existing reinforced concrete toilet slab pit, size 2000 x 5000 x 200mm thick complete (pit estimated to be 2000mm deep) with suitable earth filling material supplied by the Contractor	No	2		
7	Existing single storey three classroom building complete with all components, foundations, etc. comprising concrete surface bed, 230mm external block walls, corrugated iron roof covering on timber trusses, size 22000 x 7000mm on plan (2600mm high at eaves)	No	1		
8	Existing single storey four classroom building complete with all components, foundations, etc. comprising concrete surface bed, 230mm external block walls, corrugated iron roof covering on timber trusses, size 30000 x 6000mm on plan (2600mm high at eaves)	No	1		
9	Existing single storey building complete with all components, foundations, etc. comprising concrete surface bed, 140mm external and internal block walls, corrugated iron roof covering on timber trusses, overall size 386m2 on plan (2600mm high at eaves)	No	1		
<b><u>Take down and remove complete with all posts, bases, etc. including filling in post holes:</u></b>					
10	Existing 1200mm high fence complete with all timber posts at approximately 3m centres with droppers in between	m	257		
11	Existing pedestrian gate size 1000 x 2000mm high	No	1		
12	Existing double swing gate size 5000 x 2000mm high	No	1		
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### **TEMPORARY WORKS**

#### **Temporary hoarding positioned on site and removing when directed by the Principal Agent:**

13	Hoarding formed of 2100mm high Bonnox fencing securely fixed to and including treated gumpole fencing posts at 3m centres, with shade cloth covering for full height	m	214
14	Double vehicular swing type gate size 5000 x 2000mm high in two equal leaves complete with all necessary posts, hinges, locking mechanism, etc.	No	1

### **TEMPORARY CLASSROOMS**

A demarcated area will be indicated by the Principal Agent for the delivery and erection of the temporary classroom units. The Principal Agent will also need to approve the actual layout of the individual units, prior to erection thereof. Electrical power supply will be supplied (by others) to a point within the area and from there be connected to the individual units.

The Contractors will be required to level the areas at his cost as required, keep the areas around the units clean and free of weeds, etc. for the full period[s] that these units are to house classes. Prices for the temporary classrooms will be deemed to include for the above.

All temporary classrooms must be carefully uplifted from site once they are vacated and delivered to a site (to be identified by the Principal Agent). After removal of the units, the site area[s] where they were located, must be rehabilitated to the approval of the Principal Agent.

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 DEMOLITIONS AND TEMPORARY WORKS (PROVISIONAL)  
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 DEMOLITIONS AND TEMPORARY WORKS



Supply complete of prefabricated weatherproof structure suitable to be used as classroom approximately 50m2 in floor area, each classroom comprising of a mobile and easily adjustable chassis sub-structure with 18mm thick treated timber floor and a vinyl sheeting floor. Wall panels should be of an approved and insulated material that is fire retardant, clad on the outer and inner surfaces with an approved Chromadek sheeting. The roof structure should comprise of timber or steel with integral ceiling support framing insulated with suitable ceiling boards and 0,6mm thick roof sheeting as roofing. Each classroom shall be supplied with six aluminium ventilating windows complete with 6,38mm thick laminated safety glass, secure burglar guards over whole window areas; two chalkboards size 1800 x 1200mm high and two pinning boards size 1200 x 1200mm high; one external timber or Chromadek door with weatherproof gasket and fitted with 3 lever mortice lock and x2 tier steps with removable disabled access ramp; electrical distribution board complete with earth leakage, 2x double plug points and four double fluorescent lights, all to the Principal Agent's approval prior to delivery to site of any of these units:

15	Unit to house one classroom complete as described	No	4
16	Unit to house one administration block ditto	No	1
17	Unit to house one dining & nutrition block ditto	No	1

#### **DECANTING RELOCATION**

Dismantling and loading of prefabricated weatherproof structure (elsewhere supplied) ready for transportation (elsewhere measured) complete:

18	Temporary classroom, administration or dining block, approximately 50m2	No	6
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Transportation of prefabricated weatherproof structure (elsewhere supplied) as per the ranges specified:

19	Temporary classroom, administration or dining block, approximately 50m2 within 100km from the existing site	No	4
20	Ditto within 150km from the existing site, ditto	No	1
21	Ditto within 200km from the existing site, ditto	No	1

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Section No. 2  
 DEMOLITIONS AND TEMPORARY WORKS (PROVISIONAL)  
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	<b><u>Assembling of prefabricated weatherproof structure (elsewhere supplied) including connecting to electrical supply to be ready for operation:</u></b>				
22	Temporary classroom, administration or dining block, approximately 50m2 floor area	No	6		
	<b><u>TOILET UNITS</u></b>  <p>A demarcated area will be indicated by the Principal Agent for the delivery and erection of the temporary units. The Principal Agent will also need to approve the actual layout of the individual units, prior to erection thereof. Electrical power supply will be supplied (by others) to a point within the area and from there be connected to the individual units.</p> <p>The Contractors will be required to level the areas at his cost as required, keep the areas around the units clean and free of weeds, etc. for the full period[s] that these units are to be used. Prices for the temporary units will be deemed to include for the above.</p> <p>All temporary units must be dismantled/uplifted and removed from site once they are vacated and requested by the Principal Agent. After removal of the units, the site area[s] where they were located, must be rehabilitated and/or disinfected to the approval of the Principal Agent.</p> <p>The rental period[s] for the individual units will be determined by the Principal Agent and payment, according to rates entered by the Contractor hereunder, will be effected only once the rental period[s] have been confirmed.</p> <p><b><u>Rental (and removal from site when usage are over) of standard single portable chemical toilet unit complete with sink, mirror, soap, bin bag, toilet rolls and paper towels complete with servicing and cleaning of units for the full rental period as required, all to the Principal Agent's approval prior to delivery to site of any of these units:</u></b></p>				
23	Single portable chemical toilet unit complete as described for a total period of eight-teen (18) months [inclusive of first month]	No	11		
24	Ditto but for disabled access ditto	No	1		
	<p style="text-align: right;"><b>Carried to Collection</b></p> <p>Section No. 2          DEMOLITIONS AND TEMPORARY WORKS (PROVISIONAL)          Bill No. 1          DEMOLITIONS AND TEMPORARY WORKS</p>			R	







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**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 stockpiles situated on the building site

**EXCAVATION, FILLING, ETC. OTHER THAN BULK**

**Excavation in earth not exceeding 2m deep:**

1	Trenches	m3	321
2	Pits	m3	169

**Excavation in earth exceeding 2m and not exceeding 4m deep:**

3	Pits	m3	31
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**Extra over trench and hole excavations in earth for excavation in:**

4	Soft rock	m3	97
5	Hard rock	m3	50

**Extra over all excavations for carting away:**

6	Surplus material from excavations to stockpiles on site	m3	462
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**Risk of collapse of excavations:**

7	Sides of trench and hole excavations not exceeding 1,5m deep	m2	1 723
8	Ditto exceeding 1,5m deep	m2	174

**Keeping excavations free of water:**

9	Keeping excavations free of all water other than subterranean water		Item
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:**

10	Backfilling to trenches, holes, etc.	m3	6
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Item No		Unit	Quantity	Rate	Amount
	<p><b><u>BILL No. 2: CONCRETE, FORMWORK &amp; REINFORCEMENT</u></b></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><b><u>SUPPLEMENTARY PREAMBLES</u></b></p> <p><b><u>General:</u></b></p> <p>Concrete mix designs and samples aggregates to be submitted to the engineer for prior approval.</p> <p>Contractor to provide 30MPa concrete cover blocks to ensure correct cover and position of reinforcing.</p> <p>Fabricated mesh reinforcing shall be securely supported on either concrete spacer blocks or mild steel bar chairs. No depth control by hand is acceptable. Mesh to be installed strictly in accordance with the depth positioning on the drawings. If not indicated, the cover to mesh reinforcing will be 30mm.</p> <p>Reinforcing fixed in final positions to be inspected and approved in writing by the engineer before concrete is cast.</p> <p><b><u>Cost of tests:</u></b></p> <p>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 Principal Agent. The testing shall be undertaken by an independent firm or institution nominated by the Contractor to the approval of the Principal Agent (Test cubes are measured separately).</p> <p><b><u>Formwork:</u></b></p> <p>Description 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.</p>				
	<p style="text-align: right;"><b>Carried to Collection</b></p> <p>Section No. 3            SCHOOL BUILDINGS            Bill No. 2            CONCRETE, FORMWORK &amp; REINFORCEMENT</p>			R	



Formwork to soffits of solid slabs, etc. shall be deemed to be slabs not exceeding 200mm 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 for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be deemed to be included in the allowance for taking the risk of collapse of the sides of the excavations, provision for which is made in "Earthworks"

Degree of accuracy of formwork: Grade 2 as in Table 11 of SANS 2001-CC1

Permissible deviations:

Flatness of plain surface - 5mm

Abrupt changes in a continuous surface - 5mm

### **Propping:**

No shuttering or propping to be taken out without written consent of the Engineer.

No propping to be taken out before proof or concrete strength in members is submitted and approved by the Engineer.

### **Raft foundation procedure and acceptance criteria:**

The purpose of the procedures and requirement below are to reduce the risk to both the Client and the Contractor. It ensures that the completed foundations are accurately constructed within specifications with the minimum waste of materials and time. The implications of the requirements must be understood before work commences. Contact the Engineer if any clarifications are required.

#### **1. Protection of excavations**

The Contractor must allow in his pricing for the protection of excavations for raft foundations. Caving of edges of ground beam excavations will lead to wastage of concrete with substantial cost implications to the Contractor.

Various methods can be adopted by the Contactor to protect against caving in. The following are possible measures that can be considered:

- Laying down of scaffold planks on edges of trenches for ground beams.
- Cement stabilizing the 150mm gravel layer under the floor slab to limit caving in of edges.

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The Contractor must also be aware of the installation of insulation materials under the reinforced slabs and to the sides of ground beams. These insulation boards are fragile and care must be taken during fixing of reinforcing and placing of concrete. It may require the provision of gang planks over work areas during construction. Regardless of the construction methods and protection measures adopted, it will be deemed to be included in the tendered rates.

## 2. Earthworks Platforms

Before the commencement of the excavations for the raft foundation, the following must be complied with:

- The position and level of the platform must be surveyed and confirmed by a competent registered land surveyor or engineering surveyor in writing to the Engineer.
- Positions and levels of platform must be in accordance with SANS 2001-BE1: 2008 Earthworks General Table 1, Degree of Accuracy I, subject to the further tolerances below.

- Final Platform levels under raft foundations must be within the following vertical tolerances:
- Permissible Deviation from design level in any position = + 5mm and minus 20mm.
- Permissible Deviation under 3m straight edge = 15mm
- The quality of the fill material used must be confirmed in writing to the Engineer.
- Compaction test must prove that compaction specifications have been reached.
- The surface of the platform must be uniform and neatly trimmed with no loose material or silt.

Excavations for ground beams may only commence when all of the above has been complied with and the Engineer has given written consent for excavations to commence.

## 3. Raft foundation Construction.

The Contractor must have sufficient shuttering on site to shutter the complete section of the raft foundation between the expansion joints shown on the drawings. The shuttering must be sturdy and properly anchored to prevent any movement during placing of concrete. Makeshift shuttering will not be allowed.

Before any inspection by the Engineer is requested by the Contractor, the following must be complied with:

- All shuttering must be fixed in final position.
- The quality of the earthworks below must have been confirmed in writing (density, material quality and position)
- A calibrated laser level that will be used during the placing of the concrete must be available on site.

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- The positions of shutters must be checked and confirmed by measuring with a calibrated steel tape by a competent person and confirmed in writing that the check has been done.
- All reinforcing must be securely fixed in correct positions and cover blocks must be provided to ensure correct cover.
- Dampcourse and/or insulation boards must be in final position and all holes patched.
- All dirt and loose material must be removed.
- All services to be cast into the raft foundation must be in position and approved by the Principal Agent or Engineer.

The relevant documentation and written confirmation (quality control check sheet, photographic record etc.) must be in possession of the Engineer before a request for an inspection can be lodged. Notice of at least 48 hours falling within a work week must be given. After the placing of concrete and finishing of the floor surface, an approved curing compound must be applied to the finished floor surface.

### **UN-REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES**

#### **10MPa/19mm Concrete:**

1	Blinding under foundation beams (Provisional)	m3	18
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#### **25MPa/19mm Concrete:**

2	Strip footings (Provisional)	m3	1
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### **REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES**

#### **30MPa/19mm Concrete:**

3	Surface beds	m3	17
4	Raft slabs	m3	230
5	Foundation beams	m3	294

### **REINFORCED CONCRETE**

#### **30MPa/19mm Concrete:**

6	Slabs including beams and inverted beams	m3	34
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7	Beams	m3	63
8	Isolated beams	m3	22

### **CONCRETE TESTS**

#### **Test blocks:**

9	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes (Provisional)	No	70
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### **CONCRETE SUNDRIES**

#### **Finishing top surfaces of concrete with broom/brush finish:**

10	Surface beds, etc.	m2	1 822
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#### **Finishing top surfaces of concrete smooth with a wood float:**

11	Surface beds, slabs, etc. to falls	m2	85
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#### **20MPa non-shrink grout:**

12	Benching approximately 50mm thick on top of piers 340 long x 60mm wide including chamfered edges all round	No	58
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#### **Sagex or other approved insulation boarding:**

13	25mm Thick laid under surface beds on dampproof membrane	m2	900
14	40mm Thick to sides of foundation beams	m2	1 013

### **ROUGH FORMWORK (DEGREE OF ACCURACY II)**

#### **Rough formwork to sides:**

15	Inverted beams above concrete	m2	16
16	Beams	m2	290
17	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	502

#### **Rough formwork to soffits:**

18	Soffits of slabs exceeding 1,5m and not exceeding 3,5m high	m2	94
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**Rough formwork to sides and soffits:**

19	Isolated beams propped up not exceeding 1,5m above bearing level	m2	220
20	Ditto propped up exceeding 1,5m and not exceeding 3,5m high above bearing level	m2	216
21	Edges, risers, ends and reveals not exceeding 300mm girth including propping up exceeding 1,5m and not exceeding 3,5m high above bearing level	m	25

**1,2mm Thick Bond-Dek profile or other approved steel sheeted permanent formwork to soffits:**

22	Soffits of slabs exceeding 1,5m not exceeding 3,5m high	m2	76
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**Rough formwork to form:**

23	Rectangular opening size 600 x 450mm wide through 170mm thick slab	No	7
24	450mm Diameter opening through 170mm thick slab	No	18
25	160mm Diameter opening through 170mm thick slab	No	19
26	16mm Diameter x 260mm long dowel chemical anchored to pit wall including drilling into existing 330mm wide brick wall with concrete infill	No	30

**MOVEMENT JOINTS, ETC.**

**Two layers of 0,6mm thick galvanised sheeting in slip joints between horizontal concrete and brick surfaces including cement mortar bed:**

27	Not exceeding 300mm wide	m	570
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**STEEL REINFORCEMENT (PROVISIONAL)**

**Mild steel reinforcement to structural concrete work:**

28	10mm Diameter bars	t	4.81
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**High tensile steel reinforcement to structural concrete work:**

29	20mm Diameter bars	t	4.81
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	<b><u>BILL No. 4: MASONRY</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<b><u>BRICKWORK IN FOUNDATIONS (PROVISIONAL)</u></b>				
	<b><u>Brickwork of NFX bricks (14MPa nominal compressive strength) in Class II mortar:</u></b>				
1	Half brick lining shot fixed to concrete	m2	207		
2	One brick wall	m2	1		
3	330mm Hollow wall in two half brick skins, the two skins tied together with and including galvanised wire ties with 100mm cavity filled in with and including reinforced concrete (20MPa/19mm) (reinforcement elsewhere measured)	m2	156		
	<b><u>BRICKWORK IN SUPERSTRUCTURE</u></b>				
	<b><u>Brickwork of NFP bricks in Class II mortar:</u></b>				
4	Piers	m3	17		
5	Half brick wall	m2	296		
6	Ditto in beamfilling	m2	154		
7	One brick wall	m2	335		
8	One brick wall in two half brick skins tied together with and including galvanised wire ties	m2	157		
9	270mm Hollow wall in two half brick skins with cavity between skins, the two skins tied together with including galvanised wire ties	m2	1 024		
10	Ditto in beamfilling	m2	153		
11	270mm Hollow wall in two half brick skins, the two skins tied together with and including galvanised wire ties with 100mm cavity filled in with and including unreinforced concrete (20MPa/19mm)	m2	37		
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### **GLASS BLOCK WALLS**

**190 x 190 x 80mm Thick glass blocks bedded and jointed in slow-setting class II mortar mixed with emulsifying agent with 10mm wide continuous joints in both directions, pointed and smoothed in tinted mortar on both sides with flush horizontal and vertical joints, including reinforced at every joint with 0,8 x 65mm wide corrosion resistant metal strips:**

12	Glass block wall	m2	22
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### **BRICKWORK SUNDRIES**

13	Closing 50mm cavity of hollow wall horizontally with one course of brickwork	m	198
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14	Closing 50mm cavity of hollow wall vertically with brickwork half brick wide	m	656
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15	Splayed mortar fillet one course high in 50mm cavity	m	754
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16	160mm Wide x 4mm thick fibre cement sheet fixed in brickwork to support mortar fillet (elsewhere measured)	m	198
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**Bagging and sealing the outer face of the inner skin of hollow wall with 1:3 cement and sand mixture and seal with two coats bitumen emulsion waterproofing coating:**

17	On walls	m2	1 118
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### **Brickwork reinforcement:**

18	75mm Wide reinforcement built in horizontally	m	12 436
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19	Ditto in foundations	m	3 308
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20	150mm Wide reinforcement built in horizontally	m	1 999
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**Prestressed fabricated lintols including necessary temporary supports:**

21	110 x 70mm Lintol in lengths not exceeding 3m	m	32
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22	Pair of 110 x 70mm lintols in lengths not exceeding 3m	m	68
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23	Pair of 110 x 70mm lintols in lengths exceeding 3m and not exceeding 4,5m	m	4
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<b><u>Galvanised hoop iron ties, cramps, etc.:</u></b>				
24	32 x 1,6mm Cramp 1300mm long with one end wrapped around reinforcing in concrete beam (elsewhere measured) and other end wrapped and nailed to timber truss (elsewhere measured) with four 40mm long galvanised nails	No	602	
25	32 x 1,6mm Cramp 1200mm long with one end fixed and wrapped around 70 x 222mm timber beam (elsewhere measured) and other end wrapped and nailed to timber truss (elsewhere measured) with four 40mm long galvanised nails	No	13	
26	30 x 1,6mm Cramp 450mm long one end fixed to brickwork and other end screwed to timber frame	No	346	
<b><u>Air bricks, etc.:</u></b>				
27	229 x 152mm Clay vermin proof air brick and building in	No	21	
<b><u>Sagex or other approved thermal insulation boarding:</u></b>				
28	25mm Thick in cavity of hollow wall in 600mm width built concurrently with the brickwork, including all fixing, etc.	m2	1 042	
<b><u>FACE BRICKWORK</u></b>				
<b><u>Corobrik Agate Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 10mm square recessed horizontal and vertical joints as the work proceeds:</u></b>				
29	Extra over brickwork for face brickwork	m2	386	
<b><u>Brick-on-edge header course copings, sills, etc. of Corobrik Agate Satin FBX clay face bricks pointed with recessed joints on all exposed faces:</u></b>				
30	Header course in face brick cut to 165mm length and built flush in cavity of hollow wall and protruding 15mm from face of brickwork	m	362	
<b><u>Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 10mm square recessed horizontal and vertical joints as the work proceeds:</u></b>				
31	Extra over brickwork for face brickwork	m2	863	
32	Ditto in foundations (Provisional)	m2	113	

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**Brick-on-edge header course copings, cills, etc. of Corobrik  
 Firelight Satin FBX clay face bricks pointed with recessed joints  
 on all exposed faces:**

33	220mm Wide cill set sloping and slightly projecting	m	183
34	Extra over above for solid face brick to end of cill	No	358
35	Brick-on-edge coping 220mm wide to top of one brick wall	m	21
36	Roller course 220mm wide set on concrete raft slab (elsewhere measured)	m	350
37	Header course in face brick cut to 165mm length and built flush in cavity of hollow wall and protruding 15mm from face of brickwork	m	453

**FIBRE CEMENT WINDOW CILLS**

**Natural grey cills in single lengths bedded in 4:1 sand cement  
 mortar including fixing with metal lugs, etc.:**

38	15 x 150mm Cill set flat and fixed with galvanised fixing lugs at 400 centres	m	179
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MASONRY

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Item No		Unit	Quantity	Rate	Amount
	<b><u>BILL No. 6: ROOF COVERINGS, ETC.</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<b><u>PROFILED METAL SHEETING AND ACCESSORIES</u></b>				
	<b><u>0.8mm Thick Global Roofing Solutions or other approved corrugated profile galvanised steel roof sheeting complying with ISQ 230 with Z200 spelter and pre-coated coloured Chromadek finish one side (backing coat on other side), fixed to timber purlins (elsewhere measured) at 900mm centres in accordance with the manufacturer's instructions:</u></b>				
1	Roof covering with pitch not exceeding 25 degrees	m2	2 571		
	<b><u>0.8mm Thick Global Roofing Solutions or other approved galvanised steel roof flashings complying with ISQ 230 with Z275 spelter and pre-coated coloured Chromadek finish:</u></b>				
2	Ridge capping to suit roof profile	m	117		
3	Hip capping to suit roof profile	m	358		
4	Valley gutter 610mm girth six times bent fixed in accordance with manufacturer's specifications	m	24		
5	Narrow or broad flute closers	m	2 696		
6	Flashing around 150mm diameter extraction pipe	No	19		
	<b><u>RAINWATER DISPOSAL</u></b>				
	<b><u>0.6mm Thick Watertite or other approved seamless aluminium gutters and rainwater pipes pre-painted with ColourTech G4 (Marble White) and fixing in accordance with the manufacturer's instructions with heavy duty brackets:</u></b>				
7	150 x 125mm Eaves gutter complete with all brackets, etc.	m	670		
8	Extra over gutter for stopped end	No	4		
9	Ditto for angle	No	56		
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ROOF COVERINGS, ETC.

10	Ditto for outlet to suit 100 x 75mm rainwater pipe	No	39
11	100 x 75mm Rainwater pipe complete with all brackets, etc.	m	68
12	Extra over rainwater pipe for bend or shoe	No	65
13	Ditto for eaves offset to 900mm projection	No	13

**Sundries:**

14	150mm Wide expanded aluminium mesh leaf guard fixed to gutter in accordance with the manufacturer's instructions	m	670
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**ROOF INSULATION**

**Sisalation 430 FR or other approved heavy industrial grade aluminium foil based insulation:**

15	Insulation laid taut under purlins (at approximately 900mm centres) and fixed concurrent with roof covering, including galvanised steel straining wires, laps, etc.	m2	1 980
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# **PREFABRICATED ROOF TRUSSES, ETC.**

The references in the descriptions below are to the Architect's Drawings of the respective roof construction plans attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings

**Prefabricated timber (17 degree pitch) roof truss construction at 1200mm centres complete, including 50 x 76mm sawn softwood purlins at 900mm centres (with and including fixing to rafters with hurricane clips), runners, bracing, cleats, etc. supplied and fixed complete:**

1	Roof construction of hipped roof, 900mm eaves overhang all round size 3,49 x 3,24 x 0,80m high, refer to drawing number 100M/2 PR02 (Block M - Guard House)	No	1
2	Roof construction of hipped roof, 900mm eaves overhang all round size 6,30 x 3,76 x 0,90m high, refer to drawing number 100L/2 PR02 (Block L - Grade R Ablutions)	No	1
3	Roof construction of hipped roof, 900mm eaves overhang all round size 9,11 x 3,75 x 0,90m high, refer to drawing number 100I/2 PR02 (Block I - Staff Toilets)	No	1
4	Roof construction of hipped roof, 900mm eaves overhang all round size 16,45 x 3,87 x 0,90m high, refer to drawing number 100J/2 PR02 (Block J - Girls and Boys Pit Toilets)	No	1
5	Roof construction of hipped roof, 900mm eaves overhang all round size 14,33 x 10,16 x 1,80m high, refer to drawing number 100C/2 PR02 (Block C - Science Lab) and drawing number 100F/2 PR02 (Block F - Multi Purpose Classroom)	No	2
6	Roof construction of hipped roof, 900mm eaves overhang all round size 15,26 x 10,16 x 1,80m high, refer to drawing number 100G/3 PR05 (Block G - Media Centre)	No	1
7	Roof construction of hipped roof, 900mm eaves overhang all round size 20,60 x 10,16 x 1,80m high, refer to drawing number 100H/3 PR02 (Block H - Two Classrooms and HOD)	No	1
8	Roof construction of hipped roof, 900mm eaves overhang all round size 17,29 x 12,60 x 1,80m high, refer to drawing number 100K/3 PR01 (Block K - Grade R Classroom)	No	1
9	Roof construction of hipped roof, 900mm eaves overhang all round size 16,36 x 10,16 x 1,80m high, refer to drawing number 100E/4 PR02 (Block E - Two Classrooms)	No	1

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10	Roof construction of hipped roof, 900mm eaves overhang all round size 25,19 x 10,16 x 1,80m high, refer to drawing number 100D/3 PR02 (Block D - Three Classrooms)	No	1		
11	Roof construction of roof extension connecting previous two roofs (Block D & E elsewhere measured), 900mm eaves overhang size 5,19 x 10,16 x 1,80m high	No	1		
12	Roof construction of hipped roof for irregular shaped building in two sections, 900mm eaves overhang all round, one section size 11,92 x 9,70 x 1,80m high and other section 8,60 x 9,50 x 1,80mm high, refer to drawing number 100B/3 PR02 (Block B - Dining and Nutrition Block)	No	1		
13	Roof construction of hipped roof for irregular shaped building in three sections, 900mm eaves and 300mm gable overhangs, one section size 18,66 x 10,00 x 1,80m high, one section size 2,90 x 2,15 x 0,70m high and other section size 3,90 x 1,65 x 0,70m high, refer to drawing number 100A/1 PR01 (Block A - Administration)	No	1		
<b><u>Sundries:</u></b>					
14	Allow all additional members, cutting and fitting, flashings to render waterproof, etc. through ceiling, trusses, roof sheeting and insulation installations to accommodate kitchen cooker extraction unit and cooker hood (allow for 2,0 x 1,0m extractor unit with 0,60m diameter flue passage)	No	1		
15	Allow all additional members, cutting and fitting, flashings to render waterproof, etc. through ceiling, trusses, roof sheeting and insulation installations to accommodate tubular solar panel (24 tubes) suitable for 200 litre geyser (elsewhere measured) fitted in roof space	No	2		
16	Support structure to expanded metal (elsewhere measured) consisting of 38 x 38mm battens securely fixed to both sides of timber rafters, timber rafters spaced at approximately 1000mm centres, including cross battens spaced at 600mm centres, with both ends of cross battens securely fixed to rafter battens at both ends, including adjusting assemblies at hip ends, valleys, etc. as required	m2	422		
<b><u>Sawn softwood:</u></b>					
17	38 x 114mm Wall plate	m	879		
18	38 x 228mm Gangboarding (Provisional)	m	163		
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	<b><u>Wrot softwood:</u></b>				
19	22 x 222mm Valley boarding	m	24		
	<b><u>Wrot laminated softwood:</u></b>				
20	70 x 222mm Verandah beam	m	16		
	<b><u>EAVES, VERGES, ETC.</u></b>				
	<b><u>Everite Nutec or other approved fibre cement fascias, etc.:</u></b>				
21	12 x 225mm Fascia screwed vertically to timber rafter ends (elsewhere measured) with and including two 38 x 50mm vertical cleats screwed to each timber rafter end at 1200 centres, including fascia joining plates, H-profile PVC joint strips, caps, etc.	m	670		
22	12 x 225mm L-shaped barge board screwed vertically to timber purlin (elsewhere measured) with 44 x 70mm trimmer batten secured to purlins at each intersection with and hurricane clips, including H-profile PVC joint strips, caps, etc.	m	10		
23	12 x 280mm Eaves closure board screwed vertically to timber, including cutting and fitting in between rafters	m	10		
	<b><u>SKIRTINGS, RAILS, ETC.</u></b>				
	<b><u>Wrot Meranti:</u></b>				
24	19 x 70mm Skirting with rounded top edge and 19mm quadrant bead nailed	m	670		
	<b><u>DOORS, ETC.</u></b>				
	<b><u>Wrot Meranti:</u></b>				
25	40mm Thick framed, ledged, braced and battened door, formed of 44 x 107mm stiles and top rail, 22 x 107mm middle ledge, 44 x 222mm bottom rail and 22 x 69mm diagonal braces, with stiles, top and bottom rails rebated for and filled in with and including 22 x 69mm tongued, grooved and V-jointed one side vertical boarding, braces brass screwed to every board and bottom of door fitted with and including 3mm veneer panel on one size and including 40 x 70mm thick grooved and splayed weatherboard, size 813 x 2032mm high	No	15		
26	Ditto size 920 x 2032mm high	No	3		
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27	40mm Thick glazed single door formed of 44 x 107mm stiles, top and middle rail, 44 x 222mm bottom rail, with stiles and top rail once rebated, middle and bottom rail twice rebated, upper section glazed (glazing elsewhere measured) size 533 x 970mm high and lower section glazed (glazing elsewhere measured) size 533 x 573mm high fitted with and including 12 x 15mm glazing beads planted on, including 40 x 70mm thick grooved and splayed weatherboard, size 813 x 2032mm high	No	3		
28	40mm Thick glazed double door in two equal leaves with rebated meeting stiles, each leaf formed of 44 x 107mm stiles, top and middle rail, 44 x 222mm bottom rail, with stiles and top rail once rebated, middle and bottom rail twice rebated, upper section glazed (glazing elsewhere measured) size 569 x 1109mm high and lower section glazed (glazing elsewhere measured) size 569 x 531mm high fitted with and including 12 x 15mm glazing beads planted on, including 40 x 70mm thick grooved and splayed weatherboard, size 1800 x 2032mm high	No	5		
<b><u>SOLID FLUSH DOORS</u></b>					
<b><u>Solid chipboard core doors with commercial veneer suitable for painting both sides and hardwood edge strips all round:</u></b>					
29	40mm Thick door size 730 x 1882mm high	No	11		
30	Ditto size 813 x 2032mm high	No	16		
31	Ditto size 813 x 2032mm high with and including 400 x 360mm high anodised aluminium door vent grille positioned 200mm from bottom of door	No	3		
<b><u>BEADS, ARCHITRAVES, ETC.</u></b>					
<b><u>Wrot Meranti:</u></b>					
32	19 x 70mm Architrave with rounded edge countersunk plugged and pelleted to walls	m	234		
<b><u>FRAMES, FRAMED FRAMES, ETC.</u></b>					
<b><u>Wrot Meranti:</u></b>					
33	19mm Half round quadrant planted on	m	288		
34	69 x 107mm Rebated frame plugged to wall	m	288		
<b>Carried to Collection</b>				R	
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35	69 x 107mm Twice rebated transome	m	8	
36	69 x 107mm Twice rebated mullion	m	2	
<b><u>JOINERY FITTINGS (PROVISIONAL)</u></b>				
<b><u>General</u></b>				
All exposed edges with 3mm uPVC impact edging				
<b><u>GRADE R</u></b>				
The references in the descriptions below are to the respective joinery details on the Architect's drawing number 500K PR02 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings				
<b><u>Store room shelving:</u></b>				
37	19mm Thick laminated Melamine shelving fixed to and including Shelco or other approved heavy duty brackets with suitable fixing lugs at 330mm centres, shelving 310mm wide in four tiers (Detail 3)	m	2	
38	Ditto at 364mm centres, ditto (Detail 3)	m	2	
<b><u>Worktops:</u></b>				
39	32mm Thick post formed Formica or other approved counter top for worktop with 16mm thick shelving cubicles at 590mm centres in one tier, overall size 2280 x 474 x 900mm high (Detail 3)	No	1	
40	Ditto, overall size 2960 x 474 x 900mm high (Detail 3)	No	1	
41	32mm Thick post formed Formica or other approved counter top for worktop with 16mm thick bag shelving cubicles at 384mm centres in one tier, overall size 4999 x 475 x 719mm high (Detail 2)	No	1	
<b><u>Kitchen countertops:</u></b>				
42	32mm Thick waterproof post formed Formica or other approved counter top for kitchen counter with drop-in sink (elsewhere measured) consisting of one cupboard with double door, one cupboard with single door and four drawers, overall size 2460 x 600 x 900mm high (Detail 6 & 7)	No	1	
<b>Carried to Collection</b>				R
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43	32mm Thick waterproof post formed Formica or other approved counter top for kitchen counter consisting of one cupboard with double door, 600mm wide open space for gas stove (elsewhere measured) and 750mm wide open space for fridge (not included in this contract), overall size 2270 x 600 x 900mm high (Detail 6 & 7)	No	1		
44	32mm Thick waterproof post formed Formica or other approved counter top for kitchen counter consisting of three cupboards with single doors, overall size 1859 x 600 x 900mm high (Detail 6 & 7)	No	1		
45	32mm Thick post formed Formica or other approved top for serving hatch laid on top of brick wall (elsewhere measured) and fixed to wall with 69 x 44mm hardwood rails, size 1440 x 600mm wide (Detail 6 & 7)	No	1		
<b><u>Teacher's desk:</u></b>					
46	32mm Thick L-shaped counter top for teacher's desk in two sections, one section consisting of one cupboard with single door, four drawers and leg room, size 2916 x 600 x 700mm high, other section consisting of one cupboard with double door, size 928 x 600 x 700mm high (Detail 4)	No	1		
<b><u>SCIENCE LABORATORY</u></b>					
The references in the descriptions below are to the respective joinery details on the Architect's drawing number 500C PR02 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings					
<b><u>Worktops and teacher's desk:</u></b>					
47	32mm Thick counter top for student worktop, overall size 2445 x 600 x 900mm high (Detail 1 & 2)	No	8		
48	32mm Thick counter top for counter with four lab sinks (elsewhere measured) consisting of four cupboards with double doors, overall size 7400 x 600 x 900mm high (Detail 1 & 5)	No	2		
49	32mm Thick counter top for counter with two lab sinks (elsewhere measured) consisting of two cupboards with double doors and fume cupboard (elsewhere measured) overall size 6240 x 600 x 900mm high (Detail 1, 3 & 4)	No	1		
50	32mm Thick counter top for teacher's demonstration desk with one lab sink (elsewhere measured) consisting of one cupboard with double door, one cupboard with single door and four drawers, overall size 2200 x 600 x 900mm high (Detail 6)	No	1		
<b>Carried to Collection</b>				R	
Section No. 3 SCHOOL BUILDINGS Bill No. 7 CARPENTRY & JOINERY					



The references in the descriptions below are to the respective joinery details on the Architect's drawing number 501C PR02 attached to these Bills of Quantities for tender purposes					
<b><u>Store room shelving:</u></b>					
51	19mm Thick laminated Melamine shelving fixed to and including Shelco other approved heavy duty brackets with suitable fixing lugs at 328mm centres, shelving 310mm wide in six tiers (Detail 3 & 5)	m	5		
52	Ditto at 349mm centres, ditto (Detail 2)	m	2		
53	Ditto at 388mm centres, ditto (Detail 4)	m	3		
<b><u>Storage cupboard:</u></b>					
54	Lockable storage cupboard in two sections consisting of 20mm thick carcass with and including 20mm thick laminated shelving in five tiers, lower section with double door size 800 x 1951mm high and upper section with double door size 800 x 490mm high, overall size 1600 x 600 x 2441mm high (Detail 2 & 7)	No	1		
<b><u>MEDIA CENTRE</u></b>					
The references in the descriptions below are to the respective joinery details on the Architect's drawing number 501G PR01 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings					
<b><u>Store room shelving:</u></b>					
55	19mm Thick laminated shelving fixed to and including Shelco or other approved heavy duty brackets with suitable fixing lugs at 353mm centres, shelving 310mm wide in four tiers (Detail 3)	m	2		
56	Ditto at 370mm centres, ditto (Detail 5)	m	3		
<b><u>Worktops:</u></b>					
57	32mm Thick post formed Formica or other approved counter top for worktop with leg room below and one cupboard with single door, overall size 2263 x 500 x 900mm high (Detail 3)	No	1		
58	32mm Thick post formed Formica or other approved counter top for worktop with leg room below and four drawers, overall size 3110 x 500 x 900mm high (Detail 2)	No	1		
<b>Carried to Collection</b>					
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59	32mm Thick post formed Formica or other approved counter top for worktop with 20mm thick shelving cubicles at 550mm centres in one tier, overall size 3110 x 500 x 900mm high (Detail 5)	No	1		
60	Ditto, overall size 3463 x 500 x 900mm high (Detail 4)	No	1		
	<p>The references in the descriptions below are to the respective joinery details on the Architect's drawing number 500G PR01 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings</p> <p><b><u>Worktops and teacher's desk:</u></b></p>				
61	32mm Thick post formed Formica or other approved counter top for computer desk cubicles with leg room below and desk to accommodate nine pupils, each cubical divided with 250mm high x 16mm thick boarding, overall size 9176 x 900 x 750mm high (Detail 4 & 5)	No	2		
62	32mm Thick post formed Formica or other approved counter top for computer desk cubicles installed back to back with 250mm high x 16mm thick boarding in between, leg room below to and desk to accommodate sixteen pupils, each cubical divided with 250mm high x 16mm thick boarding, overall size 7344 x 1800 x 750mm high (Detail 4 & 5)	No	1		
63	32mm Thick counter top for teacher's desk consisting of one cupboard with single door, leg room and four drawers, overall size 2200 x 879 x 900mm high (Detail 8)	No	1		
64	32mm Thick counter top for worktop consisting of 40 x 40 x 3mm thick tubular section framing bolted to floor with and including four 150 x 150 x 6mm thick base plate, overall size 1450 x 600 x 100mm high (Detail 1, 2 & 3)	No	1		
	<p><b><u>MULTI-PURPOSE CENTRE</u></b></p> <p>The references in the descriptions below are to the respective joinery details on the Architect's drawing number 500F PR02 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings</p> <p><b><u>Store room shelving:</u></b></p>				
65	19mm Thick laminated Melamine shelving fixed to and including Shelco or other approved heavy duty brackets with suitable fixing lugs at 328mm centres, shelving 310mm wide in six tiers (Detail 3)	m	6		
	<b>Carried to Collection</b>			R	
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66	Ditto at 349mm centres, ditto (Detail 5)	m	2		
67	Ditto at 388mm centres, ditto (Detail 2)	m	3		
	<b><u>Storage cupboard:</u></b>				
68	Lockable storage cupboard in two sections consisting of 20mm thick carcass with and including 20mm thick laminated shelving in five tiers, lower section with double door size 800 x 1951mm high and upper section with double door size 800 x 490mm high, overall size 1600 x 600 x 2441mm high (Detail 5 & 9)	No	1		
	<b><u>Worktop:</u></b>				
69	32mm Thick counter top for counter with two lab sinks (elsewhere measured) consisting of ten cupboards with double doors, overall size 7440 x 600 x 900mm high (Detail 6 & 8)	No	1		
	<b><u>ADMINISTRATION BUILDING</u></b>				
	The references in the descriptions below are to the respective joinery details on the Architect's drawing number A500 PR01 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings				
	<b><u>Store and Strong room shelving:</u></b>				
70	19mm Thick laminated Melamine shelving fixed to and including Shelco or other approved heavy duty brackets with suitable fixing lugs at 315mm centres, shelving 310mm wide in six tiers (Detail 12)	m	2		
71	Ditto at 317mm centres, ditto (Detail 8)	m	1		
72	Ditto at 333mm centres, ditto (Detail 4)	m	2		
73	Ditto at 344mm centres, ditto (Detail 11)	m	6		
74	Ditto at 357mm centres, ditto (Detail 2)	m	3		
75	Ditto at 370mm centres, ditto (Detail 5)	m	2		
76	Ditto at 396mm centres, ditto (Detail 7 & 9)	m	8		
	<b>Carried to Collection</b>				
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**Built-in slatted timber bench:**

77	Bench formed of 40 x 40 x 5mm thick steel supports at 600mm centres, welded together, with and including timber seating formed of 69 x 32mm wrot hardwood seating slats with mitred edges, fixed to steel supports with countersunk bolts at 15mm centres (Detail 13)	m	3
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The references in the descriptions below are to the respective joinery details on the Architect's drawing number A501 PR01 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings

**Worktops:**

78	32mm Thick post formed Formica or other approved top for reception hatch laid on top of brick wall (elsewhere measured) and fixed to wall with 69 x 44mm hardwood rails, size 1500 x 350mm wide (Detail 8)	No	2
79	32mm Thick post formed Formica or other approved counter top for reception desk consisting of one cupboard with double door, twelve drawers and worktop with leg room below, overall size 6224 x 600 x 900mm high (Detail 5, 6 & 7)	No	1
80	32mm Thick waterproof post formed Formica or other approved counter top for kitchen counter with drop-in sink (elsewhere measured) consisting of three cupboards with double doors and four drawers, overall size 2765 x 600 x 900mm high (Detail 1)	No	1

**DINING AND NUTRITION CENTRE**

The references in the descriptions below are to the respective joinery details on the Architect's drawing number 500B PR02 attached to these Bills of Quantities for tender purposes as listed in C5.1 Drawings

**Dry Bulk, Veg and Day store shelving:**

81	19mm Thick laminated Melamine shelving fixed to and including Shelco or other approved heavy duty brackets with suitable fixing lugs at 321mm centres, shelving 310mm wide in four tiers (Detail 5)	m	2
82	Ditto at 283mm centres, ditto (Detail 7)	m	1
83	Ditto at 325mm centres, shelving 310mm wide in six tiers (Detail 6)	m	1
84	Ditto at 380mm centres, ditto (Detail 8)	m	2

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**The following in timber shading device:**

95	50-75mm Diameter carbolinium treated gumpoles 2155mm long fixed diagonally and ends saw cut for 144 x 65 x 5mm thick to steel brackets (elsewhere measured)	No	20
96	114 x 38mm Carbolinuem treated timber rafter 1200mm long fixed between timber rafter feet (elsewhere measured)	No	34
97	20-30mm Diameter carbolinium treated wattle lats (droppers) in various lengths fixed horizontally to gumpoles with countersunk steel selftapping screws (gumpoles and screws elsewhere measured)	m	573
98	50 x 38mm Pine timber cleats	m	100

**Sundries:**

99	Galvanized U shaped bracket consisting of 44 x 73 x 5mm horizontal plate welded to 73 x 73 x 5mm thick vertical plates as walls, four times holed for bolts (elsewhere measured) welded along one edge to horizontal plate, including setting up in position, adjusting, etc.	No	20
100	Mitek or other approved hurricane purlin fixing clip fixed using permfix nails or bolts through pre-drilled holes	No	152
101	65 x 144mm High extreme galvanized mild steel flat plate 5mm thick bracket one side once bent and welded to 5mm thick base plate (elsewhere measured) and other end cut half circular with 33mm radius and once holed to receive bolts and fixed to timber gumpoles (bolts and gumpoles elsewhere measured)	No	20
102	Ditto but welded to U shaped bracket on one end (ditto)	No	20
103	250 x 250 x 5mm Thick galvanized mild steel flat base plate four times holed for expansion bolts (elsewhere measured) and to receive steel bracket (eslewhere measured)	No	20
104	3.5mm Diameter countersunk steel selftapping screws 30-38mm long fixed to timber	No	1 040
105	10mm Diameter expansion bolt 75mm long fixed into brickwork	No	80
106	12mm Diameter bolts complete with nuts and washers	kg	7

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Mgomanzi SPS - 0168

SCHOOL BUILDINGS

Bill No. 8

CEILINGS, PARTITIONS & ACCESS FLOORING



Mgomanzi SPS - 0169

Item No		Unit	Quantity	Rate	Amount
	<b><u>BILL No. 10: IRONMONGERY</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<b><u>IRONMONGERY FIXED TO DOORS, ETC.</u></b>				
	<b><u>Hinges:</u></b>				
1	102 x 76mm Union SS 2 ball bearing butt hinge JHBBSTD2	Pairs	88		
	<b><u>Locks, bolts, etc.:</u></b>				
2	Union L-2141-78SS lock	No	4		
3	Union 2X6SCMKD oval double cylinder	No	10		
4	Union 2277-78SSMKD three lever mortice lockset master keyed	No	43		
5	Union 2900SS rebate conversion set	No	10		
6	Union AL8052-150AS flush bolt with lever mechanism	No	10		
7	Union AL8098AS indicator bolt	No	11		
8	Union AL37651AS disabled facility indicator bolt	No	3		
9	Dorma DBC-SS-022 40 x 22 x 76mm stainless steel adjustable roller bolt	No	2		
	<b><u>Handles:</u></b>				
10	Union SS6163-24SS Dove lever handle on backing plate	Pairs	43		
11	350mm Union 5215BBSS pull handle back to back	Pairs	4		
12	300mm Union AL5515-300BTAS bolt through pull handle	No	3		
	<b><u>Door stops, door closers, etc.:</u></b>				
13	10mm Diameter steel dowel 100mm long in and including mortice in timber and concrete	No	112		
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14	Union 87001SS rubber floor door stop	No	52
15	Union AL8722AS rubber tipped hat, coat and robe hook	No	13
16	150mm CP cabin hook and eye plugged and screwed to wall	No	11
<b><u>Polished stainless steel kickplates:</u></b>			
17	1,2mm Thick kickplate fixed to door with small raised head stainless steel screws at equal centres, size 813 x 200mm high	No	6
<b><u>LETTERS, NAMEPLATES, ETC.</u></b>			
<b><u>3mm Thick engraved aluminium nameplate in black numeric lettering, space between end of lettering and ends of plate to be 10-20mm wide, plate twice plugged and fixed with countersunk chromium plated dome headed screws to brickwork or door:</u></b>			
18	40mm High indicator plate with Sans Serif font lettering 20mm high to suit one letter and one numerical number	No	46
19	60mm High indicator plate with Sans Serif font lettering 40mm high to spell "Staff Room"	No	1
20	Ditto to spell "Store Room 1"	No	1
21	Ditto to spell "Store Room 2"	No	1
22	Ditto to spell "Sick Bay"	No	2
23	Ditto to spell "Strong Room"	No	1
24	Ditto to spell "Principal"	No	1
25	Ditto to spell "Reception"	No	1
26	Ditto to spell "Dining Room"	No	1
27	Ditto to spell "Scullery"	No	1
28	Ditto to spell "Kitchen"	No	2
29	Ditto to spell "Day Store"	No	1
30	Ditto to spell "Dry Bulk Store"	No	1
<b>Carried to Collection</b>			
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31	Ditto to spell "Vegetable Store"	No	1	
32	Ditto to spell "Chemical Store"	No	1	
33	Ditto to spell "Equipment Store"	No	2	
34	Ditto to spell "Store"	No	5	
35	Ditto to spell "Server Room"	No	1	
36	Ditto to spell "Work Room"	No	1	
37	Ditto to spell "Security"	No	1	
38	Ditto to spell "Refuse"	No	1	
39	Ditto to spell "Recycling"	No	1	
40	220mm High indicator plate with Sans Serif font lettering 200mm high to spell "Administration"	No	1	
41	Ditto to spell "Nutrition Centre"	No	1	
42	Ditto to spell "Science Laboratory"	No	1	
43	Ditto to spell "Multi-Purpose Classroom"	No	1	
44	Ditto to spell "Media Centre"	No	1	
45	Ditto to spell "Head of Department"	No	1	
46	Ditto to spell "HOD / Teacher's Work Room"	No	1	
47	Ditto to spell "Grade - R"	No	1	
	<b><u>8mm Thick plain Valcromate MDF or other approved boarding for cut-out number as indicated below, all salient edges to be routed round and number finished with two coats high quality exterior polyurethane varnish, number fixed with stainless steel screws to timber door:</u></b>			
48	800mm High board with Arial Narrow font numbering 800mm high to spell "1"	No	1	
49	Ditto to spell "2"	No	1	
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50	Ditto to spell "3"	No	1	
51	Ditto to spell "4"	No	1	
52	Ditto to spell "5"	No	1	
53	Ditto to spell "6"	No	1	
54	Ditto to spell "7"	No	1	
55	455 x 1000mm High board with paraplegic pictogram	No	2	
56	156 x 1000mm High board with male pictogram	No	3	
57	176 x 1000mm High board with female pictogram	No	3	
	<b><u>150 x 150 x 3mm Aluminium engraved sign with standard pictogram in black lettering to both sides fixed to wall with double sided adhesive tape, signs to be photo luminescent:</u></b>			
58	Pictogram for fire extinguisher	No	17	
59	Ditto for directional signage	No	3	
60	Ditto for fire escape signage	No	17	
61	Ditto for no smoking signage	No	2	
	<b><u>PINNING BOARDS, WRITING BOARDS, PROJECTION SCREENS, ETC.</u></b>			
	<b><u>Approved type pinning board:</u></b>			
62	1000 x 1250 x 10mm Thick softboard pinning board complete with 44 x 22mm rebated Saligna surrounds, once rebated and grooved all plugged and countersunk screwed to plastered walls with and including 70mm long Hilti HPS-1 plastic anchor screws at 400mm centres, including pinning board Belgotex or other approved carpet glued to softboard	No	1	
63	1500 x 1250 x 10mm Ditto	No	3	
64	2400 x 1250 x 10mm Ditto	No	10	
65	6400 x 1250 x 10mm Ditto	No	9	
	<b>Carried to Collection</b>			
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**NEC or other approved:**

66	Ceiling mounted projector screen SM-3 size 1800 x 1340mm high including mounting brackets, etc.	No	1
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**Standard non-magnetic white board with anodised aluminium frame wall mounted complete with integrated pen tray, fixed in accordance with the manufacturer's instructions:**

67	White board size 1200 x 1200mm high	No	1
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**Vitrex System 1000 chalkboard, complete with chalk rail as one unit, fixed in accordance with manufacturer's instructions:**

68	Standard vitreous enamel steel wall mounted school chalk board assembly (reference 1009), with right hand board to have white lines spaced at 50 mm centres screened on permanently (reference 1025), complete with continuous aluminium chalk rails, all secured to wall size 2400mm x 1140mm high	No	11
69	Ditto with white lines spaced at 50mm centres screened on permanently (reference 1025)	No	10

**CURTAIN TRACKS**

**Auton 20Z or other approved double track extruded aluminium powder coated curtain track to extend 100mm on either side of window, track to be fixed to wall with L-shaped brackets and 14 wheel runners per metre of blinds, all fixed in accordance with the manufacturer's specification:**

70	Curtain track	m	41
71	Extra for end plugged	No	68

**BATHROOM FITTINGS, ETC.**

**Towel rails:**

72	19mm Diameter chromium plated towel rail 600mm long including 50 x 25mm end brackets plugged to wall	No	15
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**Design Hardware or other approved:**

73	Theftproof chromium plated toilet roll holder (code B2798) plugged and screwed to wall	No	18
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<b><u>Franke or other approved:</u></b>					
74	CNTX PAR side grab rail (code 359885), size 640 x 96mm deep plugged and screwed to wall with stainless steel screws	No	3		
75	CNTX 750 grab rail (code 359874), size 750 x 96mm deep plugged and screwed to wall with stainless steel screws	No	3		
<b><u>Nampak or other approved:</u></b>					
76	Liquid soap dispenser (code 0532)	No	2		
<b><u>STEEL CUPBOARDS</u></b>					
<b><u>Approved standard epoxy powder coated finish cupboards, etc. fixed in position in accordance with the manufacturer's instructions:</u></b>					
77	Steel double door stationery cupboard size 1800 x 900 x 450mm deep fitted complete with four shelves, security bar and brass padlock (Code CU10), four times holed for and fixing to wall with and including 6mm diameter expansion bolts 70mm long and finished with sanded and painted 19mm half round quadrant all round	No	11		
<b><u>SUNDRIES</u></b>					
<b><u>Buchel Hardware or other approved:</u></b>					
78	Lockable key cabinet (Code 82825) for 68 key capacity complete with key holders, key tags and index size 390 x 300 x 60mm high, plugged to wall	No	2		
<b><u>Hafele Fix or other approved:</u></b>					
79	Mop holder (code 520.10.009), size 51 x 40 x 50mm high screw mounted to and including 200 x 200 x 32mm thick wrot Meranti backing plate	No	12		
<b><u>Franke or other approved:</u></b>					
80	CNTX 300 (code 359869) stainless steel grab rail, size 300 x 95mm deep plugged and screwed to door with stainless steel screws	No	6		
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81	<p><b><u>Standard wall mounted white built-in type first aid cabinet complete fixed in accordance with manufacturer's instructions:</u></b></p> <p>First aid cabinet consisting of 16mm thick melamine chipboard carcass, two 268 x 124 x 16mm thick melamine chipboard shelves, single door with one pair of Blum standard hinges (Code 102), 30mm CP Gelmar Cam lock (Code 9054) and 3mm thick red perspex cross sign size 150 x 150mm high recessed into door, overall size 300 x 460 x 156mm deep</p> <p>Carried to Collection</p> <p>Section No. 3          SCHOOL BUILDINGS          Bill No. 10          IRONMONGERY</p>	No	2		R
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	<b><u>White powder coated aluminium windows (Casement 36) plugged to brickwork or concrete, including clear silicone sealant applied around complete with burglar bars to be installed over all opening sections (20 x 10mm purpose made aluminium flat burglar bars, secured horizontally to aluminium window frame openings at 200mm centres) glazed with 6,38mm thick Envirosafe laminated safety glass:</u></b>				
3	Window size 600 x 900mm high in fixed pane	No	1		
4	Window size 673 x 511mm high overall consisting of two equal panes divided with one purpose made mullion in horizontally pivot type opening	No	1		
5	Cottage pane window size 889 x 457mm high overall consisting of three equal panes divided with two purpose made mullions to be horizontally pivot type opening	No	2		
6	Cottage pane window size 1143 x 457mm high overall consisting of four equal panes divided with three purpose made mullions to be horizontally pivot type opening	No	9		
7	Cottage pane window size 987 x 978mm high overall consisting of six equal panes divided with one purpose made transome and two purpose made mullions to be horizontally pivot type opening	No	19		
8	Cottage pane window size 987 x 1445mm high overall consisting of two unequal sections divided with one transome (same casement as window frame), one section size 987 x 918mm high in six equal panes divided with one purpose made transome and two purpose made mullions to be horizontally pivot type opening, other section size 987 x 527mm in three equal panes divided with two purpose made mullions in fixed type	No	129		
9	Cottage pane window size 987 x 2235mm high overall consisting of two unequal sections divided with one transome (same casement as window frame), one section size 987 x 918mm high in six equal panes divided with one purpose made transome and two purpose made mullions to be horizontally pivot type opening, other section size 987 x 1317mm in nine equal panes divided with two purpose made transomes and two purpose made mullions in fixed type	No	16		
	<b><u>Purpose made aluminium louvres complete with sub-frames, to be plugged and screwed as per manufacturer's specification:</u></b>				
10	Winvent louvre fixed in 600 x 800mm high precast concrete surround (elsewhere measured)	No	25		
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METALWORK

**STEEL RECORD ROOM DOORS, VENTILATORS, ETC.**

**Chubb Phoenix or other approved record room door assembly suitable for 270mm wall:**

- 11 Record room door and frame size 860 x 1900mm high with a mass of 240kg complete fitted with Z1 seven lever security key lock and three wheel combination lock with turn/pull handle and one escutcheon, grip lugs for wall, approved door stop bolted to wall, two-sided vent built into wall, including setting up, adjusting and building in, all in accordance with the manufacturer's instructions

No

2

**HOT DIP GALVANISED WELDED SECURITY GATES**

**Security and refuse gates complete including building in as required:**

- 12 Framed and welded single gate assembly formed of 32 x 32 x 2,5mm thick hollow section outer frame, mitred and welded at corners, sub-frame formed of 32 x 32 x 2,5mm thick hollow section filled in with 10mm diameter bars vertically at 100mm centres with four horizontal 8 x 20mm flat sections, all mitred and welded to outer frame, including lockbox with 12mm diameter sliding bolt with small handle in centre of one stile, lockbox formed of 10 x 10mm tubular framing shaped circularly and welded on, gate fitted with and including three heavy duty hinges bolted to brickwork with rawlbolts, including setting up inside opening, adjusting and securing, size 929 x 1900mm high
- 13 Ditto size 1050 x 2105mm high
- 14 Framed and welded double gate assembly in two equal leaves, each 32 x 32 x 2,5mm thick hollow section outer frame, mitred and welded at corners, sub-frame formed of 32 x 32 x 2,5mm thick hollow section filled in with 10mm diameter bars vertically at 100mm centres with four horizontal 8 x 20mm flat sections, all mitred and welded to outer frame, including lockbox with 12mm diameter sliding bolt with small handle in centre of one stile, lockbox formed of 10 x 10mm tubular framing shaped circularly and welded on, gate fitted with and including three heavy duty hinges bolted to brickwork with rawlbolts, including setting up inside opening, adjusting and securing, size 2130 x 2122mm high

No

6

No

7

No

1

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 SCHOOL BUILDINGS  
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 METALWORK

R

**Gas cage complete including securely bolting to wall:**

18 Framed and welded gas cage (to enclose 2 x 48kg gas bottles - elsewhere measured) formed of 40 x 40 x 3mm thick hollow section outer framing with 40 x 40 x 3mm angle iron welded to hollow section frame, to front, one side and top, all mitred and welded at intersections, one side filled in with and including 3,0mm thick Flatex 345 expanded mesh panels with 12 x 12mm apertures, welded to outer framing along edges, top formed of 3mm thick flat section welded all around to outer framing, gate formed of 40 x 40 x 3mm thick hollow section outer framing, mitred and welded all around, filled in with and including expanded mesh as described for panels, cut-out for 100mm horizontal sliding bolt and keep (Design Hardware code B 2557), two 100 x 75 x 4mm thick hinges welded to framing and gate (Design Hardware code 2462), supplied with 50mm brass padlock and two keys, size overall 1020 x 580 x 1440mm high

No

2

19 Framed and welded gas cage (to enclose 4 x 48kg gas bottles - elsewhere measured) ditto, size overall 1850 x 580 x 1440mm high

No

1

**HOT DIP GALVANISED WATER PUMP ENCLOSURE**

**Water pump enclosure complete including securely bolting to floor:**

20 Framed and welded water pump enclosure (to enclose water pump - elsewhere measured) formed of 50 x 50 x 3mm thick hollow section outer framing to front, top and all sides, all mitred and welded at intersections, all sides filled in with and including LF16/1540 flattened mesh panels, welded to outer framing along edges, top formed of 0,8mm thick corrugated iron roof sheeting fixed sloping with tamperproof flathead thru-bolts to 50 x 50 x 3mm thick hollow section outer frame with roof area 1800 x 3750mm, gate formed of 50 x 50 x 3mm thick hollow section outer framing, mitred and welded all around, filled in with and including flattened mesh as described for panels, cutout for 100mm horizontal sliding bolt and keep, two 100mm long hinges welded to framing and gate, supplied with 50mm brass padlock and two keys, size overall 1300 x 3200 x 1687mm high bolted with M8 50mm anchor bolts at 600mm centres to concrete plinth (elsewhere measured) all as per Engineer's drawing number E561-501, Water Pump Enclosure as part of C5.1 Drawings

No

1

**HOT DIP GALVANISED CEILING HATCH**

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Item No		Unit	Quantity	Rate	Amount
	<b><u>BILL No. 12: PLASTERING</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<b><u>SCREEDS</u></b>				
	<b><u>3:1 Cement screed steel trowelled on concrete:</u></b>				
1	30mm Thick on floors and landings	m2	1 160		
2	Ditto to falls	m2	30		
	<b><u>3:1 Cement screed steel trowelled on concrete with Cemcrete or other approved colour hardener and two coats sealer as per manufacturer's specification:</u></b>				
3	30mm Thick on floors and landings	m2	89		
	<b><u>TAL Screedmaster or other approved self levelling screed:</u></b>				
4	2mm Thick on floors	m2	1 087		
	<b><u>Prepare and apply ABE Construction Chemicals Pale Grey G62 Abeflo self-levelling and solvent free epoxy system complete, including all necessary primers (Abecote WD 337), etc. to manufacturer's specifications:</u></b>				
5	2mm Thick on floors	m2	45		
	<b><u>Structural reinforced screeds with compressive strength of 30MPa steel trowelled on concrete (reinforcing elsewhere measured):</u></b>				
6	Average 110mm thick on floors to falls	m2	292		
	<b><u>Prepare and apply ABE Construction Chemicals Medium Sea Grey (code G24) epoxy screed finish with pre-packed graded aggregate and colour pigment and Abecote 436 sealer, etc. as per manufacturer's instructions:</u></b>				
7	On 100mm high grano skirting (elsewhere measured)	m	57		
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	<b><u>2mm Thick TAL Screedmaster self levelling screed or similar and approved:</u></b>				
8	On cement or granolithic screeds	m2	1 072		
	<b><u>GRANOLITHIC</u></b>				
	<b><u>30MPa Untinted granolithic on concrete:</u></b>				
9	30mm Thick screed on floors and landings	m2	38		
10	Ditto reeded threshold	m2	6		
11	100mm High coved skirting with rounded top edge	m	113		
	<b><u>INTERNAL PLASTER</u></b>				
	<b><u>Prepare and apply 3:1 cement plaster (SANS 2001) steel trowelled on concrete:</u></b>				
12	On ceilings	m2	94		
	<b><u>4:1 Cement plaster (SANS 2001) steel trowelled on brickwork:</u></b>				
13	On walls	m2	2 061		
14	On narrow widths	m2	151		
15	On foundation walls in pit (Provisional)	m2	156		
16	On walls for 120mm wide architrave to protrude 15mm proud of wall at windows	m	16		
	<b><u>5:1 Cement plaster (SANS 2001) steel trowelled on brickwork:</u></b>				
17	15mm Thick pencil coved cornice	m	51		
	<b><u>EXTERNAL PLASTER</u></b>				
	<b><u>5:1 Cement plaster (SANS 2001) wood floated on brickwork/concrete:</u></b>				
18	On walls	m2	1 013		
19	On narrow widths	m2	178		

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Bill No. 12  
PLASTERING

20	On foundation walls in pit (Provisional)	m2	156
21	On walls for 120mm wide architrave to protrude 15mm proud of wall at windows	m	1 084
22	10 x 10mm Deep recessed V-joint	m	1 349
<b><u>5:1 Cement plaster (SANS 2001) wood floated on concrete:</u></b>			
23	On sides of isolated beams	m2	163
24	On soffits of isolated beams in narrow widths	m2	46
25	On edge and projecting soffit of nibs 220mm girth including forming of 20 x 5mm deep drip groove to soffit	m	25

PLASTERING

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Item No		Unit	Quantity	Rate	Amount
	<b><u>BILL No. 15: PAINTWORK</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents				
	<b><u>PAINTWORK, ETC.</u></b>				
	External elements to each block to be painted in predetermined colour scheme				
	<b><u>ON EXTERNAL FLOATED PLASTER</u></b>				
	<b><u>Prepare and apply one coat plaster primer and two coats Plascon Wall and All paint on:</u></b>				
1	External walls	m2	1 096		
2	External pit foundation walls (Provisional)	m2	156		
3	Ceilings and beams	m2	212		
4	External bands not exceeding 300mm wide	m	1 076		
	<b><u>ON INTERNAL FLOATED PLASTER</u></b>				
	<b><u>Prepare and apply one coat plaster primer and two coats Plascon Wall and All paint on:</u></b>				
5	Internal walls	m2	1 391		
6	Internal pit foundation walls (Provisional)	m2	156		
7	Internal bands not exceeding 300mm wide	m	16		
	<b><u>Prepare and apply one coat plaster primer and two coats Plascon Velvagio paint on:</u></b>				
8	Internal walls	m2	504		
9	Ditto but with anti-fungal properties	m2	103		
	<b>Carried to Collection</b>				
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	PAINTWORK				

<b><u>Prepare and apply one coat primer and two coats Plascon Polvin Super Acrylic PVA paint on:</u></b>					
10	Ceilings and beams	m2	94		
<b><u>ON PRECAST CONCRETE</u></b>					
<b><u>Prepare surfaces and remove all loose material, apply one coat alkaline resistant primer, one universal undercoat two coats Plascon Wall and All on:</u></b>					
11	Precast concrete window surrounds	m2	18		
<b><u>ON FIBRE CEMENT</u></b>					
<b><u>Prepare and apply one coat plaster primer and two coats Plascon Super Universal enamel paint on:</u></b>					
12	Cills, etc. not exceeding 300mm girth	m	179		
<b><u>Prepare and apply one coat plaster primer and two coats Polvin Super Acrylic paint on:</u></b>					
13	Internal ceilings	m2	1 176		
14	External ceilings	m2	56		
<b><u>Prepare and apply one coat plaster primer and two coats Nuroof Acrylic Roof paint on:</u></b>					
15	Facias and bargeboards.	m2	316		
<b><u>ON METAL</u></b>					
<b><u>Prepare, spot prime defects in pre-primed surfaces with red oxide primer, apply one coat synthetic metal primer, one universal undercoat and two coats Plascon X11 Magic Flow Satin Gloss enamel paint on:</u></b>					
16	Record room doors and frames	m2	4		
17	Ceiling hatch	m2	1		
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PAINTWORK

P. No. : P9005810  
EMIS No. : 200500666  
Mgomanzi Primary School  
DOE15ECAR007

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**Clean down galvanised surfaces thoroughly with galvanised iron cleaner, apply one galvanised iron primer and two coats low gloss enamel paint on:**

18	Galvanised steel security gates (both sides measured - on flat)	m2	72
19	Galvanised steel refuse gates with slats (ditto)	m2	20
20	Galvanised roller shutter doors (ditto)	m2	17
21	Galvanised posts not exceeding 300mm girth	m	1

**ON WOOD**

**Prepare and apply two coats Plascon Carbolineum on:**

22	Exposed roof timbers	m2	595
23	Backs of frames, linings, etc. not exceeding 300mm wide	m	736

**Two coats linseed oil on:**

24	Backs of frames, linings, etc. not exceeding 300mm wide	m	283
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**Prepare, stop and apply one coat Plascon Woodcare Knot Seal, one coat Plascon Woodcare Pre-treatment, one coat Wood Primer and two coats Wall & All paint on:**

25	Skirtings, cornices, rails, etc. not exceeding 300mm girth	m	943
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**Prepare, stop and apply one coat Plascon Woodcare Knot Seal, one coat Plascon Woodcare Pre-treatment, one coat Wood Primer and two coats Velvaglo Satin paint on:**

26	Timber doors (both sides measured)	m2	238
27	Skirtings, cornices, architraves, etc. not exceeding 300mm girth	m	1 185
28	Frames, cills, etc. not exceeding 300mm girth	m	293

**ON PVC**

**Clean down and apply two coats PVA emulsion paint on:**

29	150mm PVC diameter pipes	m	59
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Item No		Quantity	Rate	Amount
	<p><b><u>SECTION No. 4: PLUMBING &amp; DRAINAGE (PROVISIONAL)</u></b></p> <p><b><u>BILL No. 1: PLUMBING &amp; DRAINAGE</u></b></p> <p>The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 Series documents</p> <p><b><u>SUPPLEMENTARY PREAMBLES</u></b></p> <p><b><u>Polycop polypropylene pipes</u></b></p> <p>Polypropylene pipes 54mm diameter and under shall be seamless copper coloured class 16 pipes jointed with Fast-fuse heat welded thermoplastic or brass compression fittings as designed for use with copper pipes as stated</p> <p>Pipes shall be firmly fixed to walls, etc. with coloured nylon snap-in pipe clips with provision for accommodating thermal movement and jointed and fixed strictly in accordance with the manufacturer's instructions</p> <p>All pipe diameters are nominal external</p> <p><b><u>Fixing of pipes</u></b></p> <p>Unless specifically otherwise stated, descriptions of pipes shall be deemed to include fixing to walls, chasing into walls, etc. casting into concrete, building in or suspending not exceeding 1m below suspension level.</p> <p><b><u>Flexible connectors</u></b></p> <p>Tenderers are to allow for the pricing of flexible connectors to all instances where deemed necessary. No extra will be entertained in this regard.</p> <p><b><u>Disinfection of water pipework</u></b></p> <p>All pipework is to be disinfected in accordance with SABS 1200L.</p>			
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### Reducing fittings

Where fittings have reducing ends or branches, they are described as "reducing". In the case of pipes with diameters not exceeding 60mm, only the largest end or branch size is given. Should the Contractor wish to use other fittings and bushes or reducers he may do so on the understanding that no claim in this regard will be entertained. In the case of pipes with diameters exceeding 60mm, all sizes are given and no claim for extra bushes, reducers, etc. will be entertained.

### Waste unions

Descriptions of waste unions shall be deemed to include rubber or vulcanite plugs and chains fixed to fittings.

### Excavation and filling

Excavation and backfilling must be done using hand held tools only.

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling.

### Laying, backfilling, bedding, etc. of pipes

Where no manufacturer's instructions exist pipes shall be laid in accordance with clauses 5.1 and 5.2 of each of the following: SABS 1200 L : Medium pressure pipelines LD : Sewers LE : Stormwater drainage.

## SANITARY PLUMBING

### Unplasticised polyvinyl chloride (uPVC) pipes:

1	40mm Pipe fixed to walls, etc.	m	60
2	50mm Ditto	m	30
<u>Extra over uPVC pipes for:</u>			
3	40mm Bend	No	60
4	50mm Ditto	No	30
5	40mm Access bend	No	30

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 PLUMBING & DRAINAGE

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6	50mm Ditto	No	10
7	40mm Access junction	No	2
8	50mm Ditto	No	2
<b><u>Testing:</u></b>			
9	Allow for testing sanitary plumbing system		Item
<b><u>WATER SUPPLIES</u></b>			
<b><u>Internal water supplies:</u></b>			
Holes, chases, etc. are deemed to be included in the descriptions of the pipework			
Installation to comply with SANS 10252-1.			
<b><u>Geberit Mepla or other approved lightweight multilayer pipes, including chasing into brick walls if required:</u></b>			
10	20mm Pipe	m	60
11	26mm Ditto	m	50
12	32mm Ditto	m	30
13	40mm Ditto	m	15
<b><u>Extra over pipes for Mepla compression fittings:</u></b>			
14	20mm Pipe fittings	No	90
15	26mm Ditto	No	30
16	32mm Elbow	No	10
17	32mm Tee	No	10
18	40mm Elbow	No	10
19	40mm Tee	No	10
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20	<p><b>Testing:</b></p> <p>Allow for testing water supply system</p>		Item	
	<p><b>SANITARY FITTINGS</b></p>			
	<p><u>Supply and fix the following sanitary fittings, geysers and equipment together with loose ancillary fittings supplied therewith, including unloading, storing, unpacking, hoisting or lowering as required, fixing and building into position, silicone sealant between contact surface of sink and counter where applicable, cutting all mortices and chases as required for fixing and building in position, cutting, brackets, clamps, etc. and connecting up pipework and handing over in perfect working order at completion</u></p> <p><b><u>Vaal or other approved:</u></b></p>			
21	<p>Hibiscus white vitreous china wall hung basin (Ref 7023), size 510 x 405mm with stopper to one taphole and fixed to wall with two 10mm diameter bolts (code 8448Z0)</p>	No	4	
22	<p>Springbok white ceramic fireclay heavy duty basin wall hung basin (code 7031), size 550 x 400mm with one taphole and fixed to wall with two semi-concealed brackets (code 8118Z0)</p>	No	2	
23	<p>Ceramic fireclay laboratory basin (code 234500), size 435 x 335 x 180mm deep, including acid resistant waste (code 8790Z0) and two adjustable brackets (code 8109Z0)</p>	No	13	
	<p><b><u>Franke or other approved - grade 304 (18/10) polished stainless steel:</u></b></p>			
24	<p>Quinline Model QLX611 (code 820000) drop-in single end bowl sink, size 900 x 500mm with one 343 x 410 x 166mm deep bowl fixed to cupboard (cupboard by others) with securing clips and sealed with silicone adhesive along edges with 90mm waste fitting (code 300651) and Spazi F/1 plumbing kit (code 301151)</p>	No	2	
25	<p>HRT half round washtrough (code 359400) size 1500 x 510 x 915mm deep with 75mm high splashback and steel tubing framework with 40 x 40mm square galvanised mild steel leg, 100 x 40 x 30mm galvanised mild steel flat section cleats bolted to wall with 6mm anchor bolts</p>	No	7	
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26	Model TU102 trough urinal (code 334498), size 2653 x 320 x 800mm high complete with automatic flushing and built-in tipping tank and one 12mm adjustable drip cock, 40mm left or right hand waste outlet, bolted to wall with and including anchor bolts	No	1		
27	Pot sink P2 (code 352804) size 1850 x 650 x 1050mm with two 760 x 460 x 380mm deep bowls with stainless steel round legs (code 354700) complete with foot pieces	No	1		
28	Mini wall table F20603Z size 1800 x 600 x 1050mm	No	1		
29	Catering sink S2 (code 350046) size 2400 x 650 x 1050mm with two 500 x 500 x 230mm deep bowls complete with stainless steel square brackets with detachable front legs (code 352654) with adjustable flanged foot pieces	No	1		
<b><u>Altas Plastics or other approved:</u></b>					
30	Christy wash hand basin size 570 x 395mm wide (code 382AP) with two tapholes and 40mm waste outlet, plugged and screwed to wall with galvanised screws and brackets	No	9		
31	VIP 200 pit pedestal size 370 x 500mm high (code 222AP) with foot piece and VIP 200 inlet funnel, inserted into precast concrete cover slab of pit (elsewhere measured) with a removable plug, with and including four 6mm diameter x 50mm long expansion bolts, including heavy duty granite colour double flap seat fixed to pedestal	No	14		
32	Bambi longdrop pan (code 627AP), inserted into precast concrete cover slab of pit (elsewhere measured) with and including four 6mm diameter x 50mm long expansion bolts, including heavy duty granite double flap seat fixed to pedestal	No	4		
<b><u>TAPS, VALVES, ETC.</u></b>					
<b><u>Cobra Watertech or other approved:</u></b>					
33	20mm Cobra brass hose bibtap with 20mm MI outlet, lockshield, loose key, hose union and hose tail (code 108LK-20), complete with 20m Gardena standard hosepipe, coupling and nozzle (code 08504-20)	No	3		
34	15mm Cobra angle valve 832/350F	No	29		
35	15mm Star demand bibtap (code KM2.202-15)	No	10		
36	15mm Star 111-CP pillar tap	No	4		
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37	15mm Type 503-21B CP elbow action pillar tap	No	5		
38	15mm Star 296 sink mixer with aerated swivel spout and 400mm long flexible inlets	No	2		
39	15mm Star Type 266-041-10 sink mixer with aerated swivel spout and concealed connections	No	2		
40	15mm Star 115-CP pillar tap with 305mm swanneck S-046 swivel outlet with serrated nozzle	No	13		
<b><u>Floor drains, grease traps, etc.:</u></b>					
41	Rofo engineering RO 200 NW 100 round floor drain with perforated circular grating pattern, size 240 x 210mm deep, with 104mm diameter horizontal waste outlet	No	2		
42	Rofo engineering RO GT 500 grease trap with 50mm horizontal inlet, size 500 x 400 x 300mm deep including solid strainer basket, with 50mm diameter waste outlet	No	3		
<b><u>WASTE UNIONS, TRAPS, ETC.</u></b>					
<b><u>Marley or other approved:</u></b>					
43	32 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		
44	40 x 50mm Ditto	No	13		
<b><u>Cobra Watertech:</u></b>					
45	32mm Chromium plated 303 CP slotted basin waste union complete with anti-theft plug (code 309-32) and spindle	No	5		
46	32mm Chromium plated 309 CP slotted basin waste union complete with anti-theft plug and spindle	No	1		
47	32mm Chromium plated 311 CP slotted basin waste union complete with 86mm diameter flange, 93mm long shank and plug	No	3		
48	32mm Chromium plated 316 CP slotted basin waste union complete with 62mm diameter flange, 80mm long shank and plug	No	9		
49	32mm Chromium plated 318 CP standing waste overflow	No	13		
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50	32mm Chrome plated deep seal bottle trap with outlet for 40mm PVC Code 340 with tail pipe, capnut, flange complete	No	6		
<b><u>FIRE APPLIANCES, ETC.</u></b>					
<b><u>Fire extinguishers, hose reels, etc.:</u></b>					
51	5kg CO2 type fire extinguisher (SANS 1910 compliant) fixed to wall with 300 x 150 x 19mm wrot Meranti backboard finished with one coat wood primer and two coats Velvagio Satin plugged and countersunk screwed to wall, complete with mild steel hook and bracket	No	17		
<b><u>ELECTRIC WATER HEATERS</u></b>					
<b><u>Kwikot or other approved:</u></b>					
52	5 Litre Hydroboil 2kW underbasin electrical water heater Code Kwikboil-5 with 1 year warranty	No	2		
<b><u>PLUMBING RELATED ITEMS TO PIT TOILET BLOCKS</u></b>					
<b><u>Unplasticised polyvinyl chloride (uPVC) pipes:</u></b>					
53	150mm Pipe fixed to walls, etc.	m	86		
<b><u>Sundries:</u></b>					
54	240mm Diameter Turbo Valve Ventura or other approved whirlybird with 150mm diameter throat	No	19		
<b><u>Galvanised steel Saint-Gobain double seal manhole cover and frame:</u></b>					
55	Type 8A size 450 x 600mm cast in concrete slab (elsewhere measured)	No	7		
<b><u>WATER PURIFICATION/ BOOSTER PUMP INSTALLATION</u></b>					
An installation is required to pump water from a rainwater harvesting tank at ground level, through a filtration system and chlorinator, up into a 10m <sup>3</sup> elevated tank stand. The level control in the tank stand will be with a ball valve. The water will be used for drinking water, personal hygiene and, where appropriate, for food preparation.					
The filtration and chlorination system must match the flow rates of the booster pump described below and the duty point of the pump must					
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be adjusted to counter any additional energy losses of the system.

Prior to installation, the Contractor must submit a complete technical proposal of the installation for approval by the Engineer.

After successful commissioning, training must be provided to the most senior person on site on the day of completion of the pumping/ filtration/ disinfection system. The person trained will complete a competence form and will be responsible for passing the knowledge onto the relevant persons. The complete booster pump installation must be pressure and leak tested with the complete water supply system. All installations must carry a one year manufacturers' guarantee on all workmanship and parts. The guarantee will not cover the cost of damage due to vandalism, breakage or misuse of the parts. The installer must ensure that the water pump enclosure (measured separately) are installed in a position that complies with regulations and according to the instruction of the Engineer. The installer must allow in his rates for installation of conduits, piping and final installation as no additional costs will be entertained.

The following specifications are applicable on the installation:

Hydrosphere pressure booster pump:

- Dual booster pump in duty/ standby arrangement.
- 220V 2900 rpm single phase booster pumps with hydrosphere.
- Protection and housings: IP65
- Duty point: 1,5 m<sup>3</sup>/h at 260kPa (pump to also be sized for backwash function of the filter).
- Power =  $\pm 0.26kW$
- Control: Automatic mode: hydrosphere with pressure sensing.
- Manual mode: manual on and off with pressure sensing protection.
- Centralised control panel:
  - o Thermal protection
  - o Overload protection
  - o Lighting/surge protection
  - o Hour meter per pump
  - o Ammeter and voltmeter

Filtration and disinfection:

- The filtration system must be suitable for filtration of water harvested from roofs and must be of the automatic backwashing multimedia filter type and with a 1,5m<sup>3</sup>/h

**Carried to Collection**

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 PLUMBING & DRAINAGE

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Section No. 4

Bill No. 1

PLUMBING & DRAINAGE

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Section No. 4  
PLUMBING & DRAINAGE (PROVISIONAL)  
Bill No. 1  
PLUMBING & DRAINAGE

Item No		Unit	Quantity	Rate	Amount
	<b><u>SECTION No. 5: EXTERNAL WORKS (PROVISIONAL)</u></b>				
	<b><u>BILL No. 1: EXTERNAL WORKS</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate Supplementary Preambles hereunder and Department of Public Works PW371 document and SANS 2001 series documents				
	<b><u>SUPPLEMENTARY PREAMBLES</u></b>				
	<b><u>Maintenance period</u></b>				
	Attention is drawn to the maintenance period of twelve (12) months from Practical Completion applicable to the civil portions of the work which includes the platforms, retainer walls, ramps, paved walkways, roadwork, stormwater drainage, soil drainage, stormwater reticulation, water supply and elevated water tank, etc.				
	<b><u>Hot dip galvanising</u></b>				
	Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described				
	<b><u>Laying, backfilling, bedding, etc. of pipes</u></b>				
	Pipes shall be laid in accordance with the following SANS 2001 Series documents:				
	Part DP1	:	Pipe trenches		
	Part DP2 Clause 4.3	:	Medium-pressure pipelines		
	Part DP4 Clause 4.3	:	Sewers		
	Part DP5 Clause 4.2.3	:	Stormwater drainage		
	Section No. 5 EXTERNAL WORKS (PROVISIONAL) Bill No. 1 EXTERNAL WORKS				

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### **Excavations**

No claim for rock excavation will be entertained unless the Contractor has timeously notified the Quantity Surveyor thereof prior to backfilling.

Class of Excavations will be in accordance with SABS 1200D Clause 3.1. For the purpose of this project "Soft Rock" will have the same meaning as Intermediate excavations as defined in SABS 1200D Clause 3.1.

Boulder excavation definitions as stated in SABS 1200D will not apply.

Classification of soils and gravel is in accordance with SABS 1200M: 1996 Table 3A & 3B or TRH14.

Open face excavation is in accordance with SANS 2001: Part BE1.

### **Reinforced concrete works**

All aspects of structural concrete work (plain and reinforced) for civil engineering and building construction shall be in accordance with the requirements of SANS 2001: Part CC1 and SABS 0155 (Accuracy in Building). Any discrepancies are to be referred to the Engineer

1.1 Concrete mixes: All concrete mixing shall conform to SANS 2001: Part CC1. Specialised concrete applications will be referred to the Engineer. All aggregates used are to be approved by the Engineer. The water is to be clean as for human consumption.

1.2 Concreting: Concreting shall conform to SANS 2001: Part CC1. All dirt and trash shall be removed from the formwork before concreting. Concrete shall be thoroughly consolidated by means of tamping or vibration.

1.3 Maintaining reinforcement in position: The Contractor shall ensure that the correct concrete cover is maintained during the casting of concrete. In order to do this the Contractor shall provide suitable concrete or plastic cover blocks. All reinforcing is to be inspected and approved by the Engineer prior to casting of concrete. The Engineer shall be given 24 hours notice prior to any inspection required.

1.4 Cure: All new concrete shall be thoroughly cured by means of a resin-based curing compound or as approved by the Engineer.

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**Water reticulation system**

The Contractor is to allow for a complete operational manual and training for the water reticulation system.

**Precast concrete paving, kerbing and channelling:**

Precast concrete paving to be in accordance with SANS 1200 MJ (Segmented Paving) Kerbing and channelling in accordance with SANS 1200 MK (Kerbing and Channelling).

**SITE CLEARANCE, ETC.**

1	Allow for clearing the site including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m2	16 760
2	Remove topsoil and vegetation to a depth of 200mm and deposit on site in stockpiles where directed by the Principal Agent	m2	16 760

**BULK EXCAVATION, FILLING, ETC. (NEW SCHOOL BUILDING PLATFORMS)**

**Open face excavation over sloping site:**

3	Open face excavation to form platforms under buildings, etc. and depositing excavated material in stockpiles on site	m3	2 480
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**Extra over bulk excavation in earth for excavation in:**

4	Soft rock	m3	496
5	Hard rock	m3	248

**Extra over all excavations for carting off site to a location identified by the Contractor:**

6	Surplus material from stockpiles on site	m3	2 480
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**Keeping excavations free of water:**

7	Keeping excavations free of all water other than subterranean water	Item	
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**Selected fill material from stockpiles:**

8	Over site compacted to a minimum of 95% Mod AASHTO dry density	m3	100
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Mgomanzi SPS - 0209



<b><u>Earth filling supplied by the Contractor under building platforms, etc.:</u></b>			
9	Over site of G9 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for base course	m3	3 560
<b><u>Compaction of surfaces:</u></b>			
10	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density	m2	9 350
<b><u>Prescribed density tests on filling:</u></b>			
11	CBR test in accordance with method A8 of TMH 1	No	4
12	"Modified AASHTO Density" test	No	40
13	Complete test sets to determine soil classification in terms of TRH14	No	6
14	DCP test according to TMH6	No	5
<b><u>Topsoil from spoilheaps, including spreading and levelling in 200mm layers:</u></b>			
15	On embankments, etc.	m2	9 350
<b><u>Grassing, ground covers, etc.:</u></b>			
16	Kikuyu sods approximately 900 x 450 x 50mm thick to general areas, etc.	m2	9 444
<b><u>BULK EXCAVATION, FILLING, ETC. (SPORTS FIELD PLATFORM)</u></b>			
<b><u>Open face excavation over sloping site:</u></b>			
17	Open face excavation to form platforms under buildings, etc. and depositing excavated material in stockpiles on site	m3	3 715
<b><u>Extra over bulk excavation in earth for excavation in:</u></b>			
18	Soft rock	m3	743
19	Hard rock	m3	372
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**Extra over all excavations for carting off site to a location identified by the Contractor:**

20	Surplus material from stockpiles on site	m3	1 115
----	--	----	-------

**Keeping excavations free of water:**

21	Keeping excavations free of all water other than subterranean water	Item	
----	---	------	--

**Selected fill material from stockpiles:**

22	Over site compacted to a minimum of 95% Mod AASHTO dry density	m3	2 600
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**Earth filling supplied by the Contractor under building platforms, etc.:**

23	Over site of G9 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for base course	m3	1 605
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**Compaction of surfaces:**

24	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density	m2	6 275
----	--	----	-------

**Prescribed density tests on filling:**

25	CBR test in accordance with method A8 of TMH 1	No	2
26	"Modified AASHTO Density" test	No	20
27	Complete test sets to determine soil classification in terms of TRH14	No	3
28	DCP test according to TMH6	No	2

**Topsoil from spoilheaps, including spreading and levelling in 150mm layers:**

29	On embankments, etc.	m2	6 275
----	----------------------	----	-------

**Grassing, ground covers, etc.:**

30	Sow Eragrostis Curvula and Teff grass seed in a ratio of 4:5 by weight at a rate of 2g/m2 to embankments, etc.	m2	6 275
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**Maintenance:**

- |    |  |      |
|----|--|------|
| 31 | Maintenance of grassed areas for a period of 3 months after Practical Completion (total area approximately 6275m2) including regularly weeding and irrigating as necessary | Item |
|----|--|------|

**BULK EXCAVATION, FILLING, ETC. (TEMPORARY BUILDING PLATFORM)**

**Open face excavation over sloping site:**

- |    |  |             |
|----|--|-------------|
| 32 | Open face excavation to form platforms under buildings, etc. and depositing excavated material in stockpiles on site | m3      155 |
|----|--|-------------|

**Extra over bulk excavation in earth for excavation in:**

- |    |           |            |
|----|-----------|------------|
| 33 | Soft rock | m3      31 |
| 34 | Hard rock | m3      16 |

**Extra over all excavations for carting off site to a location identified by the Contractor:**

- |    |  |            |
|----|--|------------|
| 35 | Surplus material from stockpiles on site | m3      47 |
|----|--|------------|

**Keeping excavations free of water:**

- |    |   |      |
|----|---|------|
| 36 | Keeping excavations free of all water other than subterranean water | Item |
|----|---|------|

**Selected fill material from stockpiles:**

- |    |  |             |
|----|--|-------------|
| 37 | Over site compacted to a minimum of 95% Mod AASHTO dry density | m3      108 |
|----|--|-------------|

**Earth filling supplied by the Contractor under building platforms, etc.:**

- |    |  |            |
|----|--|------------|
| 38 | Over site of G9 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for base course | m3      57 |
|----|--|------------|

**Compaction of surfaces:**

- |    |  |               |
|----|--|---------------|
| 39 | Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density | m2      1 135 |
|----|--|---------------|

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Mgomanzi SPS - 0212

	<b><u>Topsoil from spoilheaps, including spreading and levelling in 150mm layers:</u></b>				
40	On embankments, etc.	m2	1 135		
	<b><u>Grassing, ground covers, etc.:</u></b>				
41	Sow Eragrostis Curvula and Teff grass seed in a ratio of 4:5 by weight at a rate of 2g/m2 to embankments, etc.	m2	1 135		
	<b><u>Maintenance:</u></b>				
42	Maintenance of grassed areas for a period of 3 months after Practical Completion (total area approximately 1135m2) including regularly weeding and irrigating as necessary		Item		
	<b><u>PARKING AREA</u></b>				
	<b><u>Earth filling supplied by the Contractor under roads, etc.:</u></b>				
43	Over site of G7 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for parking areas	m3	56		
44	Over site of G5 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for parking areas	m3	56		
	<b><u>Precast concrete block road surfacing</u></b>				
	Precast concrete paving blocks shall be class 25 Type S-A and able to withstand 30kN loads				
	Paving is to be laid to herringbone pattern on 20mm (thickness after final compaction) clean river sand (preparation of ground or filling elsewhere measured)				
	Clean sand is to be swept into joints between roadstones				
	<b><u>Paving of 220 x 110 x 60mm thick precast concrete paving blocks with butt joints on 20mm thick river sand bed with sand swept into joints (preparation of ground or filling elsewhere measured):</u></b>				
45	Paving to parking areas, etc. to falls and cross falls	m2	370		
46	Fair circular cutting	m	19		
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**Precast concrete finished smooth on exposed surfaces, including bedding, jointing and pointing:**

- 47 Barrier kerb (SANS 927 figure 4) 150 x 250mm high with 150 x 150mm unreinforced concrete (15MPa/19mm) continuous haunching at back and bedded on unreinforced concrete (15MPa/19mm) bedding 50mm thick including excavation, backfilling, etc.

m 136

- 48 Ditto circular on plan not exceeding 4m radius

m 19

**White road marking paint to SABS 731 on concrete pavers:**

- 49 Line 100 mm wide

m 50

**Yellow road marking paint to SABS 731 on concrete pavers:**

- 50 GM6.3 wheelchair sign size overall 1400 x 1400mm

No 1

**Signs:**

- 51 300 x 300 x 2mm Thick sign pre-painted mild steel, engraved with pictogram E14 Paraplegic fixed to post (elsewhere measured) 60 x 60 x 3mm galvanised steel hollow section post 2000mm long and 350mm length of post to be painted with bitumen paint and embedded in 200 x 200 x 300mm unreinforced concrete (15MPa/19mm) base including all excavations in earth, backfilling and ramming, etc.

No 1

**Sundries:**

- 52 Concrete edge beam size 300 x 300mm high, consisting of unreinforced concrete (30MPa/19mm), including excavations, backfilling, etc.

m 10

**WALKWAYS, RAMPS, STAIRS, CONCRETE INFILL, ETC.**

**Earth filling supplied by the Contractor under roads, embankments, etc.:**

- 53 Over site of G7 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for embankments

m3 318

**Precast concrete block road surfacing**

Precast concrete paving blocks shall be class 25 Type S-A and able to withstand 30kN loads

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	Paving is to be laid to herringbone pattern on 20mm (thickness after final compaction) clean river sand (preparation of ground or filling elsewhere measured)				
	Clean sand is to be swept into joints between road stones				
	<b><u>Paving of 220 x 110 x 60mm thick precast concrete paving blocks with butt joints on 20mm thick river sand bed with sand swept into joints (preparation of ground or filling elsewhere measured):</u></b>				
54	Paving to parking areas, etc. to falls and cross falls	m2	40		
55	110mm Wide brick-on-flat edging	m	52		
	<b><u>25MPa/19mm Reinforced concrete:</u></b>				
56	Concrete infill areas	m3	54		
57	Ramps	m3	42		
58	Walkways	m3	143		
59	Stairs	m3	20		
	<b><u>Test blocks:</u></b>				
60	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	40		
	<b><u>Finishing top surfaces of concrete with broom/brush finish:</u></b>				
61	Ramps, walkways, etc. to falls	m2	1 936		
	<b><u>Rough formwork to sides:</u></b>				
62	Edges, risers, ends and reveals exceeding 300mm high or wide	m	1 362		
63	Ditto circular on plan exceeding 1m radius	m	51		
64	Sloping and stepped outer edges of stairs not exceeding 300mm high extreme	m	62		
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	<b><u>Forming recess/nib to concrete, including all necessary formwork, etc.:</u></b>				
65	220 x 240mm High edge beam to bottom edge of walkway/ramps with internal side of beam sloping 215mm outwards	m	1 160		
	<b><u>Fabric reinforcement:</u></b>				
66	Type 245 fabric reinforcement in concrete surface beds, slabs, etc.	m2	1 936		
67	Type 617 fabric reinforcement in concrete slabs, stairs, etc.	m2	96		
	<b><u>Expansion joints with bitumen impregnated softboard between vertical concrete or brick surfaces:</u></b>				
68	10mm Wide joint not exceeding 300mm high	m	258		
	<b><u>Approved polysulphide sealing compound including backing cord, bond breaker, primer, etc.:</u></b>				
69	10 x 10mm In vertical expansion joint including raking out expansion joint filler as necessary	m	258		
	<b><u>Sundries:</u></b>				
70	Extra over for 100mm wide non-slip reedings to concrete stairs	m	253		
71	Extra over for 6mm nosing to edge of concrete	m	1 109		
	<b><u>APRONS</u></b>				
	<b><u>25MPa/19mm Unreinforced concrete:</u></b>				
72	Aprons cast in 1,5m alternative panels	m3	13		
	<b><u>Finishing top surfaces of concrete smooth with a wood float:</u></b>				
73	Aprons, etc. to falls	m2	134		
	<b><u>Rough formwork to sides:</u></b>				
74	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	135		
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**One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:**

75	Under aprons	m2	161
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**ASSEMBLY SLAB**

**Earth filling supplied by the Contractor under building platforms, etc.:**

76	Over site of G7 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers for base course	m3	95
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**Compaction of surfaces:**

77	Compaction of in-situ surfaces, etc. including scarifying for a depth of 150mm, breaking down oversized material and compacting to a minimum of 93% Mod AASHTO dry density	m2	630
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**25MPa/19mm Unreinforced concrete:**

78	Surface beds cast in panels	m3	82
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**Test blocks:**

79	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	10
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**Finishing top surfaces of concrete smooth with a wood float:**

80	Surface beds, slabs, etc. to falls	m2	630
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**Rough formwork to sides:**

81	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	158
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**Expansion joints with bitumen impregnated softboard between vertical concrete or brick surfaces:**

82	10mm Wide joint not exceeding 300mm high	m	302
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**One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:**

		83	Under surface beds
		m2	

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<b><u>Approved polysulphide sealing compound including backing cord, bond breaker, primer, etc.:</u></b>				
84	10 x 10mm In vertical expansion joint including raking out expansion joint filler as necessary	m	302	
<b><u>Road marking paint in different colours specified by Architect:</u></b>				
85	Hopscotch sign in various shapes and sizes	m2	5	
<b><u>White road marking paint:</u></b>				
86	50mm Solid line	m	120	
87	Ditto circular on plan	m	30	
<b><u>Hot dip galvanised steel netball posts:</u></b>				
88	75mm Diameter x 3550mm long standard netball post with all components, cast in and including unreinforced concrete (25MPa/19mm) base size 500 x 500 x 500mm deep, including excavation, etc. in accordance with the manufacturer's instructions	No	2	
<b><u>TERRAFORCE RETAINING WALLS</u></b>				
<b><u>Open face excavation over sloping site:</u></b>				
89	Open face excavation to reduce levels behind retaining walls, etc. and depositing excavated material in prescribed stockpiles on site	m3	181	
<b><u>Excavation in earth not exceeding 2m deep:</u></b>				
90	Trenches	m3	78	
<b><u>Extra over trench and hole excavations in earth for excavation in:</u></b>				
91	Soft rock	m3	16	
92	Hard rock	m3	8	
<b><u>Extra over all excavations for carting off site to a location identified by the Contractor:</u></b>				
93	Surplus material from excavations	m3	169	
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**Risk of collapse of excavations:**

94	Sides of trench and hole excavations not exceeding 1,5m deep	m2	220
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**Keeping excavations free of water:**

95	Keeping excavations free of all water other than subterranean water		Item
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:**

96	Behind retaining walls, etc.	m3	91
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**Earth filling supplied by the Contractor:**

97	Over site of G5 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers behind retaining walls	m3	91
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**Kaytech Rockgrid PC 100 x 100 factory manufactured composite geogrid used in reinforcement of soil fills of high strength polyester yarns arranged in the machine and cross direction to form a grid which is mechanically bonded to a 150g/m2 polyester, non-woven, needle punched, staple filament geotextile including pegging into soil:**

98	Behind retaining walls, etc.	m2	505
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**25MPa/19mm Unreinforced concrete cast against excavated surfaces:**

99	Strip footings	m3	31
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**Terraforce precast concrete interlocking retaining blocks finished smooth on exposed surfaces:**

100	M10 interlocking blocks size 350 x 400 x 250mm high with stepped face and curves as required, laid with horizontal bed joints to slope, including filling with G5 natural gravel material and compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers	m2	302
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**Subsoil drain:**

101	110mm Diameter HDPE flexible slotted drainage pipe laid in 300 x 300mm high drain, formed of 19mm crushed stone all wrapped in		geo-fabric material on top of 300mm wide layer of 375 micron green polyethylene waterproof sheeting
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## **BRICK RETAINING WALLS**

### **Open face excavation over sloping site:**

102	Open face excavation to reduce levels behind retaining walls, etc. and depositing excavated material in prescribed stockpiles on site	m3	490
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### **Excavation in earth:**

103	Trenches not exceeding 2m deep	m3	122
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### **Extra over trench and hole excavations in earth for excavation in:**

104	Soft rock	m3	24
105	Hard rock	m3	12

### **Extra over all excavations for carting off site to a location identified by the Contractor:**

106	Surplus material from excavations and stockpiles on site	m3	36
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### **Risk of collapse of excavations:**

107	Sides of trench and hole excavations not exceeding 1,5m deep	m2	242
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### **Keeping excavations free of water:**

108	Keeping excavations free of all water other than subterranean water		Item
-----	---	--	------

### **Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:**

109	Behind retaining walls, etc.	m3	576
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### **Earth filling supplied by the Contractor:**

110	Over site of G6 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers behind retaining walls, etc.	m3	10
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**25MPa/19mm Reinforced concrete cast against excavated surfaces:**

112	Strip footings	m3	122
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**Concrete sundries:**

113	50mm uPVC weep pipe through 500mm concrete retaining wall	No	322
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**Fabric reinforcement:**

114	Type 617 fabric reinforcement in infill to retaining walls	m2	209
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**High tensile steel reinforcement to structural concrete work:**

115	16mm Diameter bars	t	5.67
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116	10mm Diameter bars	t	5.67
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**Brickwork of NFX bricks (14MPa nominal compressive strength) in Class II mortar:**

117	One brick wall	m2	201
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118	330mm Wall	m2	80
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119	370mm Hollow wall in two half brick skins, the two skins tied together with and including galvanised wire ties with 100mm cavity filled in with and including reinforced concrete (20MPa/19mm) (reinforcement elsewhere measured)	m2	209
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**Brickwork reinforcement:**

120	75mm Wide reinforcement built in horizontally	m	1 229
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121	150mm Wide reinforcement built in horizontally	m	826
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122

**Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical**

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Joint assessment of the work proposed

Extra over brickwork for face brickwork  
m2

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**Subsoil drain:**

123	110mm Diameter HDPE flexible slotted drainage pipe laid in 300 x 300mm high drain, formed of 19mm crushed stone all wrapped in geo-fabric material on top of 375mm wide layer of 375 micron green polyethylene waterproof sheeting	m	161
124	Flo-drain Flownet or other approved drainage core and Bidim filler jacket, placed in position vertically to back face of retaining wall and wrapping around 110mm diameter pipe (elsewhere measured)	m2	490

**CONCRETE SEATING TO ASSEMBLY**

**Open face excavation over sloping site:**

125	Open face excavation to reduce levels behind retaining walls, etc. and depositing excavated material in prescribed stockpiles on site	m3	58
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**Excavation in earth:**

126	Trenches not exceeding 2m deep	m3	27
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**Extra over trench and hole excavations in earth for excavation in:**

127	Soft rock	m3	5
128	Hard rock	m3	3

**Extra over all excavations for carting off site to a location identified by the Contractor:**

129	Surplus material from excavations and stockpiles on site	m3	8
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**Risk of collapse of excavations:**

130	Sides of trench and hole excavations not exceeding 1,5m deep	m2	61
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**Keeping excavations free of water:**

131	Keeping excavations free of all water other than subterranean water	Item	
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod**

Behind  
assem  
bly  
seatin  
g, etc.

