BID NUMBER: PROC T664

APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THECONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE

Issued by:

Services SETA
Ristone Office Park,
15 Sherborne Road,
Parktown,
Johannesburg,
2193

Contact Person: General Queries
Name : Mrs Conny Mathebula
Tel No. (011) 276 9621
Email : tenders@serviceseta.org.za

Technical: Technical Queries
Name : Ms Nyiko Michavi
Tel No. (011) 694 8693
Email : InfrastructureTenders@serviceseta.org.za

Name of the Bidder :……

CONTENTS

PART T1: TENDERING PROCEDURE

T1.1 Tender Notice and Invitation to Tender

Services SETA invites tenderers from contractors who are registered with CIDB **for the APPOINTMENT OF A SERVICE PROVIDER FOR A CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE** for a period of 12 months. It is estimated that tenderers must have a CIDB contractor grading designation of **6 GB** or higher.

Project Name	APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE FOR A PERIOD OF 12 MONTHS.	
Tender Number	PROC T664	
Tender documents availability	Services SETA website	
Address for submission of tenders	SERVICES SETA. Physical address: Ristone Office Park, 15 Sherborne Road, Parktown, Johannesburg, 2193.	
Closing date of the tender	**26 March 2025**	
Closing time of the tender	**11h00 am**	
Compulsory briefing meeting (*Tenderers must sign the attendance register in the name of the tendering entity. Addenda (if any) will be issued only to those tendering entities appearing on the attendance register***)**	Yes	**No ☒**
	Meeting venue	**N/A**
	Date	**N/A**
	Time:	**N/A**
Evaluation criteria	1. Compliance with mandatory or compulsory requirements 2. Functionality 3. Price 4. Preference Points (Specific Goals)	
Mandatory or Compulsory Requirements *(failure to submit or comply with these requirements will lead to automatic disqualification)*	Only tenderers who are registered with the Construction Industry Development Board (CIDB) with designation of 6GB or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations are eligible to have their tenders evaluated	
	Completed and signed Form of Offer	

T1.2 Tender Data

Clause number	Tender Data
	The conditions of tender are the Standard Conditions of Tender as contained in Annex C of Board Notice 423 of 2019 in Government Gazette No. 42622 of 08 August 2019, Construction Industry Development Board (CIDB) Standard for Uniformity in Construction Procurement. (See www.cidb.org.za) which are reproduced without amendment or alteration for the convenience of tenderers as an Annex to this Tender Data. The Standard Conditions of Tender make several references to the Tender Data for details that apply specifically to this tender. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the standard conditions of tender. Each item of data given below is cross-referenced to the clause in the Standard Conditions of Tender to which it mainly applies.
C.1.1	The Employer is the Services SETA
C.1.2	**The Tender** **Part T1: Tendering procedures** T1.1 Tender notice and invitation to tender T1.2 Tender data **Part T2: Returnable documents** T2.1 List of returnable documents T2.2 Returnable schedules **The Contract Part C1: Agreements and contract data** C1.1 Form of offer and acceptance C1.2 Contract data C1.3 Joint Venture Agreement (If Applicable) **The Contract Part C2: Pricing data** C2.1 Pricing instructions C2.2 Bills of Quantities **Part 3: Scope of work** C3.1 Special Notes to Bidders C3.2 OHS Specifications **Part 4: Site information** C4 Drawings

C.1.4	The employer's representative is : Name : Cydwell Teffu Tel No. : 011 276 9740 Email : Cydwellt@serviceseta.org.za However, all communications related to this bid should be directed to the persons indicated under Enquires on this tender document. Attention is also drawn to the fact that verbal information, given by the Employer's agent during site visits/clarification meetings or at any other time prior to the award of the Contract, will not be regarded as binding on the Employer. Only information issued formally by the Employer in writing to Tenderers will be regarded as amending the Tender Documents
C.1.5	The employer reserve to cancel the tender prior to the award of the tender.
C1.6.2	A competitive negotiation procedure will not be followed.
C1.6.3	A four-stage system will be followed.
C.2.1	**Eligibility in respect of CIDB grading** Only tenderers who are registered with the Construction Industry Development Board (CIDB) with designation of 6 GB or higher than a contractor grading designation determined in accordance with the sum tendered, or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations, are eligible to have their tenders evaluated 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 6GB or high class of construction work; or not lower than one level below the required grading designation in the class of works construction works under considerations and possess the required recognition status. 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 or ….* class of construction work or a value determined in accordance with Regulation 25 (1B) or 25(7A) of the Construction Industry Development Regulations.
C2.2	**Cost of tendering** The tenderer accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements
C.2.7	**No site briefing**
C.2.11	**Alterations to the documents** Bidders are required to not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations

C.2.12	**Alternative tender offer** No alternative tender offer is permitted in this tender.
C.2.13.2	***Replace sub-clause C.2.13.2 with the following;*** Return all returnable documents to the employer after completing them in their entirety by writing in **non-erasable black ink**
C.2.13.3	Parts of each tender offer communicated on paper shall be submitted as an original