77

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**Earth filling supplied by the Contractor:**

133	Over site of G6 natural gravel material compacted to a minimum of 95% Mod AASHTO dry density in 150mm layers behind retaining walls, etc.	m3	10
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**25MPa/19mm Reinforced concrete cast against excavated surfaces:**

134	Strip footings	m3	27
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**25MPa/19mm Reinforced concrete:**

135	Seating slabs	m3	4
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**Test blocks:**

136	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	4
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**Finishing top surfaces of concrete smooth with a wood float:**

137	Surface beds, slabs, etc. to falls	m2	28
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**Rough formwork to sides:**

138	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	89
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**Fabric reinforcement:**

139	Type 245 fabric reinforcement in seating slabs	m2	28
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**High tensile steel reinforcement to structural concrete work:**

140	16mm Diameter bars	t	1.23
141	10mm Diameter bars	t	1.23

**Brickwork of NFX bricks (14MPa nominal compressive strength) in Class II mortar:**

142	One brick wall	m2	40
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**Brickwork reinforcement:**

m

119

143

150mm Wide reinforcement built in horizontally

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Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical joints as the work proceeds:

144	Extra over brickwork for face brickwork	m2	40
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### **ENTRANCE AND SCREEN WALLS**

Excavation in earth not exceeding 2m deep:

145	Trenches	m3	6
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146	Bases	m3	1
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Extra over trench and hole excavations in earth for excavation in:

147	Soft rock	m3	1
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148	Hard rock	m3	1
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Extra over all excavations for carting off site to a location identified by the Contractor:

149	Surplus material from excavations	m3	7
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Risk of collapse of excavations:

150	Sides of trench and hole excavations not exceeding 1,5m deep	m2	18
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Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:

151	Backfilling to trenches and bases, etc.	m3	3
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Keeping excavations free of water:

152	Keeping excavations free of all water other than subterranean water		Item
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15MPa/19mm Unreinforced concrete cast against excavated surfaces:

153	Strip footings	m3	2
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<b><u>One layer of 375 micron embossed polyethylene dampproof course (SANS 952-1985 type B):</u></b>					
166	In walls, under cills, etc.	m2	3		
<b><u>5:1 Cement plaster (SANS 2001) wood floated on brickwork:</u></b>					
167	On walls	m2	4		
168	On narrow widths	m2	1		
169	Plaster band 120mm wide	m	1		
<b><u>Prepare and apply one coat plaster primer and two coats Plascon Professional Hygiene Low Sheen paint on:</u></b>					
170	Plastered walls	m2	5		
<b><u>Hot dip galvanised Classic or other approved palisade fencing, formed of two 40 x 40 x 2mm hollow section steel rails filled in with 38 x 38 x 2mm angle section steel bars with spearheads at 150mm centres, the rails with fixing plates welded to each end and fixed to wall/posts with and including expansion bolts/bolts:</u></b>					
171	Panel size 800 x 1500mm high	No	3		
172	Ditto size 1200 x 1500mm high	No	1		
173	Ditto size 1900 x 1500mm high	No	1		
174	60 x 60mm Steel post 1500mm long with fixing plate twice holed and bolted to wall with and including expansion bolts	No	4		
<b><u>Hot dip galvanised mild steel welded entrance and pedestrian gates:</u></b>					
175	Single gate formed of 32 x 32 x 1,6mm hollow section outer frame and 32 x 32 x 1,6mm hollow section inner frame divided into three unequal panels with two 32 x 32 x 1,6mm horizontal rails filled in with six 16mm diameter vertical solid rods and three 30 x 10mm thick circular flat bar decorative features 150mm diameter, welded on with and including two heavy duty hinges bolted to brickwork, setting up inside opening and adjusting and securing, size 927 x 2125mm high	No	1		
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176	Double swing gate in two equal leaves, each leaf formed of 60 x 60mm hollow section steel frame with two 60 x 30mm hollow section horizontal rails welded to stiles and filled in with and including 40 x 40 x 2,5mm angle section bars, welded on at 100mm centres vertically, three heavy duty hinges per leaf and roller welded on, fitted with suitable castors to each leaf, fitting 50mm linked size chain 600mm long and 63mm brass five pin tumbler padlock with two keys, including setting up inside opening, adjusting and securing, size 5000 x 2350mm high	No	1		
	<b><u>Signage:</u></b>				
177	Provide the amount of R 10 000.00 (Ten Thousand Rand) for signage to the entrance facade		Item		10 000.00
	<b><u>STORMWATER RETICULATION/CHANNELS</u></b>				
	<b><u>Open face excavation over sloping site:</u></b>				
178	Open face excavation for stormwater channel, etc. including creating natural earth berm with compacted excavated material from channel excavation, overall size 2000 x 500mm high with sloping sides	m3	150		
	<b><u>Extra over bulk excavation in earth for excavation in:</u></b>				
179	Soft rock	m3	30		
180	Hard rock	m3	15		
	<b><u>Extra over all excavations for carting off site to a location identified by the Contractor:</u></b>				
181	Surplus material from stockpiles on site	m3	45		
	<b><u>Keeping excavations free of water:</u></b>				
182	Keeping excavations free of all water other than subterranean water		Item		
	<b><u>Test blocks:</u></b>				
183	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	5		
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	<b><u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u></b>				
184	Under stormwater channels and spreaders	m2	389		
	<b><u>25MPa/19mm Unreinforced concrete:</u></b>				
185	900 x 175mm Open concrete stormwater channel with 75mm deep channel cast in 1,5m alternative panels on 150mm subbase material (elsewhere measured) compacted to a minimum of 93% Mod AASHTO dry density, including all necessary excavations, formwork, compaction, grading, carting away, etc.	m	259		
186	Extra over 900 x 175mm stormwater channel for angle, intersection, end, dressing into sides of catchpits, etc.	No	29		
187	Extra over 900 x 175mm stormwater channel for widening concrete to form spreader 140mm thick, 1500mm wide extreme, for a length of 1500mm and bedding seven bricks on edge 50mm deep in spreader to falls including brushing concrete between bricks, forming 150 x 150mm downstand in ground, formwork, all necessary excavations, etc.	No	6		
	<b><u>Reinforced concrete Class 50D piping in accordance with SANS 1200:</u></b>				
188	450mm Pipe laid in and including trenches not exceeding 1m deep, including excavations, backfilling, etc.	m	15		
189	Ditto exceeding 1m not exceeding 2m deep, including excavations, backfilling, etc.	m	6		
	<b><u>Extra over concrete pipes for:</u></b>				
190	Stormwater grid inlet manhole size 1340 x 1340mm not exceeding 1m deep to invert, consisting of reinforced concrete (30MPa/19mm) base with type 311 fabric reinforcement, 150mm thick projecting 150mm all round, one brick walls plastered internally, 200mm thick cover slab on top tapered and rebated for and fitted with and including 380 x 380mm grating and frame to SANS 2001, including benching, excavations, backfilling, etc.	No	1		
191	Ditto fitted with and including 450 x 450mm grating and frame to SANS 2001, including benching, excavations, backfilling, etc.	No	1		
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	<b><u>Stormwater wingwall:</u></b>				
192	Stormwater wingwall 980mm wide at stormwater inlet for 450mm stormwater pipe (elsewhere measured), projecting for a length of 1500mm to extreme width of 2500mm wide, comprising of 125mm thick reinforced concrete (20MPa/19mm) base with type 245 fabric reinforcement with 200 x 200mm concrete edge to base at extreme side and 220mm brick wing walls on sides for a length of 1500mm, tapering down on two sides from 750mm to 200mm high complete with soldier course brickwork to top of inlet and wingwalls with 10mm plaster on visible surfaces including all necessary excavating, compaction to base, carting away, etc.	No	1		
	<b><u>Concrete stone pitching:</u></b>				
193	Stormwater grouted stone pitching size 3000 x 3000mm, comprising of 150mm thick unreinforced concrete (15MPa/19mm) base and bedding 200mm diameter stones in concrete spaced at 200mm centre spacings to falls including brushing concrete between stones	No	6		
	<b><u>Testing:</u></b>				
194	Allow for testing all external stormwater reticulation piping and elements		Item		
	<b><u>SOIL DRAINAGE</u></b>				
	<b><u>PVC Class 51 piping in accordance with SANS 791:</u></b>				
195	110mm Pipe vertically or ramped to cleaning eyes, etc.	m	9		
196	110mm Pipe laid in and including trenches not exceeding 1m deep	m	78		
	<b><u>Extra over PVC piping for:</u></b>				
197	110mm Bend	No	36		
198	110mm Tee	No	1		
	<b><u>Extra over excavation in earth for excavation in:</u></b>				
199	Soft rock	m3	6		
200	Hard rock	m3	3		
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**25MPa/19mm Reinforced concrete:**

209	Plinth	m3	0.4
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**Finishing top surfaces of concrete with broom/brush finish:**

210	Plinth to falls and cross falls	m2	4
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**Smooth formwork to sides:**

211	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	9
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**Class 6 HDPE pressure pipes:**

212	32mm Pipe laid in and including trenches not exceeding 1m deep	m	10
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213	50mm Ditto	m	1 105
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**Extra on HDPE piping for the following Class 6 HDPE fittings:**

214	32mm Elbow	No	3
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215	32mm Float control valve, complete with float	No	1
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216	50 x 32mm Reducer	No	1
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217	50mm Elbow	No	75
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218	50mm Equal tee	No	22
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**Extra over excavation in earth for excavation in:**

219	Soft rock	m3	55
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220	Hard rock	m3	25
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**Galvanised steel pipes (Class 16) including all fixing brackets, etc.:**

221	25mm Pipe	m	26
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Extra over galvanised steel pipes for steel fittings:

No

26

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25mm Fittings

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	<b><u>Taps, valves, etc.:</u></b>				
223	50mm Fullway gate valve with flange adaptors both sides	No	28		
224	50mm Non-return valve with flange adaptors both sides	No	16		
	<b><u>Drinking fountains:</u></b>				
225	Drinking fountain comprising 25D stormwater pipe, Cobra Watertech demand tap code KM2-20215, vertical piping, concrete base, etc. all as per drinking fountain detail 3 on Architect's drawing number 506, Details as part of C5.1 Drawings	No	2		
226	Drinking fountain comprising brickwork structure 1040 x 1040 x 686mm high with raised middle section 380 x 380 x 1151mm high, complete with four Cobra Watertech demand taps code KM2-20215, with 40mm diameter waste pipe connected to waste system with trough grano benched all round, complete structure plastered all round and finished in specific chip tile designs on four sides, mosaic tiles and slate tiles to other areas, including 300 x 300mm slate surround to concrete apron (concrete apron elsewhere measured), etc. all as per drinking fountain details 1 & 2 on Architect's drawing number 506, Details as part of C5.1 Drawings	No	1		
	<b><u>Sundries:</u></b>				
227	Unreinforced concrete (15MPa/19mm) in thrust blocks at bends, tees, end caps, etc. including necessary extra excavation, formwork, etc.	m3	2		
228	Stopcock box for valves not exceeding 1m deep, consisting of unreinforced concrete (25MPa/19mm) base 100mm thick, one brick walls all around, precast concrete cover slab on top, rebated for and fitted with and including 300 x 300mm cast iron type 11A stopcock box cover and frame complete with locking system, size 300 x 300mm internally including excavations, backfilling, etc.	No	1		
	<b><u>Testing:</u></b>				
229	Testing, operational manual and training for water pipe system		Item		
	<b><u>ELEVATED WATER TANK</u></b>				
	<b><u>Excavation in earth not exceeding 2m deep:</u></b>				
230	Bases	m3	4		
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	<b><u>Extra over trench and hole excavations in earth for excavation in:</u></b>				
231	Soft rock	m3	1		
232	Hard rock	m3	0.4		
	<b><u>Risk of collapse of excavations:</u></b>				
233	Sides of trench and hole excavations not exceeding 1,5m deep	m2	16		
	<b><u>Keeping excavations free of water:</u></b>				
234	Keeping excavations free of all water other than subterranean water		Item		
	<b><u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:</u></b>				
235	Backfilling to trenches, holes, etc.	m3	1		
	<b><u>75mm Blinding founding material supplied by the Contractor:</u></b>				
236	Under concrete	m2	4		
	<b><u>Extra over all excavations for carting off site to a location identified by the Contractor:</u></b>				
237	Surplus material from excavations	m3	3		
	<b><u>25MPa/19mm Reinforced concrete cast against excavated surfaces:</u></b>				
238	Bases	m3	1		
	<b><u>25MPa/19mm Reinforced concrete:</u></b>				
239	Stub columns	m3	0.3		
	<b><u>Test blocks:</u></b>				
240	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	2		
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	<b><u>Rough formwork to sides:</u></b>				
241	Stub columns propped up exceeding 1,5m and not exceeding 3,5m high	m2	4		
	<b><u>Mild steel reinforcement to structural concrete work:</u></b>				
242	8mm Diameter bars	t	0.01		
	<b><u>High tensile steel reinforcement to structural concrete work:</u></b>				
243	16mm Diameter bars	t	0.40		
244	8mm Diameter bars	t	0.01		
	<b><u>Approved rainwater tanks:</u></b>				
245	10000 Litre polyethylene rotomoulded vertical water storage tank complete with lid including setting up in position on elevated tank stand (elsewhere measured) approximately 6000mm above ground level, securely tying down with galvanised wire (elsewhere measured) (Note - tank to be filled with water before Practical Completion) complete	No	1		
246	Outlet union for 32mm steel pipe including hole through tank	No	2		
	<b><u>Galvanised hoop iron cramps, ties, etc.:</u></b>				
247	3,4mm Wire tie secured around 10000 litre tank (elsewhere measured)	m	7		
	<b><u>Sawn softwood Grade V5:</u></b>				
248	50 x 228mm Treated with and including carbolinium and bolted to IPE 160 beams (elsewhere measured) with and including M6 round head bolts at four intersections	m	38		
	<b><u>Steelwork:</u></b>				
	All steelwork to be Grade S355JR				
	Workshop drawings must be submitted to the Engineer for approval <b>before</b> commencement of any manufacturing of steelwork.				
	No welding on site will be permitted.				
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<b><u>Descriptions:</u></b>					
Descriptions of bolts shall be deemed to include nuts and washers.					
Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete.					
Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.					
<b><u>HOT DIP GALVANISED STEEL COMPONENTS TO TANK STAND</u></b>					
<b><u>Welded columns in single lengths with flat section base and connection plates bolted to concrete and steel:</u></b>					
249	60 x 60 x 5mm x 4,57kg/m Angle section columns	t	0.08		
250	70 x 70 x 6mm x 6,38kg/m Angle section columns	t	0.14		
<b><u>Welded beams in single lengths with flat section bearer plates bolted to steel columns:</u></b>					
251	50 x 50 x 5mm x 3,77kg/m Angle section beams	t	0.14		
252	60 x 60 x 6mm x 5,42kg/m Angle section beam	t	0.09		
253	160 x 83 x 5mm x 15,8kg/m I-section beams	t	0.28		
<b><u>Purlins and bracing bolted to steel:</u></b>					
254	60 x 60 x 5mm x 4,56kg/m Angle section railing	t	0.06		
255	60 x 60 x 6mm x 5,42kg/m Angle section cross bracing	t	0.34		
<b><u>Bolts to columns, beams, etc.:</u></b>					
256	High tensile bolts (Grade 8.8)	t	0.10		
257	M18 Grade 4.8 Holding down bolt 320mm long screwed one end with lock nut and flat washer complete	No	16		
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**Sundries:**

258	290 x 290 x 10mm Thick base plate welded to bottom of steel stanchion including 4 x 18mm diameter holes for bolts (elsewhere measured)	No	4
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**30MPa Non-shrink grout:**

259	Bedding approximately 30mm thick under 290 x 290mm base plate including splayed edges all round (base plate elsewhere measured)	No	4
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**Welded cat ladder 718 x 640mm wide and 9,64m high to water tank:**

260	70 x 70 x 6mm x 6,38kg/m Angle section stringer	t	0.11
261	8 x 50mm Flat section vertical welded on	kg	27
262	8 x 50mm Flat section hoop welded on	kg	45
263	8 x 60mm Flat section horizontal welded on	kg	182
264	20mm Diameter rung 640mm long with ends welded to stringers	No	33

**Galvanised mild steel pipes:**

265	32mm Pipe including holderbats at 2m centres	m	3
266	50mm Ditto	m	12
267	50mm Pipe laid in and including trenches not exceeding 1m deep	m	1

**Extra over galvanised mild steel pipes for steel fittings:**

268	32mm Float control valve, complete with float	No	1
269	32mm Bend	No	2
270	50mm One way valve	No	1
271	50 x 32mm Reducer	No	2

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272 50mm Steel to HDPE adapter

No 2

273 50mm Bend

No 2

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274	50mm Stopcock	No	1		
	<b><u>Closed cell foam lagging:</u></b>				
275	Outerwrap on 50mm diameter steel pipes	m	12		
	<b><u>Testing:</u></b>				
276	Allow for testing all water and other piping to water tower supply and feeds		Item		
	<b><u>RAINWATER TANK</u></b>				
	<b><u>Approved rainwater tanks:</u></b>				
277	5000 Litre polyethylene rotomoulded vertical water storage tank complete with lid, fitted with and including 15mm brass bibtap (Type 108LK15) with suitable adaptor and setting in position on tank base (elsewhere measured), securely tying down with strap (elsewhere measured) (Note - tank to be filled with water before Practical Completion) including lettering "School name" to be applied in black spray paint/embossed onto side of tank	No	25		
278	10000 Litre polyethylene rotomoulded vertical water storage tank complete with lid, fitted with and including 15mm brass bibtap (Type 108LK15) with suitable adaptor and setting in position on tank base (elsewhere measured), securely tying down with strap (elsewhere measured) (Note - tank to be filled with water before Practical Completion) including lettering "School name" to be applied in black spray paint/embossed onto side of tank	No	1		
279	Hole through top of tank lid for 100mm diameter pipe	No	25		
	<b><u>Superhead rainwater tank filter or other approved</u></b>				
280	PVC filter complete with 110mm adaptor, first flush diverter, adjustable drainage plug, stainless steel leave screen and insect screen mounted to water tank (water tank elsewhere measured)	No	26		
	<b><u>RAINWATER STAND</u></b>				
	<b><u>Excavation in earth not exceeding 2m deep:</u></b>				
281	Trenches	m3	49		
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**Extra over trench and hole excavations in earth for excavation in:**

282	Soft rock	m3	10
283	Hard rock	m3	5

**Risk of collapse of excavations:**

284	Sides of trench and hole excavations not exceeding 1,5m deep	m2	99
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 93% Mod AASHTO dry density:**

285	Backfilling to trenches, holes, etc.	m3	32
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:**

286	Filling to tank bases, etc.	m3	39
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**25MPa/19mm Unreinforced concrete cast against excavated surfaces:**

287	Strip footings	m3	26
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**25MPa/19mm Reinforced concrete:**

288	Surface beds	m3	13
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**Finishing top surfaces of concrete smooth with a wood float:**

289	Surface beds, slabs, etc. to falls	m2	104
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**Rough formwork to sides:**

290	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	208
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**Fabric reinforcement:**

291	Type 311 fabric reinforcement in concrete surface beds, etc.	m2	78
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**Brickwork of NFX bricks (14MPa nominal compressive strength)  
in Class II mortar:**

174

292

One brick wall

m2

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<b><u>Brickwork reinforcement:</u></b>					
293	150mm Wide reinforcement built in horizontally	m	695		
<b><u>Galvanised hoop iron cramps, ties, etc.:</u></b>					
294	30 x 1,6mm Tie secured around water tank (elsewhere measured)	m	104		
295	1,6mm Tie folded and bolted to hoop iron strap (elsewhere measured) with suitable bolt and nut set	No	104		
<b><u>Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical joints as the work proceeds:</u></b>					
296	Extra over brickwork for face brickwork	m2	208		
<b><u>Brick-on-edge header course copings, cills, etc. of Corobrik Firelight Satin FBX clay face bricks, pointed with 10mm square recessed horizontal and vertical joints as the work proceeds:</u></b>					
297	Brick-on-edge coping 220mm wide to top of one brick wall	m	203		
298	Extra over for 90 degree fair cut angle intersection	No	104		
<b><u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u></b>					
299	Under surface beds	m2	104		
<b><u>Sundries:</u></b>					
300	10 x 50mm Sleeve anchor (closed eyebolt) cast in concrete	No	104		
301	2mm Thick wire tie secured to anchor bolt and hoop iron tie, 2400mm long	No	104		
<b><u>FENCING (GRADE R AND OTHER BUILDINGS)</u></b>					
Allowance shall be made as required to excavate areas that are too high and to fill depressions with approved filling, carted on where					
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necessary and well compacted prior to erection of posts

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	<b><u>Clearing of site:</u></b>				
302	Allow for clearing site for the width of 1500mm where fencing runs are to be erected including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m	340		
	<b><u>Cochrane or other approved fencing system and posts erected complete with all components as indicated in strict accordance with the manufacturer's instructions:</u></b>				
303	2100mm High ClearVu high density anticlimbing and anti-cut pressed mesh panel fencing, formed of 4mm diameter horizontal and 4mm diameter vertical high tensile wires galvanised with marine fusion bond coating with aperture size 76,2 x 12,7mm and reinforcing V-section ribs. Panels with a maximum width of 3305mm (or as determined on site) and laterally strengthened by 4 x 50mm deep V-profiled horizontal stiffener bends to ensure sufficient rigidity, complete with 75mm 70 degree flanges along sides, top and toe and secured to fencing posts (elsewhere measured). Prices to allow for possible shortening and additional vertical cutting/framing of shortened panels, if necessary	m	340		
304	2700mm Hot dip galvanised 85 - 45mm Taper locking post, with marine fusion bond coating (acid modified), sealed with UV stabilized polymer cap, including locking recess mechanism with sealed end caps and 30 x 3 x 250mm long angle section base anchors, complete with required vandal resistant bolts and clamping plates, nuts and washers for fixing to panels (elsewhere measured) and embedded and including 400 x 400 x 600mm deep unreinforced concrete (20MPa/19mm) base, excavations, filling, etc.	No	100		
305	Hot dip galvanised double gate in two equal leaves hung folding, each leaf consisting of 50 x 50 x 2mm hollow section outer framing and one mullion, all mitred and welded at all intersections, internal 30 x 4mm flat section welded onto inside of all outer framing, two cut-outs each size 120 x 200mm high formed of outer framing and flat section as described above, filled in with 4mm diameter horizontal and 4mm diameter vertical high tensile wires galvanised with marine fusion bond coating with aperture size 76,2 x 12,7mm and reinforcing V-section ribs, cut to size and secured tautly around all edges to flat section with 4mm diameter self tapping screws 30mm long at 100mm centres all around, each leaf fitted with a pair of approved hinges, secured to and including 100 x 100 x 3mm hollow section hot dip galvanised gate post 3m long, lower section of post cast into 450 x 450 x 600mm unreinforced concrete (15MPa/19mm) base, including all excavations, filling, etc., fitting one 100mm horizontal sliding and two 200mm drop bolts (complete with two keeps in concrete), one heavy duty brass padlock, etc. overall size 5000 x 2100mm high	No	2		
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306	Hot dip galvanised single gate hung folding,consisting of 50 x 50 x 2mm hollow section outer framing and one mullion, all mitred and welded at all intersections, internal 30 x 4mm flat section welded onto inside of all outer framing, two cut-outs each size 120 x 200mm high formed of outer framing and flat section as described above, filled in with 4mm diameter horizontal and 4mm diameter vertical high tensile wires galvanised with marine fusion bond coating with aperture size 76,2 x 12,7mm and reinforcing V-section ribs, cut to size and secured tautly around all edges to flat section with 4mm diameter self tapping screws 30mm long at 100mm centres all around, each leaf fitted with a pair of approved hinges, secured to and including 100 x 100 x 3mm hollow section hot dip galvanised gate post 3m long, lower section of post cast into 450 x 450 x 600mm unreinforced concrete (15MPa/19mm) base, including all excavations, filling, etc., fitting one 100mm horizontal sliding and two 200mm drop bolts (complete with two keeps in concrete), one heavy duty brass padlock, etc. overall size 1000 x 2100mm high	No	1		
	<b><u>Extra over trench and hole excavations in earth for excavation in:</u></b>				
307	Soft rock	m3	4		
308	Hard rock	m3	2		
	<b><u>Extra over all excavations for carting away:</u></b>				
309	Surplus material from excavations and/or stockpiles on site to a dumping site to be located by the Contractor	m3	30		
	<b><u>PERIMETER FENCING</u></b>				
	<b><u>Clearing of site:</u></b>				
310	Allow for clearing site for the width of 1m where fencing runs are to be erected including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m	626		
	<b><u>Hot dip galvanised posts of 2mm thickness:</u></b>				
311	60mm Diameter galvanised steel intermediate fencing post, 2100mm long fitted with a pressed steel mushroom cap, post fitted with 150 x 150 x 3mm flange plate welded to bottom and embedded in 300 x 300 x 700mm unreinforced concrete (15MPa/19mm) base including all excavations in earth, backfilling and ramming, etc.	No	180		
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312	100mm Ditto as end post, fitted with one 60mm diameter galvanised steel stay set raking and with top end flattened and bolted through post with 2 x M8 galvanised bolts complete with washers, with post and stay both embedded in unreinforced concrete (15MPa/19mm) bases as last	No	8		
313	100mm Ditto as straining or corner post, but fitted with two 60mm diameter galvanised steel raking stays	No	6		
314	150mm Diameter ditto as gate post, but fitted with one 60mm diameter galvanised steel raking stay, with post and stay both embedded in 400 x 400 x 700mm unreinforced concrete (15MPa/19mm) base including all excavations in earth, backfilling and ramming, etc.	No	6		
<b><u>Extra over trench and hole excavations in earth for excavation in:</u></b>					
315	Soft rock	m3	4		
316	Hard rock	m3	2		
<b><u>Galvanised steel (Class A) fencing:</u></b>					
317	Fencing formed of 50 x 100 x 2,5mm diameter galvanised weldmesh 1800mm high with vertical wires facing outwards, secured with Howring clips or 1,6mm galvanised binding wire at 300 mm centres to top and bottom straining wires at 700 mm centres and to two intermediate straining wires (straining wires elsewhere measured) including 15mm holes through posts	m	626		
318	Four strands of 4mm galvanised straining wires secured to fencing posts with doubled 2mm galvanised wire inserted through hole in post and turned a minimum of four turns around straining wire and attached to straining frame at one end with not less than four turns and the other end to straining bolts (elsewhere measured)	m	626		
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**Gates:**

319	Security fence gate size 800mm x 1800mm high, formed of 50mm diameter nominal bore x 3,25mm wall thickness hot dip galvanised mild steel pipe framing all round with mitred and welded angles, cross braces, mullion and transome, scribed and welded at angles and at cross intersections, with two 50mm diameter nominal bore x 3,25mm wall thickness security posts each 600mm long with one end welded to top rail of gate and closure plate to other end, the gate covered with 50 x 50 x 3,15mm weldmesh with four straining wires as before described and with four 2,37mm four point core diameter single kampeon wires with crimped droppers to security posts as before described; including 500mm diameter flat wrap razor barbed tape wire fixed as before described, leaf fitted with three 24mm diameter x 300mm long eyebolt hinges and stops including all holes, etc. welded or bolted to adjoining galvanised gatepost with and including 500mm long approved chain spot welded to gate and Union padlock No 3122	No	1
320	Security fence gate size 5000mm x 1800mm high, formed of 50mm diameter nominal bore x 3,25mm wall thickness hot dip galvanised mild steel pipe framing all round with mitred and welded angles, cross braces, mullion and transome, scribed and welded at angles and at cross intersections, with two 50mm diameter nominal bore x 3,25mm wall thickness security posts each 600mm long with one end welded to top rail of gate and closure plate to other end, the gate covered with 50 x 50 x 3,15mm weldmesh with four straining wires as before described and with four 2,37mm four point core diameter single kampeon wires with crimped droppers to security posts as before described; including 500mm diameter flat wrap razor barbed tape wire fixed as before described, leaf fitted with three 24mm diameter x 300mm long eyebolt hinges and stops including all holes, etc. welded or bolted to adjoining galvanised gatepost with and including 500mm long approved chain spot welded to gate and Union padlock No 3122	No	3
321	12mm Diameter galvanised mild steel straining eye bolt with hook, threaded portion and two nuts and washers, including hole through post	No	125

**Sundries:****STOCK FENCING AND GATES (VEGETABLE GARDEN)**

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<b><u>Clearing of site:</u></b>					
322	Allow for clearing site for the width of 1m where fencing runs are to be erected including removing trees, shrubs, etc. not exceeding 200mm girth, grubbing up roots and roughly levelling	m	83		
<b><u>Posts:</u></b>					
323	40mm Diameter creosote treated gumpole dropper 1200mm long holed as necessary and secured to barbed wire fencing as described	No	21		
324	75mm Diameter creosote treated gumpole intermediate post 1800mm long holed as necessary for wire or straining eye bolts and embedded 400mm deep in ground in and including 300 x 300 x 400mm deep unreinforced concrete (15MPa/19 mm) base including all excavations in earth, backfilling and ramming, etc.	No	2		
325	Straining frame formed of two 100mm diameter vertical posts 1800mm long and one 100mm diameter horizontal brace 1200mm long with bottom end of each post embedded in and including 450 x 450 x 600mm unreinforced concrete (15MPa/19mm) base and having top end of posts and ends of brace rebated and bolted together with 10mm diameter galvanised bolts including bracing with four strands of 4mm galvanised wire tied through holes in vertical posts and thoroughly strained to form cross bracing including all excavations in earth, backfilling and ramming	No	3		
326	Corner straining frame formed of three 100mm diameter vertical posts 1800mm long and two horizontal braces each 1200mm long with bottom ends of posts embedded in concrete and braced as last described including all excavations in earth, backfilling and ramming	No	2		
<b><u>Extra over trench and hole excavations in earth for excavation in:</u></b>					
327	Soft rock	m3	2		
328	Hard rock	m3	1		
<b><u>Fencing:</u></b>					
329	Fencing 1200mm high formed of nine strands of 2,37mm four point double strand barbed wire with 2 mm galvanised barbed units at maximum 150mm centres and barb length of 13mm spaced as detailed, secured to fencing posts with doubled 2mm galvanised wire inserted through hole in post and turned a minimum of four turns around barbed wire	m	83		
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<b><u>Gates:</u></b>					
330	Pedestrian access gate size 900 x 1500mm high, formed of 40mm diameter galvanised mild steel tubular framing, mitred and welded at angles and covered on outer face with five strands of barbed wire as before described, properly strained and securely bound to framing with 1,8mm binding wire at 150mm centres, complete with steel spring action clip and keep bolted to gate post and hung on and including one pair of 8mm diameter eye bolts, fixed to gate and gate post fitted with galvanised chain welded to gate frame including Union type 3142 padlock with two keys	No	1		
<b><u>Sundries:</u></b>					
331	12mm Diameter galvanised mild steel straining eye bolt with hook, threaded portion and two nuts and washers, including hole through post	No	12		
<b><u>FLAGPOLES &amp; PLAQUE</u></b>					
<b><u>Excavation in earth not exceeding 2m deep:</u></b>					
332	Bases	m3	1		
<b><u>Risk of collapse of excavations:</u></b>					
333	Sides of trench and hole excavations not exceeding 1,5m deep	m2	3		
<b><u>15MPa/19mm Unreinforced concrete cast against excavated surfaces:</u></b>					
334	Bases	m3	1		
<b><u>Flagpole:</u></b>					
335	Flagcraft or other approved hot dip galvanised steel white powder coated fixed flag pole in two parts, one lower part 6m long formed of 101mm diameter x 2mm thick, upper part 3m long formed of 76mm diameter x 2mm thick, all connected together; erected vertically with hinged base and galvanised foundation cage, RSA flag complete with all fittings including all ropes, pulleys, cleats, etc. in accordance with the manufacturer's instructions	No	2		10 000.00
336	Provide the amount of R 10 000.00 (Ten Thousand Rand) for Plaque including fixing in position on site		Item		
<b><u>UNDERCOVER PLAY AREA</u></b>					
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**Excavation in earth not exceeding 2m deep in:**

337	Bases	m3	3
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**Extra over trench and hole excavations in earth for excavation in:**

338	Soft rock	m3	1
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339	Hard rock	m3	1
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**Extra over all excavations for carting off site to a location identified by the Contractor:**

340	Surplus material from excavations	m3	2
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**Risk of collapse of excavations:**

341	Sides of trench and hole excavations not exceeding 1,5m deep	m2	11
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**Keeping excavations free of water:**

342	Keeping excavations free of all water other than subterranean water		Item
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**Coarse river sand filling:**

343	Under surface beds	m3	1
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**Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:**

344	Backfilling to trenches, holes, etc.	m3	1
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**Earth filling supplied by the Contractor under floors, etc.:**

345	Over site of G7 natural material compacted to a minimum of 93% Mod AASHTO dry density in 150mm layers under floors	m3	5
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**Prescribed density tests on filling:**

346	"Modified AASHTO Density" test	No	1
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10MPa/19mm Unreinforced concrete cast against excavated surfaces:

m3

1

347

Blinding under column bases

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<b><u>25MPa/19mm Reinforced concrete cast against excavated surfaces:</u></b>					
348	Bases	m3	1		
<b><u>25MPa/19mm Reinforced concrete:</u></b>					
349	Surface beds	m3	5		
<b><u>Test blocks:</u></b>					
350	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	1		
<b><u>Finishing top surfaces of concrete with broom/brush finish:</u></b>					
351	Surface beds, slabs, etc. to falls	m2	34		
<b><u>Mild steel reinforcement to structural concrete work:</u></b>					
352	10mm Diameter bars	t	0.01		
<b><u>High tensile steel reinforcement to structural concrete work:</u></b>					
353	12mm Diameter bars	t	0.01		
354	10mm Diameter bars	t	0.01		
<b><u>Fabric reinforcement:</u></b>					
355	Type 245 fabric reinforcement in concrete surface beds, etc.	m2	34		
<b><u>Brickwork of NFP bricks in Class II mortar:</u></b>					
356	Hollow pier with 115 x 115mm cavity filled in with and including reinforced concrete (25MPa/19mm)	m3	1		
<b><u>Galvanised hoop iron ties, cramps, etc.:</u></b>					
357	30 x 1,6mm Cramp 2m long one end wrapped around reinforcing bar, cast in concrete and other end fixed to timber	No	4		
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	<u>Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical joints as the work proceeds:</u>				
358	Extra over brickwork for 340 x 340mm faced pier	m2	16		
	<u>Brick-on-edge header course copings of Corobrik Firelight Satin FBX clay face bricks pointed with 6mm square recessed horizontal and vertical joints as the work proceeds:</u>				
359	220mm Wide bullnose edged face brick-on-edge roller course to edge of surface beds	m	18		
360	220mm Wide double bullnose edged face brick-on-edge roller course on top of wall	m	5		
	<u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape:</u>				
361	Under surface beds	m2	34		
	<u>0.8mm Thick Global Roofing Solutions or other approved corrugated profile galvanised steel roof sheeting complying with ISQ 230 with Z200 spelter and pre-coated coloured Chromadek finish one side (backing coat on other side), fixed to timber purlins (elsewhere measured) at 900mm centres in accordance with the manufacturer's instructions:</u>				
362	Roof covering with pitch not exceeding 25 degrees	m2	38		
	<u>0.8mm Thick Global Roofing Solutions or other approved galvanised steel roof flashings complying with ISQ 230 with Z275 spelter and pre-coated coloured Chromadek finish:</u>				
363	Hip capping to suit roof profile	m	25		
364	Extra on last for four way intersection between hips	No	1		
365	Narrow or broad flute closer	m	24		
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**Prefabricated timber (17 degree pitch) roof truss construction at 1200mm centres complete, including 50 x 76mm sawn softwood purlins at 900mm centres (with and including fixing to rafters with hurricane clips), runners, bracing, cleats, etc. supplied and fixed complete:**

366	Roof construction to double pitch roof size 4.80 x 4,80 x 1,00m high, including four hips, jack rafters, permanent bracing, etc.	No	1
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**Everite Nutec or other approved fibre cement fascias, etc.:**

367	12 x 225mm Fascia screwed vertically to timber rafter ends (elsewhere measured) and two 38 x 50mm vertical cleats fixed to each timber rafter end at 1200 centres, including fascia joining plates, H-profile PVC joint strips, caps, etc.	m	24
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**Purpose made hot dip galvanised mild steel joist, etc.:**

368	Steel joist consisting of 75 x 5mm thick square tubing top, bottom and end rails, five intermediate rails consisting of 75 x 5mm thick square tubing spaced at 687mm centres, all mitred and welded at intersections, with end rails twice holed for and bolted to brick columns (elsewhere measured) with and including two galvanised M20 rawlbolts on each side, overall size 4120 x 500mm high	No	4
369	75 x 3mm Thick steel lug for beam saddle welded to steel joist (elsewhere measured), 264mm girth U-shaped bracket, eight times holed for bolts (elsewhere measured) including setting up in position and fixing to roof tie beam (elsewhere measured)	No	12

**Sundries:**

370	Bolts	kg	1
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**Prepare and apply one coat plaster primer and two coats Nuroof Acrylic Roof paint on:**

371	Facias and bargeboards	m2	6
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**Clean down galvanised surfaces thoroughly with galvanised iron cleaner, apply one galvanised iron primer and two coats low gloss enamel paint on:**

372	Galvanised steel joists	m2	12
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**Prepare and apply two coats Plascon Carbolineum on:**

373	Exposed roof timbers	m2	23
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Mgomanzi SPS - 0249



<b><u>COVERED WALKWAYS</u></b>				
<b><u>Excavation in earth not exceeding 2m deep in:</u></b>				
374	Bases	m3	35	
<b><u>Extra over all excavations for carting off site to a location identified by the Contractor:</u></b>				
375	Surplus material from excavations	m3	16	
<b><u>Risk of collapse of excavations:</u></b>				
376	Sides of trench and hole excavations not exceeding 1,5m deep	m2	276	
<b><u>Keeping excavations free of water:</u></b>				
377	Keeping excavations free of all water other than subterranean water		Item	
<b><u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:</u></b>				
378	Backfilling to trenches, holes, etc.	m3	19	
<b><u>10MPa/19mm Unreinforced concrete cast against excavated surfaces:</u></b>				
379	Blinding under column bases	m3	0.5	
<b><u>25MPa/19mm Reinforced concrete cast against excavated surfaces:</u></b>				
380	Bases	m3	12	
<b><u>25MPa/19mm Reinforced concrete:</u></b>				
381	300 x 300 x 170mm High exposed base on brickwork column (elsewhere measured)	No	72	
<b><u>Test blocks:</u></b>				
382	Making and testing set of three 150 x 150 x 150mm concrete strength test cubes	No	10	
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**Finishing top surfaces of concrete with broom/brush finish:**

383	Surface beds, slabs, etc. to falls	m2	6
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**Smooth formwork to sides:**

384	300 x 300 x 170mm High exposed base (all sides)	No	72
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**Mild steel reinforcement to structural concrete work:**

385	10mm Diameter bars	t	0.10
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**High tensile steel reinforcement to structural concrete work:**

386	12mm Diameter bars	t	0.10
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387	10mm Diameter bars	t	0.15
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**Brickwork of NFP bricks in Class II mortar:**

388	Hollow pier with 110 x 110mm cavity filled in with and including reinforced concrete (25MPa/19mm)	m3	22
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**Corobrik Firelight Satin FBX clay face brickwork, manufactured in accordance with SANS 227:2007, including pointing with 6mm square recessed horizontal and vertical joints as the work proceeds:**

389	Extra over brickwork for 330 x 330mm faced pier	m2	206
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**0.8mm Thick Global Roofing Solutions or other approved corrugated profile galvanised steel roof sheeting complying with ISQ 230 with Z200 spelter and pre-coated coloured Chromadek finish one side (backing coat on other side), fixed to steel purlins (elsewhere measured) at 800mm centres in accordance with the manufacturer's instructions:**

390	Roof covering with pitch not exceeding 25 degrees	m2	766
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**0.8mm Thick Global Roofing Solutions or other approved galvanised steel roof flashings complying with ISQ 230 with Z275 spelter and pre-coated coloured Chromadek finish:**

391	Hip capping to suit roof profile	m	57
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Extra on last for four way intersection between hips

No

6

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393	Valley gutter 610mm girth six times bent along girth	m	12
394	Narrow or broad flute closer	m	98
<b><u>0,6mm Thick Watertite or other approved seamless aluminium gutters and rainwater pipes pre-painted with ColourTech G4 (Marble White) and fixing in accordance with the manufacturer's instructions with heavy duty brackets:</u></b>			
395	150 x 125mm Eaves gutter complete with all brackets, etc.	m	339
396	Extra over gutter for stopped end	No	35
397	Ditto for angle	No	24
398	Ditto for outlet to suit 100 x 75mm rainwater pipe	No	6
399	100 x 75mm Rainwater pipe complete with all brackets, etc.	m	84
400	Extra over rainwater pipe for bend or shoe	No	34
401	Ditto for eaves offset to 900mm projection	No	34

### **Steelwork**

All steelwork to be Grade S355JR

Workshop drawings must be submitted to the Engineer for approval **before** commencement of any manufacturing of steelwork.

No welding on site will be permitted.

### **Hot dip galvanising**

Where hot dip galvanising is specified, it should be executed in accordance with SANS 121:2011 (ISO 1461:2009), unless otherwise described

### **Hot dip galvanised steel walkway roof comprising welded beams in single lengths bolted to steel columns:**

402	50 x 38 x 3mm x 5,69kg/m Rectangular section	t	1.21
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403

76 x 50 x 3mm x 5,69kg/m Rectangular section beams

t

3.25

404

75 x 75 x 3mm x 6,81kg/m Square section beams

t

3.67

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	<b><u>Hot dip galvanised steel walkway roof support post assemblies, including all bolt holes, etc.:</u></b>				
405	75 x 75 x 3mm x 6,81kg/m Square section column 775mm long, fitted with and including 225 x 225 x 5mm thick baseplate welded on at bottom, baseplate four times holed to receive anchor bolts (elsewhere measured), top end welded to steel lug (elsewhere measured) including setting up in position, adjusting, etc.	No	72		
406	75 x 75 x 3mm x 6,81kg/m Square section column 2615mm long, ditto	No	112		
	<b><u>Hot dip galvanised steel purlins and bracing bolted to steel:</u></b>				
407	70 x 50 x 20 x 5mm x 4,54kg/m Lipped channel purlin	t	4.58		
408	60 x 230 x 5mm Thick steel lug 255mm long welded to steel square section (elsewhere measured), three times holed for bolts (elsewhere measured) including setting up in position and fixing to rectangular tie beam (elsewhere measured)	No	184		
	<b><u>Hot dip galvanised steel bolts to columns, beams, etc.:</u></b>				
409	M8 Grade 4.8 holding down bolt 65mm long screwed one end with lock nut and flat washer complete	No	736		
410	M8 Hexagon bolt 65mm long screwed one end with lock nut and flat washer complete	No	552		
	<b><u>30MPa Non-shrink grout:</u></b>				
411	Bedding approximately 30mm thick under 225 x 225mm base plate including splayed edges all round (base plate elsewhere measured)	No	184		
	<b><u>Clean down galvanised surfaces thoroughly with galvanised iron cleaner, apply one coat galvanised iron primer and two coats low gloss enamel paint on:</u></b>				
412	Galvanised steel roof and columns	m2	322		
	<b><u>JUNGLE GYM</u></b>				
	Section No. 5				
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**Main 100/125mm Tanalith treated and varnished poles and stays are to be set in concrete minimum 600mm deep, with bottom ends of poles protruding through concrete base to allow water to drain. 10mm Stainless steel threaded bars, stainless steel flat washers and nuts are to be used to assemble the structure to comply to SANS regulations. All prices to include labour, material, delivery and erection on site:**

- 413 Jungle Gym with three raised platforms, complete with covered roof, size 1,4 x 1,4m at 1,5m high from natural ground level, 95% UV protected shade cloth roof, wooden hand railings on three sides, nylon cargo net, 3mm thick glassfibre slide fixed to platform, 3600mm long balance beam bridge, 1,8 x 0,7m wide timber ladder leading to raised platform area, climbing wall with marine ply and resin hand grips, spider climber area between two raised platforms, fireman's pole with suitable stainless steel pole concreted into ground bolted to raised platform area, ramp climber with heavy duty knotted rope, 2,0 x 1,8m wide x 2,1m high monkey bars connected to raised platform area, two trapeze bars, vertical tyre climber with four tyres, cargo net, 2,0 x 2,0m sand pit area with timber surround filled with sea sand, separate standard size sea-saw timber structure with tyre strips and concrete anchored, separate three tyre standard size swing set with 12mm rope and tyre seats, separate stepping logs 400mm high concrete anchored installed complete by an approved manufacturer all as per Architect's drawing number 538, Jungle Gym Layout as part of C5.1 Drawings

No 1

### **BENCHES**

**Excavation in earth not exceeding 2m deep:**

- 414 Trenches

m3 8

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

- 415 Soft rock

m3 3

- 416 Hard rock

m3 1

**Risk of collapse of excavations:**

- 417 Sides of trench and hole excavations not exceeding 1,5m deep

m2 26

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	<b><u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 93% Mod AASHTO dry density:</u></b>				
418	Backfilling to trenches, holes, etc.	m3	1		
	<b><u>Earth filling obtained from the excavations and/or prescribed stockpiles on site compacted to a minimum of 95% Mod AASHTO dry density:</u></b>				
419	Filling to centre of benches, etc.	m3	2		
	<b><u>25MPa/19mm Unreinforced concrete cast against excavated surfaces:</u></b>				
420	Strip footings	m3	4		
	<b><u>25MPa/19mm Reinforced concrete:</u></b>				
421	Surface beds	m3	2		
	<b><u>Finishing top surfaces of concrete smooth with a wood float:</u></b>				
422	Surface beds, slabs, etc. to falls	m2	17		
	<b><u>Rough formwork to sides:</u></b>				
423	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	73		
	<b><u>Fabric reinforcement:</u></b>				
424	Type 311 fabric reinforcement in concrete surface beds, etc.	m2	17		
	<b><u>Brickwork of NFX bricks (14MPa nominal compressive strength) in Class II mortar:</u></b>				
425	One brick wall	m2	36		
	<b><u>Brickwork reinforcement:</u></b>				
426	150mm Wide reinforcement built in horizontally	m	200		
	<b><u>One layer of 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive</u></b>				
	Section No. 5				
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tape:

427	Under surface beds	m2	17
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428	<b><u>5:1 Cement plaster (SANS 2001) wood floated on brickwork:</u></b> On bench sides	m2	36	
429	<b><u>300 x 300 x 11,5mm Thick Natural Slate Tile or other approved wall tiles on plaster with Tal Gold Star 6 or other approved adhesive, 3mm wide continues joints in both directions with suitable grey Tal Wall and Floor or other approved grout:</u></b> On bench sides and seating	m2	53	
	<b><u>LANDSCAPING</u></b>			
	The maintenance period shall be three months after practical completion			
	<b><u>Cultivation and preparation of areas to be planted:</u></b>			
	Do not proceed with installation of topsoil and planting mix until all work has been completed. Till the sub-soil into the bottom layer of topsoil or planting mix, loosen soil of subgrade to depth of 50 - 75mm. Spread 50mm layer of topsoil and till together. Add topsoil and planting mix over and till together. Do not compact. Add bonemeal, phosphater and fertilizer during soil installation.			
Section No. 5 EXTERNAL WORKS (PROVISIONAL) Bill No. 1 EXTERNAL WORKS				

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**Plants, shrubs, trees, etc.:**

All trees to be minimum 2m high (planted height). Trees not planted in planters or concrete surrounds are to be planted 1m away from the walkways in 1 x 1 x 1m deep excavated hole.

Trees are to be staked where required and methods shall be approved by the Architect. Stakes shall be of sufficient strength to maintain the tree in the upright position. Where guy wires are attached around the tree, the trunk shall be protected with 20mm diameter rubber hose of sufficient length to extend past the trunk by more than 105mm.

Plants must be set plumb and braced in position until top soil or plant mix has been placed and tamped around the base of the root ball. Plants shall be set so that they will be at the same depth and so that the root ball does not shift or move laterally one year later.

All plants to be free from any damage, parasites, fungus or any other plant diseases or insects. No container bound plants will acceptable. All leaves to be dust free.

All plants are to be viewed and approved by the Architect before planting. All plants must be transported to the site in trucks with closed canopies. Plants in transit may not be exposed to wind or any other harmful element. Plants need to be watered regularly as for the specific needs of each species.

**Topsoil supplied by the Contractor, including spreading and levelling:**

430	In plant beds, grassed areas and holes for trees, shrubs, etc.	m3	100
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**Compost, fertilizer, etc.:**

431	Compost in plant beds, grassed areas, holes for trees, shrubs, etc.	m3	50
432	5:1:5 Fertilizer for lawns	kg	50
433	Super phosphate granular fertilizer for trees, shrubs, ground covers, etc.	kg	50
434	Bonemeal fertilizer for trees, shrubs, ground covers, etc.	kg	50

**Plants, shrubs and ground cover:**

435	Tecoma capensis	No	30
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Section No. 5  
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436	Barlaria repens	No	30	
437	Lampranthus	No	30	
438	Dietes	No	30	
439	Hedera helix	No	30	
<b><u>Trees:</u></b>				
<u>The Tenderer is to allow in his price for watering all newly planted trees twice a week for a period of 3 months after Practical Completion</u>				
440	Acacia xanthophloea (10L container)	No	16	
441	Albizzia julibrissin (10L container)	No	6	
442	Caesalpinia ferrea (10L container)	No	13	
443	Schizolobium excelsum (10L container)	No	6	
<b><u>Grassing, ground covers, etc.:</u></b>				
444	Sow Dichondra repens (Wonderlawn) seed in a ratio of 4:5 by weight at a rate of 2g/m2 to embankments over instant lawn areas, etc.	m2	2 833	
<b><u>Maintenance:</u></b>				
445	Maintenance of grassed areas for a period of 3 months after Practical Completion (total area approximately 12277m2) including regularly weeding and irrigating as necessary		Item	
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Section No. 5  
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Item No		Unit	Quantity	Rate	Amount
	<b><u>SECTION No. 6: PROVISIONAL SUMS AND ACCREDITED TRAINING</u></b>				
	<b><u>BILL No. 1: PROVISIONAL SUMS</u></b>				
	The Tenderer is referred to the relevant Clauses in the separate document Model Preambles for Trades (1999 Edition), the Department of Public Works document No. PW 371 Specification of Materials and Methods to be used and to the Supplementary Preambles as per each trade.				
	<b><u>MONETARY PROVISIONS</u></b>				
	<b><u>COMMUNITY LIAISON OFFICER</u></b>				
1	Provide the amount of R 126 000.00 (One Hundred and Twenty Six Thousand Rand) for the employment of a Community Liaison Officer (R 7 000.00 per month for duration of contract plus sundries)		Item		126 000.00
	<b><u>SKILLS DEVELOPMENT OF BUILT ENVIRONMENT INTERNS</u></b>				
2	Provide the amount of R 198 000.00 (One Hundred and Ninety Eight Thousand Rand) for the placement of two Built Environment Interns to be employed by the Principal Contractor for the duration of the contract (R 5 500,00 per month plus sundries)		Item		198 000.00
	<b><u>IN-SERVICE TRAINING STUDENTS</u></b>				
3	Provide the amount of R 144 000.00 (One Hundred and Forty Four Thousand Rand) for the placement of two In-service Training Students to be employed by the Principal Contractor for the duration of the contract (R 4 000,00 per month plus sundries)		Item		144 000.00
	<b><u>LOOSE FURNITURE</u></b>				
4	Provide the amount of R 478,450.00 (Four Hundred and Seventy Eight Thousand Four Hundred and Fifty Rand) for Loose Furniture to be supplied by a direct contract to be appointed by the Principal Agent. The contractor is to note that no profit or attendance will be paid on this item and the pricing of this tender must allow as such.		Item		478 450.00
	<b><u>BILL No. 2: ACCREDITED TRAINING</u></b>				
	Tenderers are to allow for CETA Credited Training to be provided by an approved Training Centre and the items to be priced accordingly				
	Section No. 6				
	PROVISIONAL SUMS AND ACCREDITED TRAINING				
	Bill No. 1				
	PROVISIONAL SUMS AND ACCREDITED TRAINING				

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**TRAINING OF YOUTH WORKERS (TARGET: 10 YOUTH WORKERS)**

**Accredited technical training:**

- 5 Bricklaying Accredited Training for 10 workers for an average of 15 days off site training (travelling and accommodation elsewhere measured) complete with supply of standard set of tools, moderation costs, including all costs required for an external moderator and issue of an EWSETA certificate on completion of the course/training including profit and attendance complete

Item

**TRAVELLING AND ACCOMMODATION DURING OFF-SITE TRAINING:**

**Technical training for 15 days off site**

- 6 Travelling to Accredited Training Facility and back to the school site at the start and completion of the course for 10 workers, this cost must include any trips that may be required over the 15 day period for weekends, travelling to accommodation (elsewhere measured) complete including and profit and attendance complete
- 7 Accommodation and Meals at the Accredited Training Facility for the duration of the course/training for 10 workers over the 15 day training period including profit and attendance complete.

Item

Item

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Bill No. 1

PROVISIONAL SUMS AND ACCREDITED TRAINING

Section No. 6

Bill No. 1

PROVISIONAL SUMS AND ACCREDITED TRAINING

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Bill No. 1  
PROVISIONAL SUMS AND ACCREDITED TRAINING

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3	SCHOOL BUILDINGS	105	
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5	EXTERNAL WORKS (PROVISIONAL)	170	
6	PROVISIONAL SUMS AND ACCREDITED TRAINING	173	
	ELECTRICAL & MECHANICAL INSTALLATION		SUM
	Sub Total		R
	<b><u>MONETARY PROVISIONS</u></b>		
	The following monetary provisions have been made in the contract and must be omitted from the contract sum at the start of the contract and used as directed below.		
	<i>Please note: These are monetary provisions only and the use, value and payment thereof are subject to adjustment based on actual costs through contractually approved variation orders and escalation costs calculated in terms of the prescribed contractual escalation calculations directives respectively.</i>		
	<b><u>CONTINGENCIES</u></b>		
	Provide the sum of R 1,500,000.00 (One Million Five Hundred Thousand Rand) for Contingencies, to be adjusted, used and paid as instructed and approved by the Client in terms of clauses 17, 31 and 32 of the Principal Building Agreement (refer JBCC).		R 1 500 000.00
	<b><u>ESCALATION</u></b>		
	Provide the sum of R 2,100,000.00 (Two Million One Hundred Thousand Rand) for statutory increase (CPAP), to be adjusted, used and paid as instructed by the Client for and based on contractually calculated escalation per item 3.2.4 of the contract data of the Preliminaries Bill and in terms of clauses 17, 31 and 32 of the Principal Building Agreement (refer JBCC).		R 2 100 000.00
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<i>Part 2A Project Specification</i>	<i>2A.1</i>
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**AKM & ASSOCIATES**

*June 2017*

**COMPULSORY RETURNABLE DOCUMENTS****CONTENTS**

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**PART 1A**

### ***SIMILAR TYPES OF INSTALLATIONS CARRIED OUT BY THE TENDERER***

**PROJECT NAME : ELECTRICAL INSTALLATIONS FOR MGOMANZI SPS**

*The Tenderer shall list below all similar works carried out by him including Client details and value of the Works. Failure to comply may invalidate the tender.*

<i>NAME OF CONTRACT</i>	<i>YEAR</i>	<i>CLIENT</i>	<i>CONSULTING ENGINEER</i>	<i>VALUE ( R )</i>

---

*DATE*

*SIGNATURE OF TENDERER*

**PART 1B****SCHEDULE OF STAFF AVAILABLE**

**PROJECT NAME** : **ELECTRICAL INSTALLATIONS FOR MGOMANZI SPS**

*The Tenderer shall provide a list of all staff (from senior personnel to labourers) that will be made available to perform any duties for and on behalf of the Tenderer on this project. The Tenderer may attach a company organogram for information purposes.*

*The Tenderer shall note that a competent Accredited Person registered as an Installation Electrician shall be responsible for the Works and present on site at all times.*

NAME	POSITION / DESIGNATION	YEARS OF RELEVANT EXPERIENCE	QUALIFICATION	REGISTRATION NUMBER*

*\* These numbers shall be those appearing on the certificates as required in terms of the Occupational Health and Safety Act No 85 of 1993*

---

 DATE

---

 SIGNATURE OF TENDERER



**PART 1C****CERTIFICATES REQUIRED**

**PROJECT NAME** : **ELECTRICAL INSTALLATIONS FOR MGOMANZI SPS**

*The Tenderer shall submit certified copies of the following certificates together with their Tender, namely:*

- 1 Registration as Electrical Contractor with Department of Labour.*
- 2 Licence of the Accredited Person registered as an Installation Electrician who will be responsible for the Works and on site at all times.*
- 3 CIDB grading certificate for **4EB** or higher*
- 4 Company Registration Documents*
- 5 Directors ID copies*
- 6 B-BBEE Contribution Certificate*
- 7 Tax Compliance Status Certificate (TCS) PIN*

---

DATE

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SIGNATURE OF TENDERER

**ANNEXURE D****DETAILS OF INSTALLATION ELECTRICIAN**

*I/We certify that:*

*Is a registered installation electrician in terms of the Occupational Health and Safety Act (Act 85 1994 and is permanently employed by my/our company trading as:*

*I/We further certify that the abovementioned person will be appointed as the responsible person in charge of the installation, which person shall personally supervise the whole of the electrical works as tendered for from inception to completion inclusive of signing all commencement / completion / cost certificates necessary as part of the Works.*

*I/We further certify that I/We am/are fully aware of the provisions of the Occupational Health and Safety Act (Act 85 1994), and that my/our company is trading as a registered electrical contracting organisation.*

**SIGNATURE OF  
INSTALLATION  
ELECTRICIAN:**

\_\_\_\_\_

**DATE:** \_\_\_\_\_

**REGISTRATION  
NUMBER OF  
INSTALLATION  
ELECTRICIAN**

\_\_\_\_\_

**DATE:** \_\_\_\_\_

**COMPANY STAMP:**

**NOTE:** *it is an offence to employ a registered single phase electrician on a poly-phase installation and it may be necessary to submit a certified copy of the licence of the person to be employed on any poly-phase project*

**SIGNATURE OF TENDERER**

**DATE**

**PART 1E****FORM OF RESOLUTION****PROJECT NAME : ELECTRICAL INSTALLATIONS FOR MGOMANZI SPS***This form is to be completed in full by the Tenderer. Failure to do so may invalidate the tender.***RESOLUTION PASSED BY THE BOARD OF DIRECTORS OF**

\_\_\_\_\_ (Company's Name)

at \_\_\_\_\_ (Place)

on the \_\_\_\_\_ day of \_\_\_\_\_ 2017 \_\_\_\_\_

**RESOLVED**

that \_\_\_\_\_ in his capacity

as \_\_\_\_\_ of the Company

*is hereby authorised and empowered to sign the Tender and/or Contract Documents for the project known as*

*for and on behalf of the Company.*

Signed : \_\_\_\_\_ (DIRECTOR)

Signed : \_\_\_\_\_ (DIRECTOR)

Signed : \_\_\_\_\_ (SECRETARY)

\_\_\_\_\_  
DATE

\_\_\_\_\_  
SIGNATURE OF TENDERER

**PART 1F****ELECTRICAL WORK MATERIAL SCHEDULE****PROJECT NAME : ELECTRICAL INSTALLATIONS FOR MGOMANZI SPS**

The contractor shall complete the following schedules and submit them with their tender submission.

The schedules will be scrutinised by the Representative / Agent and should any material offered not comply with the requirements contained in the specification, the Contractor will be required to supply material in accordance with the contract at no additional cost.

**NB: Only one manufacturer's name to be inserted for each item.**

Item	Material	Make or trade name	Country of origin	SABS
1	Distribution boards			
2	Circuit breakers 1P, 2P, 3P			
3	Contactors 1P, 2P, 3P			
4	Earth leakage relays 1P & 3P			
5	Daylight sensitive switch			
6	Conduit			
7	Conduit boxes			
8	Surface switches			
9	Watertight switches			
10	16A single/duo flush socket outlets			
11	16A single/duo dedicated socket outlets			
12	20A DP rotary isolator switch			
13	Weather proof enclosure			
14	Luminaires : Type A			

<i>Item</i>	<i>Material</i>	<i>Make or trade name</i>	<i>Country of origin</i>	<i>SABS</i>
15	Luminaires : Type PL			
16	Luminaires : Safe light			
17	PVC SWA cable			
18	Earth Rods			
19	Finials (lightning protection)			
20	Roof and down conductors (lightning protection)			

*NOTE: Under no circumstances will the tenderer be permitted to deviate from the materials specified above unless agreed in writing, by the Engineer, prior to award of tender.*

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*SIGNATURE OF TENDERER*

---

*DATE*

**ANNEXURE G**

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**REGISTRATION OF LPG INSTALLER**

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**THE LP GAS INSTALLER MUST BE REGISTERED WITH SAQCC AS A LP GAS INSTALLER**

**ATTACH REGISTRATION**

**PART 2A****PROJECT SPECIFICATION****SPECIFICATION FOR ELECTRICAL WORK***CONTENTS*

<i>CLAUSE</i>	<i>DESCRIPTION</i>	<i>PAGE</i>
<i>1</i>	<i>Tests</i>	<i>2A.1</i>
<i>2</i>	<i>Maintenance of Installations</i>	<i>2A.1</i>
<i>3</i>	<i>Regulations</i>	<i>2A.1</i>
<i>4</i>	<i>Notices and Fees</i>	<i>2A.1</i>
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<i>10</i>	<i>Conduit in Concrete Slabs</i>	<i>2A.4</i>
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<i>12</i>	<i>Wiring</i>	<i>2A.5</i>
<i>13</i>	<i>Switches and Socket Outlets</i>	<i>2A.6</i>
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<i>19</i>	<i>Mounting and Positioning of Luminaires</i>	<i>2A.9</i>

## **PART 2A: ELECTRICAL INSTALLATION**

### **SPECIFICATION FOR ELECTRICAL WORK**

#### **GENERAL**

##### **1 TESTS**

*The Contractor shall provide all instruments and equipment required for testing and any water, power and fuel required for the commissioning and testing of the installations at completion.*

##### **2 MAINTENANCE OF INSTALLATIONS**

*With effect from the date of the First Delivery Certificate the Contractor shall at his own expense undertake the regular servicing of the installation during the maintenance period and shall make all adjustments necessary for the correct operation thereof.*

*The Contractor's liability in respect of defects.*

*If during the said period the installation is not in working order for any reason for which the Contractor is responsible, or if the installation develops defects, he shall immediately upon being notified thereof take steps to remedy the defects and make any necessary adjustments.*

*Should such stoppages however be so frequent as to become troublesome, or should the installations otherwise prove unsatisfactory during the said period the Contractor shall, if called upon by the Representative / Agent or the Director-General, at his own expense replace the whole of the installations or such parts thereof as the Representative/Agent or the Director-General may deem necessary with apparatus specified by the Representative / Agent or the Director-General.*

##### **3 REGULATIONS**

*The installation shall be erected and tested in accordance with the following Acts and regulations:*

*The latest issue of SANS 10142: "Code of Practice for the Wiring of Premises",  
The Occupational Health and Safety Act, 1993 (Act 85 of 1993) as amended,  
The Local Government Act 1998 (Act 10 of 1998) as amended and the municipal by-laws and any special requirements of the local supply authority,  
The Fire Brigade Services Act 2000 (Act 14 of 2000) as amended,  
The National Building Regulations and Building Standards Act 1996 (Act 29 of 1996) as amended,  
The Post Office Act 1998 (Act 124 of 1998) as amended,  
The Electricity Act 1996 (Act 88 of 1996) as amended and  
The Regulations of the local Gas Board where applicable.*

##### **4 NOTICES AND FEES**

*The Contractor shall give all notices required by and pay all necessary fees, including any inspection fees, which may be due to the local Supply Authority.*

*On production of the official account, the Department will refund the net amount of the fee charged by the Supply Authority for connection of the installation to the supply mains, to the Contractor.*



## **5 SCHEDULE OF FITTINGS**

*In all instances where schedule of light, socket outlet and power points are attached to or included on the drawings, these schedules are to be regarded as forming part of the specification.*

## **6 QUALITY OF MATERIALS**

*Only materials of first class quality shall be used and all materials shall be subject to the approval of the Department. Departmental specifications for various materials to be used on this Contract are attached to and form part of this specification.*

*Wherever applicable the material is to comply with the relevant South African National Standards, specifications, or to British Standard Specifications, where no SABS Specifications exist.*

*Materials wherever possible, must be of South African manufacture.*

## **7 CONDUIT AND ACCESSORIES**

*The type of conduit and accessories required for the service, i.e. whether the conduit and accessories shall be of the screwed type, plain-end type or of the non-metallic type and whether metallic conduit shall be black enamelled or galvanised, is specified in Part 2 of this specification.*

*Unless other methods of installation are specified for certain circuits, the installation shall be in conduit throughout. No open wiring in roof spaces or elsewhere will be permitted.*

*The conduit and conduit accessories shall comply fully with the applicable SABS specifications as set out below and the conduit shall bear the mark of approval of the South African National Standards.*

*Screwed metallic conduit and accessories: SANS 60614, parts 1 and 2*

*Plain-end metallic conduit and accessories: SANS 60614, parts 1 and 2*

*Non-metallic conduit and accessories: SANS 950*

*All conduit fittings, except couplings, shall be of the inspection type. Where cast metal conduit accessories are used, these shall be of malleable iron. Zinc base fittings will not be allowed.*

*Bushes used for metallic conduit shall be brass and shall be provided in addition to locknuts at all points where the conduit terminates at switchboards, switch-boxes, draw-boxes, etc.*

*Draw-boxes are to be provided in accordance with the "Wiring Code" and wherever necessary to facilitate easy wiring.*

*For light and socket outlet circuits, the conduit used shall have an external diameter of 20mm. In all other instances the sizes of conduit shall be in accordance with the "Wiring Code" for the specified number and size of conductors, unless otherwise directed in part 2 of this specification or indicated on the drawings.*

*Only one manufactured type of conduit and conduit accessories will be permitted throughout the installation.*

*Running joints in screwed conduit are to be avoided as far as possible and all conduit systems shall be set or bent to the required angles. The use of normal bends must be kept to a minimum with exception of larger diameter conduits where the use of such bends is essential.*

*All metallic conduits shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.*

*Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.*

*Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems.*

*Damaged conduit resulting from the use of incorrect bending apparatus or methods applied must on indication by the Department's inspectorate staff, must be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the Contractor's expense.*

*Conduit and conduit accessories used for flameproof or explosion proof installations and for the suspension of luminaires as well as all load bearing conduit shall in all instances be of the metallic screwed type.*

*All conduit and accessories used in areas within 50 km of the coast shall be galvanised to SABS standards.*

*Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the local electricity supply authority prior to the submission of their tender. Under no circumstances will consideration be given by the Department to any claim submitted by the Contractor, which may result from a lack of knowledge in regard to the supply authority's requirements.*

## **8 CONDUIT IN ROOF SPACES**

*Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles screwed to the roof timbers. Nails or "crampets" will not be allowed.*

*Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450mm. The Contractor shall supply and install all additional supporting timbers in the roof space as required.*

*Under flat roofs, in false ceilings or where there is less than 0,9m of clearance, or should the ceilings be insulated with glass wool or other insulating material, the conduit shall be installed in such a manner as to allow for all wiring to be executed from below the ceilings.*

*Conduit runs from distribution boards shall, where possible terminate in fabricated sheet steel draw-boxes installed directly above or in close proximity to the boards.*

## **9 SURFACE MOUNTED CONDUIT**

*Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified under Part 2 of the specification, conduit installed on*

*the surface must be plumbed or levelled and only straight lengths shall be used.*

*The use of inspection bends is to be avoided and instead the conduit shall be set uniformly and inspection coupling used where necessary.*

*No threads will be permitted to show when the conduit installation is complete, except where running couplings have been employed.*

*Running couplings are only to be used where unavoidable, and shall be fitted with a sliced coupling as a lock nut.*

*Conduit is to be run on approved spaced saddles rigidly secured to the walls.*

*Alternatively, fittings, tees, boxes, couplings etc., are to be cut into the surface to allow the conduit to fit flush against the surface. Conduit is to be bedded into any wall irregularities to avoid gaps between the surface and the conduit.*

*Crossing of conduits is to be avoided; however, should it be necessary purpose-made metal boxes are to be provided at the junction. The finish of the boxes and positioning shall be in keeping with the general layout.*

*Where several conduits are installed side by side, they shall be evenly spaced and grouped under one purpose-made saddle.*

*Distribution boards, draw-boxes, industrial switches and socket outlets etc., shall be neatly recessed into the surface to avoid double sets.*

*In situations where there are no ceilings the conduits are to be run along the wall plates and the beams.*

*Painting of surface conduit shall match the colour of the adjacent wall finishes.*

*Only approved plugging materials such as aluminium inserts, fibre plugs, plastic plugs, etc., and round-head screws shall be used for fixing saddles, switches, socket outlets, etc., to walls, wood plugs and the plugging in joints in brick walls are not acceptable.*

## **10 CONDUIT IN CONCRETE SLABS**

*In order not to delay building operations the Contractor must ensure that all conduits and other electrical equipment, which are to be cast in the concrete columns and slabs, are installed in good time.*

*The Contractor shall have a representative in attendance at all times when the casting of concrete takes place.*

*Draw-boxes, expansion joint boxes and round conduit boxes are to be provided where necessary. Sharp bends of any nature will not be allowed in concrete slabs.*

*Draw and/or inspection boxes shall be grouped under one common cover plate and must preferable are installed in passages or male toilets.*

*All boxes, etc., are to be securely fixed to the shuttering to prevent displacement when concrete is cast. The conduit shall be supported and secured at regular intervals and installed as close as*

possible to the neutral axis of concrete slabs and/or beams.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

## **11 FLEXIBLE CONNECTIONS FOR CONNECTING UP OF STOVES, MACHINES, ETC.**

Flexible tubing connections shall be of galvanised steel construction, and in damp situations of the plastic sheathed galvanised steel type. Other types may only be used subject to the prior approval of the Department's site electrical representative.

Connectors for coupling onto the flexible tubing shall be of the gland or screw-in types, manufactured of either brass or cadmium or zinc plated mild steel, and the connectors after having been fixed onto the tubing, shall be durable and mechanically sound.

Aluminium and zinc alloy connectors will not be acceptable.

## **12 WIRING**

Except where otherwise specified in Part 2 of this specification, wiring shall be carried out in conduit throughout. Only one circuit per conduit will be permitted.

No wiring shall be drawn into conduit until the conduit installation has been completed and all conduit ends provided with bushes.

All conduits are to be clear of moisture and debris before wiring is commenced.

Unless otherwise specified in Part 2 of this specification or indicated on the service drawings, the wiring of the installation shall be carried out in accordance with the "Wiring Code". Further to the requirements concerning the installation of earth conductors to certain light points as set out in the "Wiring Code", it is a specific requirement of this document that where plain-end metallic conduit or non-metallic conduit has been used, earth conductors must be provided and drawn into the conduit with the main conductors to all points, including all luminaires and switches throughout the installation.

Wiring for lighting circuits is to be carried out with 1.5mm<sup>2</sup> conductors and a 1.5 mm<sup>2</sup> earth conductor. For socket outlet circuits the wiring shall comprise 2.5mm<sup>2</sup> conductors and a 2.5mm<sup>2</sup> earth conductor.

In certain instances, as will be directed in Part 2 of this specification, the sizes of the aforementioned conductors may be increased for specified circuits. Sizes of conductors to be drawn into conduit in all other instances, such as feeders to distribution boards, power points etc., shall be as specified elsewhere in this specification or indicated on the drawings. Sizes of conductors not specified must be determined in accordance with the "Wiring Code".

**The loop-in system shall be followed throughout, and no joints of any description will be permitted.**

The wiring shall be done in PVC insulated 600/1000 V grade cable to SANS 1411.

Where cable ends connect onto switches, luminaires etc., the end strands must be neatly and tightly twisted together and firmly secured. Cutting away of wire strands of any cable will not be allowed.

### **13 SWITCHES AND SOCKET OUTLETS**

*All switches and switched-socket outlet combination units shall conform to the Department of Public Works Quality Specifications, which form part of this specification.*

*No other than 16A 3 pin sockets are to be used, unless other special purpose types are distinctly specified or shown on the drawings.*

*All light switches shall be installed at 1,1m above finished floor level and all socket outlets at 300mm above finished floor levels unless otherwise specified in the Schedule of Fittings which forms part of this specification or alternatively the height of socket outlets may be indicated on the drawings.*

### **14 SWITCHGEAR**

*Switchgear, which includes circuit breakers, iron-clad switches, interlocked switch-socket outlet units, contactors, time switches, etc., is to be in accordance with the Departmental Quality Specifications which form part of this specification and shall be equal and similar in quality to such brands as may be specified.*

*For uniform appearance of switchboards, only one approved make of each of the different classes of switchgear mentioned in the Quality Specifications shall be used throughout the installations.*

### **15 SWITCHBOARDS**

*All boards shall be in accordance with the types as specified, be constructed according to the detail or type drawings and must be approved by the Department before installation.*

*In all instances where provision is to be made on boards for the supply authority's main switch and/or metering equipment the contractor must ensure that all requirements of the authorities concerned in this respect are met.*

*Any construction or standard type board proposed as an alternative to that specified must have the prior approval of the Department.*

*All busbars, wiring, terminals, etc., are to be adequately insulated and all wiring is to enter the switchgear from the back of the board. The switchgear shall be mounted within the boards to give a flush front panel.*

*Cable and boxes and other ancillary equipment must be provided where required.*

*Clearly engraved labels are to be mounted on or below every switch. The working of the labels in English and Afrikaans is to be according to the layout drawings or as directed by the Department's representative and must be confirmed on site. Flush mounted boards to be installed with the top of the board 1.5m above the finished floor level.*

### **16 WORKMANSHIP AND STAFF**

*Except in the case of electrical installations supplied by a single-phase electricity supply at the point of supply, an accredited person shall exercise general control over all electrical installation work being carried out.*

*The workmanship shall be of the highest grade and to the satisfaction of the Department.*

*All inferior work shall, on indication by the Department's inspecting officers, immediately be removed and rectified by and at the expense of the Contractor.*

## **17 CERTIFICATE OF COMPLIANCE**

*On completion of the service, a certificate of compliance must be issued to the Department's Representative / Agent, in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993).*

## **18 EARTHING OF INSTALLATION**

### **Main earthing**

*The type of main earthing must be as required by the supply authority if other than the Departments, and in any event as directed by the Department's representative, who may require additional earthing to meet test standards.*

*Where required an earth mat shall be provided, the minimum size, unless otherwise specified, being 1,0m x 1,0m and consisting of 4mm diameter hard-drawn bare copper wires at 250mm centres, brazed at all intersections.*

*Alternatively or additionally earth rods or trench earths may be required as specified or directed by the Department's authorised representative.*

*Installations shall be effectively earthed in accordance with the "Wiring Code" and to the requirements of the supply authority. All earth conductors shall be stranded copper with or without green PVC installation.*

*Connection from the main earth bar on the main board must be made to the cold water main, the incoming service earth conductor, if any and the earth mat or other local electrode by means of 12mm x 1,60mm solid copper strapping or 16mm<sup>2</sup> stranded (not solid) bare copper wire or such conductor as the Department's representative may direct. Main earth copper strapping where installed below 3m from ground level, must be run in 20mm diameter conduit securely fixed to the walls.*

*All other hot and cold water pipes shall be connected with 12mm x 0,8mm perforated for solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipework with brass nuts and bolts and against walls with brass screws at 150mm centres.*

*In all cases where metal water pipes, down pipes, flues, etc., are positioned within 1,6m of switchboards an earth connection consisting of copper strapping shall be installed between the pipework and the board.*

*In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each distribution board.*

### **Roofs, gutters and down pipes**

*Where service connections consist of overhead conductors, all metal parts of roofs, gutters and down pipes shall be earthed. One bare 10mm<sup>2</sup> copper conductors, shall be installed over the full length of the ceiling void, fixed to the top purlin and connected to the main earth conductor and each switchboard.*

*The roof and gutters shall be connected at 15m intervals to this conductor by means of 12mm X 0,8mm copper strapping (not conductors) and galvanised bolts and nuts. Self-tapping screws are not acceptable. Where service connections consist of underground supplies, the above requirements are not applicable.*

### **Sub-distribution boards**

*A separate earth connection shall be supplied between the earth busbar in each sub-distribution board and the earth busbar in the Main Switchboard. These connections shall consist of bare or insulated stranded copper conductors installed along the same routes as the supply cables or in the same conduit as the supply conductors. Alternatively armoured cables with earth continuity conductors included in the armouring may be utilised where specified or approved.*

### **Sub-circuits**

*The earth conductors of fall sub-circuits shall be connected to the earth busbar in the supply board in accordance with SANS 10142.*

### **Ring Mains**

*Common earth conductors may be used where various circuits are installed in the same wire way in accordance with SANS 10142.*

*In such instances the sizes of earth conductors shall be equivalent to that of the largest current carrying conductor installed in the wire way, alternatively the size of the conductor shall be as directed by the Engineer.*

*Earth conductors for individual circuits branching from the ring main shall be connected to the common earth conductor with T-ferrules or soldered.*

### **The common earth shall not be broken.**

### **Non-metallic Conduit**

*Where non-metallic conduit is specified or allowed, the installation shall comply with the Department's standard quality specification for "conduit and conduit accessories".*

*Standard copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including metal switch boxes, socket-outlet boxes, draw-boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.*

### **Flexible Conduit**

*An earth conductor shall be installed in all non-metal flexible conduits. This earth conductor shall not be installed externally to the flexible conduit but within the conduit with the other conductors.*

*The earth conductor shall be connected to the earth terminals at both ends of the circuit.*

### **Connection**

*Under no circumstances shall any connection points, bolts, screws, etc., used for earthing be*

*utilised for any other purpose. It will be the responsibility of the Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided.*

*Unless earth conductors are connected to proper terminals, the end shall be tinned and lugged.*

## **19 MOUNTING AND POSITIONING OF LUMINAIRES**

*The Contractor is to note that in the case of board and acoustic tile ceilings, i.e. as opposed to concrete slabs, close co-operation with the building contractor is necessary to ensure that as far as possible the luminaires are symmetrically positioned with regard to the ceiling pattern.*

*The layout of the luminaires as indicated on the drawings must be adhered to as far as possible and must be confirmed with the Department's representative.*

*Fluorescent luminaires installed against concrete ceilings shall be screwed to the outlet boxes and in addition 2 x 6mm expansion or other approved type fixing bolts are to be provided. The bolts are to be  $\frac{3}{4}$  of the length of the luminaires apart.*

*Fluorescent luminaires to be mounted on board ceilings shall be secured by means of two 40mm x No. 10 round head screws and washers. The luminaires shall also be bonded to the circuit conduit by means of locknuts and brass bushes. The fixing screws are to be placed  $\frac{3}{4}$  of the length of the fitting apart.*

*Fluorescent luminaires to be mounted on roof trusses shall be secured by means of two 40mm x No. 10 round head screws and washers. The luminaires shall also be bonded to the circuit conduit by means of locknuts and brass bushes. The fixing screws are to be placed  $\frac{3}{4}$  of the length of the fitting apart.*

*Earth conductors must be drawn in with the circuit wiring and connected to the earthing terminal of all fluorescent luminaires as well as other luminaires exposed to the weather in accordance with the "Wiring Code".*

*Incandescent luminaires are to be screwed directly to outlet boxes in concrete slabs. Against board ceilings the luminaires shall be secured to the bracing or joists by means of two 40mm x No. 8 round head screws.*



**PART 2B****SPECIFICATION FOR ELECTRICAL WORK****INSTALLATION DETAILS****CONTENTS**

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**PART 2B****SPECIFICATION FOR ELECTRICAL WORK****INSTALLATION DETAILS****1 CABLE SLEEVE PIPES**

*Where cables cross under roadways, other services and where cables enter buildings, the cables shall be installed in high-density polyethylene pipes.*

*The ends of all sleeves shall be sealed with a non-hardening watertight compound after the installation of cables. All sleeves intended for future use shall likewise be sealed.*

**2 NOTICES**

*The Contractor shall issue all notices and make the necessary arrangements with Supply Authorities, the Postmaster-General, S.A. Transport Services, Provincial or National Road Authorities and other authorities as may be required with respect to the installation.*

**3 ELECTRICAL EQUIPMENT**

*All equipment and fittings supplied must be in accordance with the attached quality specification (Part 3 of this document), suitable for the relevant supply voltage, and frequency and must be approved by the Department's representative.*

**4 DRAWINGS**

*The drawings generally show the scope and extent of the proposed work and shall not be held as showing every minute detail of the work to be executed.*

*The position of power points, switches and light points that may be influenced by built-in furniture must be established on site, prior to these items being built in.*

**5 BALANCING OF LOAD**

*The Contractor is required to balance the load as equally as possible over the multiphase supply.*

**6 SERVICE CONDITIONS**

*All plant shall be designed for the climatic conditions appertaining to the service.*

**7 SWITCHES AND SOCKET OUTLETS**

*The installation of switches and socket outlets must conform to clause 13 of Part 1 of this specification. All switches shall be rectangular in shape.*

**8 LIGHT FITTINGS AND LAMPS**

*The installation and mounting of luminaires must conform to clause 19 of Part 1 of this specification.*

*All fittings to be supplied by the Contractor shall have the approval of the Department; all lamps*

*shall bear the approved mark of the SABs, and shall have the British light centre length.*

*The light fittings must be of the type specified in the Schedule of Light Fittings.*

## **9 EARTHING AND BONDING**

*The Contractor will be responsible for all earthing and bonding of the building and installation. The earthing and bonding is to be carried out strictly as described in clause 18 of Part 1 of this specification and to the satisfaction of the Department's representative.*

## **10 MAINTENANCE OF ELECTRICAL SUPPLY**

*All interruptions of the electrical supply that may be necessary for the execution of the work will be subject to prior arrangement between the Contractor and the user Department.*

## **11 EXTENT OF WORK**

*The work covered by this contract comprises the supply, installation, testing, commissioning and three (3) months guarantee, of the complete electrical engineering services installation, in working order, as shown on the drawings and as per this specification.*

*The Works involved and for which the Electrical Contractor must allow is briefly as follows, namely:*

- *Eskom incoming supply of 32kVA.*
- *The supply and installation of distribution kiosks as detailed in the single line diagrams*
- *The supply and installation of main distribution board and sub distribution boards as detailed in the single line diagrams*
- *The supply and installation of PVC conduiting and wall boxes.*
- *The supply and installation of lighting and small power outlets as specified*
- *The supply and installation of the complete lightning protection and other associated earthing systems.*
- *The supply and installation of telephone and data points as shown on the drawings*
- *The supply and installation of complete lightning protection and other associated earthing systems.*
- *Testing and issuing of the Certificates of Compliance for the overall installation.*
- *Provision of Record drawings and operating and maintenance manuals where required*
- *Supervision of sleeves crossing the road installed by others*

*All other materials, equipment, labour and services necessary for the complete, safe and efficient operation of the Works in full accordance with the specifications as laid down in this document.*

*The following work is excluded and shall be executed by others:-*

- *Provision of sleeves larger than 50mm diameter and manholes*
- *Patching and plastering conduit chases (chasing to be carried out and left in a suitable manner).*

## **12 SUPPLY AUTHORITY**

*The Supply Authority in the area is ESKOM.*

## **13 PROGRAMME**

*The Electrical Contractor will be appointed as a Sub-contractor to the Builder.*

*The Electrical Contractor will be expected to comply with the Main Contractor's programme.*

*The cost of overtime, additional labour and plant necessary for the completion of the Works in accordance with the programme shall be included in the Electrical Contractor's tender price for the Works.*

## **14 DESCRIPTION OF BUILDINGS**

*All buildings are indicated on the site plan.*

## **15 ELECTRICAL DISTRIBUTION BOARDS**

*All electrical distribution boards shall be purpose made boards; supplied and installed in accordance with the attached Standard Technical Specifications and the single line diagrams and shall comply with SANS 10142.*

*All circuit breaker sizing and design has been done using CBI specifications for Heinemann 5kA breakers.*

*Each DB shall have sufficient ways for each circuit neutral and each circuit earth wire. Doubling up of circuits will not be accepted. Each DB shall have 20% additional spare space for future circuits.*

*All Main Switches shall be clearly marked "MAIN SWITCH" and the necessary warning labels installed at the switch.*

*All circuit breakers for mechanical equipment to be of D curve type with orange handle.*

*Each section of the DB shall be provided with a legend card holder with a clear perspex front. Each circuit breaker shall be clearly numbered in accordance with the single line diagrams. Corresponding numbers and circuit descriptions shall be clearly printed or typed on the legend cards.*

*Where existing DB's are to be modified to accommodate new switchgear, such work shall be neatly carried out and paint work reinstated on completion.*

*Sufficient matching paint shall be provided to allow for the touching up of scratches etc. encountered on site.*

*In addition to clause 14 and clause 15 of Part 1 of this specification the following shall be applicable to switchboards required for this installation.*

*Refer to the Summary of Switchgear and Circuits for the minimum fault level rating of specified equipment.*

## **16 CONDUIT AND WIRING**

*Conduit and conduit accessories shall be galvanised plain end conduit in accordance with SANS 60614.*

*All conduits, regardless of the system employed, shall be installed strictly as described in the applicable paragraphs of clauses 4 to 8 of Part 1 of the specification. Wiring of the installation shall be carried out as directed in clause 9 Part 1 of this specification.*

*The Contractor shall ensure that the minimal, preferably none, services i.e. conduit and wiring, are to be installed within the ceiling voids. Wherever possible, the services shall be chased, or cast into, the concrete slabs and walls.*

*All LV single core conductors shall be of the PVC insulated type rated at 600 V general service duty, colours being red, white and blue for phases, black for neutrals and green/yellow for earth.*

*No openly installed "surfix" or twin and earth will be permitted unless otherwise authorized by the Engineer prior to installation.*

*The Electrical Contractor shall allow for chasing in of conduits from the position of all switch drops and switched socket outlets where these are being installed in new buildings.*

*Where new services are called for in existing buildings, conduits and equipment shall be of surface mounting type.*

*Flexible tubing or other Engineer approved method shall be used for:  
Expansion joint crossings  
Connections to hot water cylinders and stoves*

*No conduit smaller than 20mm diameter shall be permitted. All conduits shall be of the metal type and pre-painted either electric orange for service buildings or white for the houses. Only purpose made bends will be accepted for conduits of 32 diameter or larger. The conduit shall be installed using the loop-in method. Draw boxes in ceilings will not be accepted.*

*Galvanised conduits shall be installed in the walls for fire detection and protection installations.*

*No single core conductors will be permitted on open channels and cable ladders.  
All wiring in flammable areas shall be done using approved flameproof cable with copper conductors.*

*Joints in wiring are to be avoided as best as possible. Where unavoidable joints shall be made using ferrules crimped with a proper crimping tool and insulated with heat shrink insulation of the correct grade for the voltage and amperage of the system.*

## **17 TELEPHONE INSTALLATION**

*Unless otherwise specified, telephone and data outlets shall each comprise of a 100 x 100 conduit box with a white cover plate. The telephone cover plate shall be provided with an RJ11 socket outlet and the data cover plate with an RJ45 socket outlet.*

*All conduits for telephone and data services shall be 25mm diameter and draw wires shall be drawn into all of these wireways.*

## **18 EXCAVATIONS AND RELATED WORKS**

*For further details refer to "Low Voltage Cables".*

*PVC sleeves shall only be installed where the cable installation passes beneath paved walkways / parking area, etc., as indicated on the attached drawings.*

*The sleeves shall be manufactured from a high-density polyethylene with a double wall construction, allowing a corrugated outer wall finish and a smooth inner wall finish.*

## **19 LOW VOLTAGE CABLES AND EARTH CONTINUITY CONDUCTORS**

*The Contractor shall supply and completely install all distribution cables as indicated on the drawings, and listed in the Schedule of Cables.*

*The storage, transportation, handling and laying of the cables shall be according to first class practice, and the contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operations.*

*The cable-trenches shall be excavated to a depth of 0.9m deep below ground level and shall be 450mm wide for one to three cables, and the width shall be increased where more than three cables are laid together so that the cables may be placed at least two cable diameters apart throughout the run. The bottom of the trench shall be level and clean and the bottom and sites free from rocks or stones liable to cause damage to the cable.*

*The Contractor must take all necessary precautions to prevent the trenching work being in any way a hazard to the personnel and public and to safeguard all structures, roads, sewage works or other property on the site from any risk of subsidence and damage.*

*In the trenches the cables shall be laid on a 75mm thick bed of earth and be covered with a 150mm layer of earth before the trench is filled in.*

*All joints in underground cables and terminations shall be made either by means of compound filled boxes according to the best established practice by competent cable jointers using first class materials or by means of approved epoxy-resin pressure type jointing kits such as "Scotchcast". Epoxy-resin joints must be made entirely in accordance with the manufacturer's instructions and with materials stipulated in such instructions. Low tension PVC SWA cables are to be made off with sealing glands and materials designed for this purpose, which must be of an approved make. Where cables are cut and not immediately made off, the ends are to be sealed without delay.*

*The laying of cables shall not be commenced until the trenches have been inspected and approved. The cable shall be removed from the drum in such a way that no twisting, tension or mechanical damage is caused and must be adequately supported at 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 drawing in of the cables.*

*Backfilling (after bedding) of the trenches 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 150mm. The surface is to be made good as required.*

*On each completed section of the laid and jointed cable, the insulation resistance shall be tested to approval with an approved "Megger" type instrument of not less than 500 V for low tension*

cables.

*Earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such continuity conductors are to be stranded bare copper of a cross-sectional area equal to at least half that of one live conductors of the cable, but shall not be less than 4mm<sup>2</sup> or more than 70mm<sup>2</sup>. A single earth wire may be used as earth continuity conductor for two or more cables run together, branch earth wires being brazed on where required.*

*The cable installation shall be kept at a minimum distance of 0.5mm from the edge of the foundation of the boundary wall and or building walls. Deviations from this shall be confirmed by the Representative / Agent.*

*The cable installation shall be complete with concrete cable markers, positioned every 30 meters, or at every change in direction, whichever, is the lesser.*

*Cable warning tape ("skull and crossbones" danger tape) shall be installed 150mm above the cable installation.*

### **19.1 Laying, Jointing and Making off of Electrical Cables**

*The requirements specified hereafter, are aimed essentially at high tension cable but are also valid for low tension cable, where applicable.*

1. *The use of the term "Inspector" includes the engineer or inspector of the Department or an empowered person of the concerned supervising consulting engineer's firm.*
2. *No cable is to be laid before the cable trench is approved and the Contractor and inspector agree upon the soil qualification of the excavation.*
3. *After the cable has been laid and before the cable trench is back-filled the inspector must ensure that the cable is properly bedded and that there is no undesirable material included in the bedding layer.*
4. *All cable jointing and the making off of the cables must only be carried out by qualified experienced cable jointers. Helpers of the jointers may not saw, strip, cut, solder, etc. The cable and other work undertaken by them must be carried out under the strict and constant supervision of the jointer.*
5. *Before the Contractor allows the jointer to commence with the jointing work or making off of the cable (making off is recognised as half a joint) he must take care and ensure:*
  - 5.1 *That he has adequate and suitable material available to complete the joint properly and efficiently. Special attention must be given to ensure the cable ferrules and cable lugs are of tinned copper and of sufficient size. The length of the jointing lugs must be at least six times the diameter of the conductor,*
  - 5.2 *That the joint pit is dry and that all loose stones and material are removed,*
  - 5.3 *That the walls and banks of the joint pit are reasonable firm and free from loose material, which can fall into the pit,*
  - 5.4 *That the necessary cofferdams or retaining walls are made to stop the flow of water*

*into the joint pit,*

- 5.5 *That the joint pit is provided with suitable groundsheets so that the jointing work is carried out in clean conditions,*
- 5.6 *That the necessary tents or sails are installed over the joint pit to effectively avert unexpected rainfall and that sufficient light or lighting is provided,*
- 5.7 *That the necessary means are available to efficiently seal the jointing or cable end when an unexpected storm or cloudburst occurs, regardless of how far the work has progressed,*
- 5.8 *That the cables and other materials are dry, undamaged and in all respects are suitable for the joint work or making off,*
- 5.9 *That the heating of cable oil, cable compound, plumbers metal and solder is arranged that they are at the correct temperature when required so that the cable is not unnecessary exposed to the atmosphere and consequently the ingress of moisture (care must be taken of overheating)*

*Flow temperatures of cable oil and compound must be determined with suitable thermometers. Cable oil and compound must not be heated to exceed the temperatures given on the containers and precaution must be taken to ensure that the tin is not overheated in one position. The whole mass must be evenly and proportionally heated.*

*(Temperatures of solder and plumbers metal may be tested with brown paper (testing time: 3 seconds). The paper must colour slightly - not black or burnt).*

- 6. *Before the paper insulated cables are joined, they must be tested for the presence of moisture by the cable jointers test. This consists of the insertion of a piece of unhandled insulated impregnated paper tape in warm cable oil heated to a temperature of  $130 \pm 5^{\circ}\text{C}$ .*

*Froth on the surface of the oil is an indication that moisture is present in the impregnated insulation and the amount of the froth gives an indication of the moisture present.*

- 7. *If the cable contains moisture or is found to be otherwise unsuitable for jointing or making of the inspector is to be notified immediately and he will issue the necessary instruction to cope with the situation.*
- 8. *The joint or making off of paper-insulated cables must not be commenced during rainy weather.*
- 9. *Once a joint is in progress the jointer must proceed with the joint until it is complete and before he leaves the site.*
- 10. *The jointer must ensure that the material and his tools are dry at all times, reasonably clean and absolutely free from soil.*
- 11. *Relating to the jointing of the cable the following requirements apply:*
  - 11.1 *All jointing must be carried out in accordance with recognised and tried techniques and*



*comply strictly with the instructions given by the supplier of the jointing kit.*

- 11.2 *The cables must be twisted by hand so that the cores can be joined according to the core numbers. If necessary the cable is to be exposed for a short distance to accomplish this. Under no circumstances may the cores in a joint be crossed so as to enable cores to be joined according to the core numbers. If it is not possible to twist the cables so that the preceding requirements can be met, then cores are to be joined in the normal way without any consideration of the core numbers.*
- 11.3 *Normally the cables will have profile conductors. The conductors shall be pinched with gas pliers to form a circular section, bound with binding wire so that they do not spread, and then tinned before jointing.*
- 11.4 *Jointing ferrules, the length of which are at least 6 times the diameter of the conductors, must be slid over the conductor ends to be joined and pinched tightly. Then they are soldered by means of the ladle process whilst being pinched further closed.*

*Use resin only as a flux. The slot opening in the ferrule must be completely filled, including all depressions.*

*Remove all superfluous metal with a cloth dipped in tallow. Work during the soldering process must be from top to bottom. Rub the ferrule smooth and clean with aluminium oxide tape after it has cooled down to ensure that there are not any sharp points or edges.*

***NB:*** *The spaces between the conductor strands must be completely filled by soldering process and must be carried out quick enough to prevent the paper insulation from burning or drying out unnecessarily.*

- 11.5 *After the ferrules have been rubbed smooth and clean, they and the exposed cores must be treated with hot cable oil (110°C) to remove all dust and moisture. These parts are to be thoroughly basted with the oil.*
- 11.6 *The jointer must take care that his hands are dry and clean before the joint is insulated. Also the insulating tape, which is to be used, must first be immersed in warm cable oil (110°C) for a sufficient period to ensure that no moisture is present.*
- 11.7 *After the individual cores have been installed they must be well basted with hot cable oil and again after the applicable separator and/or belt insulation tape is applied before the lead joint sleeve is placed in position*
- 11.8 *The lead joint sleeve must be thoroughly cleaned and prepared before it is placed on the cable and must be kept clean during the whole jointing process. Seal the filling apertures of the sleeve with tape until the sleeve is ready for compound filling.*
- 11.9 *The plumbing joints employed to solder the joint sleeve to the cable sheath, must be cooled off with tallow and the joint sleeve is to be filled with compound while it is still warm. Top up continuously until the joint is completely filled to compensate for the compound shrinkage.*

*The outer joint box must be clean and free from corrosion. After it has been placed in position it must be slightly heated before being filled with compound. Top up until*

completely full.

As far as cable end boxes are concerned, the requirements as set out above are valid where applicable.

## 20 SCOPE OF WORK

Attached are drawings showing the scope of all the work required. The Electrical Contractor shall include for all items necessary to complete the work. The contractor is to allow for the stripping of the existing installation.

## 21 SCHEDULE OF ELECTRICAL DISTRIBUTION BOARDS

<b>Board</b>	<b>Type</b>	<b>Panel</b>	<b>Fault Level (kA)</b>	<b>Load (kW)</b>
KIOSK 1	Floor Standing – 3CR12	Normal	10	32
KIOSK 2	Floor Standing – 3CR12	Normal	10	15.6
KIOSK 3	Floor Standing – 3CR12	Normal	10	13.74
DB-A	Flush, metal with doors	Normal	6	9.9
DB-B	Flush, metal with doors	Normal	6	8.4
DB-C	Flush, metal with doors	Normal	6	5.6
DB-D	Flush, metal with doors	Normal	6	3
DB-E	Flush, metal with doors	Normal	6	2.2
DB-F	Flush, metal with doors	Normal	6	2.2
DB-G	Flush, metal with doors	Normal	6	9.7
DB-H	Flush, metal with doors	Normal	6	3.4
DB-I	Flush, metal with doors	Normal	6	0.5
DB-J	Flush, metal with doors	Normal	6	1
DB-K	Flush, metal with doors	Normal	6	2.7
DB-L	Flush, metal with doors	Normal	6	1.2
DB-M	Flush, metal with doors	Normal	6	0.5

## 22 SCHEDULE OF CABLES

Supply, install and connect cables as indicated on the single line diagrams.

<b>FROM</b>	<b>TO</b>	<b>SIZE AND TYPE</b>	<b>LOAD (kW)</b>
ESKOM	KIOSK 1 (RED PHASE)	25 mm <sup>2</sup> 3-core PVC SWA PVC cable	15.6
ESKOM	KIOSK 1 (BLUE PHASE)	25 mm <sup>2</sup> 3-core PVC SWA PVC cable	13.74
KIOSK 1	KIOSK2	25 mm <sup>2</sup> 3-core PVC SWA PVC cable	15.6
KIOSK 1	KIOSK 3	25 mm <sup>2</sup> 3-core PVC SWA PVC cable	13.74
KIOSK 2	DB-A	16 mm <sup>2</sup> 3-core PVC SWA PVC cable	9.9
KIOSK 2	DB-G	10 mm <sup>2</sup> 3-core PVC SWA PVC cable	9.7
KIOSK 2	DB-H	4 mm <sup>2</sup> 3-core PVC SWA PVC cable	3.4
KIOSK 2	DB-K	4 mm <sup>2</sup> 3-core PVC SWA PVC cable	2.7
KIOSK 2	DB-L	6 mm <sup>2</sup> 3-core PVC SWA PVC cable	1.2
KIOSK 3	DB-B	10 mm <sup>2</sup> 3-core PVC SWA PVC cable	8.4
KIOSK 3	DB-C	6 mm <sup>2</sup> 3-core PVC SWA PVC cable	5.6
KIOSK 3	DB-D	6 mm <sup>2</sup> 3-core PVC SWA PVC cable	3
KIOSK 3	DB-E	10 mm <sup>2</sup> 3-core PVC SWA PVC cable	2.2
KIOSK 3	DB-F	10 mm <sup>2</sup> 3-core PVC SWA PVC cable	2.2
KIOSK 3	DB-I	4 mm <sup>2</sup> 3-core PVC SWA PVC cable	1.5
DB-I	DB-J	2.5 mm <sup>2</sup> 3-core PVC SWA PVC cable	0.5

## 23 SWITCHGEAR AND CIRCUITS

The single line diagrams show all circuits and types of switchgear required. All Circuit Breakers used for motors, a D-Curve Breaker with orange handle is to be used.

## 24 SCHEDULE OF LIGHT FITTINGS

In addition to the clauses in Part 1, the luminaires shall comply with the following:

### 24.1 Type A

**Surface mounted open channel fluorescent with 2 x 36 Watt fluorescent lamps, as further detailed below:**

The luminaire shall consist of a 0.7mm cold-rolled steel, hot dip phosphate body with a baked high-gloss white epoxy coating. A terminal block shall be fitted for ease of connection. Ballast cover to be secured by means of captive screws.

Electronic control gear, of the manufactured type Osram/Philips warm start or approved equal by the Engineer. Osram/Philips colour 21 lamps or equal approved by the Engineer. Lamp safety shall adhere to SANS 61195 and SANS 61199.

The luminaire shall bear the SANS 1464-22 and SANS 60901 safety marks. The luminaire shall match the existing installation as near as possible.

The luminaire shall have no dust collecting edges. A minimum of four mounting studs shall be provided for mounting the luminaire. A cable entry of 20mm shall be provided in the centre of the body. There shall be no sharp edges or corners along the surface of the luminaire.

*All internal wiring of the luminaire shall comply with the relevant SABS standards.*

*The luminaire shall be able to withstand ambient temperatures of at least 45°C, without resulting in any electrical or mechanical component exceeding its maximum allowed operating temperature.*

*The lamp holders should be the twist-lock (rota-lock) type, with the mounting able to accommodate the tolerances experienced in the length of the lamps*

## **24.2 Type PL & Type PL1:**

### **Surface mounted 20W LED bulkhead.**

*The luminaire shall consist of a high-pressure die cast aluminium base and trim ring and an opal high impact acrylic diffuser permanently sealed to the aluminium base with a 300mm supply lead.*

*The luminaire shall bear the SANS 60598-1 safety mark.*

*The luminaire shall have a degree of protection that complies with SANS 60598-2-1 i.e. lamp compartment - IP65, which is to be certified by an SABS test report.*

*All base castings shall be manufactured from high-pressure die cast aluminium, finished both outside and inside in white epoxy powder coating for added protection and reflectivity. It shall be designed to accommodate the different control gear applicable to the various lamp sources.*

*It shall be simple to install due to four mounting holes provided outside the lamp compartment through lugs that form part of the base casting. The trim ring casting is mounted onto the base casting by stainless steel*

*M5 Allen head screws, located outside the lamp compartment. The fixing holes can be supplied with stainless steel helicoil inserts on request,*

*These lugs, as well as the entire base casting, shall be covered when installing the diffuser and trim ring*

*An opal high impact acrylic diffuser shall be used as a standard throughout the range. It shall offer excellent vandal resistance, be highly translucent and will not discolour even when subjected to the harshest UV environments. A silicon sponge gasket shall be fitted into a special groove in the diffuser to prevent damage to the gasket during installation. It shall fit snugly over a tongue provided on the base casting, thus achieving an ingress protection rating of IP65, certified by SABS. Certificates of compliance are to be provided. A Rubber seal is to be provided for the silicon wire outlet which is designed to maintain the IP 65 Rating of the luminaire.*

*The trim ring casting shall be manufactured from high-pressure die cast aluminium and shall be finished in a special multi stage epoxy powder surface coating. The finish shall be **BLACK** for the External Wall Mounted Fitting with a metallic frame and the internal Ceiling Mounted Fitting shall be **WHITE**.*

*The control gear shall be mounted directly onto the base casting, ensuring cool operation. It shall be suitable for operation with the specified rating of the lamp on a 230 V +3%/-10% 50 Hz single phase system.*

*All inter-connecting wiring shall be Teflon® insulated with protective sleeving to prevent damage by possible abrasion. All screws, bolts and metals shall be stainless steel or of non-corrosive material. Mains connections shall be by means of a suitable screw terminal block with a wire*

*clamping contact.*

*The luminaire shall be power factor corrected to a minimum of 0,9.*

## 25 PUBLIC ADDRESS SYSTEM

### GENERAL SPECIFICATION

The system shall be a public address system with wall-mounted white wooden box speakers including built-in attenuators. Loudspeakers shall be tapped at 3W. The system shall also include 2x Desktop Paging Microphones with PTT button and locking lever. The 240W RMS Mixer Amplifier shall have 3x Mic and 2x AUX inputs.

	<b><u>Public Address System</u></b>
<b>A-2240ER</b>	<p>The mixer power amplifier shall operate on AC mains or 24 V DC power, and shall control and mix 3 balanced (1x 5-P DIN type and 2x phone jack inputs) MIC and 2 unbalanced (RCA pin jack) AUX inputs.</p> <p>Speaker outputs shall be balanced (floating) high impedance and low-impedance, and there shall be a low impedance REC out.</p> <p>The amplifier shall meet the following performance criteria:</p> <ul style="list-style-type: none"> <li>Phantom power (DC +21 V) and muting (of other input signals by 0-30 dB attenuation) shall be available for MIC 1.</li> <li>Bass Tone Control shall be <math>\pm 10</math> dB at 100 Hz, and Treble Tone Control shall be <math>\pm 10</math> dB at 10 kHz.</li> <li>Power, signal and peak indicators and fan-cooling ventilation shall be provided.</li> </ul> <p>The panel shall be ABS black resin, and the case black steel plate.</p> <p><u>Technical Specification:</u></p> <p>Rated Output: 240 W at less than 1% THD (at 1 kHz, 1/3 rated power)</p> <p>Frequency Response: 50 Hz to 20 kHz (<math>\pm 3</math> dB)</p> <p>Distortion: &lt; 1% at 1kHz, 1/3 rated power output.</p> <p>S/N-Ratio: &gt; 60 dB</p> <p>Power Supply: 230 Vac, 50/60 Hz, or 24Vdc.</p> <p>Dimensions: 420 (W) <math>\times</math> 100.9 (H) <math>\times</math> 360.3 (D) mm, 19 inch, 3HU. 13.2kg</p> <p>Manufacturer: TOA</p> <p>Model: A-2240</p>
<b>PM-660D</b>	<p>Desktop paging microphone, large short-off talk switch with locking lever. Robust anti-vibration construction, balanced output, highly resistive to noise.</p> <p>Low handling noise, supplied with 2.5 m cable with 5-pin DIN plug.</p> <p>Talk switch with contact for remote control.</p> <p><u>Technical specification:</u></p> <p>Polar pattern: Uni-directional</p> <p>Capsule type: Dynamic</p> <p>Output impedance: 600 Ohm, balanced</p> <p>Frequency response: 100 – 10,000 Hz</p>

	<p>Output level: -58dBV, at 1 kHz  Colour: grey, ABS resin  Manufacturer: TOA  Model: PM-660D</p>
<b>PM-660</b>	<p>Desktop paging microphone, large short-off talk switch with locking lever. Robust anti-vibration construction, balanced output, highly resistive to noise.</p> <p>Low handling noise, supplied with 2.5 m cable with phone plug.</p> <p><u>Technical specification:</u></p> <p>Polar pattern: Uni-directional  Capsule type: Dynamic  Output impedance: 600 Ohm, balanced  Frequency response: 100 – 10,000 Hz  Output level: -58dBV, at 1 kHz  Colour: grey, ABS resin  Manufacturer: TOA  Model: PM-660</p>
<b>BS-678T</b>	<p>The speaker shall be a 6" (16cm) double cone-type cabinet speaker suitable for wall mounting in vertical or horizontal orientation and equipped with an attenuator.</p> <p>Cable connection, with either concealed in-wall wiring or exposed wiring, shall be by means of a push-in connector (bridging terminal). Its front baffle should be easily mounted on or removed from the cabinet by using the V-shaped spring attached to the baffle.</p> <p>The speaker shall include a transformer having multiple taps adjustable. An attenuator can be factory fitted, which allows for 3-wire.</p> <p>The speaker enclosure shall be constructed of particle board, with a PVC sheet, and the baffle of HIPS resin. The grille shall be surface-treated steel plate net. The speaker shall be available in off-white or black colour.</p> <p><u>Specifications:</u></p> <p>Input power: 6 Watt  Power tapping: 100V : 0.8W, 1.5W, 3W, 6W  70V : 0.4W, 0.8W, 1.5W, 3W  Frequency response: 150 - 20.000 Hz  SPL (1W, 1m): 94 dB  Dimensions: 250W x 190H x 110D mm  Colour: off-white  Weight: 1.7 kg  Manufacturer: TOA  Model: BS-678T (with attenuator)</p> <p>Also available in black (BS-678B), and with attenuator (BS-678T).</p>

## **26 INFORMATION & COMMUNICATION TECHNOLOGY**

### **Network specifications**

*The purpose of this specification is to provide the best fit solution for Department of Basic Education. The tenderer must provide a solution which addresses the ICT services, in terms of the IP surveillance system. The solution must also cater for the local area connectivity (LAN) as well as telephony and wireless*

### **Solution**

*The Department is aiming to make the solution functional and scalable. The tenderer must submit design proposal of a new ICT infrastructure.*

### **Design Requirement**

*This design must be based on best practice standards. The devices required must be able to meet even the highest of SLAs. The Core switches must have full layer 3 capabilities; a gigabit Ethernet access layer switching with stacking capabilities is required. Also ensure that the design caters for different classes of quality of service standards. The primary objective of this solution is to cater for a fully converged network which will provide the platform to enable telephony.*

### **Network Kit description**

*The solution provided must be fully comprehensive and include the following:*

- *The correct licensing must be supplied*
- *Switches must be stackable*
- *Must provide comprehensive Layer 2 and layer 3 features with support for multiple VLANs*
- *Must be able to provide advanced layer 3 routing capabilities such as EIGRP, OSPF, BGP*
- *The devices must be power over Ethernet capable with 24 and 48 port PoE Gigabit Ethernet switch configurations with provision for 340W and/or 740W*
- *Advanced security, quality of service and management features*
- *The devices must be able to support growth without additional IP address management*
- *The school will requirement gigabit Ethernet technology in the core infrastructure and access layer*
- *All uplinks to switches will be multi-mode fibre*

### **Wireless indoor**

*The devices must be able to provide 802.11a/g standards, 802.11n is not a requirement. Also the access points must be able to be powered via the 802.3af Power over Ethernet standards. The devices can be stand-alone, they should be able to automatically select wireless channels and allow for 2.4ghz and 5ghz wireless frequencies.*

### **Telephony**

*The Department is looking to implementing a voice over IP telephony solution. The telephony solution has be able to integrate with the local area network being implemented it would be*



preferable if the telephony and local area network could be provided by the same vendor. This will assist the Department with support and maintenance, having one point of contact. Aside from voice calls the solution must also provide a voicemail service and must be bundled into one device. The solution must include a receptionist handset and account for extension handsets for other offices.

### **Maintenance**

The tenderer must provide a 8x5xNBD call to repair SLA for a **1 YEAR** period. Also the tenderer must have a local presence to allow for prompt support of the infrastructure. All the devices must come with a 1 year guarantee.

### **Trunking and cableways**

Telecommunications cables are installed largely in a fashion similar to electrical power cables. The main differences to note are:

- a) The cable length from patch panel to faceplate outlet must not exceed 85m.
- b) The bend radius of a cable must not be greater than 4 times the cable diameter.
- c) Trunkings and cableways must be sized to 2.5 times the requirement of the current installation, i.e. if current installation is 2 cables then cableways must be sized for 5 cables.
- d) It is preferred to use cableways completely separate from electrical power installations; however in certain situations this may not be aesthetically possible.
- e) Metal conduit or trunking is necessary only in construction/mechanical laboratories, or where it is deemed to be aesthetically necessary.
- f) Data must not be allowed to run side by side with electrical cables unless separated by a distance of 50mm plus an earthed metal fillet.
- g) Cables must not be loomed in numbers >25.
- h) The Contractor will be responsible for the removal, and reinstatement to the original condition, of any tiles and panels required to perform the installation.
- i) Cables should be enclosed within conduit or trunking where exposed.

### **Telecommunications cables and outlet distribution**

Rooms are cabled in accordance with the following guidelines:

- a) A standard office is calculated at 9m<sup>2</sup> (for our purposes). This is called a floor unit. (FU)
- b) One standard office is cabled with four cables. This foursome is called a Telecommunications unit. (TU)
- c) If a room has area exceeding 9m<sup>2</sup>, then it is cabled accordingly with relatively even distribution of Telecommunications unit's i.e.
  - 1.0 FU = 1 TU
  - 1.5 FU = 2 TU
  - 2.0 FU = 2 TU etc.
- d) At a minimum terminations and faceplate outlets should adhere to ISO/IEC 11801:2000.
- e) The Channel link, (faceplate to patch panel and patch cords) should be tested in accordance with either ISO/IEC 11801:2000 or the current unratified Cat6 certification.

### **FTP Cable Termination and Testing**

- a) The incoming cables will have all 4-Pairs terminated at both patch panel and outlet in accordance with the TIA/EIA 568B specification.

- b) *To maintain transmission performance of the cabling system the twists in the cabling must be maintained as close to the point of termination with a maximum untwist of 13mm from the point of termination. The Contractor should also ensure that if introducing twists back into the wiring then only one twist may be performed.*
- c) *The stripping of the cable sheath will be limited to the minimum amount required for a successful termination.*
- d) *Contractors shall design the system such that sufficient slack remains to enable re-termination of the outlets a minimum of twice and a limited scope for movement of the cabinets. Coils of excess cables underneath the cabinets are unacceptable.*
- e) *All data cables will be installed with no form of joint on the cable run between the patch panel and the outlet (or Consolidation box). If cables are damaged along the run of cable then they must be removed and replaced with new cable.*
- f) *Each patch panel and outlet will be labelled.*
- g) *All cables must be tested using a Fluke DSP400 Digital Cable Analyser or an equivalent cable analyser. All test results must be recorded and supplied to the Computer Centre.*

*The vendor should provide examples of acceptance documents including:*

- **Warranty:** *The system must be provided with an end-to-end „Link Performance“ to comply with the ISO specification for at least five years for all of the current applications described in ISO/IEC IS 11801:2000. Details available on request.*
- **Documentation:** *The contractor shall provide comprehensive descriptions, layouts, test results, connectivity diagrams for each individual link and network administration.*
- **Commissioning Report:** *The contractor shall provide a commissioning report.*
- **Management:** *The contractor must describe all available cabling systems management tools which can be provided to assist in the on-going maintenance of the network.*

### **Power Requirements and Earthing Bonding**

**N.B. The power should not be interruptible except at distribution boards or inside the closet.**

- a) *Each cabinet installed will be bonded with every other cabinet using an earth cable in accordance with I.E.E. 16th Edition regulations.*
- b) *Each cabinet will then be earthed using an earth cable in accordance with I.E.E. 16th Edition regulations, to a Telecoms Room Bus Bar, which will be earthed using an earth cable in accordance with I.E.E. 16th Edition regulations to the Main Building Earth (MBE)*

### **Active Components**

*The Department reserves the right to decide which equipment can be attached to the network. No other devices can be installed on the network without this consent.*

### **Fibre Optic Links**

*Fibre optic cable to be used to interlink buildings. The number of fibre pairs varies from job to job. The type of cable specified, also varies from job to job but typically two types are required multimode, and singlemode fibre.*

*All fibre termination should end in a 19" fibre splice drawer in the comms rack in the buildings in question The type of connectors used must be standard SC. All links should adhere to the following db loss guidelines:*

- *Multimode Fibre 3.75dB per Km*

- *Singlemode Fibre 1.5 dB per Km*

*The Department will advise the exact requirement of fibre optic interlinks on a job by job basis. No two locations should be linked by less than 4 cores of singlemode fibre multimode fibre.*

## **Standards**

- **Cableways:** *Trunking, cabletray, conduiting, etc.*
- **ISO:** *International Organization for Standardization*
- **IEC:** *International Electrotechnical Commission*
- **CENELEC:** *European Committee for Electrotechnical Standardization*
- **TIA:** *Telecommunications Industry Association*
- **EIA:** *Electronic Industries Association*
- **IEE:** *Institute of Electrical Engineers*
- **ISO/IEC 11801:2000:** *ISO standard for Category 5e cabling systems*
- **EN 50173 (2000):** *CENELEC standard for Category 5e cabling systems*
- **TIA/EIA 568B:** *TIA/EIA standard for Category 5e cabling systems*
- **BS 7671:1992:** *British Standard based on IEE Wiring regulations, 16th Edition*
- **Floor unit:** *9m<sup>2</sup> of floor area*

## **27 LIGHTNING PROTECTION**

### **GENERAL SPECIFICATION**

#### **1. SATISFACTORY INSTALLATION**

*The whole of the installation shall be carried out in accordance with:*

- The latest SANS Code of Practice for the Protection of Structures against Lightning – SANS 1013, SANS 61024-1, 61024-1-1, SANS 61312-1, SANS 61662 & NRS 042*
- The Municipality By-Laws and any other special requirements as deemed necessary by the Local Supply Authority;*
- Local Fire Regulations.*

#### **2. SABS 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 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 service (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 30mm<sup>2</sup> (domestic dwelling only) or 50mm<sup>2</sup> for all other applications. The dimensions of flat section conductors are to be 20mm x 3mm. Where conductors are mounted in stand-off guides, the cross-section area of the conductor must be not less than 70mm<sup>2</sup> to give adequate mechanical strength.*

### **4.2 Conductor Guides**

*The conductor must be mounted in aluminium alloy guides conforming to 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 3mm. 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 insulation 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 no exceeding 1.2 meters horizontally or 1,5 meters 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 meters. 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 meter length of 20mm 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 1m. Where a flat section conductor is used this shall be covered by a similar length of 25mm 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 12mm in diameter and having a minimum copper thickness of 0,20mm driven into the ground, or a 50mm<sup>2</sup> (35mm<sup>2</sup> 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 200mm above ground and 400mm 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 10mm diameter aluminium bolts and washers. The material specification for these components must conform to 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 10mm 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 6mm 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 200mm above finished ground level. Circular section aluminium is to be jointed to a 50mm<sup>2</sup> (35mm<sup>2</sup> in the case of*

domestic dwellings) stranded copper conductor by securely crimping in place two heavily tinned lugs and bolting these together using 10mm 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 standard 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 200mm in all directions from the joint.*

#### **4.8 Bonds**

*Where it is necessary to bond the aluminium conductor to any other metallic surface, this must be done by bolting or riveting. When attaching aluminium to a dissimilar metal the joints are to be thoroughly cleaned and sealed to prevent corrosion.*

### **5. GENERAL INSTALLATION PROCEDURE**

#### **5.1 Air Terminals for Non-metallic Pitched Roofs**

*Aluminium conductors are to be installed along all ridges of roofs and projections such as dormer windows, etc., terminating at the ends with conductors running downwards over the surface of the roof and the eaves. Non-metallic chimneys must be protected by means of a finial of sufficient length to cover the chimney within a 45° angle struck downwards from its point. Alternately 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 to 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 meters 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 meters and the pitch of the roof is more than 1 in 2 ( $27^\circ$  from the horizontal).
- b) Where the maximum distances from ground level to the eaves is less than 7 meters and the pitch of the roof is more than 1 in 1,5 ( $34^\circ$  from the horizontal).
- c) Where the distance from the ground level to the eaves is more than 7 meters 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  $90^\circ$ ).

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 500mm above roof slab level. In these circumstances the conductors are to be bonded directly to the down conductors.

## **5.4 Air Terminals for Non-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 meters. 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 meters.

*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 meters. 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 200mm 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 6meters 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 joined 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 reinforced 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 a maximum of 30 meter intervals using steel clamps. This bond may be achieved by clamping, with steel clamp, a steel conductor to a selected reinforcing bar, the opposite end of this conductor must terminate at a corrosion resistance metallic terminal such a Grade 316 stainless steel.*

*The reinforced 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 to 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 columns, these may be used in place of down conductors providing the separating distance between them does not exceed 30 meters. 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  $N \times 30$  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 500mm below finished surface level. A 50mm<sup>2</sup> 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 200mm 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 600mm and must be installed so that approximately 200mm 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 or more down conductors are installed the water mains 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 50mm<sup>2</sup> stranded copper conductor installed horizontally into a trench at a depth of 500mm below finished ground level. The conductor is to follow the general outline of the structure to

*be protected and be installed 1 meter 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 meters.*

**PART 2C****ELECTRICAL INSTALLATION****QUALITY SPECIFICATION FOR MATERIAL AND EQUIPMENT OF ELECTRICAL INSTALLATIONS**

Below is a list of the contents of the quality specification. The specification has not been bound into this document but is available in part or in whole from the Department of Public Works or the Engineer upon request. The Electrical Contractor shall be deemed to know and understand the contents of the specification and no excuse will be considered for non-compliance with the specification.

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**PART 3****ELECTRICAL INSTALLATION****BOQ FOR ELECTRICAL WORK****BILLS OF QUANTITIES****CONTENTS****DESCRIPTION****PAGE***General Notes*

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<i>Schedule 3</i>	<i>Small power installation</i>	
<i>Schedule 4</i>	<i>Lighting installation</i>	
<i>Schedule 5</i>	<i>Earthing, Lightning Protection, Bonding and Provisional Sums</i>	
<i>Schedule 6</i>	<i>Public address system</i>	
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**PART 3****SPECIFICATION FOR ELECTRICAL AND INSTALLATION****BILLS OF QUANTITIES****GENERAL NOTES/PREAMBLES****1 CONDITIONS OF CONTRACT**

*The Conditions of Contract and the application of the Contract Price Adjustment Provisions shall be as set out in Part A: Section 1: Preliminaries*

**2 DESCRIPTIONS**

*The descriptions in these bills of quantities shall be read in conjunction with the specification*

**3 UNIT RATE**

*The unit rate for each item in the bills of quantities shall include for all materials, labour profit, transport etc. everything necessary for the execution and complete installation of the work in accordance with the description.*

**4 ORDERING**

*The bills of quantities shall not be used for ordering purposes. The Contractor shall check the lengths of cables and overhead conductors, as well as all other items described, on site before ordering. Any allowance for off-cuts shall be made in the unit rates.*

**5 VALUE ADDED TAX**

*The rates shall exclude value added tax and the total carried over to the final summary in Part A.*

**6 SOUTH AFRICAN MANUFACTURE**

*All materials covered by this specification shall, wherever possible, be of South African manufacture.*

**7 PROVISIONAL SUMS**

*Where Provisional Sums are allowed, these shall be expended only as directed by the Client or the Client's Representative and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineer.*

*All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.*

**PART 4****DRAWING SCHEDULE**

The drawings listed below, whether separate or bound into the document, form part of the complete tender specification and are to be read in conjunction with the rest of the documentation.

**ELECTRICAL:**

PROJECT & DWG NO.		DESCRIPTION
K17-01/BLOCKA/LP01	BLOCK A	ADMINISTRATION BLOCK LIGHTING AND POWER LAYOUT
K17-01/BLOCKB/LP01	BLOCK B	DINING AND NUTRITION LIGHTING AND POWER LAYOUT
K17-01/BLOCKC/LP01	BLOCK C	SCIENCE LAB LIGHTING AND POWER LAYOUT
K17-01/BLOCKD/LP01	BLOCK D	THREE CLASSROOMS LIGHTING AND POWER LAYOUT
K17-01/BLOCKE/LP01	BLOCK E	TWO CLASSROOMS LIGHTING AND POWER LAYOUT
K17-01/BLOCKF/LP01	BLOCK F	MULTI PURPOSE CLASSROOM LIGHTING AND POWER LAYOUT
K17-01/BLOCKG/LP01	BLOCK G	MEDIA CENTRE LIGHTING AND POWER LAYOUT
K17-01/BLOCKH/LP01	BLOCK H	TWO CLASSROOMS AND HOD LIGHTING AND POWER LAYOUT
K17-01/BLOCKI/LP01	BLOCK I	STAFF TOILETS LIGHTING LAYOUT
K17-01/BLOCKJ/LP01	BLOCK J	GIRLS AND BOYS PIT TOILETS LIGHTING LAYOUT
K17-01/BLOCKK/LP01	BLOCK K	GRADE R CLASSROOM LIGHTING AND POWER LAYOUT
K17-01/BLOCKL/LP01	BLOCK L	GRADE R ABLUTIONS LIGHTING LAYOUT
K17-01/BLOCKM/LP01	BLOCK M	GUARD HOUSE LIGHTING LAYOUT
K17-01/SLEEVE/LP01	ELECTRICAL SLEEVE	ELECTRICAL SLEEVE LAYOUT SITE PLAN

No architectural or other engineering services drawings are included. These will be issued to the Tenderers upon request.

# MGOMANZI SPS

## SCHEDULE 1 : PRELIMINARY AND GENERAL

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT
<b>1</b>	<b>PRELIMINARY &amp; GENERAL</b>				
<b>1.1</b>	<b>Contractual Items</b>				
1.1.1	Provision of Sureties	Sum	1		
1.1.2	Insurances	Sum	1		
1.1.3	Third Party Insurance	Sum	1		
1.1.4	Guarantee of the Works	Sum	1		
1.1.5	Other (Specify) .....	Sum			
<b>1.2</b>	<b>Fixed Cost Items</b>				
1.2.1	Site Establishment / Removal	Sum	1		
1.2.2	Other (Specify).....	Sum	1		
<b>1.3</b>	<b>Time Related Items</b>				
1.3.1	Project supervision	Sum	1		
1.3.2	Project administration	Sum	1		
1.3.3	Compliance with OHS Act	Sum	1		
1.3.4	HIV/Aids Compliance & Training	Sum	1		
1.3.4	Other Overheads (Specify)	Sum	1		
	a) .....				
	b) .....				
	c) .....				
<b>1.4</b>	Training staff on the operation and daily maintenance of equipment supplied and installed under this contract				
1.4.1	Staff Training	Sum	1		
	NOTE P&G costs for time related items shall be based on the Contract period specified in the Form of Tender				
<b>TOTAL CARRIED FORWARD TO SUMMARY</b>					<b>R</b>

<b>MGOMANZI SPS</b>						
<b>SCHEDULE: 2 LOW VOLTAGE RETICULATION</b>						
<b>Item</b>	<b>ELECTRICAL BILL OF QUANTITIES</b>		<b>TOTAL QTY</b>	<b>SUPPLY</b>	<b>INSTALL</b>	<b>TOTAL</b>
	<b>ITEM DESCRIPTION</b>	<b>Unit</b>				
<b>2</b>	<b><u>LOW VOLTAGE RETICULATION</u></b>					
<b>2.1</b>	<b>LOW VOLTAGE DISTRIBUTION BOARDS</b>					
	Supply and Install the following distribution boards complete with frames, panels, interior wiring, busbars, label frames, labels and equipment.					
2.1.1	Distribution Board: DB A (Flush mounted Refer to SLDs)	No	1			
2.1.2	Distribution Board: DB B (Flush mounted Refer to SLDs)	No	1			
2.1.3	Distribution Board: DB C (Flush mounted Refer to SLDs)	No	1			
2.1.4	Distribution Board: DB D- (Flush mounted Refer to SLDs)	No	1			
2.1.5	Distribution Board: DB E (Flush mounted Refer to SLDs)	No	1			
2.1.6	Distribution Board: DB F (Flush mounted Refer to SLDs)	No	1			
2.1.7	Distribution Board: DB G (Flush mounted Refer to SLDs)	No	1			
2.1.8	Distribution Board: DB H (Flush mounted Refer to SLDs)	No	1			
2.1.9	Distribution Board: DB I (Flush mounted Refer to SLDs)	No	1			
2.1.10	Distribution Board: DB J (Flush mounted Refer to SLDs)	No	1			
2.1.11	Distribution Board: DB K (Flush mounted Refer to SLDs)	No	1			
2.1.12	Distribution Board: DB L (Flush mounted Refer to SLDs)	No	1			
2.1.13	Distribution Board: DB M (Flush mounted Refer to SLDs)	No	1			
2.1.14	Distribution KIOSK 1	No	1			
2.1.15	Distribution KIOSK 2	No	1			
2.1.16	Distribution KIOSK 3	No	1			
2.1.17	Distribution Board: DB-Telkom	No	9			
	<b>Sub-total carried forward to next page</b>					

MGOMANZI SPS						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
	Sub-total brought forward from previous page					
<b>2.2</b>	<b>LOW VOLTAGE CABLES</b>					
	Supply and install 600/1000V cables . All cables must bear a SABS stamp of approval					
<b>2.2.1</b>	<b>3 or 4-Core PVC/PVC/SWA/PVC Cables</b>					
2.2.1.1	35mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	m	50			
2.2.1.2	25mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	m	140			
2.2.1.3	16mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	m	50			
2.2.1.4	16mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	m	50			
2.2.1.5	10mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	m	215			
2.2.1.6	6mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	m	125			
2.2.1.7	4mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	m	135			
2.2.1.8	2.5mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	m	135			
		m	110			
<b>2.3</b>	<b>BARE AND INSULATED COPPER EARTH CONDUCTORS</b>					
	Supply and install bare or insulated copper earth conductor suitably strapped with PVC cable straps to the low voltage cables.					
<b>2.3.1</b>	<b>Bare Earth Copper conductors</b>					
2.3.1.1	16mm <sup>2</sup> BCEW	m	190			
2.3.1.2	10mm <sup>2</sup> BCEW	m	215			
2.3.1.3	6mm <sup>2</sup> BCEW	m	125			
2.3.1.4	4mm <sup>2</sup> BCEW	m	135			
<b>2.4</b>	<b>CABLE TERMINATIONS</b>					
	Supply and installation of PVC/PVC/SWA/PVC.					
<b>2.4.1</b>	<b>3 or 4 -CORE PVC/PVC/SWA/PVC Terminations</b>					
2.4.1.1	35mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	ends	2			
2.4.1.2	25mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	ends	4			
2.4.1.3	16mm <sup>2</sup> 4-core PVC/PVC/SWA/PVC cable	ends	2			
2.4.1.4	16mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	ends	2			
2.4.1.5	10mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	ends	6			
2.4.1.6	6mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	ends	6			
2.4.1.7	4mm <sup>2</sup> 3-core PVC/PVC/SWA/PVC cable	ends	4			
<b>2.4.2</b>	<b>Bare Earth Copper conductors terminations</b>					
2.4.2.1	16mm <sup>2</sup> BCEW	No	8			
2.4.2.2	10mm <sup>2</sup> BCEW	No	6			
2.4.2.3	6mm <sup>2</sup> BCEW	No	6			
2.4.2.4	4mm <sup>2</sup> BCEW	No	4			
<b>2.5</b>	<b>MANHOLES</b>					
<b>2.5.1</b>	<b>ELECTRICAL MANHOLES</b>					
	900 X 900mm Manhole	No	9			
<b>2.5.2</b>	<b>TELKOM MANHOLES</b>					
	600 X 600mm Manhole	No	7			
<b>2.6</b>	<b>EXCAVATION AND BACKFILLING</b>					
	Excavate, backfill and compact in all materials including disposal of unsuitable/surplus material. Trenches 500mm wide					
2.6.1	Soft and pickable (all materials)	m	500			
2.6.2	Hard material (Provisional)	m	100			
2.6.3	Rock (Provisional)	m	25			
	Sub-total carried to summary page					

MGOMANZI SPS						
SCHEDULE: 3 SMALL POWER INSTALLATION						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
3	<b><u>SMALL POWER INSTALLATION</u></b>					
	Complete electrical installation: small power.					
3.1	<b>SWITCHED-SOCKET OUTLETS</b>					
	Switched socket outlets and related accessories , including surface-mounted wall boxes (measured elsewhere in the bill)					
3.1.1	16A SSO Single - White surface mounted	No	35			
3.1.2	16A SSO Single - Red (shaved earth pin) in power skirting	No	29			
3.1.3	16A SSO Double - White surface mounted	No	20			
3.1.4	16A SSO Single - White in power skirting	No	5			
3.1.7	Pop-up 16A SSO	No	9			
3.2	<b>CONDUITS AND ACCESSORIES</b>					
	SABS approved conduits, draw boxes, wall boxes, etc equiped with draw wire					
3.2.1	<b>CONDUITS</b>					
3.2.1.1	20mm PVC conduit	m	3800			
3.2.1.2	25mm PVC conduit	m	500			
3.2.2	<b>CONDUIT BOXES</b>					
	Conduit boxes including fixing to conduit with necessary couplings. locknuts, adaptors, bushes, covers plates, etc. as specified.					
3.2.2.1	100 x 100 x 50 mm box glvanised steel	No	98			
3.2.2.2	60mm diameter PVC conduit boxes	No	150			
3.2.2.3	150 x 150 mm draw boxes	No	5			
3.3	<b>CHANNEL WIREWAYS AND SLEEVES</b>					
	Galvanized steel trunking (Cabstrut) complete with splices, end caps, elbows, tees, crossovers, hangers, brackets, bolts, nuts, screws, washers, clamps, and threaded rods installed with links.					
3.3.1	50mm Sleeves	m	355			
3.3.2	75mm Sleeves	m	220			
3.3.3	110mm Sleeves	m	210			
3.4	<b>POWER SKIRTING</b>					
	2 Compartment power skirting, epoxy powder coated blackmanufactured from 0.8mm galvanized steel body complete with cutouts,covers, elbows, tees, etc					
3.4.1	Powerskirting	m	120			
3.5	<b>ISOLATORS AND APPLIANCE CONNECTIONS</b>					
	Isolators complete with cover plates, screws, etc. installed in flush or surface-mounted galvanized boxes.					
3.5.1	60 Amp 230V 2pole isolator surface	No	4			
	<b>CONDUCTORS</b>					
3.6	<b><u>PVC INSULATED GP CONDUCTORS</u></b>					
	PVC insulated copper conductors drawn into conduit, trunking, cable tray or power skirting, including conductor identification labels, terminations, lugs, etc.					
3.6.1	2.5 mm <sup>2</sup> single core cables	m	6100			
3.6.1	2.5 mm <sup>2</sup> single core cables	m	6300			
3.6.2	4 mm <sup>2</sup> single core cables	m	100			
	<b><u>PVC INSULATED/BARE EARTH CONDUCTORS</u></b>					
	Bare copper earth wire or PVC insulated green/yellow stranded earth wire into conduit, trunking, etc.					
3.6.4	2.5 mm <sup>2</sup> conductor	m	9200			
3.6.5	4.0 mm <sup>2</sup> conductor	m	100			
	Sub-total carried to summary page					

<b>MGOMANZI SPS</b>						
<b>SCHEDULE: 4 LIGHTING INSTALLATION</b>						
<b>Item</b>	<b>ELECTRICAL BILL OF QUANTITIES</b>		<b>TOTAL QTY</b>	<b>SUPPLY</b>	<b>INSTALL</b>	<b>TOTAL</b>
	<b>ITEM DESCRIPTION</b>	<b>Unit</b>				
<b>4</b>	<b><u>LIGHTING INSTALLATION</u></b>					
<b>4.1</b>	<b><u>LIGHT FITTINGS</u></b>					
	Supply and install light fittings as per specifications. Light fittings to have SABs stamp of approval					
4.1.1	Type A. 2 x 36W SURFACE MOUNTED 1200mm LONG OPEN CHANNEL FLUORESCENT FITTING WITH ECG	No	90			
4.1.2	Type PL & PL1. 15W LED SURFACE MOUNTED BULKHEAD	No	72			
4.1.3	Type SF. 15W WALL MOUNTED SAFE LIGHT	No	1			
4.1.4	Type ST - Beka Zela 24 LED/53W Post Top c/w 8m MH galvanized steel pole	No	5			
4.1.5	Type C : 60W LED surface mounted 1200mm long weatherproof fitting, as specified	No	22			
4.1.6	Photocell (daylight sensitive) switch fixed to wall	No	16			
<b>4.2</b>	<b><u>CONDUCTORS</u></b>					
	<u>PVC INSULATED GP CONDUCTORS</u>					
4.2.1	1.5 mm <sup>2</sup> single core cables	m	9300			
	<u>PVC INSULATED/ BARE EARTH CONDUCTORS</u>					
4.2.2	2.5 mm <sup>2</sup> conductor	m	7200			
<b>4.3</b>	<b><u>CONDUITS AND ACCESSORIES</u></b>					
	SABs approved conduits, draw boxes, wall boxes, etc equipped with draw wire included: bending, threading, jointing, short lengths, couplings, bends, tees, saddles, lock-nuts, bushing, etc.					
	Conduits cast in concrete, built into brickwork, or mounted to any surface or ceiling void.					
4.3.1	20mm PVC conduit	m	2250			
4.3.2	20mm galvanized steel conduit	m	320			
<b>4.4</b>	<b><u>CONDUIT BOXES</u></b>					
	Galvanized steel conduit boxes surface or mounted on P9000 in ceiling void including fixing accessories: couplings, locknuts, adaptors, bushes, covers plate, etc, as necessary.					
4.4.1	100 x 50 x 50 mm galvanized steel boxes	No	57			
4.4.2	60mm diameter PVC conduit boxes	No	263			
<b>4.5</b>	<b><u>LIGHT SWITCHES</u></b>					
	16 Amp 250V grade light switches complete with all necessary connections, labelling, screws, cover plates, etc. as specified					
4.5.1	Single pole 1 way switch	No	43			
4.5.2	Single pole 2 way switch	No	6			
4.5.3	Double pole 1 way switch	No	2			
4.5.4	Weatherproof rotary switch	No	5			
4.5.5	Electric Bell	No	1			
<b>4.6</b>	<b><u>TESTING AND COMMISSIONING</u></b>					
4.6.1	Test and commissioning of the complete installation and issue COCs	sum	1			
<b>4.7</b>	<b><u>RECORD DRAWINGS (small power)</u></b>					
4.7.1	Supply a set of record drawings	sum	1			
	<b>Sub-total carried to summary page</b>					



MGOMANZI SPS						
SCHEDULE:5 EARTHING, LIGHTNING PROTECTION AND BONDING						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
5	<u>EARTHING, LIGHTNING PROTECTION AND BONDING</u>					
	Earthing and lightning Protection (The whole installation must be earthed in accordance with SANS 10142)					
5.1	Earthing and Lightning Protection					
	To supply, deliver and install Lightning Protection system to SANS Code of Practice No. 03131999 for Metallic Roofs. The prices are to be priced nett and shall include for profit and attendance on the Specialist LPS Sub-Contract.					
5.1.1	8mm diameter solid Round Aluminium Down Conductor fitted inside down counduits	m	240			
5.1.2	20mm dia.PVC conduit chased into brick wall or inside wall cavity	m	240			
5.1.4	50mm2 PVC Cu Cable Tail Piece in Conduit as Test Joints	m	120			
5.1.5	Earth Joints	No	80			
5.1.6	Roof Joints	No	80			
5.1.7	1.5m SABS "A" Grade 16mm Dia. Earth Spikes	No	80			
5.1.8	Earth Spike Clamps Bras Heavy Duty	No	80			
5.1.9	All Mechanical Joints using Bi-Metal Crimps Lugs and S/Steel 8 x 20 Bolts and Nuts	No	80			
5.1.10	Undertake Resistivity & Resistance Test of building	sum	1			
	<b>Note 1:</b> The gutters and down pipes are aluminium and NO copper to aluminium joints					
5.2	Earth Bonding					
	Bonding of all exposed conductive parts, including main water pipes, and other metallic items such as downpipes, with 12 x 1.6mm earth strap. The whole installation must be earthed in accordance with SANS 10142					
5.2.1	Earth Bonding	sum	1			
5.3	TESTING AND COMMISSIONING (Lightning protection)					
5.3.1	Testing and commissioning of the complete installation and issue COC on new buildings	sum	1			
	Sub-total carried to summary page					

MGOMANZI SPS						
SCHEDULE: 6 PUBLIC ADDRESS SYSTEM						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
6	<u>PUBLIC ADDRESS SYSTEM</u>					
6.1	<b>240w Mixer Amplifier 3 mic and 2 AUX Inputs</b>					
6.1.1	240w Mixer Amplifier 3 mic and 2 AUX inputs: 3 Mic, 2 Aux inputs, Frequency Response 50hz to 20Khz with Bass and Treble controls. Phantom power to Mic 1 with record output. Speaker outputs 100V/70V or 4 ohm. Add P-2240 booster for additional power.	No	1			
6.2	<b>Desktop Paging Microphone with DIN plug</b>					
6.2.1	Desktop Paging Microphone with DIN plug: This desk-top microphone has short-off talk switch with open-off type switch contact and can be remotely operated with additional equipment. IT has low handling noise. Output impedance is 600ohm. Its 2.5m long cord is equipped with a 5-pin DIN plug.	No	1			
6.3	<b>Desktop Paging Microphone</b>					
6.3.1	Desktop Paging Microphone: This desk-top microphone has short-off talking switch with locking or open-off type switch contact. It has low handling noise. Output impedance is 600ohm. Its 2.5m long cord is equipped with a phone plug.	No	1			
6.4	<b>6W Wall Mount Speaker</b>					
6.4.1	The speaker shall be a 6" (16cm) 94db 1m/1w double cone-type cabinet speaker	No	13			
6.5	<b>Horn Speaker</b>					
6.5.1	10W IP65 outdoor horn speaker.	No	3			
6.6	<b>Wiring</b>					
6.6.1	Multiple Twisted Pair (10 pair) Telephone Cable with 0.5mm plain copper conductor, PVC insulated and PVC outer sheath.	m	900			
6.7	<b>CONDUITS AND ACCESSORIES</b>					
	SABS approved conduits, draw boxes, wall boxes, etc equiped with draw wire included: bending, threading, jointing, short lengths, couplings, bends, tees, saddles, lock-nuts, bushing, etc.					
	Conduits cast in concrete, built into brickwork, or mounted to any surface or ceiling void.					
6.7.1	25mm PVC conduit	m	500			
6.7.2	60mm diameter PVC conduit boxes	No	100			
6.8	<b>TESTING AND COMMISSIONING</b>					
	Testing and commissioning of the complete installation and issue the necessary test certificates <b>(PA System)</b>	sum	1			
6.9	<b>RECORD DRAWINGS (Public Address)</b>					
	Supply a set of record drawings	sum	1			
6.11	<b>Training</b>					
6.11.1	Training of Client Staff	sum	1			
	<b>Sub-total carried to summary page</b>					

MGOMANZI SPS						
SCHEDULE: 7 INFORMATION & COMMUNICATION SYSTEMS						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
7	INFORMATION & COMMUNICATION SYSTEMS					
7.1	SWITCHES & ACCESSORIES					
7.1.1	RJ45 Data points	No	19			
7.1.2	Network cabinet 18U	No	1			
7.1.3	24 Port PoE patch	No	2			
7.1.4	24 Port brush	No	2			
7.1.5	Network Switch 24 port PoE	No	2			
7.1.6	SFPs multimode	No	2			
7.1.7	Access points	No	4			
7.2	PABX - IP SYSTEM					
7.2.1	Main IP PBX, 6 Analogue trunks, 2 Digital ports, 16 Analogue extensions, 4 IP-PT Licences, 2 Channel ESVM	No	1			
7.2.2	DSP-S DISA 930 ch) or VOIP (61 ch) or mixture	No	1			
7.2.3	MDF Box for Cable	No	1			
7.2.4	1 Channel IP Proprietary Telephone Activation Key	No	3			
7.2.5	IP Handset, 4.4 inch Backlight LCD, 2 x Gig Ethernet Port, POE - Black	No	1			
7.2.6	3 Line LCD, 24 FF keys, EHS, 2 Port Ethernet (10/100m), POE (Black)	No	6			
7.2.7	MAN3000 Soft Dongle Blue - Unlimited	No	1			
7.2.8	Batteries with 60min backup	Sum	1			
7.3	CABLING					
7.3.1	4 core HHD fibre MM cable	m	400			
7.3.2	2 x Gig Transition Fibre convertor MM	No	1			
7.3.3	Fibre Splice tray complete with 4 x SC midcouplers	No	1			
7.3.4	SC simplex pig tail 1m	No	4			
7.3.5	SC simplex pig tail 3m	No	2			
7.3.6	Cat 6e patch lead moulded 2m	No	20			
7.3.7	Cat 6e patch lead moulded 3m	No	20			
7.3.8	Cat 6e UTP	m	1000			
7.3.9	Cat 6e patch panel	No	4			
7.3.10	Brush panel	No	10			
7.3.11	Cat 5e housings	No	20			
7.3.12	Terminate on RJ45 sockets	No	20			
7.3.13	Terminate on equipment	No	20			
7.4	COMMISSIONING					
7.4.1	Warranties	Sum	1			
7.4.2	Tests, results and certificates	Sum	1			
7.4.3	Operation & Maintenance Manuals	Each	3			
	Sub-total carried to summary page					

MGOMANZI SPS						
SCHEDULE: 8 KITCHEN EQUIPMENT						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
8	KITCHEN EQUIPMENT					
8.1	KITCHEN EQUIPMENT					
	Supply, installation and commissioning of Kitchen equipment.					
8.1.1	Extraction Kitchen Canopy, see attached specification for Pricing	No	1			
8.1.2	Issue Operational & Maintenance Manuals (3 sets)	Sum	1			
	50litre Stainless Steel pot 400x400mm					
8.1.3	Supply	No	2			
	30litre Stainless Steel pot 400x250mm					
8.1.4	Supply	No	2			
	19.5litre Stainless Steel pot 400x155mm					
8.1.5	Supply	No	2			
	27cm Durable plates					
8.1.6	Supply	No	240			
	Stainless Steel spoons					
8.1.7	Supply	No	240			
	Solid Stainless Steel serving spoon 330mm					
8.1.8	Supply	No	10			
	Knife forged grunter-carving 250mm					
8.1.9	Supply	No	5			
	32L Microwave Oven					
8.1.10	Supply	No	1			
	305L Chest Freezer with freezing capacity of 15kg/24h					
8.1.11	Supply	No	1			
	700L Fridge with single door					
8.1.12	Supply	No	1			
8.2	TESTING AND COMMISSIONING					
8.2.1	Testing and commissioning of the complete installation and issue the necessary test certificates (KITCHEN EQUIPMENT)	sum	1			
8.3	Training					
8.3.1	Training of Client Staff	sum	1			
	Sub-total carried to summary page					

MGOMANZI SPS						
SCHEDULE: 9 LP GAS INSTALLATION						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
9.1	LP GAS INSTALLATION					
	Supply, installation of Gas equipment including all required piping and fittings as per drawing.					
9.1.1	LP Gas Stock Pot four Burner	No	4			
9.1.2	48 Kg LP Gas Bottles for the Nutrition Area	No	4			
9.1.3	19kg LP Gas Bottles for the Science Lab	No	2			
9.1.4	Issue Operational & Maintenance Manuals (3 sets)	Sum	1			
9.1.5	22mm Class 2 Copper	m	50			
9.1.6	15 mm Class 2 Copper	m	50			
9.1.7	22mm TracPire	m	25			
9.1.8	15mm TracPire	m	15			
9.1.9	Laboratory Gas Taps – Broen 90 Degree LPG Bench Fit	No	25			
9.1.10	Manual Ball LPG Isolation Valve - LPG	No	8			
9.1.11	Manual Change-Over regulator with pigtails/Single Regulators	No	2			
9.1.12	Brush stainless steel, expended mash LP gas gate (to lock the gas cylinders) for four	No	1			
9.1.13	Brush stainless steel, expended mash LP gas gate (to lock the gas cylinders) for two	No	1			
9.2	TESTING AND COMMISSIONING					
9.2.1	Testing and commissioning of the complete installation and issue the necessary test certificates (LPG)	Sum	1			
9.3	Training					
9.3.1	Training of Client Staff	Sum	1			
	Sub-total carried to summary page					

MGOMANZI SPS						
SCHEDULE: 10 SOLAR GEYSER						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
10	SOLAR GEYSER					
10.1	Supply, installation and commisioning of solaR geyser complete with specified Geysers and all accessories required for operation.					
10.1.1	2kw Solar Panel (24 Tubes)	No	2			
10.1.2	200 L Geyser	No	2			
10.1.3	10 L Under-counter Geyser ( Eletrical elements only)	No	1			
10.1.4	Issue Operational & Maintenance Manuals (3 sets)	Sum	1			
10.2	Supply, installation and commisioning of Midwall split Inverter type unit complete with					
10.2.1	2.5 Kw	No	2			
10.3	TESTING AND COMMISSIONING					
10.3.1	Testing and commissioning of the complete installation and issue the necessary test certificates	Sum	1			
10.4	Training					
10.4.1	Training of Client Staff	Sum	1			
	Sub-total carried to summary page					

<b>MGOMANZI SPS</b>					
<b>SCHEDULE: 11 SOLAR PUMP</b>					
<b>Item</b>	<b>ELECTRICAL BILL OF QUANTITIES</b>		<b>TOTAL QTY</b>	<b>SUPPLY</b>	<b>INSTALL TOTAL</b>
	<b>ITEM DESCRIPTION</b>	<b>Unit</b>			
<b>11</b>	<b>SOLAR PUMP</b>				
<b>11.1</b>	Supply, installation and commissioning of Solar pump equipment complete with all accessories required for operation. ( 4.5m <sup>3</sup> /hr @ 40m Head)				
11.1.1	2 pumps and motors	No	2		
11.1.2	Solar Panels	No	3		
11.1.3	Array to terminal wire kits	No	3		
11.1.4	Panel to switch box wire	No	1		
11.1.5	3 in Series;1 in parallel 1x10 50	Sum	1		
<b>11.2</b>	<b>TESTING AND COMMISSIONING</b>				
11.2.1	Testing and commissioning of the complete installation and issue the necessary test certificates <b>(SOLAR PUMP)</b>	Sum	1		
<b>11.3</b>	<b>Training</b>				
11.3.1	Training of Client Staff	Sum	1		
	<b>Sub-total carried to summary page</b>				

MGOMANZI SPS						
SCHEDULE: 12 FUME CUPBOARD						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
12	FUME CUPBOARD					
12.1	To supply, install & commission x 1 Fume Cupboard with non-corrosive heat and chemical resistant moulded fibreglass internal liner complete with extraction fan. As per specification	Sum	1			
12.2	Supply, Install and commission a Seat Fan with 20m duct	Sum	1			
12.2	TESTING AND COMMISSIONING					
12.2.1	Testing and commissioning of the complete installation and issue the necessary test	Sum	1			
12.3	Training					
12.3.1	Training of Client Staff	Sum	1			
12.4	Dayworks for items on site and to be approved by the Engineer prior to					
12.4.1	Qualified Artisan	Hrs	40			
12.4.2	Semi-skilled labourer	Hrs	40			
12.4.3	Labourer	Hrs	40			
	Sub-total carried to summary page					



MGOMANZI SPS						
SCHEDULE: 13 DAYWORKS						
Item	ELECTRICAL BILL OF QUANTITIES		TOTAL QTY	SUPPLY	INSTALL	TOTAL
	ITEM DESCRIPTION	Unit				
13	DAYWORKS					
	These provisional sums may be utilised in full or in part. No expenditure will be allowed without the authority of the Engineer in writing.					
13.1	Cost of transport and plant including for overheads, levies, fuel operators, insurance					
13.1.1	1 ton LDV	km	400			
13.1.2	5 ton truck	km	160			
13.1.3	Compactor	hr	40			
13.1.4	Other .....					
13.2	Provide Work as requested by Engineer					
	in accordance with General Conditions of Contract					
13.2.1	Qualified Artisan	Hrs	100			
13.2.2	Semi-skilled labourer	Hrs	100			
13.2.3	Labourer	Hrs	100			
	Sub-total carried to summary page					

**MGOMANZI SPS**  
**Electrical Installation**

Each item in the schedule must be filled in.

Each price entered hereunder shall include for the supply, inclusive of any taxes, (other than VAT) and duties applicable, installation, testing, commissioning, guarantee (with free maintenance during the guarantee period), and profit.

SCHEDULE DESCRIPTION		TENDER AMOUNT
<b>1</b>	<b>PRELIMINARY &amp; GENERAL</b>	
	<b>ELECTRICAL</b>	
2	LOW VOLTAGE RETICULATION	
3	SMALL POWER INSTALLATION	
4	LIGHTING INSTALLATION	
5	EARTHING, LIGHTNING PROTECTION, BONDING	
6	PUBLIC ADDRESS SYSTEM	
7	INFORMATION & COMMUNICATION SYSTEMS	
<b>B</b>	<b>SUB-TOTAL</b>	
	<b>MECHANICAL</b>	
8	KITCHEN EQUIPMENT	
9	LP GAS INSTALLATION	
10	SOLAR GEYSER	
11	SOLAR PUMP	
12	FUME CUPBOARD	
13	DAYWORKS	
<b>C</b>	<b>SUB-TOTAL</b>	
	<b>PROVISIONAL SUMS</b>	
14	32kVA DUAL PHASE ESKOM CONNECTION	R 250 000.00
15	.....% PROFIT & ATTENDANCE	
16	EXISTING POWERLINE DEVIATION	R 150 000.00
17	.....% PROFIT & ATTENDANCE	
<b>D</b>	<b>SUB-TOTAL</b>	
<b>E</b>	<b>TOTAL (A+B+C+D)</b>	
<b>F</b>	<b>ADD VAT 15%</b>	
<b>G</b>	<b>GRAND TOTAL (F+G) CARRIED FORWARD TO FORM OF OFFER</b>	

I, ....., on behalf of the Tenderer

..... advise that I have read and priced the installation in accordance with the specifications, drawings and schedules of quantities and that I have satisfied myself that no discrepancies exist between the various documents and the drawings.

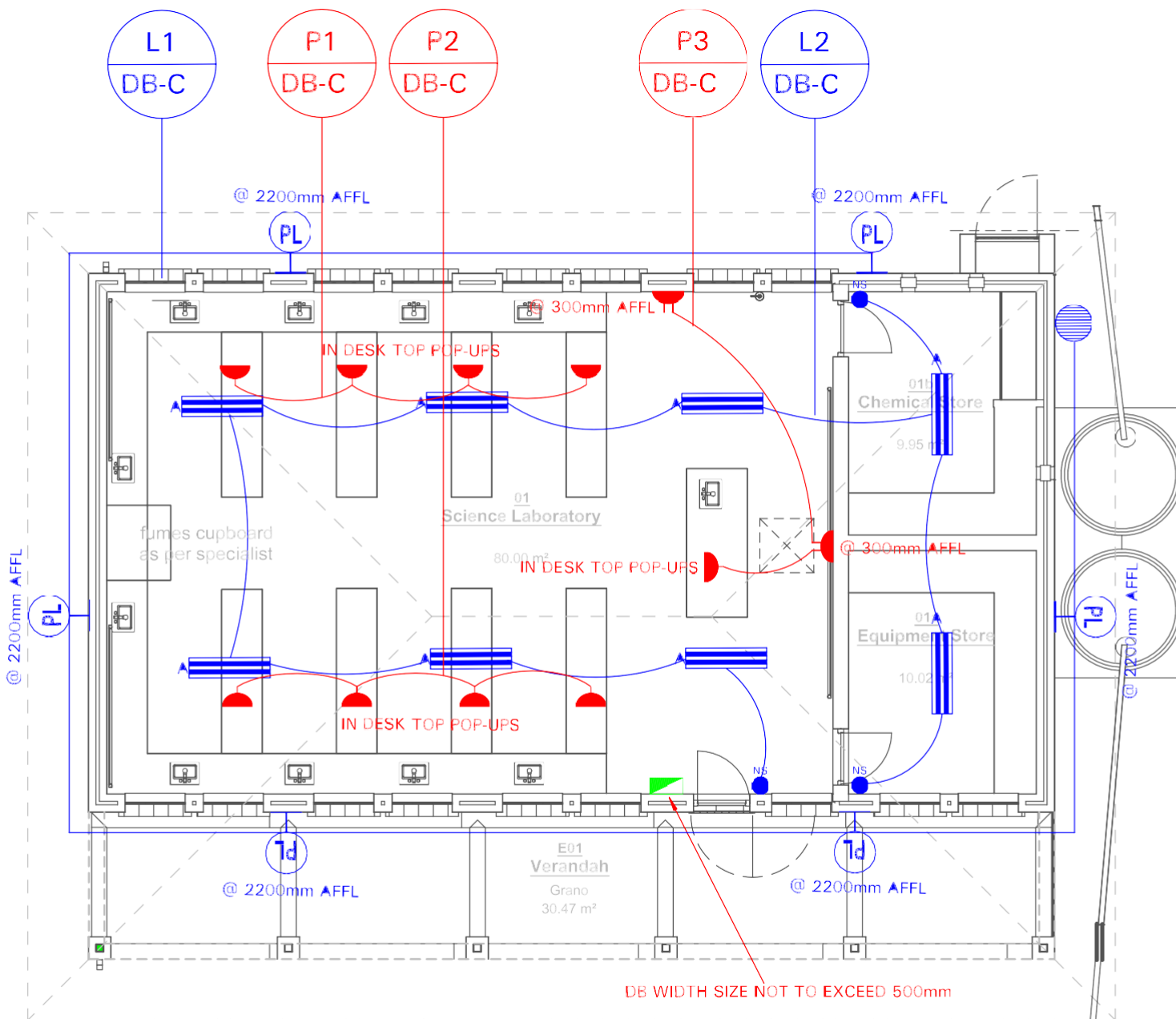
TENDERER'S NAME/STAMP

SIGNATURE

DATE







NOTE:  
ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

#### LEGEND:

TYPE A & B (SEE SPECIFICATION)	TYPE A & B (SEE SPECIFICATION)
TYPE C (SEE SPECIFICATION)	TYPE C (SEE SPECIFICATION)
TYPE D (SEE SPECIFICATION)	TYPE D (SEE SPECIFICATION)
TYPE E (SEE SPECIFICATION)	TYPE E (SEE SPECIFICATION)
TYPE F (SEE SPECIFICATION)	TYPE F (SEE SPECIFICATION)
TYPE G (SEE SPECIFICATION)	TYPE G (SEE SPECIFICATION)
TYPE H (SEE SPECIFICATION)	TYPE H (SEE SPECIFICATION)
TYPE I (SEE SPECIFICATION)	TYPE I (SEE SPECIFICATION)
TYPE J (SEE SPECIFICATION)	TYPE J (SEE SPECIFICATION)
TYPE K (SEE SPECIFICATION)	TYPE K (SEE SPECIFICATION)
TYPE L (SEE SPECIFICATION)	TYPE L (SEE SPECIFICATION)
TYPE M (SEE SPECIFICATION)	TYPE M (SEE SPECIFICATION)
TYPE N (SEE SPECIFICATION)	TYPE N (SEE SPECIFICATION)
TYPE O (SEE SPECIFICATION)	TYPE O (SEE SPECIFICATION)
TYPE P (SEE SPECIFICATION)	TYPE P (SEE SPECIFICATION)
TYPE Q (SEE SPECIFICATION)	TYPE Q (SEE SPECIFICATION)
TYPE R (SEE SPECIFICATION)	TYPE R (SEE SPECIFICATION)
TYPE S (SEE SPECIFICATION)	TYPE S (SEE SPECIFICATION)
TYPE T (SEE SPECIFICATION)	TYPE T (SEE SPECIFICATION)
TYPE U (SEE SPECIFICATION)	TYPE U (SEE SPECIFICATION)
TYPE V (SEE SPECIFICATION)	TYPE V (SEE SPECIFICATION)
TYPE W (SEE SPECIFICATION)	TYPE W (SEE SPECIFICATION)
TYPE X (SEE SPECIFICATION)	TYPE X (SEE SPECIFICATION)
TYPE Y (SEE SPECIFICATION)	TYPE Y (SEE SPECIFICATION)
TYPE Z (SEE SPECIFICATION)	TYPE Z (SEE SPECIFICATION)

DATE	17/06/2017	DESIGNED FOR TENDER	DATE	17/06/2017	APPROVED
SCALE	1:100 @ A3	SCALE ON REDUCED DRAWING	DATE	17/06/2017	APPROVED
DESIGNER	AKM	DESIGNED	AKM	DATE	17/06/2017
CHECKED	AKM	APPROVED	AKM	DATE	17/06/2017
DATE	17/06/2017	DATE	17/06/2017	DATE	17/06/2017



PROJECT  
MNGOMAZI SINIOR PRIMARY SCHOOL

DRAWING TITLE  
SCIENCE LAB BLOCK C LIGHTING AND POWER LAYOUT

DRAWING NUMBER  
K17-01/BLOCK C/LP01

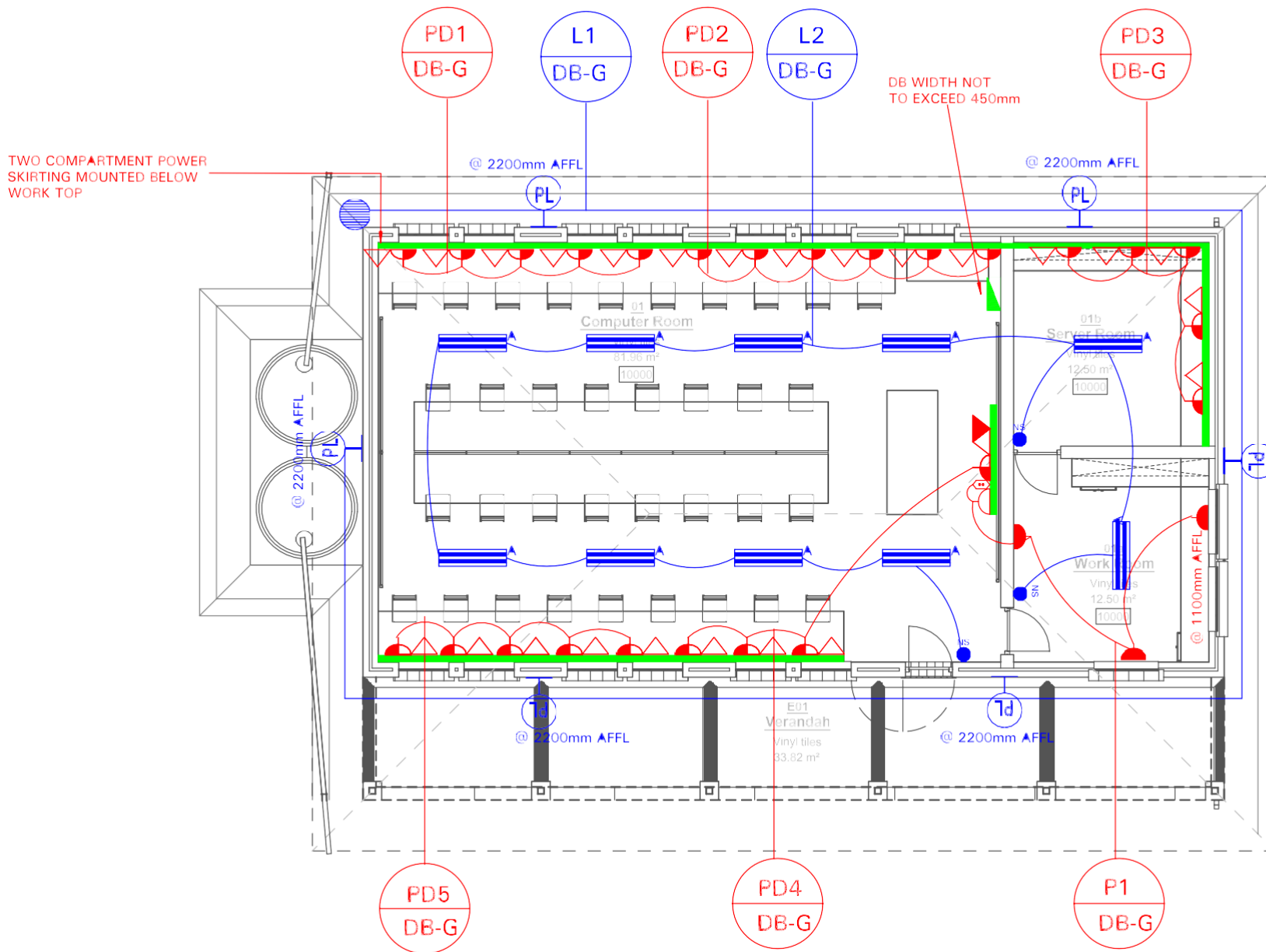
TENDER DRAWING











NOTE:  
ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

LEGEND:

	TYPE A 2-CORE CABLE WITH GROUND CONDUCTOR
	TYPE B 3-CORE CABLE WITH GROUND CONDUCTOR
	TYPE C 4-CORE CABLE WITH GROUND CONDUCTOR
	TYPE D 5-CORE CABLE WITH GROUND CONDUCTOR
	TYPE E 6-CORE CABLE WITH GROUND CONDUCTOR
	TYPE F 7-CORE CABLE WITH GROUND CONDUCTOR
	TYPE G 8-CORE CABLE WITH GROUND CONDUCTOR
	TYPE H 9-CORE CABLE WITH GROUND CONDUCTOR
	TYPE I 10-CORE CABLE WITH GROUND CONDUCTOR
	TYPE J 11-CORE CABLE WITH GROUND CONDUCTOR
	TYPE K 12-CORE CABLE WITH GROUND CONDUCTOR
	TYPE L 13-CORE CABLE WITH GROUND CONDUCTOR
	TYPE M 14-CORE CABLE WITH GROUND CONDUCTOR
	TYPE N 15-CORE CABLE WITH GROUND CONDUCTOR
	TYPE O 16-CORE CABLE WITH GROUND CONDUCTOR
	TYPE P 17-CORE CABLE WITH GROUND CONDUCTOR
	TYPE Q 18-CORE CABLE WITH GROUND CONDUCTOR
	TYPE R 19-CORE CABLE WITH GROUND CONDUCTOR
	TYPE S 20-CORE CABLE WITH GROUND CONDUCTOR
	TYPE T 21-CORE CABLE WITH GROUND CONDUCTOR
	TYPE U 22-CORE CABLE WITH GROUND CONDUCTOR
	TYPE V 23-CORE CABLE WITH GROUND CONDUCTOR
	TYPE W 24-CORE CABLE WITH GROUND CONDUCTOR
	TYPE X 25-CORE CABLE WITH GROUND CONDUCTOR
	TYPE Y 26-CORE CABLE WITH GROUND CONDUCTOR
	TYPE Z 27-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AA 28-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AB 29-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AC 30-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AD 31-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AE 32-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AF 33-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AG 34-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AH 35-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AI 36-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AJ 37-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AK 38-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AL 39-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AM 40-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AN 41-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AO 42-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AP 43-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AQ 44-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AR 45-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AS 46-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AT 47-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AU 48-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AV 49-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AW 50-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AX 51-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AY 52-CORE CABLE WITH GROUND CONDUCTOR
	TYPE AZ 53-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BA 54-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BB 55-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BC 56-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BD 57-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BE 58-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BF 59-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BG 60-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BH 61-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BI 62-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BJ 63-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BK 64-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BL 65-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BM 66-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BN 67-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BO 68-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BP 69-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BQ 70-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BR 71-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BS 72-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BT 73-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BU 74-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BV 75-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BW 76-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BX 77-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BY 78-CORE CABLE WITH GROUND CONDUCTOR
	TYPE BZ 79-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CA 80-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CB 81-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CC 82-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CD 83-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CE 84-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CF 85-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CG 86-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CH 87-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CI 88-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CJ 89-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CK 90-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CL 91-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CM 92-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CN 93-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CO 94-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CP 95-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CQ 96-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CR 97-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CS 98-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CT 99-CORE CABLE WITH GROUND CONDUCTOR
	TYPE CU 100-CORE CABLE WITH GROUND CONDUCTOR

DATE	DESIGNED BY	DATE
JUNE 17	DESIGNED BY	JUNE 17
DATE	APPROVED BY	DATE
JUNE 17	APPROVED BY	JUNE 17
SCALE	SCALE ON REDUCED DRAWING	
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@ A3	@ A3	

DATE	DESIGNED BY	DATE
JUNE 17	DESIGNED BY	JUNE 17
DATE	APPROVED BY	DATE
JUNE 17	APPROVED BY	JUNE 17

CLIENT



ARCHITECT



PROJECT  
MNGOMAZI SENIOR PRIMARY SCHOOL

DRAWING TITLE  
MULTI PURPOSE BLOCK G LIGHTING AND POWER LAYOUT
























DRAWING NUMBER	00
K17-01/BLOCK G/LP01	

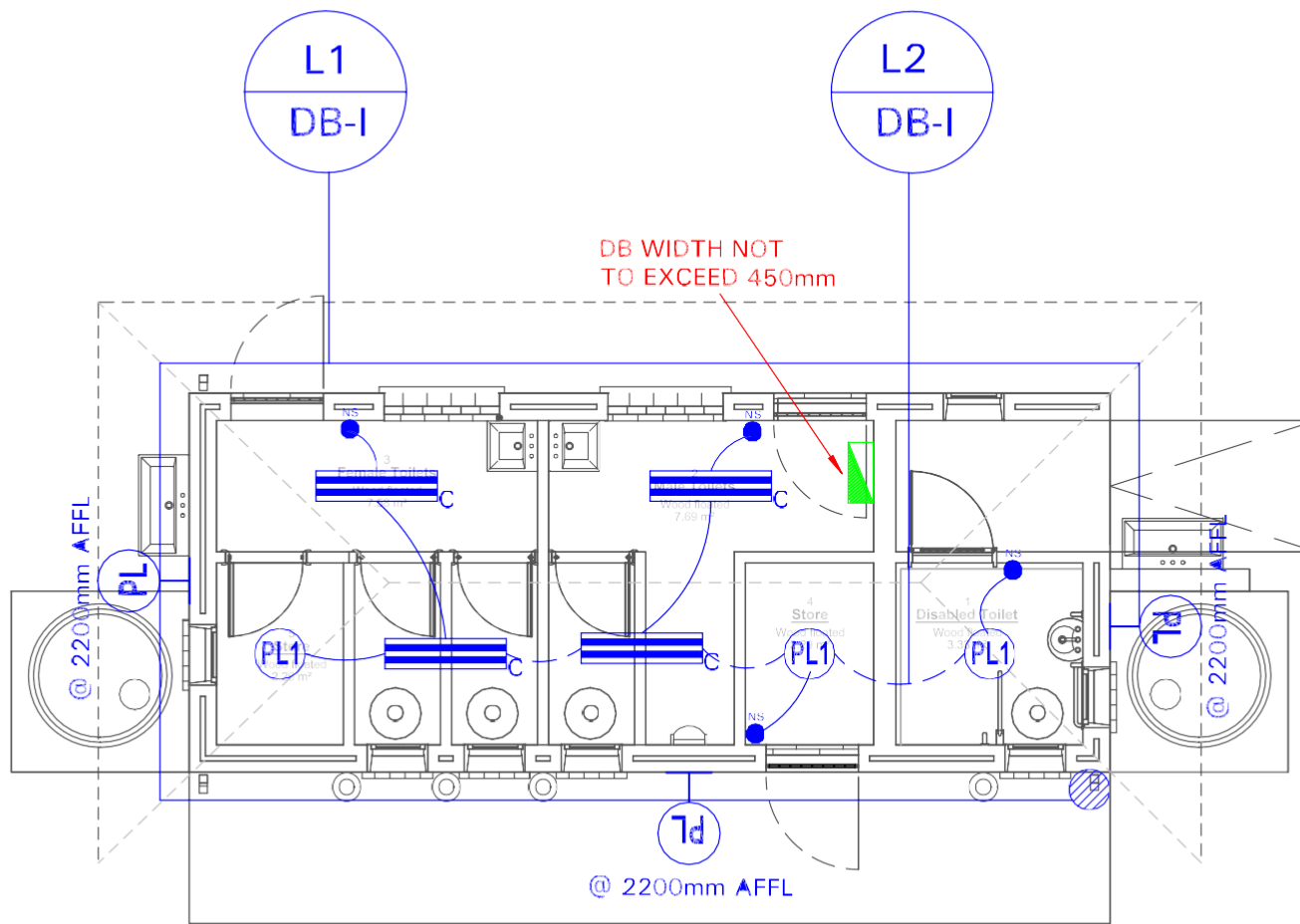
TENDER DRAWING




1. ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

LEGEND:

	TYPE C: 2 x 30mm SURFACE MOUNTED (2500mm LON) W/ 100mm PROOF (FLOODPROOF) FITTING AS PER SPECIFICATION
	TYPE H: 200 x 200 x 40mm FLUSH MOUNTED AS PER SPECIFICATION
	TYPE H: 200 x 200 x 40mm FLUSH MOUNTED AS PER SPECIFICATION
	TYPE L: 150 x 150 x 40mm FLUSH MOUNTED AS PER SPECIFICATION
	TYPE L: 150 x 150 x 40mm FLUSH MOUNTED AS PER SPECIFICATION
	TYPE L: 150 x 150 x 40mm FLUSH MOUNTED AS PER SPECIFICATION
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JUNE 17		SQUAD FOR TENDER			JP
DATE		DESCRIPTION			APPROVED
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DRAWN	DATE	DESIGNED	DATE		
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CHECKED BY JHUSKILLY	DATE	APPROVED BY JHUSKILLY	DATE		
BY TUCHER	JUNE 2017	BY TUCHER	JUNE 2017		

CLIENT
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ARCHITECT



PROJECT

MNGOMAZI SENIOR PRIMARY SCHOOL

DRAWING TITLE
---------------

STAFF TOILETS BLOCK I LIGHTING LAYOUT

DRAWING NUMBER
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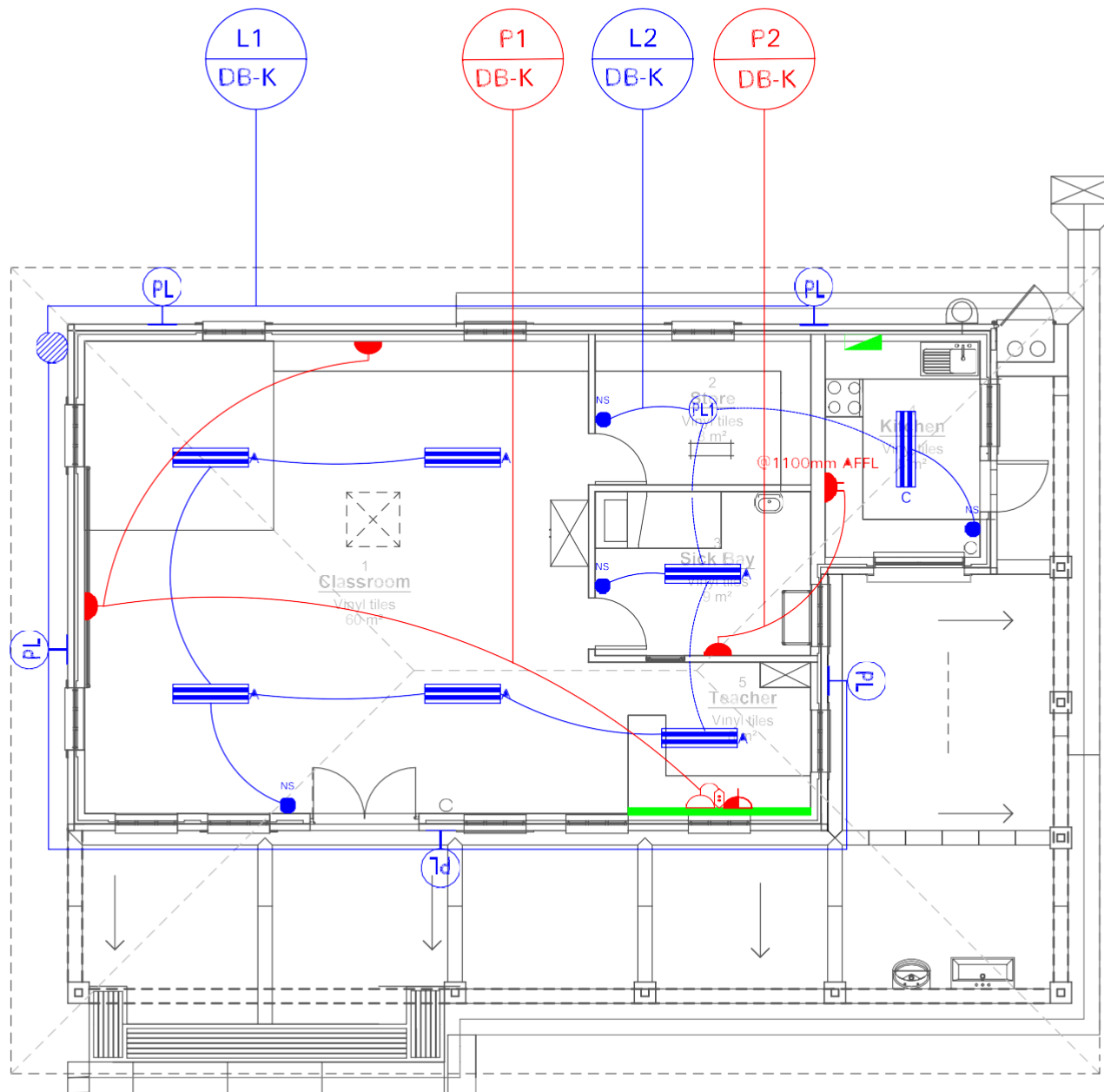
K17-01/BLOCK I/L01

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TENDER DRAWING

**Mgomanzi SPS - 0345**





NOTE:  
ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

#### LEGEND:

	TYPE A 2 x 20W SURFACE MOUNTED (200mm x 100mm) LED CANAL RECESSED FITTING AS PER SPECIFICATION
	TYPE PL 10W LED WALL MOUNTED RECESSED FITTING AS PER SPECIFICATION
	TYPE PL 10W LED CEILING MOUNTED RECESSED FITTING AS PER SPECIFICATION
	10W WALL MOUNTED LIGHT SWITCH AS PER SPECIFICATION
	SINGLE LEVEL ONE WAY SWITCH MOUNTED @ 1100mm AFFL
	DOUBLE LEVEL TWO WAY SWITCH MOUNTED @ 1100mm AFFL
	ROTARY WEATHER PROOF SWITCH MOUNTED @ 1100mm AFFL
	TWO LEVEL ONE WAY SWITCH MOUNTED @ 1100mm AFFL
	PHOTO CELL
	ELECTRICAL DISTRIBUTION BOARD
	TELECOM DISTRIBUTION BOARD
	RKA SWITCHED SOCKET OUTLET ON CATCH LEAKAGE PROTECTABLE SOCKET OUTLET ON CATCH LEAKAGE

DATE	DESIGNED FOR TENDER	DATE	APPROVED
JUNE 17	DATE	JUNE 17	DATE
SCALE	SCALE ON REDUCED DRAWING	SCALE	SCALE ON REDUCED DRAWING
1:70 @ A3	1:70 @ A3	1:70 @ A3	1:70 @ A3
DRAWN	DATE	DESIGNED	DATE
A. MKUPA	JUNE 2017	A. MKUPA	JUNE 2017
DESIGNED	DATE	APPROVED	DATE
A. MKUPA	JUNE 2017	A. MKUPA	JUNE 2017



AKM & ASSOCIATES  
consulting electrical & mechanical engineers  
& project managers  
100% SOUTH AFRICAN OWNED & OPERATED

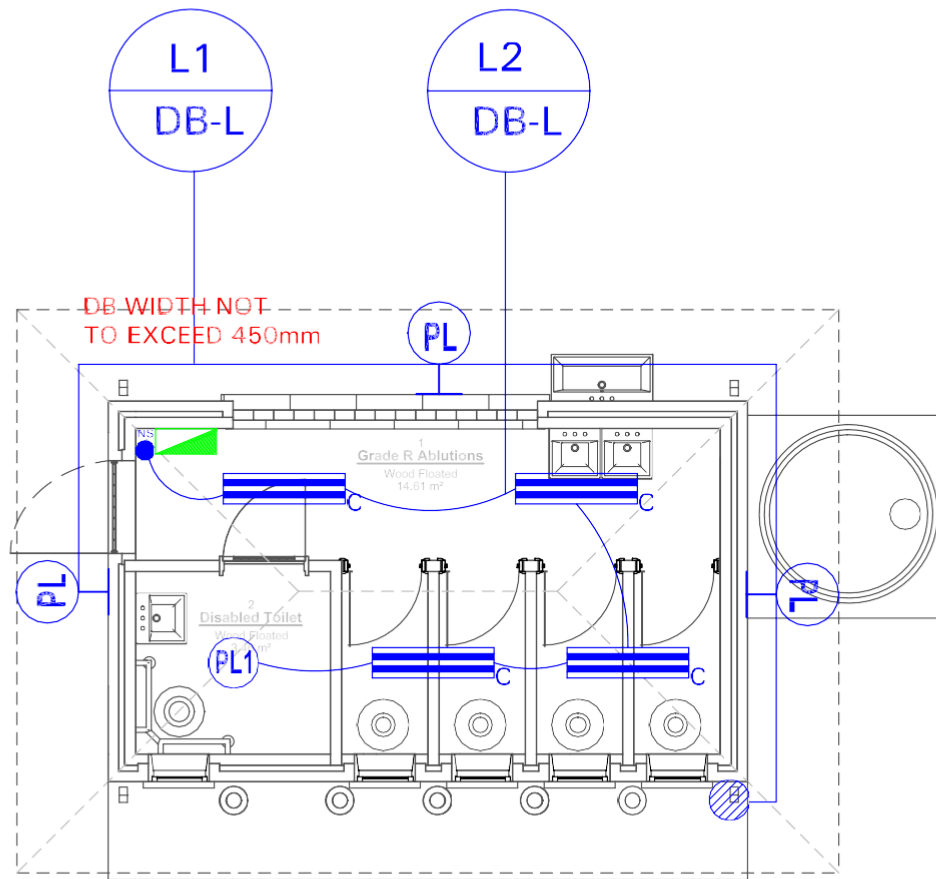
PROJECT  
MNGOMAZI SENIOR PRIMARY SCHOOL

DRAWING TITLE  
GRADE R BLOCK K LIGHTING AND POWER LAYOUT

DRAWING NUMBER  
K17-01/BLOCK K/L01

TENDER DRAWING

Mgomanzi SPS - 0347



NOTE:  
ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

#### LEGEND:

	TYPE C: 2 x 300 SURFACE MOUNTED (200mm LONG) SWITCH PROOF FLUORESCENT FITTING AS PER SPECIFICATION
	TYPE PL: 2x150 SURFACE MOUNTED (150mm LONG) AS PER SPECIFICATION
	TYPE PL: 2x150 SURFACE MOUNTED (150mm LONG) AS PER SPECIFICATION
	TYPE PL: 2x150 SURFACE MOUNTED (150mm LONG) AS PER SPECIFICATION
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	TYPE PL: 2x150 SURFACE MOUNTED (150mm LONG) AS PER SPECIFICATION

DATE	ISSUED FOR TENDER	DATE
JUNE 17	JUNE 17	JUNE 17
DATE	APPROVED	DATE
JUNE 17	JUNE 17	JUNE 17
SCALE	SCALE ON REDUCED DRAWING	
1:50	1:50	
@ A3	@ A3	
DRAWN	DESIGNED	DATE
A. MKUPA	A. MKUPA	JUNE 2017
DESIGNED	APPROVED	DATE
J. H. SPILL	J. H. SPILL	JUNE 2017
BY: T. T. T.	BY: T. T. T.	BY: T. T. T.



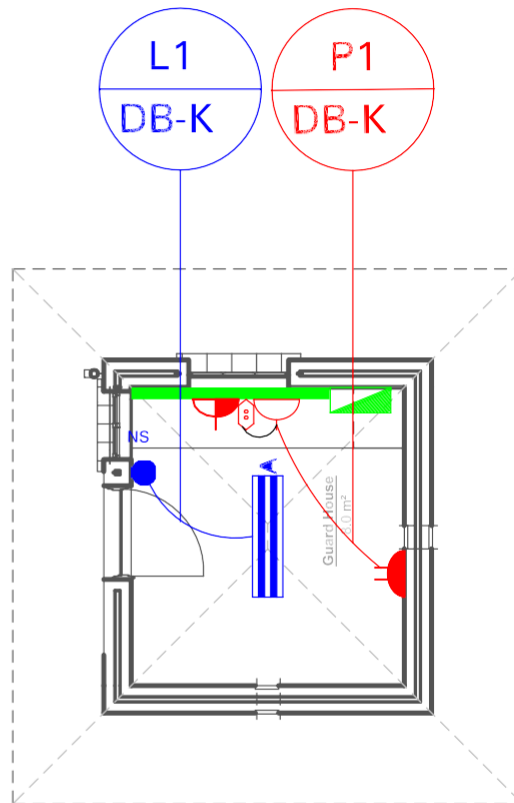
PROJECT  
MNGOMAZI SENIOR PRIMARY SCHOOL

DRAWING TITLE  
GRADE R ABLUTIONS BLOCK L LIGHTING LAYOUT

DRAWING NUMBER  
K17-01/BLOCK L/L01

TENDER DRAWING


Mgomanzi SPS - 0348



NOTE:  
ELECTRICAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTS DRAWINGS. CO-ORDINATION TO BE DONE WITH PRINCIPAL CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES AND FURNITURE.

LEGEND:

	TYPE A 2.5.80 SURFACE MOUNTED 200MM LONG OPEN CHANNEL PLUG/IDENTIFYING FITTING AS PER SPECIFICATION
	AS PER SPECIFICATION
	SINGLE LEVER ONE WAY SWITCH MOUNTED 800mm APL
	PHOTO CELL
	ELECTRICAL DISTRIBUTION BOARD
	1.5A SWITCHED SOCKET CUPLET ON LEATH LEAKAGE
	1.5A UN- SWITCHED SOCKET CUPLET ON LEATH LEAKAGE

JUNE 17	ISSUED FOR TENDER	BY	
DATE	DESCRIPTION	APPROVED	
SCALE		SCALE ON REDUCED DRAWING	
1:100 @ A3			
DRAWN	DATE	DESIGNED	DATE
A. MKUPA	JUNE 2017	A. MKUPA	JUNE 2017
CHECKED	DATE	APPROVED	DATE
J. MOKELLY P. Tshabalala	JUNE 2017	J. MOKELLY P. Tshabalala	JUNE 2017



PROJECT  
MNGOMAZI SENIOR PRIMARY SCHOOL

DRAWING TITLE  
GUARD HOUSE BLOCK M LIGHTING AND POWER LAYOUT

DRAWING NUMBER	REV
K17-01/BLOCK M/LP01	00

TENDER DRAWING





## **CONTENTS**

<b>DESCRIPTION</b>	<b>PAGE</b>
<b>Section 3.1</b>	
1 <i>SPECIFICATION FOR THE EXTRACT CANOPY</i>	<i>3.1.1</i>
2 <i>Drawing Schedule</i>	<i>3.1.1</i>

## **MECHANICAL INSTALLATION: KITCHEN EQUIPMENT SPECIFICATIONS**

### **1.1 SPECIFICATION FOR THE EXTRACT CANOPY**

Provide and install one extract canopy measuring 2000 long x 1000 wide x 600 high complete with 2 grease arresting filters (Baffle type), fire dampers and galvanised sheet steel ducting between the canopy and a whirly bird. The canopy shall be at least 2.1m from the underside to floor level.

The canopy shall be as manufactured by an approved kitchen canopy manufacture, each constructed in modules from 1,0 mm thick Galvanised Sheet Steel or stainless steel-

The canopy shall be supported from the roof structure.

The canopy shall be of modular construction with all joints and seams to be continuously welded and / or liquid tight. All exposed welds to be ground and polished to original finish, the internal seams to be filled with non-hardening sealer. The grease shall be contained in concealed pull-out draws. 2 x Baffle type filters manufactured from 430 BA Stainless Steel shall be included in the extract canopies.

Flush fitting vapour sealed lights with double florescent tubes to give 500 Lux at the working level shall be provided

Duct work between the canopies and extract fan shall be fabricated from 1,2mm galvanised steel sheet.

Provision shall be made to have suitable size removable grease drip tray fitted under the filters, the main grease gutter shall be fitted with a removable grease cup at either end for draining purposes.

#### **Extraction System to comprise of the Items below:**

1	x	ISLAND CANOY S/STEEL 2m x 1m BOXED
2	x	Duel Panel Florescent Lighting
1	x	Fire Damper with Fusible Link
1	x	Square to Round
2	x	FILTERS S/STEEL [Grease arresting filters (Baffle type)]
4	x	FLUE PIPES (Round)
2	x	90* BENDS (Round)
1	x	Whirly-Bird
1	x	Connections, Brackets, Cabling, Fittings

### **2. DRAWING SCHEDULE**

Drawings listed below, whether separate or bound into the document, form part of the complete tender specification and are to be read in conjunction with the rest of the documentation.

PROJECT & DWG NO.	DESCRIPTION
Mgomanzi SPS -K17-01/LPG-01	NUTRITION AND DINING LP GAS LAYOUT

No architectural or other engineering services drawings are included. These will be issued to the Tenderers upon request.

## **CONTENTS**

<b>DESCRIPTION</b>	<b>PAGE</b>
<b>Section 3.3</b>	
1 <i>Solar Geyser Specification</i>	<i>3.3.1</i>
2 <i>Requirements for Air Conditioning Units/Equipment Specifications</i>	<i>3.3.8</i>
3 <i>Drawing Schedule</i>	<i>3.3.11</i>

## **MECHANICAL INSTALLATION**

### **1. SOLAR GEYSER SPECIFICATION**

1.1 *The equipment and system supplied shall be complete and functional and shall be as a minimum according to this specification and the latest revisions of the following standards and specifications:*

- i) *SANS 10400: The Application of the National Building Regulations*
- ii) *Occupational Health and Safety Act and Regulations*
- iii) *SANS 10142: The Wiring of Premises Part 1: Low Voltage Installations*
- iv) *SANS 10252-1: Water supply and drainage for buildings Part 1: Water supply installations for buildings.*
- v) *SANS 1307: Domestic solar water heaters*
- vi) *SANS 10106: The installation, maintenance, repair and replacement of domestic solar water heating systems.*
- vii) *SANS 10254: The installation, maintenance, replacement and repair of electric storage water heating systems.*
- viii) *Plumbing code of practice as prepared by Copper Tubing Africa and The Copper Development Association Africa.*
- ix) *All other relevant specifications, standards and documents whether referenced in the above documents or not.*

*This specification is supplemental to the above and any conflicting information must be referred to the engineer for clarification.*

1.2 *The equipment offered is intended for use on a daily basis at a building located inland area of the Eastern Cape. The proposed system is intended to generate hot water using indirect heating solar panels and solar geysers.*

1.3 *The solar water heating system shall be supplied, installed and commissioned by a specialist solar water heating company accredited as a solar installer. The installer of the solar hot water systems and associated equipment shall be responsible for the proper and safe functioning of the installation and any claim on the grounds of lack of knowledge will not be entertained.*

1.4 *The general site conditions in which the system must be able to operate successfully are as specified below under the paragraph describing the site.*

### **2. LEGAL REQUIREMENTS**

2.1 *During the supply, installation and commissioning all work shall be carried out according to the requirements of this specification and the Occupational Health and Safety Act and regulations. The completed installation shall also conform to all specified requirements and regulations.*

2.2 *All registration certificates, written local authority approvals, test certificates and certificate of compliance shall be submitted to the engineer before the installation will be accepted for first delivery.*

### **3. WARRANTY**

*The contractor is to guarantee all the systems and workmanship for a period of twelve (12) months against any defects (latent or obvious), non-conformance and/or failure from date of first delivery. **The geysers, solar panel(s) and brackets shall carry a***

**guarantee of 10 years. Documentation to support such a guarantee on the equipment shall be provided for safe keeping by engineer.** Any defects and/or failure that may occur or become evident during the guarantee period shall be rectified within twenty four (24) hours after being notified of the occurrence of the defect. In the event that such failure and/or defect constitute a threat to the health and safety of the user and/or occupants, the contractor shall take **immediate** steps to rectify the fault. Any faulty item that becomes evident during the guarantee period shall be replaced with new and not repaired. The contractor shall also submit to the engineer AND relevant building management a full report describing the nature of failure, cause of failure and possible methods to prevent future failure.

In the event that the contractor does not attend to such defects after being notified, the engineer and/or user reserve the right to effect the rectification of the defect and recover the costs thus incurred from the contractor.

#### **4. SITE**

- 4.1 The equipment required is intended for use on a daily basis at buildings on inland of the Eastern Cape (Kokstad).

The general site conditions in which the systems must be able to operate successfully are as follows:

Summer maximum dry bulb temperature : 45° C

Winter minimum dry bulb temperature : -5° C

- 4.2 Access into and out of the site shall be subject to security control.

#### **5. MAKING GOOD TO ALL TRADES AND CLEARING SITE**

After completion of the installation all trades shall be made good and left in a clean, waterproof and neat condition. All surfaces to be painted /varnished must be prepared and painted with one coat primer, one under coat and two finishing coats. The paint/varnish system to be SABS approved. Patching of paint work with non-matching colours shall not be accepted. Where painting is required around openings etc., bidders are to allow for painting of complete panels and not only small patching around damaged areas. All packaging material, crates, rubble generated during the preparation and installation processes and items used for commissioning shall be removed from the site and disposed of in a correct and legal manner. All galvanized brackets, bolts and nuts and components shall be cleaned with a proprietary galvanize cleaner and painted with galvanized primer and two top coats.

#### **6. SUMMARY OF SCOPE OF WORK**

This specification is for the supply, delivery, installation, testing and commissioning of fully functional indirect solar water heating systems as well as all ancillary equipment as described below:

- 6.1 indirect solar water heating system consisting of 24 solar tubes with a 200 liter indirect solar geyser with a 2kw standby electrical element from Incoloy, insulated class 2 copper pipes.

- 6.2 *All piping, fittings, piping supports, valves, safety valves, expansion valves, vacuum breakers direct solar geyser, solar tubes heating panels, bracketing, supports, safety devices, drip tray, overflow, thermal pipe lagging, and 2 kw standby electrical heating element.*
- 6.3 *Three speed In-line circulating pump capable of operating at a temperature of 110°C and a maximum flow of 40 litre/min at a 6m head.*
- 6.4 *The solar tubes shall be equipped with solar tubes fixing brackets to which a solar tubes cover can be attached. The intended cover, not part of this scope of supply, shall be from white fibre reinforced PVC impregnated tarpaulin with a minimum mass of 180 gram/square meter. The solar panel support frames shall however be equipped with fastening points and the covers shall be complete with tie down ropes.*
- 6.5 *The fixing brackets shall be from corrosion proof material and the panel(s) shall be fixed at the bottom and top rail. Only stainless steel fasteners shall be allowed. On metal roofs, proprietary specialized brackets similar or equal to the S5 range of brackets shall be used.*
- 6.6 *Maintenance and operating manuals, parts lists, manufacturer's data sheets, as built pipe diagrams showing valve locations, maintenance schedules and list of recommended spares for all equipment.*
- 6.7 *Pressure testing of all piping to a pressure of at least 600kPa, pressure testing of solar panel and geyser after installation to a pressure not exceeding the max allowable operating pressure as specified by the manufacturer, operational testing and commissioning of the installation and training of staff in the use, care and maintenance of the equipment. All pressure testing must be witnessed and signed off by DRPW works inspector.*
- 6.8 *All test certificates, electrical compliance certificates and local authority approvals.*
- 6.9 *Full maintenance during the 12 months guarantee period and full documentation to enable the user/IDT to implement the 10 year guarantee on the solar equipment as specified.*
- 6.10 *All electrical work shall comply to the requirements of SANS 10142.*
- 6.11 *The geyser shall be complete with specialized geyser controller with user settings. The user settings must include at least 4 element ON/OFF times and periods for every day of the week. The controller must include a real time clock with day and time settings, pump control settings, holiday settings, maximum temperature settings for element operation, pump ON/OFF settings etc. The controller shall be mounted in a visible location and shall be with a clear LCD or equivalent display.*
- 6.12 *All other items and requirements, whether specifically mentioned or not, for complete, functional and safe solar water heating systems complying with all the relevant codes and specifications must be included when pricing and brought to the Engineers attention.*
- 6.13 *All safety notices, safety plan and safety equipment and electrical COC's for all electrical work associated with the installation shall be supplied by the contractor.*
- 6.14 *A thermostatic mixing valve to ensure that no water leading to the hot water outlets can exceed a temperature of 55 degrees C.*

## **7 BASIC OPERATION OF THE SYSTEM**

- 7.1 *Where possible, the solar water heating system shall operate on the principle of natural convection (thermo syphon) and no pumps required for its normal operation. The roof structure must be adapted to allow easy removal and installation of the tank. However, in most cases it is not possible to place the geyser higher than the panels and a pump is then required. The flat panel solar water heating panels shall heat water and heated water shall be circulated to direct solar geyser, the panels shall be positioned on a north facing direction. The solar geyser shall also be fitted with a 2kW standby electrical element*
- 7.2 *The 2kW standby electrical element in the solar geyser shall also be controlled by an electronic temperature controller and interfacing relay. The standby electrical element shall only switch on when the temperature in the geyser is below 35 degrees C and shall switch off when the temperature is above 50 degrees C. These settings shall however be adjustable.*

## **8 PIPE WORK AND FITTINGS**

- 8.1 *All pipes and fittings shall be copper and at least class 2 rated as per SANS 460. The copper pipe shall be clearly marked showing the SABS number and class as well as the diameter. All fittings shall be compression fittings and shall be of the non-de-zincking type. All fittings shall comply with the latest edition of SANS 1067-1 and shall be marked as such. All imported fittings shall comply with the latest edition of BS EN 1254 part 2-3-4. Compliance shall be clearly marked on each fitting.*
- 8.2 *No soldering, putty, PTFE tape, hemp, paint, silicone or any other sealing compound shall be used with compression fittings. Hemp and STAG or equivalent shall be used on threaded joints where the thread forms the water seal.*
- 8.3 *All pipe brackets shall be galvanised and of saddle type. The pipe brackets shall be of a proprietary make suitable for a sound proof installation. The bracket material shall as a minimum be from 25mm wide by 2mm thick galvanised steel. Each bracket shall be lined with a silicon rubber lining that fit over the 25mm X 2mm bracket. The ribbed silicon insert shall be at least 4.5mm thick. Under no circumstances may dissimilar metals come in contact with each other. Galvanised brackets and copper and/or bronze fittings shall be electrically insulated.*
- 8.4 *All cut ends or areas where galvanising was damaged during the installation process shall be treated with 99% zinc rich organic paint.*
- 8.5 *All hot water supply and return pipes shall be lagged with high temperature and water resistant lagging. The lagging shall also be secured with cable ties at a minimum interval of 1000 mm and at both ends at fitting and pipe bracket. The thermal resistance of the insulation shall be equal or better than that specified in the relevant SANS standard.*

## **9 SOLAR PANELS**

- 9.1 *The solar panel shall each be of the tubular type.*
- 9.2 *The panel design shall be such that the average solar conversion is at least 65%. The absorption material shall be copper with a minimum of 8 risers and two headers. The*

size of the risers shall be at least 10mm diameter and the headers shall be 22mm diameter.

- 9.3 The collector case material shall be from aluminium with a minimum wall thickness of 1.3mm. The glass cover shall as a minimum be from 4mm low iron tempered glass and shall be hail resistant according to the requirements of SANS 1307. The panel shall be insulated with 45mm thick glass wool with minimum density of 50kg/m<sup>3</sup>. The collector shall be sealed with a full profile EPDM seal. Aluminium and copper shall be galvanically insulated.
- 9.4 The allowable working pressure of the collectors shall be at least 400 kPa.
- 9.5 The panel shall be secured to the roof using corrosion proof proprietary roof brackets and support rails suitable for the roof. The panel shall be mounted onto mounting rails. The rails shall consist of at least three lengths extruded aluminium box sections spanning the full width of the panel(s) plus at least 50mm beyond the end. The rails shall be spaced one at the bottom, one centre and one at the top. The maximum vertical spacing of the rails shall be 800mm. The number of mounting points shall comply with the manufacturer's recommendations as well as the wind loading based on a wind speed of 42m/s as per SANS-10160. The roof structure shall be certified to carry the panel and geyser loads.
- 9.6 The panel shall be fitted with a vent valve and vacuum breaker at the top outlet point.

## **10 INDIRECT SOLAR GEYSERS**

- 10.1 The indirect solar geysers shall be manufactured from at least 2.5mm thick steel. The geyser shall be internally coated and shall be capable of withstanding thermal shock and temperatures up to 130°C. The geyser shall be guaranteed for a period of ten years.
- 10.2 A minimum of 60mm high density polyurethane insulation shall be used between the inner tank and outer cover. The minimum R value of the insulation shall be 1.00m<sup>2</sup>.°K/W.
- 10.3 The cold water inlet shall be fitted with a sparge pipe to reduce the turbulence and forces on the standby electrical element.
- 10.4 The standby electrical heating element shall be from Incoloy 825 with a watt density below 8W/cm<sup>2</sup>. The element tubes shall be marked with the manufacturer's batch number with traceable reference to the material of manufacture that must be Incoloy 825. The element heating capacity shall be stamped on the element boss.
- 10.5 The solar geyser shall as a minimum be supplied and installed with the following:
- i) Earth stud bonded to the earthing system as well as earth bonding straps between the hot and cold water pipes and any metallic cover etc.
  - ii) Two vacuum breakers-one on the cold water supply and one on the hot water outlet. The vacuum breakers must be mounted at least 300mm above the geyser and must be directly over the drip tray.
  - iii) Pressure and temperature safety valve complete with independent 22mm copper piping to a safe position outside the building.
  - iv) Drain point and drain valve all mounted above the drip tray.
  - v) 400kPa combination pressure control, expansion and isolating valve with strainer.



- vi) Sacrificial anode.
- viii) Non-metallic standard drip tray complete with a 50mm diameter drain pipe to a safe position outside the building.
- ix) 2 kW Incoloy 825 heating element.
- x) Electrical isolating switch 1m from geyser complete with glands and flexible wire way to carry wiring to geyser element.
- xi) Mounting brackets to ensure geyser is raised from the drip tray.
- xiii) Two 22mm dia. ball valves with handles to shut off the hot- and cold water during maintenance.

## **11. EXPANSION TANK**

- 11.1 Where required by the manufacturer, an expansion tank shall be provided. The expansion tank shall be completely welded and epoxy coated and suitable for internal pressure of at-list up to 10bars. The tank must be suitable for temperatures up to 120°C and with a diaphragm specially developed for solar applications. The tank must be mounted above a drip tray. The minimum capacity of the expansion tank shall be 5 litres.

## **12. VALVES**

- 12.1 All shut off valves shall be JASWIC approved for use on hot and cold water. The position of the handles shall be such that if the valve is open, the handle is parallel with the associated pipe. Both ends of each valve shall be connected to a swivel union so that the valve can be removed and positioned without compromising the joint seal. The position of all valves shall be clearly marked on the as built drawings. The valves and seals shall be capable of operating at least at a pressure of 600kPa and at a temperature of 110°C.

## **13 ELECTRICAL WORK AND CONTROL PANELS**

- 13.1 All electrical work must conform to SANS 10142 and a certificate of conformance (COC) must be issued for the installation. All cables must be secured to galvanised cable baskets. Wiring shall be done inside conduit.
- 13.2 All conduit, cable baskets and general items must be installed square, vertical and horizontal within the accuracy of a builder's level.
- 13.3 The main isolator and main circuit breaker shall be double pole for single phase units and triple pole for three phase units. The complete system shall be earthed and the COC shall cover all equipment associated with the installation.
- 13.4 The electrical supply from the nearest DB shall be done by others. Cable shall be fixed with saddles at maximum 400mm intervals or be placed on galvanised cable baskets. All entry and exit points shall be fitted with bushes to prevent wire damage caused by sharp ends. Cable/wire sizes shall conform to the requirements of SANS 10142. All cable and wire loading shall include for all the electrical items plus an additional allowance of at least 20%.

## **14 DRAWINGS AND DOCUMENTS**

- 14.1 Three copies of full maintenance and operating manuals in files with plastic sleeves format and in electronic format shall be provided before final acceptance of installation.

The minimum contents of the manuals shall be:

- i) *Schematic diagrams, control diagrams and circuits, manufacturer's data sheets, commissioning data, copy of COC for electrical work and as build drawings showing pipe routes and valve positions.*
- ii) *Basic start up, shut down and running procedures.*
- iii) *Fault check list in flow diagram format*
- iv) *Routine maintenance plan and checks to be performed.*
- v) *List of critical spares and recommended spares to be kept on site complete with names and contact details of suppliers.*
- vi) *Material Safety Data sheets.*
- vii) *Manufacturers data sheets and equipment brochures.*
- viii) *Any other information regarded as pertinent to the installation and operation of the system.*

## **15 REQUIREMENTS FOR AIR CONDITIONING UNITS / EQUIPMENT SPECIFICATIONS**

- 15.1 *The air conditioning systems for the server room shall be split inverter type.*
- 15.2 *The refrigeration compressor in the outdoor unit shall be equipped with inverter controller and capable of changing the rotating speed to follow variations in cooling or heating load.*
- 15.3 *Air conditioning units shall be a wall-mounted split type.*
- 15.4 *The refrigerant used shall be R410A. The refrigerant piping shall be capable of being extended up to 150m with a 50m level difference without any oil traps.*
- 15.5 *The system shall be capable of operating continuously at ambient temperatures between -5°C and 40°C.*
- 15.6 *Both indoor and outdoor units shall be assembled, tested, and charged with refrigerant at the factory.*

## **16 OUTDOOR UNITS.**

- 16.1 *The outdoor units shall be factory-assembled units housed in sturdy weatherproof casings constructed from rust proofed galvanized steel panels coated with a baked epoxy powder finish. Outdoor units shall be corrosion protected with Bluechem, Tectyl or engineer approved equal.*
- 16.2 *The units shall each have a minimum of two scroll compressors and be able to operate even when one of the compressors is out of order.*
- 16.3 *The noise level shall not be more than 60dB(A) at normal operation measured horizontally 1m away and 1,5m above ground.*
- 16.4 *The compressor shall be of highly efficient scroll type and equipped with inverter control capable of changing the speed in accordance to the cooling or heating load requirement.*
- 16.5 *The heat exchanger shall be constructed with copper tubes mechanically bonded to aluminium fins to form a cross fin coil. The aluminium fins shall be covered by anti-corrosion resin film,*
- 16.6 *The refrigerant circuit shall include liquid and gas shut off valves and a solenoid valves. All necessary safety devices shall be provided to ensure the safety operation of the system. The following safety devices shall be part of the outdoor unit:*
  - *High Pressure Switch*
  - *Overload Relay*
  - *Inverter Overload Protector*
  - *Fusible Plugs*
- 16.7 *Condenser units are suitable for operation at low ambient temperatures.*

- 16.8 *Evaporator and the condenser are to be protected against freezing of the evaporator coil.*
- 16.9 *The cooling fins must be protected against hail with suitably sized perforated galvanized material powder coated the colour of the units. All fixings shall be galvanized or stainless steel.*

## **17 INDOOR UNITS**

- 7.1 *Indoor units shall be of the wall mounted type. They shall have electronic control valves, which control refrigerant flow rate in response to load variations of the room. The fans shall be of the multi blade type and statically and dynamically balanced to ensure low noise and vibration free operation.*

## **18 CONTROL**

- 18.1 *Wired remote type computerized PID controllers shall be used to maintain correct room temperatures and interrogate the system log.*
- 18.2 *Units shall be equipped with a self-diagnostic and logging system for easy and quick maintenance and service.*
- 18.3 *The unit control consists of a hard wired control that is to mounted on the wall where to light switch for the room is located – as close as possible to the light switch.*

## **19. CONDENSATE**

- 19.1 *Condensate from the indoor unit is to be piped to the outside wall of the room where the unit is situated and then connected to the drain line leading from the condenser.*
- 19.2 *In cases where no outside wall is available the condensate is to be piped to the closest internal drain point e.g. basin outlet pipe. In these latter instances the drain line is to be fitted with a loop seal. At no point may these drain lines be surface mounted on internal walls. The drain line is to be run in a 25mm PVC pipe that has been built into the wall and that has an adequate slope to allow the water to discharge down to the drainage point.*
- 19.3 *All indoor AC units are to be mounted in such a manner that they do not conduct vibration/noise to the building structure using vibration damping and sound insulation equipment that is commercially available and approved by the Engineer.*
- 19.4 *All condensate drain pipes shall be insulated.*

## **20 HEALTH AND SAFETY SPECIFICATION**

*The supply and installation of the solar system(s) form part of the work done by the principal building contractor. All health and safety requirements shall be according to the principal building contractor's health and safety specification and plan.*

## **21 STANDARD SPECIFICATIONS OF A WATER GEYSER/STORAGE VESSEL**

- *All hot water cylinders/electric geysers to be installed according to balance hot and cold water principles and in compliance with SANS 10252 and SANS 10254 codes of practice.*
- *Installation to be conducted by a professional and registered plumbing contractor.*
- *An electric water cylinder/storage tank/geyser shall be provided, as needed, with*
  - a) Safety devices in accordance with SANS 151,*
  - b) Thermostats in accordance with SANS 181, including a temperature cut-out device.*
- *The cylinder/storage tank/electrical geyser shall be stainless steel, pressure tested, fitted with the necessary safety valves (as per SABS 0252.1) and covered by a ten (3) year written guarantee and one(1) year warranty provided by the supplier.*
- *The material used for the production of container shells or linings of container shells shall not contain more than trace quantities of the main elements of any compounds of lead, arsenic, antimony or other toxic elements. The trace quantities of the toxic elements shall be in accordance with the WHO guidelines for drinking water quality.*
- *When tested in accordance with 4.3.2 in SANS 241:2006 for class II usage, the quality and purity of the stored water shall comply with that required for domestic water supplies.*
- *All metallic materials in direct contact with water during normal use shall be of:*
  - pure copper, or otherwise a copper alloy that, when tested in accordance with SANS 151, shows no individual penetrating reading that exceeds 250 µm, or*
  - Stainless steel of the AISI 300 or AISI 400 series.*
- *Provision shall be made for so draining the water container of each water heater (by means of a drain valve that the level of the water is lowered to a point below the heating unit or if the water heater has more than one heating unit, lower than the lower heating unit or, if it is fitted with an apparatus plate, then lower than this plate.*
- *A water geyser/storage vessels shall generally comprise an inner water container, an outer casing (cover) and a layer of insulating material between the inner water container and the outer casing. The thermal insulating material shall be of such quality that it does not deteriorate in use or cause corrosion of any part of the water container with which it is in contact.*
- *The quality of all the work carried out on a water geyser /storage vessels, including the attachment of pipe connections, brazing, welding, insulation of electrical conductors and attachment of accessories, shall be of such nature that the water heater will perform its intended function without consistent failure of the same accessory or component.*
- *In addition to the markings required in terms of SANS 60335-2-21, a water geyser shall bear the following information in legible and indelible marking, in at least English, on a background colour as given in table 1 and appropriate to the working pressure of the water geyser:*

- The rated capacity of the water container of the water heater, in litres;
- In the case of closed type water heaters, the working pressure, in kilopascals, at which the water heater is designed to operate. Open outlet type and cistern type water geyser shall be marked 0kPa;
- an indication as to whether the water heater is to be installed horizontally or vertically and whether it is suitable for wall or floor mounting, or both;
- whether the water heater is a standard water heater, a solar water heater or a dual-purpose water heater;
- The standing loss per 24 h, in kilowatt hours.
- The moisture resistance classification: IPX 1 or IPX 4, as relevant (see SANS 60335-2-21).

**Table 1- Colour coding for working pressures of water heaters.**

1	2	3
<b>Working pressure of water heater kPa</b>	<b>Colour</b>	<b>Corresponding to SANS 1091 colour No.</b>
≤ 50kPa	Yellow	C 61
100kPa	Blue	FO 9
200kPa	Black	—
300kPa	Brown	B 13
400kPa	Red	A 09
600kPa	Green	H10

## • **SUPPLY AND DELIVERY**

The supplier shall arrange for delivery to site, unloading and protection of the equipment against deterioration due to the weather. He shall provide all his own staff, tools and equipment to unload and store the equipment. The supplier shall transport to site and install the equipment and leave them ready for operation.

## **22. DRAWING SCHEDULE**

The drawings listed below, whether separate or bound into the document, form part of the complete tender specification and are to be read in conjunction with the rest of the documentation.

PROJECT & DWG NO.	DESCRIPTION
Mgomanzi -K17-01/DW-07	GRADE R-DOMESTIC WATER LAYOUT
Mgomanzi -K17-01/DW-02	DINING & NUTRITION-DOMESTIC WATER LAYOUT
Mgomanzi -K17-01/DW-01	ADMINISTRATION-DOMESTIC WATER LAYOUT
Mgomanzi -K17-01/HVAC-01	SERVER ROOM AIR CONDITIONING LAYOUT

No architectural or other engineering services drawings are included. These will be issued to the Tenderers upon request.

## **SPECIFICATION FOR A PHOTO-VOLTAIC OPERATED BOOSTER WATER PUMP**

*Supply, install and connect a PV operated pump which can provide a flow of up to 5m<sup>3</sup>/day at a static head of 40m from a ground mounted collector tank to a header tank.*

*The site is the Mgomanzi SPS situated in the Mbizana district.*

*The solar array shall be sized to meet the stated flow rate during the lowest solar month of the year.*

*The photo voltaic system shall be supplied complete with:*

- 1. PV panels*
- 2. Fixed orientation array stand – heavy duty galvanised*
- 3. Controller complete with inverter in IP 65 panel*
- 4. All cabling to supply and control the solar pumpset*
- 5. Protection against overload and short circuit*

*The installation shall be fitted with the following protection and indication:*

- 1. Pressure switch – cut off when header tank full*
- 2. Timer or float control in the header tank to avoid cycling of the pump*
- 3. No flow protection*
- 4. Isolator interlocked with door*
- 5. Over and under voltage protection*
- 6. Run/stop/trip indication*

*The pump shall be of stainless steel manufacture with a helical rotor. A suitably sized frame and plinth shall be provided on which to mount the pump.*

*All the pipework between the tank and the pumpset shall be included as part of this contract. Union couplings shall be provided for ease of installation and replacement.*

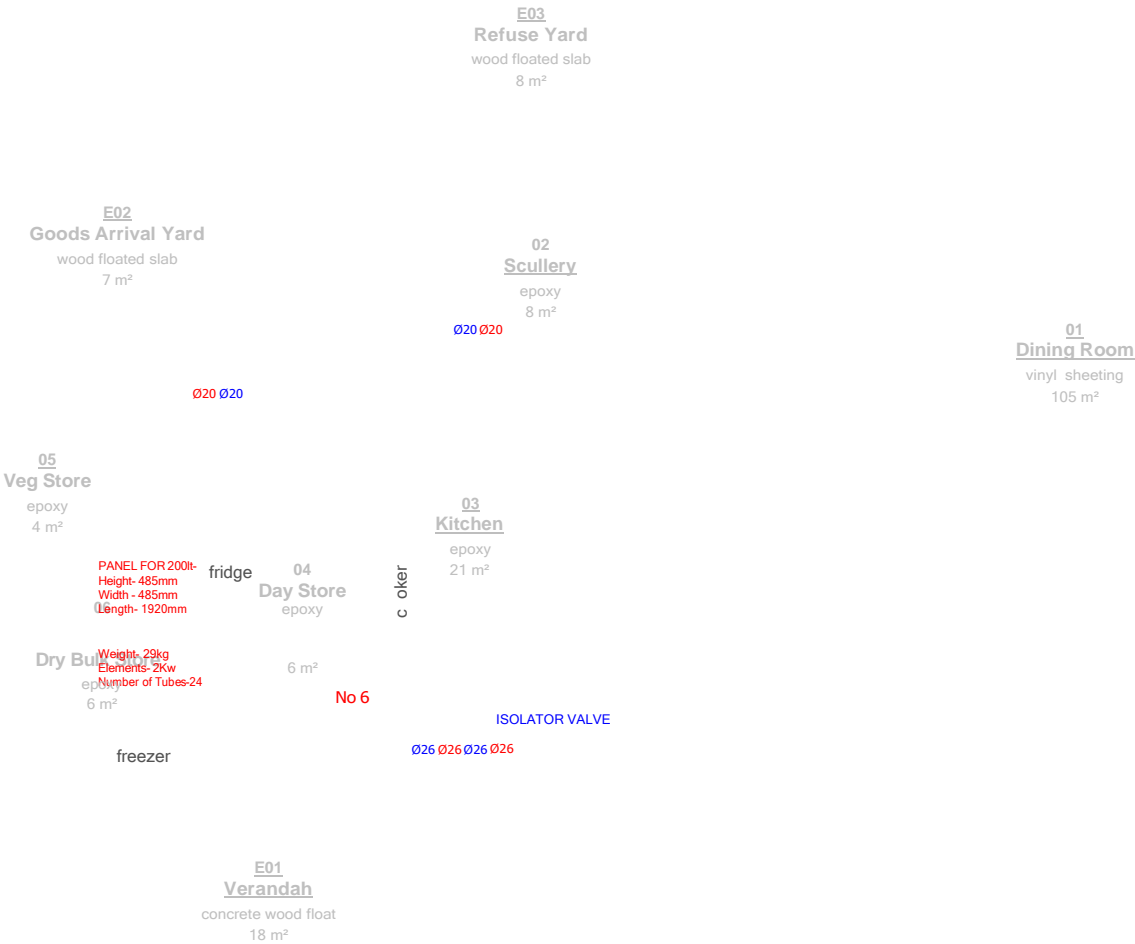
*Isolating valves on the suction and delivery side of the pumpset shall be included as part of this installation.*

*A non-return valve shall be fitted on the delivery side of the pump.*

Ø40 TO FEED COLD WATER TO THE WHOLE BUILDING

- NOTES:
- 1. ALL PLUMBING PIPING INSIDE THE BUILDING SHALL BE MEPLA/SERBCO/RIFENG, ALL PLUMBING PIPING OUTSIDE THE BUILDING SHALL BE MEPLA/SERBCO/RIFENG OR EQUAL APPROVED
  - 2. PIPES TO BE IN ACCORDANCE WITH SANS 15874 PARTS 2,3 & 5.
  - 3. INSTALLATION TO COMPLY WITH SANS 10252-1.
  - 4 INSTALL 50mm THICK NON COMBUSTIBLE, LIGHTWEIGHT GLASSWOOL INSULATION
  - 5. INDIRECT PUMPED CLOSED LOOP SYSTEM WITH HEAT EXCHANGER COIL INSIDE THE GEYSER
  - 6. CIRCULATING PUMP FOR NON-FREEZING HEAT TRANSFER FLUID
  - 7. PRV PRESSURE ON THE UPSTREAM OF GEYSER TO BE SET\ SIZED THE SAME PRESSURE AS THE MAIN SUPPLY PRUSSURE

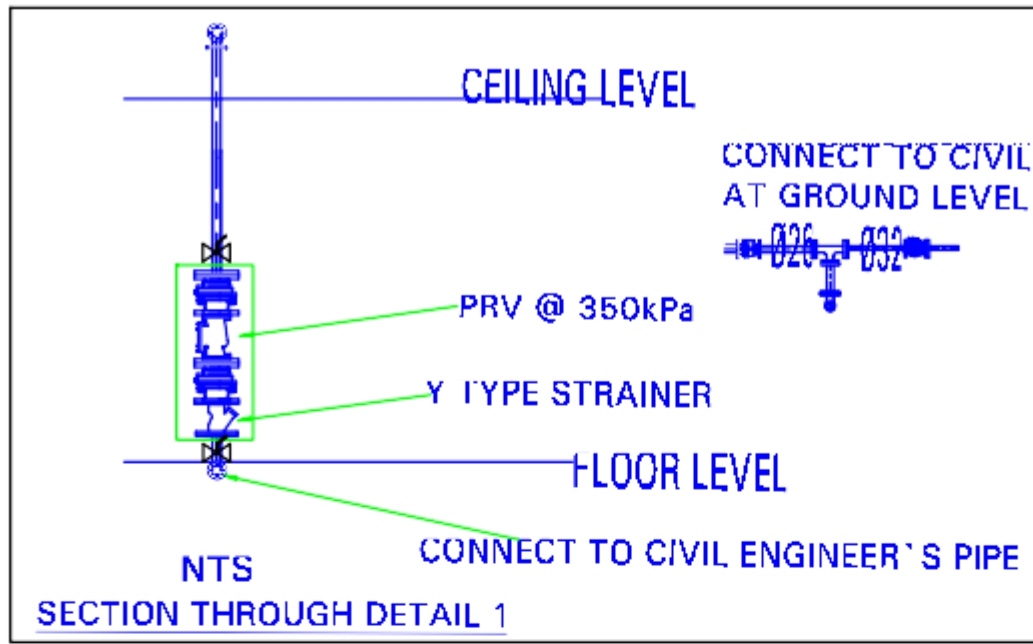
40mm Mepla PIPE SUPPLYING COLD WATER TO THE BASIN, SINKS & GEYSER VESSEL. THE EXTERNAL MAIN LINE FOR CONNECTION WILL BE PROVIDED BY THE CIVIL ENGINEER



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Pr. Tech Eng

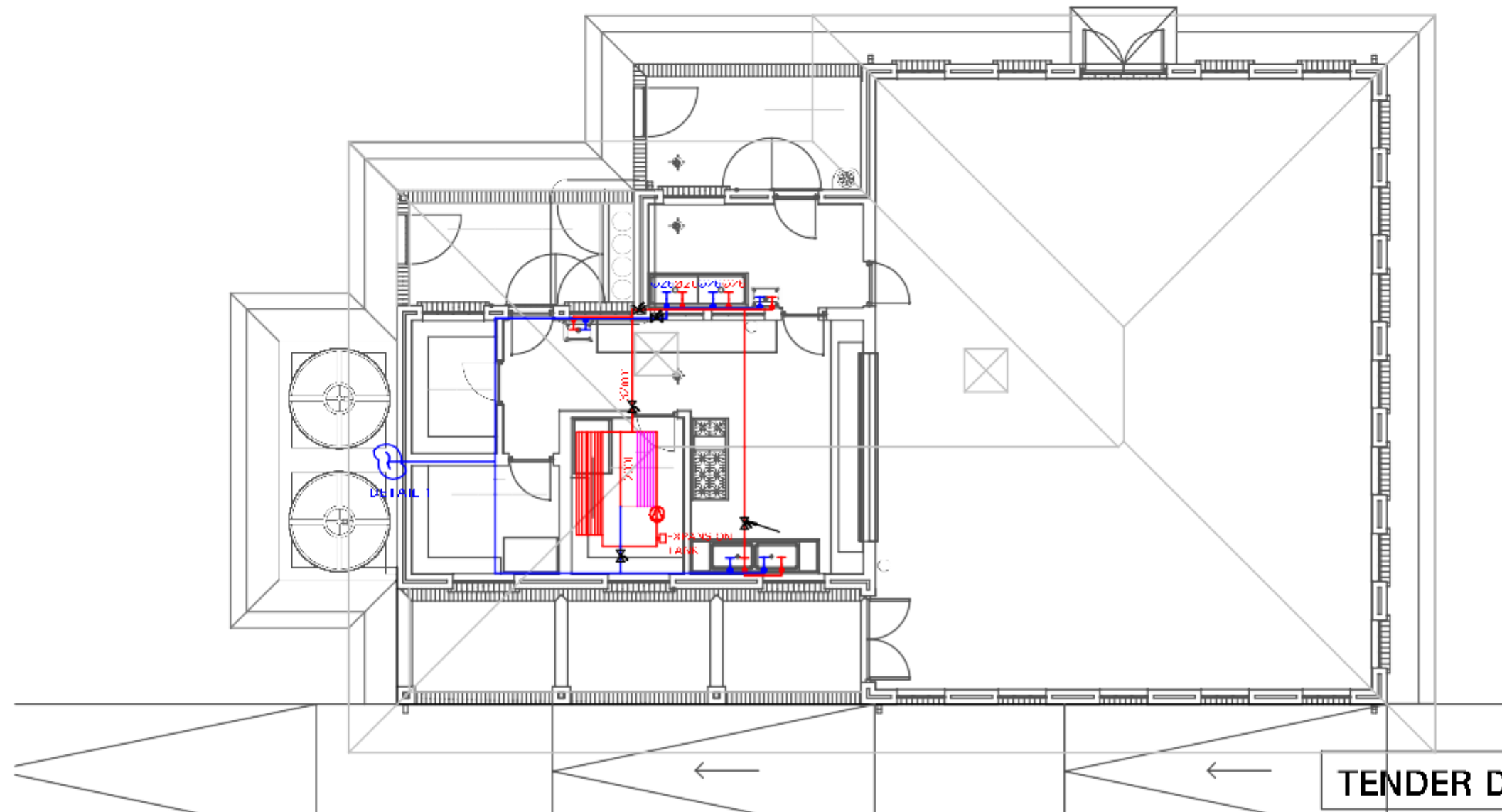
MGOMANZI SECONDARY PRIMARY SCHOOL





NOTE  
MECHANICAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ARCHITECTURAL DRAWINGS. CONSULTATION IS REQUIRED FOR PROPER CONSTRUCTION. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.  
AND SIGNATURE

DINING AND NUTRITION - DOMESTIC WATER LAYOUT



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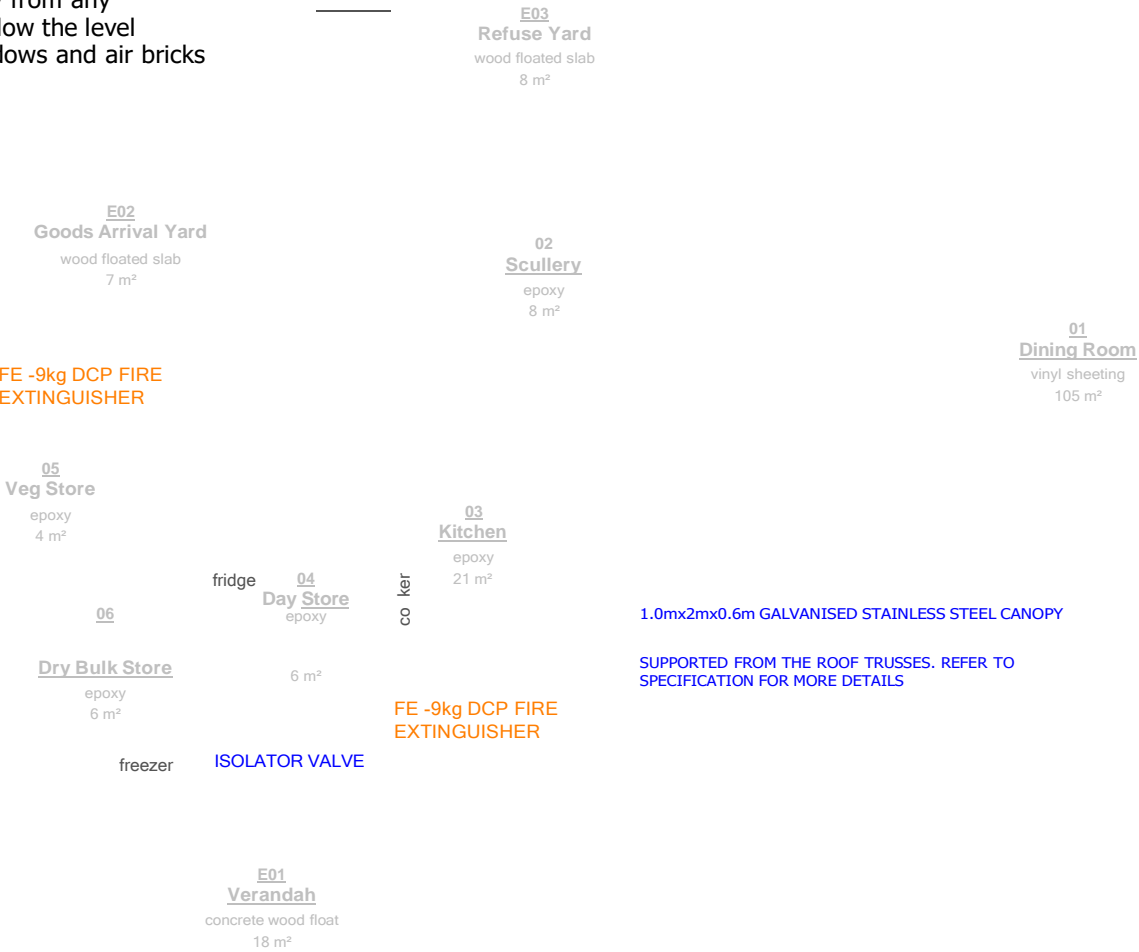
Note:  
All Gas installation must be done in accordance with SANS 10087-1:2008 Edition 5 and as per mechanical engineer's details and specifications  
The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations  
All installations shall be fitted with signage indicating no smoking, no naked lights, no unauthorized entry and no cellular phones allowed, i.e. the appropriate pictograms PV 1, PV 2, PV 3 and PV 27 as given in SANS 1186-1.

MANIFOLD WITH CHANGE-OVER SWITCH AND PRESSURE  
REGULATOR 2x48 KG LIVE & 2x48 KG ON STANDBY  
IN A CYLINDER STORAGE ENCLOSURE

EMERGENCY SHUT-OFF  
VALVE AT LOWER LEVEL(1.1m)

Note:  
Containers shall be at least 1m away from any opening (into a building) that is below the level of the container valve, i.e door, windows and air bricks

Note:  
Emergency shut-off valve with metal LPG emergency shut off valve sign at lower level

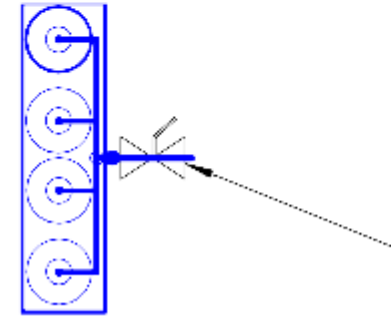


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Note:

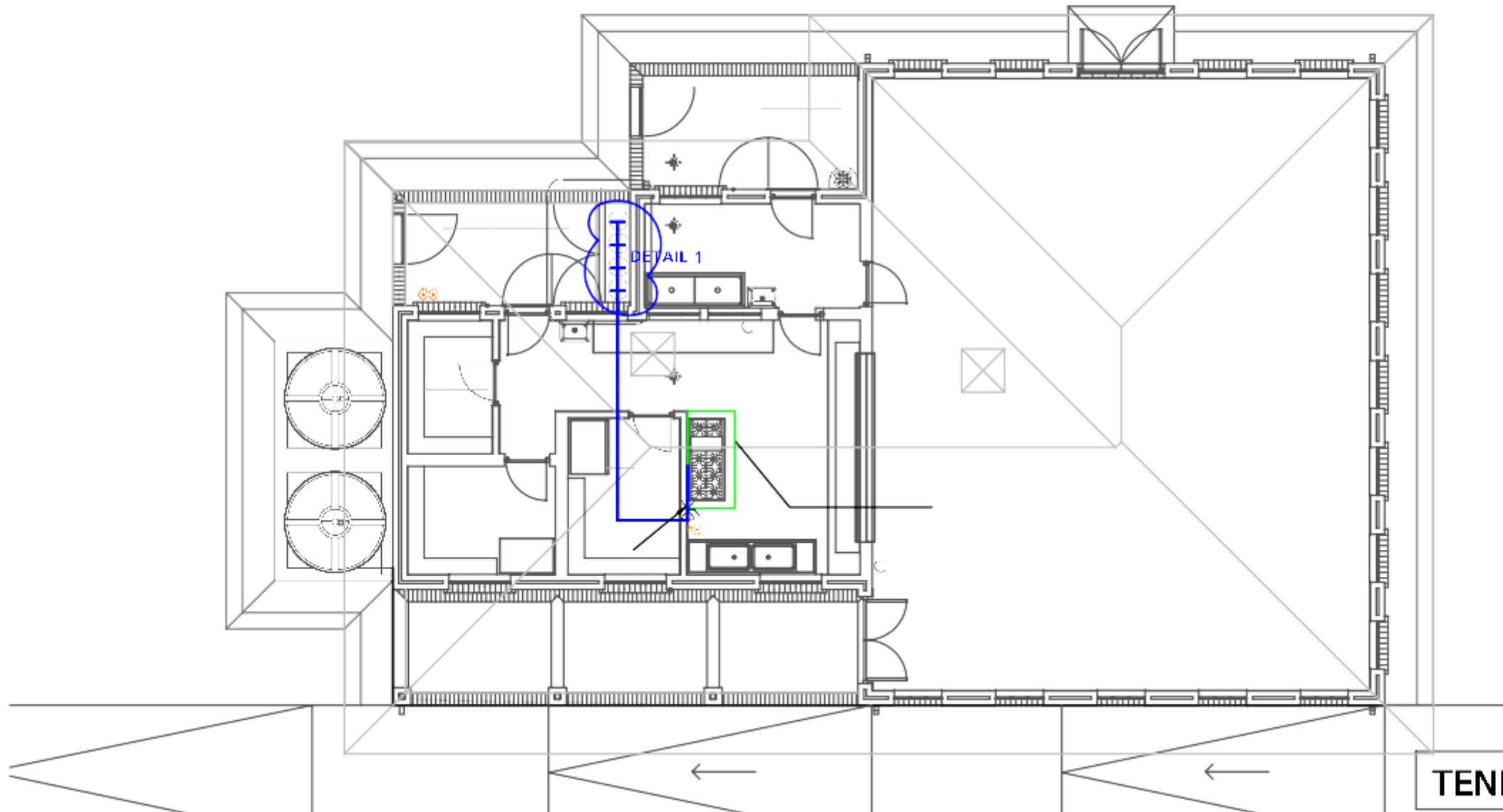
### DETAIL 1 - NTS



**NOTE**  
 INFORMATION DISCLOSED WILL BE USED TO  
 CONTACT YOU WITH FURTHER DETAILS FOR  
 COORDINATION TO DEDUCT YOUR PRINCIPAL  
 AND FACTOR FARE TO CALIFORNIA AIR SERVICES  
 AND FURNITURE

## DINING AND NUTRITION LP GAS LAYOUT

Mgomanzi SPS - 0367



## TENDER DRAWING

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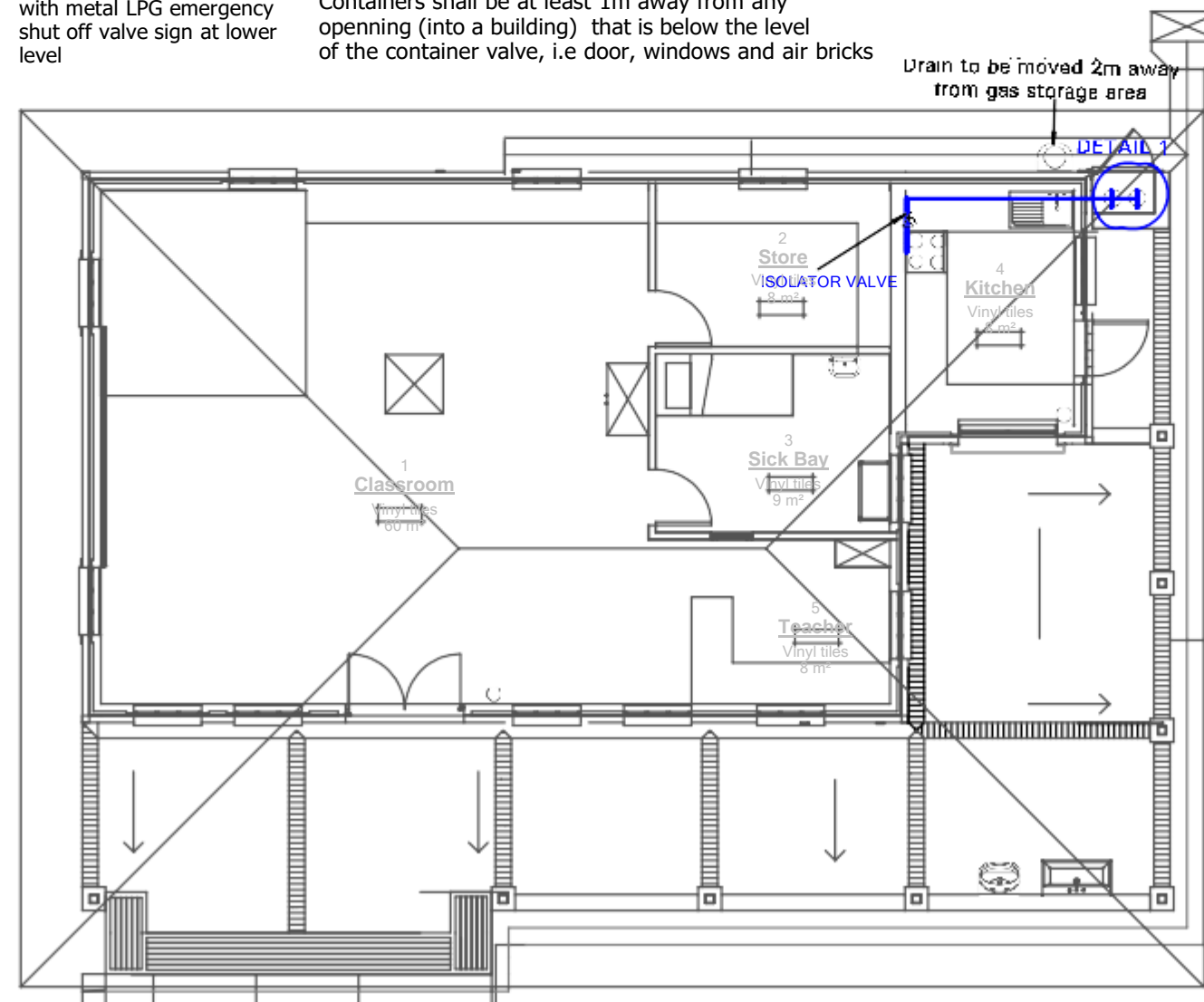
All installations shall be fitted with signage indicating no smoking, no naked lights, no unauthorized entry and no cellular phones allowed, i.e. the appropriate pictograms PV 1, PV 2, PV 3 and PV 27 as given in SANS 1186-1.

MANIFOLD WITH CHANGE-OVER SWITCH AND PRESSURE  
REGULATOR 1x48 KG LIVE & 1x48 KG ON STANDBY  
IN A CYLINDER STORAGE ENCLOSURE



Emergency shut-off valve with metal LPG emergency shut off valve sign at lower level

Note:  
Containers shall be at least 1m away from any  
opening (into a building) that is below the level  
of the container valve, i.e door, windows and air bricks



## TENDER DRAWING

**NOTE**  
 INFORMATION PROVIDED ON THIS FORM IS  
 FOR OFFICIAL USE ONLY. IT IS NOT TO BE  
 RELEASED TO THE PUBLIC OR USED FOR  
 ANY OTHER PURPOSE.  
 AND SIGNATURE

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Note:

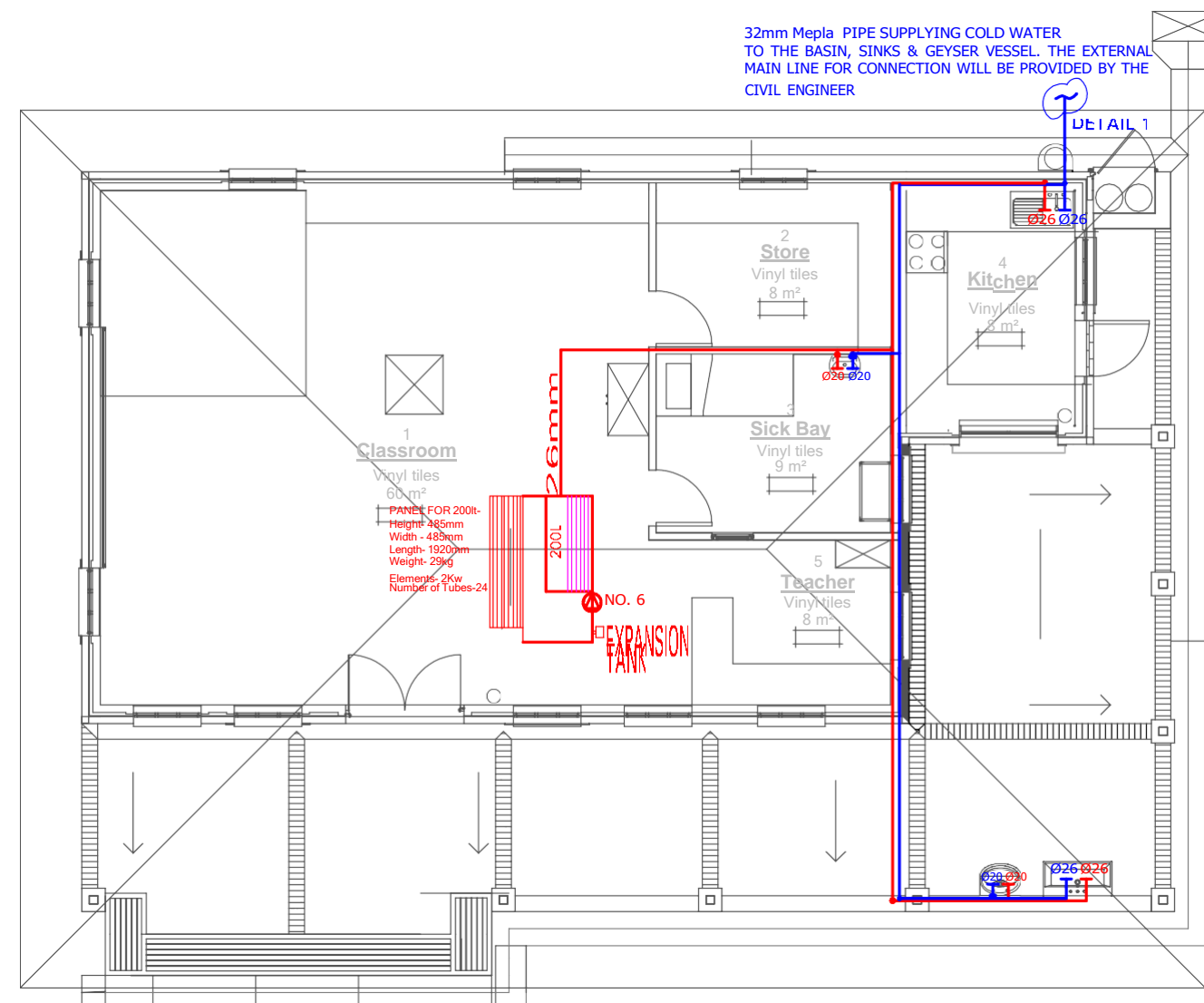
Diagram illustrating the connection to a civil engineer's pipe at the floor level. The assembly includes a PRV (Pressure Reducing Valve) and a Y Type Strainer, both highlighted with a green box. Labels indicate the CEILING LEVEL, FLOOR LEVEL, and the connection to the CIVIL ENGINEER'S PIPE.

NOTES:

1. ALL PLUMBING PIPING INSIDE THE BUILDING SHALL BE MEPLA/SERBCO/RIFENG,  
ALL PLUMBING PIPING OUTSIDE THE BUILDING SHALL BE MEPLA/SERBCO/RIFENG OR EQUAL APPROVED
2. PIPES TO BE IN ACCORDANCE WITH SANS 15874 PARTS 2,3 & 5.
3. INSTALLATION TO COMPLY WITH SANS 10252-1.
- 4 INSTALL 50mm THICK NON COMBUSTIBLE, LIGHTWEIGHT GLASSWOOL INSULATION
5. INDIRECT PUMPED CLOSED LOOP SYSTEM WITH HEAT EXCHANGER COIL INSIDE THE GEYSER
6. CIRCULATING PUMP FOR NON-FREEZING HEAT TRANSFER FLUID
7. PRV PRESSURE ON THE UPSTREAM OF GEYSER TO BE SET\ SIZED THE SAME PRESSURE  
AS THE MAIN SUPPLY PRUSSURE

NOTE:

MECHANICAL DRAWINGS ARE TO BE READ IN  
CONJUNCTION WITH ARCHITECTS DRAWINGS  
CO-ORDINATION TO BE DONE WITH PRINCIPAL  
CONTRACTOR TAKING INTO ACCOUNT ALL SERVICES  
AND FURNISHING



## TENDER DRAWING

[illegible]

**CONTENTS**

<b>DESCRIPTION</b>	<b>PAGE</b>
1 <i>Project Specification – Mechanical Installation – LP Gas Installation</i>	<i>1.1</i>
2 <i>Schedule of Rates</i>	<i>2</i>
<i>Bill of Quantities</i>	<i>2.1</i>
3 <i>Drawing Schedule</i>	<i>3.1</i>

**MECHANICAL INSTALLATION****SPECIFICATION FOR MECHANICAL WORK – LP GAS****INSTALLATION DETAILS****CONTENTS**

<b>CLAUSE</b>	<b>DESCRIPTION</b>	<b>PAGE</b>
1	<i>LP Gas Installation</i>	<i>1.1</i>
2	<i>Location</i>	<i>1.1</i>
3	<i>Installation of Appliances</i>	<i>1.2</i>
4	<i>Piping, Fittings and other Components</i>	<i>1.3</i>
5	<i>Valves</i>	<i>1.4</i>
6	<i>Instructions to Users</i>	<i>1.4</i>
7	<i>Supply and Delivery</i>	<i>1.4</i>



## **PART 1**

### **MECHANICAL INSTALLATION**

#### **LP GAS INSTALLATION SPECIFICATIONS**

##### **1. LP GAS INSTALLATION**

*There will be 4x48Kg gas bottles connected to eight stock pot burner gas stove for the nutrition **Kitchen**. There will also be 2x48Kg gas bottles connected to four stock pot burner gas stove for grade R **Kitchen**. There will be 2x48Kg gas bottles connected science lab.*

*The height of the gas stove must be 700mm and the diameter for the plate must be 500mm diameter. A dual manifold with change-over valve shall be installed and connected to the manifold.*

*The gas piping shall be installed between the manifold and the gas stove overhead below the ceiling.*

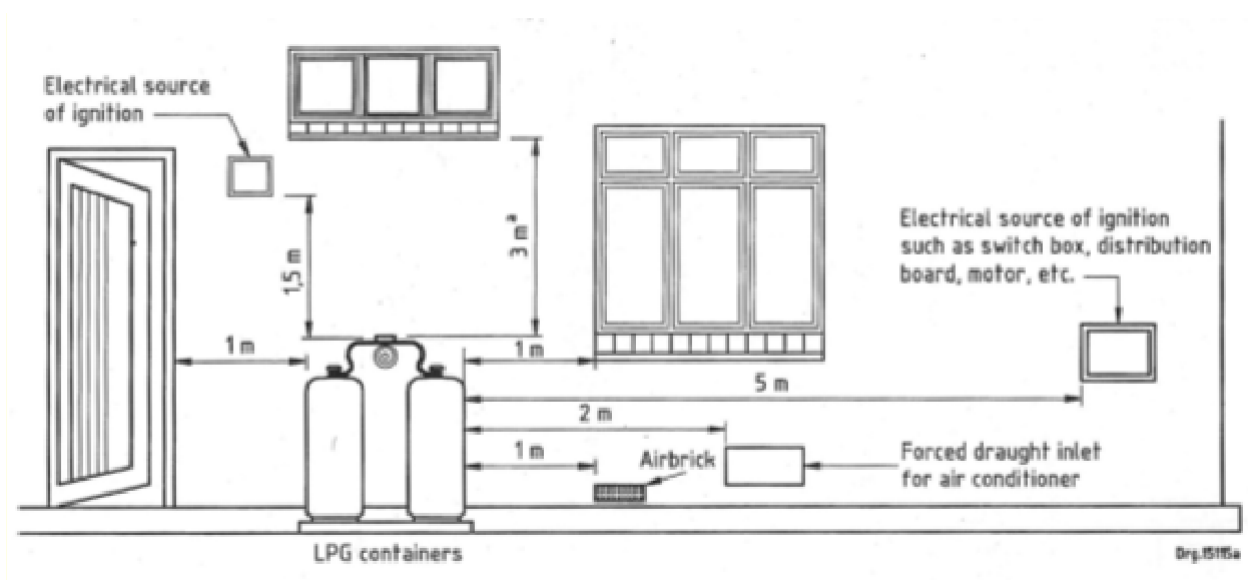
*The gas copper pipes must be according to SANS 460 Class 2. An emergency isolation valve must be placed in a practical position in the main line complete with a manifold. The gas stove isolation valve must be installed or positioned next to the stove. The flexible hose from the isolation valve to the stove must not exceed 2m. The gas system must be colour coded and the signage must be as per SANS 10087. COC must be provided on completion of the installation. The LP Gas installer must be registered with SAQCC.*

##### **2. LOCATION**

*Containers shall be located on a firm, clean, well-drained and level base. The area surrounding a container shall be kept clear of combustible materials, for example, weeds, dry grass, paper and waste. Containers shall be located and protected against tampering by unauthorized persons and also damage and interference by, for example, animals and vehicles.*

###### **2.1 Containers shall be at least:**

- a) *1m away from any opening (into a building) that is below the level of the container valve, i.e. doors, windows and airbricks,*
- b) *2m away from any drain, pit or manhole,*
- c) *3m away from the property boundary, unless the boundary has a firewall, in which case the containers could be next to the firewall (see figures below), and where there are only two containers, the boundary distance can be reduced to 1m, and 3m away from any opening (or window) directly above the containers, unless a non-combustible roof is installed between the containers and the opening (or window).*



*All installations shall be fitted with signage indicating no smoking, no naked lights, no unauthorized entry and no cellular phones allowed, i.e. the appropriate pictograms PV 1, PV 2, PV 3 and PV 27 as given in SANS 1186-1.*

*In the case of multi-cylinder connections, where cylinders are connected by means of a changeover valve, the regulator and changeover switch shall be wall mounted, with the gas supply from each cylinder being by means of individual pigtailed as shown in figure above.*

### **3 INSTALLATION OF APPLIANCES**

*Fixed appliances shall be installed by a registered installer. When siting an appliance, due regard shall be paid to convenience in use, to protection from draughts and damage, and to the layout of the gas piping system. Pipe runs shall be as neat, tidy and as short as possible. Pressure regulators shall be of an approved type. Low-pressure regulators shall comply with SANS 1237.*

*Appliances shall be connected to the pipework of an installation in a way that will eliminate undue strain on the pipework and fittings and, if rigid connections are used, the appliances shall also be so rigidly fixed that they are not capable of being moved after their installation. If an appliance needs to be moved for cleaning etc., it shall be connected to the pipework by means of flexible tubing or hose. To prevent the hose or tubing from being ruptured or torn from its mountings, the appliance shall have a restraining mechanism of a length that is shorter than the hose or tube. Tubing and hoses shall comply with the appropriate requirements given in SANS 1539.*

## 4. PIPING, FITTINGS AND OTHER COMPONENTS

### 4.1 Pipe Materials

The following pipes and fittings are recommended for general use in installations:

- a) Solid drawn copper tube with copper or copper alloy fittings;
- b) Ungalvanized seamless mild steel tube with mild steel fittings;
- c) Stainless steel piping with associated fittings;
- d) Brass fittings that are protected against seasonal cracking;
- e) High density polyethylene (HDPE) pipes and fittings (only to be used for gas in the vapour phase and where the pipes are buried);
- f) Flexible tubing and hose; and
- g) Composite pressure pipe.

Materials used in the pipe system shall comply with the following standards and should be clearly marked in accordance with the relevant manufacturing standard to prove such compliance:

Copper tubes (class I tubing or better):	SANS 460 (phosphorus deoxidized copper Cu-DHP)
Copper-based fittings:	SANS 1067-2
Stainless steel piping and associated fittings <sup>(1)</sup>	BS EN 15266
Rubber hose (braided) type 1	BS EN 1762
Flexible rubber tubing or hose:	BS 3212 or SANS 1156-2
Jointing materials and compounds:	BS 5292
Low-pressure regulators:	SANS 1237
Steel pipes and wrought steel fittings <sup>(2)</sup>	SANS 62-1 (medium or heavy duty)
Steel pipes and wrought steel fittings	BS 1600 (seamless only)
HDPE pipes and fittings for use with petroleum product <sup>(3)</sup>	SANS 1830
Pipe systems for pressure applications	AS 4176
Plastic piping Systems	ISO 17484-1
Pressure pipe:	ASTM F1281
Composite pressure pipe	ASTM F1282
Pipe flanges:	SANS 1123

Note 1: BS EN 15266 requires the pipe cover to be coloured yellow, however, in South Africa this requirement is light stone. If the pipe is banded it will comply with the national requirements.

Note 2: Where pipe in accordance with SANS 62-1 is used, it shall be used in place of a schedule 40 pipe only.

Note 3: Where HDPE pipe or couplings are used, no mechanical joints shall be allowed. All joints shall be joined by electro fusion welding only, in accordance with SANS 10268-2.

## **5. VALVES**

*Valves are intended for shutting off the gas supply to (or in) a gas supply line. The valves and valve seats shall be compatible with LPG and certified for use with LPG.*

### **5.1 Emergency shut-off valves**

*Emergency shut-off valves shall be accessible and unobstructed at all times and should be placed as close as possible to where the main gas pipe enters the building. An emergency shut-off valve may be used as an isolation valve on a single appliance installation. It may be placed inside or outside of the building.*

### **5.2 Isolating valves**

*Every fixed appliance shall be equipped with an isolating valve to isolate the individual appliance from the system.*

## **6. INSTRUCTIONS TO USERS**

*On completion of the installation, the registered installer shall provide a certificate of compliance to the user.*

*The following markings shall be permanently displayed in a prominent position on or near the installation:*

- a) The installer's name;*
- b) The date of installation; and*
- c) The installer's registration number.*

*The registered installer or authorized company representative shall supply the user with a printed instruction sheet or booklet describing the correct and safe handling of the LPG systems and appliances, and appropriate general emergency procedures.*

*In particular, attention shall be drawn to:*

- a) The changing of containers and the risks involved,*
- b) The action to be taken to disperse accidental accumulation of gas,*
- c) The action to be taken in case of fire and*
- d) The fact that the so-called "empty" containers can be dangerous and shall be kept closed at all times.*

*All the above details shall be discussed with the user to ensure that he fully understands all the details. His attention shall also be drawn to the information and warnings (when relevant) given in the product brochures supplied with the appliance.*

## **7. SUPPLY AND DELIVERY**

*The supplier shall arrange for delivery to site, unloading and protection of the equipment against deterioration due to the weather. He shall provide all his own staff, tools and equipment to unload and store the equipment. The supplier shall transport to site and install all equipment and leave them ready for operation.*

**PART 2****SPECIFICATION FOR MECHANICAL INSTALLATION****BILLS OF QUANTITIES****GENERAL NOTES/PREAMBLES****1 CONDITIONS OF CONTRACT**

*The Conditions of Contract and the application of the Contract Price Adjustment Provisions shall be as set out in Part A: Section 1: Preliminaries*

**2 DESCRIPTIONS**

*The descriptions in these bills of quantities shall be read in conjunction with the specification*

**3 UNIT RATE**

*The unit rate for each item in the bills of quantities shall include for all materials, labour profit, transport etc. everything necessary for the execution and complete installation of the work in accordance with the description.*

**4 ORDERING**

*The bills of quantities shall not be used for ordering purposes. The Contractor shall check the lengths of cables and overhead conductors, as well as all other items described, on site before ordering. Any allowance for off-cuts shall be made in the unit rates.*

**5 VALUE ADDED TAX**

*The rates shall exclude value added tax and the total carried over to the final summary in Part A.*

**6 SOUTH AFRICAN MANUFACTURE**

*All materials covered by this specification shall, wherever possible, be of South African manufacture.*

**7 PROVISIONAL SUMS**

*Where Provisional Sums are allowed, these shall be expended only as directed by the Client or the Client's Representative and any balance remaining shall be deducted from the amount of the Sub-contract sum. No work for which Provisional Sums are provided shall be commenced without written instructions from the Engineer.*

*All Provisional Sums may be utilised in full or in part. These Provisional Sums may be deleted in full or in part if not required.*

**PART 3****MECHANICAL INSTALLATION****3.1 DRAWING SCHEDULE**

*The drawings listed below, whether separate or bound into the document, form part of the complete tender specification and are to be read in conjunction with the rest of the documentation.*

<i>PROJECT &amp; DWG NO.</i>	<i>DESCRIPTION</i>
<i>Mgomanzi SPS -K17-01/LPG-01</i>	<i>DINING AND NUTRUTION LP GAS LAYOUT</i>
<i>Mgomanzi SPS -K17-01/LPG-03</i>	<i>SCIENCE LAB LP GAS LAYOUT</i>
<i>Mgomanzi SPS -K17-01/LPG-02</i>	<i>GRADE R LP GAS LAYOUT</i>

*No architectural or other engineering services drawings are included. These will be issued to the Tenderers upon request.*

All Gas installation must be done in accordance with SANS 10087-1:2008 Edition 5 and as per mechanical engineer's details and specifications  
The handling, storage, distribution and maintenance of liquefied petroleum gas in domestic, commercial, and industrial installations  
All installations shall be fitted with signage indicating no smoking, no naked lights, no unauthorized entry and no cellular phones allowed, i.e. the appropriate pictograms PV 1, PV 2, PV 3 and PV 27 as given in SANS 1186-1.

## DETAIL 1

[illegible]


**C ALBRECHT**  
 Pr. Tech Eng



**AKM**  
**& ASSOCIATES**  
 consulting engineers & architects  
 & project managers

*Green Building & LEED*  
 • *Interior Design*  
 • *Construction*

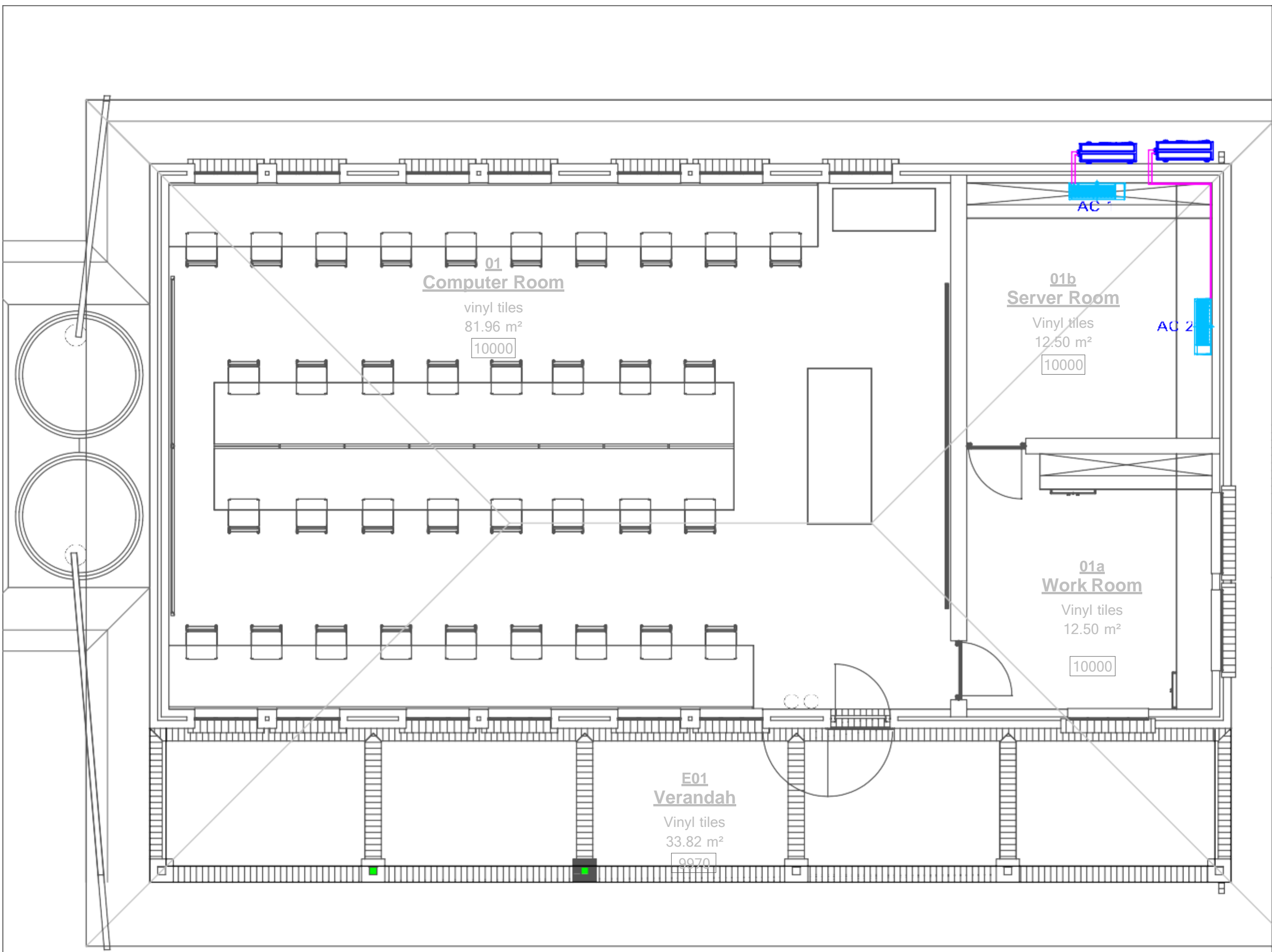
PROJECT	
DRAWINGS TITLE	
MGOMANZI SECONDARY PRIMARY SCHOOL	

DRAWING NUMBER		00
----------------	--	----





NOTE  
 ALL DIMENSIONS SHOWN ARE TO FACE UNLESS  
 OTHERWISE SPECIFIED. ALL DIMENSIONS  
 SHOWN ARE TO FACE UNLESS OTHERWISE  
 SPECIFIED. ALL DIMENSIONS SHOWN ARE TO  
 FACE UNLESS OTHERWISE SPECIFIED.  
 AND FURNITURE



DATE	12/01/2023	BY	AKM
SCALE	1:100	CHECKED	AKM
PROJECT	MGOMANZI SECONDARY PRIMARY SCHOOL		
CLIENT	IDT		
ARCHITECT	KAMVA architects		
MECHANICAL ENGINEER	AKM & ASSOCIATES		
PROJECT	MGOMANZI SECONDARY PRIMARY SCHOOL		
DRAWING TITLE	SERVER ROOM - AIR CONDITIONING		
DRAWING NUMBER	SPS - 0379		

**TENDER DRAWING**

## **CONTENTS**

<b>DESCRIPTION</b>	<b>PAGE</b>
<b>PART H</b>	
<b>1 SPECIFICATION FOR SCHOOL FUME CUPBOARD - MECHANICAL</b>	<b>H.1</b>

## **MECHANICAL INSTALLATION**

### **SPECIFICATION FOR SCHOOL FUME CUPBOARD**

*To supply, install & commission x 1 Fume Cupboard with non-corrosive heat and chemical resistant moulded fibreglass internal liner complete with extraction fan.*

**SHOP DRAWINGS TO BE PROVIDED FOR APPROVAL PRIOR TO PURCHASING THE FUME EXTRACTION CUPBOARD**

#### **1. LIGHTING SPECIFICATION**

- *The unit shall be equipped with a vapour proof single fluorescent light at the top of the cabinet where maximum light dispersant can be achieved.*
- *The lighting shall provide a minimum of 500 LUX over the entire work surface.*
- *The lighting shall be housed in an external housing and sealed off from the unit by means of a safety glass diffuser.*
- *A silicone gasket will seal the diffuser from the light housing.*

#### **2. SUPPLIED, INSTALL AND COMMISSION 1 X SEAT FAN (with 20m duct)**

- *Fan to be constructed entirely from PVC with an external motor.*
- *The fan will be belt driven; the motor is to be a single phase, 50HZ, indirect driven type.*
- *The fan motor must have support whether a metal stand, an enclosed pedestal or roof kit*
- *The fan shall be correctly sized according to the size and volume of the cabinet required. Face velocity used should be between 0,5 and 0,7 m/s across the fume cupboard*
- *All ductwork shall be from class 4 PVC ducting. The diameter of the duct should be 160mm*
- *All bends and joins to be PVC sealed.*
- *The ducting shall be for the sole purpose of extracting fumes and vapour from the fume cabinet only and no other duct shall be joined into or tapped from it.*
- *The duct outlet shall be set to 1m above the highest point of the roof apex. Any ducting other than vertical ducting will have a minimum angle of not less than 150 to ensure any moisture is completely drained from all ducting and avoiding any collection points.*
- *The fume cupboard must have an on/off switch for the Fan.*

#### **3. The Fume cupboard is to come complete with:**

- *LP Gas Tap*
- *Water tap*
- *sink or drip cup*
- *Bottle trap*
- *2 x 16 Amp plug sockets fixed externally to the side or front panel of the worktop to cabinet.*

*Wet and dry services tap outlets mounted on inside side panel of cabinet*

*The sliding sash will be from clear 6mm toughened safety glass.*

*The side view panels must be 6.38mm thick laminated safety glass view panels with air vents on one side..*

# **INDEPENDENT DEVELOPMENT TRUST**

## **MGOMANZI SPS**

### **C3 Scope of Work**

#### **1 DESCRIPTION OF THE WORKS**

##### **1.1 Employer's objectives**

The employer's objective is to provide:

Construction of Mgomanzi SPS comprising the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc.

##### **1.2 Overview of the works**

Construction of Mgomanzi SPS comprising the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc

##### **1.3 Extent of the works**

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings,

##### **1.4 Location of the works**

The designated site is at Mgomanzi Senior Primary school in Mbizana District in the Eastern Cape Province

## Temporary works

To be communicated to the winning bidder before construction commences

## 2 DRAWINGS

The drawings used for setting up the Bills of Quantities are attached

- **Architectural drawings**

Three (3) sets to be provided to the successful tenderer at site hand over

## 3 PROCUREMENT

### 3.1 Preferential procurement procedures

The works shall be executed in accordance with the conditions attached to preferences granted in accordance with the preferencing schedule.

#### 3.1.1 Requirements for the sourcing and engagement of labour.

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

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

Description	Daily wage for 8 hour work day (Minimum)	Important Note to Bidders
Unskilled labour	R 120.00	<b>NB:</b> Bidders are to check and verify rates used in the area during compulsory briefing or before submitting bid document.
Semi-skilled labour	R 160-00	
Skilled labour	R 190-00	
Supervisor	R 230-00	

3.1.1.3 Tasks established by the contractor must be such that:

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

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

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

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

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

- a) 25 % women;
- b) 50% youth who are between the ages of 18 and 25; and

c) 2% on persons with disabilities.

### **3.1.2 Specific provisions pertaining to SANS 1914-5**

#### **3.1.2.1 Definitions**

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

#### **3.1.2.2 Contract Participation Goal**

3.1.2.2.1 The minimum Contract Participation Goal applicable to the Contract is 30%.

3.1.2.2.2 The wages and allowances used to calculate the contract participation goal shall, with respect to both time-rated and task rated workers, comprise all wages paid and any training allowance paid in respect of agreed training programmes. The Person / days will be calculated in accordance with Addendum F: Contract Person / Days Calculation Format.

#### **3.1.2.3 Terms and conditions for the engagement of targeted labour**

3.1.2.3.1 Further to the provisions of clause 3.3.2 of SANS 1914-5, written contracts to be signed between the Contractor and workers will be in accordance with the pro-forma contract, attached as Addendum D.

3.1.2.3.2 Further to the provisions of clause 5.2 of SANS 1914-5, the Contractor will use the pro-forma attendance register, attached as Addendum E, to record the required information as per said clause.

#### **3.1.2.4 Variations to the SANS 1914-5**

None

#### **3.1.2.5 Training of targeted labour**

3.1.2.5.1 The Employer will appoint a service provider that will provide training to the workers. The Contractor need not to provide for payment of said service provider.

3.1.2.5.2 Workers will receive 2 days training per every 22 working days for the duration of the Contract.

3.1.2.5.3 An allowance equal to 100% of the task rate or daily rate shall be paid by the Contractor to workers who attend training, in terms of 3.1.2.5.

3.1.2.5.4 Records pertaining to the attendance, progress and performance of trainees will be kept by the Contractor and made available to the Employer monthly. These records shall be attached to the monthly progress payment certificates to the Employer.

3.1.2.5.5 The Contractor shall do nothing to dissuade targeted labour from participating in training programmes.

### **3.2 Subcontracting**

#### **3.2.1 Scope of mandatory subcontract work**

As per the mandatory sub-contracting clause, the Contractor must not sub-contract more than 30% of work to Domestic Sub-contractors.

The Contractor shall without delay enter into contracts with the Domestic Subcontractors as submitted on the returnable schedule and forward a copy of these agreements to the Principal Agent. The Contractor shall remain responsible for providing the subcontracted portion of the works as if the work had not been subcontracted.

The Contractor to take note of item 3.2.2 below

#### **3.2.2 Preferred subcontractors / suppliers**

#### **3.2.3 Subcontracting procedures**

See items 3.2.1 and 3.2.2 as well as tender data

#### **3.2.4 Attendance on subcontractors**

Attendance to Domestic Sub-contractors as stated above should be priced under the relevant items in the Preliminaries section of the bills of quantities. Attendance to nominated sub-contractors should be priced under the relevant items in the Provisional Sums section of the bills of quantities.

### **4. MANAGEMENT**

#### **4.1 Recording of weather**

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

#### **4.2 Unauthorized persons**

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

#### **4.3 Management meetings**

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

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

#### **4.4 Forms for contract administration**

The Contractor shall be required to submit an updated contractor monthly report during site meetings, which will be used by the consultant to update the client.

#### **4.5 Payment certificates**

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

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

#### **4.6 Addenda**

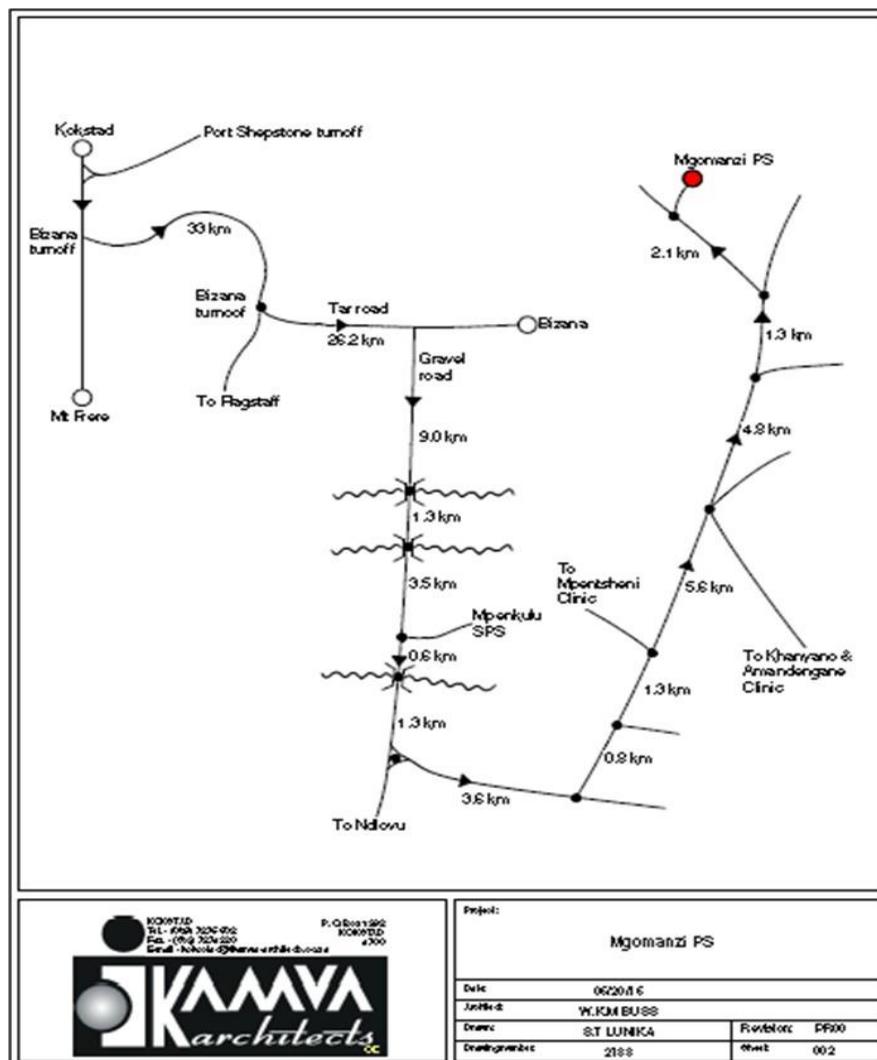
- 4.6.1 Occupational Health and Safety Regulations (*ADDENDUM A*)
- 4.6.2 Standard Occupational Health and Safety Specification (*ADDENDUM B*)
- 4.6.3 Environmental Management Plan (*ADDENDUM C*) (will be made available to the successful bidder)
- 4.6.4 Pro-forma contract between Contractor and Worker (*ADDENDUM D*)
- 4.6.5 Pro-forma Attendance Register (*ADDENDUM E*)
- 4.6.6 Contract Person / Days Calculation Format (*ADDENDUM F*)
- 4.6.7 Contractor monthly report format (see 4.4 above) also available in electronic format (*ADDENDUM G*)
- 4.6.8 Guidelines for the implementation of labour-intensive infrastructure projects under the Expanded Public Works Programme (*ADDENDUM H*) (available on the following website [www.epwp.gov.za](http://www.epwp.gov.za))
- 4.6.9 Drawings (*ADDENDUM I*)
- 4.6.10 IDT Addendum to the JBCC (*ADDENDUM J*)

## INDEPENDENT DEVELOPMENT TRUST

Mgomanzi SPS comprising the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc

### C4 Site Information





- i) Improvements on site – new site area where school to be erected has no improvements on site
- ii) Geotechnical Investigation – report attached to these documents
- iii) Underground services – There are no underground services on site
- iv) Adjacent buildings – The site is situated within an existing school complex (existing complex will be hoarded off)
- v) Environmental issues – To be confirmed on site

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# **ADDENDUM A**

---

## **Occupational Health and Safety Regulations**

GOVERNMENT NOTICE  
DEPARTMENT OF LABOUR

No. R. ....

7 February 2014

**OCCUPATIONAL HEALTH AND SAFETY ACT, 1993**

### ***CONSTRUCTION REGULATIONS, 2014***

The Minister of Labour has under section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), after consultation with the Advisory Council for Occupational Health and Safety, made the regulations in the Schedule.

*ADDENDUM A*

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993  
Regulation 3 of the Construction Regulations, 2014

NOTIFICATION OF CONSTRUCTION WORK

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1.(a) Name and postal address of principal contractor:

(b) Name and tel. no of principal contractor's contact person:

2. Principal contractor's compensation registration number: \_\_\_\_\_

3.(a) Name and postal address of client:

(b) Name and tel no of client's contact person or agent:

4.(a) Name and postal address of designer(s) for the project:

(b) Name and tel. no of designer(s) contact person:

5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6.(1). \_\_\_\_\_

6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6.(2).  
\_\_\_\_\_

7. Exact physical address of the construction site or site office:  
\_\_\_\_\_

8. Nature of the construction work:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Expected commencement date: \_\_\_\_\_

10. Expected completion date: \_\_\_\_\_

11. Estimated maximum number of persons on the construction site.  
\_\_\_\_\_

12. Planned number of contractors on the construction site accountable to principal contractor:  
\_\_\_\_\_

13. Name(s) of contractors already chosen.  
\_\_\_\_\_

\_\_\_\_\_  
Principal Contractor

\_\_\_\_\_  
Date

\_\_\_\_\_  
Client

\_\_\_\_\_  
Date

- THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.
- **ALL PRINCIPAL CONTRACTORS** THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

---

# ADDENDUM B

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## Occupational Health and Safety Specification

Mgomanzi SPS comprising the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science, Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms, Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc

## INDEPENDENT DEVELOPMENT TRUST

(Hereinafter referred to as the Employer)

## OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

This specification shall be used in conjunction with all other applicable safety specifications, legislation and regulations in force at the time of the contract. Where unique site specifications are in force, those site specifications shall take precedence over this Specification.

IDT East London Office  
Palm Square Business Park  
Bonza Bay Road  
Silverwood House  
Beacon Bay  
East London  
5241

Contact:  
Name: Wayne Buss  
Telephone: 039 727 5502

## **ADDENDUM “A”**

### **PRO-FORMA AGREEMENT IN TERMS OF OCCUPATIONAL HEALTH AND SAFETY ACT 1993**

## **PRO-FORMA AGREEMENT IN TERMS OF**

### **OCCUPATIONAL HEALTH AND SAFETY ACT 1993 – SECTION 37 (2)**

#### **NEW CONSTRUCTION SAFETY REGULATIONS**

The above-mentioned regulations were promulgated in the Govt. Gazette on Friday, 18 July 2014 under the Occupational Health & Safety Act (85 of 1993) and are now in force.

The Employer and the Contractor hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as the Act), that the following arrangements and procedures shall apply between them to ensure compliance by the Contractor with the provisions of the Act, namely:

- (a) The Contractor undertakes to acquaint the appropriate officials and employees of the Contractor with all the relevant provisions of the Act and the regulations promulgated in terms of the Act, and the Employer's Health and Safety Specifications included in the contract documents.
- (b) The Contractor undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations and the Employer's Health and Safety Specifications included in the contract documents will be complied with in all respects.
- (c) In relation to any work or activity performed by the Contractor, his workmen or any other person for whose acts or omissions the Contractor is responsible in terms of the Contract, the Contractor hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the Employer from itself being obliged to comply with any of the aforesaid duties, obligations and prohibitions.
- (d) The Contractor agrees that any duly authorised officials of the Employer shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the Contractor has complied with his undertakings as set out more fully in paragraphs (a) and (b) above, which steps may include, but will not be limited to, the right to inspect any appropriate site or premises occupied by the Contractor, or to inspect any appropriate records held by the Contractor.
- (e) The Contractor shall be obliged to report forthwith in writing to the Representative/Agent full details of any investigation, complaint or criminal charge which may arise as a consequence of the provisions of the Act and Regulations, pursuant to work performed in terms of this Contract.
- (f) Forward "safety meeting" minutes to the representative/Agent.

For the Employer: \_\_\_\_\_ Date: \_\_\_\_\_

Witnesses: 1) : \_\_\_\_\_ 2) \_\_\_\_\_

For the Contractor: \_\_\_\_\_ Date: \_\_\_\_\_

Witnesses: 1) : \_\_\_\_\_ 2) \_\_\_\_\_

## **ADDENDUM “B”**

### **NOTIFICATION OF CONSTRUCTION WORK**



**NOTIFICATION OF CONSTRUCTION WORK**  
(Regulation 3 of the Construction Regulations, 2014)

**1. CONTRACTOR**

1.1 Name and postal address of Contractor :

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1.2 Name and telephone number of Contractor's contact person :

---

1.3 Contractor's compensation registration number :

---

1.4 Name and telephone number of Contractor's Construction Supervisor :

---

1.5 Physical address of the construction site or site office:

---

---

---

1.5 Estimated number of persons on the construction site :

---

1.6 Estimated number of Subcontractors on the construction site accountable to the Contractor :

---

**2. EMPLOYER**

2.1 Name and postal address of Employer :

---

---

---

2.2 Name and telephone number of Employer's Principal Agent:

---

### **3. DESIGN CONSULTANTS**

#### **3.1 Name and postal address of design consultants:**

##### **3.1.1 Construction project managers/ Principal Agents:**

**Ikamva Architects  
Agent's service:  
Principal Agent  
Postal address:  
PO Box 1992, KOKSTAD 4700  
Tel: 039 727 5502 Fax: 039 727 4220**

##### **3.1.2 Architects:**

**Ikamva Architects  
Agent's service:  
Principal Agent  
Postal address:  
PO Box 1992, KOKSTAD 4700  
Tel: 039 727 5502 Fax: 039 727 4220**

##### **3.1.3 Structural engineer :**

**CSE Consulting  
Agent's service:  
S/C Engineers  
Postal address:  
Postnet Suite 420, PO Box 2052, KOKSTAD 4700  
Tel: 039 727 1373 Fax: 086 240 4464**

##### **3.1.4 Electrical engineer:**

**AKM & Associates  
Agent's service:  
Electrical Engineers  
Postal address:  
PO Box 314, KOKSTAD 4700  
Tel: 043 726 2955 Fax: 043 727 1084**

##### **3.1.5 Mechanical engineer :**

**AKM & Associates  
Agent's service:  
Electrical Engineers  
Postal address:  
PO Box 314, KOKSTAD 4700  
Tel: 043 726 2955 Fax: 043 727 1084**

##### **3.1.6 Civil engineer :**

**CSE Consulting**

**Agent's service:**  
**S/C Engineers**  
**Postal address:**  
**Postnet Suite 420, PO Box 2052, KOKSTAD 4700**  
**Tel: 039 727 1373                      Fax: 086 240 4464**

3.1.7 Security engineer :

**To be appointed at a later stage if necessary**

3.1.8 Other (if any) :

3.2 Name and telephone number of design consultant's contact person :

3.2.1 Construction project managers/ Principal Agent :

**AS PER ABOVE 3.1**

3.2.2 Architects :

**AS PER ABOVE 3.1**

3.2.3 Structural engineer :

**AS PER ABOVE 3.1**

3.2.4 Electrical engineer :

**AS PER ABOVE 3.1**

3.2.5 Mechanical engineer :

**AS PER ABOVE 3.1**

3.2.6 Civil engineer :

**AS PER ABOVE 3.1**

3.2.7 Security engineer :

**To be appointed at a later stage if necessary**

3.2.8 Other (if any) :

#### **4. THE WORKS**

Nature of the works:

Mgomanzi SPS comprising the construction of a new school complex of conventional construction on an existing school site. The facility's primary function is that of a new primary school, with supporting elements.

The accommodation/elements to be supplied is - 4 x Temporary classrooms, administration block, nutrition block and ablutions, Administration Block, 1 x Grade R Block, Dining & Nutrition Centre, Science , Media Centre, Multi-purpose Block, 7 x Classrooms, Female staff, Learners, Paraplegic, Educator's VIP Toilets, Grade R Toilets and External Works consists of the following - Platforms for new school buildings, sports field and temporary classrooms , Stormwater, Sewerage, Water supply (Tanks, etc.), Assembly Slab, Parking Area, Fencing, Electrical & Mechanical Installation, Demolitions of existing buildings, etc

Commencement date :

\_\_\_\_\_

Completion date :

\_\_\_\_\_

Contractor: \_\_\_\_\_ Date: \_\_\_\_\_

Employer: \_\_\_\_\_ Date: \_\_\_\_\_

THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.

ALL CONTRACTORS THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER CONTRACTOR ON THE SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

# **PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION**

**FOR**

**GENERAL BUILDING**

**MANAGED ON BEHALF OF**

**(THE “CLIENT”)**

**Independent Development Trust**

**PREPARED BY:**

**Lumcus Training and Consulting PTY LTD**



**PROJECT:**

**Mgomanzi SPS**

**KEY ROLE PLAYERS**

<b>Client</b>	<b>Independent Development Trust</b>
<b>Contact:</b>	
<b>Contact Number:</b>	
<b>Email address:</b>	

<b>Principal Agent</b>	<b>Ikamva Architects</b>
<b>Contact</b>	Wayne Buss
<b>Contact Number:</b>	082 574 4741
<b>Email address:</b>	kokstad@ikamva-architects.co.za

<b>Health &amp; Safety Agent</b>	<b>Lumcus Training &amp; Consulting Cc</b>
<b>Contact</b>	Liza White
<b>Contact Number:</b>	082 307 2592
<b>Email address:</b>	liza@lumcus.co.za

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## PROJECT SPECIFIC OCCUPATIONAL HEALTH AND SAFETY SPECIFICATION

### LIST OF ABBREVIATIONS

AIA	Approved Inspection Authority
BoQ	Bill of Quantities
CC	Compensation Commissioner
CHS	Construction Health and Safety
CHSA	Construction Health and Safety Agent
CHSO	Construction Health and Safety Officer
CR	Construction Regulations (Gazette 10113 of 07/02/2014)
IDT	Independent Development Trust
DMR	Driven Machinery Regulations
DeL	Department of Employment and Labour
FEMA	Federated Employers Mutual Association
GAR	General Administration Regulations
GSR	General Safety Regulations
HCSR	Hazardous Chemical Substances Regulations
HIRA	Hazard Identification Risk Assessment
H&S	Health and Safety
ER	Engineer's Representative
LI	Labour Intensive
OH	Occupational Health
OHS	Occupational Health and Safety
OHSA	Occupational Health and Safety Act No. 85 of 1993 (as amended)
OHSS	Occupational Health and Safety Specification
PA	Principal Agent
PSHSS	Project Specific Health and Safety Specification
PC	Principal Contractor
PPE	Personal Protective Equipment
SANS	South African National Standards (Authority)
SDS	Safety Data Sheet
SMME	Small, Micro, Medium Enterprise
SWP	Safe Work Procedure
COVID-19	Corona Virus Disease 2019

### DEFINITIONS

The definitions used will be those set out in the Regulation Gazette No 84 of 2014 7 February 2014 with the following additions:

**Client:** Independent Development Trust.

**Construction Health and Safety Agent:**

A competent person appointed by the Client to carry out the duties of the Client in respect of Occupational Health and Safety on the Project in terms of Regulation 5 sub regs (5) and / or (6)

**IDT:** Independent Development Trust.

**Designer:** Means a competent person appointed by the Client as Agent to design, supervise and monitor construction on their behalf.

**Hazard:** Source of exposure to danger



**Hazard Identification and Risk Assessment (HIRA) and Risk Control:**

Means a documented plan, which identifies hazards, assesses the risks and details the control measures and safe working procedures which are to be used to mitigate and control the occurrence of hazards and risks during construction or operation phases.

**Health and Safety Agent:**

Means any person who acts as a representative for the Client in managing the overall health and safety work as their responsible person.

**Health and Safety Plan:**

Means a documented plan which answers to the Site-specific Health and Safety Specification; including all the supporting documentation that indicate how the Principal Contractor or Contractor plans to manage H&S for the duration of the Contract.

**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.

**Principal Agent:**

Means a competent person appointed by the Client to design, supervise and monitor the construction on their behalf.

**Risk:**

Means the probability or likelihood that a hazard can result in injury or damage.

**Regulation/s:**

Shall mean the relevant regulation/s promulgated in terms of the Occupational Health and Safety Act, No. 85 of 1993.

**Site:**

Means the area in the possession of the Principal Contractor for the construction of the works. 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.

**The Act:**

Means, unless the context indicates otherwise, the Occupational Health and Safety Act, No. 85 of 1993 and Regulations promulgated thereunder, as amended.

**COVID-19**

means the Novel Coronavirus (2019-nCov) which is an infectious disease caused by a virus, which emerged during 2019 and was declared a global pandemic by the WHO during the year 2020 that has previously not been scientifically identified in humans

**Disaster Management Act** means the Disaster Management Act, 2002 (Act No. 57 of 2002);

**Adequate space** means not more than one person per square meter of floor space;

**Gathering**

means any assembly, concourse or procession of more than 100 persons, wholly or partially in open air or in a building or premises;

**Isolation**

means separating a sick individual with a contagious disease from healthy individuals without that contagious disease in such a manner as to prevent the spread of infection or contamination

**Worker**

means any person who works in an employer's workplace including an employee of the employer or contractor, a self-employed person or volunteer 3;

<b>Workplace</b>	means any premises or place where a person performs work;
<b>Quarantine</b>	means separating asymptomatic individuals potentially exposed to a disease from non-exposed individuals in such a manner as to prevent the possible spread of infection or contamination;
<b>Covid 19 Compliance officer</b>	Person responsible for the duties as outlined in regulation 16(6) of the said Notice COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020.)
<b>WHO</b>	means the World Health Organisation

## KEY REFERENCES

Occupational Health and Safety Act No. 85 of 1993 and Regulations (as amended)  
 Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)  
 Joint Building Conditions of Contract (JBCC)  
 Construction Specifications & Standards 6.0 for Southern Africa. Hans Wegelin 6<sup>th</sup> Edition 2010  
 SANS Code 10400  
 Compensation for Injury and Occupational Diseases Act No. 100 of 1993 (as amended)  
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/>  
 Advice and guidance from WHO on COVID-19  
<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>  
<https://www.epi-win.com/>  
 Covid 19 Restriction Regulation 2020  
 Disaster Management Act, of 2002  
 Government Gazette No. 43257, Vol, 658 Covid-19 Occupational Health and Safety Measures in Workplaces Covid-19 as well as the  
 Risk Adjusted Strategy Regulation- issued by the Department of Cooperative Governance

## **SCOPE OF WORK: MGOMANZI SPS**

### **The accommodation/elements to be supplied is –**

4 x Temporary classrooms, administration block, nutrition block and ablutions  
Administration Block  
1 x Grade R Block  
Dining & Nutrition Centre  
Science  
Media Centre  
Multi-purpose Block  
7 x Classrooms  
Female staff, Learners, Paraplegic  
Educator's VIP Toilets  
Grade R Toilets

### **External Works consists of the following –**

Platforms for new school buildings, sports field and temporary classrooms  
Stormwater  
Sewerage  
Water supply (Tanks, etc.)  
Assembly Slab  
Parking Area  
Fencing  
Demolitions of existing buildings, etc.

## **1. PREAMBLE**

The Independent Development Trust (IDT) is tasked to provide accommodation and operational facilities to National Departments, including the governance of roads and civil structures across the Eastern Cape.

Each year fatalities, serious injuries and poor attitudes of Contractors mar the reputation of the Construction Industry. The IDT has a responsibility to limit its risk by ensuring a zero tolerance and better practice approach to Contractors and those affiliated to a particular project. Thus a high premium is placed on the health and safety (H&S) of IDT stakeholders, which include its employees, professional service providers, public and its physical assets. The responsibilities that the Department and relevant stakeholders have toward its employees are captured in, but not limited to this document. The responsibilities stem from both moral, civil and a variety of legal obligations. The Principal Contractor is to take due cognisance of the above statement.

The IDT, as the Client and where there is an appointed CHS Agent on its behalf, shall provide a project specific Health & Safety Specification (PSHSS) for the project and provide the Principal Contractor/s making a bid or appointed to perform construction work for the project, or parts thereof.

### **1.1 Purpose of the Project Specific Health and Safety Specification (PSHSS)**

The PSHSS is a performance specification to ensure that the Client and any bodies that enter into formal agreements with the Client viz. Agents, Professional Service Consultants (Engineers, Quantity Surveyors and Architects), Principal Contractors and Contractors achieve an acceptable level of OHS performance. No advice, approval of any document required by the PSHSS, such as hazard identification and risk assessments, or any other form of communication from the Client shall be construed as acceptance by the Client of any obligation that absolves the Principal Contractor from achieving the required level of performance and compliance with legal requirements. Furthermore, there

is no acceptance of liability by the Client, which may result from the Principal Contractor failing to comply with the PSHSS, i.e. the Principal Contractor remains responsible for achieving the required performance levels.

A Mandatory Agreement in terms of Section 37.2 of the OHSA will be signed between parties prior to any works commencing.

The PSHSS highlights the aspects to be implemented over and above the minimum requirements of current legislation. Requirements may be changed should new risks or issues are identified that could not have been foreseen during the design phase of the project, or during the construction phase. Any new legislation or standards (legislated, or determined by the IDT) that are promulgated or accepted during the contract will automatically be applied.

Environmental management shall receive due attention as per the requirements of the Environmental Control Officer (ECO), but will be managed by the ECO directly.

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations.

## **1.2 Implementation of the Project Specific Occupational Health and Safety Specifications (PSHSS)**

The project specific H&S specification (PSHSS) forms an integral part of the Contract, and PCs are required to make it an integral part of their Contracts with Contractors and Suppliers. A PSHSS will be available for each level of Contract and Contractor and must be complied with.

This specification must be read in conjunction with the OHSA, Regulations (as amended) and any other standards relating to work being done and ensure compliance thereto. The information relative to the scope of the project, the works etc. are detailed in the tender, are to be considered when developing the H&S plan and associated documentation. The summary of risks is included in Section 2 of the PSHSS.

The OHSA S.37.2 Mandatory Agreement must be fully completed by the PC, supplied by the Client. These documents shall be deemed to form part of the returnable Contract Documents.

No work may commence without written approval of the H&S plan by the CHS Agent, or the responsible person in the IDT.

Should there be design changes, or change in the scope of works, an amended PSHSS may be issued. Where amended PSHSS are issued, the PC will be required to ensure a resubmission of an amended H&S plan for approval. Further to this, the PC must ensure that similar information must be provided as it applies to the works to all their Contractors, within 5 working days following notification thereof. Such design changes.

The CHS Agent will visit the project as deemed necessary by the Designer and the CHS Agent to ensure compliance and limit risk. All activities on the site and all appropriate documentation will be monitored and reported on to the Client and the Designer.

Non-conformances will be issued, and penalties or work stoppage will be issued where appropriate. Communication between the CHS Agent and the PC will be through the Designer (or Client's responsible person) as determined at the commencement of the project.

### 1.3 Requirements at Tender Stage

Tenderers are required to submit a project specific pre-tender H&S plan with their Tender submission. The documentation submitted will be used to assess the competence of the tenderer, as required in the CRs, therefore the information submitted needs to be complete and as close as possible to the final product.

Adequate pricing for H&S is required, and the appropriate section in the BoQ is to be completed. Failure to do so could result in the Tender being regarded as non-responsive.

The PC shall ensure adequate information is submitted as supporting documentation with his completed Tender. Such information will be assessed against the criteria listed and a score provided to the Bid Award Committee (BAC) for consideration. Failure to provide such information could render the tender application non-responsive.

A project specific H&S Plan in response to this PSHSS will be subject to approval by the CHS Agent. This must include all supporting documentation as required to verify the H&S system:

- A declaration to the effect that the Principal Contractor 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;
- Incident Investigation Reports for other projects of a similar nature undertaken by the tenderer
- Claims ratio receipt from FEM or the Compensation Commissioner for the previous review period;
- Detailed technical method statements for approval by the Designer and appropriate risk assessments and safe work procedures for approval by the CHS Agent or Client:
  - Site establishment including:
    - Clearing and grubbing;
    - Exposure of services, power, telecommunication etc.;
    - Arrangements for hoarding,
    - Demarcation and hoarding between construction activities and the operational buildings and offices
  - Demolishing existing structures;
  - Excavating
  - An emergency plan indicating how and where emergencies will be handled
  - Working at heights

Further method statements are to be submitted prior to, and during the project where changes or new work is required, and the approval of the Designer/Client is required before work on that aspect or activity can commence. The CHS Officer is to be included in production planning sessions/meetings to ensure that the appropriate risk assessments, safe work procedures and communication required are available and completed timeously. Penalties will be applied should this not be adhered to, and deemed a serious offence.

## 2. GENERAL REQUIREMENTS

### 2.1 Summary of Risks identified during Design

The intention of the summary of findings from the design baseline risk assessment is to highlight the residual risks identified during the design phase. The full design risk assessment can be found in the tender document.

The summary of risks provided is to point the contractor towards some risks he may not be aware of during tendering stage and while developing his formal risk assessments for the project.

The design risks and the management thereof should be included in the Principal Contractors (PC) risk assessments. Where there are other Contractors appointed to do work, the PC is to ensure that Contractors include such information in their risk assessments.

***The summary is to be developed following the completion of the Design baseline risk assessment, and to include the residual risks as they apply to the project. The items noted are for information only and must be expanded on as required by the project.***

ACTIVITY	HAZARD
Site establishment	Incorrect equipment, haphazard congestion School employees as well as members of the public can enter the site as the school will be fully operational
Roof works	Falling from heights Materials falling from heights
Demolishing	Objects falling Personnel falling Structure collapse
Scaffolding	Personnel falling Equipment falling Structure collapse
Handling of material	Removing articles from delivery truck Waste material Incorrect storage of material
Ladders	Person falling off ladders Tools falling from person
Labor work on wet surfaces	Falling off or through elevated structures Collapse of structure onto a person
Perform work outdoors in windy conditions	Falling off or through elevated structures including support work
Storage of material and equipment	Cluttered and congested work areas due to poor/bad housekeeping
Waste	Accumulation of waste on site Poor/bad housekeeping
Site security after hours	School Employees; Members of public entering the site after hours
Delivery of material Movement of construction plant and vehicles	Inadequate traffic control school employees and public can enter area
Working at heights	Inadequate fall arrest equipment Incompetent /unfit /untrained workers Unsafe equipment

Barricading/ hording	School employees, animals and members of the public can enter the construction site. It should be noted that this will be a fully operational facility
Plant and vehicles	Personnel struck by Employees struck by Property damage
Site Office	Delivery with crane, no load test, no competency,
Poor Hygiene	Health related illnesses including Covid-19
Lack of Social distancing	Contracting Covid-19

## 2.2 Specified Hazardous Chemical Substances

The following lists of products or substances are those which have been identified as likely to be used on the project. This list is not inclusive and other products may be considered. Where the PC is likely to supply the product as the product has not been specified, materials data sheets (MDSs) need to be considered prior to all selections.

PRODUCT	POTENTIAL HEALTH OR OTHER RISKS
Cement	Hand mixing may occur, will be used for structures, stabilizing. 50kg bags delivered on pallets, ergonomic risk from handling, dust exposure, chromates. Eye, skin and respiratory irritant
Shutter Oil	Usually hand application prior to placing formwork in position. Volatiles present. Skin and respiratory irritant.
Retro-reflective Road paint	High levels of volatiles, Products have narcotic effect
Lime	Dust, eye and respiratory irritation
Petrol/diesel/lubricants	Storage tanks/ bowsers on site. Fire, spillage, fumes
Superphosphate fertilizers	Eye, respiratory and skin irritant
Limestone ammonium nitrate fertilizer (LAN)	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated
Formula 2:3:2 fertilizer	Prolonged skin or eye contact could cause irritation. Explosive and will release toxic fumes if heated.
Creosote (pre-treated poles)	Eye and skin irritation and minor burns, carcinogen
Herbicides and ant poison	Type not specified but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Epoxies and epoxy resins	Type not specified but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures
Coatings	Type not specified but will be used. Principal Contractor to ensure use of SDSs and appropriate protection measures

PRODUCT	POTENTIAL HEALTH OR OTHER RISKS
Grouts	Will be determined by the Principal Contractor; various grouts will be required, cementitious or other, may contain silica (crystalline - quartz), hexavalent chromium, respiratory, skin and eye irritant
Sanitizer 70% Alcohol	Eye and Skin irritation, harmful if swallowed, respiratory complications, hormone problems, Flammable when heated

### **3. OCCUPATIONAL HEALTH & SAFETY MANAGEMENT**

#### **3.1 Structure and Organization of H&S Responsibilities**

##### **3.1.1 Application for a Construction Work Permit**

The appointed Health and Safety Agent for the Client (IDT) must acquire a “Construction Work Permit” from the Department of Labour

Work may not commence without the “Application for a Permit to do Construction Work” form being completed by the Client and accepted by the Department of Employment and Labour. This includes, inter alia, the Contractor’s Health and safety Plan as accepted by the Client

It should be noted that this OHSS in no way relieves the Contractor of any of his responsibilities set out in the Act and Regulations

The provincial director at the Department of Labour will issue the permit in writing to perform construction work within 30 days of receiving the construction work permit application and must assign a site-specific number for each construction site.

The contractor must ensure that the site-specific number issued by the Department of Labour must be conspicuously displayed at the main entrance to the site for which that number is assigned

### **4. HEALTH AND SAFETY PLAN FRAMEWORK**

The H&S aspects related to the project outlined in the previous sections are to be taken into account when drawing up the H&S Plan. The PC is required to demonstrate competence by providing an H&S system that will address the requirements of the project.

The current legislative requirements, SANS codes, SANS 10400 and any other standards that may guide practice are to be taken into consideration. The following aspects must be addressed in the H&S Plan, as they have been identified in section 2, as playing a role in reducing the overall risk of a particular activity, or section of the project. The CHS Agent may from time to time request additions or systems as they relate to the works or legislative requirements at the time.

The PC is to prepare a site layout drawing to indicate at least the following:

- The positions of site offices of all Contractors, toilets, drinking water and worker rest areas;
- Indicate the positions of emergency personnel and equipment (fire, first aiders, first aid posts);
- Protection of plant and pedestrians, indicate parking, and
- Storage areas (materials and equipment, waste etc.)
- Access and egress to site for deliveries and intended temporary traffic management
- Emergency assembly point

Such layouts are to be updated regularly throughout the project.



#### **4.1 Appointment of Competent Site Personnel**

The CEO (OHSA S16.1) of the PC will take overall responsibility for the appointment of competent site staff for the duration of the project. Should the CEO not be personally involved in the project, the H&S responsibilities are to be delegated to the Site Agent (OHSA 16.2). Knowledge and training in H&S is required, and certificates indicating H&S training as well as experience to be included in CVs.

All other legal appointments are to be made with relevance to the type of work required and kept current with the project programme. The construction team is to ensure the appointed CHS Officer is kept up to date with all planned activities, to ensure all H&S requirements are met.

All construction/technical method statements are to be generated by senior site personnel, and the appropriate risk assessments developed therefrom in conjunction with the CHS Officer.

The Occupational Health and Safety Plan shall include the following, but is not limited to the following key appointments:

##### **4.1.1 Construction Supervision**

Competent Construction Managers (CR8.1) will be appointed to manage part or all of the works and have training and/or experience in the area of responsibility. All site supervisors must show evidence of appropriate training in H&S, and an understanding or training in areas of responsibility (i.e. risk assessments, method statements etc.).

Multiple competent Assistant Construction Managers (CR8.2) may be appointed where justified by the scope and complexity of the works.

Curriculum Vitae (CVs) are to be submitted for approval by the Designer, and/or Client. The Supervisor will be held responsible for the safety of working teams and subordinates, housekeeping and stacking and storage of materials.

If the Construction Manager (CR8.1) changes throughout the project. The Principal Contractor must notify the client as well as the Department of Labour two weeks prior to commencement of work activities by means of a new Annexure 1, Appointment letter as well as proof of competency.

##### **4.1.2 Construction Health and Safety Officer**

The PC will employ at least one competent, full-time CHS Officer (CR8.5) for the duration of the contract. The CHS Officer's CV is to be submitted for approval by the CHS Agent or the Client, at time of tender. The PC is to ensure adequate resources are provided in order to undertake all responsibilities (i.e. mobile phone, computer and internet access, vehicle etc.) Qualifications shall include at least Grade 12 SAMTRAC/NEBOSH/Diploma in H&S qualifications or similar, with exposure to civil engineering and building that is appropriate given the level of project complexity preferably in an OHS capacity. He should also have undergone training in the Act and Regulations. In the case of a contract where contractors are employed, the CHS Officer must have a competence to evaluate the Contractors Health and Safety plans.

Proof of registration as a Construction Health and Safety Officer with SACPCMP must be supplied.

This person may not hold any other position on the site staff.

The site supervisor may not act as the CHS Officer.

The CHS Officer/s will be held responsible for all H&S on the project.

- Senior site staff and supervision, Contractors are to follow systems, instructions etc. given by the CHS Officer at all times;
- No new workers or Contractors may commence work without approval or following the H&S plan as submitted, and
- No inductions of Contractor staff until the H&S documentation is approved by the CHS Officer.
- The CHS Officer/s may not be removed or replaced without the approval of the CHS Agent, nor may the site be left unattended for more than 1 day without adequate, competent cover.

A monthly report of all H&S activities and incidents is required by the end of the first week of each month, or at a date agreed to by the CHS Agent/Client and the CHS Officer. An example of the monthly report is attached as an Annexure C.

The CHS Officer will be responsible for collating the H&S documentation at the close out of the project in electronic format. A list of the typical aspects that should be provided is available as Annexure B to this document. The PC is to ensure that all Contractors documentation follows the same requirements and closed out H&S documentation must be completed and be available with the close out of the main contract.

If the CHSO is replaced the Principal contractor is required to submit the following documentation for approval by the Client and appointed Pr. CHSA at least two weeks before:

1. Applicant CV
2. Applicant Competency
3. SACPCMP Registration Certificate

Failure to do so will be considered a serious offence and penalties /stoppage of site will apply.

#### **4.1.3 Covid-19 Compliance Officer**

Due to the Covid-19 Pandemic the PC will appoint a Compliance Officer responsible for the duties as outlined in regulation 16(6) of the said Notice COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020. The Compliance Officer will always ensure compliance with the required COVID-19 regulations to keep employees up to date of any changes and ensure adherence.

## **4.2 Health and Safety Representatives and H&S meetings**

H&S Representatives representing workers and Contractors are to be appointed following the startup of the project, irrespective of the number of workers on site. The appointed H&S Representatives are to be actively involved with H&S and will assist the CHS Officer and site management in meeting legislative duties.

The CHS Officer shall further ensure that H&S is discussed at all internal production or progress meetings. Issues arising from the CHS Agent audits are to be discussed, as well as all H&S related issues.

Social distancing will be practiced at all times during required meetings.

#### **4.2.1 Health and Safety Meetings**

- Choose an appropriate venue for the meeting
- Develop and agree a preparedness plan to prevent infection at your meeting or event.
- Consider whether a face-to-face meeting or event is needed. Could it be replaced by a teleconference or online event?
- Could the meeting or event be scaled down so that fewer people attend?
- Ensure and verify information and communication channels in advance with key partners such as public health and health care authorities.
- Pre-order sufficient amount of supplies and materials, including tissues and hand sanitizer for all participants. Have surgical masks available to offer anyone who develops respiratory symptoms.
- Actively monitor where COVID-19 is circulating. Advise participants in advance that if they have any symptoms or feel unwell, they should not attend.
- Make sure all organizers, participants, caterers, and visitors at the event provide contact details: mobile telephone number, email and address where they are staying. State clearly that their details will be shared with local public health authorities if any participant becomes ill with a suspected infectious disease. If they will not agree to this, they cannot attend the event or meeting.
- Develop and agree a response plan in case someone at the meeting develops symptoms of COVID-19 (dry cough, fever, malaise). This plan should include at least:
- Identify a room or area where someone who is feeling unwell or has symptoms can safely be isolated
- Have a plan for how they can be safely transferred from there to a health facility.
- Know what to do if a meeting participant, staff member or service provider tests positive for COVID-19 during or just after the meeting
- Agree to the response plan in advance with your partner healthcare provider or health department

#### **4.2.2 During the Health and Safety meeting or event**

- Provide information or a briefing, preferably both orally and in writing, on COVID-19 and the measures that organizers are taking to make this event safe for participants.
- Encourage regular handwashing or use of an alcohol rub by all participants at the meeting or event
- Encourage participants to cover their face with the bend of their elbow or a tissue if they cough or sneeze.
- Provide contact details or a health hotline number that participants can call for advice or to give information.

- Display dispensers of alcohol-based (70% content) hand rub prominently around the venue.
- If there is space, arrange seats so that participants are at least 2 meters apart. Not more than 50 persons at a time.
- Open windows and doors whenever possible to make sure the venue is well ventilated.
- If anyone who starts to feel unwell, follow your preparedness plan or call your hotline.
- Depending on the situation in your area, or recent travel of the participant, place the person in the isolation room. Offer the person a mask so they can get home safely, if appropriate, or to a designated assessment facility.

#### **4.2.3 After the Health and Safety Meeting**

- Retain the names and contact details of all participants for at least one month. This will help public health authorities trace people who may have been exposed to COVID-19 if one or more participants become ill shortly after the event.
- If someone at the meeting or event was isolated as a suspected COVID-19 case, the organizer should let all participants know this. They should be advised to monitor themselves for symptoms for 14 days and take their temperature twice a day.
- If they develop even a mild cough or low-grade fever (i.e. a temperature of 38 degrees C or more) they should stay at home and self-isolate. This means avoiding close contact (1 meter or nearer) with other people, including family members. They should also telephone their healthcare provider or the local public health department, giving them details of their recent travel and symptoms.

Minutes are to be kept for all H&S interventions and meetings. Failure to do so will be deemed to be a moderate offence.

### **4.3 Appointment of Competent Contractors**

The Principal Contractor is to ensure compliance with the Client's minimum standards and all legislative requirements. The same H&S standards required of the PC are to be applied to all Contractors. An index of all Contractors and Suppliers is to be on file and kept updated at all times. The PC is to ensure there is sufficient funding for H&S compliance by each Contractor.

The following minimum aspects are applicable to any Contractor appointed:

- The CHS Officer is to ensure a Contractors appointment and approval of H&S documentation at least seven (7) working days prior to commencing work.
- The contractor should take note of the required workload of the appointed CHSO in relation to the appointed SMME's
- No Contractor may work under the PC's Compensation registration number. If required, the PC may assist SMMEs with their registration with the Compensation Commissioner. However, such Contractors will not be able to commence work until proof of registration or Letter of Good Standing has been received.
- No work may commence without Mandatory agreements between parties in place.

The following aspects are applicable to Suppliers or short-term works (surveying, repairs, servicing, deliveries etc). Cognisance is to be taken of the level of risk involved and the CHS Officer is to ensure the level of H&S documentation is appropriate:

- Signed Mandatory agreements in place

- Valid Letter of Good Standing
- Method statements and risk assessments
- Available information relative to:
  - Load testing and registers for cranes or lifting devices
  - Medical certificates of fitness
  - Safety data sheets (SDSs)

Failure to provide written approval of H&S documentation will be considered a serious offense, and could result in aspects of, or all the activities being stopped, and penalties implemented.

## **5. GENERAL RISK MANAGEMENT**

### **5.1 Health Risks and Medical Surveillance**

As some products use in the building work have not been identified, the PC is to ensure the CHS Officer and all supervision is responsible for ensuring the safe use of such products, and their inclusion into method statements and risk assessment. The appropriate SDSs are to be obtained for all products and used to develop the H&S documentation as they relate to the works.

Many of the processes may be labour intensive and ergonomic risks are to be noted. All workers (including Contractors) are to be included in the medical surveillance programme.

Workers will be exposed to noise, dust, and physical risks from extended periods of work of a repetitive nature, materials specified and the general nature of the works.

Environmental monitoring results and risk assessments are to be made available to the occupational health professionals doing the medical surveillance. The use of occupational risk exposure profiling (OREPS) and job descriptions are to be used to determine specific exposures for management.

All permanent workers (including those of Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work.

Medical surveillance will commence at pre-employment. All workers (including Contractors) are required to be in possession of a medical certificate of fitness prior to commencing work. Annual medical surveillance is required (unless identified as being required more frequently), as well as an exit medical. Arrangements for keeping medical records for the required time are to be noted. It is preferable that the PC has a medical surveillance plan. Full medical records are not to be placed in the H&S file. A procedure for managing the medical records which require safekeeping for prescribed periods are to be addressed. Given the potential health risks the following aspects are to be included in each medical surveillance intervention:

- Full medical, surgical and occupational history;
- Full physical examination of all systems; and
- Referral if required for the management of identified health issues that may affect the worker.

Specific testing for existing conditions and limitations relative to exposure could include, but are not limited to:

- Audiometry (hearing tests); and
- Any other tests identified as relevant from chemical or specifically identified risks of exposure

No employee/ contract worker will be allowed on site without a valid medical certificate of fitness

Any person who contracts the Covid-19 virus may need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA).

Isolation of workers who have a temperature or any symptoms, and removal to the closest facility for testing and treatment, through the numbers provided. The PC is to ensure their policy on this includes such information.

Workers will be required to complete COVID-19 questionnaires prior to returning to site. Any worker with any symptoms is not to return to work or notify the PC of same.

Failure to do so will be considered a serious offence.

### **5.1.1 General Environmental Conditions**

Compliance with the Environmental Regulations (as amended), among others is required. Environmental monitoring of ventilation, lighting and dusts may be deemed to be required by the Approved Inspection Authority used to measure the environment. Copies of the relevant reports and actions taken in respect of these are to be placed in the H&S file. Testing and reporting for airborne silica as required by the 2008 amendment to the HCS Regulations is required.

### **5.1.2 Noise Risks**

All plant from plant hire companies (suppliers) or that of the PC is to be compliant with the Noise Induced Hearing Loss Regulations. Plant identified that has not been tested and marked for noise emissions will result in having to be tested at the Contractors or PCs expense. Failure to do so within a reasonable time period will result in such plant being removed from site.

Audiometric testing of all workers is noted as required in the medical surveillance programme for all permanent workers prior to work commencing. Temporary labour working in identified noise areas will require testing if the noise levels are indicated on plant or through processes as greater than 85dB. Audiometry records are to be available in the H&S file. Suitable SANS approved hearing protective equipment shall be issued and worn. Where several items of construction plant are in operation at or near to each other, the noise zone for the combined plant should be established and suitable hearing protective equipment used within this zone. Failure to do so will be considered a serious offence.

## **5.2 Emergency Procedures**

An emergency plan and procedure that is appropriate to the risks is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

The contractor will take into consideration the existing emergency plan and procedures of the SCHOOL

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:

- Appointment of a competent emergency response co-ordinator
  - Fire;
  - Public injury, Motor vehicle accidents;
  - Falls from heights;
  - Serious injury to workers (medical or work-related); and
  - Any other major risks identified during risk assessments

Drills to be conducted annually for the below:

- Fire drill
- Bomb threat
- Fall from Heights Rescue procedures

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project. Local emergency telephone numbers must be displayed and made part of the emergency procedure.

Due to the Covid-19 Pandemic the emergency plan must include the current Regulations of the National Disaster Management Act.

- First aid  
Extra gloves, and disinfectants are to be available, first aiders are to be issued with at least FFPT2 masks should they be required to respond
- Evacuation plans  
Evacuation plans should consider social distancing.
- Isolation of potentially infected workers

The emergency plan is to consider how anyone who arrives on site and displays any of the symptoms, or has a raised temperature

The general principals of emergency management are to be applied as it applies to the hierarchy of control and management.

### **5.2.1 First Aiders and First Aid Equipment**

At least 1 first aider will be trained to Level 3. First aiders shall be available and accessible on site at all times and be able to work as a team when responding to any emergency on the project.

Contractors are expected to ensure compliance and provide/manage their own first aiders and equipment. The number of First aiders will be determined by the complexity and exposed risks of the project, not numbers of workers

Appropriately stocked first aid kits, at least to the requirements of the Annexure to the GAR, are to be available at all times to assure continual availability and access on site.

### **5.2.2 Fires and Emergency Management**

Attention to emergency planning and procedures is very important. The full emergency plan must form part of the supporting documentation with the H&S Plan. The CHS Agents approval of all emergency plans and procedures is required prior to commencement on site. It is advised that the system should be simple and easy for any worker to follow. The plan may be adapted should new information or risks are identified.

First aiders shall be available in each working team and be able to work as a team when responding to any emergency on the project.

The procedure shall detail the response plan in relation to the works, and include at least (but are not limited to) the following key elements:

Appointment of a competent emergency response co-ordinator and wardens;

- Lists of first aiders, and
- Requirement in terms of identified risks:
  - Fire;
  - Explosions;
  - Falls from heights, and
  - Motor vehicle accidents.

The emergency plan is to ensure the inclusion of local service providers where possible. Such arrangements should be made with these persons prior to the commencement of the project.

The emergency plan is to include the risk of fire on site and related to any specific activities where gas, welding, cutting etc. occur.

Fire extinguishers will be appropriate for the risk and in sufficient numbers to deal with the type of fires that could occur. All mobile plant is to have appropriate, accessible fire extinguishers. Hot work permits are required for any such activities.

### **5.2.3 Incident Management and Compensation Claims**

All incidents and accidents are to be investigated. All serious incidents involving any form of disabling injury or fatality are to be reported to the Designer /Client /CHS Agent immediately. This shall be confirmed in writing following the incident. Full details are to be included in each site meeting or when the Client visits site. A summary of incidents is to be included in the monthly report.

Any person who contracts the Covid-19 Virus may need to be reported to the Compensation Commissioner as an occupational disease where their work is to monitor and in contact with others. Such details are provided in the Compensation for Injuries and Diseases Act (COIDA).

Failure to comply with emergency provisions will be considered a serious offence, and the operation or project may be stopped if deemed inadequate for the work at the time of assessment or site inspection.

## **5.3 Personal Protective Equipment (PPE) and Clothing**

The PC is to provide a procedure as an addendum to indicate how PPE is managed within the Company.

The wearing of the identified SANS approved PPE. The PC shall ensure that all workers (Including Contractors) are issued with and shall wear:

- Hard hats;
- Protective footwear;
- Dust Masks
- Hand Gloves

It is preferable that surgical gloves are not worn unless indicated and workers trained in the proper use thereof. Gloves must only be used when the activity demand the wearing of specific type of hand gloves. This will be directed by the PC risk assessment.

- Site office personnel need to be made aware of the risks in the office environment, this include to handling of documents and plans. These employees could be issued with the appropriate hand gloves or sufficient hand wash / sanitising facilities must be available in the site office.
- Overalls that ensure worker visibility.

All employees must be issued with 3 overalls (1 overall wearing; 1 overall in the wash and one as the backup). This will ensure that the employee will be able to wear clean hygienic overalls. This must form part of the COVID-19 training for all employees



- Eye protection (if required)
- Hearing protection;
- Reflective jackets (no bibs)
- Harnesses (working on heights)
- Respiratory protection (minimum of FF2), and
- Any other necessary PPE identified from SDSs and/or risk assessments.
- Masks

Compulsory for all employees; personnel and professional team members, reducing the potential of inhaled COVID-19 droplets. For general administration purposes, for essential staff on site only, cloth masks may be worn. N95 masks are only to be worn by first aiders or high-risk workers, due to the national shortage thereof.

All N95 and FFPT2 masks to be disposed with or after 1 day's use. Induction to include training on the correct use of face masks.

Cloth face masks to be used and worn at all times. It is advised that each worker is supplied with at least 3 cloth face masks. This would assist ensuring that the masks are hygienic (1 on the face; 1 in the wash and 1 as a backup).

The PC must ensure that sufficient stock is at all-time available on site. This will also have depended on the type of mask being issued.

Adequate quantities of PPE shall be available. This shall include necessary PPE for visitors. The procedures for managing PPE are to be in a formal procedure submitted with the H&S plan for approval.

Any person (including Client, Designers etc.) found on site without the necessary PPE will be removed from site until the PPE is supplied and worn.

Failure to comply will result in penalties being applied.

#### **5.4 Occupational Health and Safety Signage**

On-site H&S signage is required. Signage shall be posted up at fixed or temporary working areas, or other potential risk areas/operations. These signs shall be in accordance with the requirements of the General Safety Regulations or SANS requirements as amended. Signage is to be noted on the site drawings indicating where fixed/temporary signage is required.

It should be noted that the School will be fully operational during construction activities and the contractor to ensure sufficient separation.

Temporary signage is to include (but not be limited to) the following:

- Report to site office/ 'Warning: Construction Site – Keep out' or similar;
- Site office
- hard hat area or other PPE requirements noted;
- First aid box positions (including vehicles); and
- Fire extinguishers.
- Assembly Area
- Covid-19 information posters

Signs shall be posted at areas of work on site indicating that a construction site is being entered and that persons should take note of H&S requirements.

Note should be taken that "omnibus" signs indicating that the entire site requires PPE should not be used. Any areas where PPE is mandatory must be separately signed.

The Principal Contractor must ensure that members of the that need to access the school will not be able to gain access to the construction area. It should be noted that the School will be fully operational, and the construction area should be properly and securely barricaded at all times. Failure to comply will result in penalties being applied.

## **5.5 Induction of Employees and Visitors, General H&S Training**

A simple, formal induction programme is to be submitted as an addendum for approval with the H&S plan. Inductions must be carried out for all workers and visitors (including Client, Designers) to the site.

Pre-task training is required to ensure workers are familiar with the risks and H&S measures of the work or tasks to be done. Such training is to be done at least daily. Records of inductions and pre-task training are to be kept in the H&S file.

- Induction training to educate to ensure all users are hand washing correctly
- Induction to include training on the correct use of face masks.

Any person found on site without proof of induction in the H&S File will be removed from site until the proof is supplied and, and a penalty issued per non-compliance.

## **5.6 Management of Plant and Equipment**

Close control of plant and equipment is required, including that of Contractors. It should be noted that control measures should be implemented especially between the two site areas and should at all times be separated from the SCHOOL employees' persons and vehicles.

Daily monitoring of all plant and equipment is required prior to commencing work. Full lists of hired and own plant are to be available at the CHS Agent's/Client audit. All daily inspection records are to be kept in the H&S file. Plant Hire and Haulage Contractors are to comply with the requirements where plant and equipment is brought onto site. Registers are not to be more than 1 week behind.

Only competent, fit plant operators are to be used. Medical certificates of fitness are required for all operators.

Any plant or slings used to lift plant or material require annual load testing by an AIA, and all certificates must have the testers LMI/E number. Operators are to be adequately trained and certified to operate mobile cranes or crane trucks. Certificates and registers are to be placed in the H&S file.

Movement of plant in closures and in confined working areas is to be closely monitored and managed by the supervisors. The blind spots of plant are to be taken into account and workers and Contractors protected accordingly

Failure to do so will be considered a serious offence.

## **5.7 Excavations**

A procedure for managing excavations is to be provided as an addendum to the H&S plan describing how excavations are to be managed.

Excavation method statements are to be approved by the Designer and associated risk assessments are required. Designs by competent persons are required where ground conditions are deemed to require shoring.

A competent person is to be appointed for managing all excavations. A permit system is to be available and used for all excavations. All equipment and ground conditions to be checked daily, and prior to work commencing.

Excavations should preferably not be open beyond what can be closed daily. Where excavations need to remain open, all excavations are to be properly protected. Adequate stakes with 1m high demarcation and berms/spoil are required to be a safe distance from the edge of the angle of repose.

Candy tape may not be used to demarcate excavations. Cognisance is required of the surrounding area and increased levels of protection are required where work is in communities, near schools and clinics.

Work will be stopped, and penalties applied to any work in excavations that is not compliant.

## **5.8 Working at heights**

A fall protection Rescue plan is to be available and supplied as an addendum to the H&S plan. The fall protection plan must be appropriate for the project. Method statements, appropriate risk assessments, safe work procedures and training are to be available prior to work commencing.

Construction drawings shall be required for all temporary structures as they relate to the project. The drawings shall be accompanied by full calculations, design loads and any relevant test results as required by the SANS code and ensure adequate allowance for the development of appropriate documentation and training. All drawings are to be checked and signed by a competent structural engineer (registered with ECSA).

The focus for working at height shall include fall restraint systems where possible except during assembling or dismantling top components or where it is not deemed safe. The relevant SANS codes are to be applied as they apply to the works and the project, such as:

- SANS 10085
- SANS 10333 (parts 1-3)

Should part of the works be contracted out, competent Contractors are to be appointed and submit documentation according to the project requirements. The PC is to note if such work is to be contracted to specialists in the H&S Plan. The plan is to be developed and work managed by a competent person for the duration of the project. The following aspects must be included:

- The public or users of buildings are to be protected at all times by way of hoarding, barricading or fencing
- Notices to be posted
- Restrictions or stoppage when weather conditions are deemed hazardous
- Permit system for working at heights
- Prevention of falling tools or equipment
- Link to emergency plan regarding rescue

All workers are to be in possession of valid certificates of fitness that extend for the duration of the works. Note the requirements in the section relating to medical surveillance

Registers and all relevant documentation are to be placed in the H&S file.

Work will be stopped, and penalties applied to any work at heights that is not compliant.

## **5.9 Cranes and lifting equipment**

Should any form of lifting device or crane (fixed or mobile) be used during the project for deliveries, moving of supplies or equipment, the appropriate documentation must be made available. Method statements, risk assessments, safe work procedures and training are to be available prior to work commencing. A procedure for managing loads and lifting must be made available as an addendum to the H&S Plan.

### **5.10 Temporary Works (Scaffolding, support work, formwork)**

Temporary works must be properly designed and signed off by a competent person. In these instances a competent person is defined as a Professional Engineer or Professional Technologist (registered with ECSA) who has sufficient experience in the design of the type of temporary work in question to be able to assess the design. The appropriate competent persons are to be appointed to manage and monitor such works to the satisfaction of the Engineer and CHS Agent. Records and registers are to be properly completed and kept in the H&S file. If temporary works are to be erected by a Contractor, this must be notified to the Designer/CHS Agent. All necessary calculations and drawings of temporary works must be kept on site and available to the PA and CHSA

Failure to do so will be considered a serious offence.

### **5.11 Demolition**

Care is to be taken during demolition of walls; a stability survey should be carried out. All rubble to be disposed on a regular basis and at a controlled refuse site.

Demolition plan to be submitted by the Principal Contractor for approval before any demolition commences.

### **5.12 Mechanical installations**

All mechanical installations are to be carried out in conformity with the manufacturer's instructions. Method statements and risk analyses must be compiled for each type of installation. A competent person must be designated to supervise the work.

### **5.13 Auditing**

Frequency of external auditing by the CHS Agent or Client will be as agreed with the Client and Designer but will at least conform to the requirements of the Construction Regulations. The site will be inspected, and the documentation audited relative to the activities and H&S plan. The CHS Officer of the PC must accompany the Client, or the CHS Agent, on all audits and inspections. Not all audits will be, or need be announced.

The PC will ensure that all their Contractors are audited at a frequency determined by the CHS Agent. Audit frequency may be increased if Contractors are not performing adequately. Audit results will be acted upon and non-conformances and penalties issued where deemed appropriate. The Client, Designer or CHS Agent may act or require further outcomes if non-compliances are noted or unsafe acts are noted on site.

Internal audits are to include site conditions as well as ensuring H&S files are appropriate, and compliant. Comprehensive audit reports are to be made available, the format of the audit reports are to be acceptable by the CHS Agent.

The PC will be audited using a template as supplied in the tender document. The audit template will be adjusted from time to time relative to the activities on site. A similar process is to be used by the PC when auditing their Contractors on site. Compliance with legislative requirements and the systems provided by the PC to manage the H&S on site will be measured. Full compliance is required. Time limits for corrective actions will be set and must be adhered to.

Failure to address findings or non-conformances will be considered a serious offence.

## 5.14 Communication on Site

All H&S communication during the project between the CHS Agent and the PC will be done through the Architect/Clerk of Works/Client and be in writing, including the issue and responses to non-conformances and H&S audit results.

Failure to address issues timeously will be considered a serious offence.

## 5.15 Care of Workers on Site: Access/Egress of Site / Welfare Facilities

### Welfare Facilities

Adequate toilets, clean, safe drinking water and decent shelter must be afforded workers at all times. Toilets will be within reasonable distance of workers, or placed with each working team in safe, with reasonable privacy. Arrangements made where existing facilities are shared with existing users must be made in writing and placed in the H&S file. No substances containing Formaldehyde may be used in Chemical Toilets.

Ablution facilities are an essential facility that must be available for workers across a site. Facilities are a high-risk area and increased cleaning regimes are required to be introduced. A policy on how this will be done is required, that will cover both portable and permanent facilities. The following are considerations, that include, *inter alia*:

- Portable toilets to be provided at a 1:30 ratio but be sanitized daily as per Occupational Health and Safety Measures in Workplaces or more frequently
- Cleaners to continually clean and have a formal cleaning regime
- Hand washing facilities (soap and water, paper towel) to be available where possible, and if not, to provide hand sanitizer
- Induction training to educate to ensure all users are hand washing correctly
- Flush toilets preferably 1:30 unless increased cleaning regime present;
- Restrict the number of people using toilet facilities at any one time e.g. use a welfare attendant;
- Wash hands before and after using the facilities;
- Enhance the cleaning regimes for toilet facilities particularly door handles, locks and the toilet flush;
- Portable toilets should be avoided wherever possible, but where in use these should be cleaned and emptied more frequently;
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal that need to be managed as hazardous waste;
- Introduce staggered start and finish times to reduce congestion and contact at all times;
- Consider increasing the number or size of facilities available on site if possible

### Access/Egress

The PC is to ensure there is suitable and adequate provision to minimize the risk of persons who may be infected with Covid-19 entering the site, the spread of the virus between persons who work on or visit the site and the risk of potentially contaminated persons leaving the site and accessing public spaces or going home to their families. To achieve this, the contractor is required to implement, *inter alia* the following measures:

- Persons accessing the site in groups to maintain social distancing of at least 2 meters while waiting to access the site;
- Persons waiting to access the site to be segregated from the public where required by the provision of dedicated, prominently identified public pedestrian walkways situated in such a way that social distancing is maintained between site personnel and the public.

- Screening of each person who enters the site with a no-touch infrared thermometer.
- Means of (fully) sanitizing each person and their belongings, who access and leave the site.
- Dedicated facilities for safekeeping of personal for each person. Such facilities are to allow for total segregation of belongings and must be easy to sanitize. Provision of such facilities for safekeeping to be accompanied with a procedure for the use and sanitizing of the storage facility to reduce the risk of cross-contamination.
- Toolbox talks to be conducted outdoors when possible, in order for persons to maintain social distancing. Where inclement weather does not allow for this, toolbox talks to be conducted with smaller groupings of workers in a sheltered area large enough to maintain social distancing, and
- Eating areas to be set up in such a way that the maximum number of persons who will use the area at any one time are able to maintain the required social distancing of 2 meters. Should this not be practicable, mealtimes are to be staggered on a rotational basis to avoid contact between persons.

Failure to ensure compliance will be considered a serious offence.

#### **5.16 Discipline, Alcohol and Substance Abuse**

All employees (management included) are to follow instructions given in the interest of H&S. Disciplinary action is to be imposed on those who do not follow such instructions or company rules or policies.

No person is allowed to work or access site if under the influence of alcohol or other substances that could impact on their own or others safety. The PC is to have a drug and alcohol policy available to manage such instances.

These requirements are applicable to any employee of any organization providing services on site. Penalties may also be applied by the Client, OHS Agent or Engineer.

#### **5.17 Electrical Equipment**

In addition to the requirements of the Electrical Machinery Regulations and the General Machinery Regulations any electrical distribution board used for construction work shall be fitted with suitable earth leakage protection. Leads must be properly and firmly connected. Plugs and sockets shall be in good and safe condition.

All electrical apparatus, other than electrical hand tools, shall have a physical "lock out" system which will prevent any operation other than that authorized by a supervisor. A "lock out" sign shall be displayed when the apparatus is not in use.

Method statements and safe work procedures will be required for all work involving electrical apparatus.

### 5.18 Covid-19 Management on site

Contractor to provide a plan on how they will manage Covid-19 on site

- **Waste Management for Covid-19 Waste**

Waste management arrangements to be updated to include provision for the disposal of additional waste generated due to preventative measures implemented. All waste to be managed as hazardous waste.

- **Disposal of any gloves, masks**

The contractor shall dispose of all used gloves and masks as hazardous waste and provide sealable bags and containers for the safe disposal of this waste.

- **Paper towels**

The contractor shall provide adequate supplies of paper towels on site. At points where these towels are provided lined waste bins to be placed in order to collect all used towels and then to be disposed of in hazardous waste.

- **Disinfectant solution**

The contractor to provide adequate supplies of disinfectant on site where the use of water and soap for cleaning is not practical. If disinfectant dispensers are not refilled it should be disposed with other hazardous waste.

- **Wastewater**

Wastewater at washing points, toilets, and bathrooms to be contained in a drainage system that prevent surface spills. If wastewater is contained in waste buckets it must be sealed when removed and disinfected after it is cleaned.

### 5.19 Consequence Management

- **Change Management**

Each Principal contractor / contractors to ensure that regular information pertaining to COVID 19 and or any Health and Safety matters is distributed to ensure that required measures / controls is timeously addressed. There are various information platforms available to the Employer and or employee that can assist in keeping them informed:

- Local Authority / Legislation
- World Health Organizations
- Health Care Departments / Health Care Professional's / Centre's / Hospitals
- Public Service Announcements – National News

Each employer is responsible and required to keep his or her employees informed by means but not limited by conducting the following;

- Awareness campaigns -i.e. posters within work places
- Daily site task Inspections (DSTIs)
- Toolbox talks / Daily briefings
- Meetings
- Company policies / procedures / Employee Wellbeing interaction
- Company newsletters
- Telecommunications – Cell phones Apps / e-mail

## **5.20 Succession Planning**

Key personnel on site should also have competent alternative employees that could perform these functions when needed. Where possible administrative staff should be working from home to limit any opportunistic exposure.

It is particularly important to understand that the availability of certain essential products and material could not always be available and them for proper planning must be in place to ensure that the activities on site are not interrupted.

Proactive planning must be in place to ensure that the following are ordered and available:

- PPE (cloth face masks, face shields, overalls)
- Hand sanitizers with at least 70% alcohol content
- Disinfectants and cleaning materials

## **5.21 Consequences**

When non-compliance activities are noted that activity should be stopped. Should the remedial actions not take place the site will be shut down till the corrective actions have been implemented.

Employees that do not work according to the SSHSS and SSHSP must be disciplined according to the company's disciplinary codes and practices.

Supervisory employees on site must ensure compliance, and when non conformances are noted disciplinary actions should also be followed.

PCs should note that they could be fined and even according to the Disaster Management Act, arrested.



## 6 HEALTH AND SAFETY FILE

The documentation submitted and approved following the awarding of the contract will be used to form the H&S file. The H&S file is required to be laid out in a logical manner, and documentation filed within the file is to be easily accessible.

The following completed information shall be included (but not be limited to) as part of the index:

- The PSHSS;
- The H&S Plan and the approval by Client;
- Appointment by Client;
- Mandatory agreement with Client;
- Permit Application for construction work
- A record of all working drawings, calculations and design where applicable.
- Detailed list of Contractors with contact details, appointments, Mandatories etc., H&S specifications issued;
- Record of Competencies (CVs) and appointments;
- Training Records;
- Permits;
- Method statements;
- Risk assessments;
- Safe work procedures;
- Emergency and injury management;
- Safety data sheets
- Medical surveillance records;
- Covid-19 screening records
- Registers; and
- Records of audits, minutes etc.
- Plant lists
- Temporary electrical installations
- Employee records (who is on site)

## 7 NON-CONFORMANCES

Should, at any time, the works, or part of the works, be stopped due to unsafe acts or non-compliance with the Clients or PCs H&S Plan; neither the PC nor any other Contractor shall have a claim for extension of time or any other compensation.

The following constitute examples of the types of non-conformances that will attract penalties:

<b>Minor: Penalty: R50/count</b>	<b>Medium: Penalty: R500/count and a non-conformance</b>	<b>Severe Penalty: R5000/count, a non-conformance and/or activity stoppage</b>
Non-use of PPE supplied	Toilets not supplied or regularly serviced; lack of drinking water	Contractors working without Health and Safety Plan approval
Non-completion of registers for plant and equipment on site	Contractors not audited	Workers transported in contravention of the OHS plan or legal requirements
Lack of H&S signage at work areas	Working without training or the appropriate, approved H&S method statements	Invalid Letters of Good Standing
Tools and equipment identified in poor condition during inspections	Legal non-conformances identified during the previous audit and not addressed within the agreed time frame	Non-compliance with traffic accommodation requirements: layout or physical conditions
	No monthly OHS report at site meeting to report on	Any serious breach of legal requirements
	No certificates of fitness for workers as required	
	Working without approved method statements	

### 7.1 Failure to Comply with Provisions

Failure or refusal on the part of the PC or their Contractors to take the necessary steps to ensure the safety of workers and the general public in accordance with these specifications or as required by statutory authorities or ordered by the engineer, shall be sufficient cause for the engineer to apply penalties as follows:

- (i) A penalty as shown in the Table above shall be deducted for each and every occurrence of non-compliance with any of the requirements of the PSHSS.
- (ii) In addition, a time-related penalty of R500, 00 per hour over and above the fixed penalty may be deducted for non-compliance to rectify any non-conformance within the allowable time after a site instruction to this effect has been given by the Designer. The site instruction shall state the agreed time, which shall be the time in hours for reinstatement of the defects. Should the Contractor fail to adhere to this instruction, the time-related penalty shall be applied from the time the instruction was given.

## 8 MEASUREMENT AND PAYMENT

The payment items for Occupational Health & Safety are contained in the Bill of Quantities. The same rules are applicable in respect of the pricing of these items as for every other payment item. Attention is drawn to the Pricing Instructions in this document.

### Item and Unit

#### **C.01 Preparation of Contractor's Project Specific Health and Safety Plan. (Lump Sum (L.S))**

The rate for this item must cover all expenses incurred in preparing the Contractor's project specific Health and Safety Plan as required by the Client's project specific Health and Safety Specification in this document

#### **C.02 Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act and Construction Regulations. (Lump Sum (L.S))**

The full amount will be paid in one instalment only when the Client's Agent has verified and approved the following

- (a) The Principal Contractor has notified the Provincial Director of the Department of Labour in writing of the project, Annexure A to the Regulations.
- (b) The Principal Contractor has made the required initial Appointments of Employees and Contractors.
- (c) The Client has approved the Principal Contractor's project Health and Safety Plan.
- (d) The Principal Contractor has set up his Health and Safety File.

#### **C.03 Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations. (Month (Mth))**

The amount shall represent full compensation for that part of the Principal Contractor's general obligations in terms of the Occupational Health and Safety Act and Regulations which are mainly a function of time. Payment will be made when the Client's Agent has verified the Principle Contractor's compliance as part of the audit. This will include the updating and administration of the Health and Safety file.

#### **C.04 Provision of Personal Protective Equipment (PPE) as listed in the Bill of Quantities. (Number (No))**

The rates for these items shall include for the procurement, delivery, storage, distribution and all other actions required for the supply of PPE to the employees of the Principle Contractor, full or part time, requiring them. Sub-Contractors are responsible for their own costs in this regard. Any items of PPE not included on the list will be paid for only after the Engineer has agreed to their acquisition.

Items listed will include, among others which may be noted, are: hard hats, reflective vests, reflective bibs, high visibility overalls, protective foot wear, fall arrestor harness and tethers, gloves, ear muffs, earplugs and dust masks of appropriate type. Normal items such as standard overalls, waterproof clothing, gum boots and standard workshop safety equipment such as welding masks and goggles will not be paid for.

Payment will be based on the issues register for PPE as kept by the Construction Health and Safety Officer, backed up by paid invoices if requested.

**C.05 Provision of part-time or Full Time Construction Health and Safety Officer, Construction Manager, Assistant Manager, Construction Supervisor**

The Tender sum shall include for the cost of a Construction Health and Safety Officer, Construction Manager, Construction Supervisor on a fulltime basis, the amount tendered will be prorated according to the amount of time spent on the project.

**C.06 Costs of Medical Surveillance (Unit (No))**

This item shall cover all costs involved in the obtaining of baseline medical examinations of temporary labour, including operators for mobile plant as contemplated in CR 21(d) (ii); for temporary workers and workers exposed to noises at or above the limits given in the Noise-induced Hearing Loss regulations, as stipulated.

Workers in the permanent employ of the Contractor will only be paid for if their certificates require updating.

**C.06 a)** Initial (baseline) medical examinations, including audiometric and lung function testing.

**C.07 Induction Training (Unit (No))**

This item shall cover all costs incurred for the health and safety inductions as set out on Regulation 7 of the Construction regulations and the proof of induction required. Payment will be made on the figures contained in the induction section of the Health and Safety File.

**C.08 Provision of First Aid Boxes. (Unit (No))**

The rate for this item shall cover all costs incurred in the provision and maintaining of first aid boxes as outlined in Paragraph 7 above.

**C.09 Establishment of noise levels (Unit (No))**

- a) This item shall cover all costs involved in the establishment of noise zones, including any workshops, in terms of Regulation 9 of the Noise-induced Hearing Loss Regulations. Where a zone has previously been established for a particular item of plant within the last two years, the test need not be repeated but must be kept valid for the duration of the Contract.

**C.10 Submission of the Health and Safety File. (Lump Sum)**

Expenditure under this item shall be made in accordance with the general conditions of contract.

This amount will be paid only once the Principal Contractor has met all his obligations in respect of the Occupational Health and Safety Act and the Construction Regulations and has submitted his Health and Safety File complete as envisaged on this specification to the Client's satisfaction. This must be done prior to the issue of a Certificate of Completion

## **ANNEXURE A CLOSE OUT REQUIREMENTS**

The H&S files for the Principal Contractors and all Contractors require closure and handover to the Client at the completion of the project. The following list is an example of what should be included, but is not exhaustive. The OHS Agent or the Client may require further information at the time of completion and the Principal Contractor is to ensure that all instructions are met. Documentation would include all records from the start of the project. Daily or monthly plant inspection records are not required unless they are related to an accident. All records to be in electronic format and submitted to the OHS agent for approval in adequately formatted lists and folders. Layout should be logical and in the same order as in the site files.

**Health and Safety close out file requirements include:**

- a) Client H&S Specification
- b) Principal Contractor's OHS Plan(s)
- c) Principal Contractors Policies
- d) Organograms
- e) Legal Appointments
- f) List of all employees employed on a permanent or contractual basis over the duration of the contract
- g) Permit Application with Department of Labour
- h) Letters of Good Standing for the Project
- i) Full files for all Contractors as well as their close out reports
  - List of Contractors
  - All employees employed on a permanent or contractual basis over the duration of the contract
  - Letters of Approval of Contractors
  - Mandatary Agreements
  - Letters of Good Standing
  - Appointments
- j) Incident Records including covid-19 cases
- k) Non- Conformance records
- l) Agent's Audits
- m) Method Statements
- n) Risk assessments
- o) Safe work procedures
- p) Medical surveillance certificates of fitness. Medical records are to be kept according to the OH&S Act as amended
- q) Covid-19 screening records
- r) All drawings for temporary structures (suspended beams/scaffolds etc.)
- s) All operating manuals for any systems that require on-going maintenance
- t) Copies of test results, policies and procedures for environmental monitoring (silica, noise, dusts etc.)

### **Defect and Liability Period**

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

A copy drawing records for the as-builts are to be placed on file by the Designers once complete.

**ANNEXURE B  
NON-CONFORMANCES**

HEALTH AND SAFETY SITE INSPECTION NON-CONFORMANCE NO		
<b>AGENT:</b>	<b>PROJECT:</b>	
<b>Consultant:</b>	<b>Date and time:</b>	
<b>Client</b>	<b>Area:</b>	
<b>Contractor:</b>		
<b>ASPECTS NOTED:</b>	<b>COMMENTS:</b>	<b>COMPLETION REQUIRED BY (DATE):</b>
	•	
	•	
	•	
	•	
	•	
<b>PHOTOGRAPHIC EVIDENCE (if available):</b>		
<b>OTHER:</b>		
The following penalties are to be applied:		
<b>Signature of Designer</b>		
<b>Signature of CHS Officer/Site Agent</b>		
<b>Signature: of CHS Agent</b>		

# ANNEXURE C:

## CONTRACTORS MONTHLY HEALTH AND SAFETY REPORT

(To be submitted by the end of the first week of each month and be available with each audit)

CONTRACT NUMBER:		PROJECT NAME:	CONTRACT DETAILS:
1	GENERAL ACTIVITIES FOR THE MONTH  (detail each area of work)		
2	NUMBER OF WORKERS (permanent and local, contractors)		
3	TRAINING DONE (supplier, no of people, type)		
4	INCIDENTS / ACCIDENT (list number and details attach reports)		
6	NON-CONFORMANCES (closed out or active)		
7	CONTRACTORS (list, approval status)		
8	AUDITS COMPLETED (internal and external)		
9	CRITICAL ISSUES		
10	GENERAL		

CHS  
Officer  
Site

Signature

Date:

Agent

Signature

Date:

# ANNEXURE D

## BILL OF QUANTITIES FOR HEALTH AND SAFETY

Item	Description	Unit	Quantity	Rate	Total
	Preparation of the Contractor's site-specific Health and Safety Plan including Covid-19 Management	lump sum			
	Principal Contractor's initial obligations in respect of the Occupational Health and Safety Act / Construction Regulations / Disaster Management Act, of 2002	lump sum			
	Principal Contractor's time related obligations in respect of the Occupational Health and Safety Act and Construction Regulations	month			
	<b>Provision of Personal Protective Equipment (PPE)</b>				
(a)	Reflective vests	Item			
(b)	Hard hats	Item			
(c)	Protective foot wear	Item			
(d)	Earplugs	Item			
(e)	Dust masks	Item			
(f)	Gloves	Item			
(h)	High visibility overalls to SARTSM Chapter 13 Level 3	Item			
(i)	Ear Defenders SABS approved	Item			
(j)	Overalls	Item			
(k)	3 layer material Face Masks	Sum			
(l)	Face Shield	Sum			
(m)	Latex gloves	Sum			
(n)	Induction Training for Covid 19	Sum			
(o)	Safety Goggles for Screening person	Sum			
	Provision of a full-time Construction Health and Safety Officer registered with SACPCMP	Monthly			
	Covid-19 Compliance Officer	Monthly			
	Cost of medical certificates and medical surveillance				
(a)	Initial (baseline) medical examinations	prime cost (PC) sum			
(b)					
	Periodic and exit examinations	prime cost (PC) sum			
	Contractor's charges to allow for handling costs and profit in respect of sub items C.06 (a) and (b)	%			



	Screenings for Employees with COVID-19 Symptoms	Sum			
	Induction training including Covid-19	Item			
	Provision of First Aid Boxes to GSR requirements	Item			
	Noise monitoring				
(a)	Establishment of noise zones (plant)	Item			
(b)					
	Audiograms (personnel)	Item			
	Submission of a Health and Safety File	lump sum			
	Infra - red scanner - NON CONTACT	Sum			
	Covid-19 Awareness and warning signage	Sum			
	Covid-19 Waste Disposal of contaminated material	Sum			
	Hand sanitizers 70% Alcohol	Sum			
	Sanitizing spraying chemical	Sum			
	Cleaning detergents for COVID-19	Sum			
	Ablutions and latrine facilities made COVID-19 safe	Sum			
	Transport for Construction Site safety for COVID-19	Sum			
	Isolation area for possibly Covid-19 infected persons	Sum			

## MGOMANZI SPS

### DESIGN BASELINE RISK ASSESSMENT



The base line risk assessment is to highlight hazards emanating from project risks identified. This list of risks is therefore not the replacement of the contractor's risk assessment but rather to point the contractor towards some risks he might not be aware of during tendering stage and while conducting his formal risk assessment.

Risk Rating multiplier: Low = 1; Medium = 2; High = 3

low	med	high
1	4	12
2	6	18
3	8	27

Note, this HIRA is a guide only and does not cover all risks. It must be read in conjunction with the Site Specific OHS Specification in the Contract document. The Contractor must supply a full risk assessment for all activities on site					Baseline risk					Residual risk				
REF where appropriate	OPERATION	HAZARD	Design Risks identified as present	Describe the obvious control measures to be part of design	Likely consequences of an incident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Extra control measures necessary to reduce risk / Redesign by Client and / or Designer	Likely consequences of an accident	Frequency of Exposure	Probability of harm	Risk rating and risk category	Accountability

#### SITE ESTABLISHMENT

CR 24	Existing Services	Electrical	Contact with electrical cable overhead	erect warning signs, inform workers	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	Contractor, Construction Manager, CHSO
			Contact with underground cable	erect warning signs, inform workers	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	
			Use of equipment under HV cable	erect warning signs, inform workers no work under cable without permission and compliance with ESCOM requirements	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	
		Water	Underground pipes	care in excavation	2	2	2	8	Experienced supervision by site staff and P A. Competent Inspection	2	2	1	4	Contractor. Construction Manager. CHSO
		Telephone	Overhead cables	erect warning signs, inform workers	1	3	2	6	Experienced supervision by site staff and P A. Competent Inspection	1	1	1	1	Contractor, Construction Manager, CHSO

**WORKING AT HEIGHTS**

CR 10	Working at Heights	Scaffold not properly erected	Scaffold collapse	calculate load capacity of scaffold. Proper design of scaffold	3	3	3	27	Specification must ensure design is done by competent person. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Scaffold not properly erected	Fall from height	Fall protection Plan by registered fall planner	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
		Scaffold not properly erected	Falling objects	Use of toe boards, proper decking, catch nets	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection. Method statements	3	2	2	12	Contractor, Scaffold Erector, Scaffold inspector
GSR 13A		Use of ladders	Person falling	Ladders conform to General Safety regulation 13a	2	3	3	18	Worker training Experienced supervision by site staff and P A. Competent Inspection. Method statements	2	2	2	8	Contractor, Scaffold Erector, Scaffold inspector

**CONSTRUCTION PLANT AND EQUIPMENT**

CR 23	Use of Construction Plant and Equipment	Struck by vehicle	Injury to persons/Employees / personnel	Vehicle fitted with acoustic warning devices, hooter and reverse warning	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor, Plant manager
		Vehicle overturns	Injury to persons/Employees/ Personnel. Damage to vehicle	proper operation of vehicle	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor, Plant manager
		Untrained operator	Injury to persons. Damage to vehicle	Only employ competent operators	3	3	3	27	Competent supervision and adequate pre-task training will be required. Competent fit operators	3	2	2	12	Contractor, Plant manager. CHSO
		Unsilenced plant	Noise induced hearing loss	Fit or repair silencer	2	3	3	18	Proper supervision, operator training, Establishment of noise zones by AIA. Correct PPE including ear defenders/plugs	2	2	1	4	Contractor, Plant manager. CHSO

**EXPOSURE TO NOISE**

N-IH I Regs	Exposure to Noise	Over 85 Db for long period:When activities are in process	Hearing Loss	Avoid exposure to noise where possible	2	3	3	18	Specification to require establishment of noise zones by AIA. Communication with the station commander to ensure minimum noise during office hours	2	2	2	8	Contractor, Plant manager. CHSO
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**EXPOSURE TO DUST**

	Exposure to Dust	If severe lack of clear vision; Breathing problems. When activities are in process	Loss of Lung Function	Dust prevention	2	3	3	18	Specification to include dust palliative requirements.	2	2	2	8	Contractor, Plant manager. CHSO
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**ENVIRONMENTAL**

Environmental and facilities regs	Weather is a factor to be considered, raised temperatures in summer, with high humidity levels. Very cold weather may be encountered with the possibility of frost. High Wind speeds	Working in wet, extreme hot conditions Temperature range 2 to 40 deg C. Exptreme wind conditions	Possible hypo- or hyper- thermia. low efficiency of workers.	Work stoppage in rain or following rain that would affect the works. Cold weather protective clothing may become necessary. Hot weather may require work stoppage. Adequate supply of drinking water.	3	3	2	18	Use of weather stations to monitor temperature, Work to be assessed should discomfort index reach 100, work may be stopped at 105 if deemed problematic. Adequate water intake. Sheltered areas for rest and eating.	2	3	2	18	Contractor, Construction Manager, CHSO
	Office facilities	working in cramped unventilated or poor lighting conditions	Health issues	Office set-up to be checked for suitability	2	2	2	8	Avoid the use of containers for offices unless properly modified for use as offices	2	1	1	2	Contractor, Construction Manager, CHSO
	Waste Management	Use of temporary toilets	Health Issues	Use of chemical Toilets, at least one per 30 worker's male and female separated	2	2	3	12	No Formaldehyde in chemicals. Serviced and cleaned at least once weekly by competent service providers.	1	2	1	2	Contractor, Construction Manager, CHSO
		Waste disposal	Health and Environmental issues	All waste properly disposed of to certificated rubbish dump	2	2	3	12	No burning of cement bags or other refuse on site. Site to be kept tidy. Removal of all waste at regular intervals by competent service providers.	2	1	1	2	Contractor, Construction Manager, CHSO

**ELECTRICAL TOOLS**

	Use of small electrical tools	Contact with electricity	Electric shock	Certificate of Compliance for electrical supply	3	2	2	12	Ensure all connections secure, no breaks in cable. Proper routing of cables on site	3	2	1	6	Contractor, Construction Manager, CHSO, Electrical Supervisor
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**ACCESS**

	Public access	Persons in dangerous areas. Personnel gaining access to construction area	Injury to person's/employees/ personnel	Separate general public from construction site.Extra care to be taken to ensure the public and personnel do not gain access to the construction activities	3	2	2	12	Spec to require: Access control. Induction for visitors. Security control. Safety Notices. Extra Observation	3	1	1	3	Contractor, Construction Manager, CHSO
	Access control	Personnel, Public and employees may gain access to site	Fall into excavation, injury from plant, tools or at workplace/ construction activities.	Access control to be in place, hoardings erected to separate site from public. Extra hoarding to be in place to ensure the public and personnel are kept out of the construction site.	3	2	2	12	Strict access control, gates locked or manned at all times. Trained security staff on duty. Induction for all visitors.	3	1	1	3	Contractor, Construction Manager, CHSO, Security, Head Master

**CONCRETE WORK**

CR 20	Outsourced supply	delivery by truck	person struck by truck	Reverse warning Driver training	3	2	2	12	Worker training. Experienced supervision	3	1	2	6	Contractor. Batch plant and Concrete Supervisor, CHSO
			person struck by concrete poured into shuttering	proper training and supervision	2	2	2	8	Area cleared of all but essential workers	2	1	2	4	
	Hand mixing	use of small tools	contact with cement	care in opening cement bags	2	2	2	8	Ensure workers fit for work. Proper supervision	2	1	2	4	Contractor. Batch plant and Concrete Supervisor, CHSO
			inhale cement dust	care in opening cement bags	2	2	2	8	Ensure workers fit for work. Proper supervision	2	1	2	4	
			ergonomic risks	Rotate work	2	3	3	18	Ensure workers fit for work. Proper supervision	2	3	1	6	

CR20	Steel fixing	use of small tools	bending; cramped position; injuries from slipping and fixing wire	Care in using tools	2	2	2	8	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	1	2	4	Contractor. Concrete Supervisor, CHSO
		ergonomic risks		Rotate work	2	2	3	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	2	1	4	
	Use of concrete vibrator	injury to persons	noise, vibration, contact with vibrating head, contact with wet concrete	Operator training	2	2	3	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	2	1	4	Contractor. Concrete Supervisor, CHSO

#### BRICK WORK

	Delivery by truck	struck by truck	Injury to persons	Vehicle fitted with acoustic warning devices, hooter and reverse warning	3	3	3	27	Experienced supervision by site staff and P A. Competent Inspection	3	2	2	12	Contractor, Building Supervisor, CHSO
	Moving bricks	use of wheel barrow	Injury to person's ergonomic risks	training of workers. Job rotation	2	2	3	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	2	2	1	4	Contractor, Building Supervisor, CHSO
		Use of Brick lift	Injury to persons	training of workers in use of equipment	3	2	2	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment	3	2	1	6	Contractor, Building Supervisor, CHSO
	Use of support work	Collapse of support work	Injury to persons	training of workers in use of equipment Method statements	3	2	2	12	Experienced supervision by site staff. Competent Inspection. Use of proper equipment proper calculation of loads involved by competent person	3	2	1	6	Contractor, Building Supervisor, CHSO
	Use of access scaffolding and Ladders	working with ladders and low scaffolds	Falls, slips	Fall protection plan. Ladders to GSR13A	3	2	2	12	Training, proper supervision. Ladder inspection	3	1	2	6	Contractor, Building Supervisor,, Scaffolding Inspector CHSO
	Working with glass	glass breaking	Cuts and other injuries	training of workers in use of equipment	3	2	2	12	Experienced supervision by site staff and P A. Competent Inspection	3	2	1	6	Contractor, Building Supervisor,, Scaffolding Inspector CHSO

**PLUMBING**

	Plumbing Contractor	Unregistered, incompetent contractor	poor work, cost overruns, no municipal connection No Certificate of Compliance	Ensure appointment of registered, competent contractor	3	2	3	18	Project specific H&S Specification and HIRA in tender Document	3	2	2	12	Contractor, Construction Manager, CHSO
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**PAINTING**

GSR 13A	Painting	working with ladders and low scaffolds	Falls, slips	Fall protection plan. Ladders to GSR13A	3	2	2	12	Training, proper supervision. Ladder inspection	3	1	2	6	Contractor, Construction Manager, Ladder Inspector, CHSO
		Ingestion of Paint	Gastric irritation, nausea	Training; clean site	2	2	2	8	Tool box talks, proper supervision	1	2	2	4	Contractor, Painting Supervisor, CHSO
		Cleaning Brushes	Use of thinners, benzene, possible carcinogens; highly flammable	Supply SDS Use alternative brush cleaner Keep away from open flames	2	2	2	8	Use of Turpentine, Proper supervision Training	1	2	2	4	Contractor, Painting Supervisor, CHSO

**ELECTRICAL INSTALLATION (see also Electrical installation regulations)**

	Electrical Contractor	Unregistered, incompetent contractor	poor work, cost overruns, no municipal connection	Ensure appointment of registered, competent contractor	3	2	3	18	Project specific H&S Specification and HIRA in tender Document	1	2	2	4	Contractor, Construction Manager, CHSO, Electrical Supervisor
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**CARPENTRY**

	Carpentry	Use of Tile Cutter and grinder	Injury to worker	Ensure operator competent	2	2	2	8	Ensure Correct PPE, toolbox talks proper supervision	2	1	2	4	Contractor, Construction Manager, CHSO HCS supervisor, SMME Contractor(if employed)
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**HAZARDOUS CHEMICALS (see also Hazardous Chemical Regulations)**

HCS Regulations	Use/supply of hazardous Chemicals	improper use/storage of hazardous Chemicals	Fire, explosion poisoning of persons	Supply appropriate materials safety data information	3	2	3	18	component person appointed to check stores. Proper storage. Provision of fire extinguishers. Emergency plan.	3	1	2	6	Contractor, Construction Manager, CHSO HCS supervisor, SMME Contractor(if employed)
	Plastering	Cement Mortar	Used across the project for a range of tasks,	Avoid contact with cement. Supply SDS	3	3	2	18	Dust control, PPE (eye and respiratory) Use of distributor when stabilizing road. Rotation of workers	2	3	1	6	
	Tiling	Tile grouts and Adhesives	contact with materials	Avoid contact with grouts and Adhesives. Supply SDS	2	2	2	8	Proper PPE. Worker training	2	1	2	4	
	Carpentry	Wood glue & Varnish	Health Risk to Workers	Avoid over exposure	2	2	2	8	Ensure proper ventilation	2	1	2	4	

**ERGONOMICS**

	Plastering, Tiling, Carpentry	ergonomic risks	working in confined areas, bending,	rotate work	2	2	2	8	proper supervision, competent trained workers	2	1	2	4	Contractor, Construction Manager, CHSO HCS supervisor, SMME Contractor(if employed)
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**EXCAVATIONS**

CR13	Excavations	Plant & Manual	Injury or death to employees, Public and personnel	Proper training of operator: Medicals, machine in good working order	3	2	3	18	Excavation barricaded/shored as required. Proper supervision	3	2	2	12	Contractor, Construction Manager, CHSO, Excavation Supervisor
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**BULK EARTH WORKS**

	Bulk Earthworks	Unauthorized entry	Injury/death of employees	Ensure that bulk earthwork area is out of bounds to unauthorized persons. PPE to be worn by all employees	3	3	3	27	Method statements/ Risk Assessments/Safe Work procedures must be adhered to. Control measures must be in place for all	3	2	2	12	Contractor, Construction Manager, CHSO, Earthworks Supervisor
		Unsafe working conditions	Injury/death of employees	All operators & employees to be inducted.	3	2	3	18	Daily checklists and Tool Box Talks must be done	3	2	2	12	
		Unsafe equipment	Property/equipment damage	Operating manual should be adhered to. Operators to be aware at all times	3	2	3	18	Daily checks list/ Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	3	2	2	12	

**LIFTING EQUIPMENT**

CR22	Lifting Equipment	Uneven ground, loose soft soil, overhead power lines or other obstructions	Machine could tilt or become bogged down and causing a dangerous situation. Resulting in injury/property damage/Death	Correct inspection and evaluation of the working area. Ensure working area is clean and that the machine will be stable	3	3	3	27	Correct inspection and evaluation of the working areaEnsure working area is clean and that the machine will be stable.	3	2	2	12	Contractor, Construction Manager, CHSO, Lifting Operator, Lifting Inspector
		Checking out the machine to ensure that all is in good working order	Controls not functioning correctly, oil leaks. Machine failure causing damage and injury to employees	All operators & employees to be inducted.	3	2	3	18	Daily checklists and Tool Box Talks must be done	3	2	2	12	
		Correct positioning of equipment ensuring it is level before carrying out the lift	Machine could tip over in one particular direction. Property/equipment damage/employee injury	Ensure that the machine is correctly positioned and will not be over extended in any particular direction of operation. Barricade the area to prevent unauthorised entry.	3	2	3	18	Ensure competent operators to position machine correctly to ensure maximum usage at any one lift / Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	3	2	2	12	



DEMOLISHING

CR14	Demolishing	Breakdown structure	Break wall from top to bottom. Injury to all body parts can occur	Ensure to break structure from top to bottom. Employees to be trained.	3	3	3	27	Regular inspection and evaluation of the working area prior to work. Employees to be trained and regular tool box talks to be conducted.	3	2	2	12	Contractor, Construction Manager, CHSO
		Dust	Inhaling of dust causing sinus	All employees to be inducted correct PPE to be worn: Dust Masks.	3	2	3	18	Correct PPE, Daily checklists and Tool Box Talks must be done. Communication with the station commander to ensure minimum dust exposure during office hours	3	2	2	12	
		Working Area	Loose bricks laying around, Workers can fall over bricks - Injuries to all body part can occur	Ensure proper housekeeping is maintained at all times. Work area to be kept clear of loose materials	3	2	3	18	Ensure competent operators to position machine correctly to ensure maximum usage or any one lift / Method statements/ Risk Assessments/Safe Work Procedures Tool Box Talks	3	2	2	12	

**COVID-19 MANAGEMENT**

National Disaster Management Act	Covid-Management	Demographics of Labour	Vulnerability due to age, underlying auto-immune or chronic diseases, socio-economic status, having to use public transport to get to work	Ensure Covid-19 protocols are followed	3	3	3	27	The medical surveillance policy and method statement to be adhered to. A full questionnaire to be completed prior to return, or on return, and those identified as high risk must be separated and possibly refused entry until deemed negative. Daily temperature on entry to site; Induction, DSTIs and toolbox talks to be done daily on topics relating to covid, personal hygiene and PPE. Strict enforcement for use of PPE Job substitution if possible for those who are affected. Must include catering and cleaning facilities.	3	3	2	18
		Origin of Labour	Transportation of employees/workers across borders and between towns and cities, districts and municipalities	Ensure Covid-19 protocols are followed	3	3	3	27	Selection and provision of transport services compliant with gazetted requirements; Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, ongoing toolbox talks and if possible supply of cloth masks to be worn when travelling. Limitation of border crossing unless specialised contractors	3	3	2	18
		Transportation	Maximum allowed capacity exceeded; No facilities for sanitising vehicles and passengers; No additional protective measures available, e.g. face masks; Unlicensed drivers and operators	Ensure Covid-19 protocols are followed	3	3	3	27	services compliant with gazetted requirements; Policy and procedures and rules for travel, where possible to limit the use of public transport, or to arrange selective methods of transport, ongoing toolbox talks and supply of cloth masks to be worn when travelling or moving on and off site. Vehicles maintained at 70% capacity or less; Vehicles sanitised between trips; hand sanitiser provided for passengers.	2	3	2	12

National Disaster Management Act	Covid-Management	Social Distancing	Many construction tasks require more than 1 worker; that will be required to work within the limit of 2m Access/Egress to and off site; Welfare facilities, Meeting areas	Ensure Covid-19 protocols are followed	2	3	3	18	Policy and method statements for the provision of suitable and sufficient PPE;demarcation and spacing of queueing areas; segregation of queueing areas and public outside site perimeters; Meeting/eating areas large enough to maintain 2m distance at maximum occupancy, use of drones, security cameras to limit the need to spend time on site. Only essential workers to spend time on site,Staggered meeting/eating times, use of Zoom, Skype, teams for meetings where necessary. Individual, segregated facilities for safe keeping; Induction training and a programme for information and training.	2	3	2	12	Contractor, Construction Manager, CHSO,Covid Compliance Officer
		Alcohol and Substance Abuse	Workers , visitors arriving at site under the influence of substances	Ensure Covid-19 protocols are followed	3	3	2	18	Policy and method statement for substance abuse to be reviewed, management of visitors, workers under the influence of alcohol or other substances. No breathalysers unless individual testing units used, and appropriate disposal in hazardous waste.	2	3	2	12	
		Waste Management	Spreading of virus and contact with virus causing infection from handwashing, drying hands, cleaning equipment and other related aspects	Ensure Covid-19 protocols are followed	3	3	2	18	Prepare a policy, method statements, HIRA and and review by PA. Establish and follow protocols for disposal of hazarous waste (containers). Awareness through notices (posters) regarding correct procedures and classification of waste. Competent supervision and adequate awareness training required. Provide adequate supplies of material and consumables, provision of sealable disposal containers/bags through appropriate waste removal company. Establish and follow protocols for disposal of hazarous waste. Provide adequate supply of paper towels. If contractors used ensure appropriate management.	2	3	1	6	
		Signage	Provision of sealable disposal containers/bags. Unintentional entry to site and work areas compromising workers being contaminated. Acts and behavior that compromises workers	Ensure sufficient and where required	2	3	3	18	A policy and method statement to be prepared, and reviewed by the PA. Installation of posters and signage with the site rules and and protoclos that needs to be maintained at strategic points, Awareness through notices and posters regarding correct protocols to be maintained, Competent supervision and adequate awareness training required. Discipline to be applied to	2	3	1	6	

National Disaster Management Act	Covid-Management	Security Access	Workers, visitors, site administration arriving on site via personal and public transportation	Ensure all accessing the site have sanitized, are screened	3	3	3	27	Policy and method statements to be revised and reviewed by the PA. All persons entering site to sanitize hands, prior to entry to site. Access controller trained on correct procedure to utilize no-contact hand-held thermometer. Back-up access controllers trained on same procedure. All persons entering site tested by trained access controller. Periodic alcohol testing will continue however only when warranted through suspicion.	3	3	2	18	Contractor, Construction Manager, CHSO, Covid Compliance Officer
		Welfare Facilities	Spreading of virus and contact with virus causing infection	Ensure social distancing, sanitizing	3	3	3	27	Updating of policy, method statements and HIRA, limiting of personnel on site to minimum number required to maintain control and management. Implement and maintain cleaning and disinfecting programme. Site rules for social distancing to 1.5m. Stagger number of people attending induction and training sessions. Use technology to avoid close proximity between individuals where possible	1	3	2	6	
		Emergency Planning	Assembly points may have more than 50 people, limited space for social distancing when practice or actual sessions	Ensure all on site have been trained and are supervised by competent persons	2	3	1	6	Review emergency plan and method statements. DSTIs and toolbox talks. Competent supervision to be trained in the emergency arrangements. Updating of the emergency plan communicated to all personnel. Emergency Number List updated to include National Institute of Communicable Diseases (NICD) Emergency Hotline – 0800 029 999 and dedicated Isolation Hospital Details	1	3	1	3	
		Protection Personal Equipment	Spread of droplet infection through coughing, sneezing when in close contact	Adequate training must be provided in the correct use and disposable of these masks, Adequate training must be provided in the correct use and disposable of these masks	3	3	3	27	Update the policy, method statements and HIRA for PPE. No employee and or visitor will be allowed on site without a face mask. N95 masks only for medical or high risk workers. Adequate training must be provided in the correct use and disposable of these masks. Cloth masks must be washed and ironed daily. Face shields protect mouth, nose and eyes. Daily cleaning of face shields. Adequate training must be provided in the correct use and disposable of these masks. Adequate supervision, inclusion induction, policy, method statements and HIRAs. Covid PPE does not replace conventional PPE	2	3	2	12	

National Disaster Management Act	Covid-Management	OCCUPATIONAL HEALTH: Medical certificates of fitness	Workers symptom free but infected with Covid-19, older workers of 60+, workers with underlying auto-immune or chronic diseases	Ensure all workers are screened prior to entering the site and are fit for duty	3	3	3	27	Policy and method statement to be available relating to medical surveillance. For review by the PA. All workers are to be screened and have a valid certificate of fitness on return to work. A full questionnaire to be completed prior to return, or on return, and those identified as high risk must be separated and possibly refused entry until deemed negative. Methodology to remove staff from site safely to a test facility.	2	3	2	12	Contractor, Construction Manager, CHSO, Covid Compliance Officer
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## **ADDENDUM C**

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### **Environmental Management Plan**

TO BE PROVIDED BY THE SUCCESSFUL TENDERER

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# ADDENDUM I

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## Drawings

Please note that in some sections of the Bills of Quantities, reference has been made to drawings. Copies of the following drawings are attached for reference purposes –

### **ROOF CONSTRUCTION PLANS / FLOOR PLANS**

- 100A/1 (PR01) Administration
- 100B/3 (PR02) Dining and Nutrition Block
- 100C/2 (PR02) Science Block
- 100D/3 (PR02) Three Classrooms
- 100E/4 (PR02) Two Classrooms
- 100F/2 (PR02) Multi-Purpose Classroom
- 100G/3 (PR05) Media Centre
- 100H/3 (PR02) Two Classrooms and HOD
- 100I/2 (PR02) Staff Toilets
- 100J/2 (PR02) Girls and Boys Pit Toilets
- 100K/3 (PR01) Grade R Classrooms
- 100L/2 (PR02) Grade R Ablutions
- 100M/2 (PR02) Guard House

### **JOINERY FITTING DETAILS**

- A500 (PR01) Admin Block Joinery Details
- A501 (PR01) “ “ “
- 500B (PR02) Dining and Nutrition Joinery Details
- 501B (PR01) Gas Storage Details
- 500C (PR02) Science Block Joinery Details

**Contract**

**BID No: DoEEC/06/2021**

**Addendum J**

501C (PR02) Science Block Joinery & Gas Bottle Details

500F (PR00) Multi-Purpose Classroom Joinery Details

500G (PR01) Media Centre Joinery

501G (PR01) “ “ “

500K (PR02) Grade R Classroom Joinery

501K (PR01) “ “ “

### **EXTERNAL WORKS**

508 (PR00) Jungle Gym Layouts

506 (PR00) Details

E561-501 Water Pump Enclosure

K704-002 Water and Sewer Reticulation

Site Development Plan





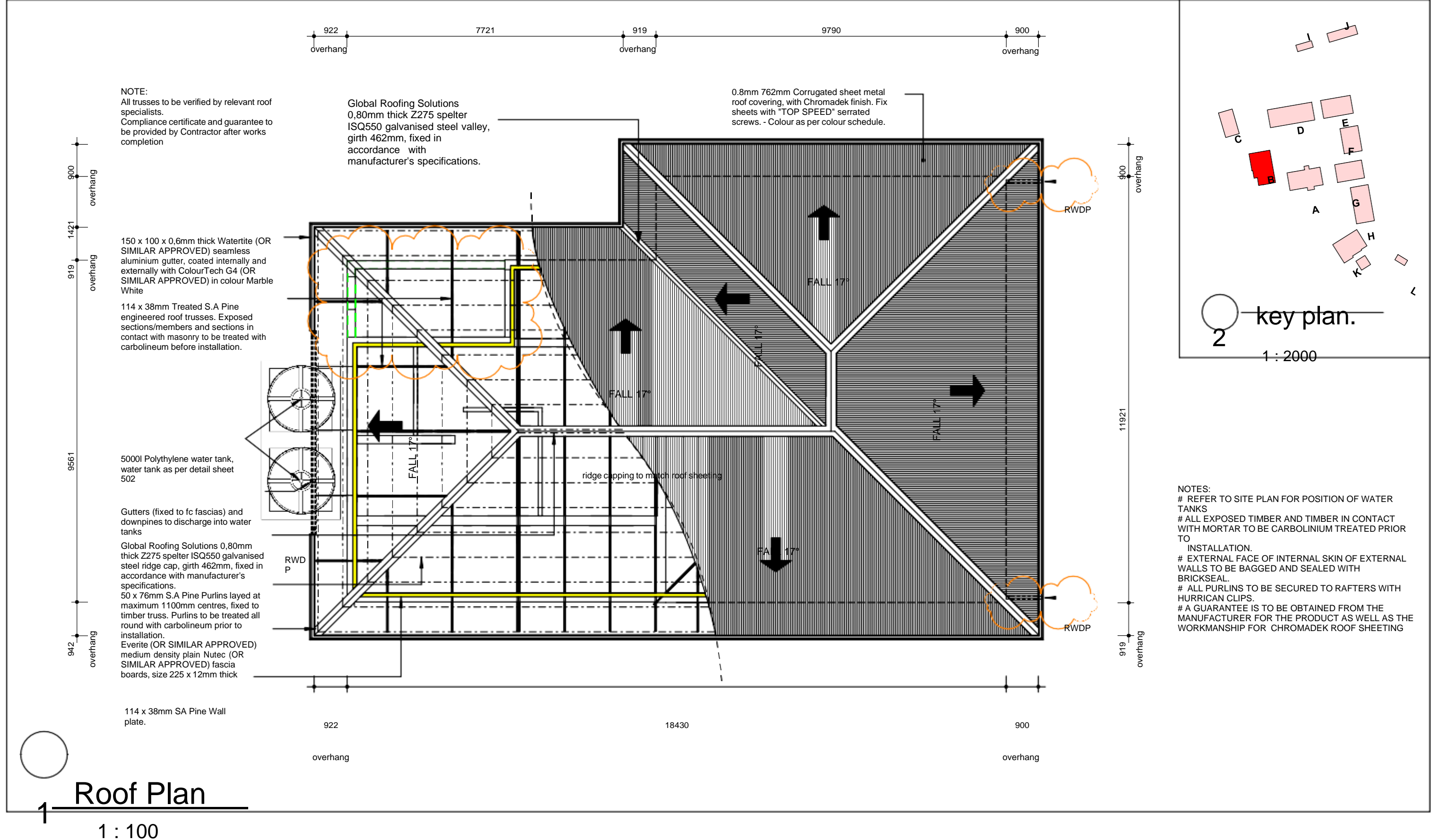




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NOTE:

APPROVED	SIGNATURE	DATE	REVISION						PROJECT  MGOMANZI PRIMARY SCHOOL	DRAWING TITLE  Block C - Roof Plan	
			REV.	DATE	DESCRIPTION						
			PR01	20/07/17	Added Key plan						
							SCALE	ARCHITECT W.K.M. BUSS		DRAWING NUMBER 100C/2	
							DATE 03/10/17	DRAWN M.VETNER			
Department of Public Works										REV. PR02	



					PR02	23/11/17	- Moved Rainwater downpipes		SCALE	ARCHITECT C.HEPBURN	Block B_Roof Plan	
							- Showing Rainwater pipes and wall		DATE 03/10/17	DRAWN M.VETNER		
		Department of					on ceiling plan				DRAWING NUMBER	REV.
		Public Works									100B/3	PR02

NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White

114 x 38mm Treated S.A Pine engineered hip roof trusses.  
Exposed sections/members and sections in contact with masonry to be treated with carbolineum before installation.

Gutters (fixed to fc fascias) and downpipes to discharge into water tanks

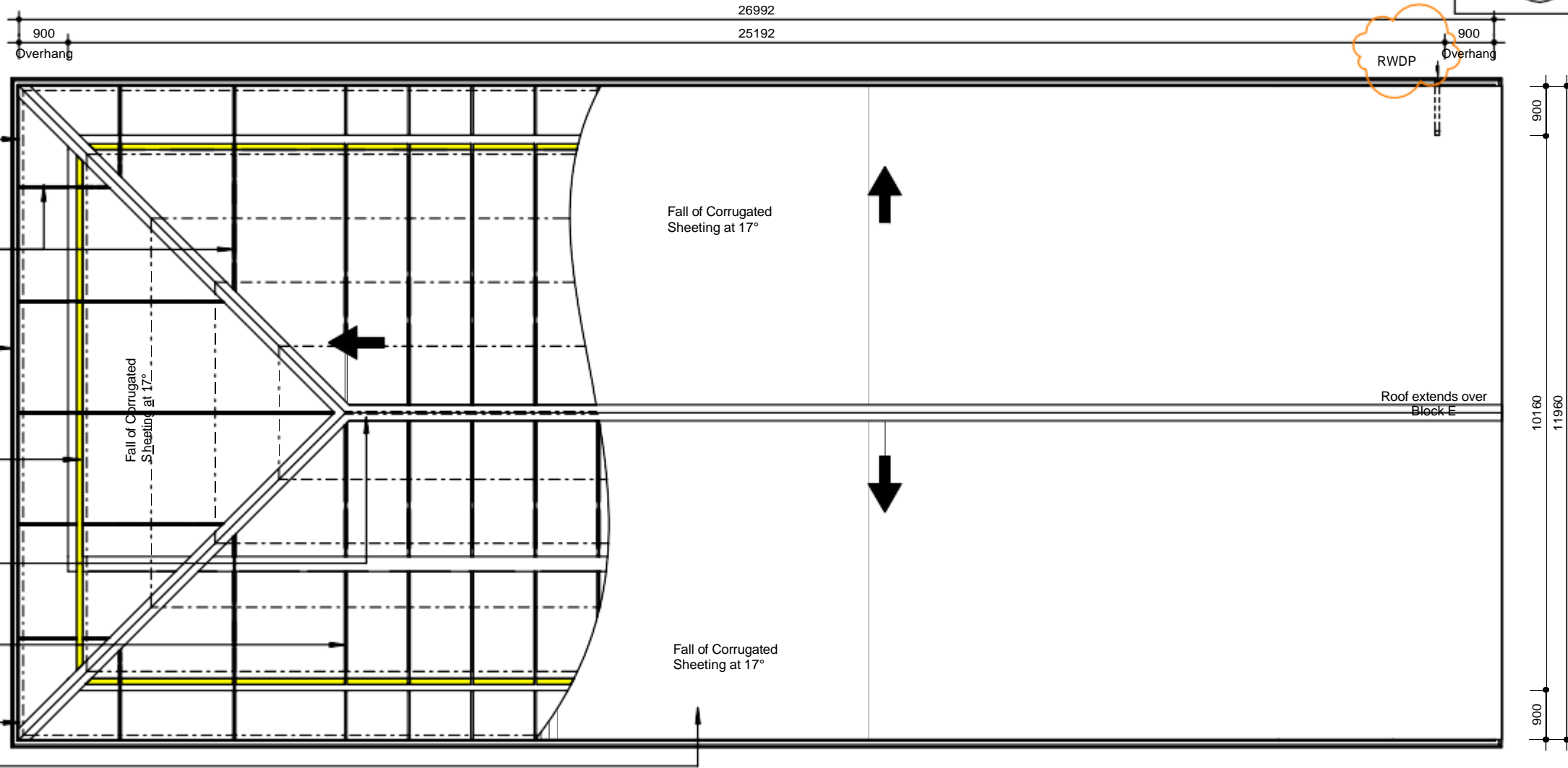
114 x 38mm SA Pine timber wallplate.

Global Roofing Solutions 0,80mm thick Z275 spelter ISQ550 galvanised steel ridge cap, girth 462mm, fixed in accordance with manufacturer's specifications.

50 x 76mm S.A Pine Purlins layed at maximum 1100mm centres, fixed to timber truss. Purlins to be treated all round with carbolineum prior to installation.

Everite (OR SIMILAR APPROVED) medium density plain Nutek (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick

0,8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.



2  
1 : 3000

## Roof Plan

1 : 100

### NOTES:

- # REFER TO SITE PLAN FOR POSITION OF WATER TANKS
- # ALL EXPOSED TIMBER AND TIMBER IN CONTACT WITH MORTAR TO BE CARBOLINIUM TREATED PRIOR TO INSTALLATION.
- # EXTERNAL FACE OF INTERNAL SKIN OF EXTERNAL WALLS TO BE BAGGED AND SEALED WITH BRICKSEAL.
- # ALL PURLINS TO BE SECURED TO RAFTERS WITH HURRICAN CLIPS.
- # A GUARANTEE IS TO BE OBTAINED FROM THE MANUFACTURER FOR THE PRODUCT AS WELL AS THE WORKMANSHIP FOR CHROMADEK ROOF SHEETING



### NOTE:

APPROVED

SIGNATURE

DATE

### REVISION

REV.	DATE	DESCRIPTION
PR01	09/08/17	Changed roof plan - hip to one side changed to gable
		key plan added
PR02	23/11/17	Inserted Rain water pipe

SCALE

ARCHITECT  
W.K.M.BUSS

### PROJECT

MGOMANZI PRIMARY  
SCHOOL

### DRAWING TITLE

BLOCK D ROOF PLAN

		Department of					DATE	DRAWN		DRAWING NUMBER	REV.
		Public Works					24/11/17	W.K.M.BUSS		100 D/3	PR02



NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White

114 x 38mm Treated S.A Pine engineered hip roof trusses. Exposed sections/members and sections in contact with masonry to be treated with carbolineum before installation.

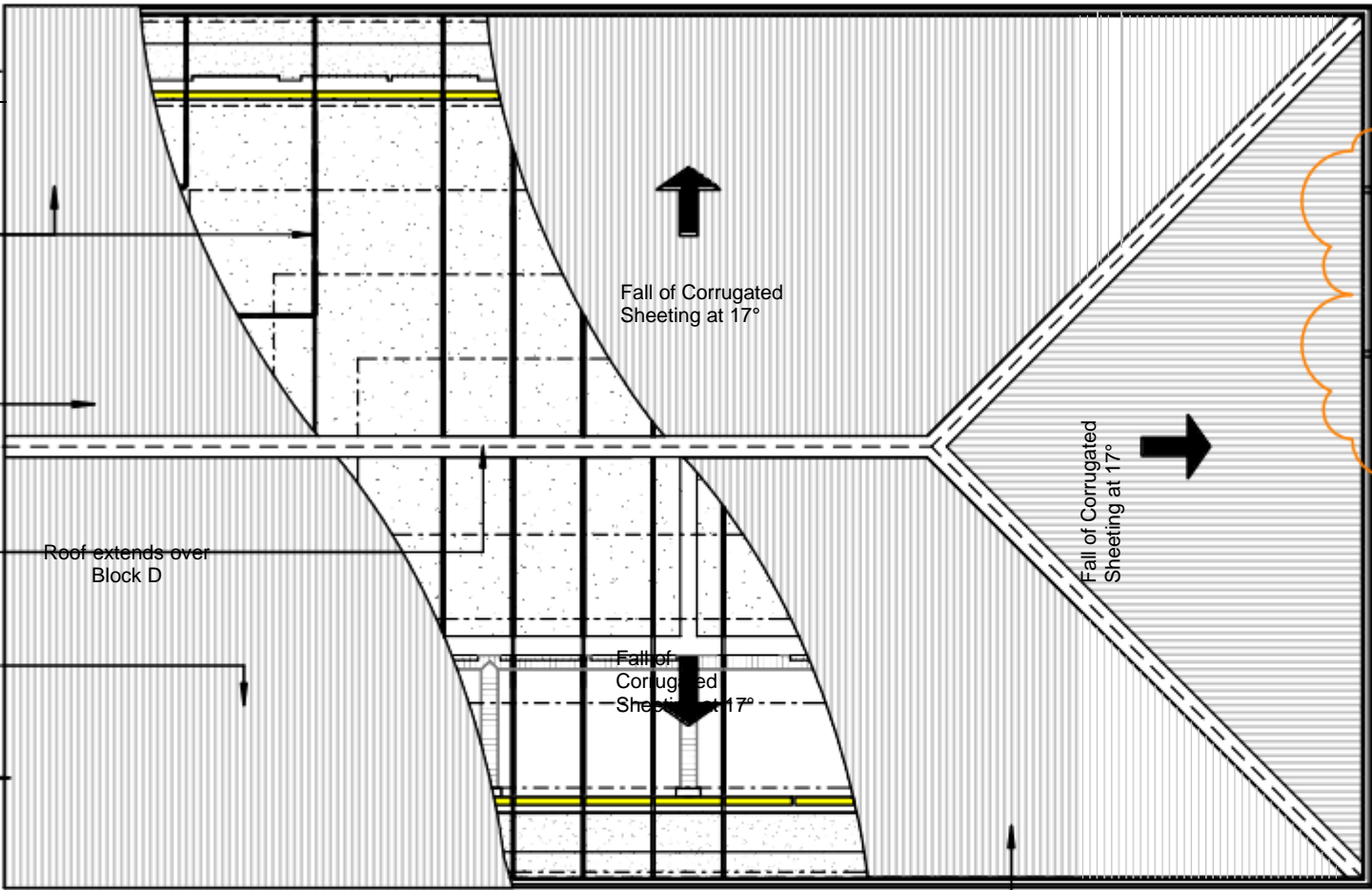
114 x 38mm SA Pine timber wallplate.

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Everite (OR SIMILAR APPROVED) medium density plain Nutec (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick

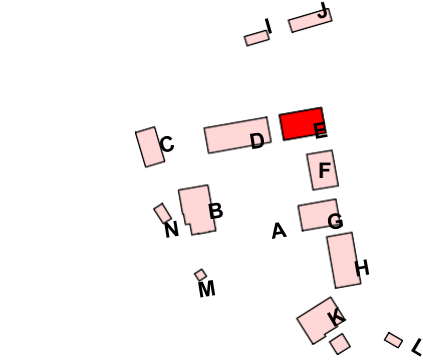
0.8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.



5000l Polyethylene water tank secured as per detail sheet 502



Gutters (fixed to fc fascias) and downpipes to discharge into water tanks



1 keyplan.  
1 : 3000

- NOTES:
- # REFER TO SITE PLAN FOR POSITION OF WATER TANKS
  - # ALL EXPOSED TIMBER AND TIMBER IN CONTACT WITH MORTAR TO BE CARBOLINIUM TREATED PRIOR TO INSTALLATION.
  - # EXTERNAL FACE OF INTERNAL SKIN OF EXTERNAL WALLS TO BE BAGGED AND SEALED WITH BRICKSEAL.
  - # ALL PURLINS TO BE SECURED TO RAFTERS WITH HURRICAN CLIPS.
  - # A GUARANTEE IS TO BE OBTAINED FROM THE MANUFACTURER FOR THE PRODUCT AS WELL AS THE WORKMANSHIP FOR CHROMADEK ROOF SHEETING

# Roof Plan

1 : 100



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NOTE:	APPROVED	SIGNATURE	DATE	REVISION			PROJECT MGOMANZI PRIMARY SCHOOL	DRAWING TITLE Mgomanzi SPS - 0455
				REV.	DATE	DESCRIPTION		
	Approver			PR01	09/08/17	Changed roof plan		

						added key plan	SCALE	ARCHITECT W.K.M.BUSS	BLOCK E ROOF PLAN	
					PR02	23/11/17	Showed Rain water pipe			
		Department of Public Works					DATE 24/11/17	DRAWN M.VETNER	DRAWING NUMBER 100E/4	REV. <b>PR02</b>

NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White

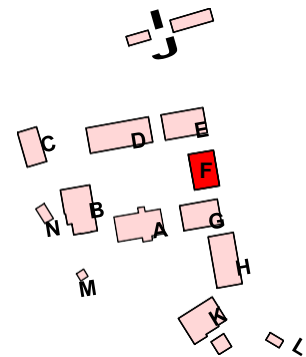
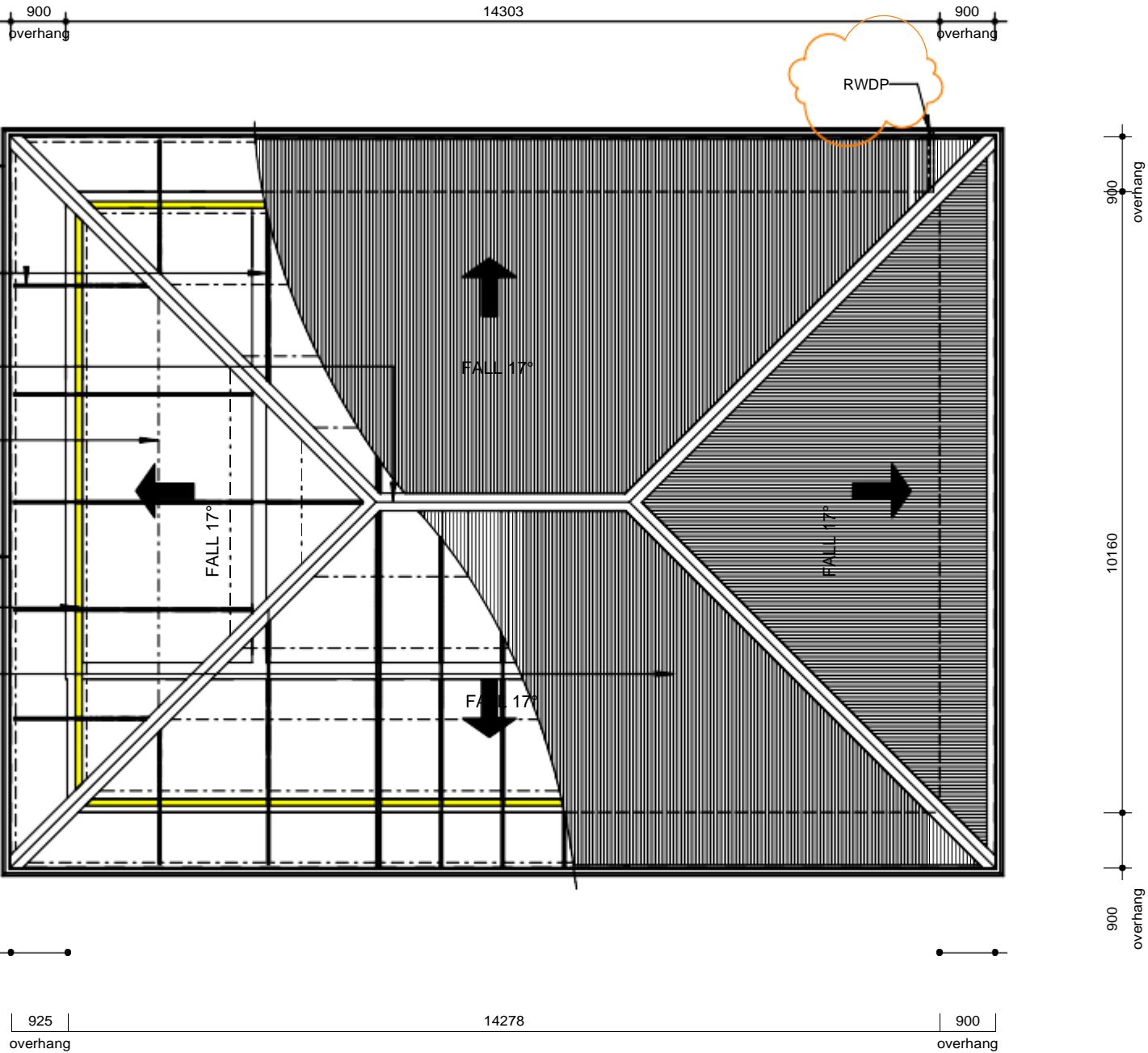
114 x 38mm Treated S.A Pine engineered hip roof trusses.  
Exposed sections/members and sections in contact with masonry to be treated with carbolineum before installation.  
Global Roofing Solutions 0,80mm thick Z275 spelter ISQ550 galvanised steel ridge cap, girth 462mm, fixed in accordance with manufacturer's specifications.

50 x 76mm S.A Pine Purlins layed at maximum 1100mm centres, fixed to timber truss. Purlins to be treated all round with carbolineum prior to installation.

Everite (OR SIMILAR APPROVED) medium density plain Nutek (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick

114 x 38mm SA Pine Wall plate.

0.8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.



keyplan  
1 : 3000

2 Roof Plan  
1 : 100



NOTE:

APPROVED

SIGNATURE

DATE

REVISION

REV.

DATE

DESCRIPTION

PR01

20/07/17

Added Key plan

PR02

23/11/2017

Showed Rainwater pipe on floor and ceiling plans

SCALE

ARCHITECT  
W.K.M.BUSS

PROJECT

MGOMANZI PRIMARY  
SCHOOL

DRAWING TITLE

BLOCK F ROOF PLAN

		Department of					DATE	DRAWN		DRAWING NUMBER	REV.
		Public Works					24/11/17	M.VETNER		100 F/2	PR02

2Roof Plan1 : 100

NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

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Gutters (fixed to fc fascias) and downpipes to discharge into water tanks

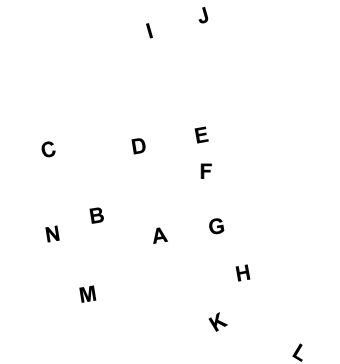
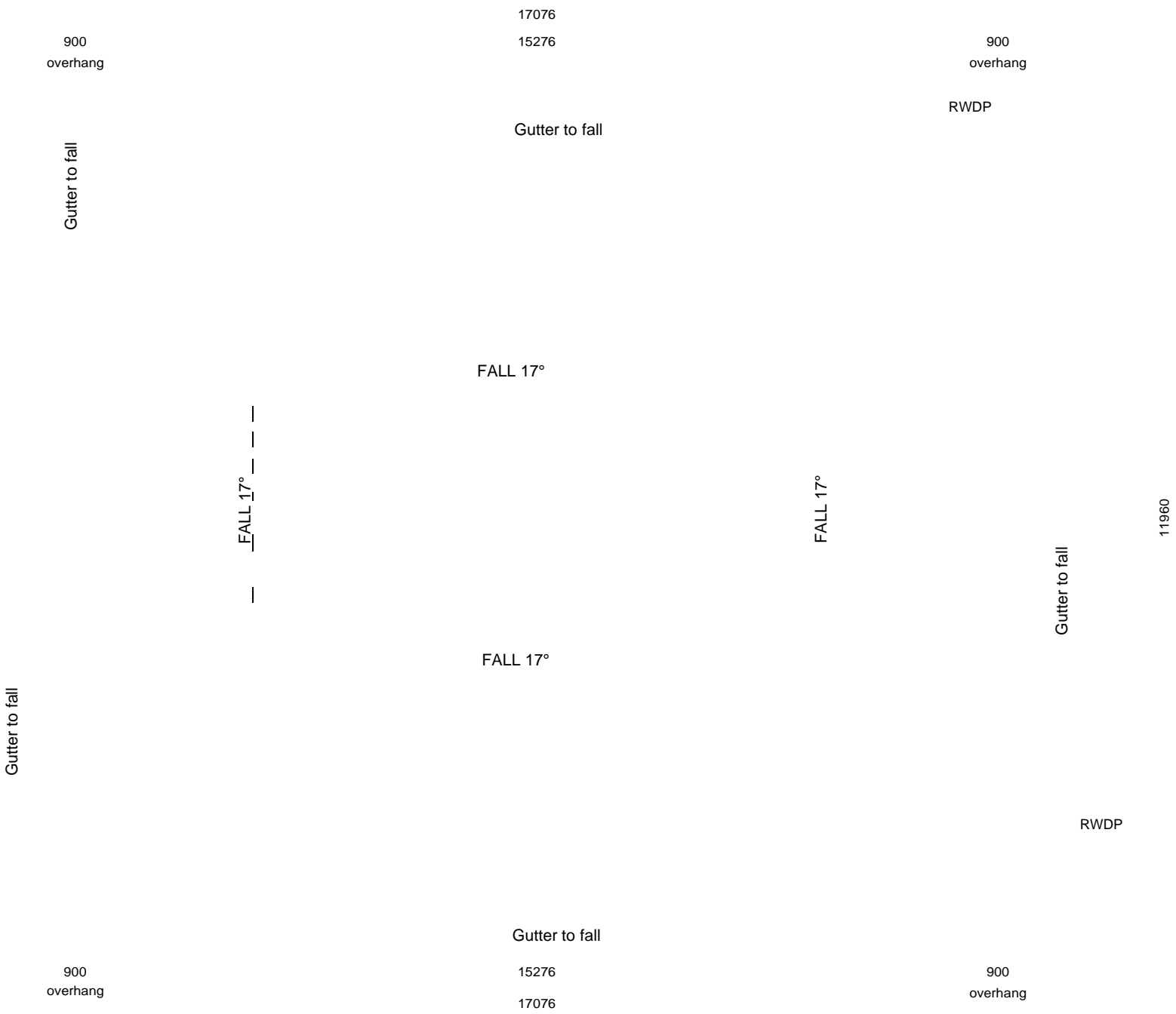
5000l Polyethylene water tank secured to detail on dwg 502

Global Roofing Solutions 0,80mm thick Z275 spelter ISQ550 galvanised steel ridge cap, girth 462mm, fixed in accordance with manufacturer's specifications.  
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0.8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.



1key plan1 : 3000

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NOTE:

APPROVED

Approver

SIGNATURE

DATE

REVISION

REV.	DATE	DESCRIPTION
PR01	20/07/2016	External walls updated to cavity walls
PR02	09/06/2017	Changes to floor finishes Mesh added between purlins & roof trusses on

SCALE

ARCHITECT  
W.K.M.BUSS

PROJECT

MGOMANZI PRIMARY  
SCHOOL

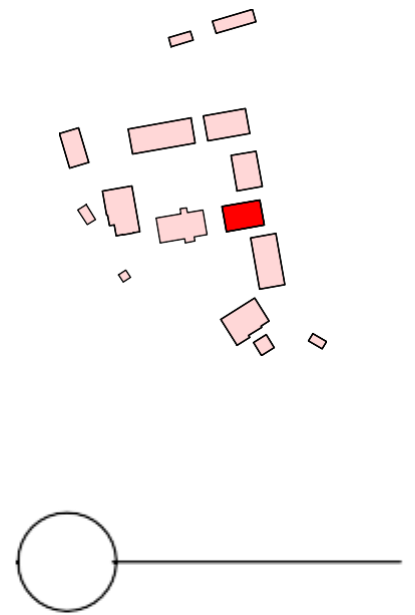
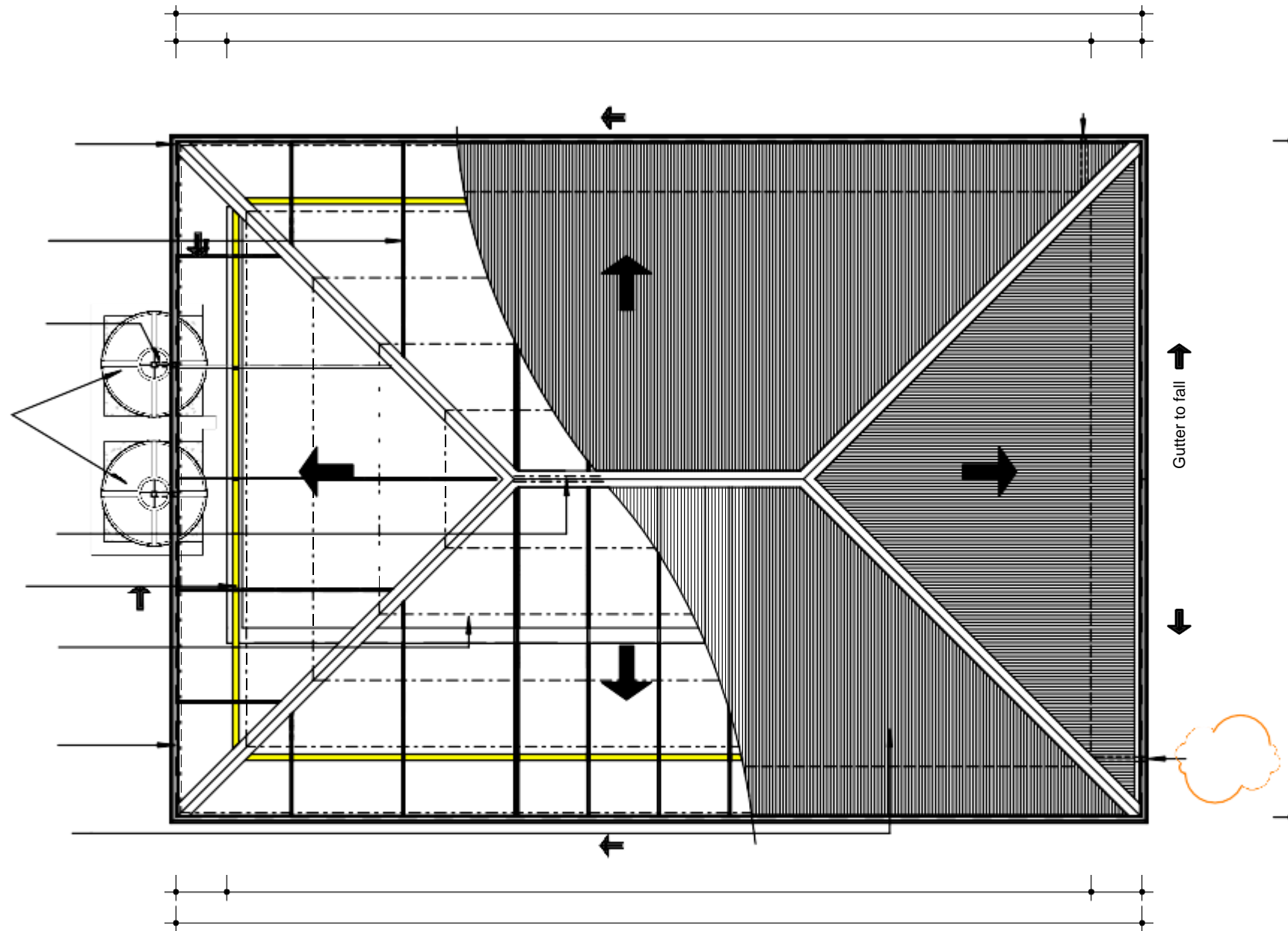
DRAWING TITLE

BLOCK G ROOF PLAN

Mgomanzi SPS - 0457

PR03	11/07/2017	specialist classroom blocks. RC slab over specialist classroom stores.
PR04	20/07/17	Changed Vinyl Tiles to Vinyl sheeting Added Key plan
PR05	23/11/17	Edited rainwater pipe

DRAWN  
M.VETNER

EV.  
R05



[illegible]


[illegible]


[illegible]

NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White

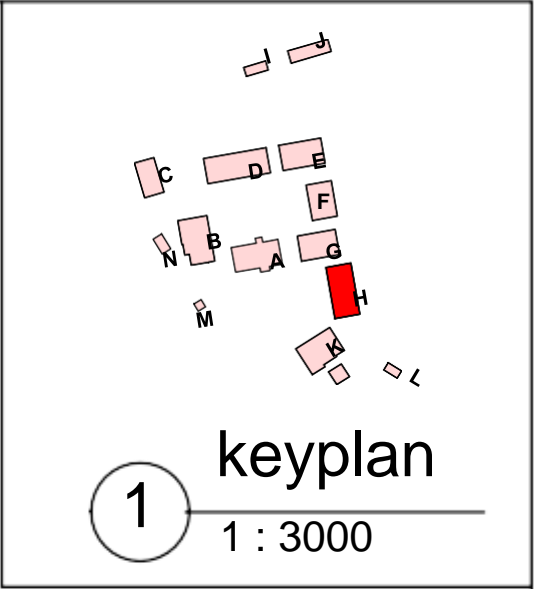
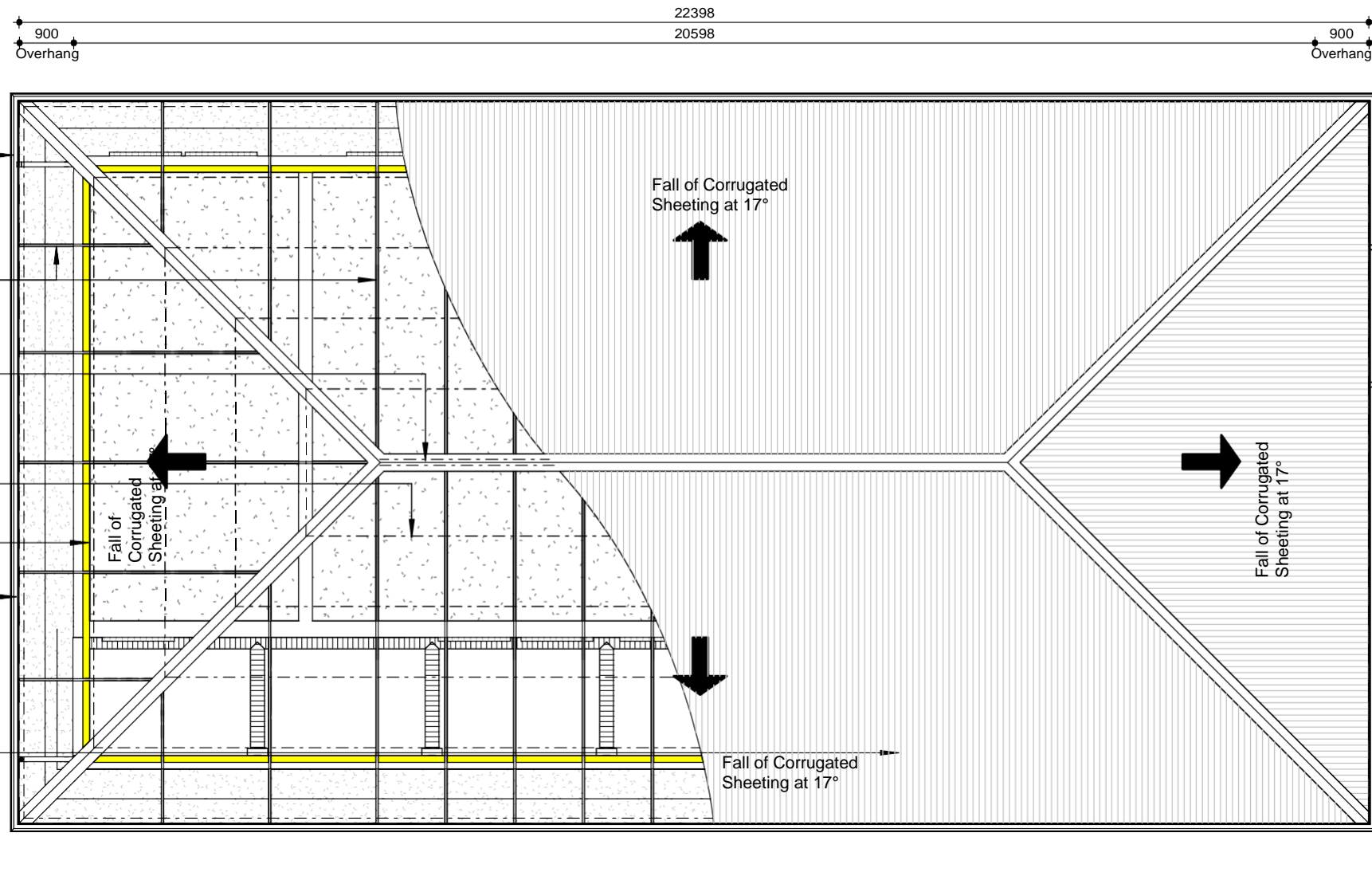
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114 x 38mm SA Pine Wall plate.

Everite (OR SIMILAR APPROVED) medium density plain Nutec (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick

0.8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.



2 Roof Plan  
1 : 100



NOTE:

APPROVED	SIGNATURE	DATE	REVISION		
			REV.	DATE	DESCRIPTION
Approver			PR01	09/06/2017	Changes to floor finishes
			PR02	20/07/2017	Changed Vinyl tiles to Vinyl sheeting
					Added Key plan

SCALE

ARCHITECT  
W.K.M.BUSS

PROJECT

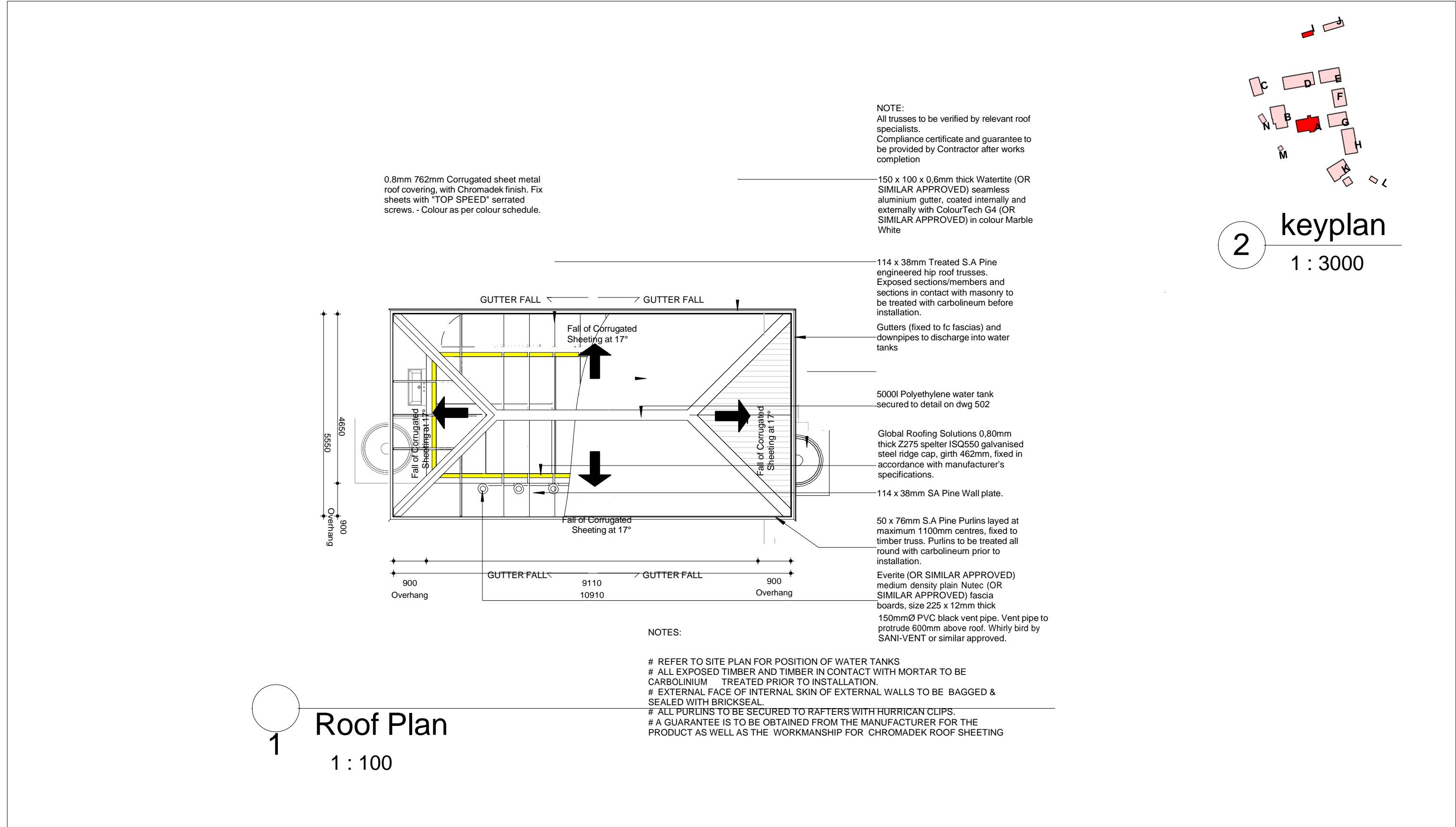
MGOMANZI PRIMARY  
SCHOOL

DRAWING TITLE

BLOCK H ROOF PLAN

		Department of				DATE	DRAWN		DRAWING NUMBER	REV.
		Public Works				24/11/17	M.VETNER		100H/3	PR02

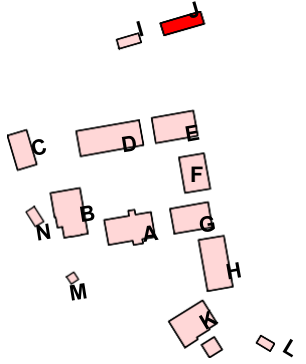
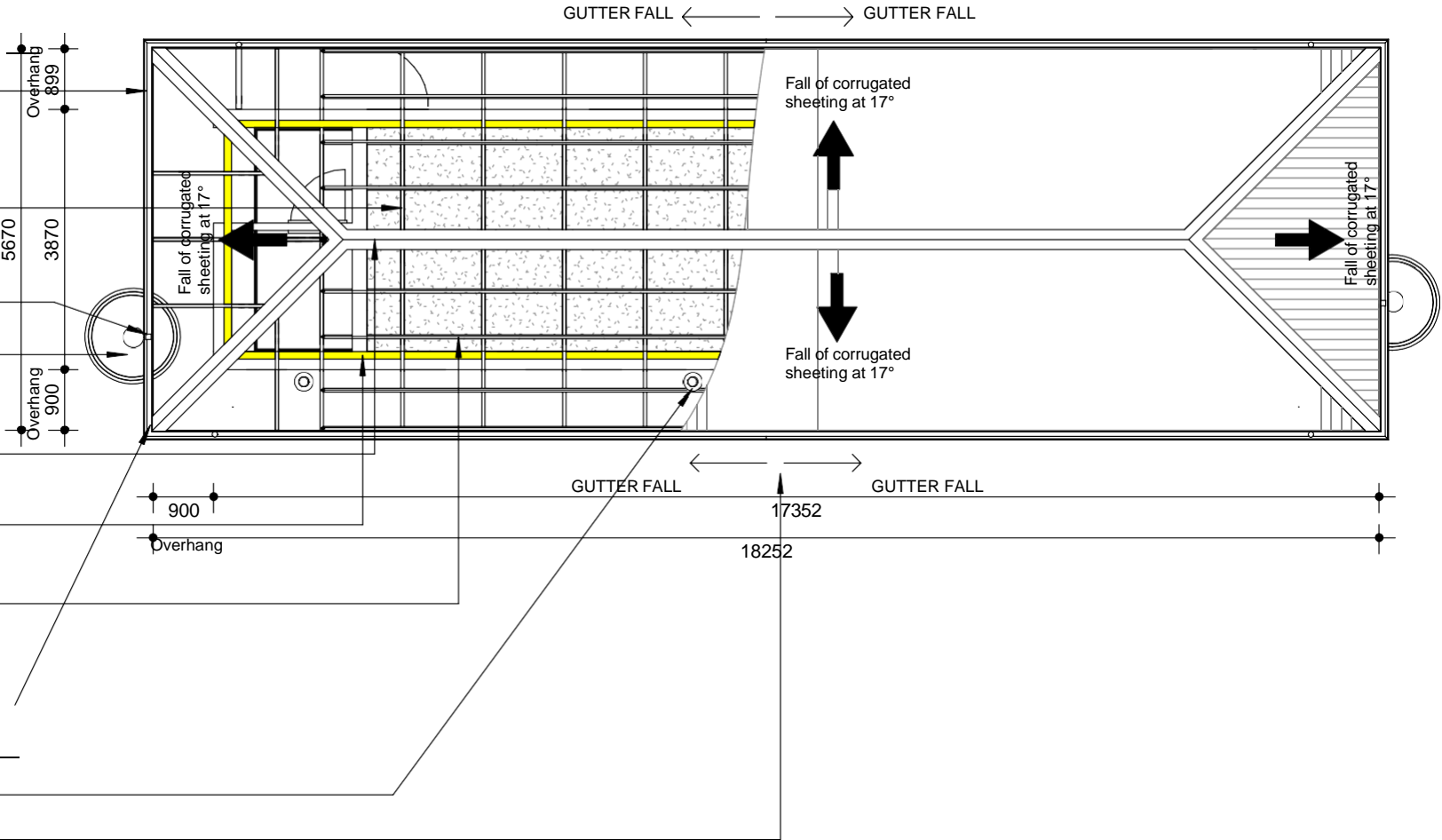




								DATE	DRAWN		DRAWING NUMBER	REV.
								24/11/17	M.VETNER			

NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion  
150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White  
114 x 38mm Treated S.A Pine engineered hip roof trusses.  
Exposed sections/members and sections in contact with masonry to be treated with carbolineum before installation.  
Gutters (fixed to fc fascias) and downpipes to discharge into water tanks  
5000l Polyethylene water tank secured to detail on dwg 502  
Global Roofing Solutions 0,80mm thick Z275 spelter ISQ550 galvanised steel ridge cap, girth 462mm, fixed in accordance with manufacturer's specifications.  
114 x 38mm SA Pine Wall plate.  
50 x 76mm S.A Pine Purlins layed at maximum 1100mm centres, fixed to timber truss. Purlins to be treated all round with carbolineum prior to installation.  
Everite (OR SIMILAR APPROVED) medium density plain Nutec (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick  
150mmØ PVC black vent pipe. Vent pipe to protrude 600mm above roof. Whirly bird by SANI-VENT or similar approved.  
0,8mm 762mm Corrugated sheet metal roof covering, with Chromadek finish. Fix sheets with "TOP SPEED" serrated screws. - Colour as per colour schedule.

2 Roof Plan  
1 : 100



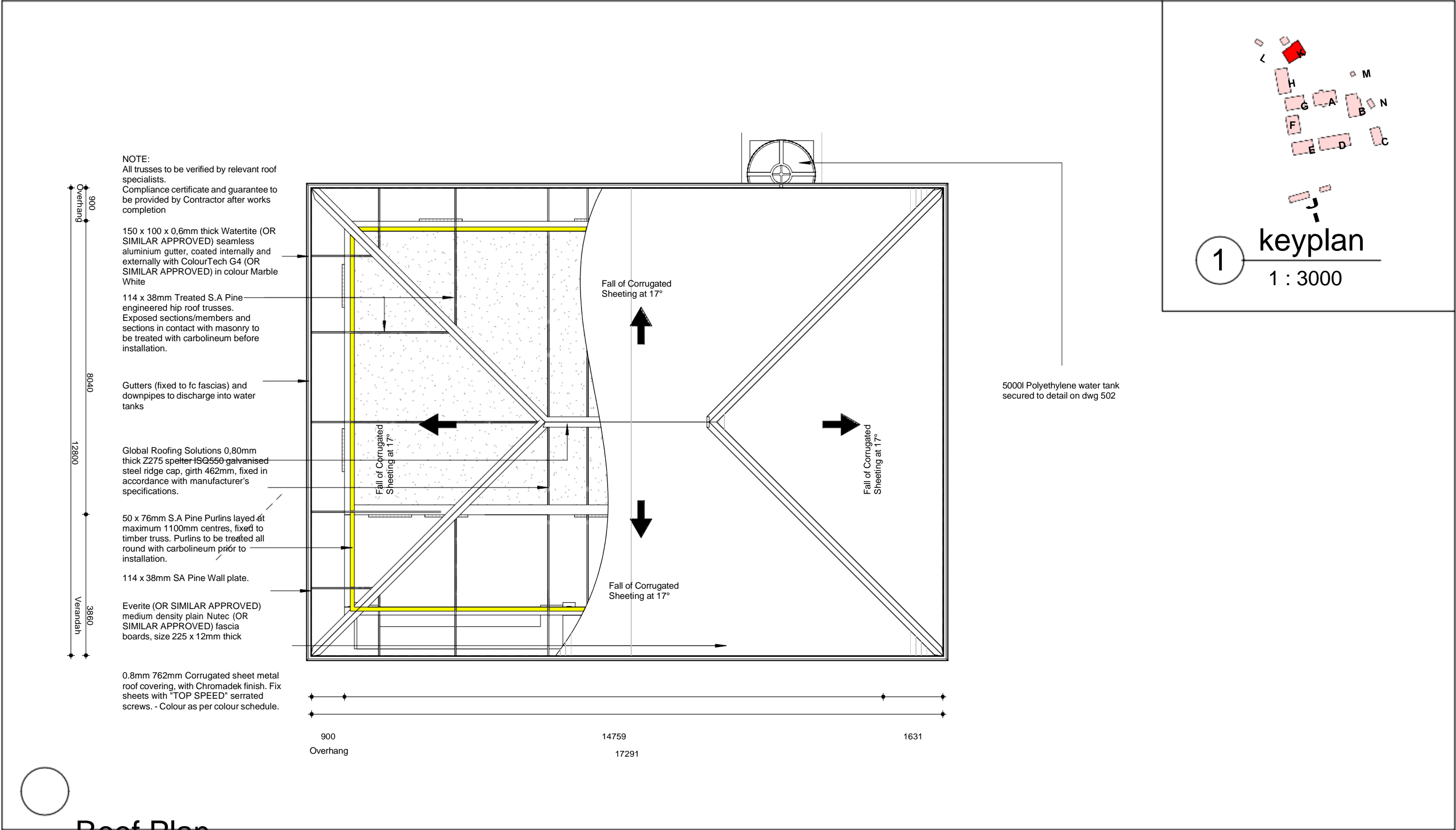
1 keyplan  
1 : 3000



NOTE:

APPROVED	SIGNATURE	DATE	REVISION			SCALE	ARCHITECT W.K.M.BUSS	PROJECT MGOMANZI PRIMARY SCHOOL	DRAWING TITLE	
			REV.	DATE	DESCRIPTION				BLOCK J ROOF PLAN	
Approver			PR01	09/06/17	Changes to floor finishes					
			PR02	20/07/17	Added Key plan					
Owner						DATE	DRAWN		DRAWING NUMBER	REV.

								24/11/17	M.VETNER		100 J/2	PR02
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Roof Plan

1 : 100



NOTE:

APPROVED	SIGNATURE	DATE	REVISION		
			REV.	DATE	DESCRIPTION
Approver			PR01	20/07/17	Added Key plan

SCALE

ARCHITECT

PROJECT

MGOMANZI PRIMARY  
SCHOOL

DRAWING TITLE

BLOCK K ROOF PLAN

Mgomanzi SPS - 0461

										DATE 24/11/17	W.K.M.BUSS			
		Owner									DRAWN		DRAWING NUMBER	REV.
											M.VETNER		100K/3	PR01



							DATE	DRAWN		DRAWING NUMBER	REV.
							24/11/17	M.VETNER			



NOTE:  
All trusses to be verified by relevant roof specialists.  
Compliance certificate and guarantee to be provided by Contractor after works completion

150 x 100 x 0,6mm thick Watertite (OR SIMILAR APPROVED) seamless aluminium gutter, coated internally and externally with ColourTech G4 (OR SIMILAR APPROVED) in colour Marble White

114 x 38mm Treated S.A Pine engineered hip roof trusses. Exposed sections/members and sections in contact with masonry to be treated with carbolineum before installation.

Global Roofing Solutions 0,80mm thick Z275 spelter ISQ550 galvanised steel ridge cap, girth 462mm, fixed in accordance with manufacturer's specifications.

50 x 76mm S.A Pine Purlins layed at maximum 1100mm centres, fixed to timber truss. Purlins to be treated all round with carbolineum prior to installation.

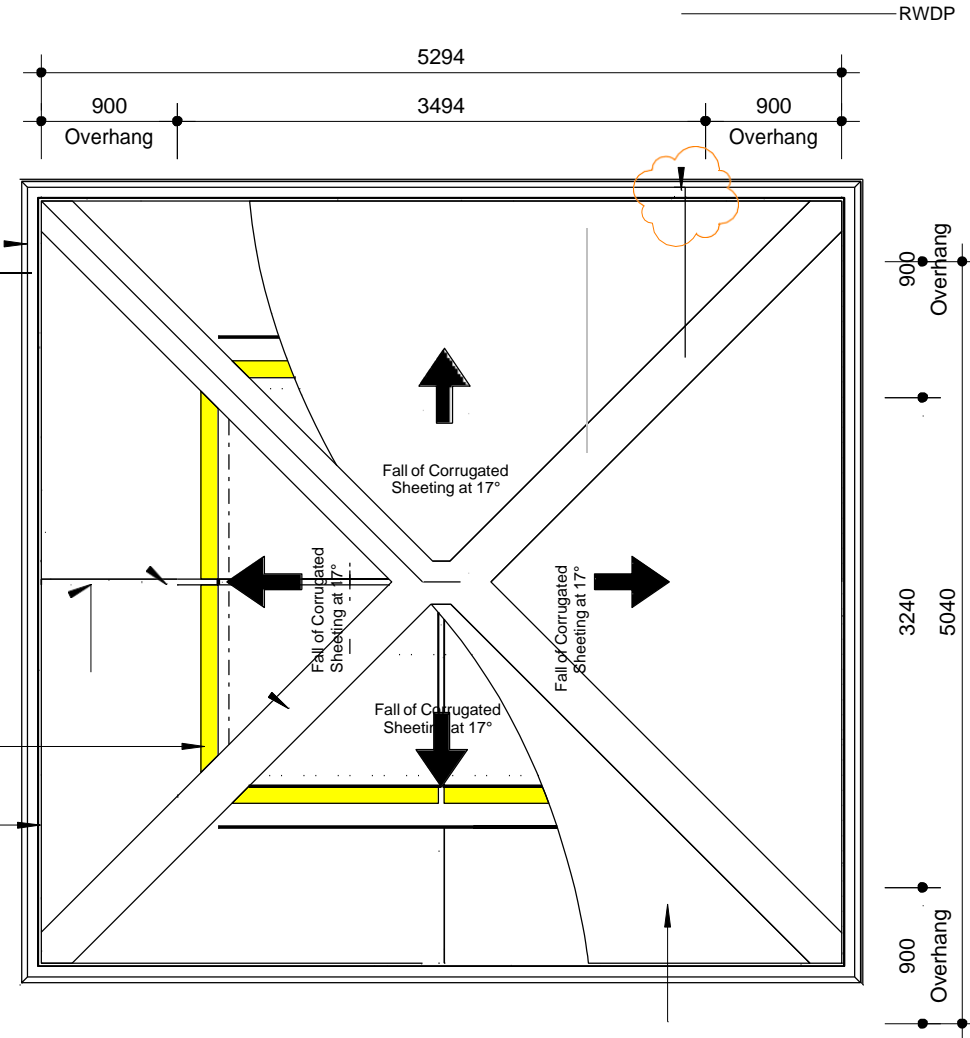
114 x 38mm SA Pine Wall plate.

Everite (OR SIMILAR APPROVED) medium density plain Nutec (OR SIMILAR APPROVED) fascia boards, size 225 x 12mm thick

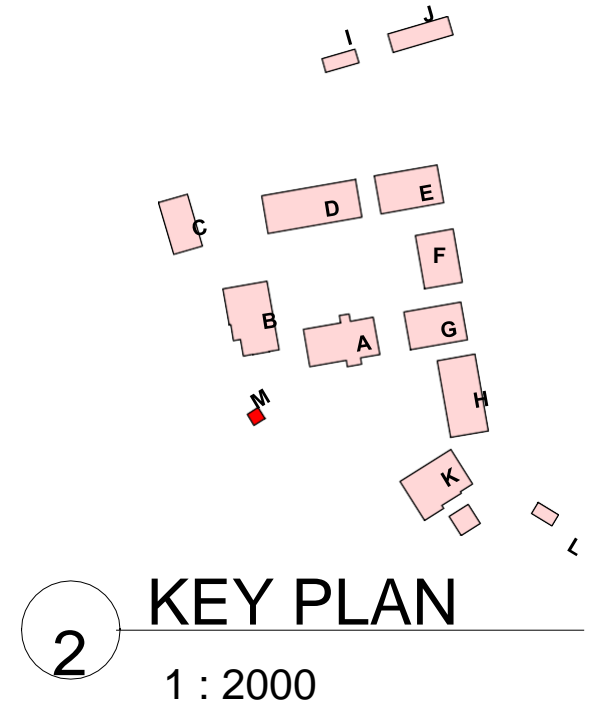
Global Roofing Solutions (OR SIMILAR APPROVED) 0,8mm thick 762mm cover, Corrugated profile Z200 spelter ISQ300 galvanised steel roof sheeting with Chromadek finish, fixed to carbolineum treated 76 x 50mm SA Pine intermediate purlins at maximum 1000mm centres and eaves and ridge purlins at 900mm centres using Hex Flange Head + EPDM Seal self-drilling Type 17 drill point, No. 12-11 x 65mm long, Class 3, fasteners. Purlin fixed to first, fourth and eighth crest of each sheet and at all crests at sheet ends, all in accordance with the manufacturer's specifications.

# 1 Roof Plan

1 : 50



NOTES:  
# REFER TO SITE PLAN FOR POSITION OF WATER TANKS  
# ALL EXPOSED TIMBER AND TIMBER IN CONTACT WITH MORTAR TO BE CARBOLINIUM TREATED PRIOR TO INSTALLATION.  
# EXTERNAL FACE OF INTERNAL SKIN OF EXTERNAL WALLS TO BE BAGGED AND SEALED WITH BRICKSEAL.  
# ALL PURLINS TO BE SECURED TO RAFTERS WITH HURRICAN CLIPS.  
# A GUARANTEE IS TO BE OBTAINED FROM THE MANUFACTURER FOR THE PRODUCT AS WELL AS THE WORKMANSHIP FOR CHROMADEK ROOF SHEETING





**NOTE:**

APPROVED	SIGNATURE	DATE	REVISION			SCALE	ARCHITECT W.K.M.BUSS
			REV.	DATE	DESCRIPTION		
Approver			PR01	20/07/17	Vinyl tile changed to Vinyl sheeting		
					Added Key plan		
			PR02	23/11/17	Inserted rainwater pipe on roof plan		
DEPARTMENT OF PUBLIC WORKS						DATE 24/11/17	DRAWN M.VETNER

PROJECT

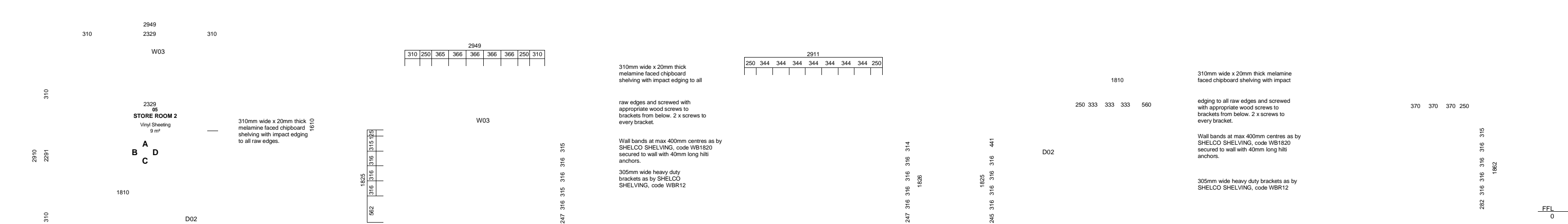
MGOMANZI PRIMARY  
SCHOOL

DRAWING TITLE

BLOCK M ROOF PLAN

DRAWING NUMBER  
100M/2

REV.  
PR02



1 Store Room 2 Joinery Layout Plan

1 : 50

2 Elevation A

1 : 50

3 Elevation B

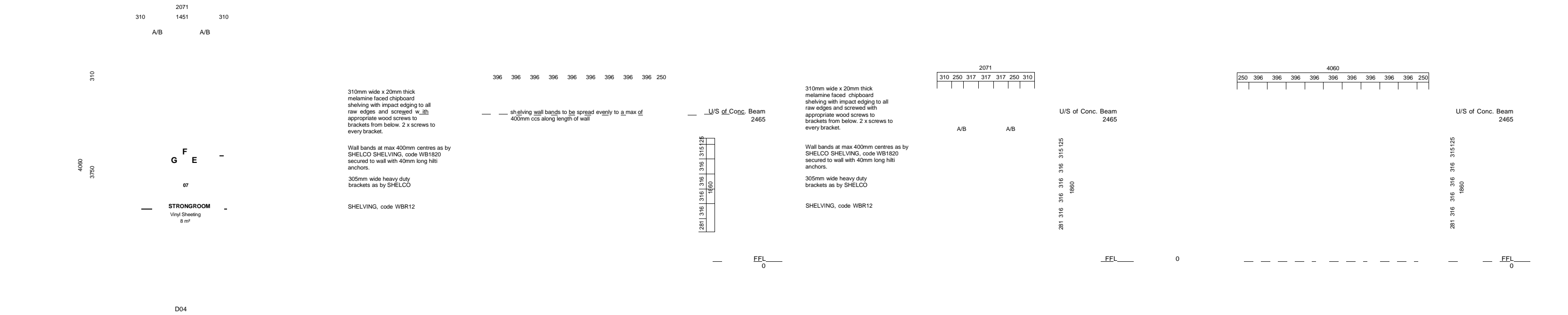
1 : 50

4 Elevation C

1 : 50

5 Elevation D

1 : 50



6 Strong Room Joinery Layout Plan

1 : 50

7 Elevation E

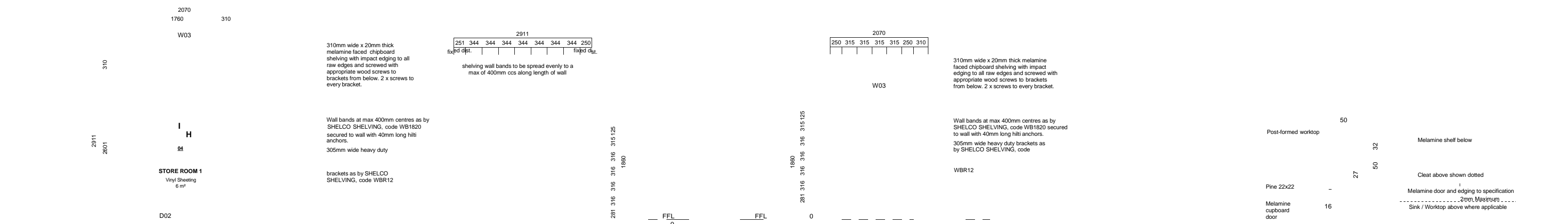
1 : 50

8 Elevation F

1 : 50

9 Elevation G

1 : 50



10 Store Room 1 Joinery Layout Plan

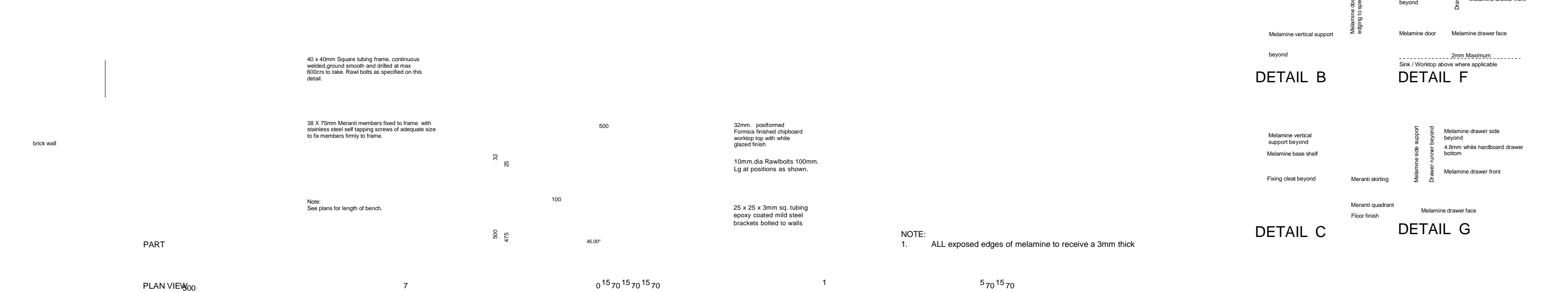
1 : 50

11 Elevation H

1 : 50

12 Elevation I

1 : 50



## GENERAL NOTE

1. ALL DIMENSIONS AND ALL LEVELS TO BE CHECKED ON SITE AND WHERE APPLICABLE TO MATCH EXISTING STRUCTURE.
2. ANY DISCREPANCY OR CONTRADICTION TO IMMEDIATELY BE REPORTED TO THE ARCHITECT.
3. DRAWINGS NOT TO BE SCALED.
4. USE PROFILE COLUMNS AT 85mm. CENTRES FOR BRICKWORK EXCEPT WHERE SPECIFIED DIFFERENTLY.
5. A COMPLETE SET OF DRAWINGS TO BE AVAILABLE ON SITE AT ALL TIMES.
6. ALL DIMENSIONS AS SHOWN ON PLAN TO BE PLOTTED ON SITE AT THE HORIZONTAL LEVEL.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT LAYOUT OF BUILDINGS ON SITE IN RELATION TO SITE BOUNDARIES AND BUILDING LINES.
8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DETAIL AND DRAWINGS.
9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
01	2017/11/24	ZM	revised joinery referencing, missing shelving added, missing dimensions added

KEY PLAN

CLIENT

CLIENT

APPROVED BY CLIENT

APPROVED BY

APPROVED BY

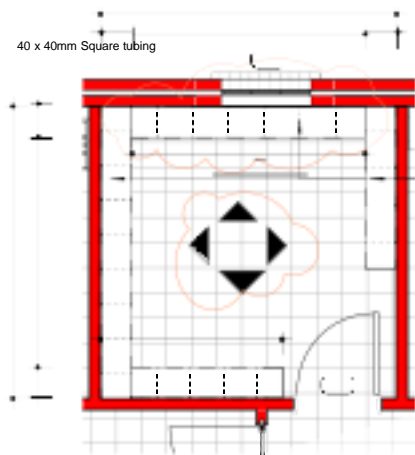
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PRE-CONSTRUCTION

PROJECT TITLE

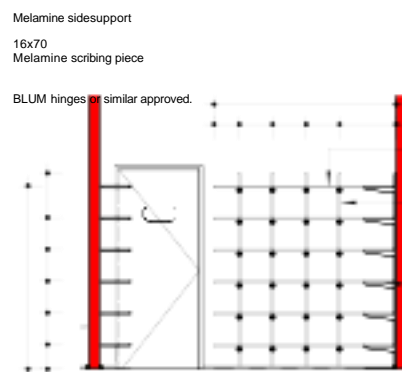
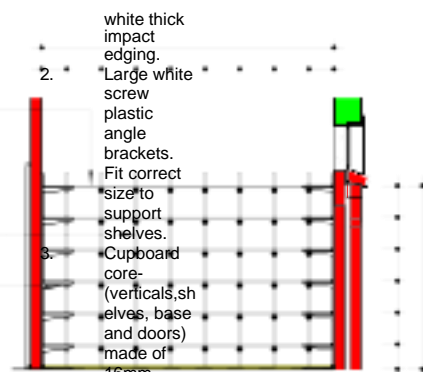
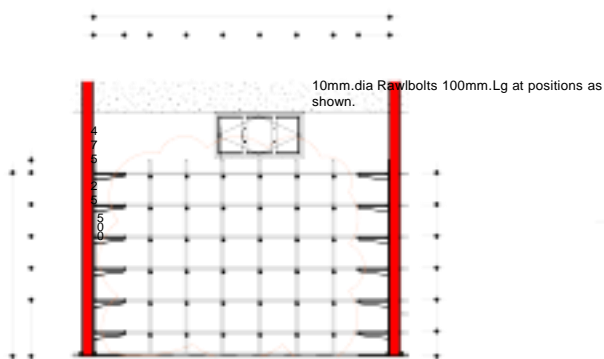
MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION  
ADMIN BLOCK JOINERY  
DETAILS

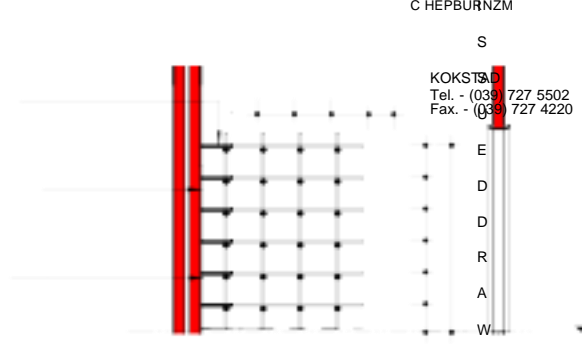
SCALE As indicated  
DATE 24/11/2017  
RECOMMENDED C HEPBURN



103

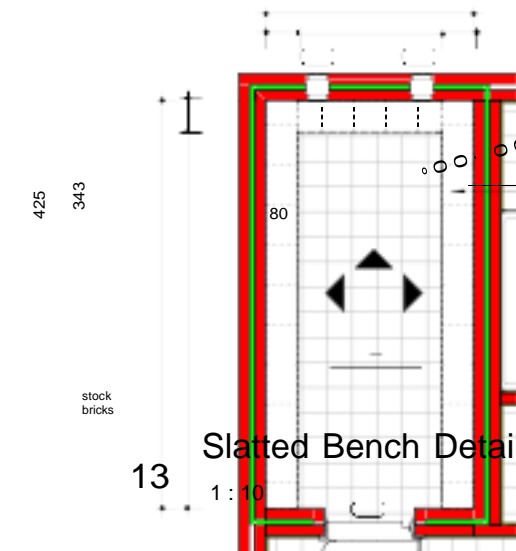


Worktop above  
Melamine shelf below  
Crest above shown dotted



C HEPBURNZM

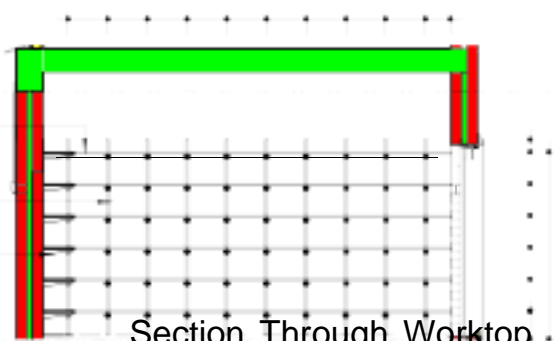
S  
KOKSTAD  
Tel. - (031) 727 5502  
Fax. - (031) 727 4220  
E  
D  
D  
R  
A  
W  
N  
C  
O  
P  
Y  
R  
I  
G  
H  
T



Slatted Bench Detail

13  
1:10

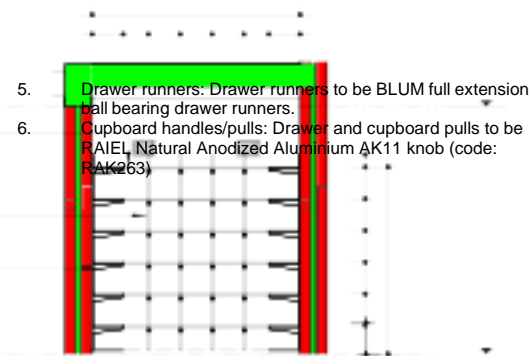
frame continuous welded ground smooth  
and drilled at max 500mm to take rawl  
bolts as specified on this detail.  
10mm dia rawl bolts 100mm, at positions as  
shown.



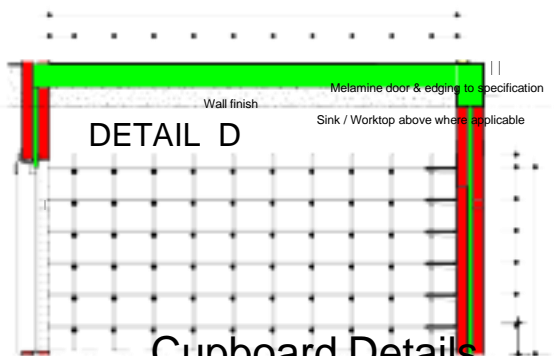
Section Through Worktop

14  
1:10

2.  
white thick  
impact  
edging.  
Large white  
screw  
plastic  
angle  
brackets.  
Fit correct  
size  
support  
shelves.  
Cupboard  
core-  
(verticals, sh  
elves, base  
and doors)  
made of  
10mm  
White  
Melamine or  
similar.  
Door hinges:  
Door hinges  
to be BLUM  
all metal  
hinge, nickel  
plated  
hinges with  
110°  
opening  
angle, with  
integrated  
BLUMOTIO  
N



5. Drawer runners: Drawer runners to be BLUM full extension,  
ball bearing drawer runners.  
6. Cupboard handles/pulls: Drawer and cupboard pulls to be  
KALE Natural Anodized Aluminium AK11 knob (code:  
KALE63)



DETAIL D

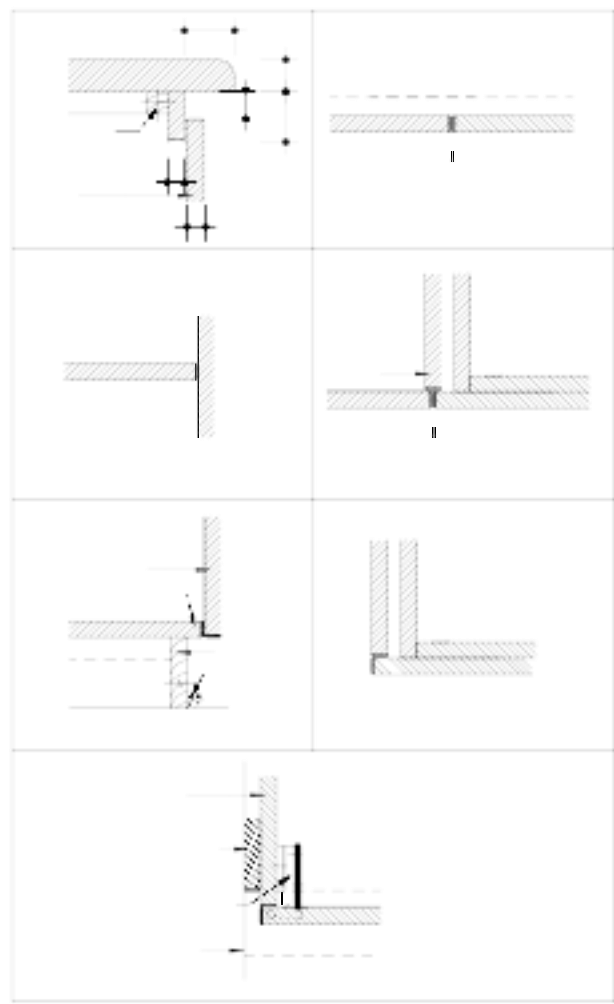
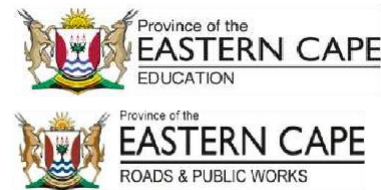
Cupboard Details

15  
1:5

E-mail - kokstad@ikamva-architects.co.za 4700

PROJECT NO : 2183 DRAWING/SHEET NO A500 REVISION NO : PR01

EMIS NO : 200500666



GENERAL NOTE

1. ALL DIMENSIONS AND ALL LEVELS TO BE CHECKED ON SITE AND WHERE APPLICABLE TO MATCH EXISTING STRUCTURE.
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8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DETAIL AND DRAWINGS.
9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
01	2017/11/24	ZM	kintal height for RS03 raised to 2380

KEY PLAN			

CLIENT

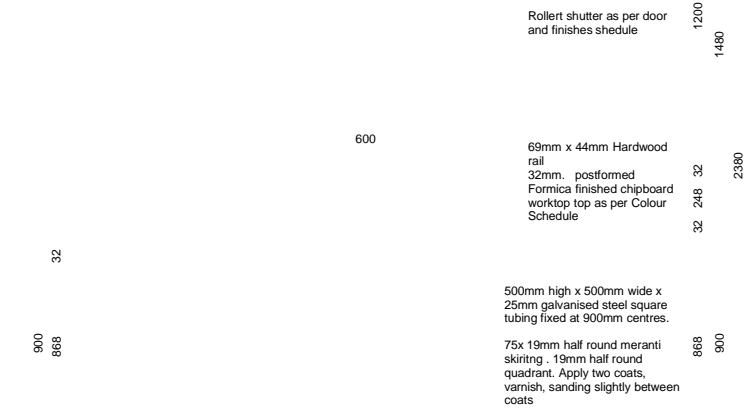
CLIENT

APPROVED BY CLIENT
APPROVED BY
APPROVED BY

DRAWING STATUS
PRE-CONSTRUCTION
PROJECT TITLE
MGOMANZI PRIMARY SCHOOL
DRAWING DESCRIPTION
ADMIN BLOCK JOINERY DETAILS

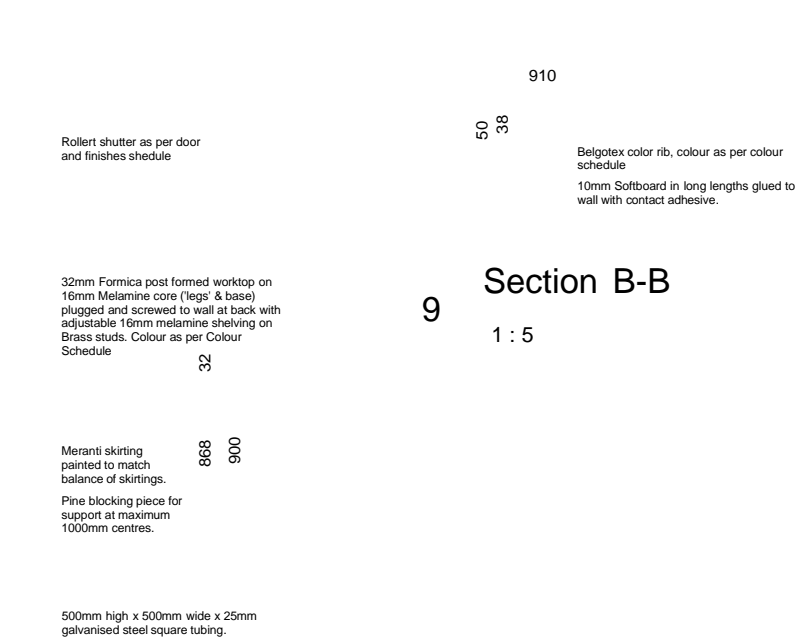
SCALE	As indicated
DATE	24/11/2017
RECOMMENDED	Chris Hepburn
ISSUED	Chris Hepburn
DRAWN	ZM

- NOTE:
- ALL exposed edges of melamine to receive a 3mm thick white pvc impact edging.
  - Large white screw plastic angle brackets. Fit correct size to support shelves.
  - Cupboard core-(verticals,shelves, base and doors) made of 16mm White Melanine or similar.
  - Door hinges: Door hinges to be BLUM all metal hinge, nickel plated hinges with 110° opening angle, with integrated BLUMOTION
  - Drawer runners: Drawer runners to be BLUM full extension, ball bearing drawer runners.
  - Cupboard handles/pulls: Drawer and cupboard pulls to be RAIEL Natural Anodised Aluminium AK11 knob (code: RAK263)
7. Always confirm positions of sanitaryware prior to construction



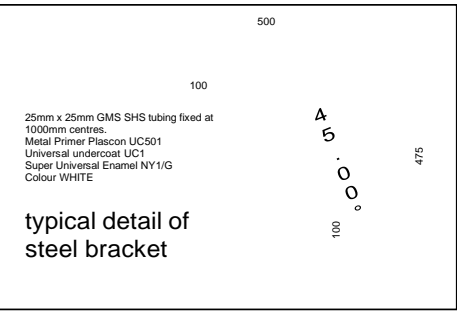
Section A-A

1 : 25



Section B-B

1 : 5

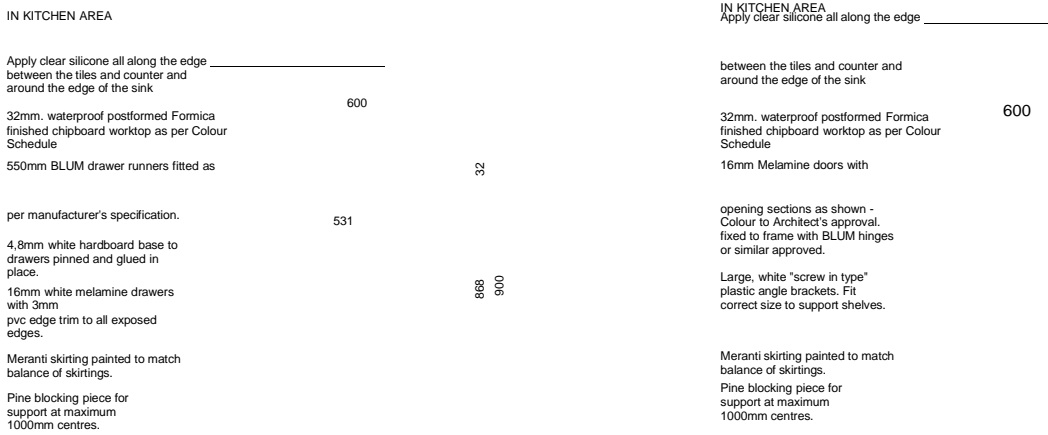


typical detail of steel bracket

approved.  
Large, white "screw in type" plastic angle brackets. Fit correct size to support shelves.

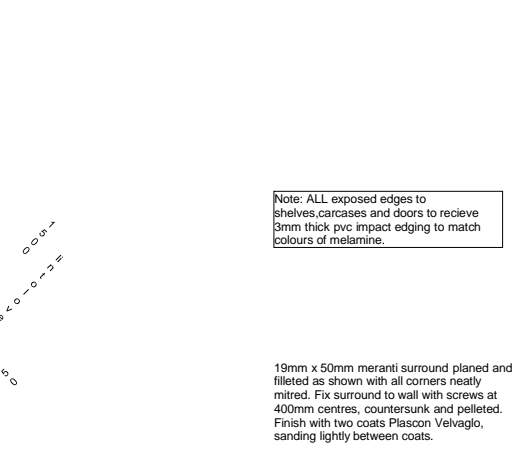
Staff Room Elevation A

1 : 25



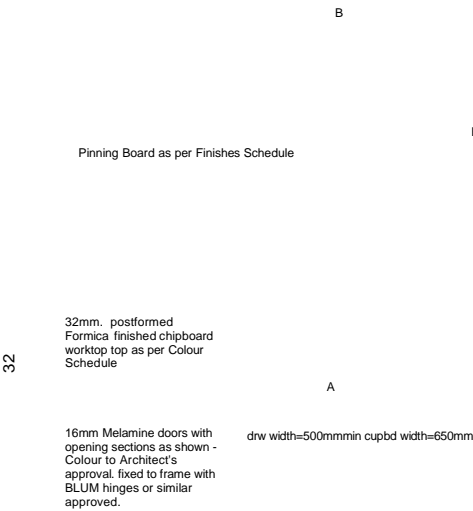
Typical section through drawers

1 : 25



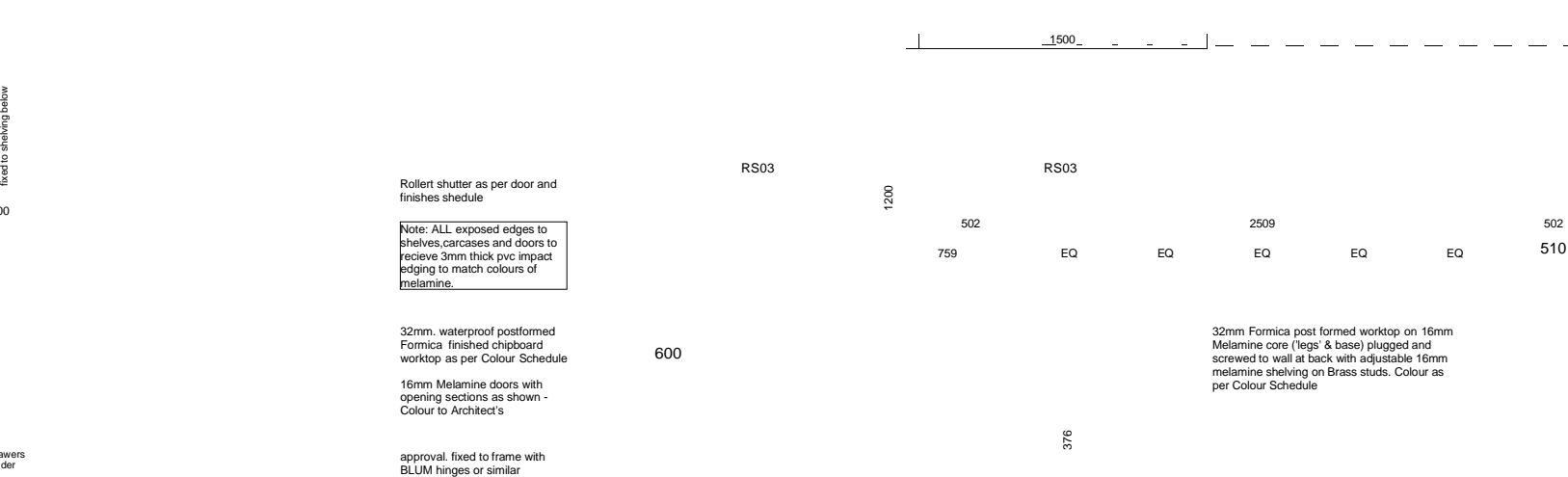
Typical section through cupboard

1 : 25



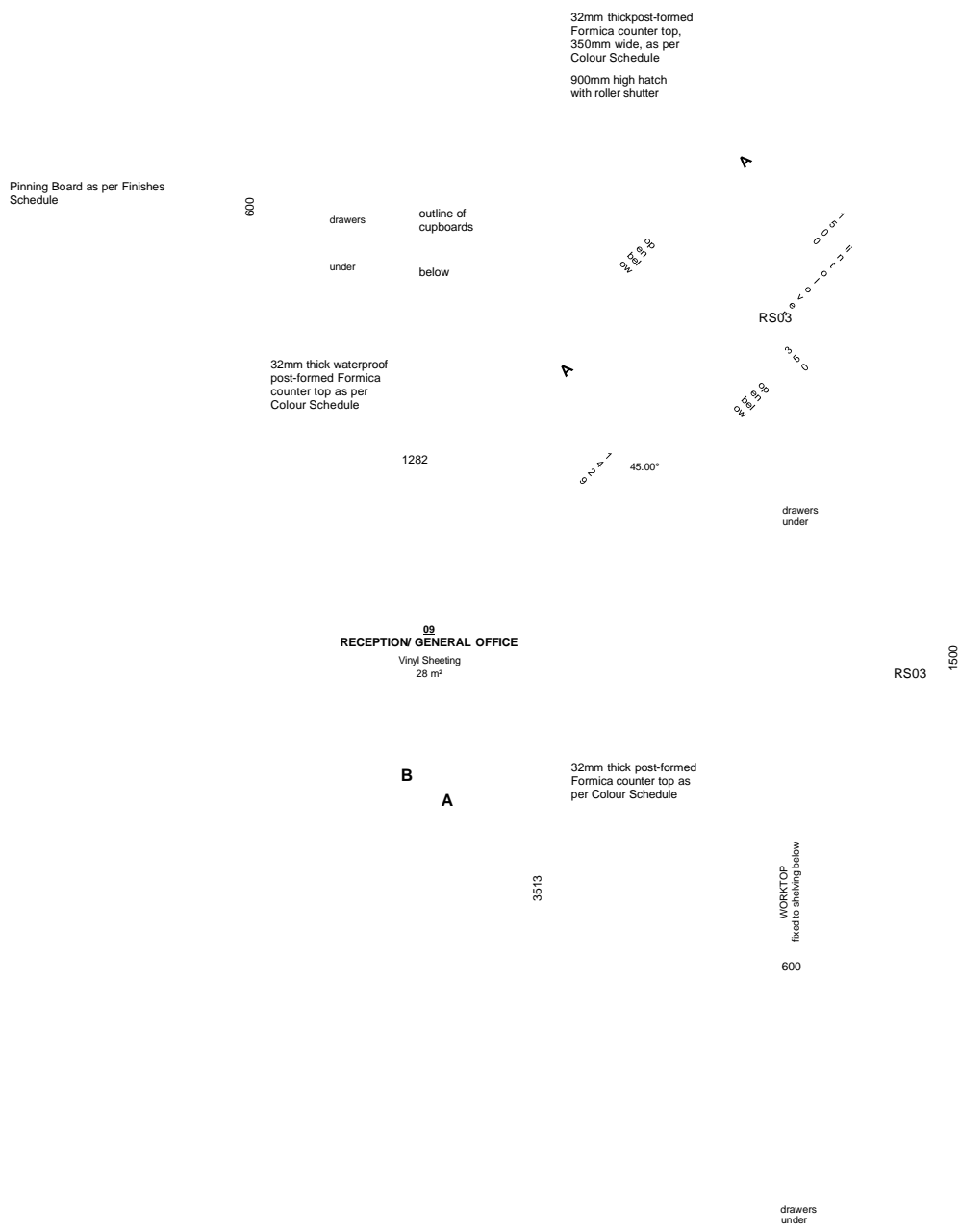
Reception/ General Office Elevation 1

1 : 25



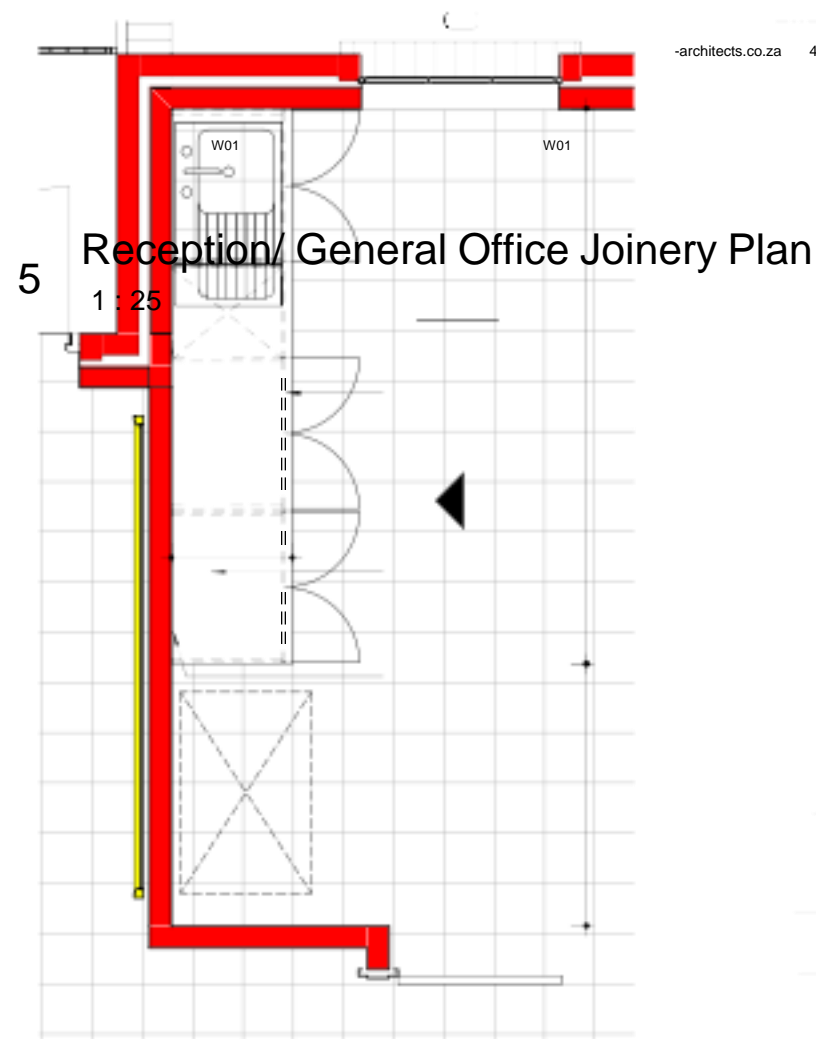
Staff Room Joinery Layout Plan

1 : 25

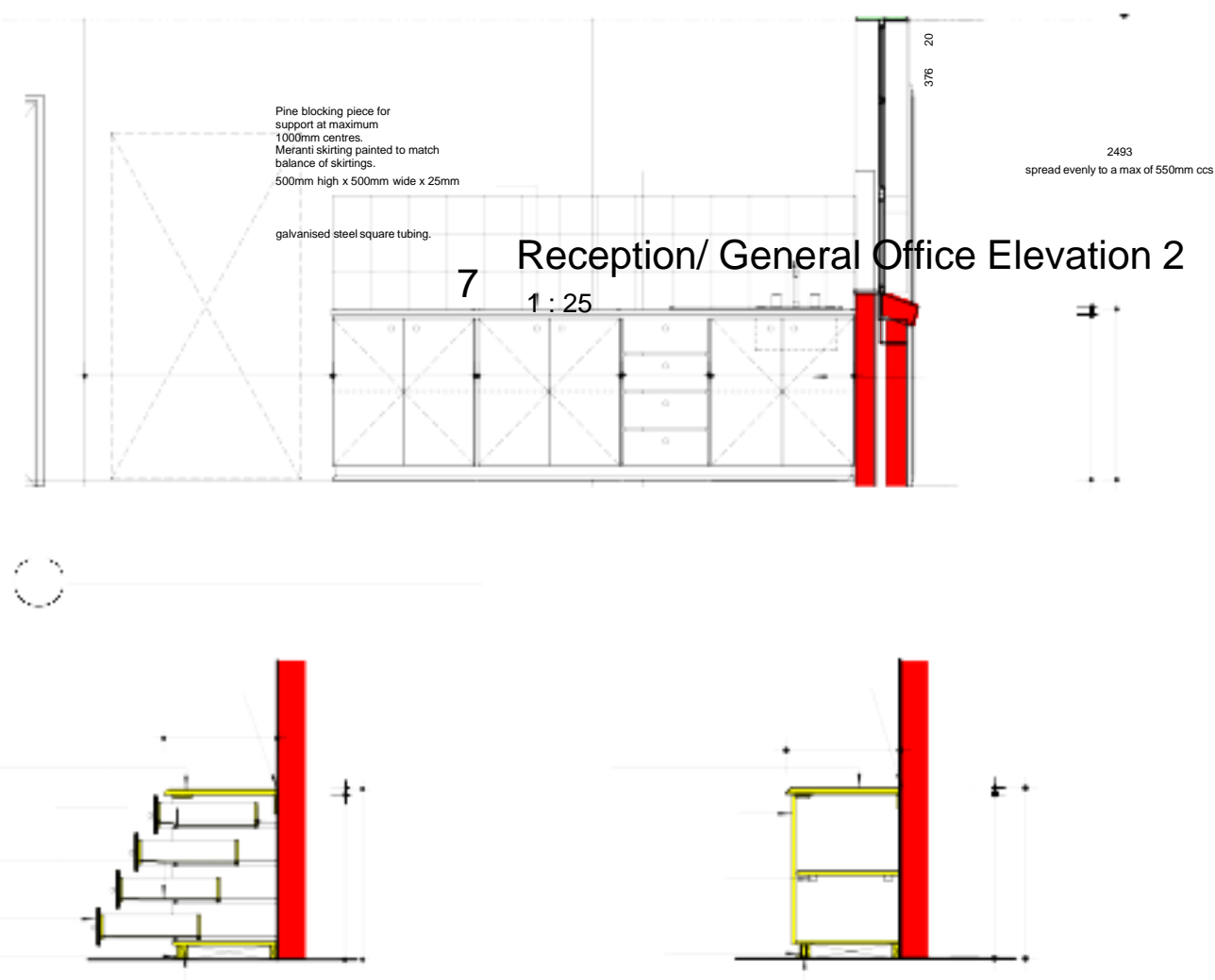


869  
900

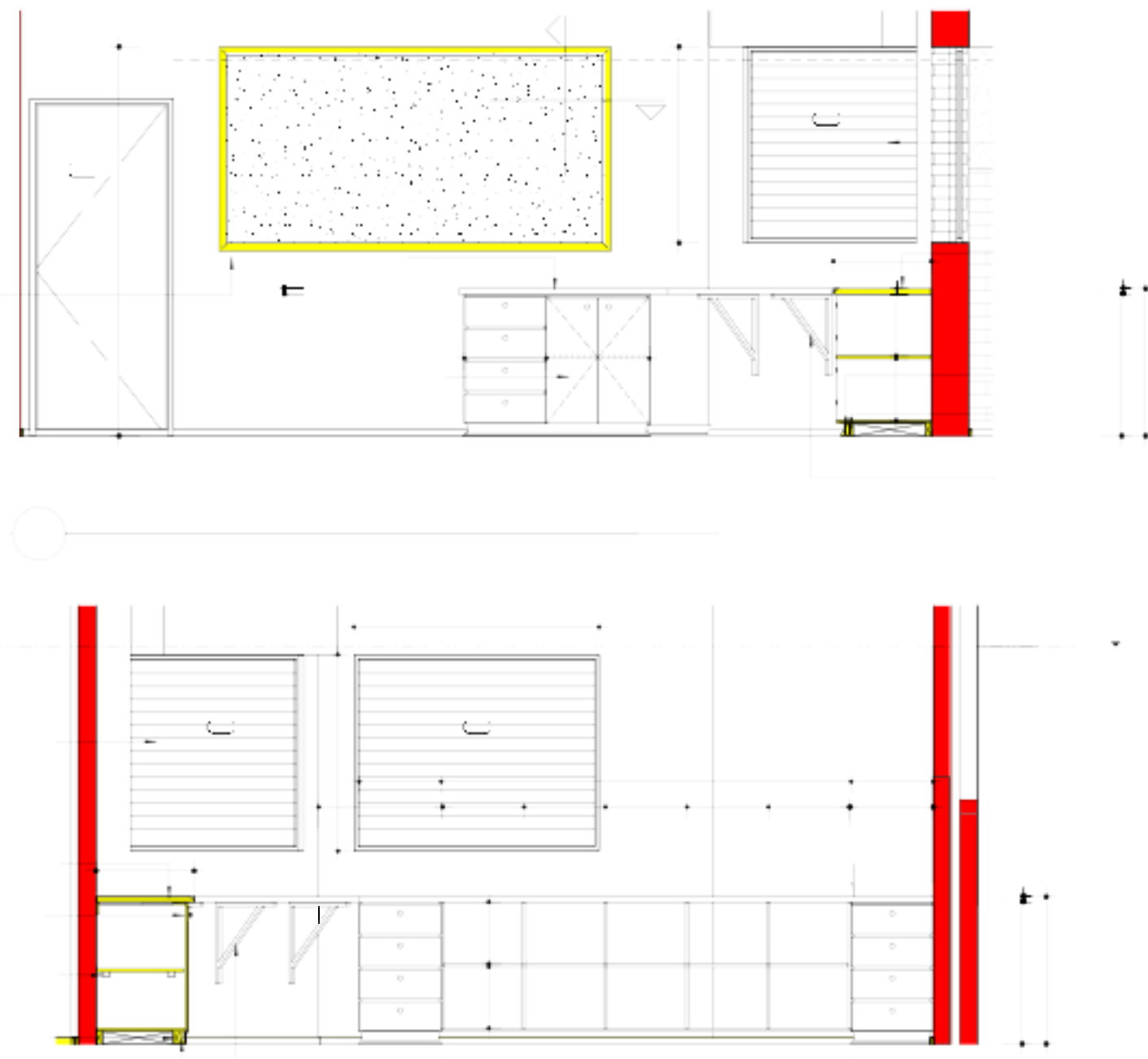
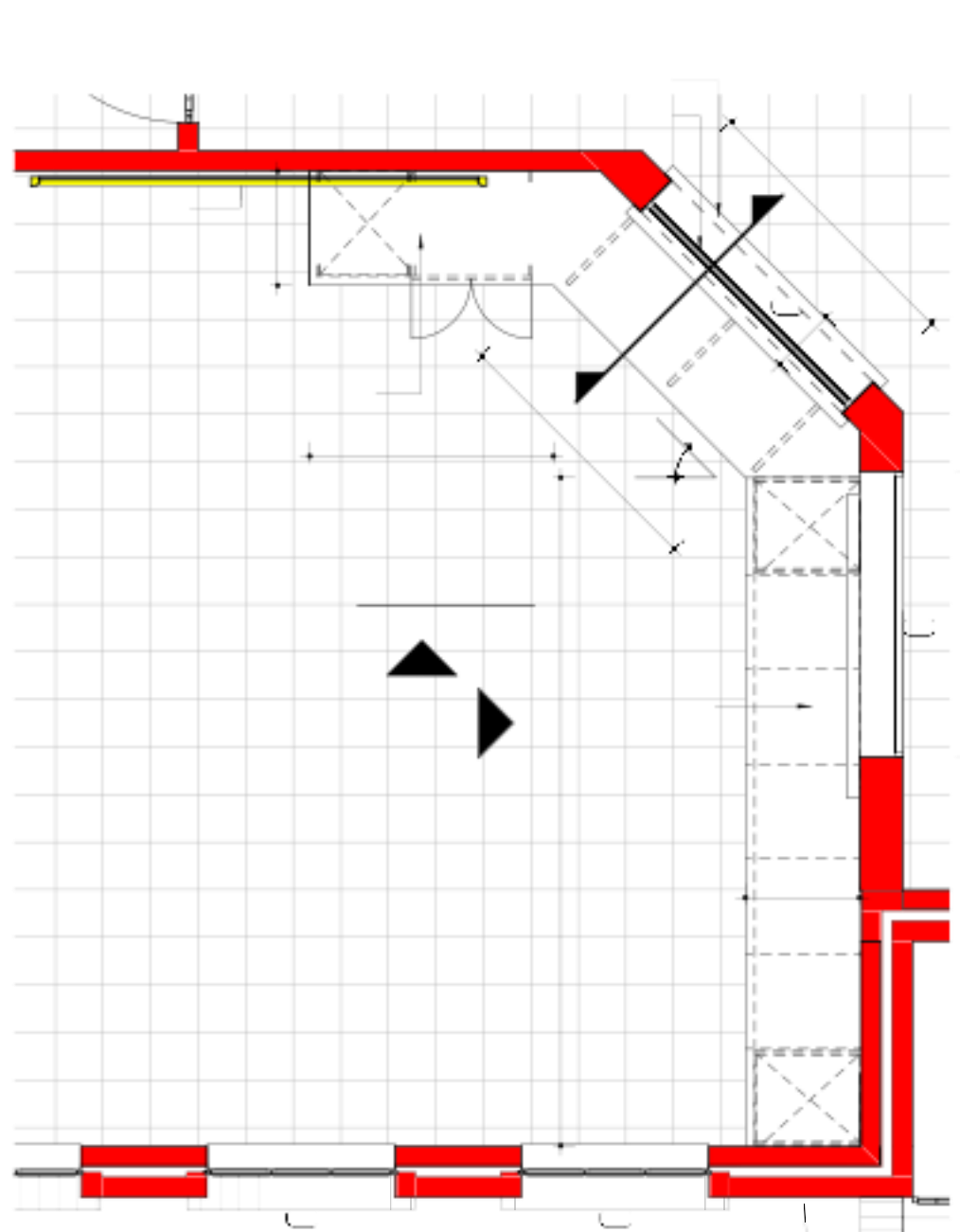




-architects.co.za 4700



Reception/ General Office Elevation 2



PROJECT NO : 2183	DRAWING/SHEET NO A501	REVISION NO : PR01
EMIS NO : 200500666		



9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

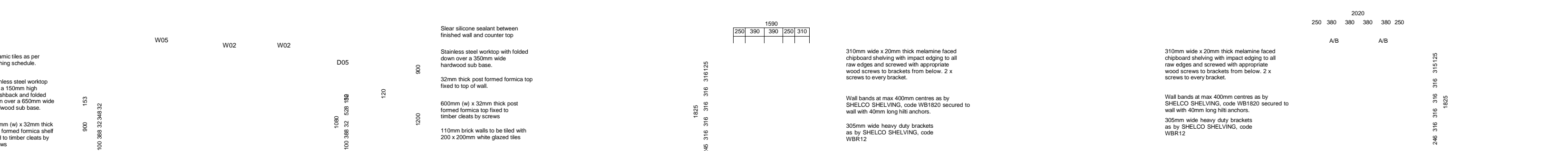
## DINING AND NUTRITION JOINERY DETAILS

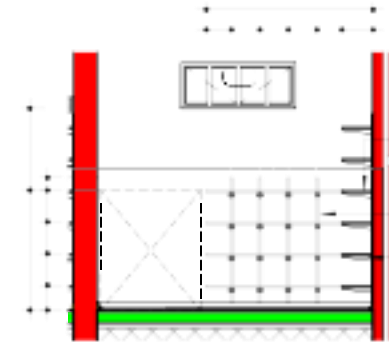
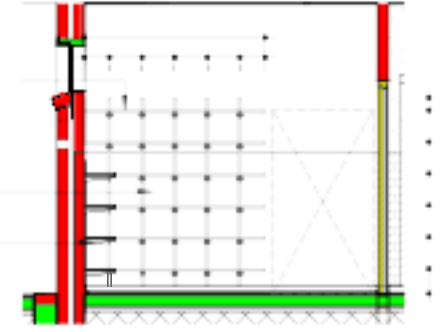
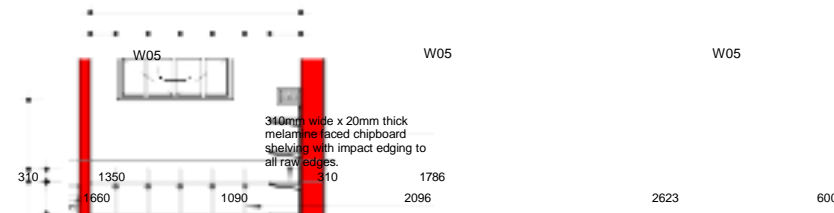
COPYRIGHT

KOKSTAD 3 Voorwaarts Street  
Tel. - (039) 727 5502 P. O. Box 1992  
Fax. - (039) 727 4220 KOKSTAD

E-mail - kokstad@ikamva-architects.co.za 4700

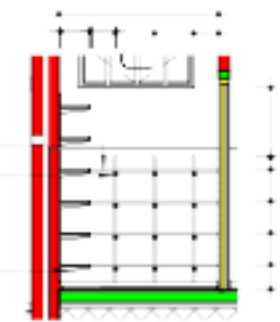
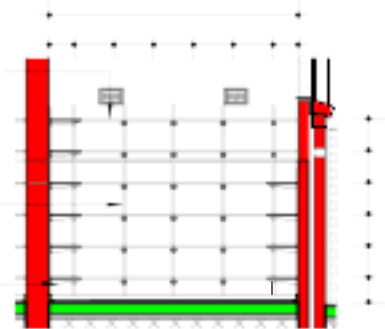
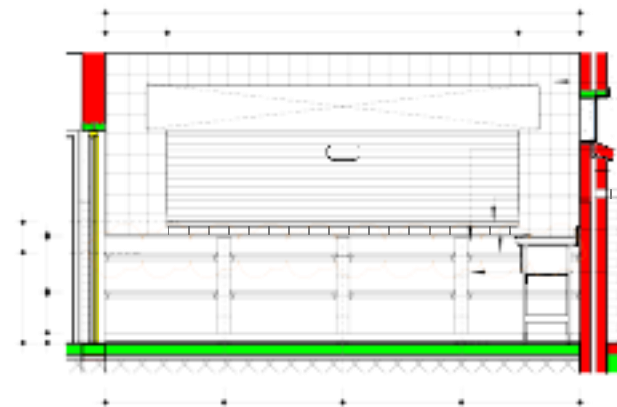
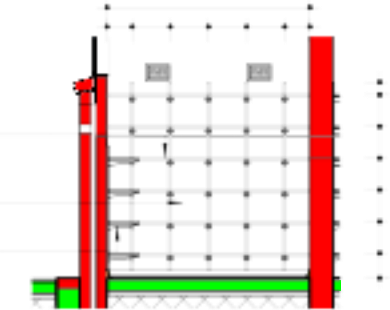
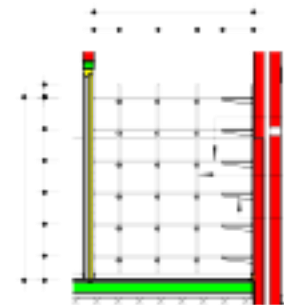
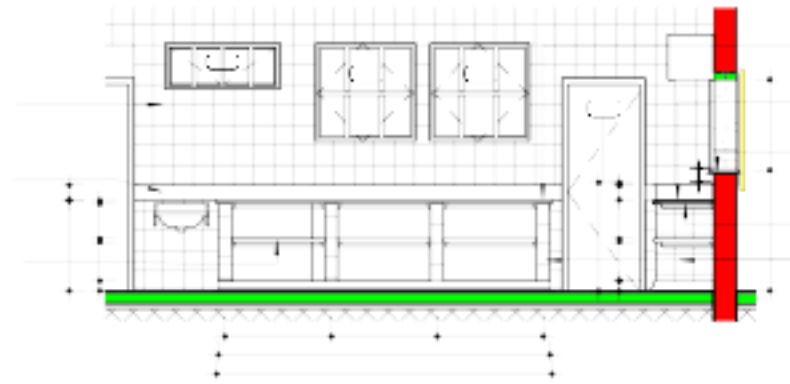
Mgomanzi SPS - 0466



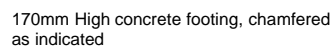


4 500 GROUND FLOOR JOINERY LAYOUT  
1 : 50

PROJECT NO : 2183	DRAWING/SHEET NO 500B	REVISION NO : PR02
EMIS NO : 200500666		







**NOTE:**

1. ALL exposed edges of melamine to receive a 3mm thick white pvc impact edging.
2. Large white screw plastic angle brackets. Fit correct size to support shelves.
3. Cupboard core (verticals,shelves, base and doors) made of 16mm White Melamine or similar.
4. Door hinges: Door hinges to be BLUM all metal hinge, nickel plated hinges with 110° opening angle, with integrated BLUMOTION

PROJECT NO :  2183	DRAWING/SHEET NO :  501B	REVISION NO :  PR01
EMIS NO : 200500666		Mgohanzizi SPS - 0467



GENERAL NOTE

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3. DRAWINGS NOT TO BE SCALED.

4. USE PROFILE COLUMNS AT 85mm. CENTRES FOR BRICKWORK EXCEPT WHERE SPECIFIED DIFFERENTLY.

5. A COMPLETE SET OF DRAWINGS TO BE AVAILABLE ON SITE AT ALL TIMES.

6. ALL DIMENSIONS AS SHOWN ON PLAN TO BE PLOTTED ON SITE AT THE HORIZONTAL LEVEL.

7. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT LAYOUT OF BUILDINGS ON SITE IN RELATION TO SITE BOUNDARIES AND BUILDING LINES.

8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DETAIL AND DRAWINGS.

9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
PR01	02/05/2017	S.L	Changes to gas bottle storage
PR02	24/11/2017	ZM	sectional elevation changed to B-B, updated dimensions, window and door tags added on plan

CLIENT

CLIENT

CLIENT

APPROVED BY CLIENT

APPROVED BY

APPROVED BY

DRAWING STATUS

PRE-CONSTRUCTION

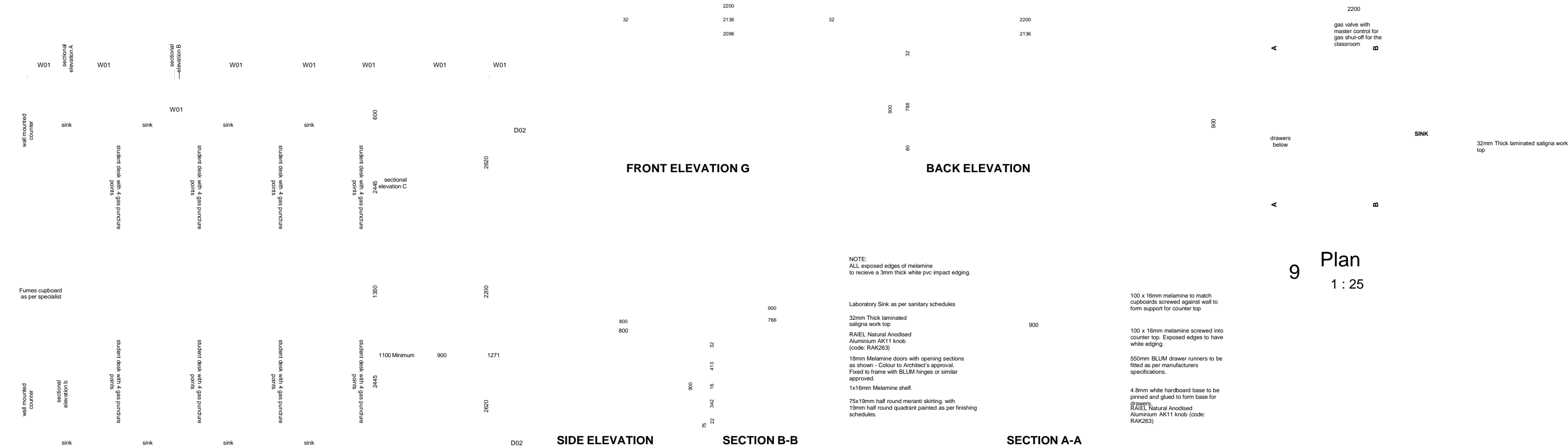
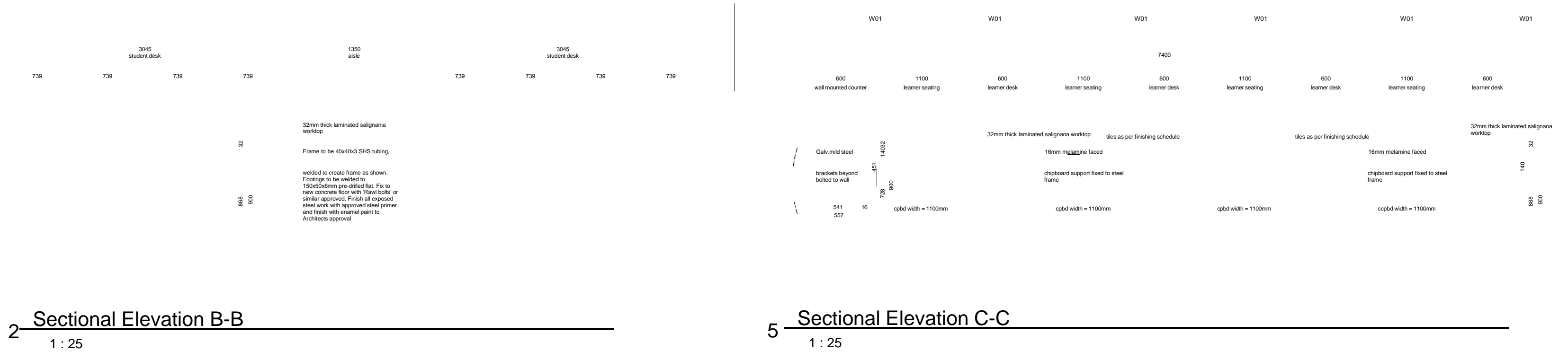
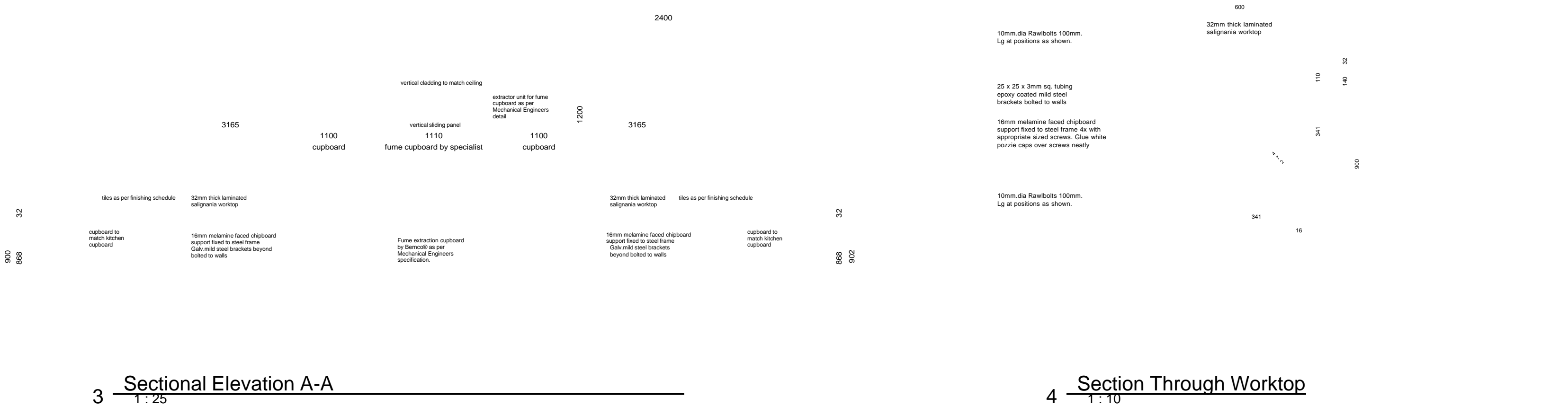
PROJECT TITLE

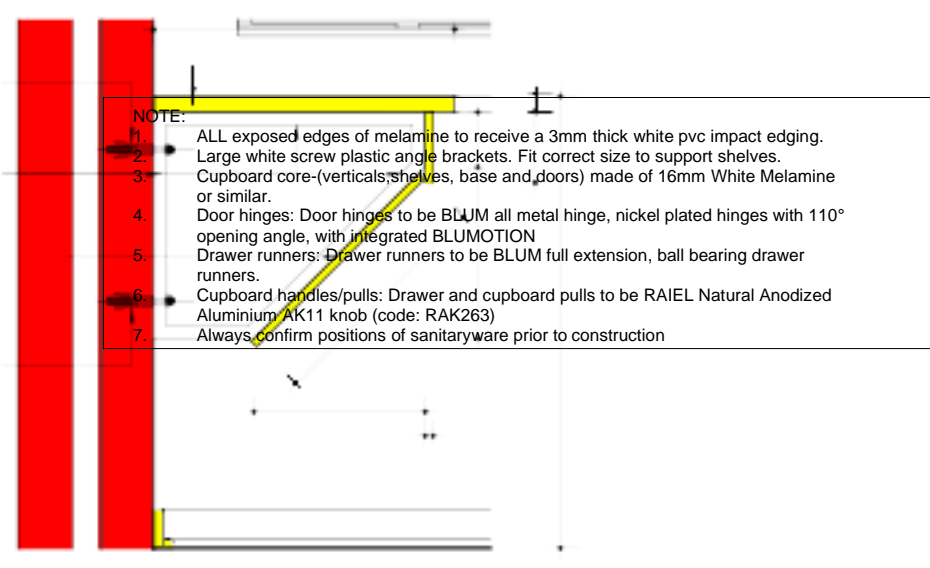
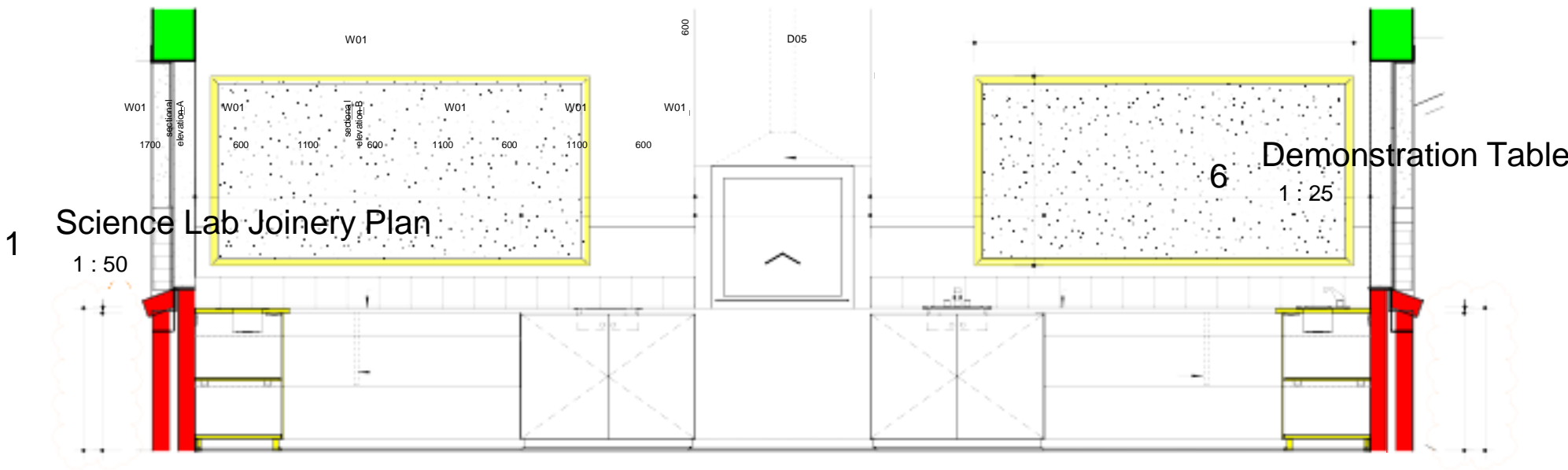
MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION

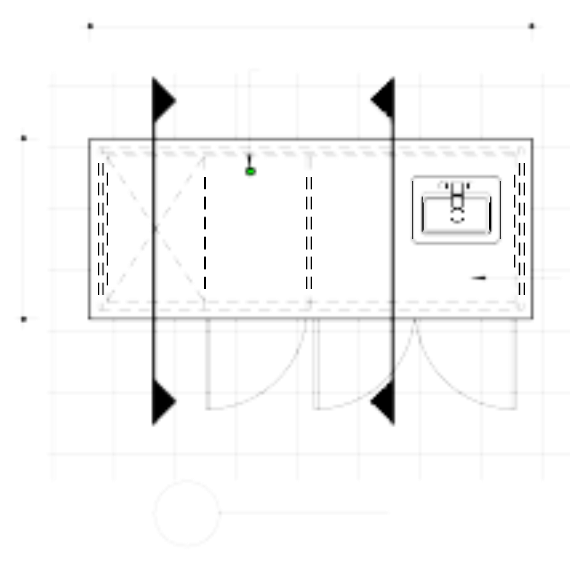
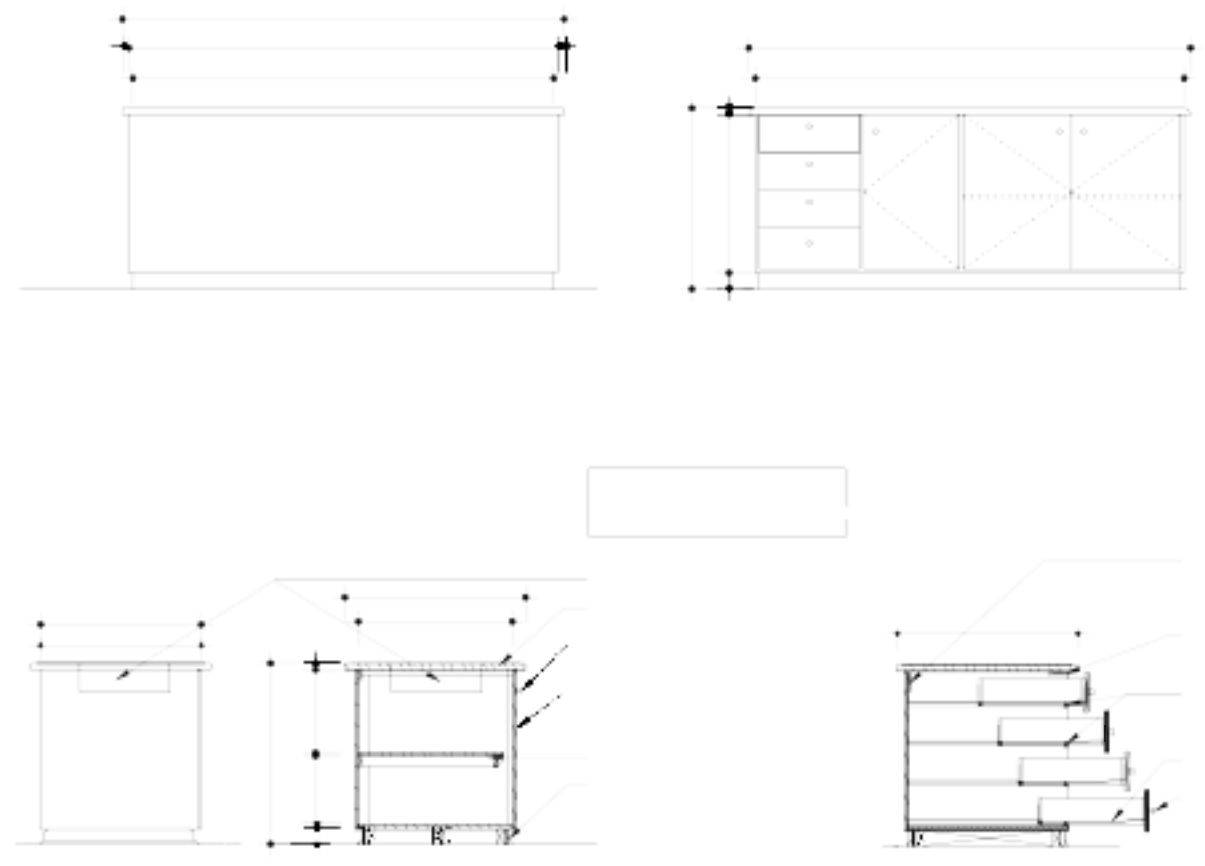
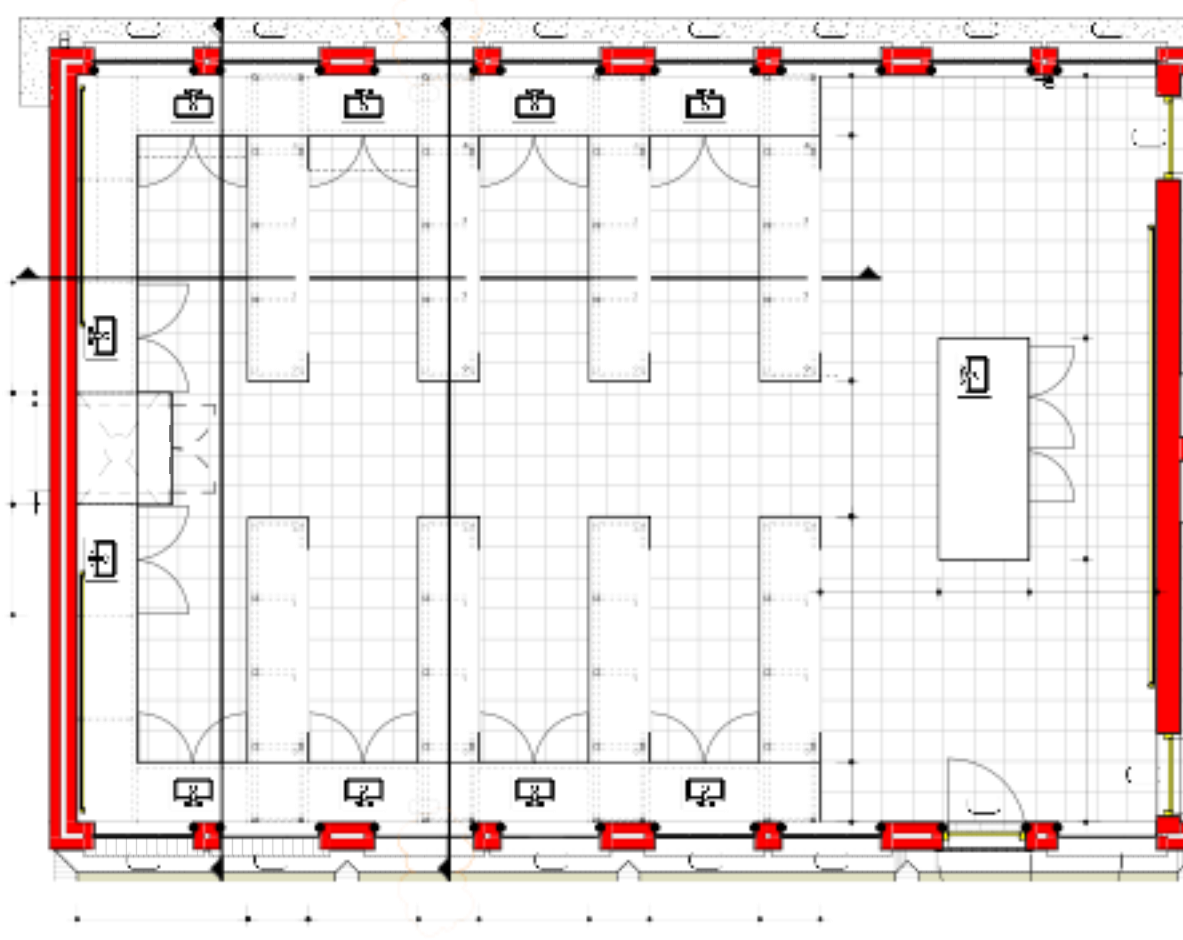
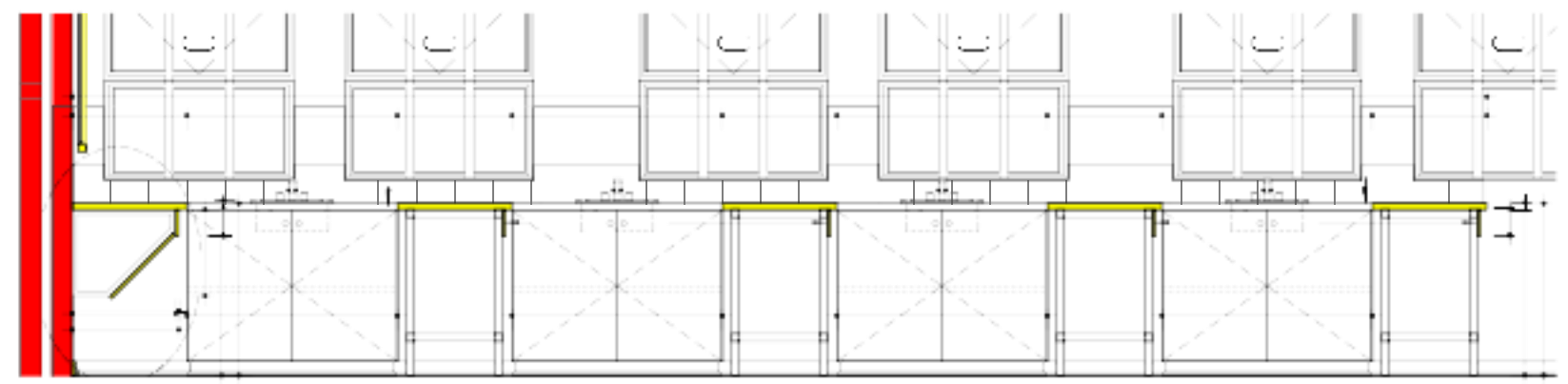
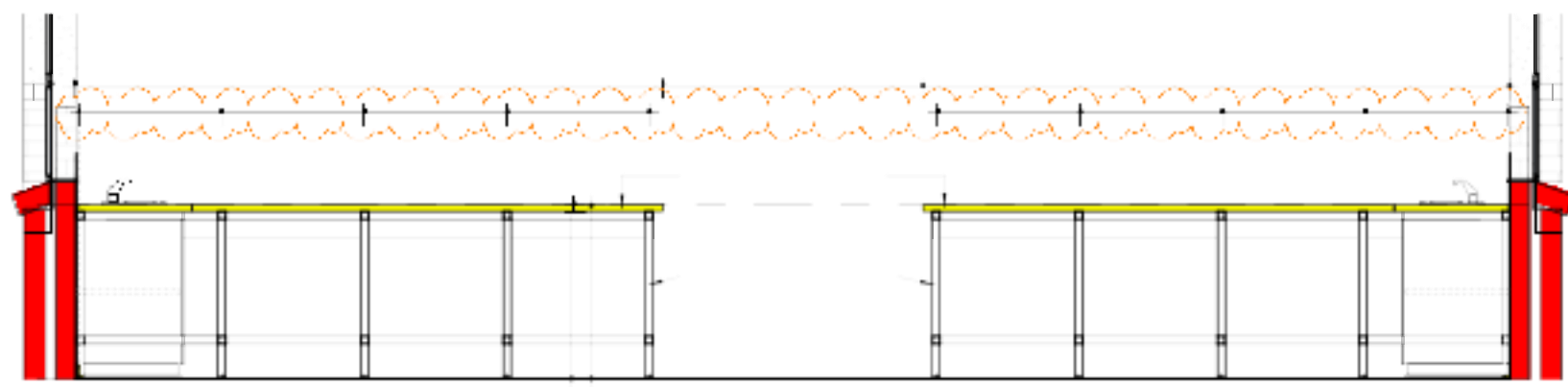
SCIENCE BLOCK JOINERY DETAILS

SCALE	As indicated
DATE	24/11/2017
RECOMMENDED	Designer
ISSUED	C HEPBURN
DRAWN	ZM





PROJECT NO : 2183	DRAWING/SHEET NO 500 C	REVISION NO : PR02
EMIS NO : 200500666		







1 Chemical & Equipment  
Store Joinery Layout Plan  
1 : 50

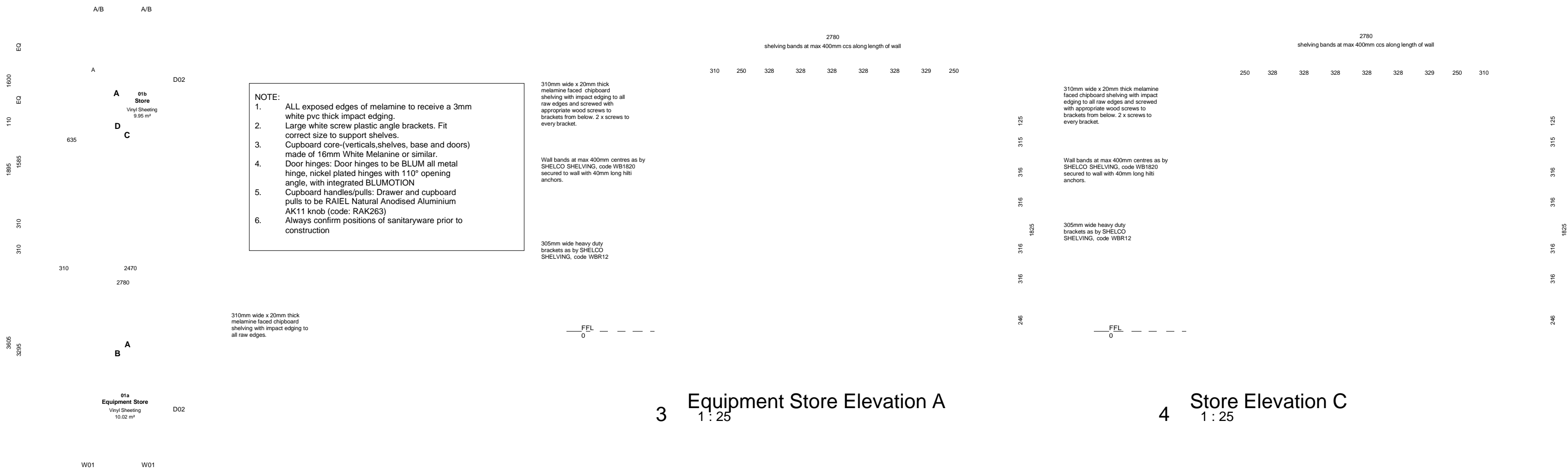
10 Gas Bottle Storage Plan  
1 : 10

9 Front Elevation  
1 : 10

PROJECT NO : 2183	DRAWING/SHEET NO 501 C	REVISION NO : PR02
EMIS NO : 200500666		

3mm Square tubing  
40 x 40 x 3mm Angle iron framework  
bolted to masonry wall with 8mm Rawl  
bolts, refer to elevation for position and  
amounts  
170mm High concrete footing, chamfered  
as indicated





## GENERAL NOTE

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- DRAWINGS NOT TO BE SCALED.
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- BUILDINGS ON SITE IN RELATION TO SITE BOUNDARIES AND BUILDING LINES.
- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DETAIL AND DRAWINGS.
- FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
PR01	24/11/2017	ZM	revised referencing

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APPROVED BY CLIENT

APPROVED BY

APPROVED BY

DRAWING STATUS

PRE-CONSTRUCTION

PROJECT TITLE

MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION

MULTI-PURPOSE CLASSROOM JOINERY DETAILS

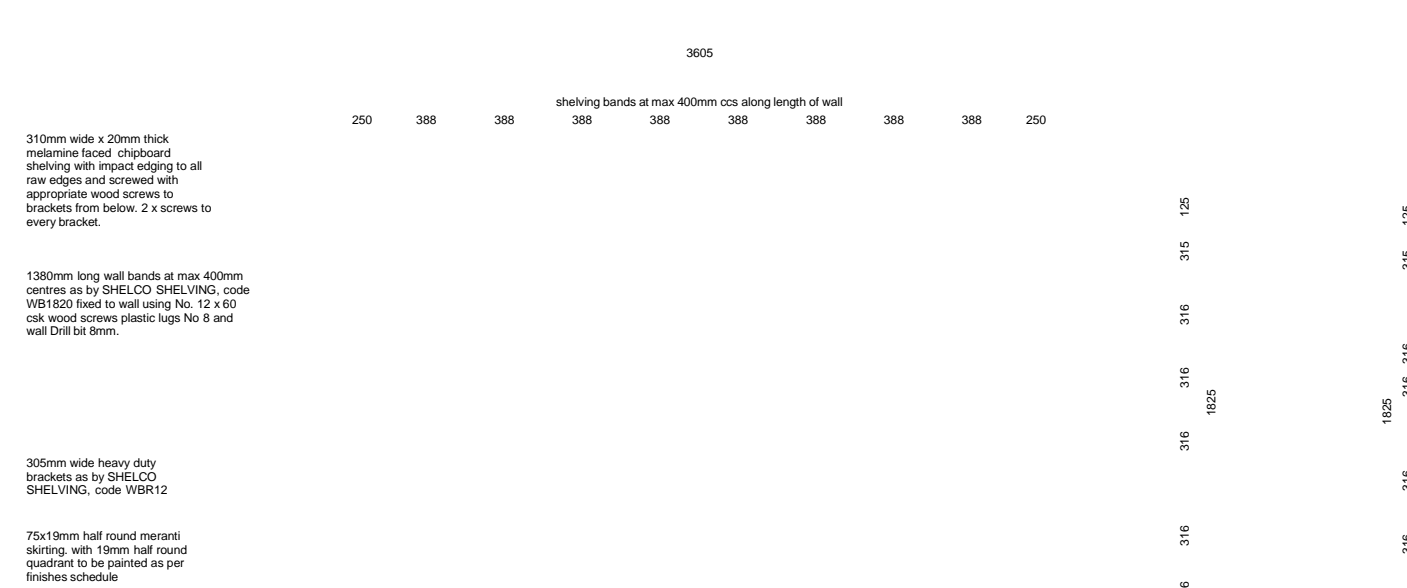
SCALE	As indicated
DATE	28 April 2017
RECOMMENDED	C HEPBURN
ISSUED	C HEPBURN
DRAWN	ZM

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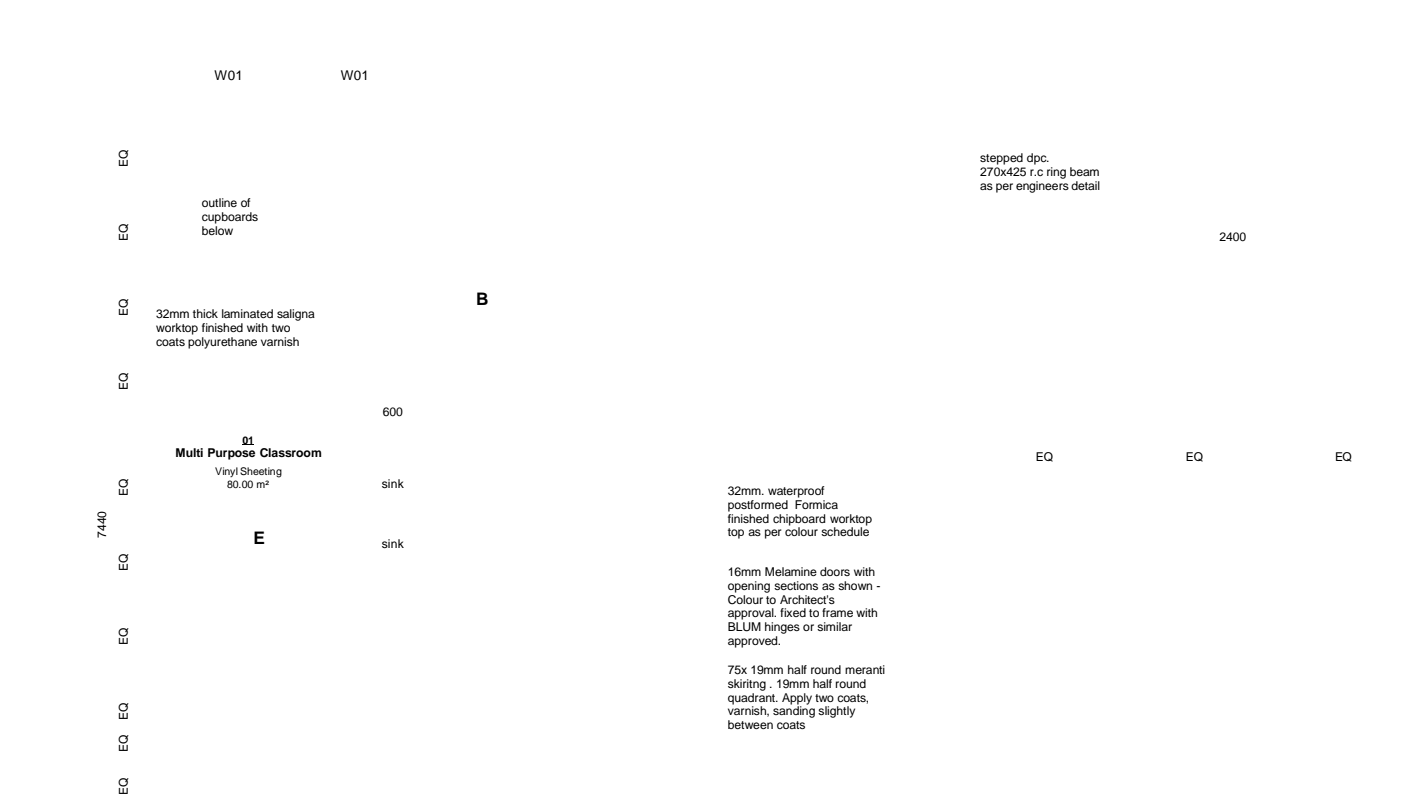
KOKSTAD  
Tel. - (039) 727 5502  
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P. O. Box 1992  
KOKSTAD

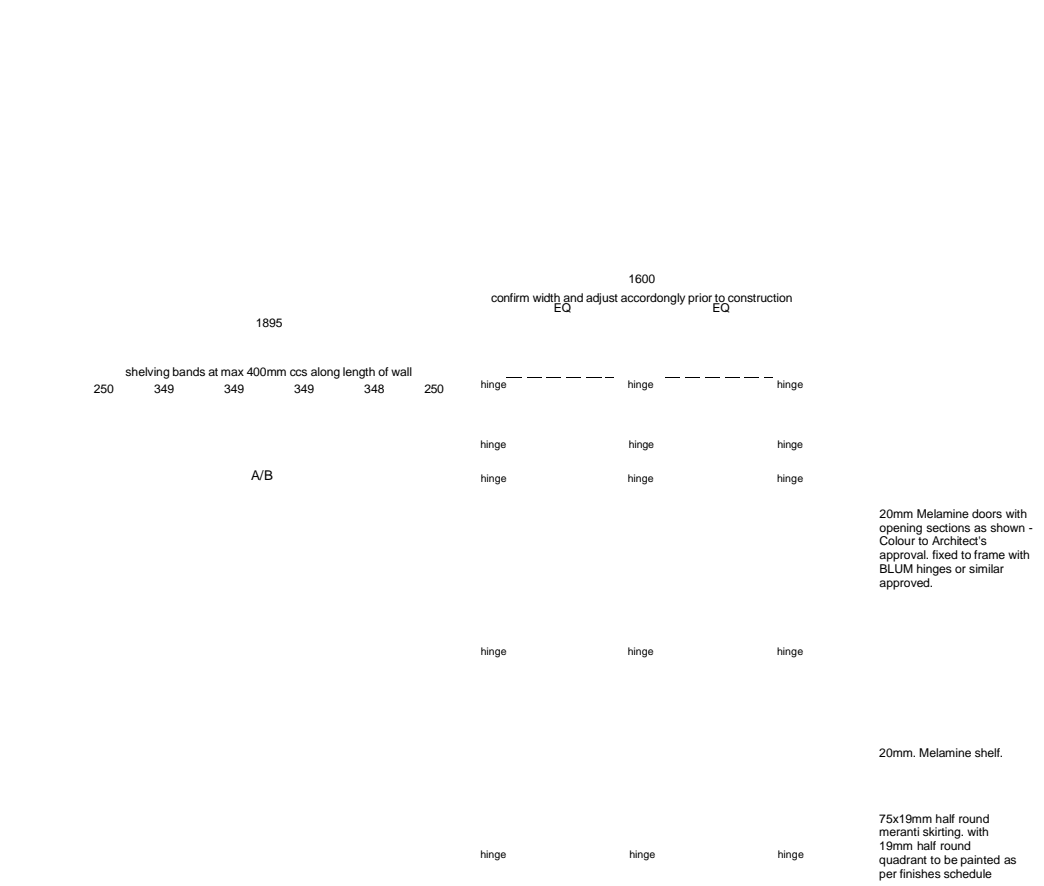
## 1 Store Joinery Plan



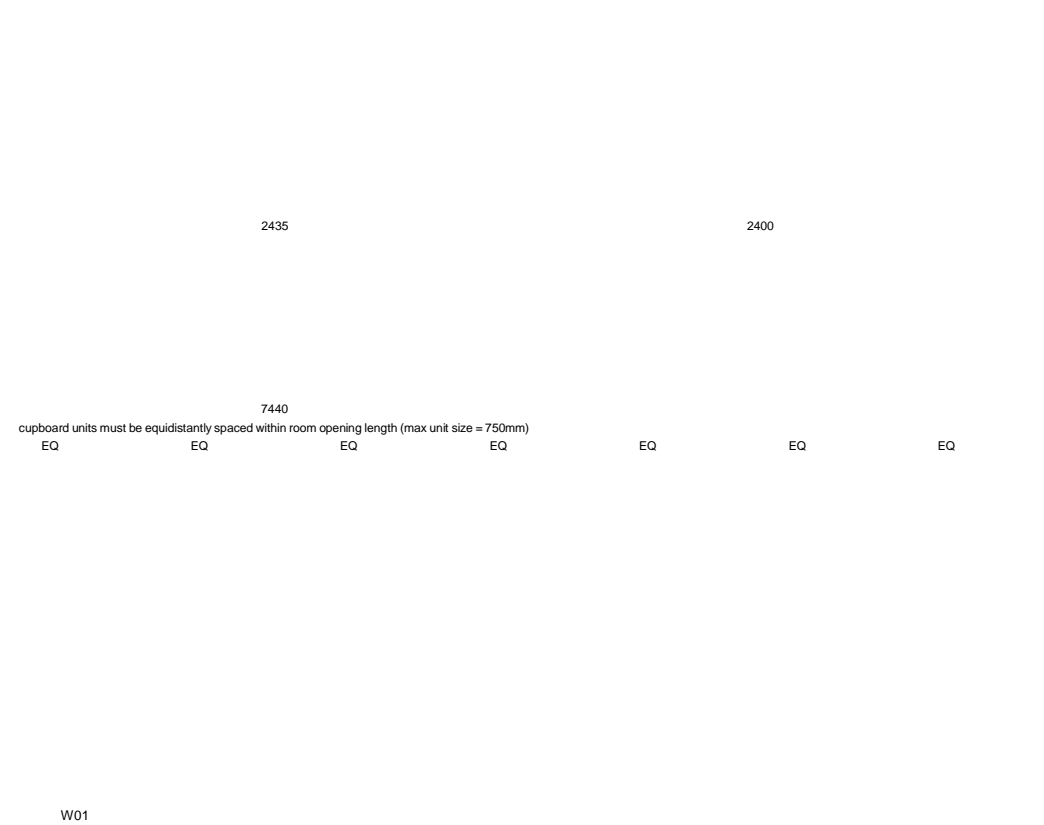
## 2 Equipment Store Elevation B



## 3 Equipment Store Elevation A



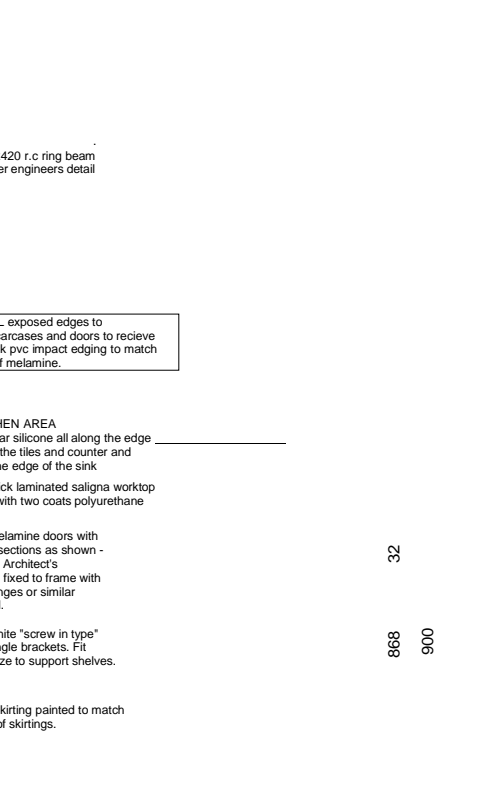
## 5 Store Elevation D

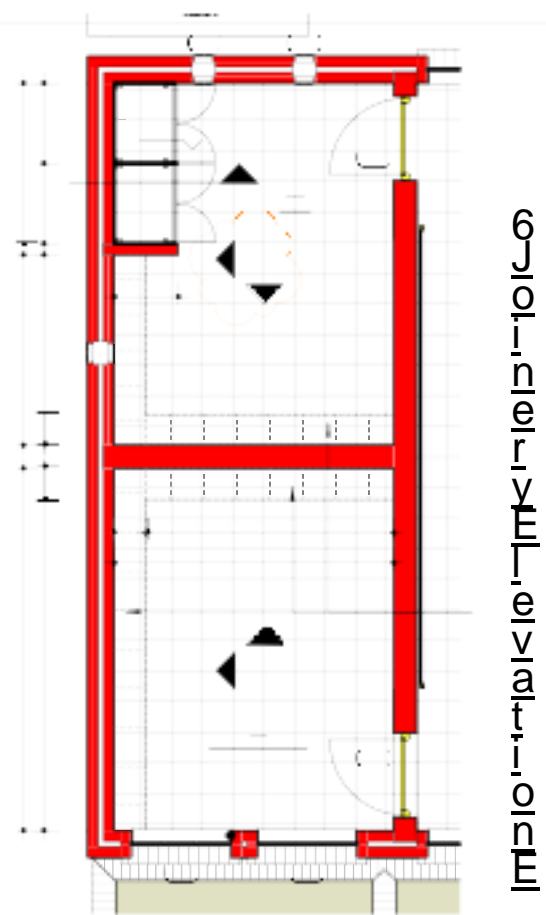


## 4 Store Elevation C



## 9 Section A-A

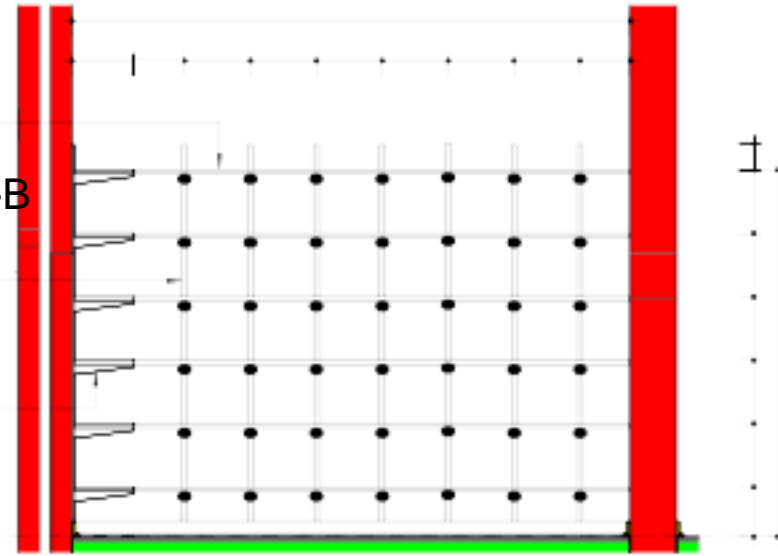




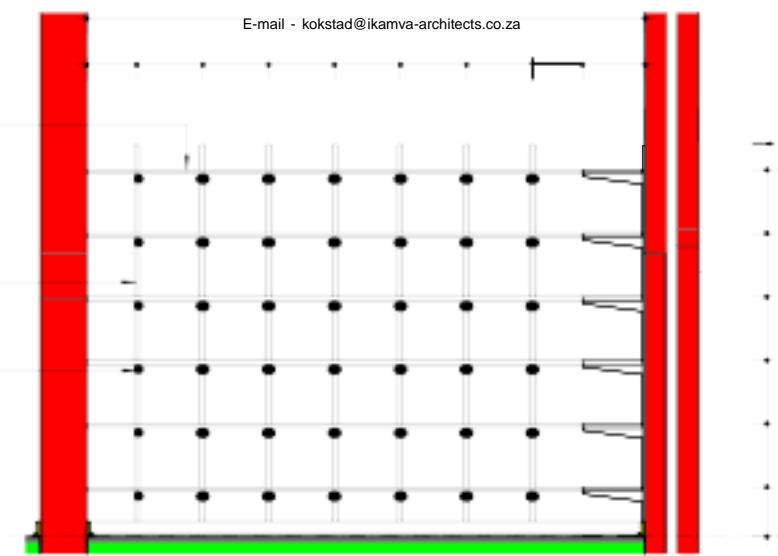
1  
50

8 Section B-B

Pine blocking piece for support at maximum 1000mm centres.



E-mail - kokstad@ikamva-architects.co.za

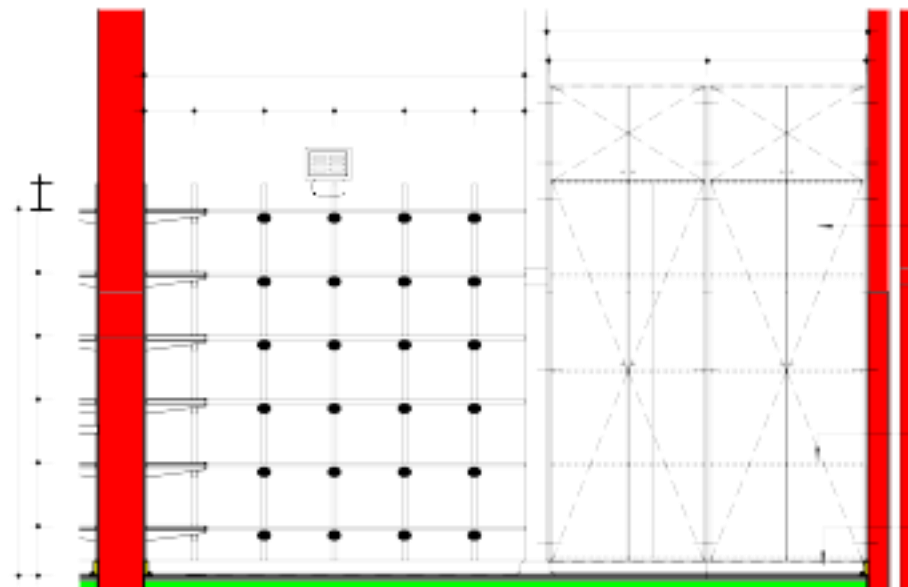
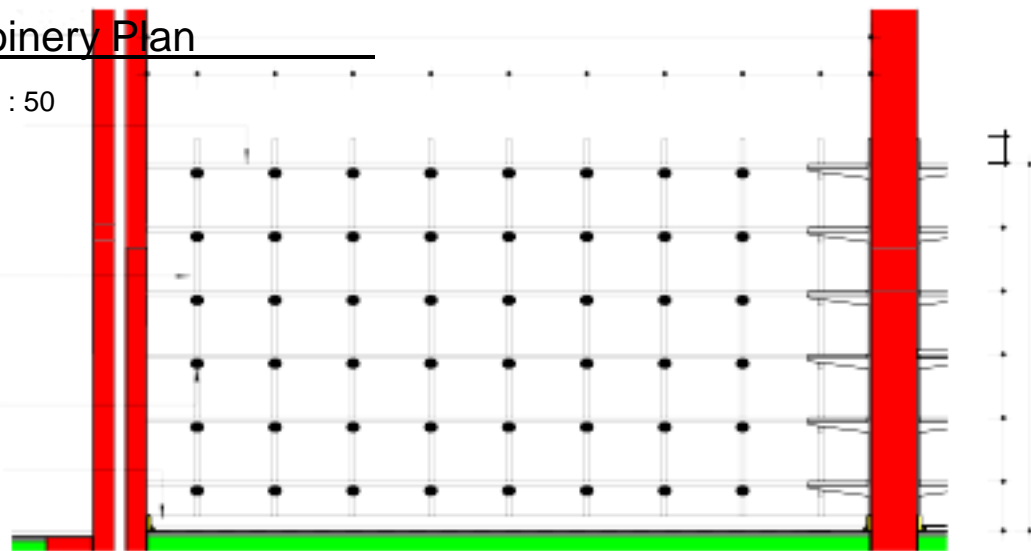


4700

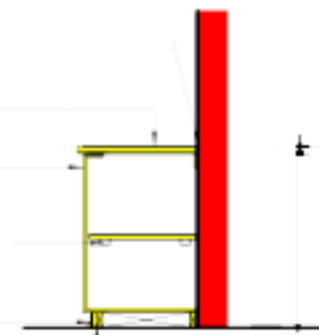
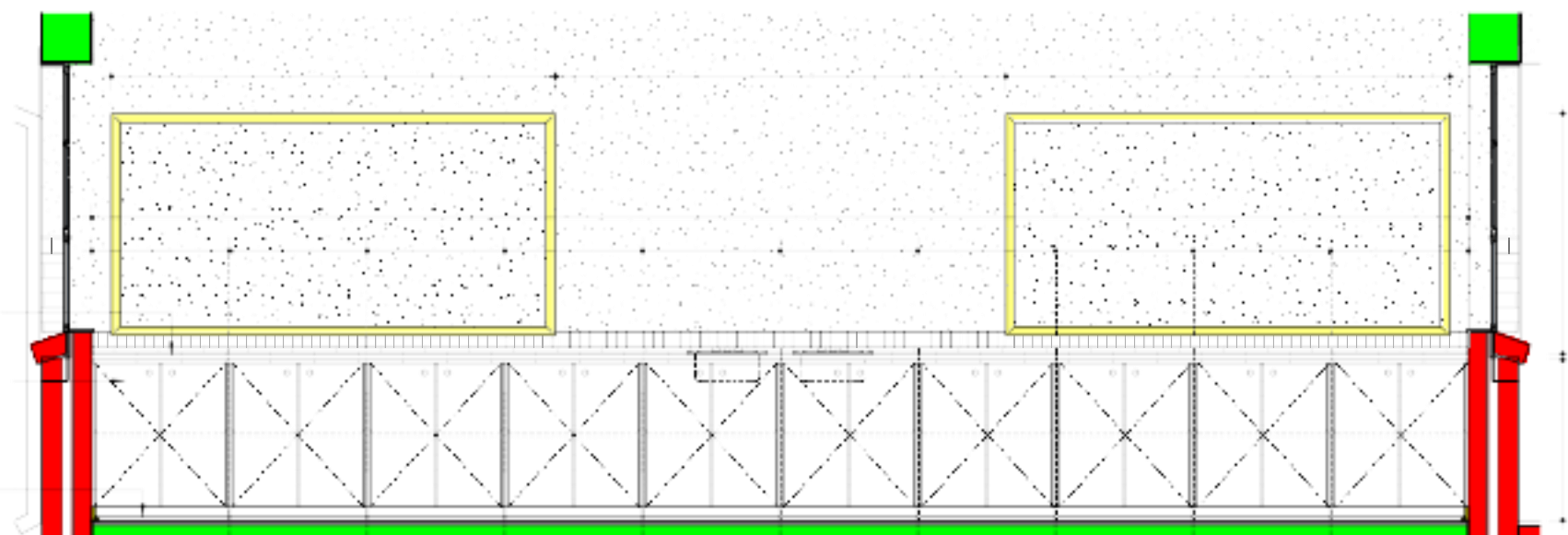
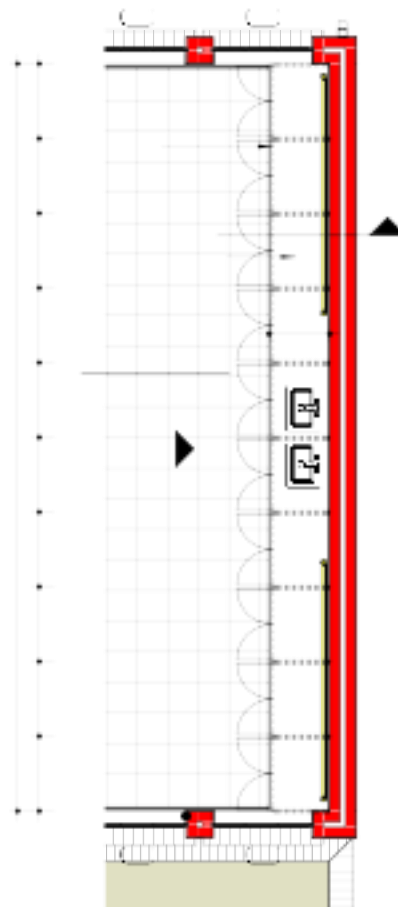
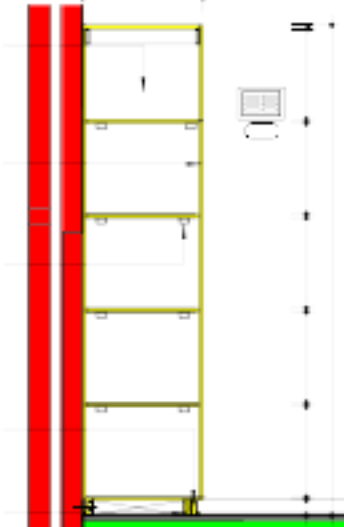
PROJECT NO : 2183	DRAWING/SHEET NO 500 F	REVISION NO : PR00
EMIS NO : 200500666		

7 Joinery Plan

1 : 50



1 : 25





GENERAL NOTE

1. ALL DIMENSIONS AND ALL LEVELS TO BE CHECKED ON SITE AND WHERE APPLICABLE TO MATCH EXISTING STRUCTURE.
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9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
PR01	24/11/2017	ZM	Sectional Elevation A referencing updated

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DRAWING STATUS

PRE-CONSTRUCTION

PROJECT TITLE

MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION

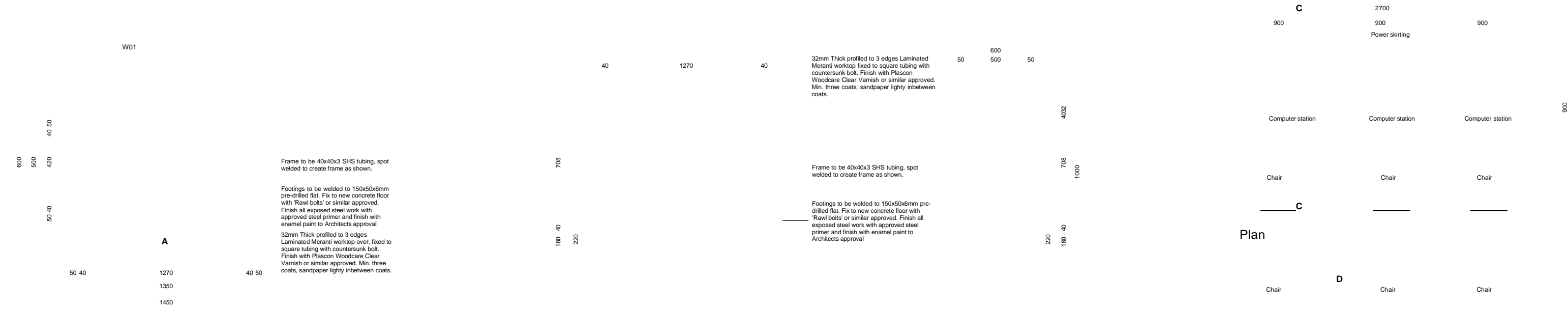
MEDIA CENTRE JOINERY DETAILS

SCALE	As indicated
DATE	24/11/2017
RECOMMENDED	C HEPBURN
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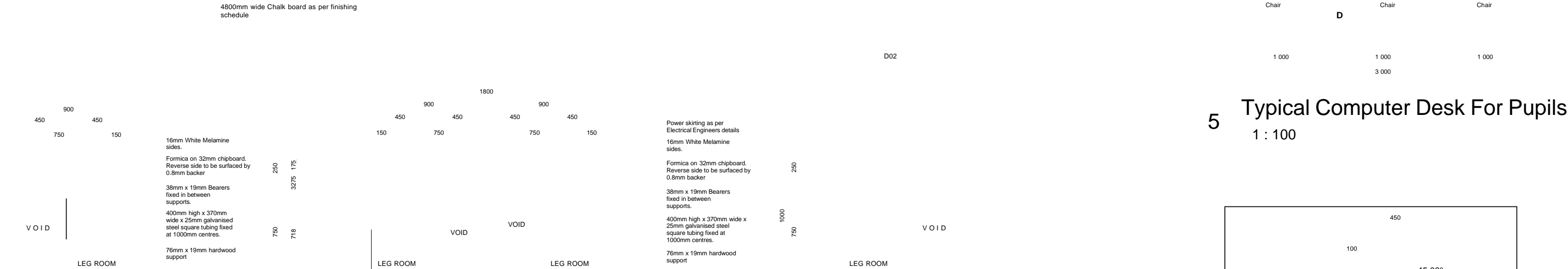
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1 Typical Computer Worktop  
1 : 20

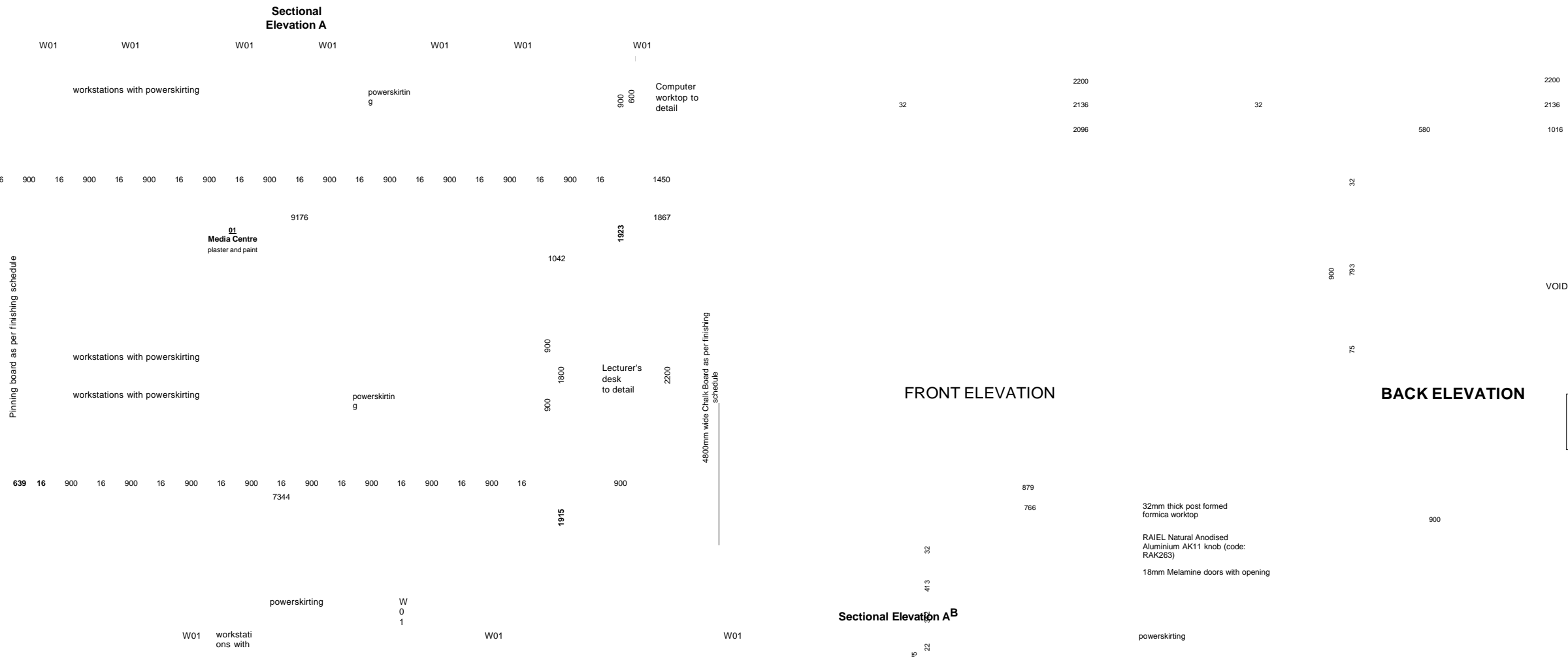
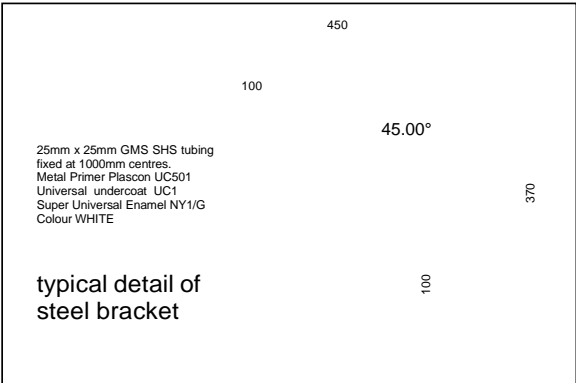
2 Computer worktop detail  
1 : 20

3 Section A-A  
1 : 20



4 Sectional Elevation A  
1 : 20

5 Typical Computer Desk For Pupils  
1 : 100



FRONT ELEVATION

BACK ELEVATION

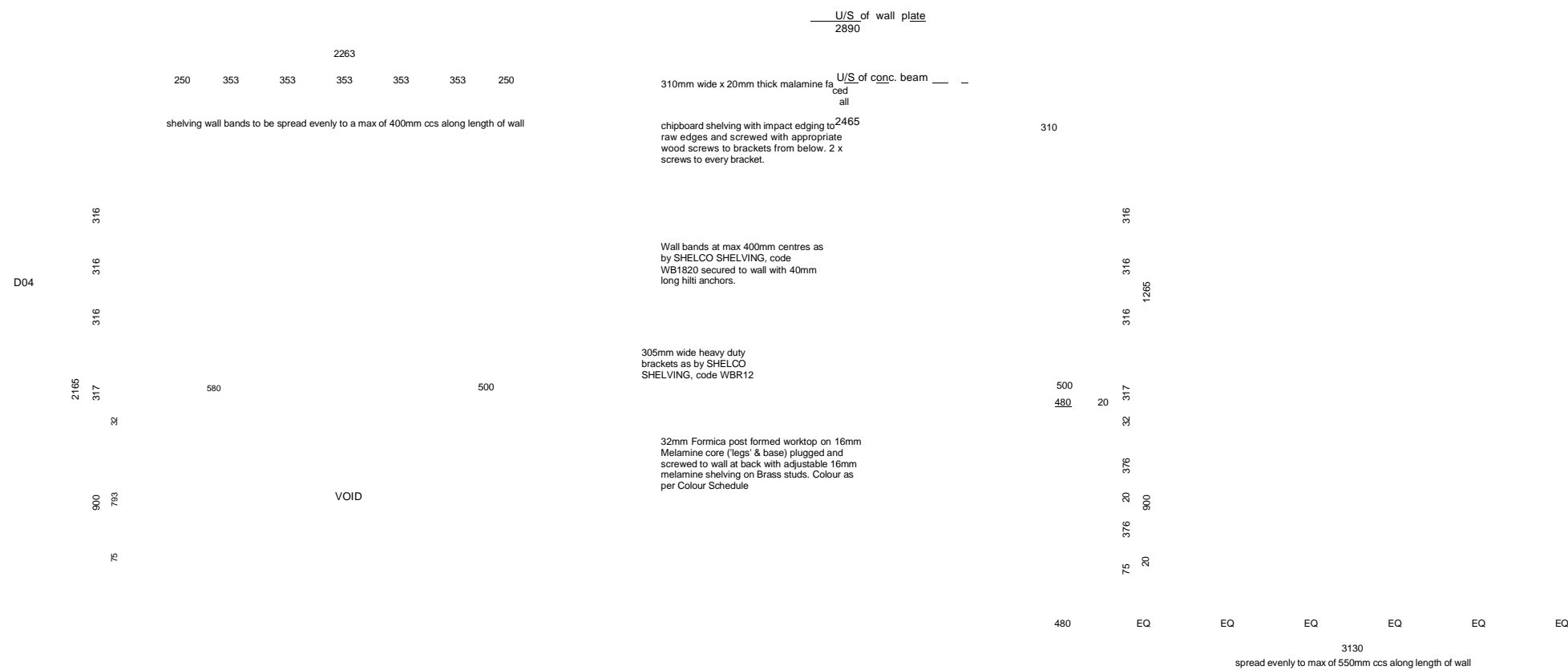
Sectional Elevation AB

NOTE:  
ALL exposed edges of melamine to receive a 3mm white pvc thick impact edging.

100 x 16mm melamine to match cupboards screwed against wall to form support for counter.  
1 1/2 x 16mm melamine screwed into counter top.  
Exposed edges to have white edging.  
550mm BLUM drawer

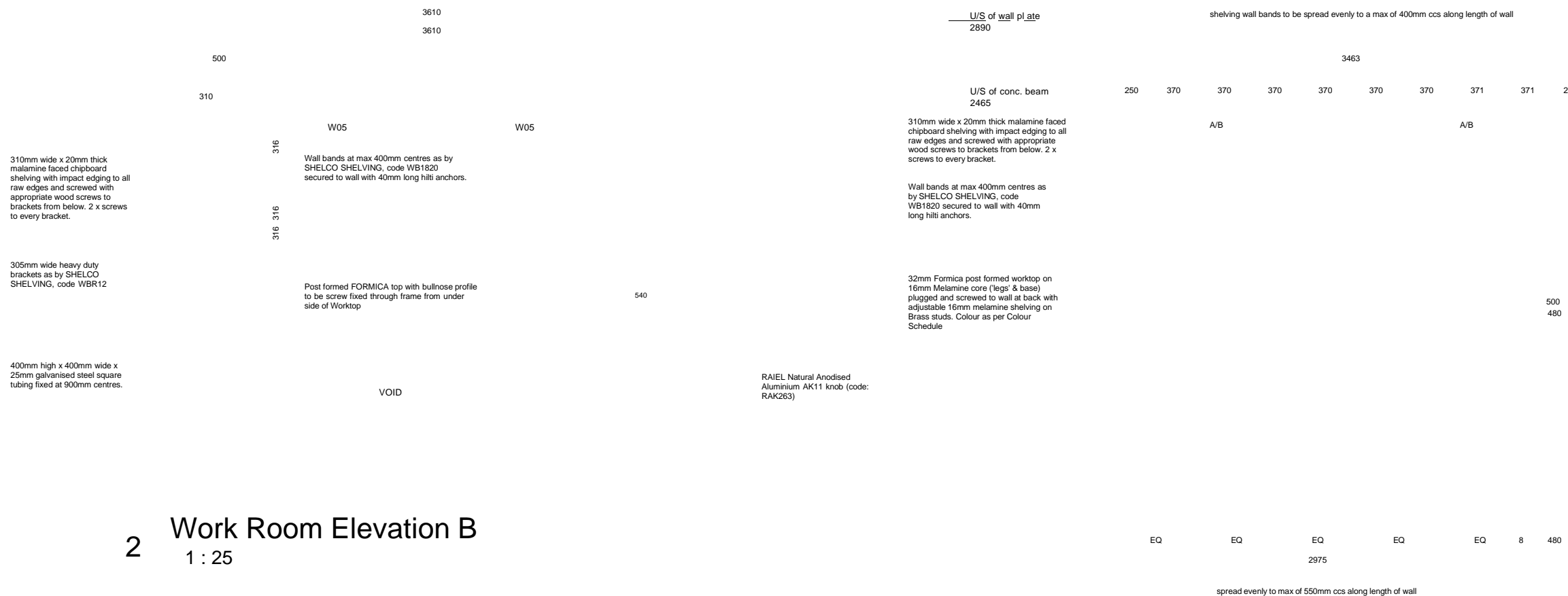
- NOTE:
- ALL exposed edges of melamine to receive a 3mm thick white pvc impact edging.
  - Large white screw plastic angle brackets. Fit correct size to support shelves.
  - Cupboard core-(verticals,shelves, base and doors) made of 16mm White Melanine or similar.
  - Door hinges: Door hinges to be BLUM all metal hinge, nickel plated hinges with 110° opening angle, with integrated BLUMOTION
  - Drawer runners: Drawer runners to be BLUM full extension, ball bearing drawer runners.
  - Cupboard handles/pulls: Drawer and cupboard pulls to be RAIEL Natural Anodised Aluminium AK11 knob (code: RAK263)





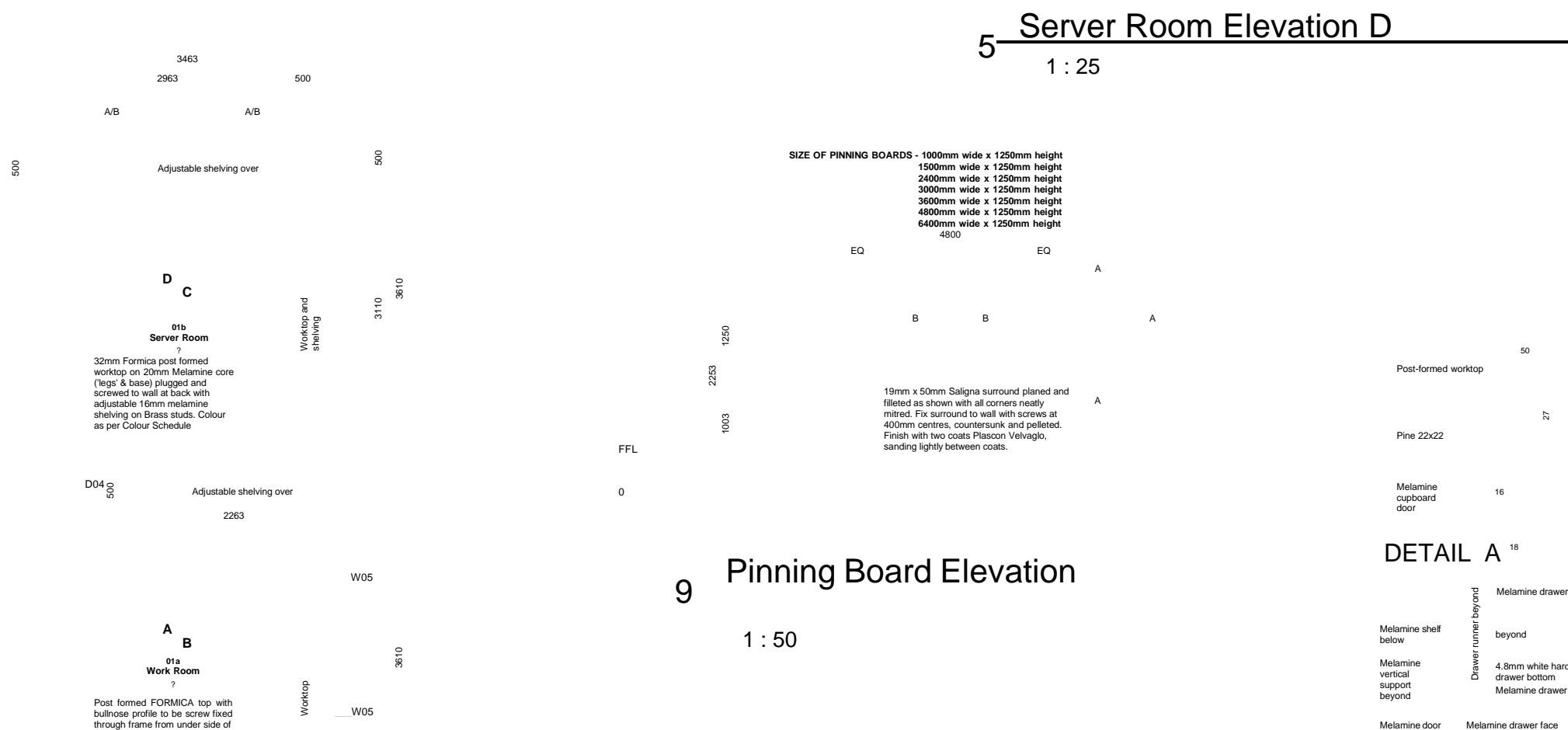
## Work Room Elevation A

1 : 25



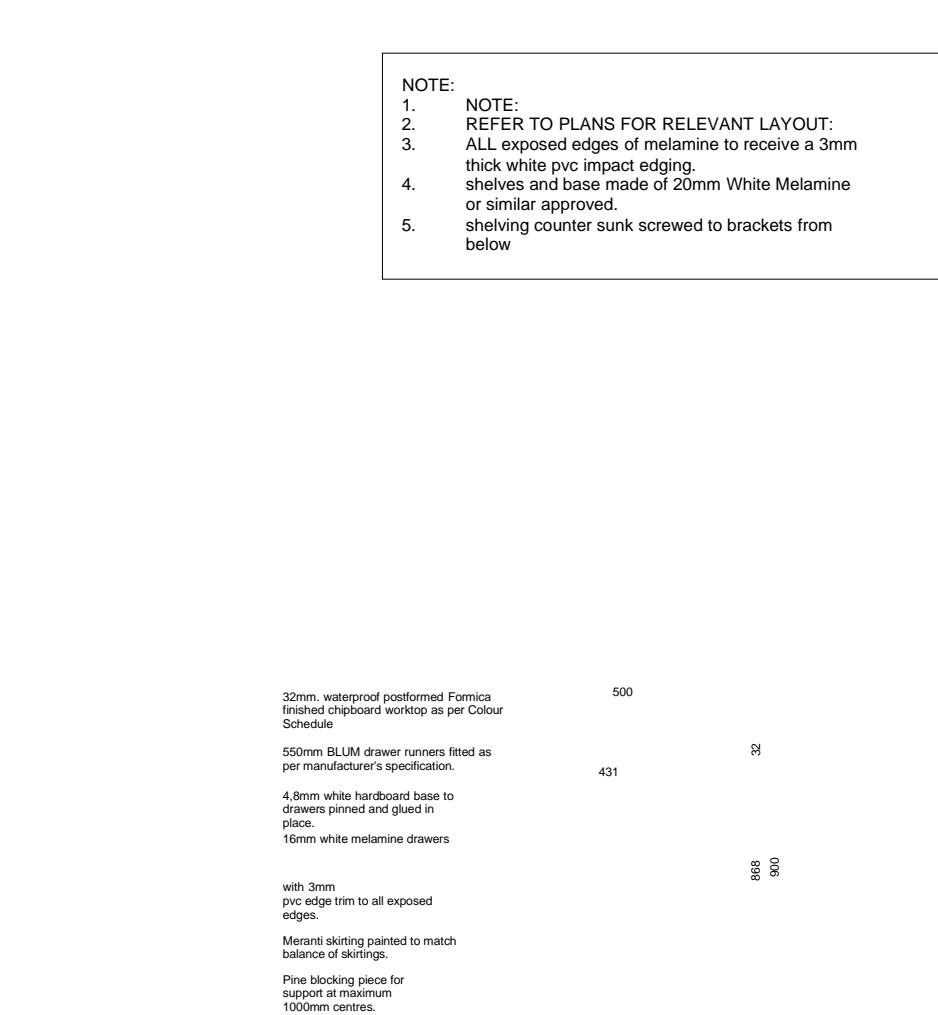
## 2 Work Room Elevation B

1 : 25



### 9 Pinning Board Elevation

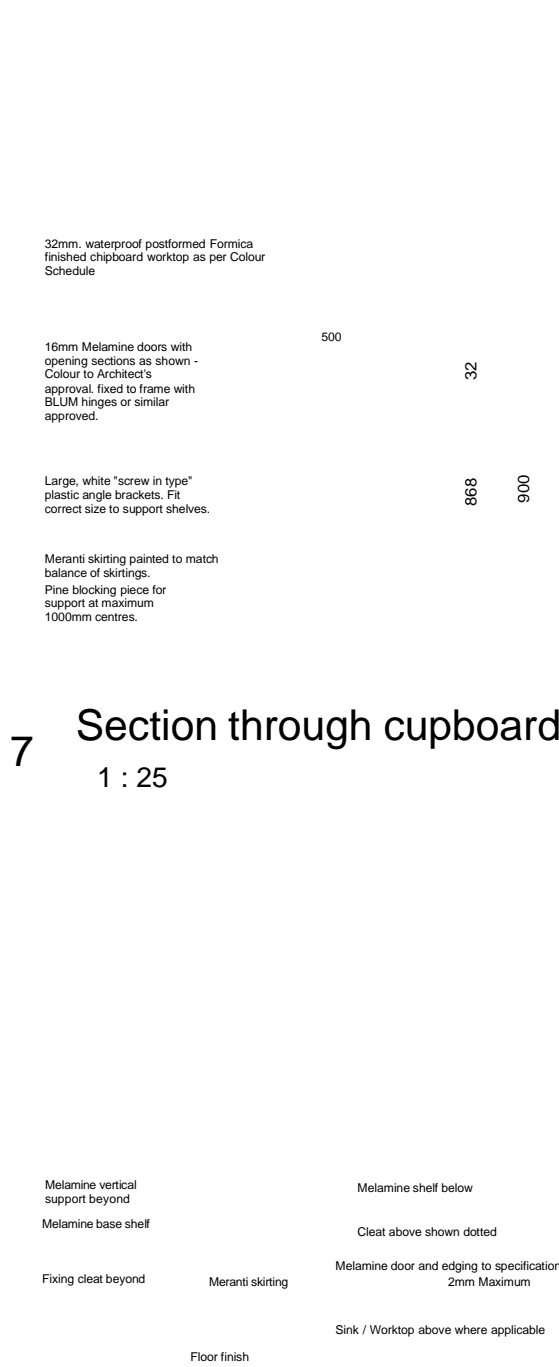
1 : 50



## Section through drawers

6

1 : 25



→ Section through cupboard

1 : 25

GENERAL NOTE
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9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS			
REV	DATE	SIGN	DESCRIPTION
PR01	24/11/2017	ZM	dimemsions updated, airbricks shown on plan, revised referencing in Server room

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DRAWING STATUS
PRE-CONSTRUCTION
PROJECT TITLE
MGOMANZI PRIMARY SCHOOL
DRAWING DESCRIPTION
MEDIA CENTRE JOINERY DETAILS

SCALE	As indicated
DATE	24/11/2017
RECOMMENDED	C HEPBURN
ISSUED	C HEPBURN
DRAWN	ZM

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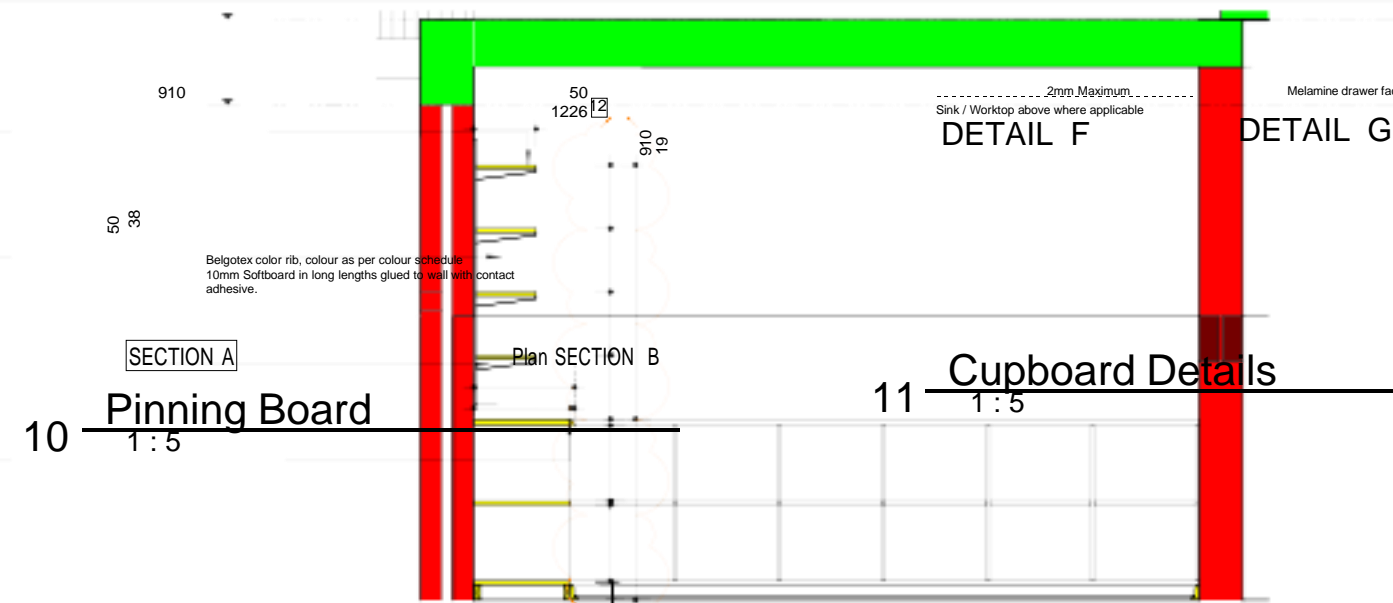
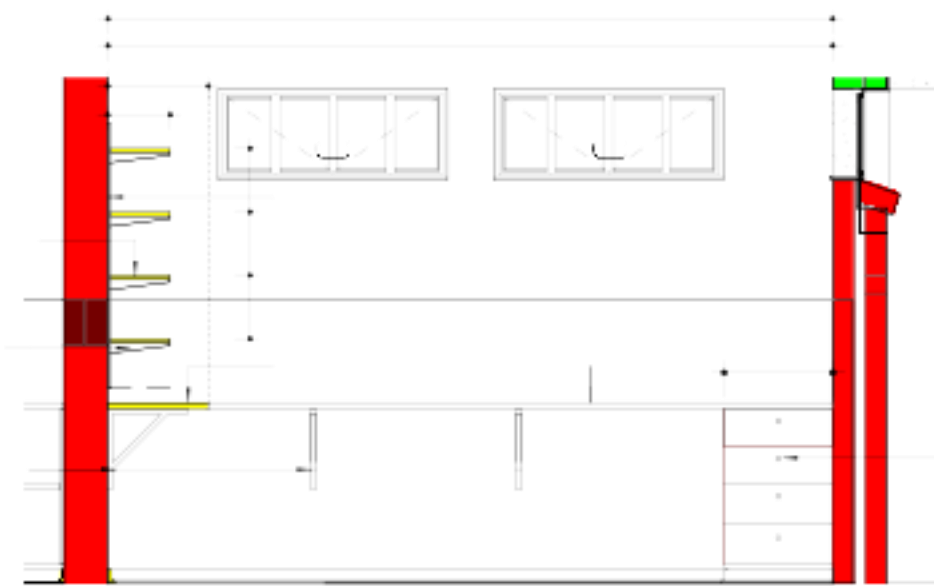
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KOKSTAD  
Mgomanzi SPS - 0472



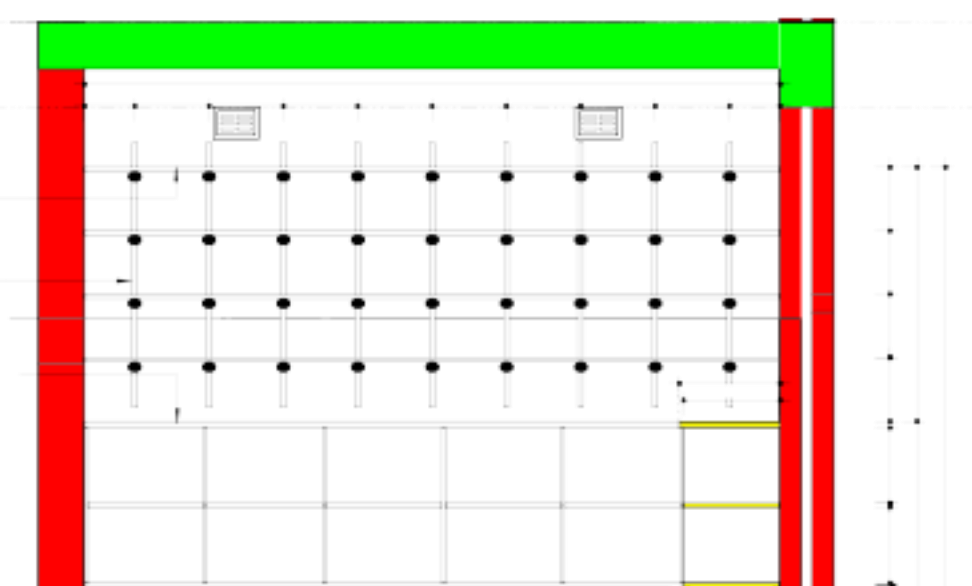
1 Work Room + Server Room Joinery Plan

1:50



10 Pinning Board

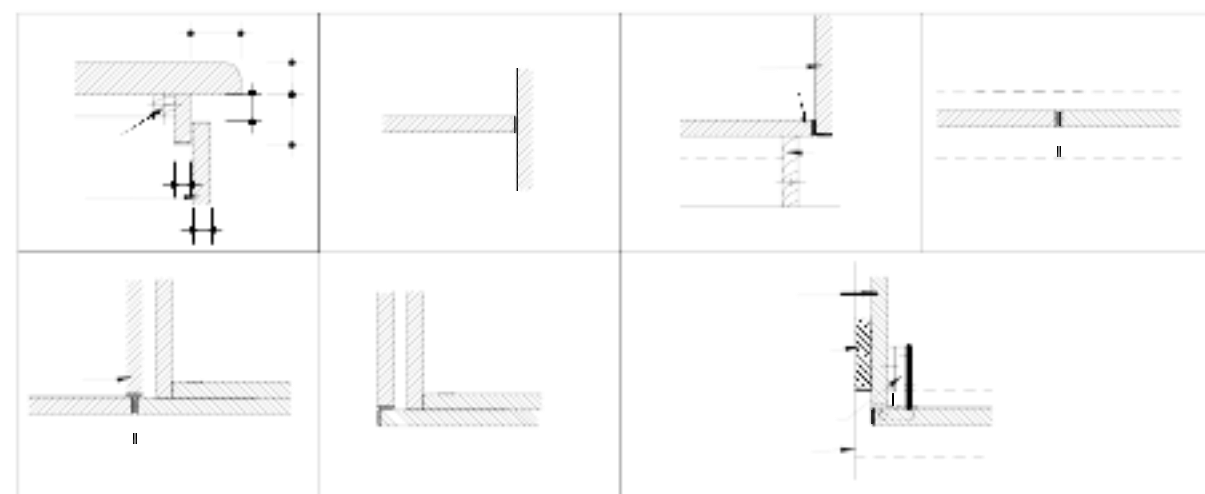
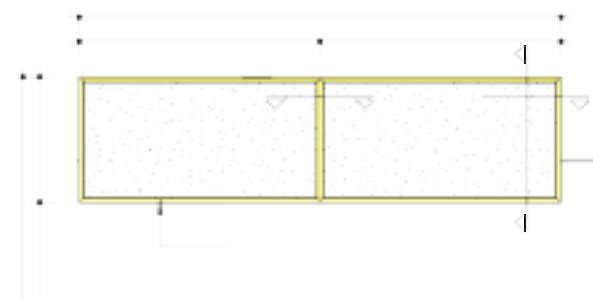
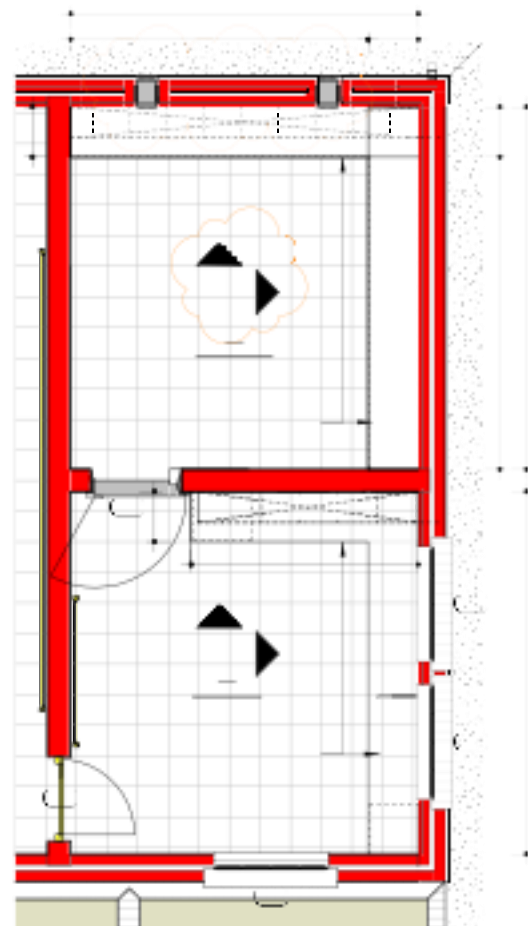
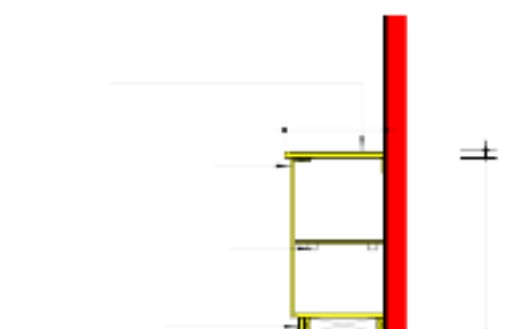
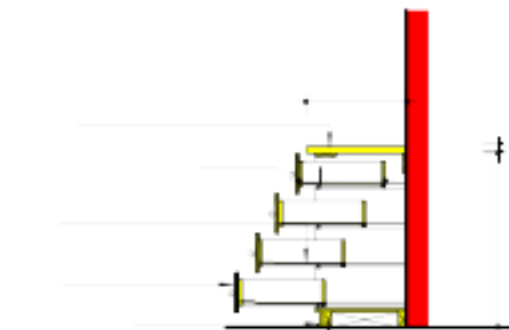
1:5



11 Cupboard Details

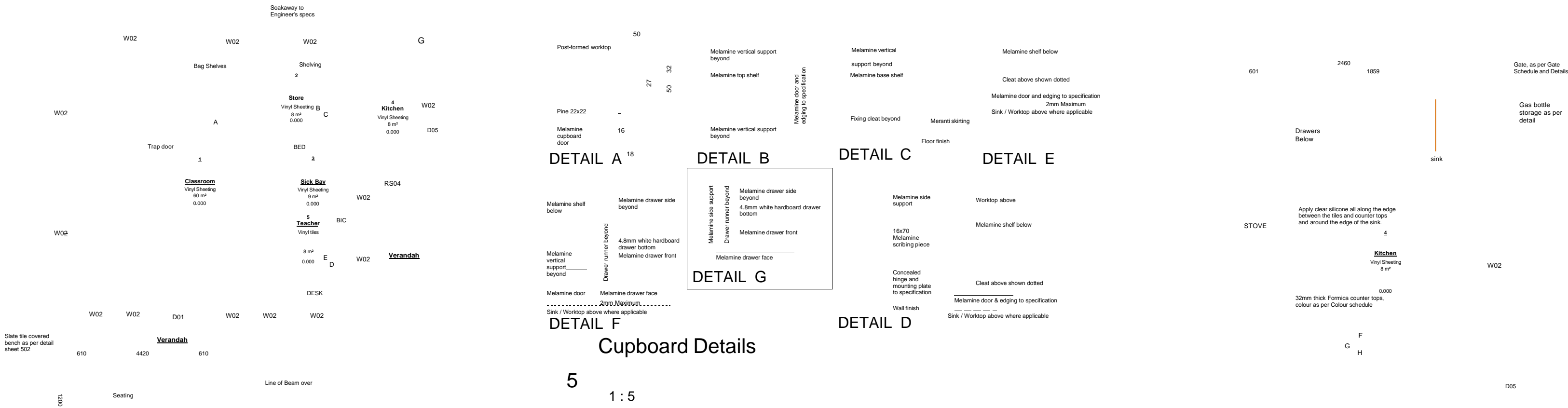
1:5

DETAIL D



E-mail - kokstad@ikamva-architects.co.za 4700		
PROJECT NO : 2183	DRAWING/SHEET NO 501G	REVISION NO : PR01
EMIS.NO.: 200500666		





## 1 Grade R Joinery Layout

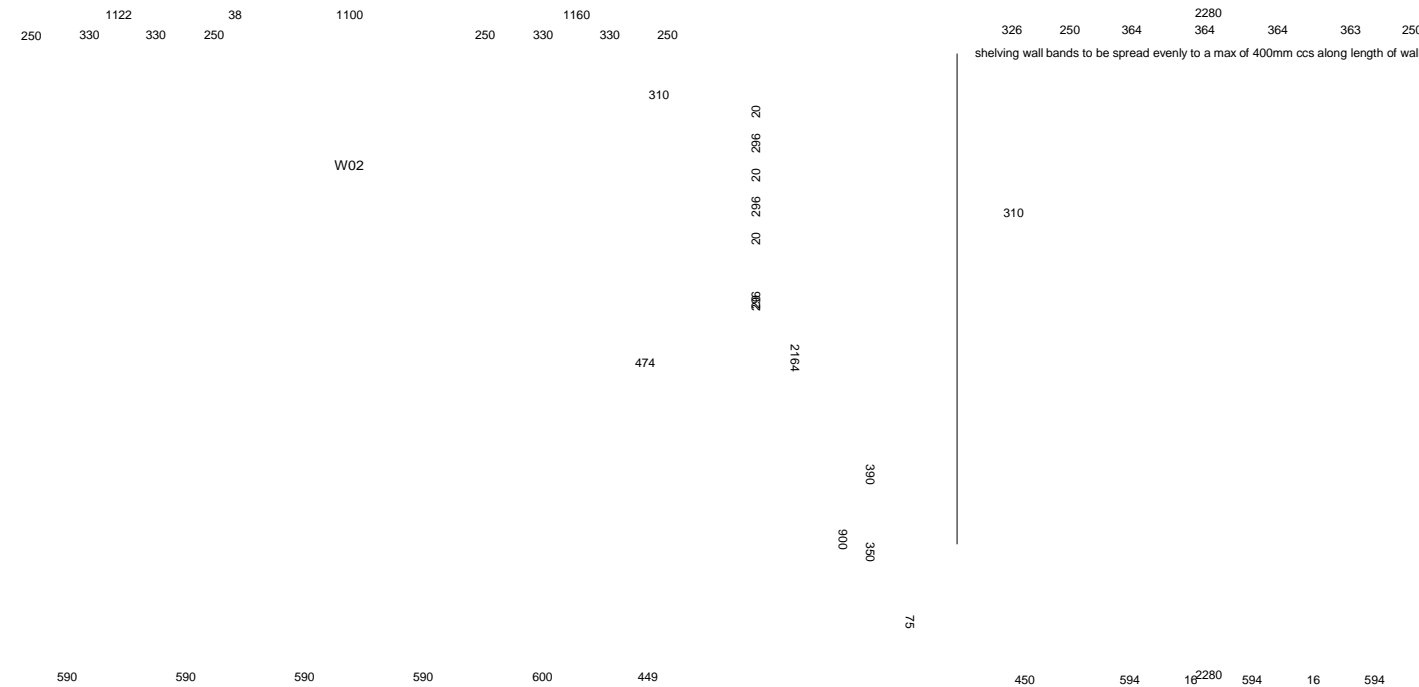
1 : 100

TYPICAL ELEVATION A

SECTION

## 2 Bag Shelf Details

1 : 25

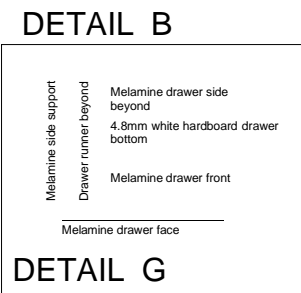


TYPICAL ELEVATION B

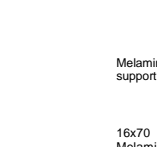
TYPICAL ELEVATION C

## 3 Store

1 : 25



DETAIL B



DETAIL C



DETAIL D



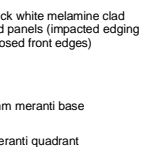
DETAIL E



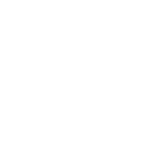
DETAIL F



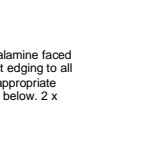
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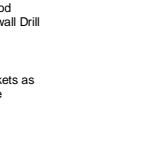
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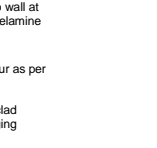
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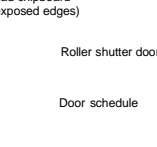
DETAIL J



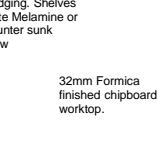
DETAIL K



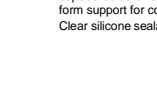
DETAIL L



DETAIL M



DETAIL N



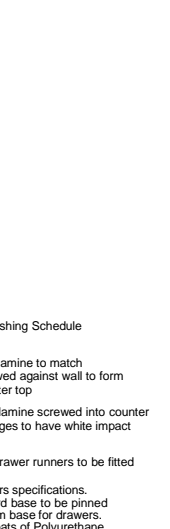
## 6 Grade R Kitchen

1 : 25

ELEVATION F



ELEVATION H



## GENERAL NOTE

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REVISIONS			
REV	DATE	SIGN	DESCRIPTION
PR01	02/06/17	S.L	Changes to gas bottle storage
PR02	24/11/17	S.L	revised joinery referencing, updated kitchen layout, door and window tagging to plan added

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DRAWING STATUS

PRE-CONSTRUCTION

PROJECT TITLE

MGOMANZI PRIMARY SCHOOL

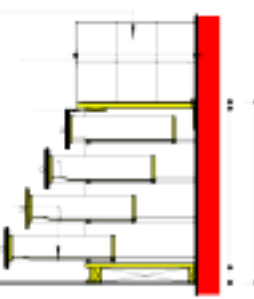
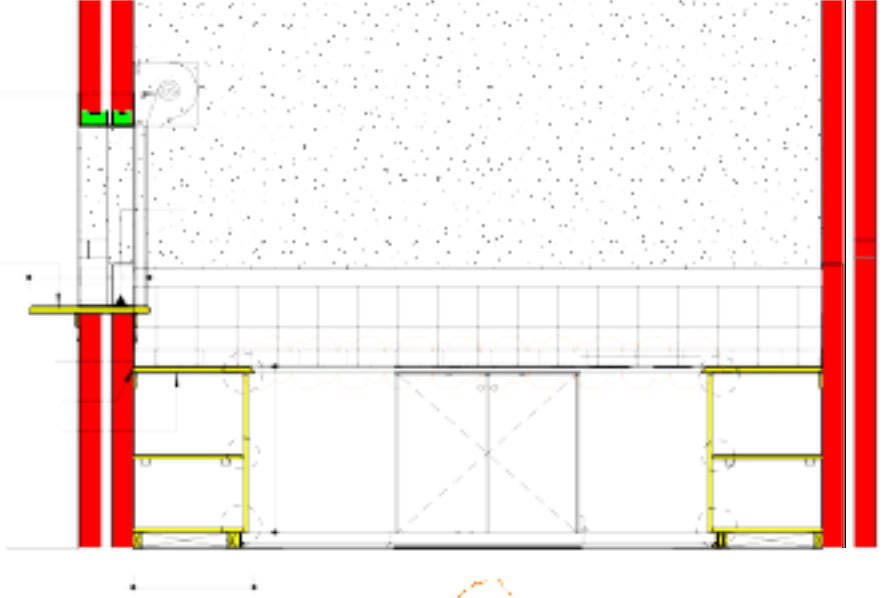
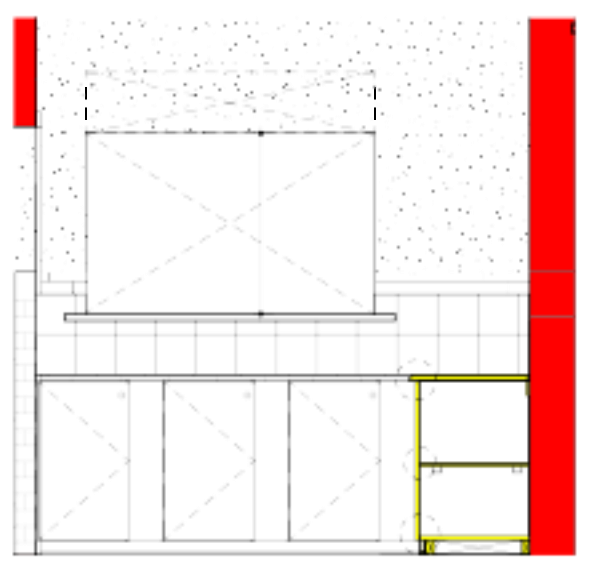
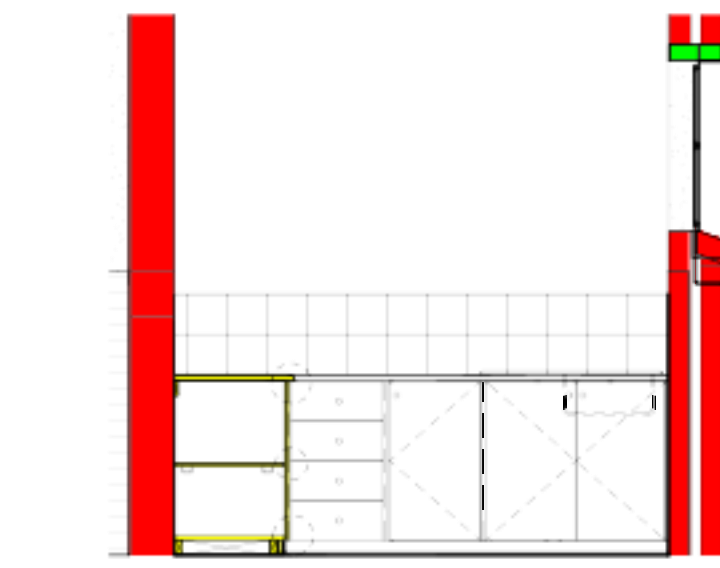
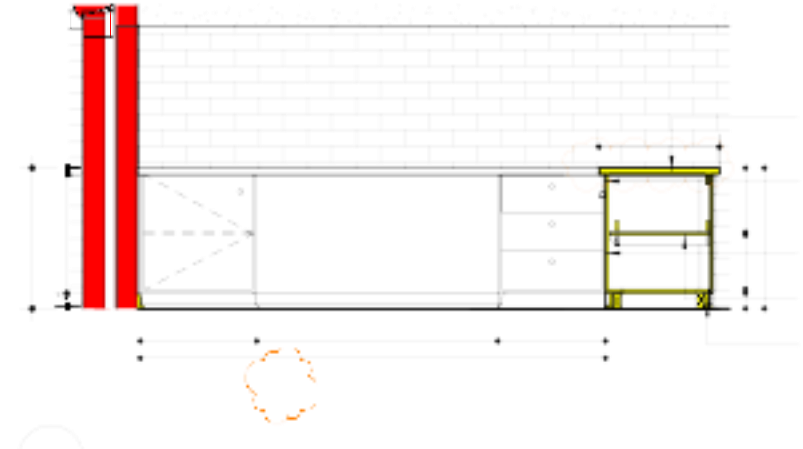
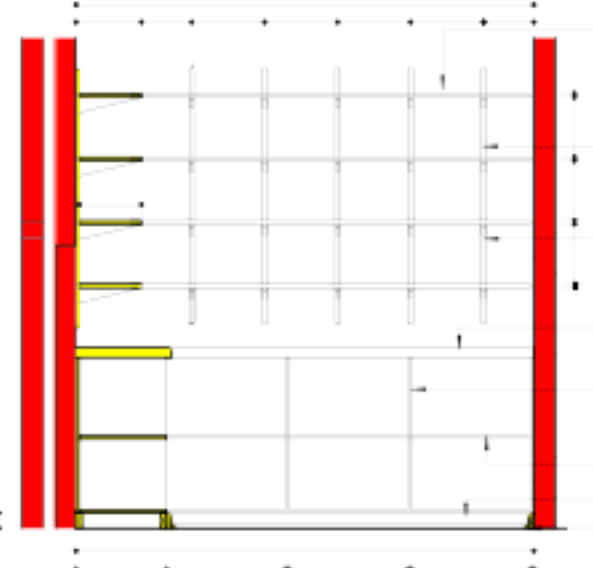
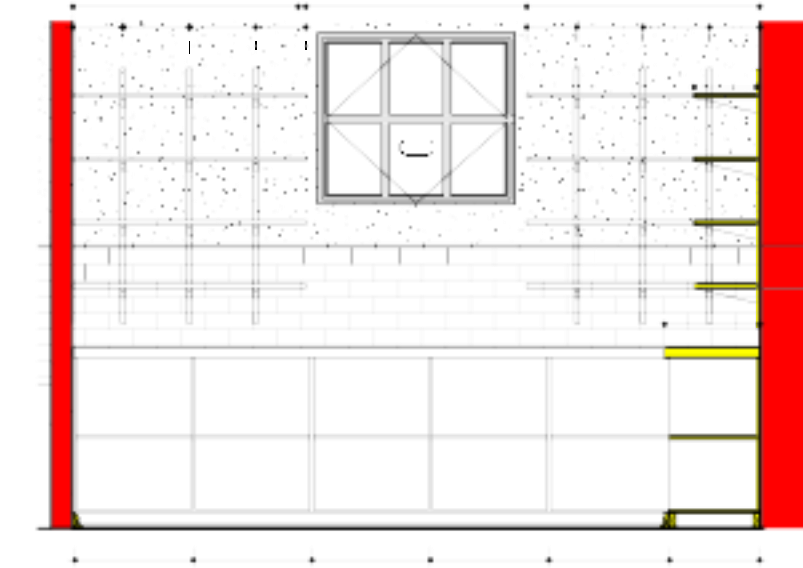
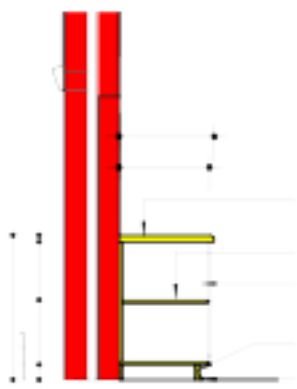
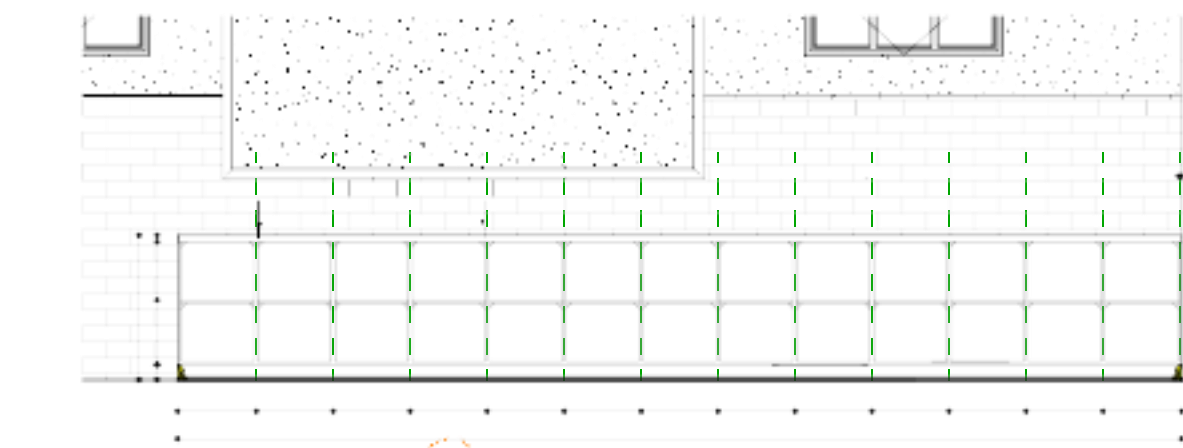
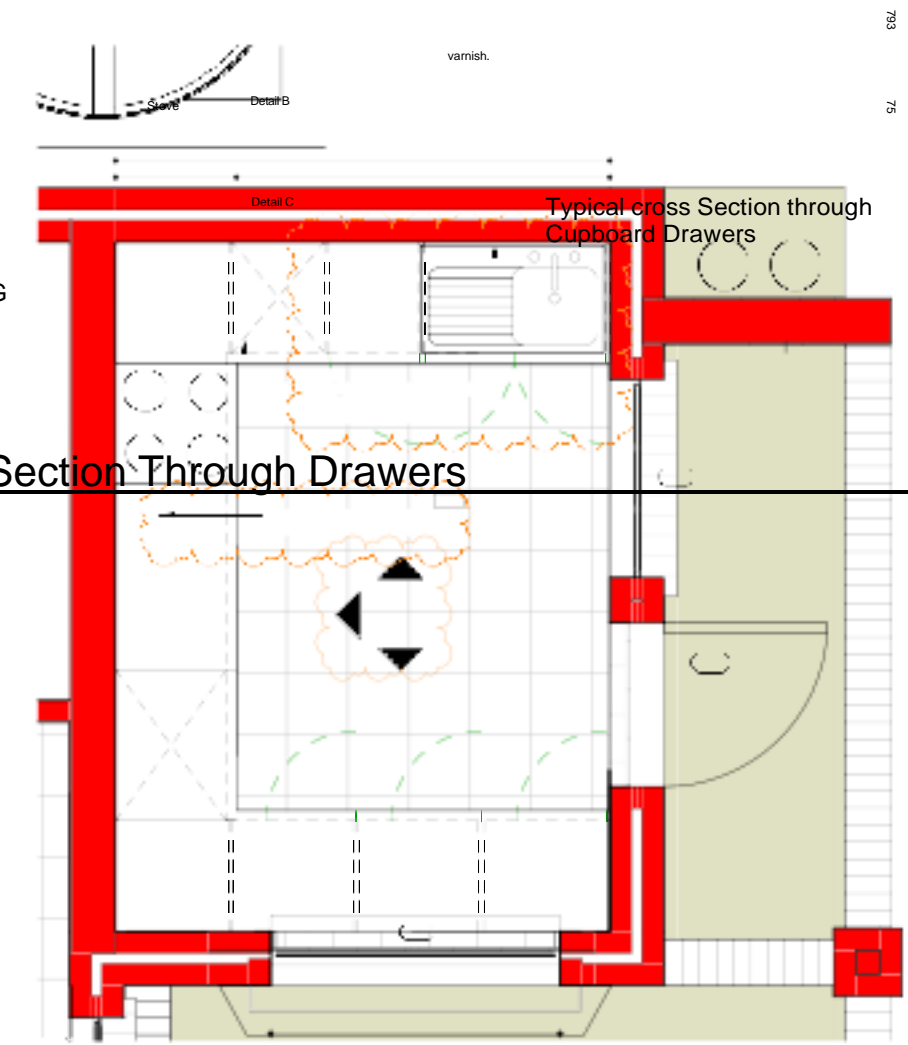
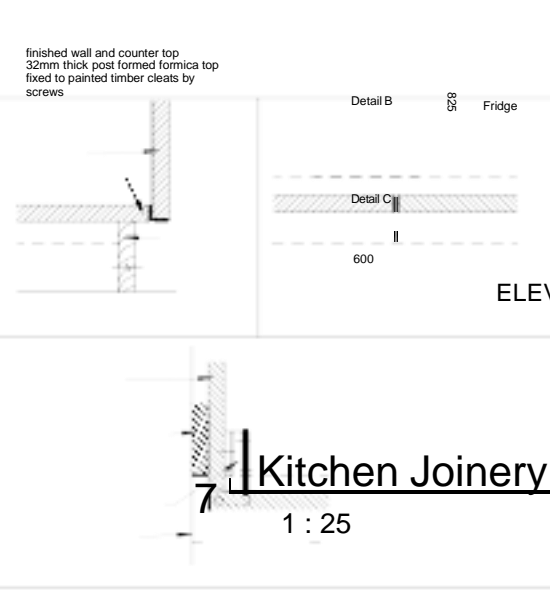
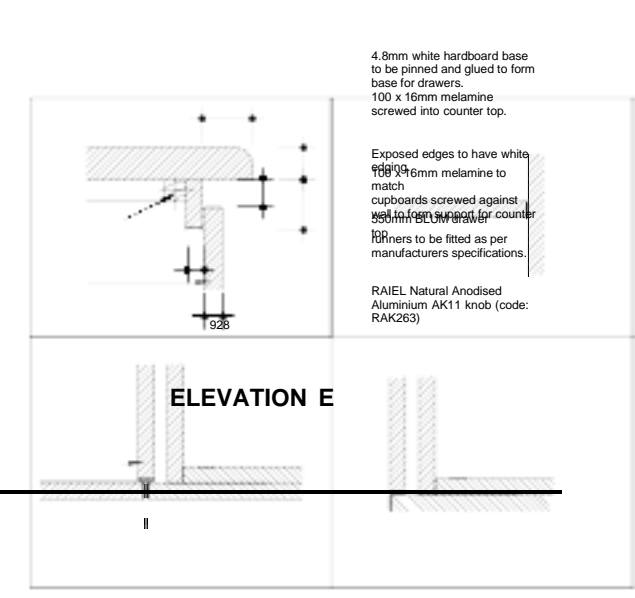
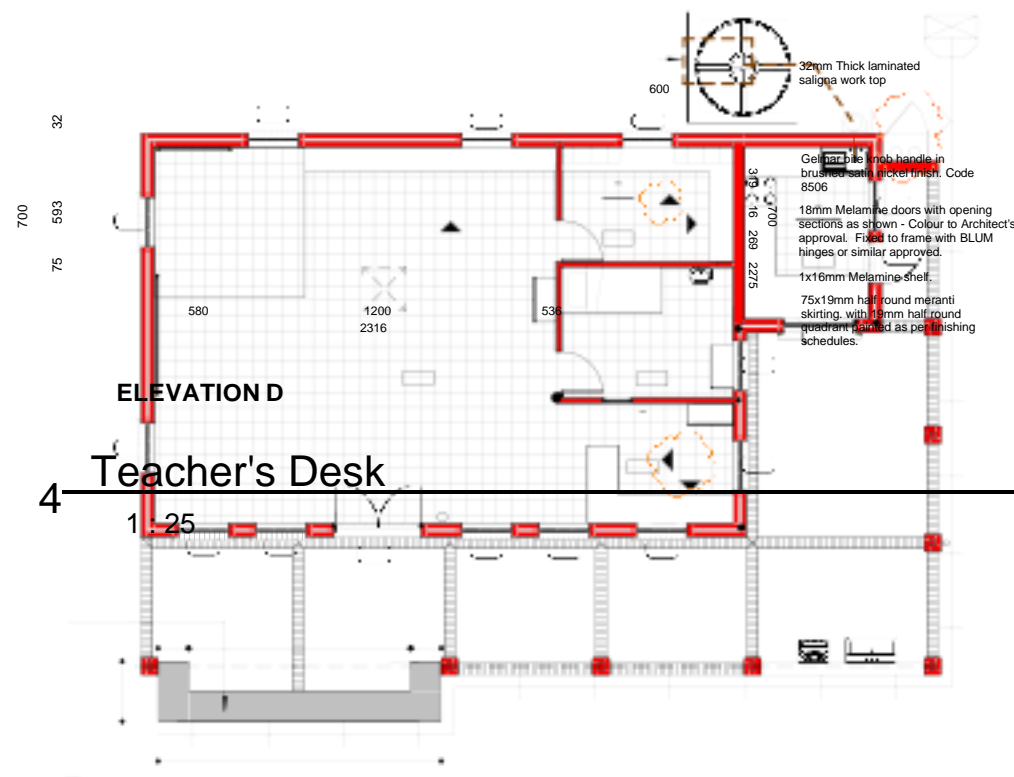
DRAWING DESCRIPTION

GRADE R CLASSROOM

JOINERY

SCALE	As indicated
DATE	24/11/2017
RECOMMENDED	W.K.M BUSS/ C.HEPBURN
ISSUED	W.K.M BUSS/ C.HEPBURN
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P. O. Box 1992  
KOKSTAD

PROJECT NO : 2183  
DRAWING/SHEET NO : 500K  
EMIS NO : 200500666

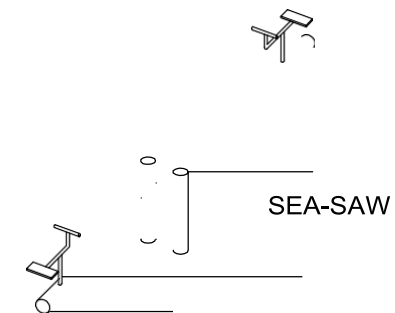
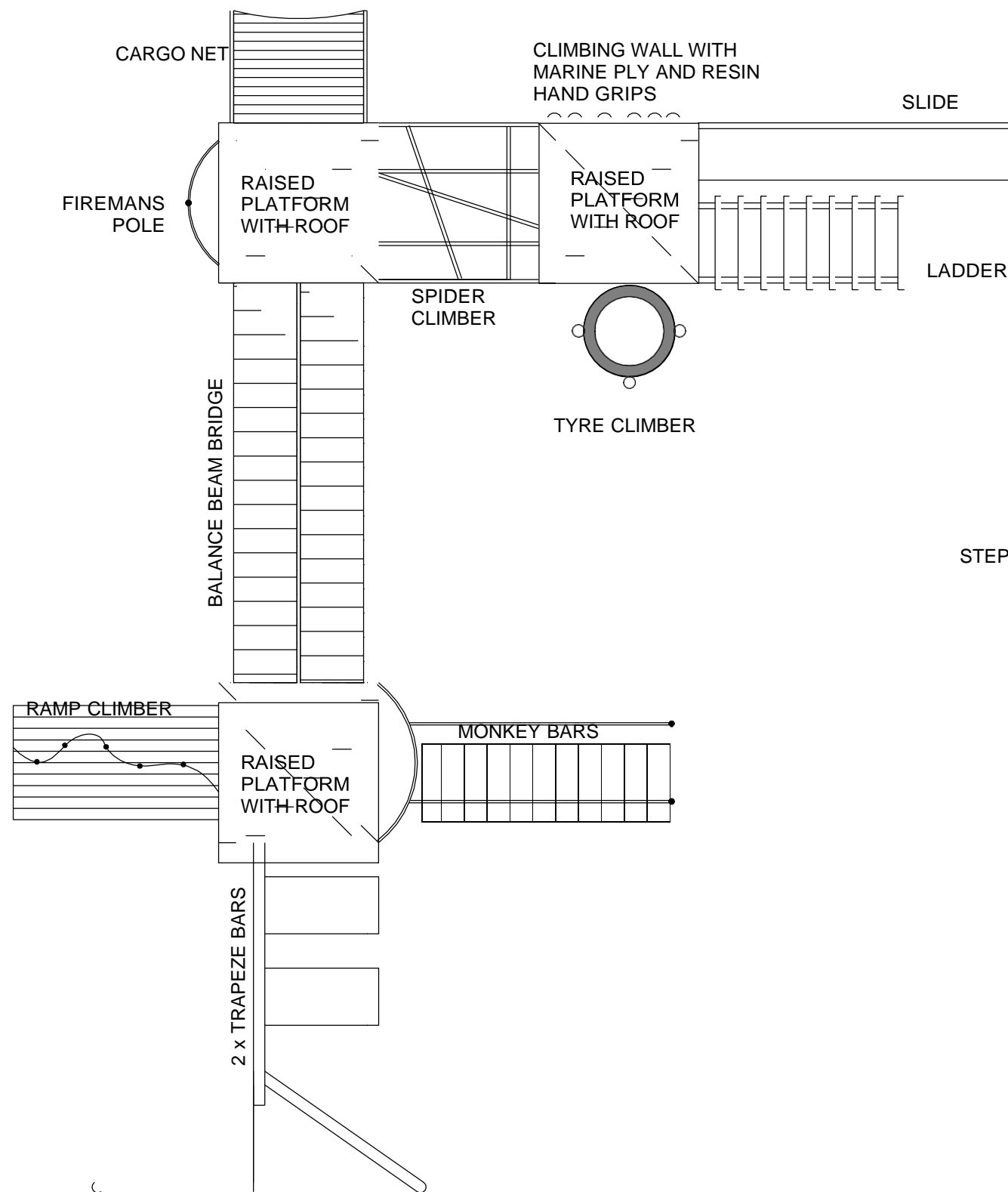
REVISION NO : PR02



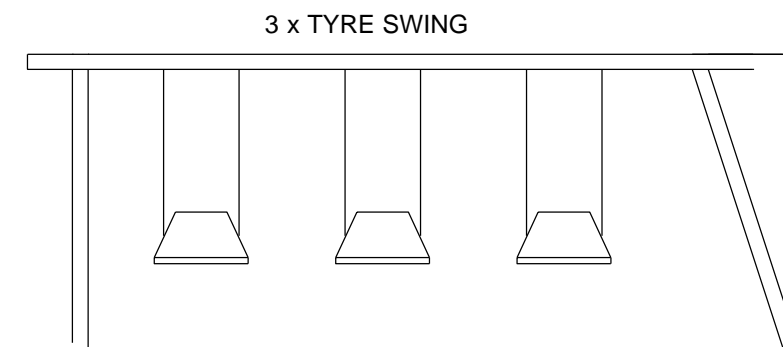
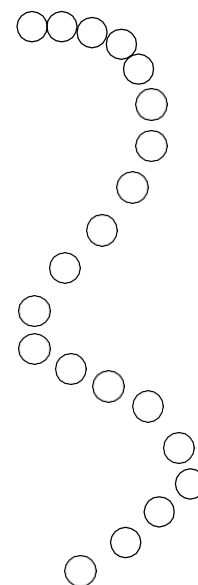


PROJECT NO : 2183	DRAWING/SHEET NO 501K	REVISION NO : PR01
EMIS NO : 200500666		





STEPPING LOGS



1 Jungle Gym Layout  
1 : 50

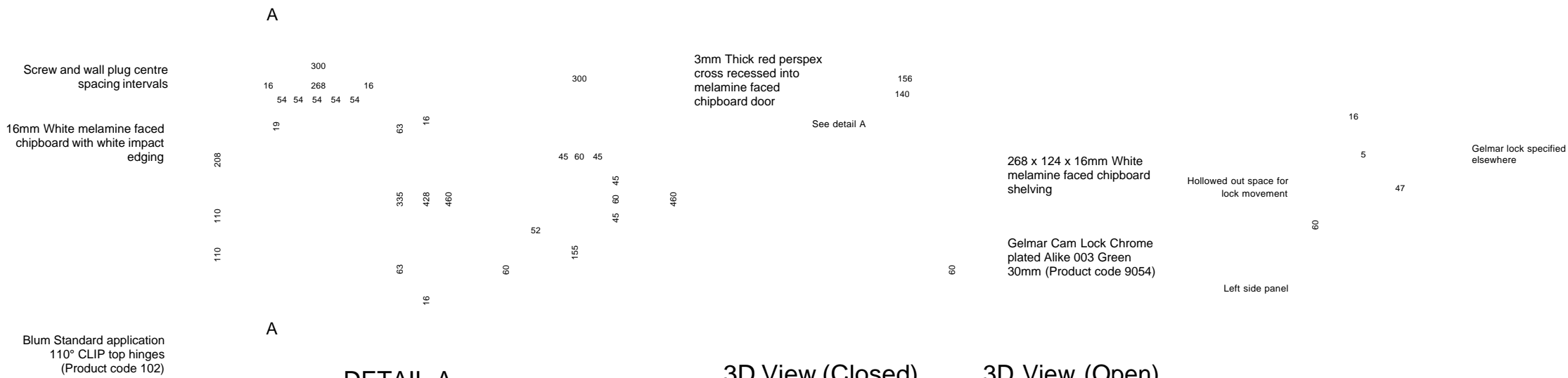


FIRST AID CABINET DETAIL

Front view (Open)

Front view (Closed)

SECTION A - A



DETAIL A

3D View (Closed)

3D View (Open)

6 First aid cabinet  
1 : 10

7 Lock detail  
1 : 2

6.4mm Thick White  
pre-painted masonite back  
fitted into rebate

38 x 38 x 268mm S.A pine  
plank placed as shown on  
drawing. Secured to wall with  
5.5 x 75mm screws and wall  
plugs at spacing shown on  
Front view

SECTION

3 Drinking fountain detail  
1 : 10

- Note:
- Concrete rainwater channel to always be lower than DPM.
  - Panel lengths to be a maximum of 1500mm
  - Concrete to be wood floated with all salient angles neatly tool rounded

Tapered "V" channel on 150mm layers of well compacted decomposed dolerite. Channels to be cast in-situ to sizes shown.

75 50  
25  
50  
NGL

300 600  
900

4 Concrete channel  
1 : 10

Brick on edge verandah edge.  
Joint formed by casting a butting panel separately

Fall 1:12 ramp  
85mm Thick concrete  
ramp as per Engineers  
detail.  
Mortar bed fill

Height may vary on site  
Mortar bed fill Concrete lintol Natural ground level

Standard concrete channel

Compacted fill,not exceeding layers of 150mm thick

GENERAL NOTE

1. ALL DIMENSIONS AND ALL LEVELS TO BE CHECKED ON SITE AND WHERE APPLICABLE TO MATCH EXISTING STRUCTURE.
2. ANY DISCREPANCY OR CONTRADICTION TO IMMEDIATELY BE REPORTED TO THE ARCHITECT.
3. DRAWINGS NOT TO BE SCALED.
4. USE PROFILE COLUMNS AT 85mm. CENTRES FOR BRICKWORK EXCEPT WHERE SPECIFIED DIFFERENTLY.
5. A COMPLETE SET OF DRAWINGS TO BE AVAILABLE ON SITE AT ALL TIMES.
6. ALL DIMENSIONS AS SHOWN ON PLAN TO BE PLOTTED ON SITE AT THE HORIZONTAL LEVEL.
7. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT LAYOUT OF BUILDINGS ON SITE IN RELATION TO SITE BOUNDARIES AND BUILDING LINES.
8. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH STRUCTURAL ENGINEERS DETAIL AND DRAWINGS.
9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF

REVISIONS

REV	DATE	SIGN	DESCRIPTION

KEY PLAN

CLIENT

CLIENT

APPROVED BY CLIENT

APPROVED BY

APPROVED BY

DRAWING STATUS

PRE-CONSTRUCTION

PROJECT TITLE

MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION

DETAILS

SCALE	As indicated
DATE	09 AUGUST 2017
RECOMMENDED	W.K.M.BUSS
ISSUED	W.K.M.BUSS
DRAWN	M.VETNER, S.LUNIKA

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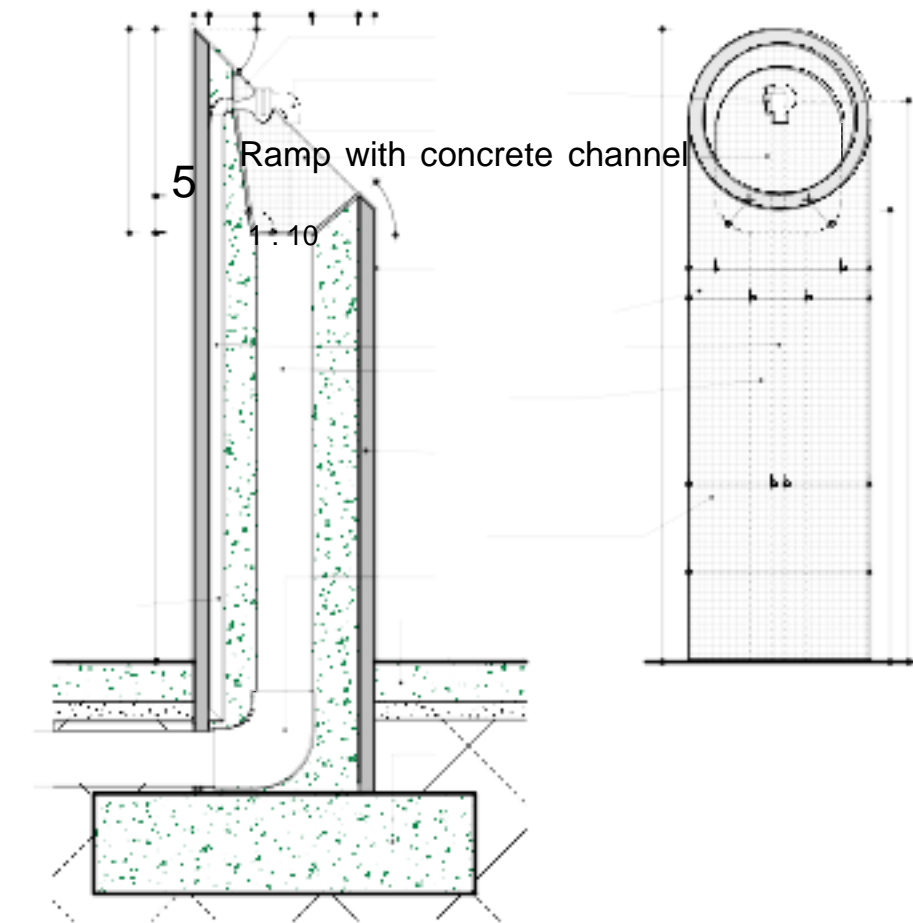
architects.co.za

## 2 Drinking fountain elevations

1 : 20

300 x 300mm black slate tiles  
20mpa concrete apron all round to Engineers detail

300 x 300mm black slate tiles  
20mpa concrete apron all round to Engineers detail



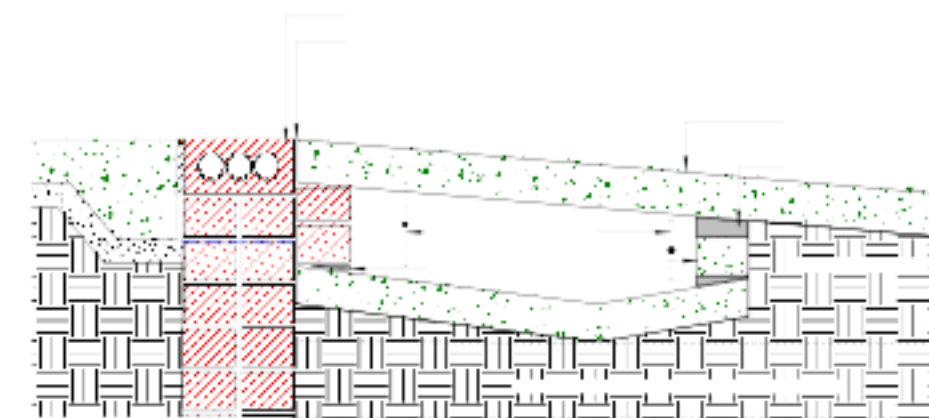
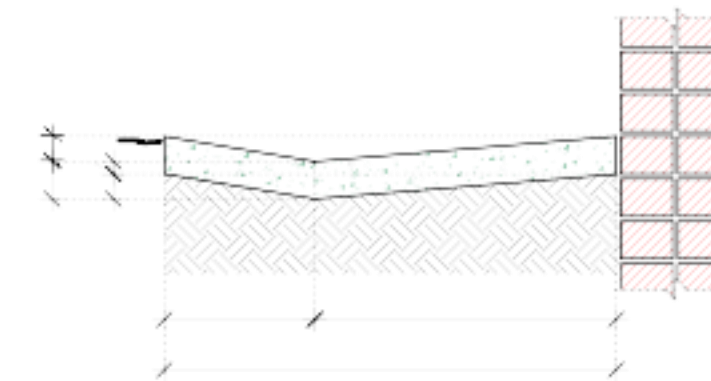
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EMIS NO : 200500666

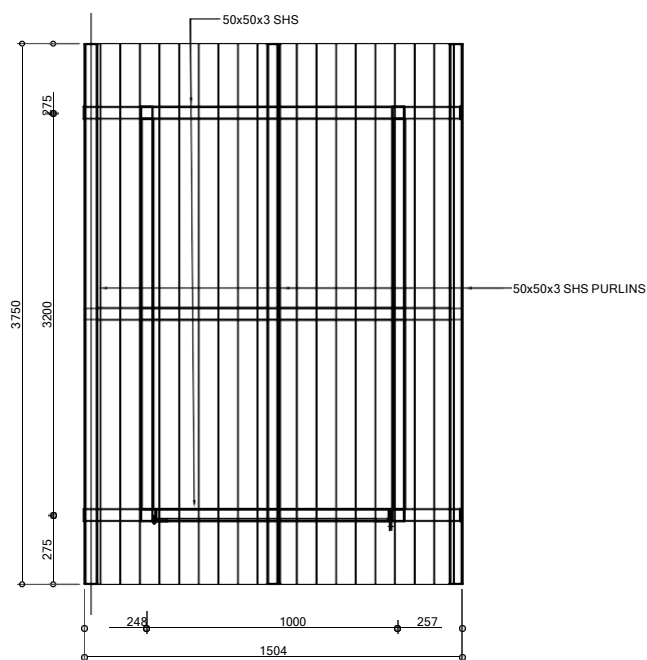
Mgomanzi SPS - 0476



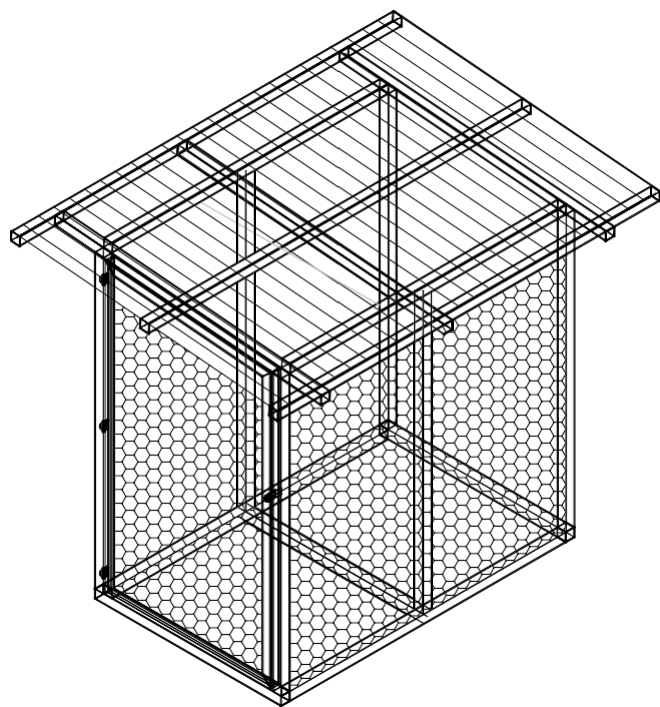
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EDUCATION

Province of the  
**EASTERN CAPE**  
ROADS & PUBLIC WORKS

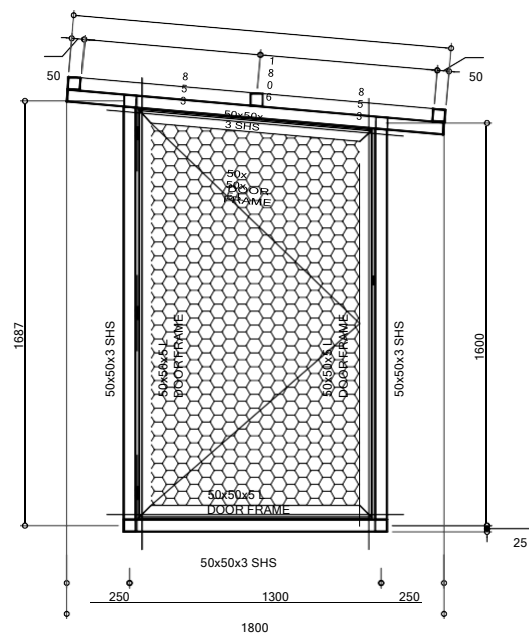




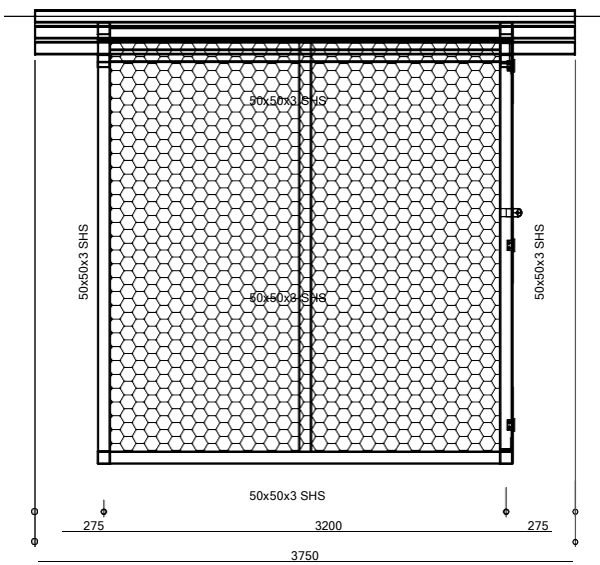
ROOF PLAN



ISOMETRIC VIEW



SIDE ELEVATION



FRONT VIEW

**HOLDING DOWN BOLTS:**  
M8 ANCHORS 50mm INTO CONCRETE @ 600mm  
C/C ON THE PERIMETER OF THE CAGE.

**LEGEND**



0.8mm CORRUGATED SHEETING FIXED  
WITH TAMPERPROOF FLATHEAD  
THRU-BOLTS.



LF16/1540 FLATTENED MESH  
(16x40 MESH SIZE STRAND WIDTH 2.2m,  
MATERIAL THICKNESS 1.6mm @ 2.9kg/m²)

**1. GENERAL NOTES:**

- 1.1. All drawings to be read in conjunction with the architectural, mechanical, electrical and civil engineering drawings.
- 1.2. Refer to the drawings of the mechanical and electrical engineer for openings and services to be cast into concrete structures, slabs, floors and beams etc.
- 1.3. All dimensions to be checked on site before construction of the affected components commences. Any discrepancies must be reported to the engineer without delay.
- 1.4. Drawings must not be scaled.
- 1.5. The design on this drawing remains the property of the CSE Consulting (Pty) Ltd, copyright is reserved.

**2. GENERAL APPLICABLE STANDARDS AND SPECIFICATIONS:**

The contractor must obtain a hardcopy of all relevant part of the SANS 2001 series before construction commences.

- 2.1. Earthworks to be done in accordance with SANS 2001-BE1:2008
- 2.2. Road and paving layers works to be in compliance with SANS
- 2.3. Structural concrete work to be in compliance with SANS 2001-CC1:2012
- 2.4. All masonry walling to comply with SANS 2001-CM1:2011
- 2.5. Foundations, rafts, strip footings and bases to be in compliance with SANS 2001-CM2:2011
- 2.6. Structural steel work to be in accordance with SANS 2001-CS1:2012
- 2.7. Timber roof structures to be in accordance with SANS 2001-CT2: 2011
- 2.8. Earthworks and bedding of pipes and culverts to be in accordance with SANS 2001-DP1: 2011
- 2.9. Water pipes to be in accordance with SANS 2001-DP2: 2010
- 2.10. Sewer installations to be in compliance with SANS 2001-DP4:2010 and SANS 0400.
- 2.11. Storm water structures and systems to be in accordance with SANS 2001-DP5:2010
- 2.12. Precast concrete paving to be in accordance with SANS 1200-MJ (Segmented Paving)
- 2.13. Kerbing and channelling in accordance with SANS 1200 MK (Kerbing and Channelling).

**3. STRUCTURAL STEEL:**

**3.1. GENERAL**

- All structural drawings to be read in conjunction with the drawings of the architect.
- Any discrepancies to be reported to the engineer immediately.
- Overall dimensions to be confirmed on site.

Structural steelwork to be carried out in accordance with SANS 2001: CS1-2012.

**3.2. MATERIALS:**

- All new structural steel to be manufactured of grade S355JR steel.
- Welds to with E70XX electrodes with minimum ultimate strength of 480 MPa.
- All bolts to be Grade 4.8 unless specifies otherwise.
- All materials to comply with the relevant SANS codes.

**3.3. WELDS:**

- All welds to be minimum 6mm all round or at least the material thickness of the thinnest component welded together.

**3.4. CUTTING & DRILLING:**

- No cutting of holes for bolts with gas flame will be permitted.
- All visible edges of members cut with gas must be neatly ground down to eliminate all traces of gas cutting.

**3.5. CORROSION PROTECTION:**

- All structural steelwork to be cleaned with mechanical wire brush to remove all mill shale and surface corrosion. No pitted members will be accepted.
- Structural steelwork to be degressed and prepared in accordance with the requirements set by the manufacturer of undercoats.
- Two coats of red oxide primer to be applied in accordance with the manufacturer's specifications.
- Two coats of enamel paint to be applied to visible steelwork with color specified by the Architect

NR.	DATE	REVISIONS
0	2017/06/06	TENDER

DRAWN	KN	CHECKED	HdGB
DATE	2017/06/05	SCALE	AS SHOWN

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Department  
Basic Education  
REPUBLIC OF SOUTH AFRICA

PROJECT  
**MGOMANZI SECONDARY  
PRIMARY SCHOOL**

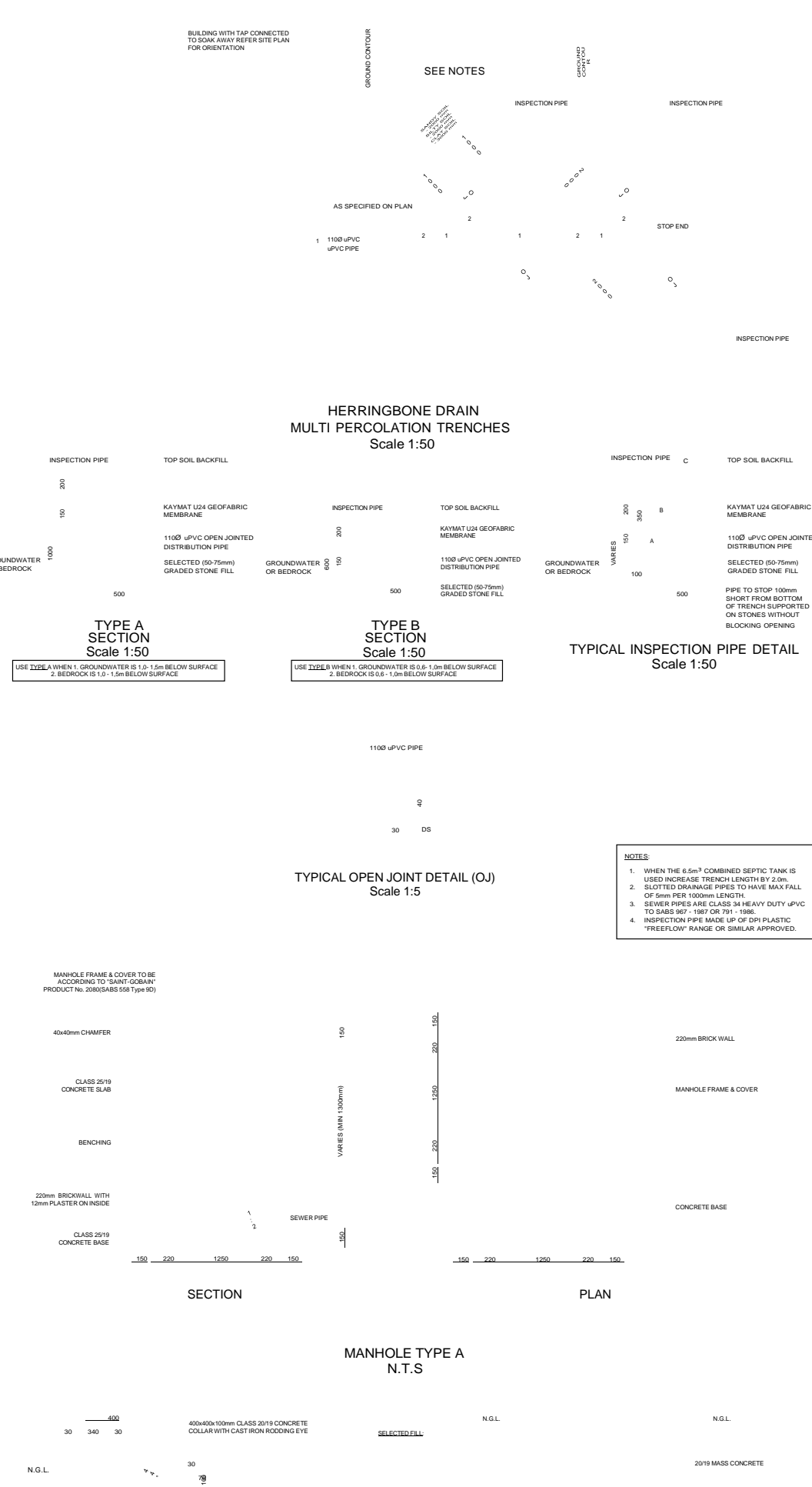
DRAWING  
**WATER PUMP ENCLOSURE**

PROJECT NO.	K704		
DWG NO.	501	REV	0
Mwambi SPS - 0477			






- 1. GENERAL NOTES:**
- All drawings to be read in conjunction with the architectural, mechanical, electrical and civil engineering drawings.
  - Refer to the drawings of the mechanical and electrical engineer for openings and services to be cast into concrete structures, walls, floors and beams etc. The positions and dimensions of these openings must be approved by the engineer prior to placing the concrete.
  - All dimensions to be checked on site before construction of the affected components commences.
  - Any discrepancies must be reported to the engineer without delay.
  - Drawings must not be scaled.
  - The design on this drawing remains the property of the CSE Consulting (Pty) Ltd. copyright is reserved.
- 2. GENERAL APPLICABLE STANDARDS AND SPECIFICATIONS:**
- The contractor must obtain a bibliography of all relevant part of the SANS 2001 series before construction commences.
- Earthworks to be done in accordance with SANS 2001-BE1:2008
  - Road and paving layers works to be in compliance with SANS
  - Structural concrete work to be in compliance with SANS 2001-CC1:2012
  - All masonry walls to comply with SANS 2001-CM1:2011
  - Foundations, walls, steps, footings and bases to be in compliance with SANS 2001-CM2:2011
  - Structural steel work to be in compliance with SANS 2001-C21:2012
  - Tender not structures to be in compliance with SANS 2001-C22:2011
  - Earthworks and bedding of pipes and culverts to be in compliance with SANS 2001-CP1:2011
  - Water pipes to be in compliance with SANS 2001-CP2:2011
  - Sewer installations to be in compliance with SANS 2001-CP4:2010 and SANS 0400
  - Storm water structures and systems to be in compliance with SANS 2001-CP5:2010
  - Precast concrete paving to be in compliance with SANS 1200-NA (Segmented Paving)
  - Roofing and cladding to be in compliance with SANS 1200-NR (Roofing and Cladding)
- 3. CONCRETE WORK:**
- 3.1. GENERAL:**
- All concrete work to be carried out in accordance with SANS 2001-CC1:2012 Edition 1.1.
  - Levels indicated on structural drawings are finished concrete levels (FCL).
  - Concrete mix designs and sample aggregates to be submitted to the engineer for prior approval.
  - Concrete must be designed to be within the design limits indicated in Table 4 of SANS 2001-CC1.
  - Concrete cube testing to be taken at frequencies indicated in Clause 5.3.2 of SANS 2001-CC1.
  - Contractor to provide 30 MPa concrete cover blocks to ensure correct cover and position of reinforcing.
  - Fabricated mesh reinforcing shall be securely supported on either concrete spacer blocks or mild steel bar chairs. No depth control by hand is acceptable. Mesh to be installed strictly in accordance with the depth positioning on the drawings. If not indicated, the cover to mesh reinforcing will be 30mm.
  - Reinforcing fixed in final position to be inspected and approved in writing by the engineer before concrete is cast.
  - Concrete to be cured for the length of time specified in Table 6 of SANS 2001-CC1.
  - All excavations to be approved in writing by the engineer before any concrete for foundations is cast.
  - Positions of construction joints in concrete are subject to the prior approval of the engineer.
  - No deviations from structural drawings or alterations to the structure permitted without the written consent of the engineer.
- 3.2. CONCRETE STRENGTHS:**
- In instances where cube strengths of concrete components are not specified on drawings, the 28th day on cube strength to be as follows:
- | Unreinforced Components:                | 28 MPa |
|---|--------|
| • Site Foundations                      | 25 MPa |
| • Surface Beds                          | 25 MPa |
| • Walkways                              | 25 MPa |
| • Mass concrete walls under foundations | 10 MPa |
| • Pipe Concrete encasing                | 20 MPa |
| • Equipment Plinths                     | 25 MPa |
| • Power Roofs industrial floors         | 30 MPa |
| • Concrete foundations and paving       | 30 MPa |
- 3.3. DESIGN LOADS:**
- Concrete slabs and beams are designed for a live load in accordance with SANS 10100.
  - Concrete stairs and landings are designed for a live load of 3.0 kN/m<sup>2</sup> in accordance with SANS 10100.
  - Structures must not be overloaded by storage of construction materials on slabs or other means.
- 3.4. DEGREE OF ACCURACY:**
- Tolerances to be within the limits of Degree of Accuracy II in Table 11 of SANS 2001-CC1.
  - All surfaces formed with smooth shuttering or steel boarded (ST) to be within Degree of Accuracy I.
  - All concrete floors that will not receive a topping to be within Degree of Accuracy I.
- 3.5. PROPPING:**
- No shuttering or propping to be taken out without written consent of the engineer.
  - No propping to be taken out before proof of concrete strength in members is submitted and approved by the engineer.
- 4. MASONRY:**
- All masonry to comply SANS 2001-CM1:2012 Edition 1.1. Masonry Walling
  - Load bearing brickwork are any of the following:
    - Walls designated as load bearing on the drawings.
    - Any foundation wall.
    - Any retaining wall with soil level difference greater than 700mm between the front and rear of the wall.
    - Supporting walls of double storey buildings or higher.
    - Any walls designated to be constructed of NPA class clay bricks.
    - Any cavity wall higher than 4.0m.
    - Any 220mm wall higher than 5.0m.
  - All load bearing brickwork and masonry to have a minimum compressive strength of 14MPa.
  - Mortar in load bearing brickwork to be Class 1.
  - Masonry walls to have a water absorption of less than 7%.
  - The maximum spacing of wall ties in cavity walls are not to be greater than 400mm horizontally and vertically.
  - No wall ties other than galvanized metal is permitted.
  - Block force to consist of two longitudinal wires with a minimum diameter of 2.88mm.
  - Brick force in walls to be installed at the following intervals:
    - Every 2nd layer in foundation walls.
    - Every 4th course between DPC and lintel level.
    - Every 2nd course between lintel level and first floor slab.
    - Every 4th course between first floor slab and first level.
    - Every 2nd course above lintel level to wall plateau.



NOTES

NR.	DATE	REVISIONS
0	2017/06/01	FOR TENDER


DRAWN	CG	CHECKED	JPCvW / KN
DATE	2017/05/31	SCALE	1:250




CIVIL STRUCTURAL ENGINEERS

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ARCHITECT



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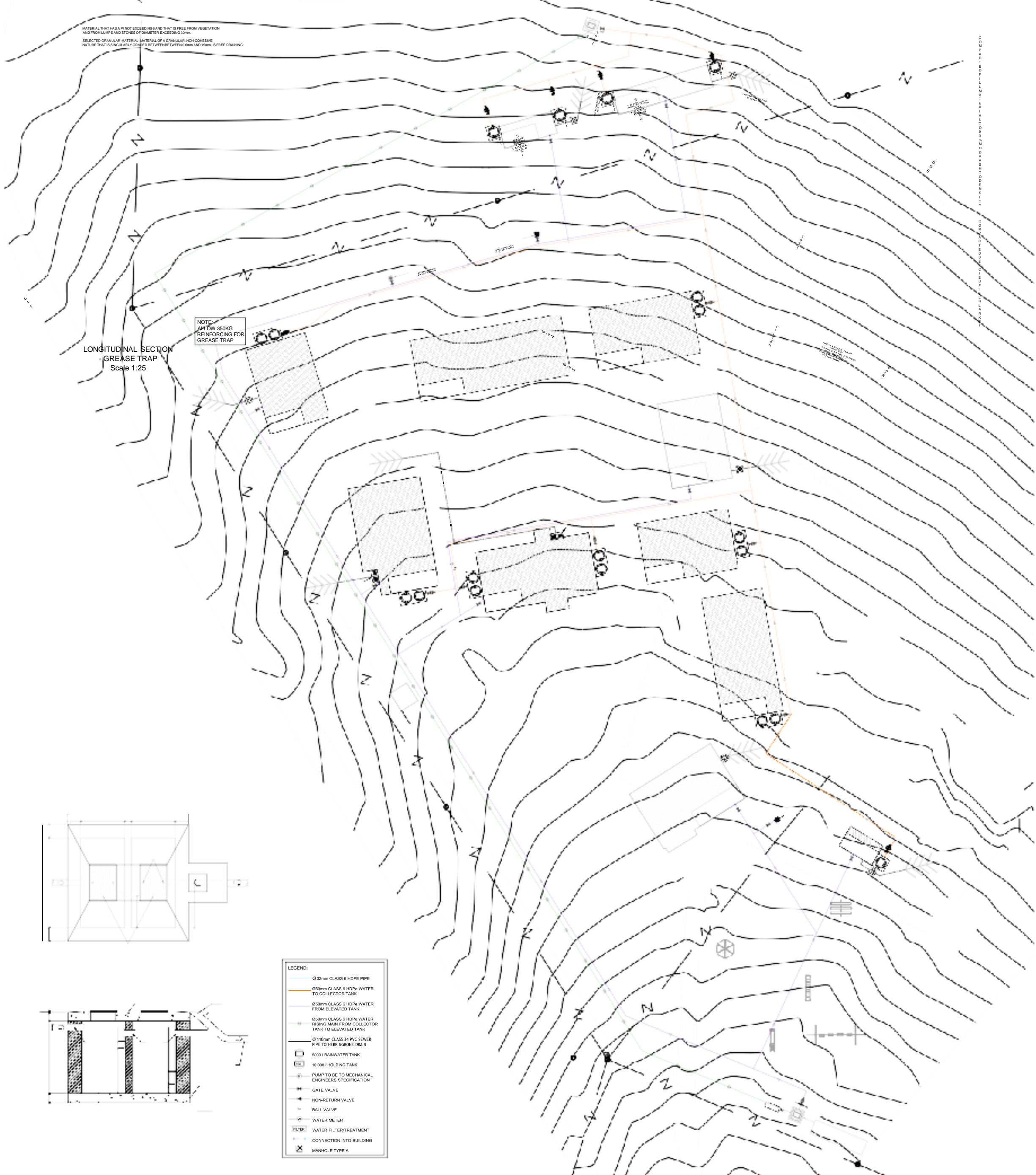
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PROVINCIAL OF THE EASTERN CAPE EDUCATION

PROJECT

**MGOMANZI  
PRIMARY SCHOOL**

DRAWING

**WATER AND SEWER  
RETICULATION**



LONGITUDINAL SECTION  
GREASE TRAP  
Scale 1:25

NOTE:  
ALLOW 350KG  
REINFORCING FOR  
GREASE TRAP

- LEGEND:
- Ø 32mm CLASS 6 HDPE PIPE
  - Ø50mm CLASS 6 HDPE WATER TO COLLECTOR TANK
  - Ø50mm CLASS 6 HDPE WATER FROM ELEVATED TANK
  - Ø50mm CLASS 6 HDPE WATER RISING MAIN FROM COLLECTOR TANK TO ELEVATED TANK
  - Ø 110mm CLASS 34 PVC SEWER PIPE TO HERRINGBONE DRAIN
  - 5000 L RAINWATER TANK
  - 10 000 L HOLDING TANK
  - PUMP TO BE TO MECHANICAL ENGINEERS SPECIFICATION
  - GATE VALVE
  - NON-RETURN VALVE
  - BALL VALVE
  - WATER METER
  - WATER FILTER/TREATMENT
  - CONNECTION INTO BUILDING
  - MANHOLE TYPE A

Reinforced Components

- RC 400 foundations
- RC foundations and bases
- RC columns
- RC beams and slabs
- RC slab foundations
- RC retaining walls
- RC walls in masonry retaining walls
- Piling
- Pile caps

Concrete Cover to Reinforcement

- Suspended floor slabs
- Tip of suspended slabs
- Suspended beams, sides and soffits
- Ground beam earth surfaces
- Columns
- Retaining walls
- Bases
- Vertical bars in walls
- Main bars in earth surfaces
- Piles

25 MPa  
30 MPa  
30 MPa  
30 MPa  
30 MPa  
30 MPa  
25 MPa  
Subject to approval of the engineer  
30 MPa

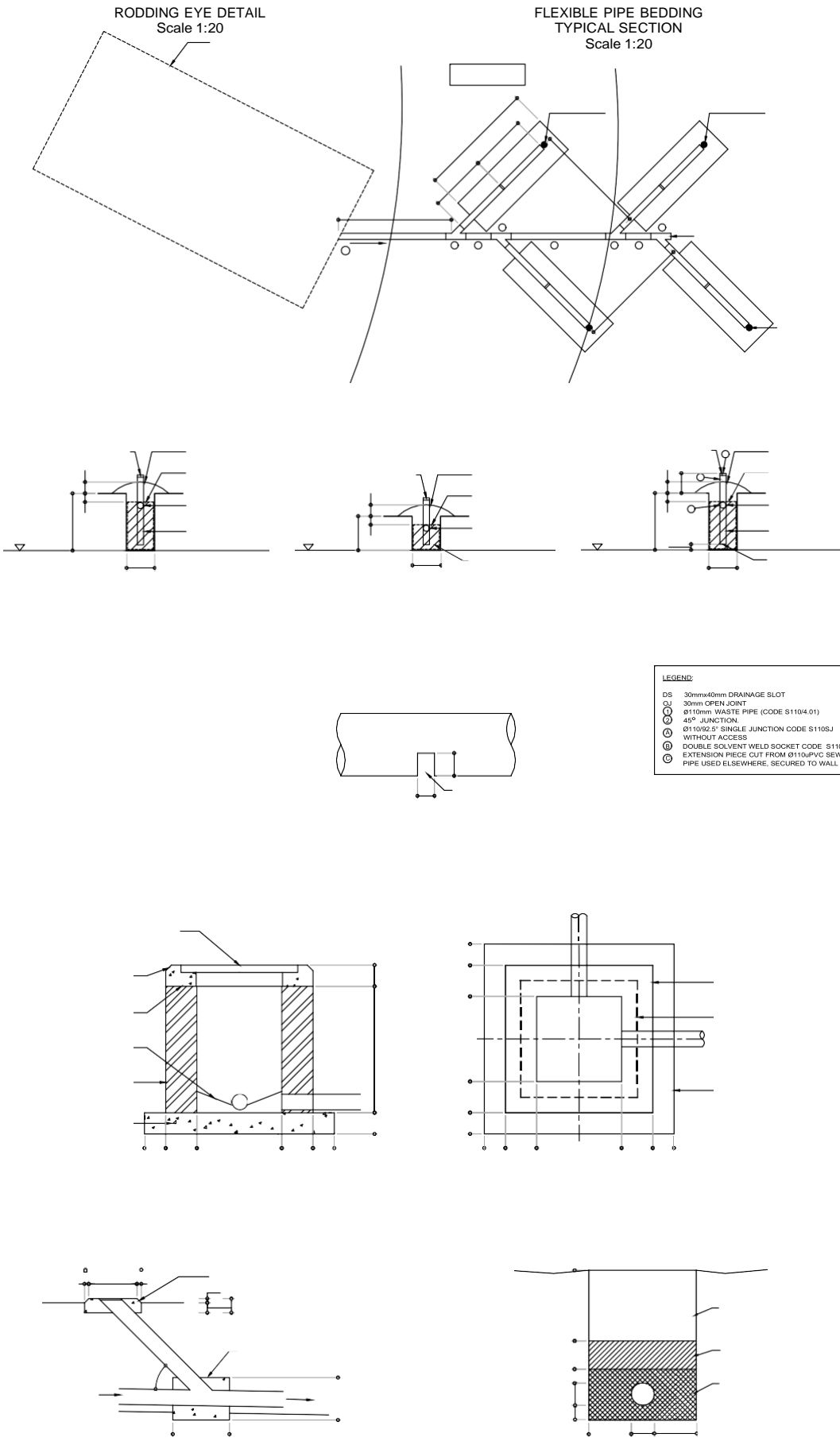
30mm  
20mm  
30mm  
30mm  
30mm  
50mm  
30mm  
30mm  
30mm  
30mm  
(subject to approval of the engineer)

100 DIA 250 300 300

PVC SEWER PIPE  
BOTTOM OF TRENCH

FLOW

BEARING CRADLE OF COMPACTED  
SELECTED GRANULAR MATERIAL



RODDING EYE DETAIL  
Scale 1:20

FLEXIBLE PIPE BEDDING  
TYPICAL SECTION  
Scale 1:20

- LEGEND:
- Ø5 30mmx60mm DRAINAGE SLOT
  - Ø5 30mm OPEN JOINT
  - Ø1 100mm WHITE PIPE (CODE S1104 01)
  - Ø1 45° JUNCTION
  - Ø1 100mm F SINGLE JUNCTION CODE S1105J WITHOUT ACCESS
  - DOUBLE SOLVENT WELD SOCKET CODE S1105S
  - EXTENSION PIECE CUT FROM Ø110mm PVC SEWER PIPE USED AS SEWER, SECURED TO WALL

PROJECT NO	K704	REV	0
DWG NO.	002	Mgonen	S-0 - 0478



GENERAL NOTE

1. ALL DIMENSIONS AND ALL LEVELS TO BE CHECKED ON SITE AND WHERE APPLICABLE TO MATCH EXISTING STRUCTURE.
2. ANY DISCREPANCY OR CONTRADICTION TO IMMEDIATLY BE REPORTED TO THE ARCHITECT.
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7. THE CONTRACTOR IS RESPONSIBLE FOR THE CORRECT LAYOUT OF BUILDINGS ON SITE IN RELATION TO SITE BOUNDARIES AND BUILDING LINES.
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9. FINISHED STRUCTURE TO COMPLY WITH LATEST AMENDMENTS OF SABS 0400

REVISIONS

REV	DATE	SIGN	DESCRIPTION
Block Names Added			
SR01	12/07/16	ZM	Hoarding line extended to include existing ablutions.
SR02	20/07/16	ZM	Revised Layout School Blocks replaced with new
SR03	21/07/16	ZM	Size increase to Foundation phase play area. Elevated tanks moved to new position. Update to Table 2C - New Works. Title block changed
SR04	29/07/16	PK	Revised Layout Grade R Block layout revised.
SR05	30/08/16	PK	Revised Layout Sports fields added.
SR06	07/09/16	PK	Revised Layout Blocks E,G and Refuse position revised. Addition of 2x Temp Classrooms Grade R Block layout revised. Addition of Temp Works: 3xClassrooms, Grade R, DNC, and Admin Addition of an Undercover Play Area, with hard surface.

CLIENT

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CLIENT

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APPROVED BY

APPROVED BY

APPROVED BY

DRAWING STATUS  
SKETCH PLAN REVISION

PROJECT TITLE  
MGOMANZI PRIMARY SCHOOL

DRAWING DESCRIPTION  
SITE DEVELOPMENT PLAN

SCALE	As indicated
DATE	07/09/2016
RECOMMENDED	C HEPBURN
SUMMARY	C HEPBURN
FOR HUMAN CAPITAL	TABLE 1A: GRADE ENROLMENT FIGURES FOR 2016

N  
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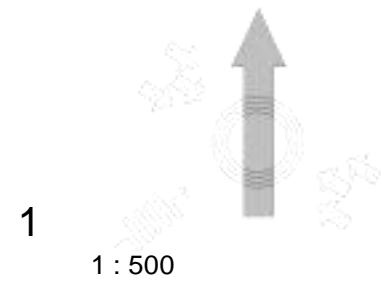
TABLE 2: SUMMARY FOR SCOPE OF WORKS

TABLE 2A: DEMOLITION WORKS				TOTAL FOR ALL BLOCKS
No.	BUILDING USAGE	AREA	SIZE	
		AREAS	QUANTITIES	
1	Classroom Blocks	530m²	3	566m²
2	Toilets	36m²	2	
TABLE 2B: RENOVATION / REFURBISHMENT WORKS				TOTAL AREA = 1459.75m²
No.	BUILDING USAGE	AREAS	No. of Clsrms.	
	None			
TABLE 2C: NEW WORKS				TOTAL AREA = 1459.75m²
No.	BUILDING USAGE	AREAS	QUANTITIES	
A	Administration Block	188m²	1	188m²
B	Dining and Nutrition Block	181m²	1	181m²
C	2 Classroom Block	135m²	2	135m²
D	3 Classroom Block	201m²	2	201m²
E	2 Classroom Block + HOD	164m²	1	164m²
F	Media Centre	122m²	1	122m²
G	Science Lab	114m²	1	114m²
H	Multi- Purpose Classroom	114m²	1	114m²
I	Staff Toilets	34m²	1 male wc + 1 whb +1 urinal + 1 Disabled +1whb 2 female wc + 1 whb	34m²
J	Girls and Boy's Toilets	64m²	2 boys wc + 2 whb +11 trough urinal + 1 Disabled + 1whb 6 girls wc + 4 whb	64m²
K	Grade R Classroom Block	107.75m²	1	107.75m²
L	Grade R Toilets	23m²	4 wc + 1 Disabled + 1whb	23m²
M	Guard House	12m²	1	12m²
	Parking Bays	297m²	11 Bays + 1 Disabled	N/A
	Assembly Slab	668.91m²	1	N/A
	Parameter fencing in			
	linear meters	631.5m		N/A
	Grade R parameter fencing	188.7m		N/A
	Foundation Phase fencing	82.6m		
	Vegetable Garden fencing	81.38m		

TABLE 1:

ELOPMENT PLAN





1 : 500

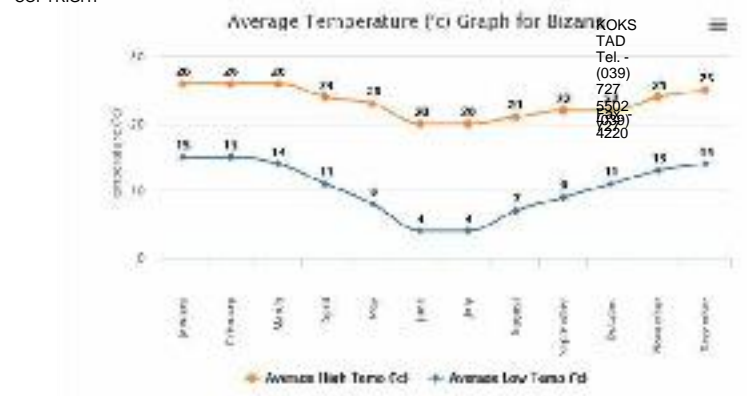


	BOYS	GIRLS	TOTAL
1	17	19	36
2	21	30	51
3	15	25	40
4	16	33	49
5	17	15	32
6	20	18	38
7	12	10	22
SCHOOL GRAND TOTALS	129	159	288

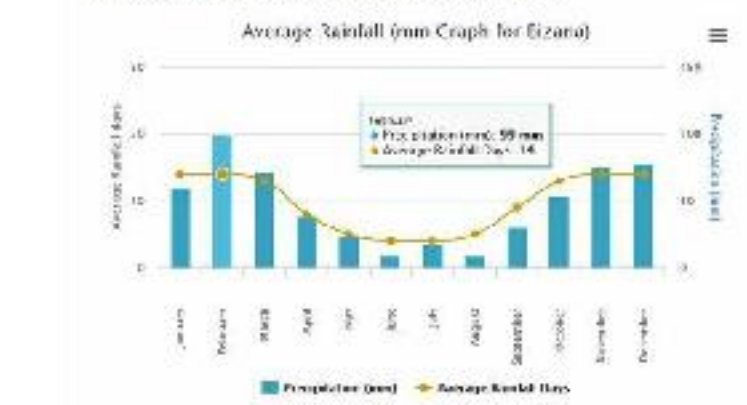
TABLE 1B: NUMBER OF ADMINISTRATION STAFF

Male	Female	Total
2	8	10

Average High/Low Temperature for Bizana, South Africa



Average Rainfall for Bizana, South Africa



1x Grade R Classroom	49m <sup>2</sup>
----------------------	------------------

TOTAL AREA = 294m <sup>2</sup>	
--------------------------------	--

TABLE 2D: CLASSROOMS SUMMARY

CLASSROOMS	TOTALS
Total number of Renovated/Refurbished Classrooms	0
Total number of Newly provided Classrooms	11
GRAND TOTAL OF ALL CURRENT CLASSROOMS FOR THIS SCHOOL	530m <sup>2</sup>
TOTAL NEW WORK	= 1459.75m <sup>2</sup>
TOTAL EXISTING WORK TO BE DEMOLISHED	= 566m <sup>2</sup>
TOTAL EXISTING WORK TO BE RENOVATED	= 0m <sup>2</sup>
TOTAL ERF AREA	= 23 689m <sup>2</sup>

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**GEOHYDROLOGY**

**GEOTECHNICAL**

**ENVIRONMENTAL**

**SOCIAL DEVELOPMENT**

**Technical Report**  
2017 / 08 / 08 / GTEC



**MGOMANZI SENIOR PRIMARY SCHOOL:**  
**Geotechnical Investigation & application of the Groundwater**  
**Protocol for new classrooms and facilities at Mgomanzi SP School,**  
**Mbizana Local Municipality, Alfred Nzo District Municipality**

**August 2017**

**Prepared for: CSE Consulting (Pty) Ltd**

Document version 1.0 – Final

Compiled by: AGES Omega (Pty) Ltd



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Prepared by



**TECHNICAL REPORT:**

---

**MGOMANZI SENIOR PRIMARY SCHOOL:**

**Geotechnical Investigation & application of the Groundwater  
Protocol for new classrooms and facilities at Mgomanzi SP School,  
Mbizana Local Municipality, Alfred Nzo District Municipality**

---

August 2017

**Conducted on behalf of:**

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## **1 INTRODUCTION**

### **1.1 General**

AGES Omega (Pty) Ltd – hereafter AGES – was appointed to conduct a geotechnical investigation at the existing Mgomanzi Senior Primary School with the aim of determining and evaluating the engineering geological characteristics of the soil and rock materials underlying the site with regard to the construction of new classrooms and to apply the groundwater protocol for on-site sanitation for new sanitation facilities.

### **1.2 Terms of reference**

The investigation was requested by Mr. Koos Nel of the firm Messrs. CSE Consulting (Pty) Ltd. AGES rendered a detailed project quotation and was appointed on the 12<sup>th</sup> of June 2017 to commence with the relevant investigation.

### **1.3 Scope of the investigation**

The investigation had the following aims:

- The determination of the general mechanical properties of the soil material in and on which founding of the new buildings will take place.
- To recommend necessary precautionary measures during the design and construction of the new classrooms.
- To apply the groundwater protocol for on-site sanitation

The following assumptions were made during this investigation:

- The expected point load of the buildings is in the order of 50 – 75 kPa.
- Only single storey buildings will be constructed
- It is envisaged that high-load VIP toilets will be constructed

### **1.4 Location of the study area**

The school is located approximately 20 km south southeast of Mbizana Town in the village of Hlabathi in the Mbizana Local Municipality of the Alfred Nzo District in the Eastern Cape Province. The regional locality of the school is indicated in Figure 1.

The central point of the school is roughly defined by the following coordinate (WGS84 Geographic Projection):

- Latitude: 31.037508° S
- Longitude: 29.881122° E



Figure 1: Regional locality map – Mgomanzi Senior Primary School

## **2 GEOTECHNICAL RESULTS**

### **2.1 Geology**

According to the 1: 250 000 geological map 3128 UMTATA the project area is underlain by Tillite of the **Dwyka Formation**, that is part of the Karoo Supergroup sequence of rocks (Map1).

Dolerite in the form of dykes (vertical structures) and sills (horizontal structures) intruded into the sedimentary formations during the late Karoo volcanism event. According to the geological map there is a prominent dolerite dyke intrusion with a basic east-west trend direction that occurs to the northeast of the school.

The geology map does not indicate the presence of any prominent geological structures such as fault zones or LANDSAT derived lineaments or water soluble rocks such as dolomite near or within the project area.

### **2.2 Trenching**

#### **2.2.1 Placement of test pits**

Ten test pits, numbered MGZ TP1 to MGZ TP10 were excavated within the school boundary by hand (pick & shovel) utilizing local community labour (Figure 2). Hand excavation was used due to the remote locality of the school. Pits were excavated from the 13<sup>th</sup> of June 2017. Profiling of the test pits was conducted on the following day, the 14<sup>th</sup> of June 2017 according to the Guidelines for Soil and Rock profiling in South Africa (2002).

Detailed test pit profiles are included in Appendix A.



Figure 2: Test pit locality

### 2.2.2 Excavatability

It was possible to excavate test pits to a depth of between 1.40 and 1.60 (mean 1.52 mbgl) by hand (pick & shovel) after which excavation was stopped as the maximum safe excavation depth by local labour was reached.

Excavation problems are not foreseen in the project area during the excavation of foundation and service trenches by means of pick-and-shovel or a light mechanical excavator. Excavation conditions can be summarised as follow:

- From surface to 2.50 mbgl – Soft Excavation Class with pockets of Intermediate Excavation.





**Photo 1: General site conditions and topography**

#### **2.2.3 Sidewall stability**

The sidewalls of the test pits remained stable to moderately stable during excavation and profiling with little to no collapse or overbreak occurring. These test pits were left open for a duration of approximately 1-day due to local labour utilized for excavation. It is recommended that all excavations in excess of 1.0 m must be shored to protect the lives of workers.

#### **2.2.4 Groundwater occurrences**

No groundwater seepage was encountered in any of the excavated test pits.

Pedogenic soil in the form of ferricrete was encountered in all the excavated test pits, indicating that the seasonal occurrence of perched groundwater conditions is likely over the entire project area.

### 2.2.5 Generalized soil profile

*Note: the soil types noted in the following description are based on field observations, and do not incorporate the results of the laboratory tests.*

The entire site is overlain by transported soils in the form of Hillwash that is generally composed of sandy clay. The material exhibits a micro-shattered soil structure and a soft to firm consistency. The material is ferruginised on the majority of the site with scattered to frequent ferricrete nodules encountered in profile. The material has a maximum thickness of 0.60 m.

The transported material is underlain by residual tillite material generally composed of sandy clay with scattered siltstone gravel. The material has a micro-shattered to inherent soil structure and firm consistency. The material is ferruginised in the majority of the site with frequent to abundant ferricrete nodules, with a thickness up to and potentially more than 2.00 m.

No competent bedrock material was encountered during the site investigation up to a depth of 2.50 mbgl. Generalised soil conditions are indicated in the figure and photo below.

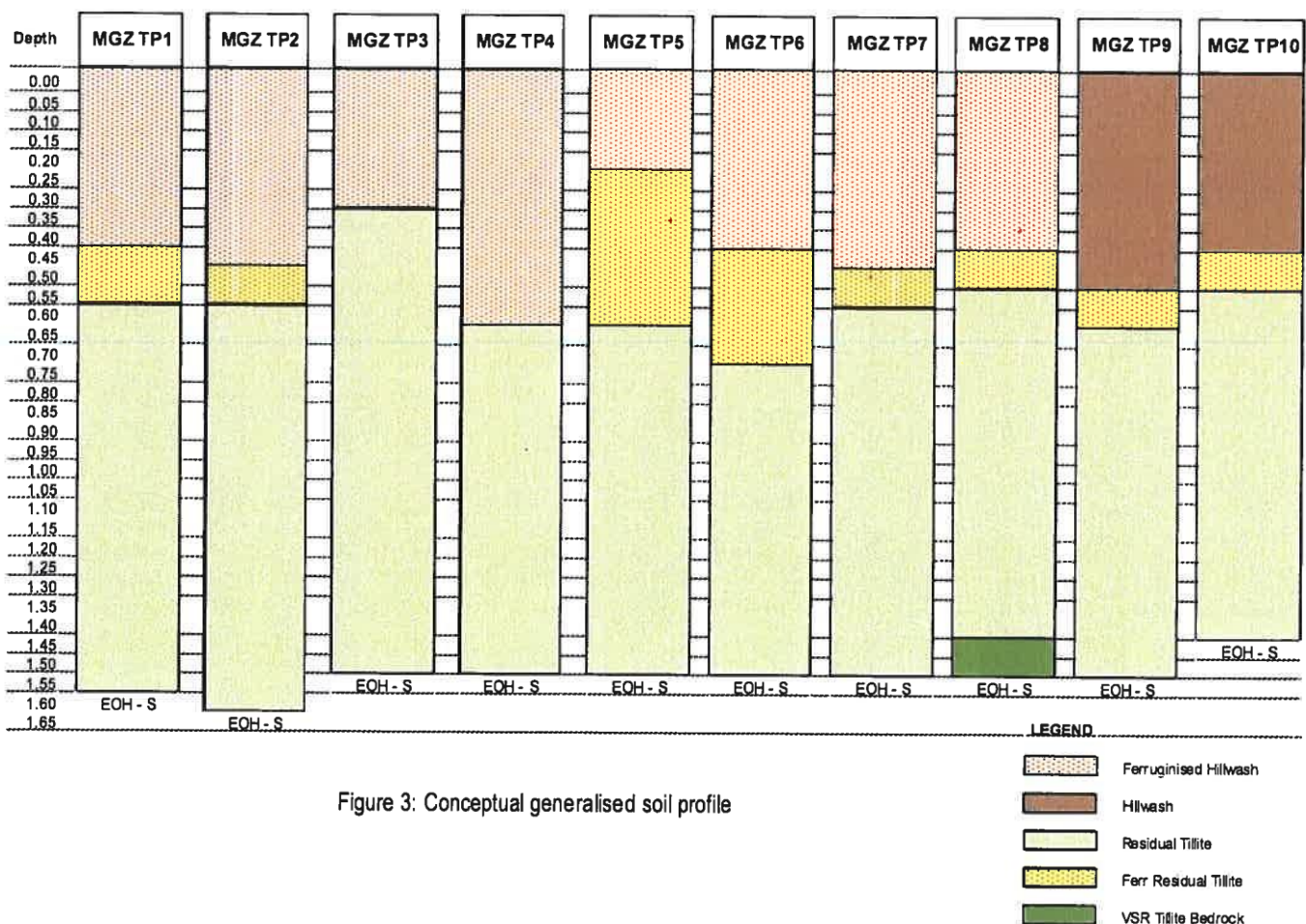


Figure 3: Conceptual generalised soil profile



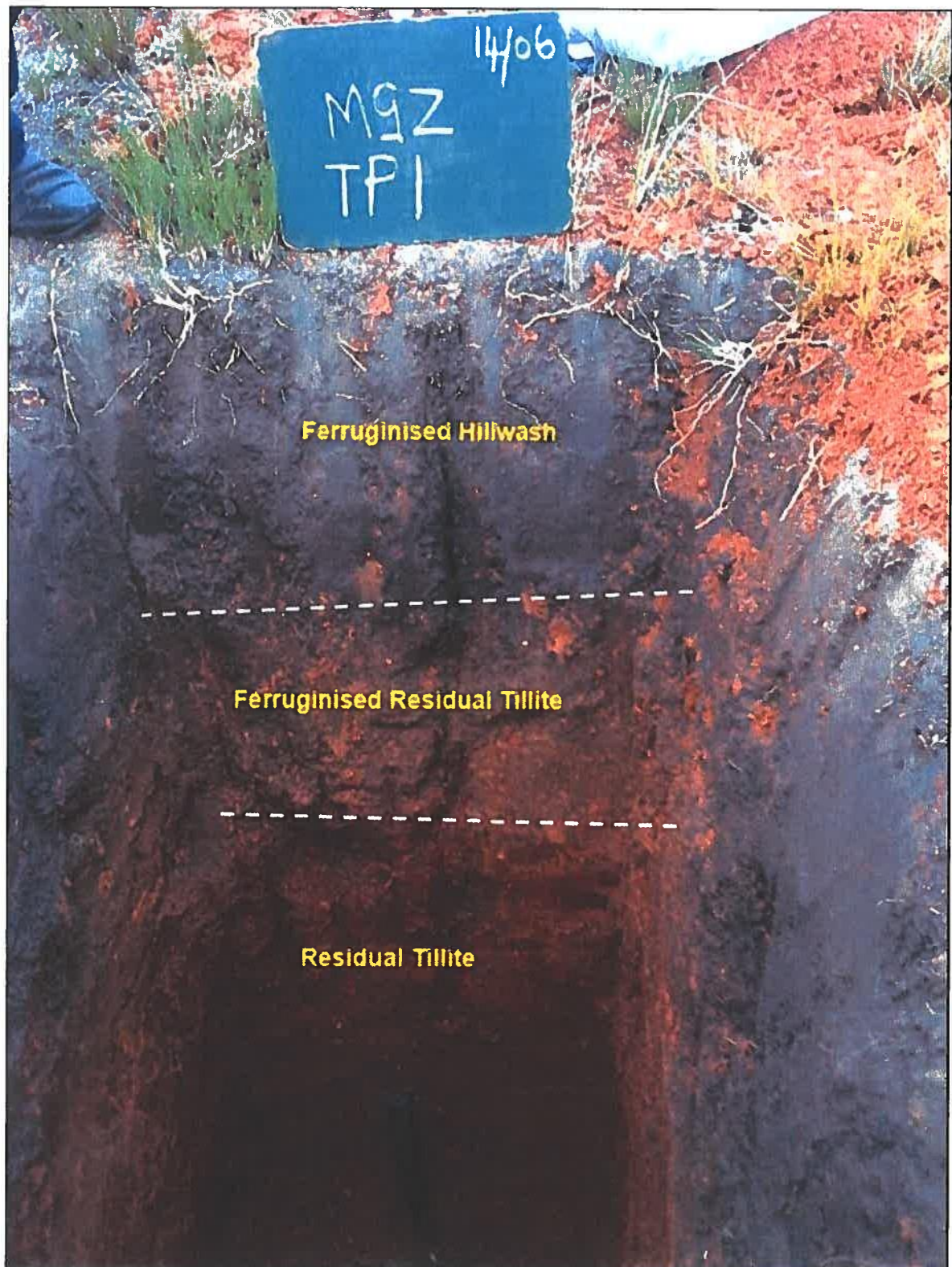


Photo 2: Generalised soil conditions – Test Pit MGZ TP1



### 2.3 Dynamic Cone Penetrometer testing

A total of 20 DCP tests were conducted in the project area. Tests were conducted adjacent to the test pits and at the bottom of the pits. Tests were conducted from the surface to final depth of 2.50 mbgl.

The DCP testing does not give an accurate estimation on the expected excavation conditions and in-situ bearing capacity of the soil materials, as only the UCS of the material is determined. The testing is however useful to get a basic estimation of existing in-situ soil conditions at current moisture levels.

No competent bedrock material / competent horizon was intersected with the DCP cone during testing.

Detailed processed data attach in Appendix B for reference:

*Please note - The moisture content of the soil material is expected to influence the bearing capacity of the material to a large extent, with significant decreases in bearing expected with an increase in material moisture content.*

### 2.4 Soil sampling & Laboratory testing

A total of 4 disturbed samples and 3 bulk samples were selected of the sampled materials and were submitted to a SANAS accredited laboratory in East London for analysis. The laboratory analysis results are summarised in the tables below with certificates attached in Appendix C for reference.

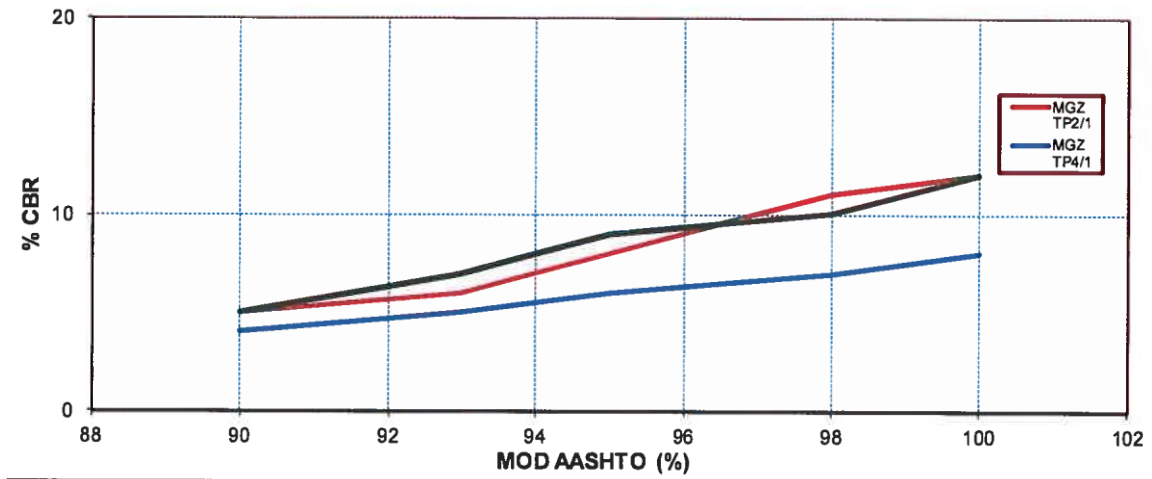
**Table 1: Summarised foundation indicator test results**

SAMPLE INFORMATION			GRADING ANALYSES				ATTERBERG LIMITS			LS	MATERIALS CLASSIFICATION	POTENTIALLY ADVERSE GEOTECHNICAL CHARACTERISTICS		
Number	Depth (m - m)	Material Origin	Gravel %	Sand %	Silt %	Clay %	LL %	PI	PI'	%	A.S.T.M.	Expansiveness	Collapse / Compressibility	Erodibility / Dispersivity
MGZ TP3/1	0.05 - 0.30	Ferr Hillwash	6	74.4	16.6	3	27	8	3.1	4.0	SC: Clayey sand	Low Risk	Low Risk	High Risk
MGZ TP3/2	0.50 - 1.50	Residual tillite	1	27.8	41.2	30	44	22	20.5	10.5	CL: Lean clay with sand	Medium Risk	Low Risk	High Risk
MGZ TP8/1	0.05 - 0.40	Ferr Hillwash	0	48	44	8	31	10	9.1	5.5	CL: Sandy lean clay	Low Risk	Very High Risk	High Risk
MGZ TP10/2	0.50 - 1.40	Residual tillite	0	24.1	45.9	30	50	20	19.6	10.0	MH: Elastic silt with sand	Medium Risk	Low Risk	High Risk

Table 2: Summarised CBR vs MOD AASHTO compaction test results

Sample Number	Depth	Origin	MOD. AASHTO		CBR at % MOD.AASHTO					Swell	TRH14 Class
			MDD Kg/m <sup>3</sup>	OMC %	100	98	95	93	90		
MGZ TP2/1	0.55 - 1.60	Residual tillite	1552	26.1	12	11	8	6	5	0.3	G9
MGZ TP4/1	0.60 - 1.60	Residual tillite	1678	22.1	8	7	6	5	4	0.7	G9
MGZ TP9/1	0.60 - 1.50	Residual tillite	1630	21.6	12	10	9	7	5	0.4	G9

CBR vs Relative Density



The **hillwash** material exhibits the following geotechnical properties:

- The material is not potentially expansive due to the low clay content and weighted plasticity index.
- The material is potentially moderately to very highly collapsible / compressible with a calculated differential settlement in excess of 10 mm (24 mm calculated). [NHBRC Site Class C2].
- The material is expected to be highly erodible and potentially dispersive.
- Due to the limited thickness of the material no bulk samples were submitted for analysis.

The **residual tillite** material exhibits the following geotechnical properties:

- The material is potentially moderately expansive with a calculated heave up to and potentially exceeding 30 mm. [NHBRC Site Class H3].
- The material is potentially moderately to highly collapsible / compressible due to the origin with a calculated differential settlement in excess of 10 mm (44 mm calculated).
- The material is expected to be highly erodible and potentially dispersive.
- The material classifies as G9 and is not recommended for any construction use or for in-situ improvement due to the very low maximum CBR and expansive nature of the material.

### **3 GROUNDWATER PROTOCOL APPLICATION**

#### **3.1 Assessment of groundwater potential**

##### Regional strategic value:

According to the Aquifer Classification Map of South Africa, the project area is located in an area that is classified as a *MINOR* aquifer.

##### Local value of the aquifer:

The value of the local aquifer is seen as moderate as groundwater in the form of boreholes is a potential future water source to the community. Protection of the aquifer at zones of higher groundwater potential, groundwater recharge, groundwater seepage and sensitive zones is seen as important, and is required.

The groundwater potential of the project area is deemed to be low to moderate due to the structural geology and topography.

#### **3.2 Evaluation of groundwater use**

Groundwater is not currently being utilised by the community or its surroundings. The school relies on rain water and municipal water. Two boreholes were drilled unsuccessfully in the past.

Surface water from rivers and streams and rainwater to a lesser extent is the only current alternative to the bulk water. The water supply by the municipality is reportedly erratic and unreliable. Static groundwater level in the area could not be determined but is expected to be between 10 and 20 mbgl. The potential for future use of groundwater in the project area is deemed to be low.



Figure 4: Existing boreholes identified near school

### 3.3 Assessment of flag situations

The following flag-situations occur and must be taken note of:

- ❑ Groundwater in the form of boreholes is a potential future water source to the community.
- ❑ The static groundwater level in the area is expected to be between 10 and 20 mbgl.
- ❑ The groundwater potential of the area is expected to be low to medium.
- ❑ Seasonal perched groundwater conditions are likely to occur.
- ❑ Soil materials are unstable and will collapse if left unshored.
- ❑ Proposed high loading sanitation systems have to incorporate suitable precautionary- and remedial measures to prevent possible contamination of groundwater.

### 3.4 Assessment of the vulnerability of the aquifer

The vulnerability of the groundwater aquifer due to hydrogeological conditions is related to the distance that the contaminant must flow to reach the water table, and the ease with which it can flow through the soil and/or rock layers above the water table.

The vulnerability class of the aquifer in the project area can be classified as MEDIUM according to the

Groundwater Protocol document (usually deep loam soils with semi-solid rock and average water table >10 m). The aquifer may be vulnerable to inorganic pollutants but with negligible risk of organic or microbiological contaminants.

The unsaturated zone conditions are primarily composed of sandy loam to silt material. The factor affecting reduction is deemed to be medium to high, with the contaminant reduction of bacteria and viruses high, nitrates and phosphates some reduction and chlorides minimal reduction. Overall the unsaturated zone will act as a good barrier to the movement of biological contaminants, but there will be little reduction in chemical contaminants.

### **3.5 Assessment of the contamination load from the VIP systems**

No sanitation design was received. The type of sanitation system that is expected will be Ventilated Improved Pit latrines (VIP's). A typical hydraulic output of between 10 mm to 30 mm per day (Minimal risk) is expected in unlined pits. The typical time of the contaminants to travel 1 m will be up to 30 days.

The level of the risk of contamination is expected to be MEDIUM from this system, based on the protocol document. Problems with water retention are expected due to low soil and highly weathered rock permeability in the unsaturated zone.

### **3.6 Overall risk**

The overall risk of contamination of the groundwater can be classified as Medium necessitating precautionary measures to be taken during design and construction.

The rate of flow in the unsaturated zone is estimated as follow:

- Sandy Loam = 10 – 100 mm per day
- Bedded shales / tillite = 10 – 100 mm per day

In-situ permeability testing was conducted on the hillwash and residual tillite materials. The following results were obtained:

- Hillwash material = 96 mm per day
- Residual Tillite material = 80 mm per day



### 3.7 Strategic classification of the groundwater

The strategic value of the groundwater is a function of the potential yield of the aquifer, the present or probable future use of the groundwater, and the existence of alternative water source.

The potential yield of the aquifer in the project areas is considered to be 0.1 to 1.0 Ml/day from future boreholes for domestic and Agricultural use. Although it's not currently being utilized to its full extent, groundwater is considered to be an important aquifer to the local communities in future. It is possible that this resource will be further developed in future through borehole drilling and spring equipping.

Taking the above-mentioned into consideration the relevance of threat of contaminants for the project area can be defined as follow:

- ❑ Bacterial and viruses – High risk
- ❑ Nitrates – Medium risk
- ❑ Chlorides – Minimal risk

### 3.8 Assessment of measures to reduce the risk

Due to the classification of the terrain as a MEDIUM OVERALL RISK of groundwater contamination, the following approach will have to be taken to reduce the expected risk. These should be negotiated and decided on by the sanitation engineer in consultation with AGES, Department of Water and Sanitation and the community. Implementing one or a combination of the following remedial- and/or precautionary measures can help reduce risks:

- ❑ Construct lined / partially lined pits that will prevent the sidewalls from collapsing or soil material from eroding into the open pits. Limited seepage over-flow out of the pits are allowed.
- ❑ Adopt eco-san sanitation systems such as urine diversion pits as an alternative
- ❑ Minimize infrastructure such as pit latrines, cattle kraals, sewer pipes, etc. close to sensitive areas and areas where groundwater recharge is likely to take place
- ❑ Move or install water abstraction points sufficiently far from pollution sources
- ❑ Increased community health and sanitation awareness creation
- ❑ Protection and equipping of current and future boreholes and springs utilized by communities to prevent any pollution of the groundwater
- ❑ Rehabilitation of destroyed / dilapidated sanitation facilities on site

### **3.9 Groundwater monitoring and sanitary surveillance program**

It is required that monitoring of both the quality and quantity of groundwater at existing and future groundwater abstraction points be conducted to ensure the sustainable management of the resource. These abstraction points include production boreholes and springs. This is seen as an essential action and it must be ensured that effective and accurate monitoring be conducted in future.

AGES can be of assistance in facilitating all of the above, with emphasis on the training of new operators and monitoring community members when groundwater is developed in future.

The monitoring programme can be conducted in combination with a school groundwater awareness initiative.

## 4 DEVELOPMENT POTENTIAL EVALUATION

### 4.1 Site Conditions

In the light of the results of this investigation, the site is deemed to be **MARGINALLY SUITABLE** for the construction of new classrooms and related facilities provided due cognizance is given to the following aspects:

- ❑ No competent horizon was encountered over the entire project area up to a depth of 2.50 mbgl. The site is characterised by deep soil conditions.
- ❑ The hillwash and residual tillite material that underlie the project area from surface to a depth in excess of 2.50 mbgl is considered to be potentially moderately to highly compressible / collapsible with a calculated differential settlement in excess of 10 mm.
- ❑ The residual tillite material is moderately expansive with a calculated heave exceeding 30 mm.
- ❑ The residual tillite material classifies as G9 according to TRH14. The material is not suitable for use during construction due to the expansive nature of the material.
- ❑ The area exhibits a Medium Overall Risk of groundwater contamination. Precautionary measures have to be taken to prevent the contamination of local shallow and deep aquifers. Sealed pits with soak-away systems can be utilised along with increased ventilation.
- ❑ The soil materials encountered on site is expected to be highly erodible and dispersive. Suitable precautionary measures must be implemented.



## 4.2 Geotechnical Recommendations

The following recommendations are made regarding the construction of the proposed single storey school buildings and facilities.

- No competent horizon was encountered over the entire project area up to a depth of 2.50 mbgl. The project area is underlain by thick, residual soil material. It is therefore recommended that one or a combination of the following foundation options be utilised for the construction of the proposed single storey classrooms and other facilities:
  - Stiffened or Cellular Raft:
    - Stiffened strip footing or stiffened or cellular raft with articulation joints or lightly reinforced masonry
    - Site drainage and service / plumbing precautions
  - Piled construction:
    - Piled foundations with suspended floor slabs with or without ground beams
    - Site drainage and service / plumbing precautions

It is recommended that foundation trenches be inspected during construction to ensure that any conditions that are encountered that are not discussed in this investigation can be identified and recommendations made prior to construction.

### 4.3 Sanitation Recommendations

The project area is deemed marginally suitable for the construction or placement of VIP sanitation units, provided due cognisance is given to the following:

- Results from the geotechnical investigation indicate that the seasonal occurrence of perched groundwater conditions is likely.
- The soil conditions on site indicate potentially compressible / collapsible soil structures that will fail if they are not shored and protected, necessitating structural reinforcement of pits.
- Medium Overall Risk of pollution of the groundwater aquifer is expected. The unsaturated zone is expected to act as a good barrier to contaminants.
- The regional static groundwater level is estimated to be between 10 and 20 mbgl, resulting in a minimum unsaturated zone thickness of approximately 8 m (from base of pit at 2 mbgl).

The following recommendations are made:

- All previously utilized or destroyed sanitation units will have to be rehabilitated.
- The subsoil structure of new sanitation units will have to be sealed to prevent any groundwater pollution or flooding of pits. (Sealed units imply that no liquids or solids are allowed to seep out of or into the unit). This will also prevent the pits from flooding with groundwater due to perched groundwater conditions.
- The pit openings must be protected such that no surface water is allowed to enter the pit due to rainfall or surface water run-off generated by rainfall.
- Due to the practical impermeability of soils encountered on site, an increased ventilation system is recommended to minimize water retention in pits.
- Limited soak-away's are recommended due to very low soil permeability and possible flooding of test pits by perched groundwater conditions.

From the results of this investigation it is **deemed necessary to install SEALED VIP Pit latrines** to prevent the movement of liquids to and from the pit due to the medium overall risk for the potential of groundwater contamination and to prevent the flooding of test pits by groundwater.

The use of soak-aways for hand basins can be discussed and is seen as allowable if confined to the hillwash material.

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# APPENDIX A

## Detailed Test Pit Profile Logs

---

<b>PROJECT:</b> GTEC Mgomanzi SP School		<b>TRIAL PIT NO.:</b> MGZ TP1	
<b>CLIENT:</b> CSE	<b>LATITUDE:</b> S31.03665		
<b>CONTRACTOR:</b> Casual Labour	<b>LONGITUDE:</b> E29.88076	<b>DATE EXCAVATED:</b> 13 June 2017	
<b>MACHINE/TYPE:</b> Hand Dug	<b>ELEVATION:</b> 606 m amsl	<b>DATE PROFILED:</b> 14 June 2017	

Depth	Lithology	Description	Sampling
0		Moist to very moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay with scattered ferricrete nodules. Roots. FERRUGINISED HILLWASH.	
100			
200			
300			
400		Abundant ferricrete nodules densely packed poorly cemented in a matrix of Moist to very moist, orange brown, intact, sandy clay. Roots. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
500			
600		Very moist, light brown, in profile light brown, firm, inherent, sandy clay. Roots. RESIDUAL SILTSTONE.	
700			
800		Very moist, orange brown, in profile orange brown, soft to firm, intact, sandy clay with scattered siltstone gravel and cobbles. RESIDUAL SILTSTONE.	
900			
1000			
1100			
1200			
1300			
1400			
1500			
1600		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			
3100			



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Notes: Noepage  
Side wall stability good  
No sample taken  
Deep roots

MGZ TP1

PROJECT: GTEC Mgomanzi SP School				TRIAL PIT NO.: MGZ TP2	
CLIENT:	CSE	LATITUDE:	S31.63702		
CONTRACTOR:	Casual Labour	LONGITUDE:	E29.88690	DATE EXCAVATED:	13 June 2017
MACHINE TYPE:	Hand Dug	ELEVATION:	610 m a m s l	DATE PROFILED:	14 June 2017

Depth	Lithology	Description	Sampling
0		Moist to very moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay with scattered ferricrete nodules. Roots. FERRUGINISED HILLWASH.	
100			
200			
300			
400			
500		Abundant ferricrete nodules with scattered gravel and cobbles densely packed and poorly cemented in a matrix of Moist to very moist, orange brown, intact, sandy clay. Roots. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
600			
700		Very moist, orange brown, in profile orange brown, soft to firm, intact, sandy clay with scattered siltstone gravel and cobbles. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500			
1600			
1700		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

Notes: Noepage





Side wall stability good

1 bulk sample taken

Deep soils

MGZ TP2

PROJECT: GTEC Mgomanzi SP School			TRIAL PIT NO.: MGZ TP3	
CLIENT: CSE	LATITUDE: S31.63706			
CONTRACTOR: Casual Labour	LONGITUDE: E29.88053	DATE EXCAVATED: 13 June 2017		
MACHINE TYPE: Hand Dug	ELEVATION: 615 m a.s.l	DATE PROFILED: 14 June 2017		

Depth	Lithology	Description	Sampling
0		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of Moist, dusky brown, intact, sandy clay. Firm overall consistency. FERRUGINISED HILLWASH.	MGZ TP3.1
100			
200			
300			
400			
500			
600			
700			
800			
900			
1000		Moist, light orange brown, in profile light orange brown, soft to firm, intact, sandy clay. Roots. RESIDUAL SILTSTONE.	MGZ TP3.2
1100			
1200			
1300			
1400			
1500			
1600			
1700			
1800			
1900			
2000		Very moist, yellowish orange brown, in profile orange brown, soft to firm, intact, intact, sandy clay with scattered siltstone gravel and cobbles. RESIDUAL SILTSTONE.	MGZ TP3.2
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	MGZ TP3.2
3100			
3200			
3300			
3400			
3500			
3600			
3700			
3800			
3900			



AGES OMEGA (PTY) LTD

Notes: Noepage

Stability: stability good

2 disturbed samples taken

Deep soils

MGZ TP3



<b>PROJECT:</b> GTEC Mgomanzi SP School		<b>TRIAL PIT NO.:</b> MGZ TP4	
<b>CLIENT:</b> CSE	<b>LATITUDE:</b> S31.637 13	<b>DATE EXCAVATED:</b> 13 June 2017	
<b>CONTRACTOR:</b> Casual Labour	<b>LONGITUDE:</b> E29.888 17	<b>DATE PROFILED:</b> 14 June 2017	
<b>MACHINE/TYPE:</b> Hand Dug	<b>ELEVATION:</b> 611 m amsl		

Depth	Lithology	Description	Sampling
0		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of Moist, dusky brown, intact, sandy clay. Firm overall consistency. Roots. FERRUGINISED HILLWASH.	
100			
200			
300			
400			
500			
600			
700		Very moist, yellowish orange brown, in profile orange brown, soft to firm, intact, intact, sandy clay with scattered siltstone gravel and cobbles. Roots. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500			
1600		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

**Notes:** Noepage  
 Side wall stability good  
 1 Bulk sample taken  
 Deep roots

MGZ TP4

<b>PROJECT:</b> GTEC Mgomanzi SP School		<b>TRIAL PIT NO.:</b> MGZ TP5	
<b>CLIENT:</b> CSE	<b>LATITUDE:</b> 33.63734		
<b>CONTRACTOR:</b> Casual Labour	<b>LONGITUDE:</b> 29.88037	<b>DATE EXCAVATED:</b> 13 June 2017	
<b>MACHINE TYPE:</b> Hand Dug	<b>ELEVATION:</b> 618 m a.s.l	<b>DATE PROFILED:</b> 14 June 2017	

Depth	Lithology	Description	Sampling
0		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of Moist, dusky brown, intact, sandy clay. Firm overall consistency. Roots. FERRUGINISED HILLWASH.	
100			
200			
300		Moist to very moist, orange brown, in profile orange brown, firm, intact, sandy clay with scattered ferricrete nodules and siltstone gravel, FERRUGINISED RESIDUAL SILTSTONE.	
400			
500			
600			
700		Very moist, yellowish orange brown, in profile orange brown, soft to firm, intact, intact, sandy clay with scattered siltstone gravel and cobbles. Roots. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

**Notes:** No webpage  
 Sidesall stability good  
 No sample taken  
 Deep rolls

MGZ TP5

PROJECT: GTEC Mgomanzi SP School				TRIAL PIT NO.: MGZ TP6	
CLIENT:	CSE	LATITUDE:	S31.63752		
CONTRACTOR:	Casual Labour	LONGITUDE:	E29.86053	DATE EXCAVATED:	13 June 2017
MACHINE/PE:	Hand Dug	ELEVATION:	618 m a m s l	DATE PROFILED:	14 June 2017

Depth	Lithology	Description	Sampling
0		Moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay with scattered ferricrete nodules. FERRUGINISED HILLWASH.	
100			
200			
300			
400			
500		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of moist to very moist, dark brown speckled orange, intact, sandy clay. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
600		Very moist, yellowish orange brown, in profile orange brown, firm, intact, sandy clay with scattered ferricrete nodules. FERRUGINISED RESIDUAL SILTSTONE.	
700		Very moist, reddish brown, in profile reddish brown, firm, intact, sandy clay with scattered siltstone gravel. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

Notes: Noepage  
 Sidesail stability good  
 No sample taken  
 Deep rolls

MGZ TP6

PROJECT: GTEC Mgomanzi SP School				TRIAL PIT NO.: MGZ TP7	
CLIENT:	CSE	LATITUDE:	S31.63732		
CONTRACTOR:	Casual Labour	LONGITUDE:	E29.86991	DATE EXCAVATED:	13 June 2017
MACHINE/TYPE:	Hand Dug	ELEVATION:	612 m abn sl	DATE PROFILED:	14 June 2017

Depth	Lithology	Description	Sampling
0		Moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay with scattered ferricrete nodules. FERRUGINISED HILLWASH.	
100			
200			
300			
400			
500		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of of Moist to very moist, dark brown speckled orange, intact, sandy clay. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
600			
700		Very moist, reddish brown, in profile reddish brown, firm, intact, sandy clay with scattered siltstone cobbles and boulders. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

Notes:

- No webpage
- Sidewall stability good
- No sample taken
- Deep rolls

MGZ TP7

PROJECT: GTEC Mgomanzi SP School				TRIAL PIT NO.: MGZ TP8	
CLIENT:	CSE	LATITUDE:	S31.63757	DATE EXCAVATED:	13 June 2017
CONTRACTOR:	Casual Labour	LONGITUDE:	E29.89139	DATE PROFILED:	14 June 2017
MACHINE TYPE:	Hand Dug	ELEVATION:	± 16 m a.m.s.l.		

Depth	Lithology	Description	Sampling
0			
100		Slightly moist to moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay with scattered ferricrete nodules. FERRUGINISED HILLWASH.	
200			
300			
400			
500		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of of Moist, orange brown speckled red, intact, sandy clay. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
600			
700		Moist, yellowish orange brown, in profile orange brown, firm, intact, sandy clay with scattered siltstone gravel. RESIDUAL SILTSTONE.	
800			
900			
1000			
1100			
1200			
1300			
1400			
1500		Yellow brown speckled orange, highly weathered, fine grained, thickly jointed, very soft to soft rock. SOFT SILTSTONE BEDROCK.	
1600		Excavation was stopped on SOFT SILTSTONE BEDROCK.	
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

Notes: No webpage

Side wall stability good

1 disturbed sample taken

Deep rolls

MGZ TP8

<b>PROJECT:</b> GTEC Mgomanzi SP School		<b>TRIAL PIT NO.:</b> MGZ TP9	
<b>CLIENT:</b> CSE	<b>LATITUDE:</b> S31.63778	<b>DATE EXCAVATED:</b> 13 June 2017	
<b>CONTRACTOR:</b> Casual Labour	<b>LONGITUDE:</b> E29.89122	<b>DATE PROFILED:</b> 14 June 2017	
<b>MACHINE TYPE:</b> Hand Dug	<b>ELEVATION:</b> 618 m (a.s.l.)		

Depth	Lithology	Description	Sampling
0		Slightly moist to moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay. Roots. HILLWASH.	
100			
200			
300			
400			
500			
600		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of Moist, orange brown speckled red, intact, sandy clay. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
700		Moist, yellowish orange brown, in profile orange brown, soft to firm, intact, sandy clay with scattered siltstone gravel. RESIDUAL SILTSTONE.	MGZ TP9.1
800			
900			
1000			
1100			
1200			
1300			
1400			
1500		Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

**Notes:** Noepage  
 Side wall stability good  
 1 bulk sample taken  
 Deep rolls

MGZ TP9

<b>PROJECT:</b> GTEC Mgomanzi SP School				<b>TRIAL PIT NO.:</b> MGZ TP10	
<b>CLIENT:</b> CSE	<b>LATITUDE:</b> S31.63778				
<b>CONTRACTOR:</b> Casual Labour	<b>LONGITUDE:</b> E29.88985	<b>DATE EXCAVATED:</b> 13 June 2017			
<b>MACHINE/TYPE:</b> Hand Dug	<b>ELEVATION:</b> 621 m a.s.l.	<b>DATE PROFILED:</b> 14 June 2017			

Depth	Lithology	Description	Sampling
0			
100		Slightly moist to moist, dark brown, in profile dark brown, firm, micro-shattered, sandy clay. Roots. HILLWASH.	
200			
300			
400			
450		Abundant ferricrete nodules densely packed and moderately cemented in a matrix of of Moist, orange brown speckled red, intact, sandy clay. Firm overall consistency. FERRUGINISED RESIDUAL SILTSTONE.	
500			
600		Moist, reddish brown, in profile reddish brown, firm, intact, sandy clay with scattered siltstone gravel. RESIDUAL SILTSTONE.	
700			
800			
900			
1000			
1100			
1200			
1300			
1400			
1450	COH	Excavation was stopped on RESIDUAL SILTSTONE with a firm consistency.	
1500			
1600			
1700			
1800			
1900			
2000			
2100			
2200			
2300			
2400			
2500			
2600			
2700			
2800			
2900			
3000			



AGES OMEGA (PTY) LTD

Notes: No seepage

Side wall stability good

1 disturbed sample taken

Deep soils

MGZ TP10

# APPENDIX B

## Dynamic Cone Penetrometer Data

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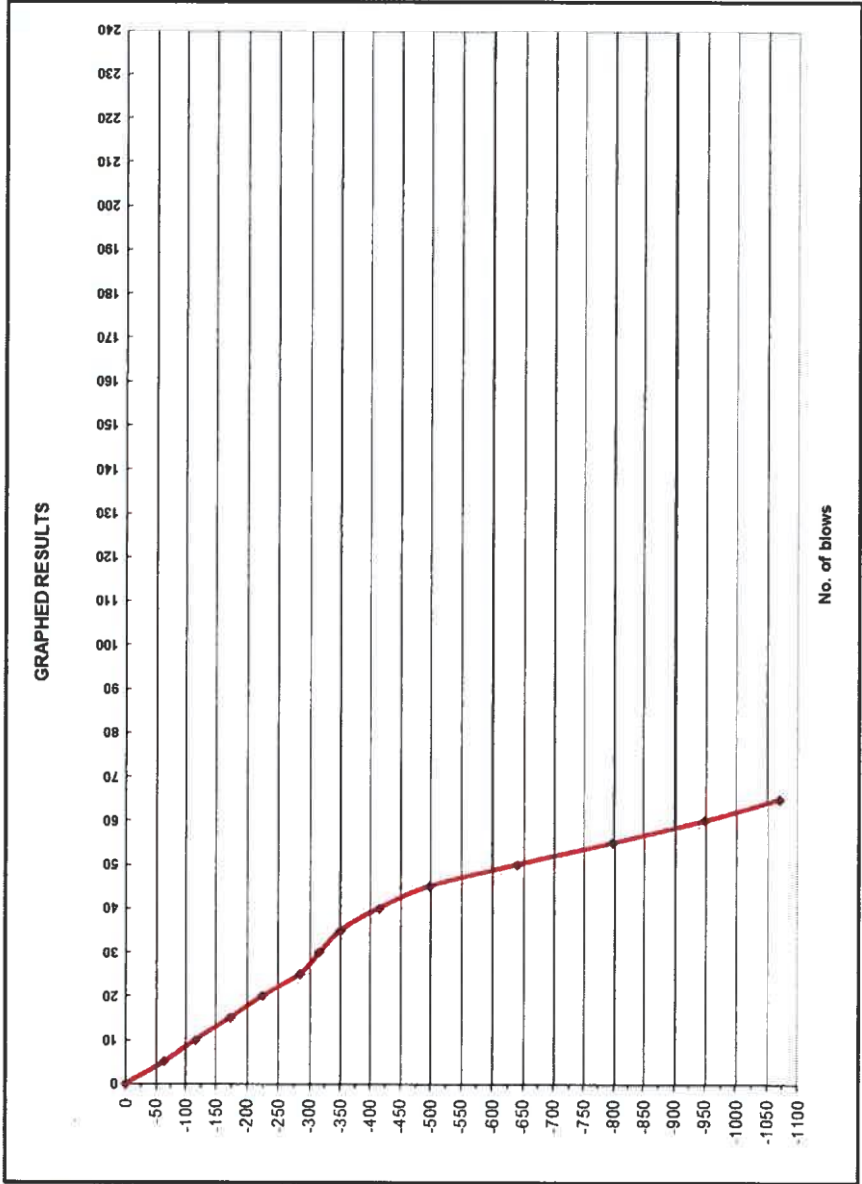


ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: Surface CONDUCTED ON: Wednesday, June 14, 2017

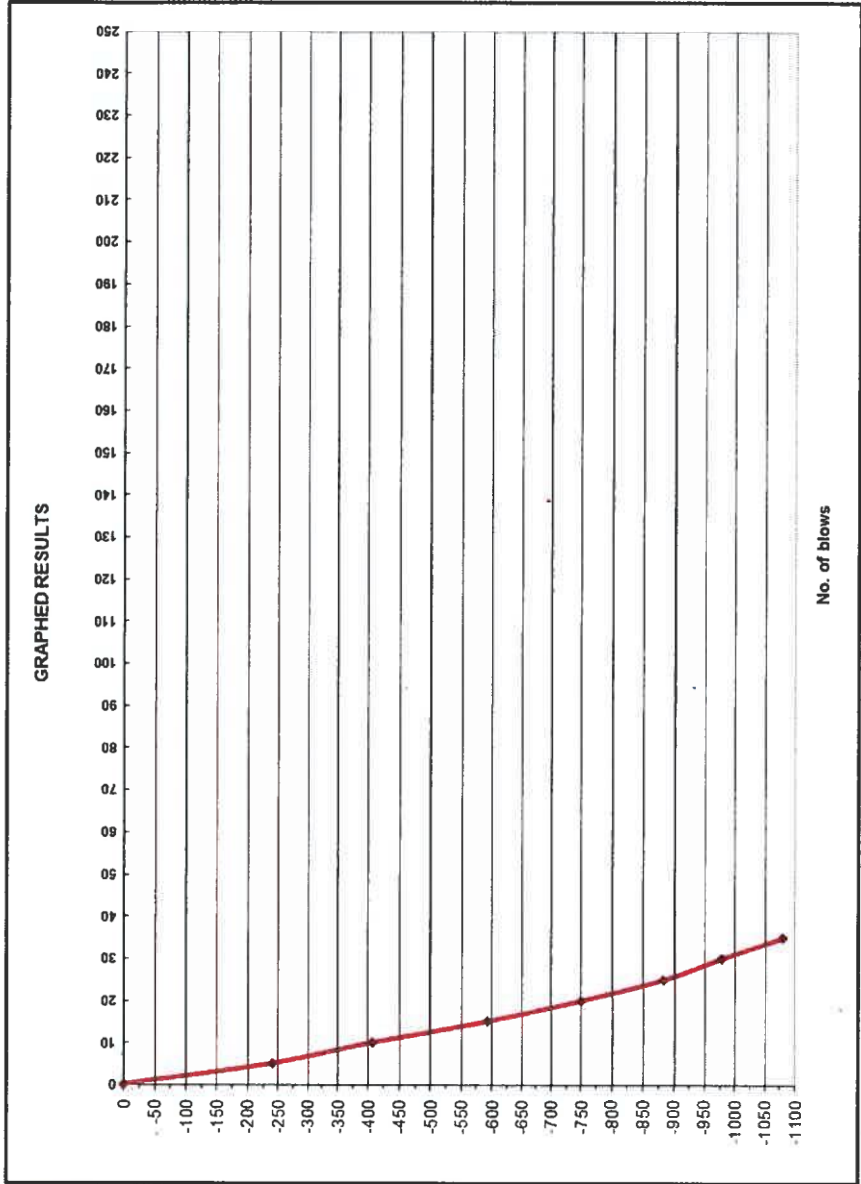
NO. OF BLOWS	MGZ TP 1 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	60	0	0.0	
5	124	-64	12.8	180
10	176	-116	10.4	226
15	232	-172	11.2	208
20	284	-224	10.4	226
25	344	-284	12.0	193
30	376	-316	6.4	383
35	410	-350	6.8	359
40	473	-413	12.6	183
45	557	-497	16.8	134
50	700	-640	28.6	75
55	857	-797	31.4	68
60	1008	-948	30.2	71
65	1131	-1071	24.6	88
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzl SP School      DEPTH: 1.55 mbgl      CONDUCTED ON: Wednesday, June 14, 2017

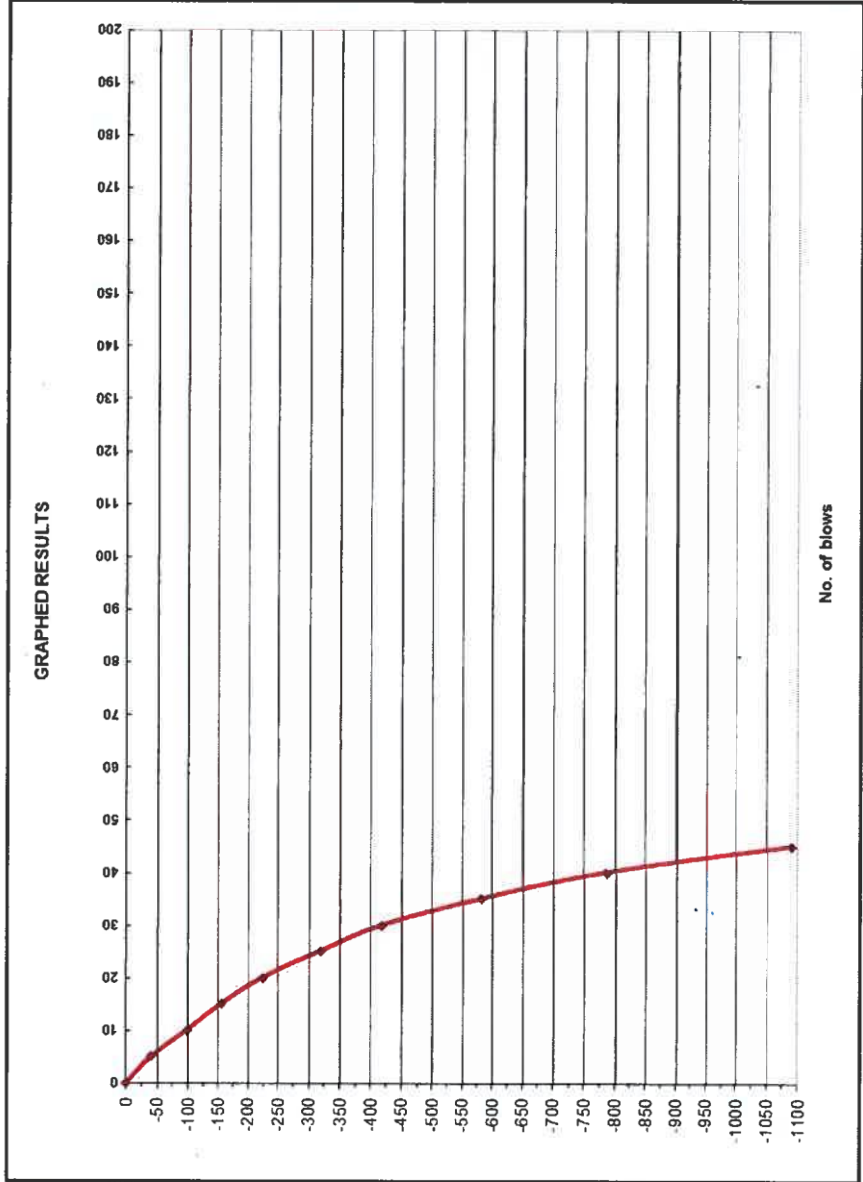
NO. OF BLOWS	MGZ TP 1 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	290	-240	48.0	43
10	457	-407	33.4	63
15	642	-592	37.0	57
20	800	-750	31.6	67
25	933	-883	26.6	81
30	1027	-977	18.8	118
35	1130	-1080	20.6	107
40				
45				
50				
55				
60				
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzl SP School      DEPTH: Surface      CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 2 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	40	0	0.0	
5	80	-40	8.0	301
10	138	-98	11.6	201
15	194	-154	11.2	208
20	264	-224	14.0	163
25	358	-318	18.8	118
30	458	-418	20.0	111
35	622	-582	32.8	65
40	826	-786	40.8	51
45	1130	-1090	60.8	33
50				
55				
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70				
75				
80				
85				
90				
95				
100				
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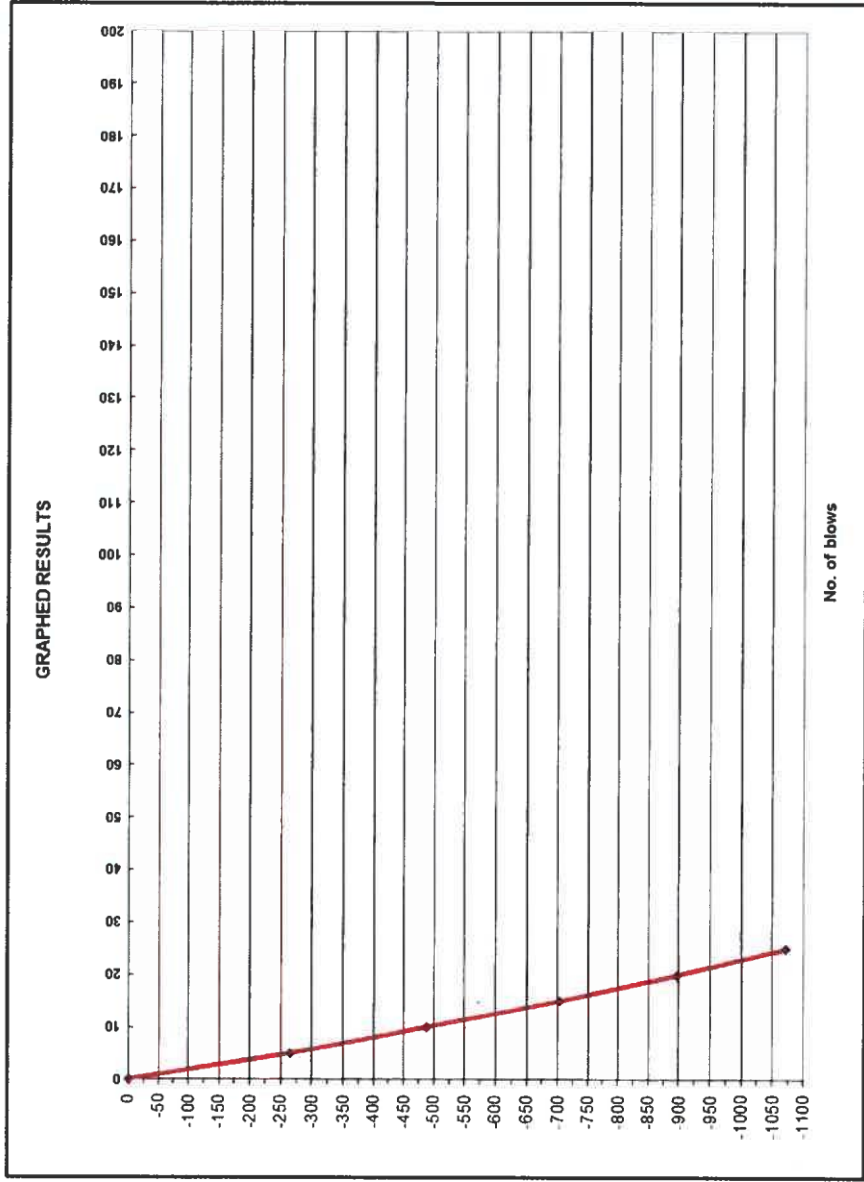


ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: 1 60 mm CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 2 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	60	0	0.0	
5	324	264	52.8	38
10	547	487	44.6	46
15	764	704	43.4	48
20	958	898	38.8	54
25	1131	1071	34.6	61
30				
35				
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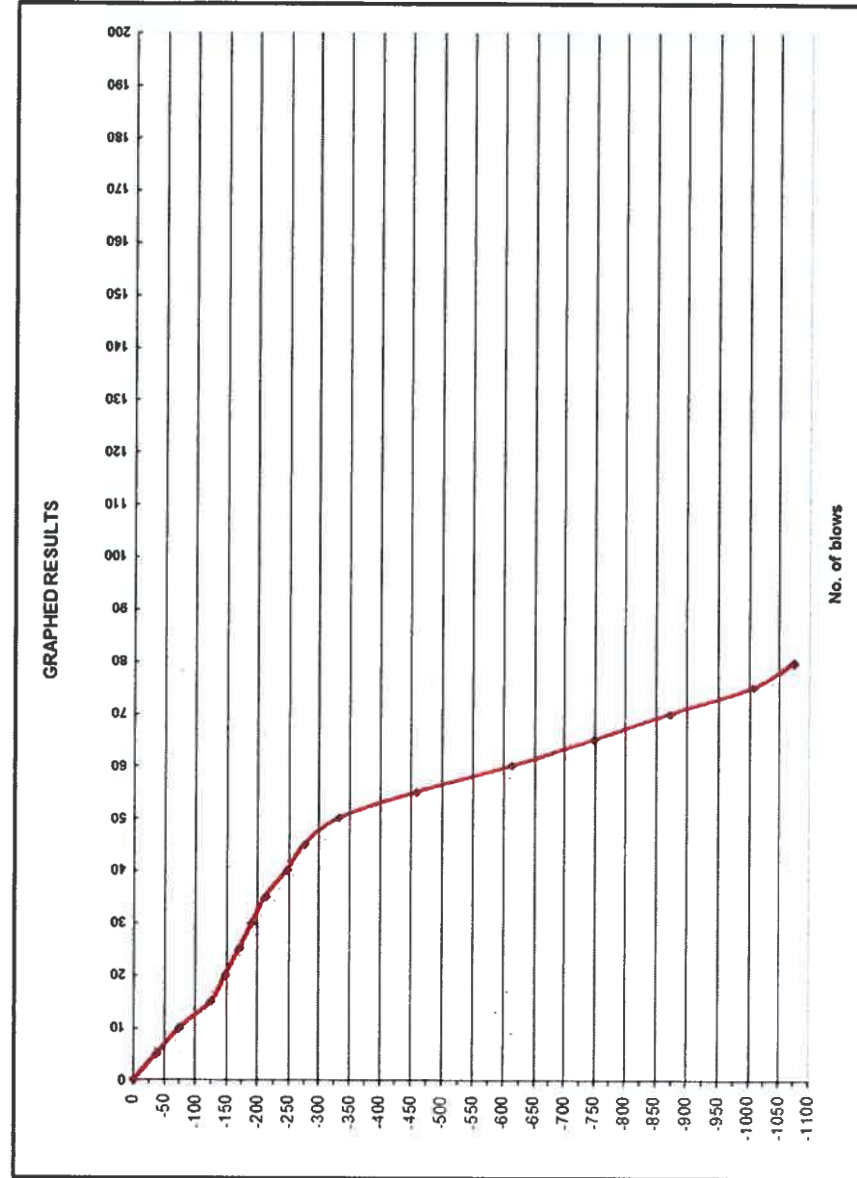


# ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: Surface CONDUCTED ON: Wednesday, June 14, 2017

NO OF BLOWS	MGZ TP 3 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	52	0	0.0	
5	90	-38	7.6	318
10	127	-75	7.4	327
15	177	-125	10.0	236
20	200	-148	4.6	550
25	222	-170	4.4	577
30	243	-191	4.2	607
35	264	-212	4.2	607
40	298	-246	6.8	359
45	328	-276	6.0	411
50	384	-332	11.2	208
55	510	-458	25.2	85
60	664	-612	30.8	59
65	800	-748	27.2	79
70	924	-872	24.8	88
75	1058	-1006	26.8	80
80	1127	-1075	13.8	166
85				
90				
95				
100				
105				
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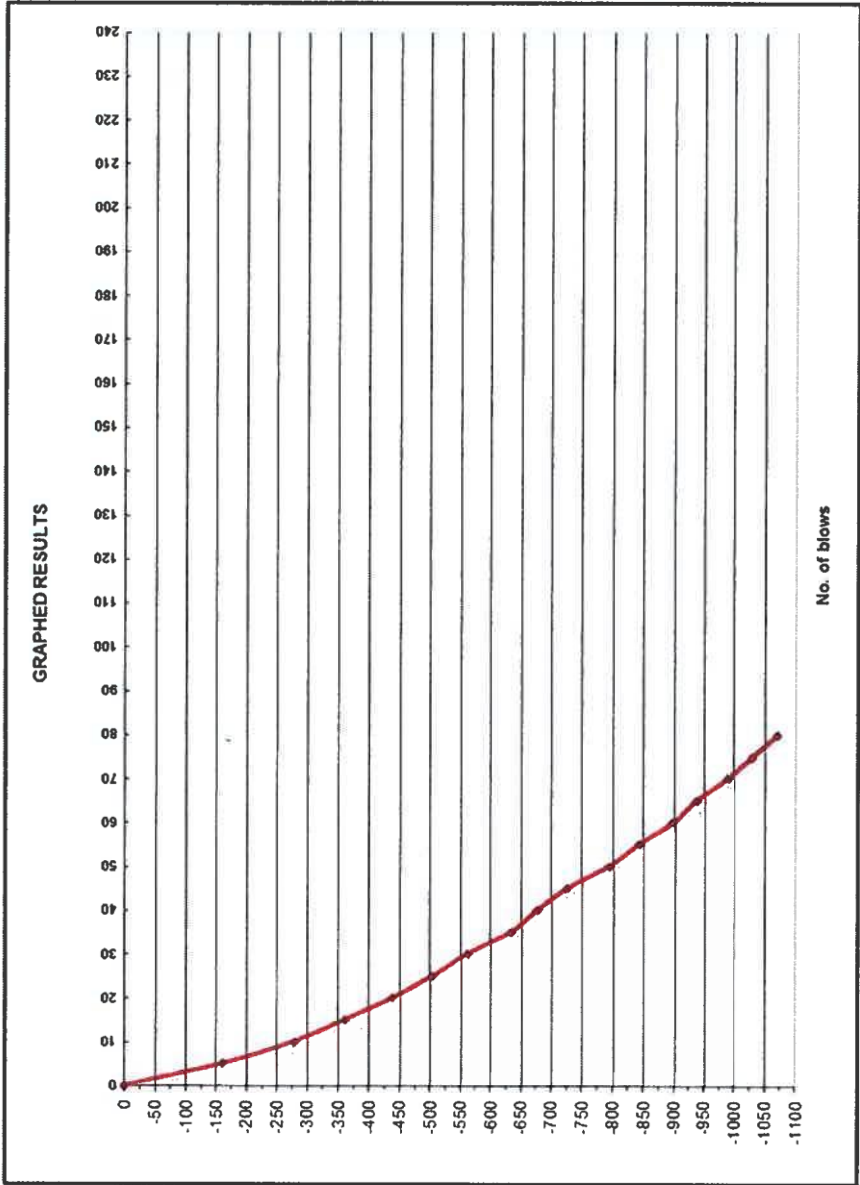


ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: **Mgomanzi SP School**      CONDUCTED ON: **Wednesday, June 14, 2017**

DEPTH: **1.50 mbgl**

NO. OF BLOWS	MGZ TP 3 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	210	-160	32.0	66
10	328	-278	23.6	92
15	410	-360	16.4	137
20	487	-437	15.4	147
25	554	-504	13.4	171
30	611	-561	11.4	204
35	683	-633	14.4	158
40	727	-677	8.8	271
45	776	-726	9.8	241
50	843	-793	13.4	171
55	892	-842	9.8	241
60	948	-898	11.2	208
65	987	-937	7.8	309
70	1038	-988	10.2	231
75	1079	-1029	8.2	293
80	1121	-1071	8.4	285
85				
90				
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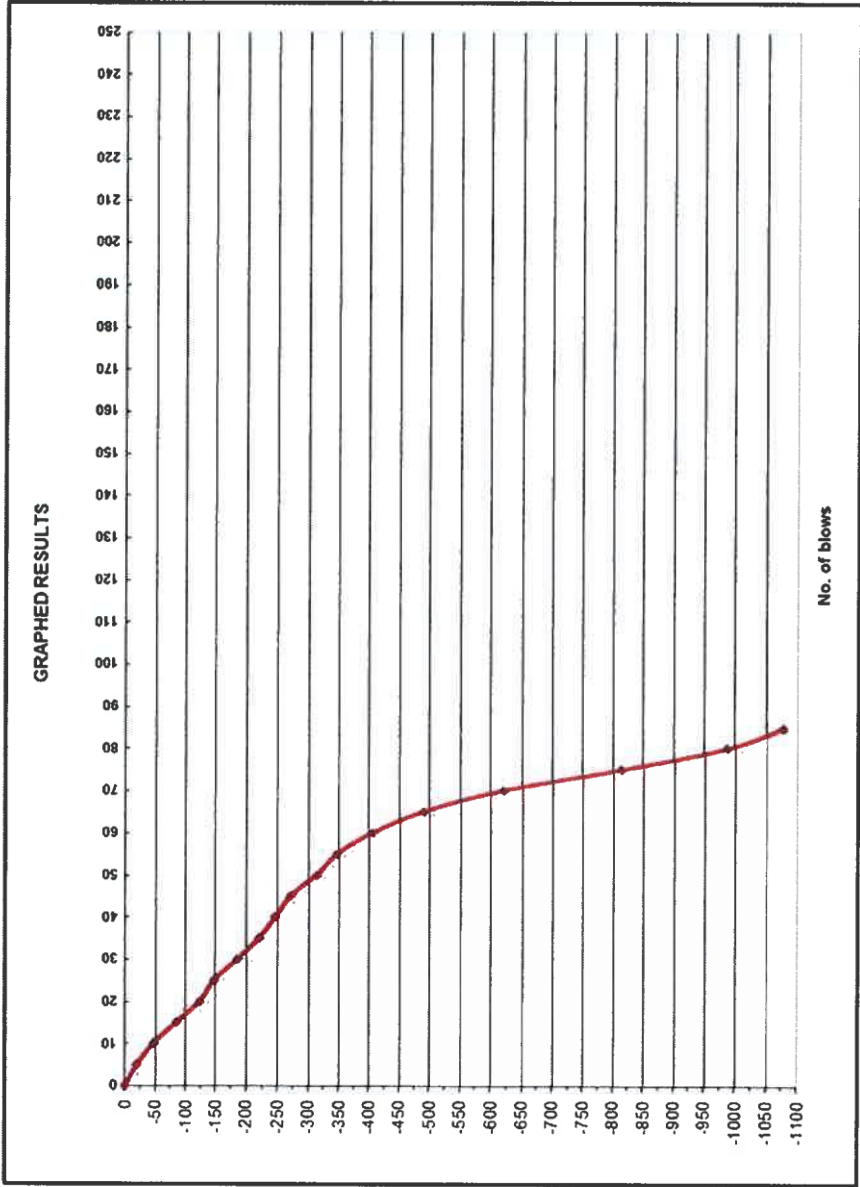
ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: Surface

CONDUCTED ON: Wednesday, June 14, 2017

NO OF BLOWS	MGZ TP 4 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	53	0	0.0	
5	73	-20	4.0	640
10	100	-47	5.4	461
15	138	-85	7.6	318
20	177	-124	7.8	309
25	200	-147	4.6	550
30	239	-186	7.8	309
35	273	-220	6.8	359
40	299	-246	5.2	481
45	324	-271	5.0	502
50	366	-313	8.4	285
55	400	-347	6.8	359
60	458	-405	11.6	201
65	543	-490	17.0	132
70	672	-619	25.8	84
75	867	-814	39.0	53
80	1040	-987	34.6	61
85	1131	-1078	18.2	123
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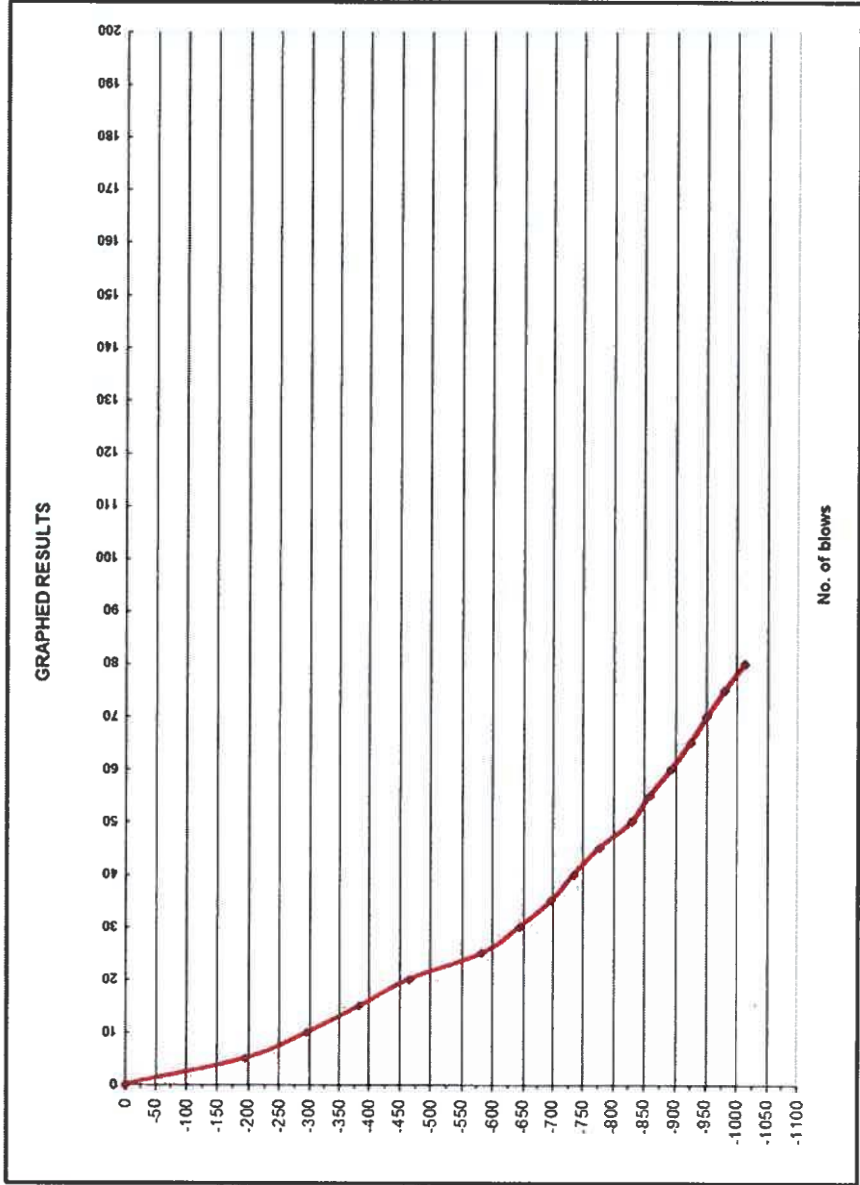
ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

CONDUCTED ON: Wednesday, June 14, 2017

DEPTH: 160 mbgl

NO. OF BLOWS	MGZ TP 4 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (MPa)
0	60	0	0.0	
5	254	-194	38.8	54
10	356	-296	20.4	108
15	443	-383	17.4	129
20	524	-464	16.2	139
25	642	-582	23.6	92
30	703	-643	12.2	190
35	757	-697	10.8	217
40	794	-734	7.4	327
45	836	-776	8.4	285
50	889	-829	10.6	221
55	918	-858	5.8	427
60	953	-893	7.0	348
65	984	-924	6.2	397
70	1011	-951	5.4	461
75	1040	-980	5.8	427
80	1072	-1012	6.4	363
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90				
95				
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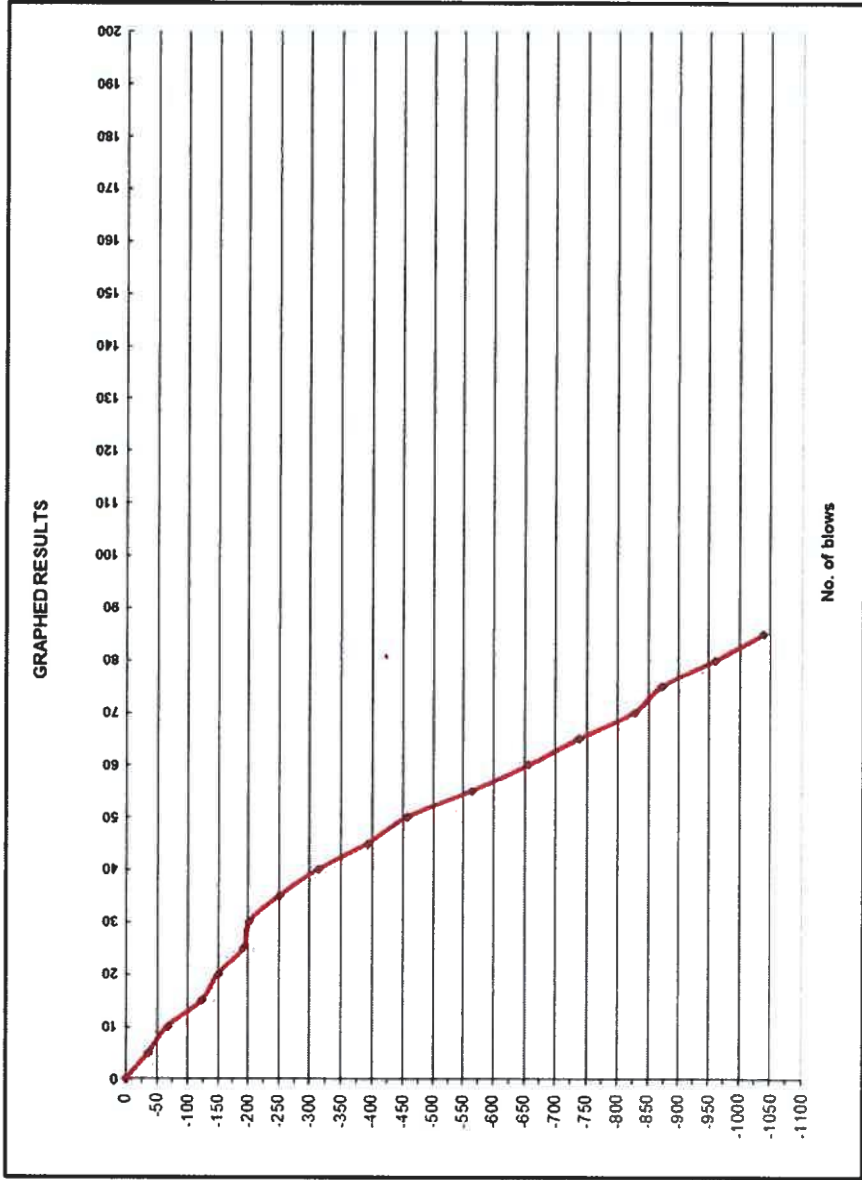
ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: Surface

CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 5 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	60	0	0.0	
5	97	-37	7.4	327
10	127	-67	6.0	411
15	183	-123	11.2	208
20	210	-150	5.4	461
25	263	-193	8.6	278
30	262	-202	1.8	1528
35	311	-251	9.8	241
40	373	-313	12.4	186
45	453	-393	16.0	141
50	516	-456	12.6	183
55	623	-563	21.4	103
60	717	-657	18.8	118
65	798	-738	16.2	139
70	886	-826	17.6	127
75	932	-872	9.2	258
80	1021	-961	17.8	126
85	1098	-1038	15.4	117
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100				
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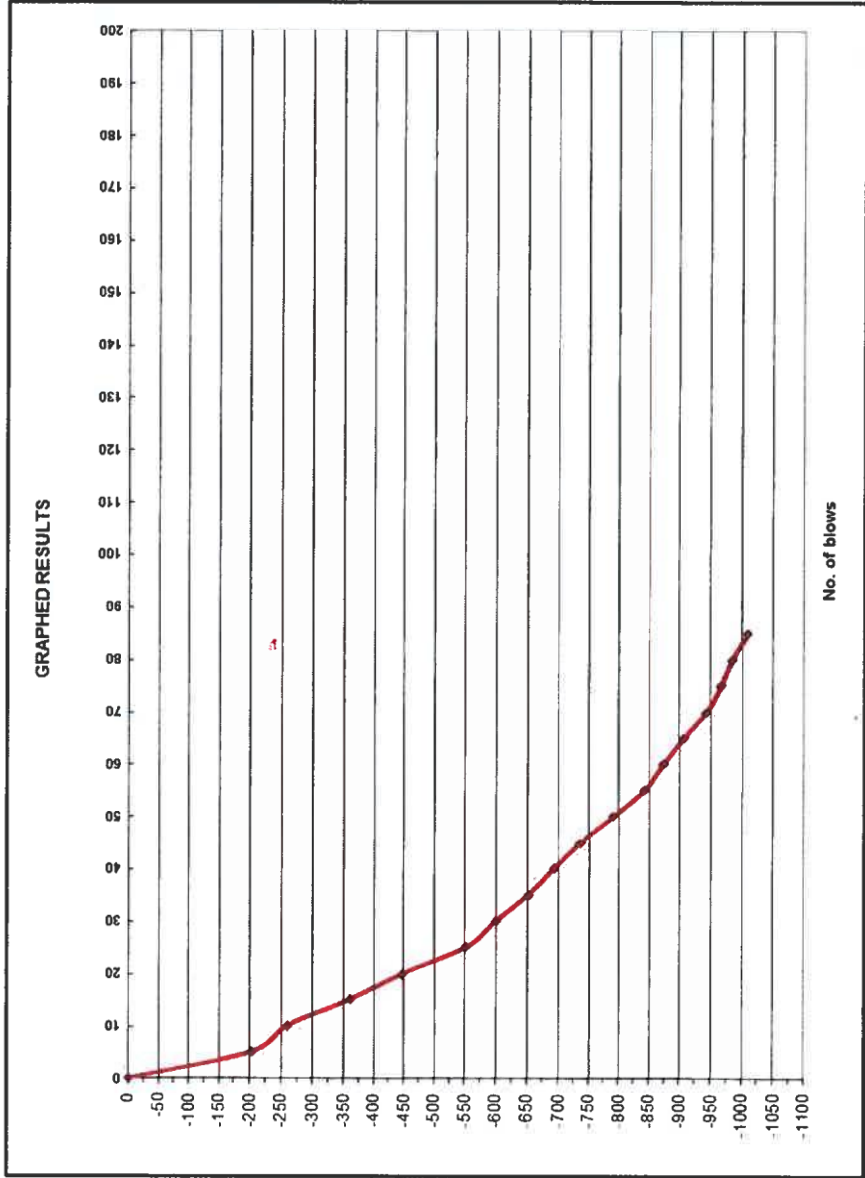
ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: 1 50 mbgl

CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 5 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	253	-203	40.6	51
10	310	-260	11.4	204
15	410	-360	20.0	111
20	498	-448	17.6	127
25	602	-552	20.8	106
30	650	-600	9.6	246
35	702	-652	10.4	226
40	742	-692	8.0	301
45	786	-736	8.8	271
50	841	-791	11.0	212
55	892	-842	10.2	231
60	923	-873	6.2	397
65	956	-906	6.6	371
70	993	-943	7.4	327
75	1016	-966	4.6	550
80	1034	-984	3.6	718
85	1060	-1010	5.2	481
90				
95				
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# ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

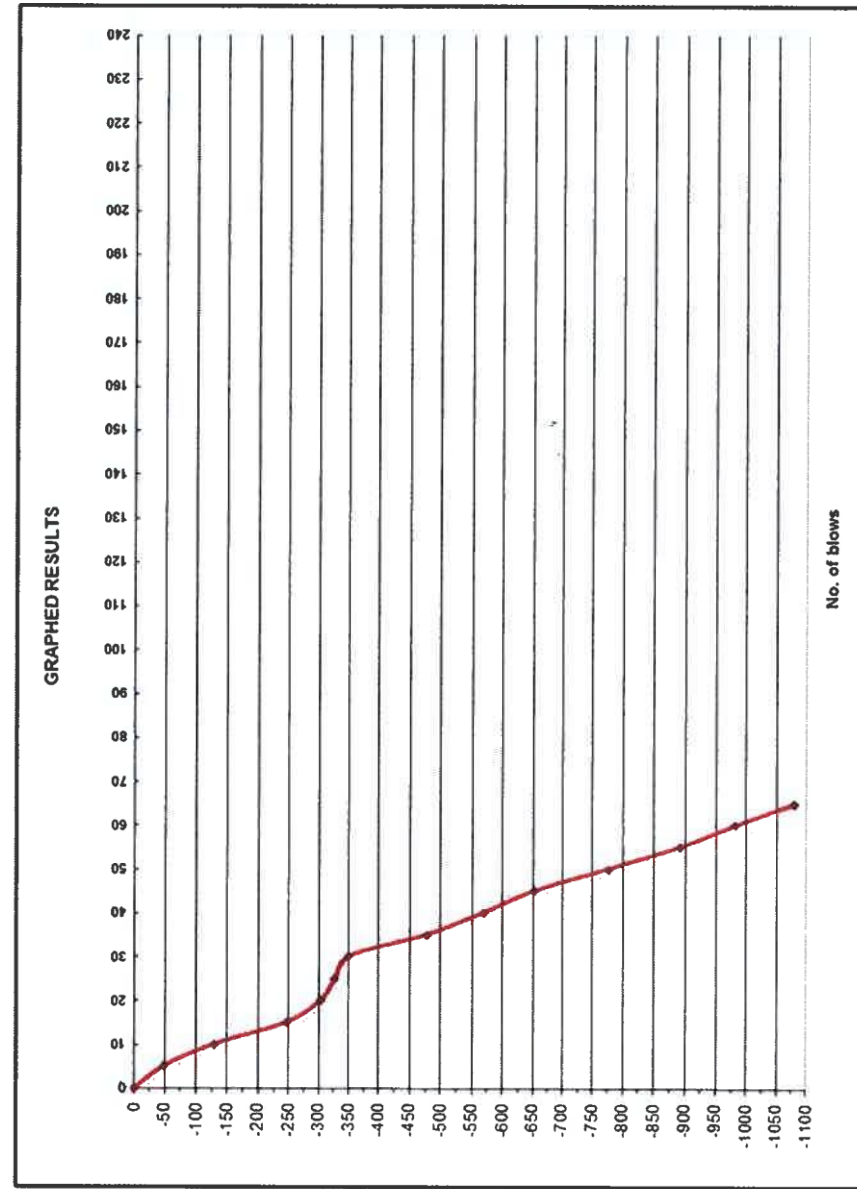
PROJECT: **Mgomanzi SP School**

DEPTH: Surface

CONDUCTED ON:

Wednesday, June 14, 2017

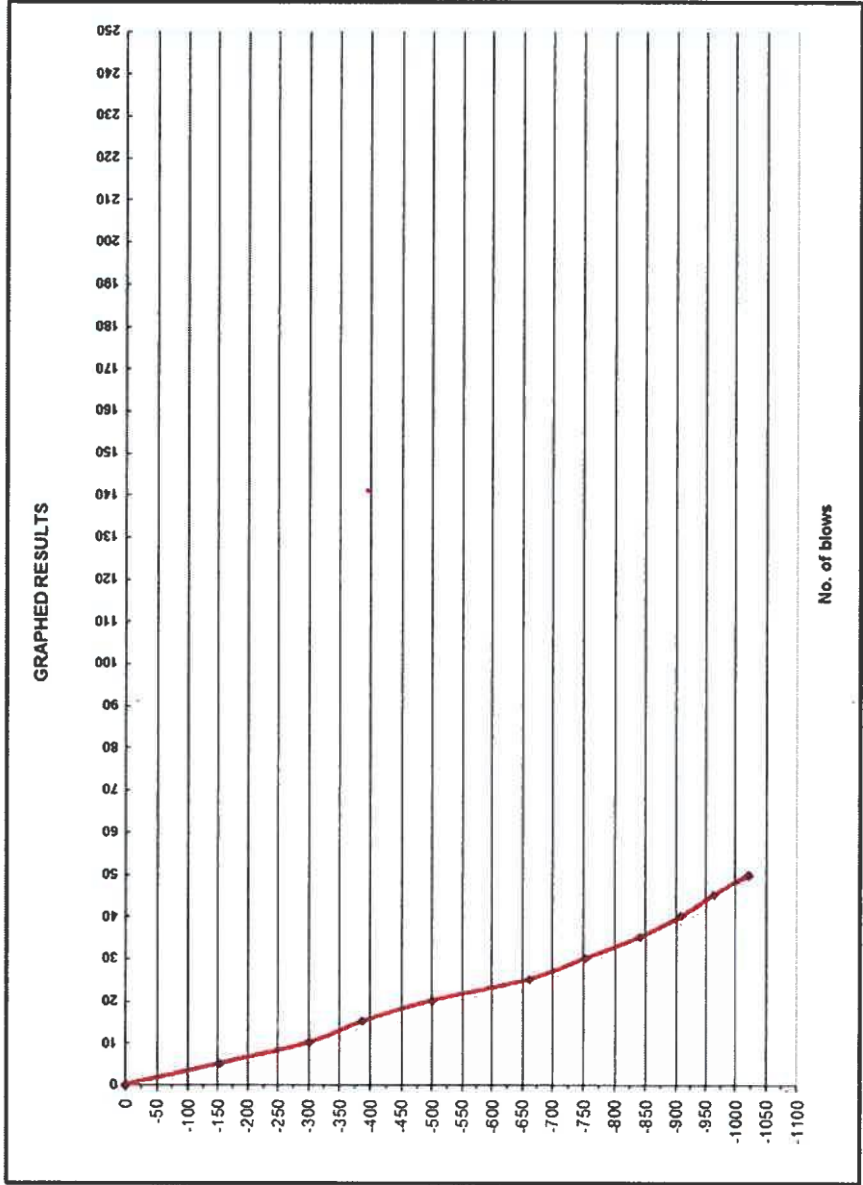
NO. OF BLOWS	MGZ TP 6 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	99	-49	9.8	241
10	179	-129	16.0	141
15	296	-246	23.4	93
20	352	-302	11.2	208
25	377	-327	5.0	502
30	400	-350	4.6	550
35	528	-478	25.6	85
40	618	-568	18.0	124
45	703	-653	17.0	132
50	826	-776	24.6	88
55	941	-891	23.0	95
60	1032	-982	18.2	123
65	1130	-1080	19.6	113
70				
75				
80				
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School      DEPTH: 150 mbgl      CONDUCTED ON: Wednesday, June 14, 2017

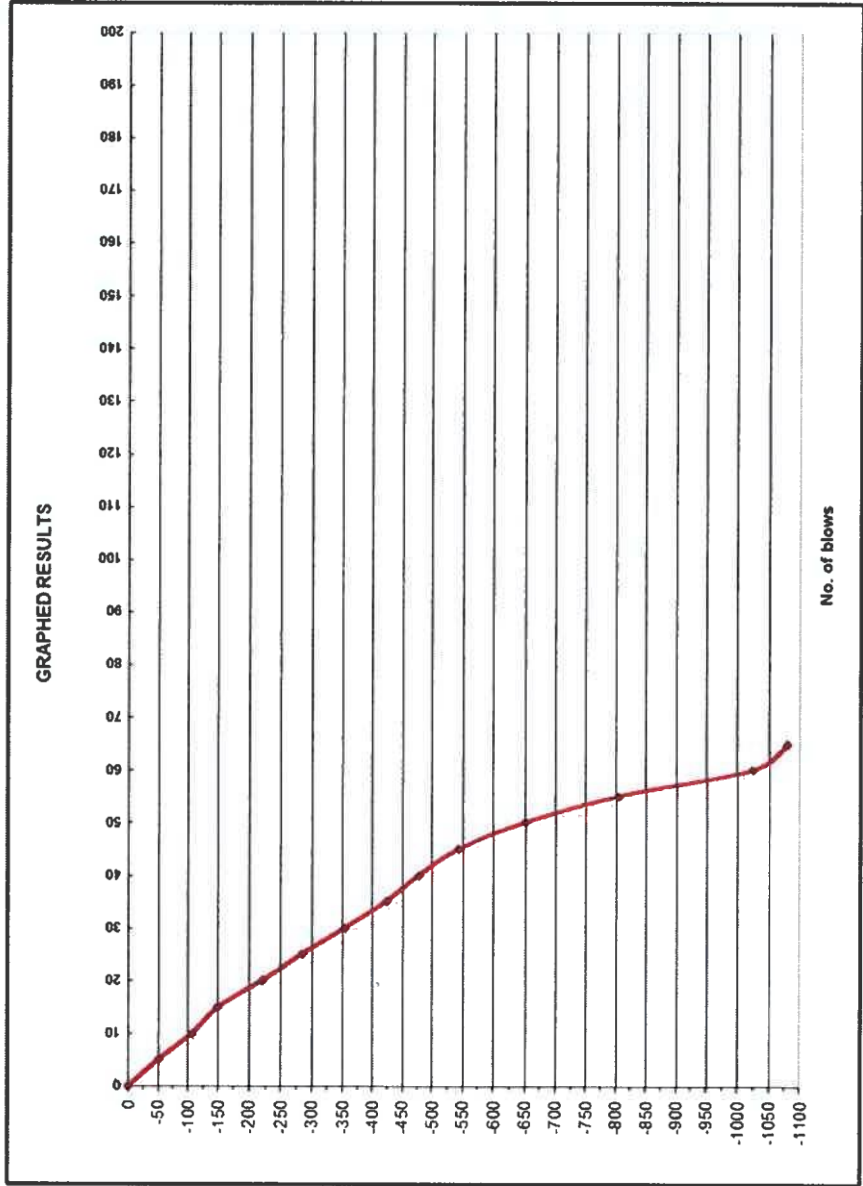
NO. OF BLOWS	MGZ TP 6 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	100	0	0.0	
5	252	-152	30.4	70
10	400	-300	29.6	72
15	486	-386	17.2	131
20	600	-500	22.8	96
25	762	-662	32.4	65
30	853	-753	18.2	123
35	940	-840	17.4	129
40	1009	-909	13.8	166
45	1062	-962	10.6	221
50	1122	-1022	12.0	193
55				
60				
65				
70				
75				
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: **Mgomanzi SP School**      DEPTH: Surface      CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 7 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	100	-50	10.0	236
10	157	-107	11.4	204
15	200	-150	8.6	278
20	271	-221	14.2	161
25	334	-284	12.6	183
30	404	-354	14.0	163
35	472	-422	13.6	169
40	527	-477	11.0	212
45	594	-544	13.4	171
50	700	-650	21.2	104
55	864	-804	30.8	69
60	1073	-1023	43.8	47
65	1130	-1080	11.4	204
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75				
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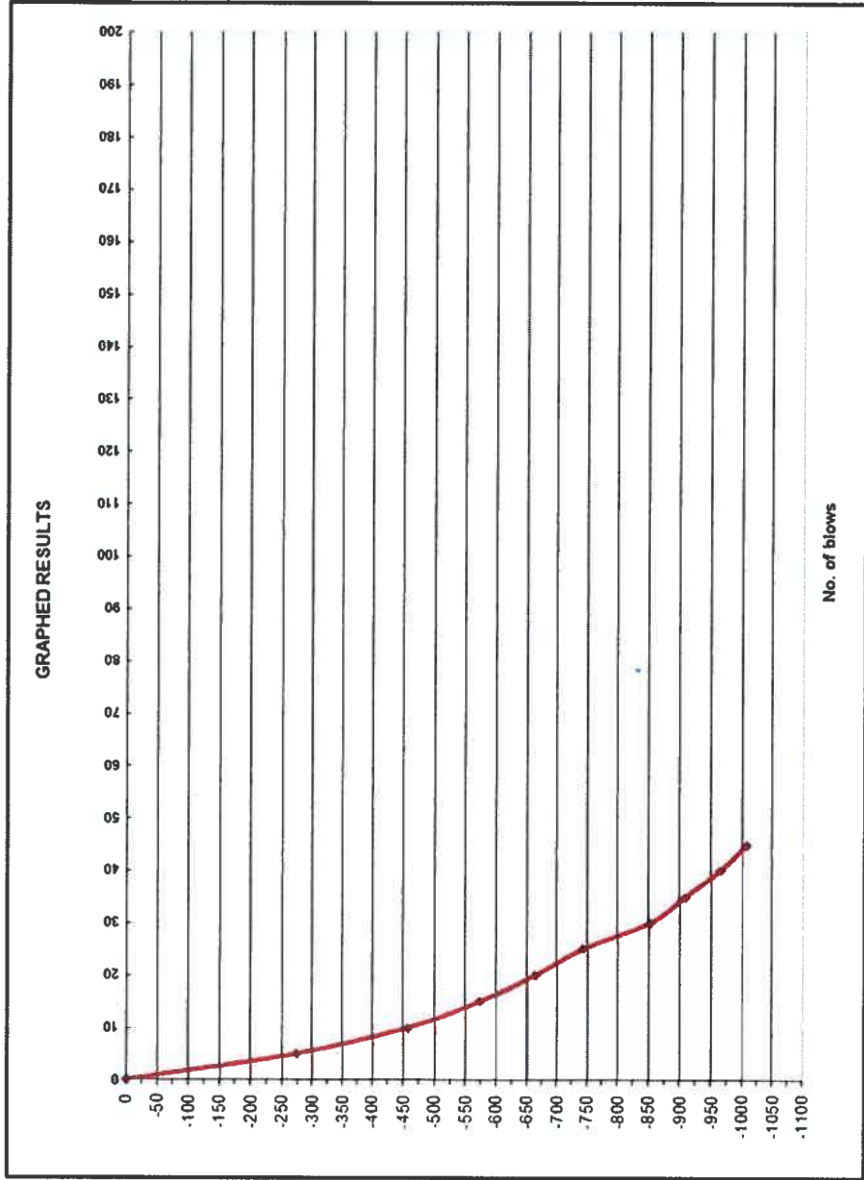




ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School      DEPTH: 150 mbgl      CONDUCTED ON: Wednesday, June 14, 2017

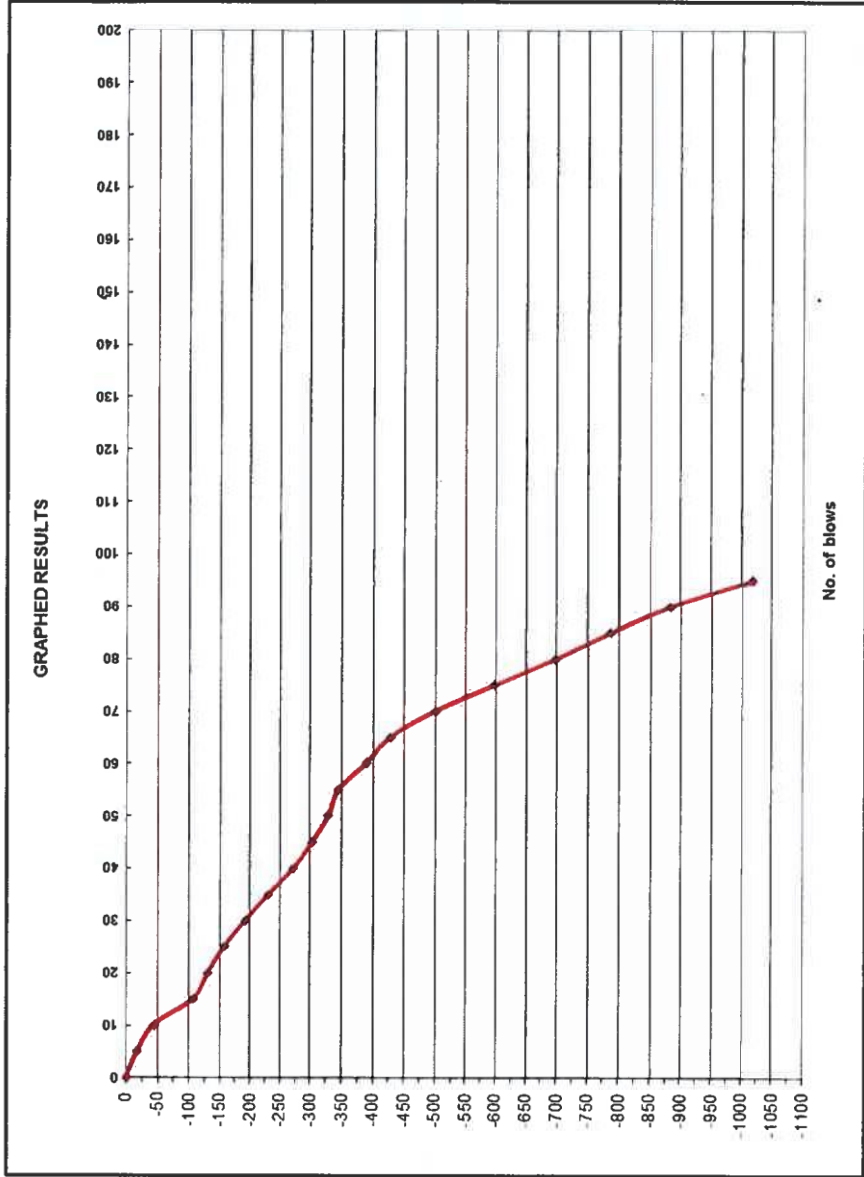
NO. OF BLOWS	MGZ TP 7 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	100	0	0.0	
5	374	274	54.8	37
10	557	457	36.6	57
15	673	573	23.2	94
20	764	664	18.2	123
25	843	743	15.8	143
30	952	852	21.8	101
35	1008	958	11.2	208
40	1064	964	11.2	208
45	1108	1008	8.8	271
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School      DEPTH: Surface      CONDUCTED ON: Wednesday, June 14, 2017

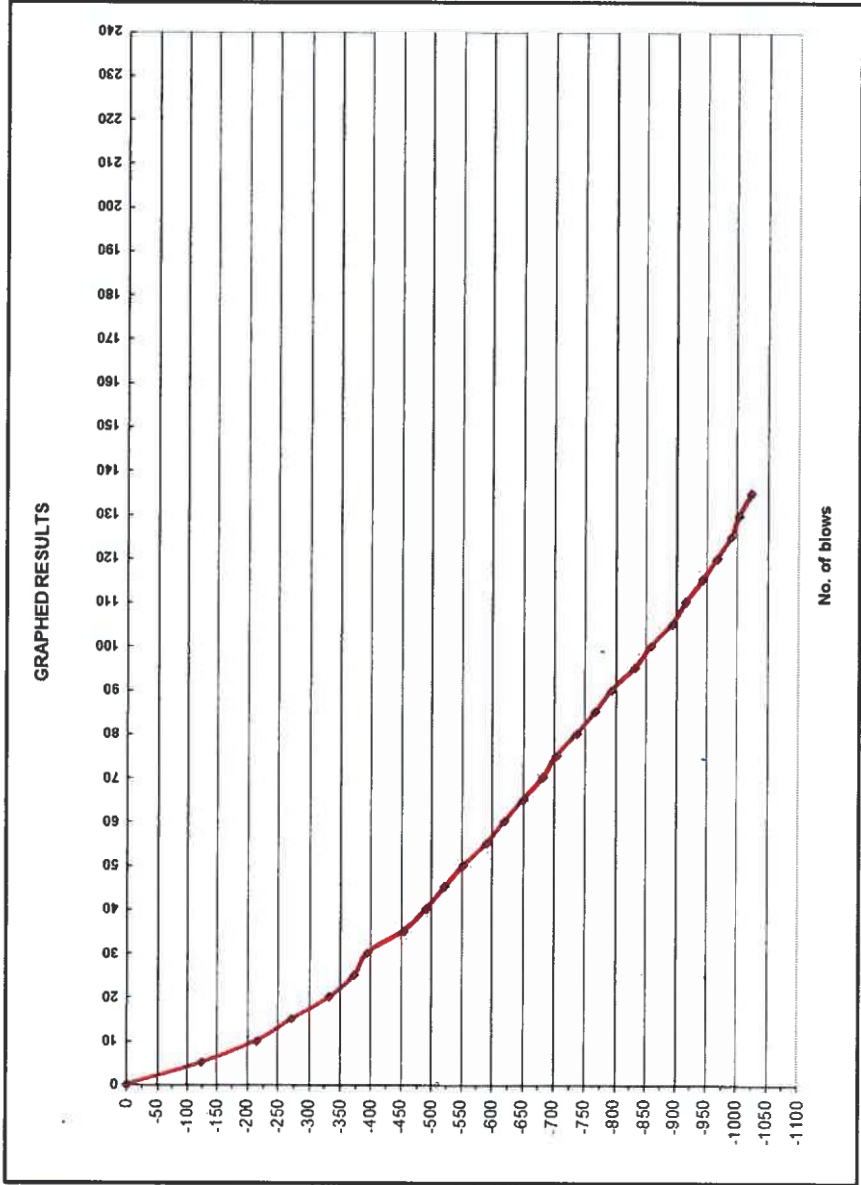
NO. OF BLOWS	MGZ TP 8 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	55	0	0.0	
5	74	-19	3.8	677
10	100	-45	5.2	481
15	162	-107	12.4	186
20	186	-131	4.8	525
25	212	-157	5.2	481
30	247	-192	7.0	348
35	286	-231	7.8	309
40	327	-272	8.2	293
45	358	-303	6.2	397
50	384	-329	5.2	481
55	400	-345	3.2	816
60	444	-389	8.8	271
65	482	-427	7.6	318
70	555	-500	14.6	156
75	654	-599	19.8	112
80	753	-698	19.8	112
85	842	-787	17.8	126
90	938	-883	19.2	116
95	1074	-1019	27.2	79
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: **Mgomanzi SP School**      DEPTH: 150 mbgl      CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 8 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	60	0	0.0	
5	183	123	24.6	88
10	274	214	18.2	123
15	332	272	11.6	201
20	392	332	12.0	193
25	432	372	8.0	301
30	453	393	4.2	607
35	513	453	12.0	193
40	550	490	7.4	327
45	582	522	6.4	383
50	613	553	6.2	397
55	650	590	7.4	327
60	679	619	5.8	427
65	710	650	6.2	397
70	742	682	6.4	383
75	763	703	4.2	607
80	796	736	6.6	371
85	828	766	6.0	411
90	853	793	5.4	461
95	892	832	7.8	309
100	918	858	5.2	481
105	953	893	7.0	348
110	976	916	4.6	550
115	1003	943	5.4	461
120	1026	966	4.6	550
125	1050	990	4.8	525
130	1063	1003	2.6	1023
135	1084	1024	4.2	607
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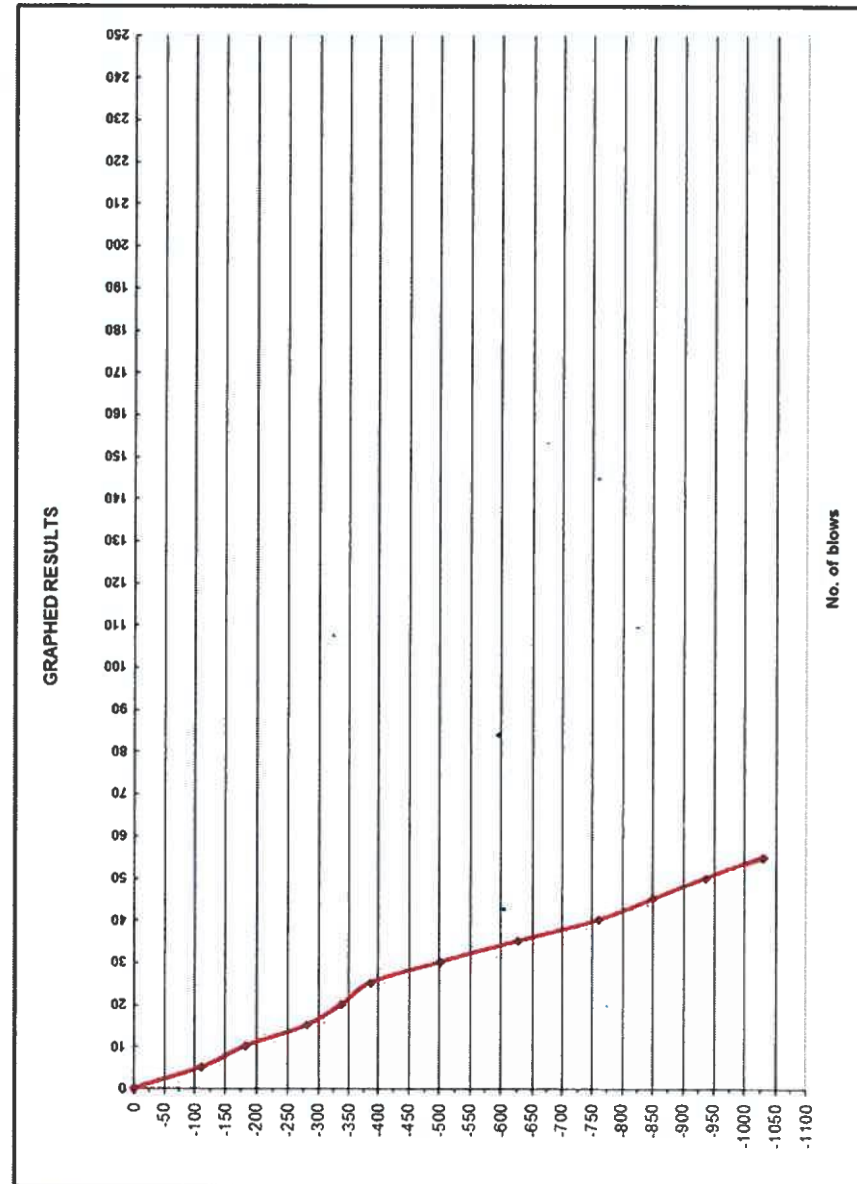


ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: **Mgomanzi SP School**

DEPTH: Surface CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 9 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	72	0	0.0	
5	183	-111	22.2	99
10	254	-182	14.2	161
15	352	-280	19.6	113
20	410	-338	11.6	201
25	458	-386	9.6	246
30	574	-502	23.2	94
35	700	-628	25.2	86
40	832	-760	26.4	82
45	922	-850	18.0	124
50	1008	-936	17.2	131
55	1100	-1028	18.4	121
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# ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

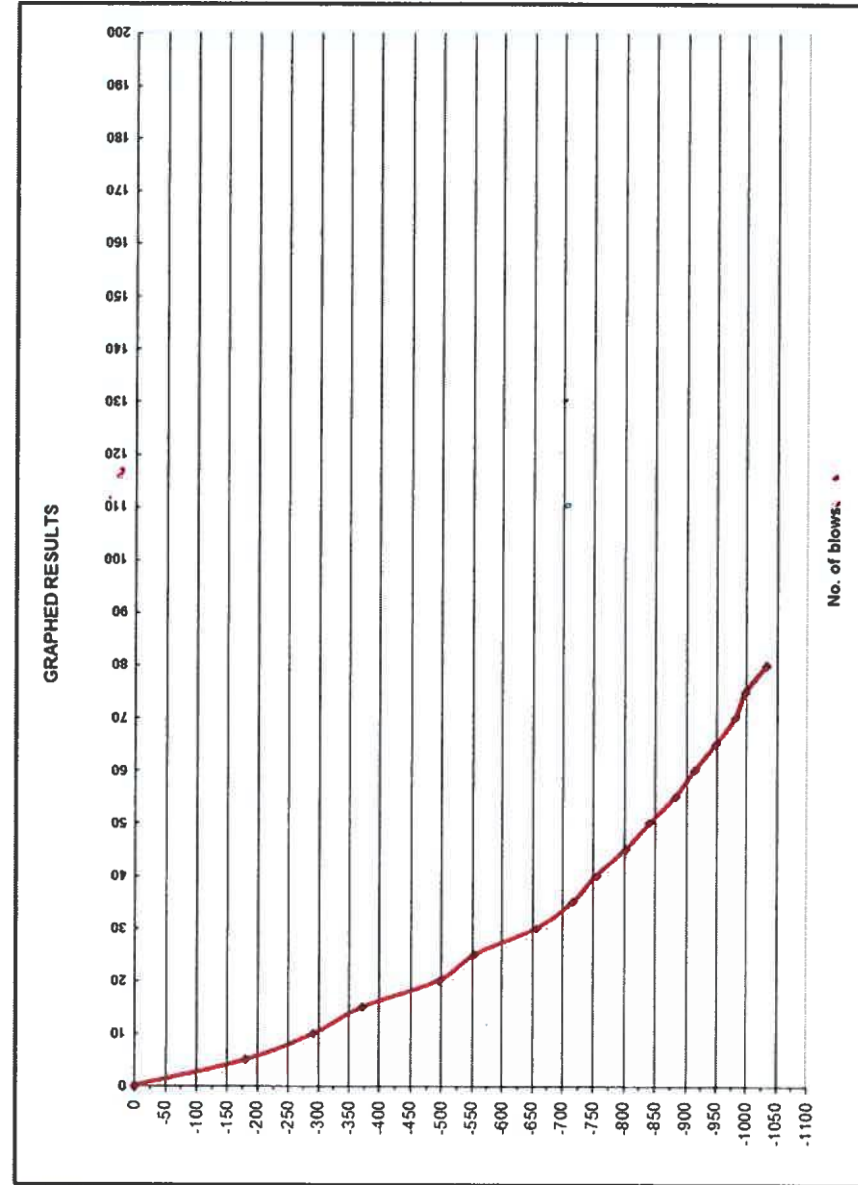
PROJECT: **Mgomanzi SP School**

DEPTH: 150 mbgl

CONDUCTED ON:

Wednesday, June 14, 2017

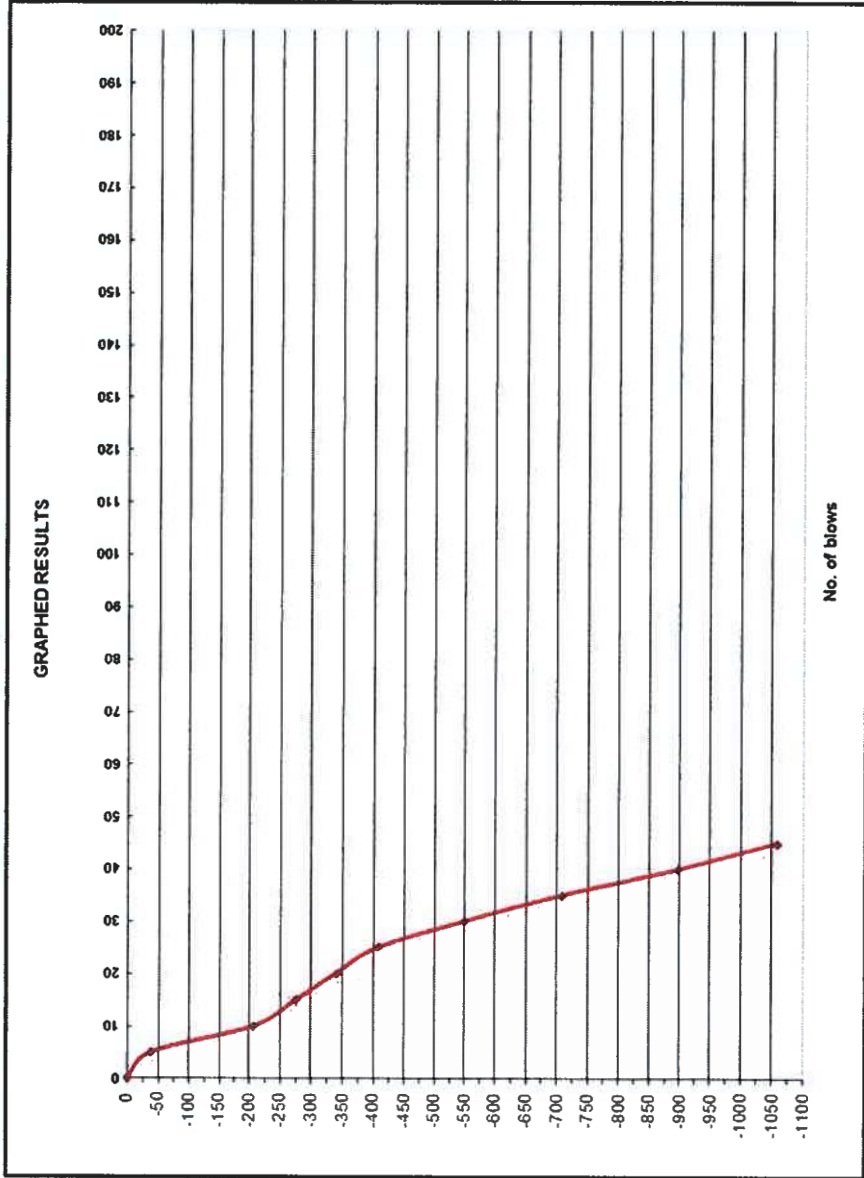
NO. OF BLOWS	MGZ TP 9 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	55	0	0.0	
5	236	-181	36.2	58
10	347	-292	22.2	99
15	427	-372	16.0	141
20	550	-495	24.6	83
25	610	-555	12.0	193
30	712	-667	20.4	108
35	772	-717	12.0	193
40	809	-754	7.4	327
45	857	-802	9.6	246
50	896	-841	7.8	309
55	937	-882	8.2	293
60	968	-913	6.2	397
65	1004	-949	7.2	337
70	1036	-981	6.4	383
75	1053	-998	3.4	764
80	1087	-1032	6.8	359
85				
90				
95				
100				
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ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: **Mgomanzi SP School**      DEPTH: **Surface**      CONDUCTED ON: **Wednesday, June 14, 2017**

NO. OF BLOWS	MGZ TP 10 A			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	50	0	0.0	
5	89	-39	7.8	309
10	257	-207	33.6	63
15	326	-276	13.8	166
20	390	-340	12.8	180
25	458	-408	13.6	169
30	600	-550	28.4	76
35	759	-709	31.8	67
40	947	-897	37.6	56
45	1108	-1058	32.2	66
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60				
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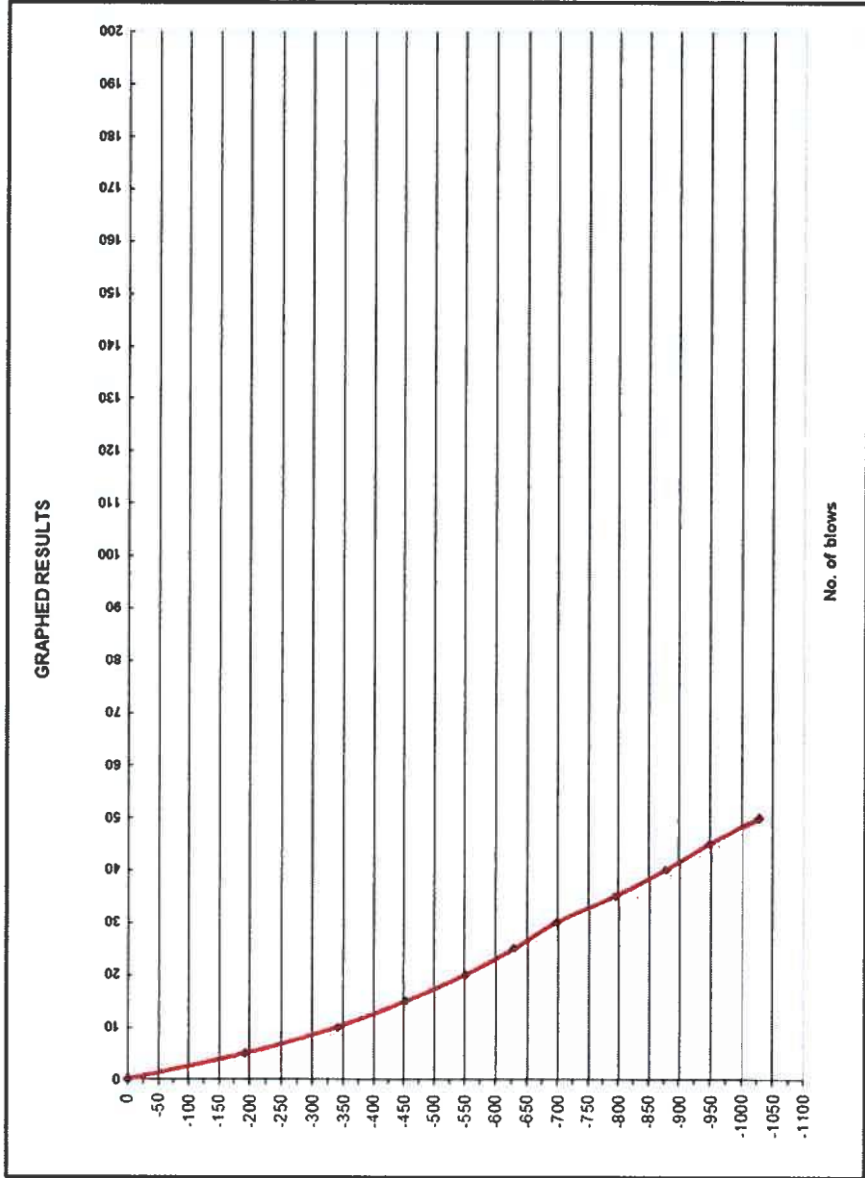
ANALYSES OF DYNAMIC CONE PENETRATION TEST RESULTS

PROJECT: Mgomanzi SP School

DEPTH: 1.40 mbgl

CONDUCTED ON: Wednesday, June 14, 2017

NO. OF BLOWS	MGZ TP 10 B			
	Values (mm)	Cumulative penetration (mm)	mm/blow	UCS (kPa)
0	70	0	0.0	
5	263	-193	38.6	54
10	410	-340	29.4	73
15	524	-454	22.8	96
20	622	-552	19.6	113
25	700	-630	15.6	145
30	768	-698	13.6	169
35	864	-794	19.2	116
40	947	-877	16.6	136
45	1018	-948	14.2	161
50	1097	-1027	15.8	143
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# APPENDIX C

## Laboratory analysis certificates

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**ControlLab South Africa (Pty) Ltd**

 CIVIL ENGINEERING MATERIAL AND GEOTECHNICAL LABORATORY,  
 GEOTECHNICAL AND ENVIRONMENTAL SERVICES

www.controlab.co.za

HEAD OFFICE: 1 Alfred Road, Vincent 5247, Tel: 043 726 7859, Fax: 043 726 7426

CENTRAL LABORATORY: 10 St Pauls Road, East London, 5201, Tel: 043 722 5420 / 722 8565, Fax: 043 743 9942, P.O. Box 348, East London, 5200

OTHER BRANCH OFFICES: Cape Town, Kokstad, Johannesburg, Mthatha, Queenstown, Lusaka - Zambia


 SANAS  
 ISO/IEC 17025:2005 Accredited Laboratory

CLIENT: AGES Omega (Pty) Ltd

Postnet Suite 203

Private Bag X9063

EAST LONDON, 5200

ATT: Mr F de Jager

PROJECT: GTEC MGZ E17/067

DATE RECEIVED: 2017-08-19

DATE TESTED: 2017-07-17

DATE REPORTED: 2017-07-17

TEST REPORT NO.: 85769

**MATERIALS TEST REPORT**

SAMPLE NO.	4543	4544	4545			
POSITION / CHAINAGE	MGZ					
	TP 2/1	TP 4/1	TP 9/1			
DESCRIPTION	lt R	lt R	lt R			
	sty cl +	sty cl	sty cl			
	Sh					

## Sieve Analysis (Wet Preparation) TBM1 - Method A1 (a)

% PASSING 75 mm						
63 mm						
53 mm						
37.5 mm						
28.5 mm						
19 mm						
13.2 mm	100	100	100			
4.75 mm	98	99	98			
2.00 mm	95	97	95			
0.425 mm	87	93	86			
0.075 mm	73.1	76.3	68.8			

## Soil Moisture Analysis - TBM1 - Method A5

COURSE SAND (%)	8	4	9			
FINE SAND (%)	15	17	18			
SILT / CLAY (%)	77	79	72			
GRADING MODULUS	0.45	0.34	0.50			

## Atterberg Limits - TBM1 - Methods A2, A3, A4

LIQUID LIMIT (%)	44	43	42			
PLASTICITY INDEX (%)	20	21	22			
LINEAR SHRINKAGE (%)	10.0	10.5	10.5			

## Maximum Dry Density &amp; Optimum Moisture Content - TBM1 - Method A7 / California Bearing Ratio - TBM1 - Method A8

Maximum Dry Density (kg/m³)	1552	1670	1630			
Optimum Moisture Content (%)	26.1	22.1	21.6			
C.B.R. @ 100% COMPACTION	12	8	12			
C.B.R. @ 98% COMPACTION	11	7	10			
C.B.R. @ 95% COMPACTION	8	6	9			
C.B.R. @ 93% COMPACTION	8	5	7			
C.B.R. @ 90% COMPACTION	5	4	5			
SWELL @ 100% COMP. (%)	0.30	0.70	0.40			
T R H 14 CLASSIFICATION	G9	G9	G9			

The above test results are pertinent to the samples tested only. Where the tests are carried out according to recognized standards, ControlLab shall not be liable for erroneous testing or reporting thereof. This report may not be reproduced except in full without prior consent of ControlLab.

## Remarks:

Sample Delivered by Customer

Sampled by ControlLab



Technical Signature

J. Allsberry

Page 1 of 2

TR001




**ControlLab South Africa (Pty) Ltd**

 CIVIL ENGINEERING MATERIAL AND GEOTECHNICAL LABORATORY,  
 GEOTECHNICAL AND ENVIRONMENTAL SERVICES

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ISO 9001:2015 Accredited Laboratory

HEAD OFFICE: 1 Alfred Road, Vincent 5247, Tel: 043 726 7859, Fax: 043 726 7426

CENTRAL LABORATORY: 10 St Pauls Road, East London, 5201, Tel: 043 722 5420 / 722 8565, Fax: 043 743 9942, P.O. Box 346, East London, 5200

OTHER BRANCH OFFICES: Cape Town, Kokstad, Johannesburg, Mthatha, Queenstown, Lusaka, Zambia

**CLIENT:** AGES Omega (Pty) Ltd  
 Postnet Suite 203  
 Private Bag X9063  
 EAST LONDON, 5200

**PROJECT:** GTEC MGZ E17/067  
**DATE RECEIVED:** 2017-06-19  
**DATE TESTED:** 2017-07-17  
**DATE REPORTED:** 2017-07-17  
**TEST REPORT NO.:** 85769

**ATT:** Mr F de Jager

FOUNDATION INDICATOR REPORT					
SAMPLE NO	4539	4540	4541	4542	
POSITION	MGZ				
	TP 3/1	TP 3/2	TP 8/1	TP 10/2	
DESCRIPTION	dk Br	lt R Br	dk Br	Pale R	
	Ferr +	cly s	cly s	cly s	
	sdyl				
SIEVE ANALYSIS % PASSING SIEVES: Method: TMH1 A1(a) & A5					
% PASSING 75 mm					
37.5 mm					
19 mm					
9.5 mm	100	100			
4.75 mm	94	99	100	100	
2.36 mm	63	97	97	99	
1.18 mm	45	96	95	99	
0.600 mm	42	94	93	98	
0.425 mm	39	93	91	98	
0.300 mm	37	91	88	96	
0.150 mm	31	85	76	90	
0.075 mm	18.6	71.2	52.0	75.9	
HYDROMETER ANALYSIS: Method ASTM D422					
0.06 mm	16	63	44	67	
0.02 mm	7	46	21	49	
0.006 mm	4	35	11	35	
0.002 mm	3	30	8	30	
ATTEBERG LIMITS: Method: TMH1 A2; A3 & A4					
LIQUID LIMIT	27	44	31	50	
PLASTICITY INDEX	8	22	10	20	
LINEAR SHRINKAGE	4.0	10.5	5.5	10.0	
PREDICTION OF HEAVE (VAN DER MERWE METHOD)					
PI WHOLE SAMPLE	3.0	21.0	9.0	19.0	
POTENTIAL EXPANSIVENESS	LOW	MED	LOW	MED	
The above test results are pertinent to the samples received and tested only. While the tests are carried out according to recognised standards ControlLab shall not be liable for any errors arising or reporting thereof. This report may not be reproduced except in full without prior consent of ControlLab. Remarks:					Technical Signatory 
Samples Delivered by Customer: YES					
Sampled by ControlLab					

HYDROMETER ANALYSIS - NON-ACCREDITED TESTS

# APPENDIX D

## Double Ring Permeability Test data

---



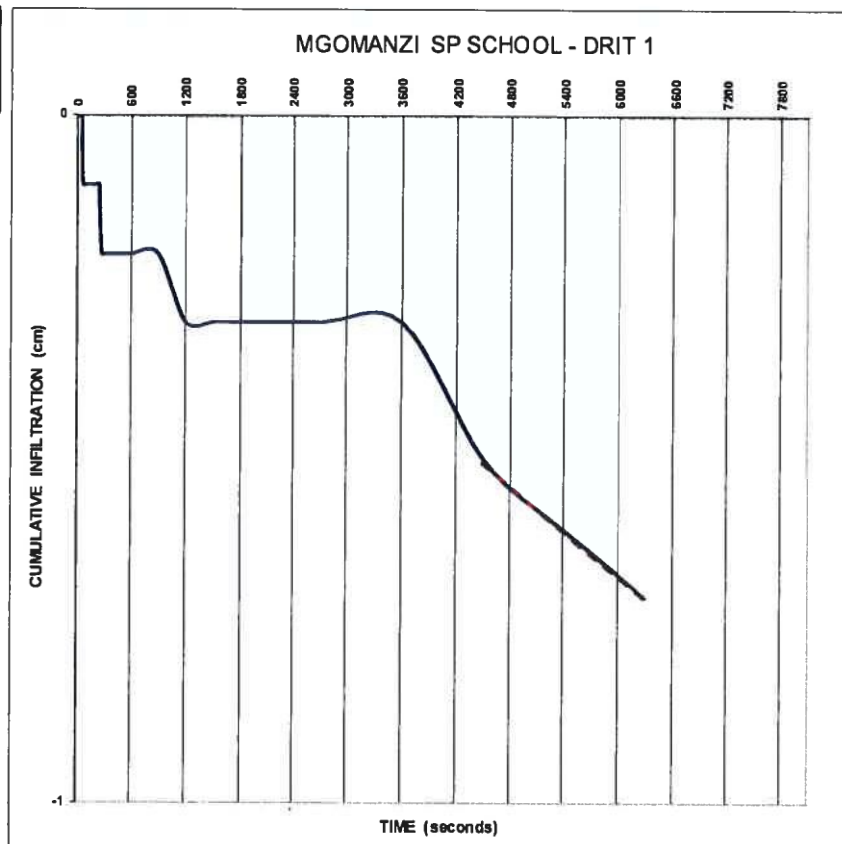
## DOUBLE-RING INFILTROMETER TEST

Inner Ring Dia.:	cm
Ring Height:	cm
Test No.:	DRIT 1
Position:	0.1 mbg
Material:	Hillwash

Time (sec)	Cum. Infiltr
0	0.0
15	0.0
30	0.0
45	0.0
60	-0.1
90	-0.1
120	-0.1
150	-0.1
180	-0.1
210	-0.1
240	-0.1
270	-0.2
300	-0.2
360	-0.2
420	-0.2
480	-0.2
540	-0.2
600	-0.2
900	-0.2
1200	-0.3
1500	-0.3
1800	-0.3
2700	-0.3
3600	-0.3
4500	-0.5
5400	-0.6
6300	-0.7
7200	
8100	
9000	
9900	
10800	

$h_1 =$	0.5	initial height (cm)
$h_2 =$	0.7	final height (cm)
$t_1 =$	1800	time difference (sec)

$k_m =$	1.1E-04	cm s <sup>-1</sup>
---------	---------	--------------------



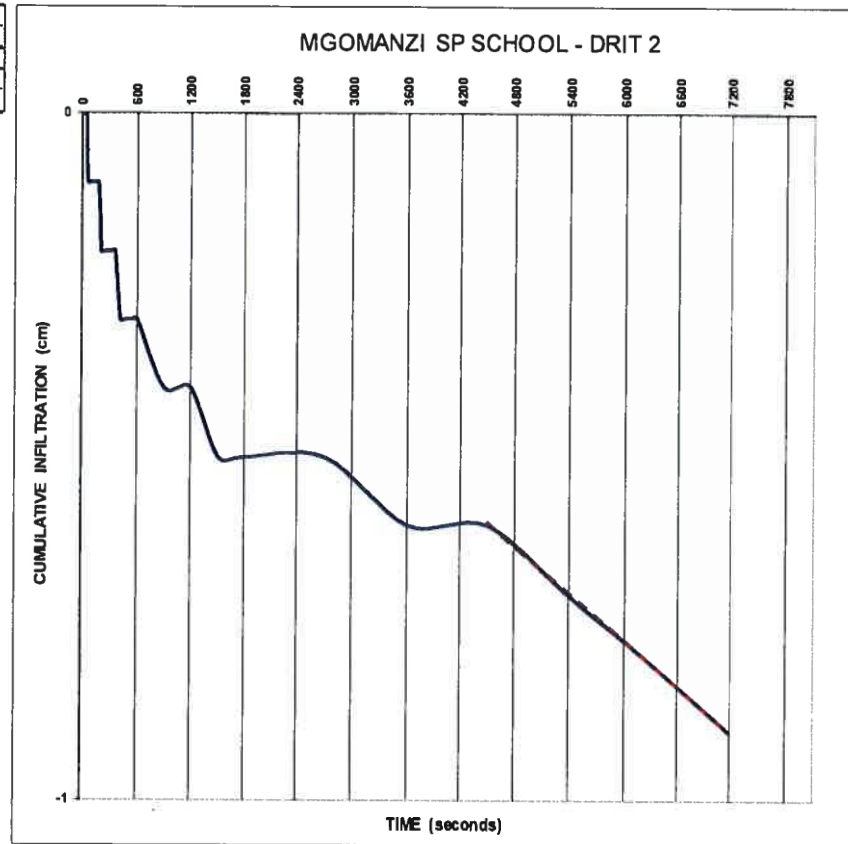
## DOUBLE-RING INFILTROMETER TEST

Inner Ring Dia.:	cm
Ring Height:	cm
Test No.:	DRIT 2
Position:	0.4 mbgf
Material:	Res Tillite

Time (sec)	Cum. Infiltr
0	0.0
15	0.0
30	0.0
45	0.0
60	-0.1
90	-0.1
120	-0.1
150	-0.1
180	-0.1
210	-0.2
240	-0.2
270	-0.2
300	-0.2
360	-0.2
420	-0.3
480	-0.3
540	-0.3
600	-0.3
900	-0.4
1200	-0.4
1500	-0.5
1800	-0.5
2700	-0.5
3600	-0.6
4500	-0.6
5400	-0.7
6300	-0.8
7200	-0.9
8100	
9000	
9900	
10800	

$h_1 =$	0.7	initial height (cm)
$h_2 =$	0.9	final height (cm)
$t_1 =$	2700	time difference (sec)

$k_m =$	9.3E-05 cm.s <sup>-1</sup>
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*Addendum J*

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## **ADDENDUM J**

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## **IDT Addendum to the JBCC**



## **ADDENDUM**

To the

## **THE JBCC PRINCIPAL BUILDING AGREEMENT**

**NAME OF PROJECT: MGOMANZI SPS**

## INTRODUCTION

**WHEREAS**, the Independent Development Trust (“IDT”) made an Offer of Appointment and the Contractor has accepted such appointment subject to the conditions stipulated in the aforesaid Offer of Appointment Letter, which conditions include signing of the JBCC Agreement, Edition ....., (hereinafter referred to as “Main Agreement”).

**AND WHEREAS**, this addendum shall form part of the Main Agreement between the Employer and the Contractor.

### 1. ADDENDUM TO THE MAIN AGREEMENT

- 1.1 This Agreement will constitute an Addendum to the Main Agreement as contemplated herein;
- 1.2 The Terms of Reference, Accepted Proposal or Tender, Standard Conditions of Tender, Special Conditions of Tender and adjusted Priced Bills of Quantities shall form part of the agreement between the Contractor and the Employer;
- 1.3 This Addendum will be deemed to incorporate, with or without variation, all the provisions of the Main Agreement, unless the context clearly requires otherwise;
- 1.4 All words and phrases used in this Addendum which are defined in the Main Agreement, will bear the same meaning assigned to them in the Main Agreement; and
- 1.5 All references in the Main Agreement to “the/this Agreement” itself, will be deemed to be references also to the Main Agreement duly amended by this Addendum.

## **1.6 Interpretations and Definition**

1.6.01 **Financial Implications** shall mean the variation amount over and above the awarded contract sum.

## **2. SPECIAL CONDITION**

If there is any conflict between the contents or any part of this Addendum and the contents or any part of the Main Agreement and other annexures, the content of this Addendum shall prevail.

## **3. WAIVER OF CONTRACTOR'S LIEN**

- 3.1 The Contractor hereby 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.
- 3.2 The Employer, as an Organ of State, shall not be required to provide payment guarantees.

## **4. ASSIGNMENT OF RIGHTS OR OBLIGATIONS**

- 4.1 Neither **party** shall assign or cede rights or obligations without the written consent of the other **party**, which consent shall not be unreasonable withheld.
- 4.2 Where the Contractor intend to cede any right to monies due or to become due under this agreement as security in favour of a financial institution, a written consent in accordance with clause 4.1 above, shall be obtained from the Employer prior to entering into such cession.
- 4.3 Any cession entered into without the necessary written consent from the either party, shall be null and void.
- 4.4 The Employer shall not consent to a cession of monies due or to become due under this agreement as security in favour of a financial institution, unless such financial institution submitted to the IDT a Valid Tax Clearance Certificate, is registered as a credit provider in terms of the National Credit Act and as a vendor in the IDT's Vendor Management System.

## **5 INTERIM PAYMENT**

- 5.1 The **Employer** shall, in accordance with clause 8.2.3 of the treasury regulation of March 2005, pay to the **Contractor** the amount certified in an interim **payment certificate** within **thirty (30) calendar days** of the date of submission of the **payment certificate**".
- 5.2 Default interest, where applicable, shall only be effective after the 30 calendar days of the date of receipt of the interim **payment certificate from the Principal Agent**.
- 5.3 The Employer shall be entitled to apply a set-off against a legitimate and liquid claim against the Contractor from which a valid invoice has been received.

## **6 TAX COMPLIANCE MEASURES**

- 6.1 The Contractor hereby grant confirmation that SARS may, on on-going basis during the contract term, disclose the Contractor's tax compliance status to the employer.
- 6.2 Should the Contractor appoint a sub-contractor to execute a portion of a work in excess of the threshold (currently 25%) prescribed by the National Treasury, the Contractor must ensure that a sub-contractor is tax compliant and remains tax compliant for the full duration of the contract. The contractor shall obtain a written consent from its sub-contractors confirming that SARS may on on-going basis during the contract term, disclose the sub-contractor's tax compliance status to the employer.
- 6.3 The Contractor shall submit a valid tax clearance certificate within 10 working days from the date of expiry of the tax clearance certificate. The Employer reserve the right to demand a valid Tax Clearance Certificate prior to making any payment to the Contractor, should it become aware that the tax clearance corticated has expired.
- 6.4 Unless the Employer receive a written confirmation that the Contractor has challenged its tax compliance status with SARS, the Employer shall not process any payment to the Contractor, if 30 days has lapsed since the written

notice by the Employer and the Contractor has failed to remedy its tax compliance status.

- 6.5 Employer's non-payment of the Contractor's invoice in accordance with clause 6.4 above shall not absolve the contractor from performing its obligation in terms of the contract.
- 6.6 Unless the Employer receives a written confirmation that the Contractor or sub-Contractor has challenged its tax compliance status with SARS, the Employer shall be entitled to cancel the contract with the Contractor or instruct the Contractor to cancel its contract with the Sub-Contractor.
- 6.7 Where a Contractor is a JV, each party to a JV must be tax compliant and remains tax compliant for the full duration of the contract, failing which, the Employer shall invoke paragraph 6.4 or 6.6 above.

## **7. APPROVAL OF VARIATION ORDERS**

- 7.1 Upon receipt of the Variation Order (VO), the Principal Agent must professionally consider the merits of the Variation Order and make a recommendation to the Employer.
- 7.2 The Principal Agent shall not have the power to approve any deviation or variation which has financial implications on the Employer without the necessary written approval of the Employer, except under emergency circumstances wherein failure to undertake the work may result in loss of life.
- 7.3 The Employer must communicate the approval of a Variation Order in writing to the Principal Agent and the Principal Agent shall, upon receipt of confirmation of the approval of the VO, issue the necessary Contract Instruction to the contractor to undertake the works.
- 7.4 The Contractor shall not commence with any Variation Order Works without the written approval of the Variation Order from the Employer, except under circumstances mentioned in paragraph 7.2 above.
- 7.5 Should the Contractor undertakes the Variation Order Works without the necessary written approval of the Variation Order from the Employer, the



Contractor shall be entirely liable for any financial and any related implications and hereby indemnify and hold harmless the Employer from and against any and all claims, actions, damages, liabilities, injuries, costs, fees, expenses, or losses, including and without limitation, reasonable attorney's fees and costs of investigation and litigation, whatsoever which may be incurred by, or for which liability may be asserted against, the Employer arising out of the Contractor's performance or non-performance of unauthorized works, but only to the extent caused by the negligent acts, errors or omissions of the Contractor.

- 7.6 The Contractor shall not accept any instructions from any party, including beneficiary Department, other than the Principal Agent.

## **8. JOINT VENTURE AGREEMENT**

- 8.1 Should the Joint Venture Agreement be dissolved or any of the JV partner pull out the JV Agreement for any reasons whatsoever, the Employer hereby reserve its right to terminate the contract with immediate effect.
- 8.2 Should the Employer decide not to terminate the contract upon the dissolution of the JV Agreement and the replacement JV partner does not meet the BBBEE threshold stipulated in the tender document, the IDT shall be entitled to cancel the contract with immediate effect.
- 8.3 Should the BBBEE status of the Joint Venture be changed to a lower rate than the bidding rate, based on legislation applicable at the closing date of the
- 8.4 tender, the IDT shall be entitled to cancel the contract.

## **9. BREACH**

- 9.1 In the event that the contractor: -
- 9.1.1 commits an act of insolvency; or
- 9.1.2 is placed under a provisional or final winding-up or judicial

management order; or

9.1.3 is placed under or applied for business rescue; or

9.1.4 makes an assignment of more than 25% of either its right and/or its obligation for the benefit of the third party without the written consent of the employer; or

9.1.5 the Contractor is registered or fails to renew his registration with the CIDB or changes directorship during the course of the project, resulting in the contravention of BBBEE statutory requirement; or

9.1.6 fails to satisfy or take steps to have set aside any judgment taken against it within 14 (Fourteen) business days after such judgment has come to its notice,

then the other Employer will be entitled to terminate the Agreement on written notice.

Signed at ..... on this the ..... day of ..... 202..

**AS WITNESSES:**

1. \_\_\_\_\_  
For and on behalf of the **Employer:**  
(.....), in his/her  
capacity as the .....

2. \_\_\_\_\_  
For and on behalf of the **Employer:**  
(.....), in his/her  
capacity as the .....  
.....

Signed at ..... on this the ..... day of..... **202...**

**AS WITNESSES:**

3. \_\_\_\_\_

4. \_\_\_\_\_

\_\_\_\_\_  
For and on behalf of the **Contractor:**

.....i

n his/her capacity as

.....,

who hereby confirm that he/she is  
duly authorized.