C.2.13.4	The tender shall be signed by a person duly authorized to do so.
C.2.13.5	The employer's details and address for delivery of tender offers and identification details that are to be shown on each tender offer package are: **Location of tender box: SERVICES SETA.** **Physical address: Ristone Office Park, 15 Sherborne Road, Parktown, Johannesburg, 2193** **Identification details:** Sealed Tender with Tender reference number, Title of Tender and the closing date and time of the tender.
C.2.15.1	The closing time for submission of tender offers is as stated in the Tender Notice and Invitation to Tender. Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted.
C.2.16.1	The tender offer validity period is **12 weeks or 90 days.**
C.2.16.2	The tender accepts that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer's agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted. If the validity period stated in C.2.16 lapses before the employer evaluating tender, the contractor reserves the right to review the price based on Consumer Price Index (CPI).
C.3.1	The tenderer is required to indicate how they claim points for each preference point system and attached relevant supporting documents. The specific goals for claiming of preference points include the following: - Black People Ownership (Persons who had no franchise in national elections prior to 1983 and 1993) - Black Women Ownership - Black Youth Ownership - Disabled Ownership - Enterprise located in Lepelle Nkumpi Local Municipality
	CIDB Grading Certificate Tenders are required to provide proof of registration with the CIDB register of contractors indicating the category of registration, grading as well as the CRS number of the tenderer. ***Letter of Good Standing*** Tender are required to submit, bound with the tender submission, a letter of good from the compensation commissioner indicating that the bidder is in good standing.
C3.2	Notwithstanding any requests for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.
C.3.4.1	Tenders wi be opened immediately after the closing time for tenders.

C.3.11	The tenderers will be evaluated in four stages (i) Stage 1: Compliance with mandatory requirements as stated in Part T1.1 (ii) Stage 2: Functionality (iii) Stage 3: Price (iv) Stage 4: Preference Points (Specific Goals) The technical capacity (functionality) of the contractors will be evaluated further during evaluation of the RFP. The contractors will be required to declare the status of their key staff and any administrative compliance. In cases where there are changes in the key staff, the contractor should provide CVs and qualifications of the new staff to Services SETA. The new staff should have similar skills, qualifications and experience as the staff submitted during tender. Similarly, the contractors will be expected to provide an update on any changes in their administrative compliances – and should submit the required SBD document in such cases. The award will only be issued to contractors with valid Tax Clearance certificates, active CIDB grading and the contractor who meets all the legislative requirement – this shall be verified by SCM in line with the Services SETA SCM Policy. The total value of current projects for a contractor under consideration cannot exceed the twice the maximum value of their relevant CIDB grade.[1]
	a) Stage 1: Administrative Compliance: The Compliance or compulsory documents and returnables are detailed in Section T.2.1 of this tender document. Failure to submit, complete or comply with these requirements will lead to automatic disqualification. b) Stage 2: Functionality The total value of current projects for a contractor under consideration cannot exceed the twice the maximum value of their relevant CIDB grade.

APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE

FUNCTIONALITY SCORE SHEET

NAME OF POTENTIAL BIDDER……

BID REFERENCE NUMBER PROC T664……..

CRITERION 2- FUNCTIONALITY

A	B	C	D	E	F	G	H
FUNCTIONALITY	**REQUIREMENT**	**SCORE QUALIFICATION**	**MEASUREMENT (what must be provided/ demonstratedas minimum)**				
			Indicate what pages/ sectionin proposal?	**Weighted Points**	**Yes**	**No**	**Score**
Capability **of Service Provider**	The key team members must have a specific experience, skills and capacity to deliver in relation to score qualificationcriteria.	**Key Staff who will be dedicated to the project:** The Bidder has at least one key suitably qualified in each of the competencies which are specified in the Supplier Declaration who are employed on a full time basis and will either provide the services or will direct the services which are to be provided **1. Project Manager/Site Agent** **Qualification** / **Years Experience** / **Points** B Eng, BSc or B-Tech in Engineering, Architecture, QS or Construction Management / 10 years and above / **20** 5 – 9 years / **10** *Note: Names submitted at tender may not be substituted during construction without written client approval*	Attach a brief CV's of the proposed team members. What page (s) or section ofyour proposal 3 deputingteam members may be found? State **page (s) number** or State **section/ tab**…….....on yourproposal	**20pts**	☐	☐	
Methodology **a** **ndproject approach**	Demonstrate an understanding of the scope of the project and the approach and methodology to be implemented to attain project objectives.	Demonstrate an understanding of the scope of the project and the approach andmethodology to be applied to attain project objectives. Methodology statement and programme of works submitted with all activities, duration, start, finish & review design dates = 0-20 pts Methodology statement and programme of works submitted with activities & duration = 0-10 pts No methodology statement and programme of works submitted = 0 pts	Attached ProposedProgramme of Works What page (s) or section ofyour proposal informationwill be found? State **page (s) number** or State **section/ tab**…….....on your proposal.	20pts	☐	☐	

APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE

Similar Project Experience	Demonstrable numberof projects of similar construction nature successfully completed	Experience - to be evaluated in terms of the demonstrable number of projects of similarconstruction nature successfully completed over the last 7 years or currently in progress by main contractor or joint venture / consortia partners: Projects worth R3m in descending order as follows: 5 projects and more = **0-20** pts 4 projects = **0-16** pts 3 projects = **0-12** pts 2 projects = **0-8** pts 1 project = **0-4** pts ***NB: In case of a project exceeding R3m, the points will be calculated bydividing the project value by R20m rounded to the nearest whole number.***	• Bid proposal What page (s) or section of your proposal informationwill be found? State **page (s) number** or State **section/ tab**…….....on yourproposal.	**20pts**			
Assignment Experience	The potential bidder must provide and attach three completion certificates	Provide and attach three (3) or more testimonials/ reference letters with a logo, letterhead, contactable details, dates and signature in the construction and refurbishment industry not older than ten **(10)** years. • Three **(3)** or more completion certificates in relation to previous work listed **=0-15pts** • Two **(2)** completion certificates in relation to previous worklisted **=0-10pts** • One **(1)** completion certificates in relation to previous worklisted=**0-5pts** • No completion certificates in relation to previous work listed = **0pts**	• Attach three **(3)** Completion certificates What page (s) or section of your proposal informationwill be found? State **page (s) number** or State **section/ tab**…….....on yourproposal.	**15pts**			
Subcontracting		**Local Subcontractors and demonstration of Local Employment – Important to note: Subcontracting must only be to 51% Black Owned Entities that are Exempted Micro Enterprises.** **Services SETA reserves the right to verify.**	Submit subcontractors' registration documents and in-principle agreement with proposed subcontractors What page (s) or section of your proposal information will be found? State **page (s) number** .....or State **section/ tab**…….....on yourproposal.	**25pts**			

		- Subcontractor work valued at 30% and above, between at least 5 subcontractors = **0-25pts** - Subcontractor work valued between 20% and 30%,between at least 4 subcontractors = **0-20pts** - Subcontractor work valued between 10% and 20%, between at least 3 subcontractors = **0-10pts** - Subcontractor work valued at less than 10%= **0pts**	State **page (s) number**.....or State **sectio n/ tab**…….....on yourproposal.				
Total weighted Points				**100**			

The minimum functionality threshold is **70** points. Bidders who score less than 70 points on functionality will therefore be disqualified; those who score 70 points or more will befurther evaluated on **Criteria 3**.

Price and Preference points used: **80/20** preferential procurement principle	**80** (Price)	R……,……
	20 (BEE Status)	Level…… and points……

Name of Evaluator:			
Signature:		**Date:**	**……/……/2025**

Stage 3 and 4:

The procedure for final evaluation of responsive tenders is Method 2 (Financial offer and preference points). The total number of tender evaluation points (T_{EV}) shall be determined in accordance with the following formula.

$$T_{EV} = N_{FO} + N_P$$

a) N_{FO} is the number of tender evaluation points awarded for the financial offer made. The score for financial offer is calculated using the following formula:

$$P = A * (1 - \frac{(P_o - P_m)}{P_m})$$

Where:

A is 80 since the estimated financial value of works inclusive of VAT is equals or is less than R 50,000,000.00.

P is the points awarded to the bid under consideration

P_m is the lowest Comparative bid price

P_o is the comparative price under consideration

N_P is the number of tender evaluation points awarded for preferences claimed in accordance with the Preferencing Schedule in 3.18

PART T2: RETURNABLE DOCUMENTS

T2.1 : LIST OF RETURNABLE DOCUMENTS

The following documents will form part of the documents submitted to the Contractors as part of the Request for Proposals:

2.1 Fully completed Form of Offer
2.2 Bills of Quantities
2.3 Returnable documents for Functionality
2.4 Proof of specific goal for award of the preference points as determined on the Request for Proposal
2.5 SBD 4
2.6 SBD 6.1.
2.7 Declaration on the status of Administration compliance.
2.8 CIDB registration
2.9 CSD Report
2.10 Tax clearance certificate
2.11 Declaration of current projects

Failure by the service provider to submit or complete item 2.1 or 2.2 will render their proposal not responsive and will not be considered.

The bidder should also not appear on the National Treasury's list of black listed entities

T 2.2 : RETURNABLE SCHEDULE

	Document Name	Returnable document
1.	Preferencing schedule:	☐ Yes ☐ No
2.	Proposed amendments and qualifications (if applicable)	☐ Yes ☐ No
3.	SBD 1: Invitation to tender	☐ Yes ☐ No
4.	SBD 4: Declaration of Interest	☐ Yes ☐ No
4.	SBD 6.1: Reference Points claim form in terms of the Preferential Procurement Regulations 2022 or amended	☐ Yes ☐ No
5.	Form of offer	☐ Yes ☐ No
6.	CSD summary report	☐ Yes ☐ No
7.	Original tax clearance certificate or tax pin	☐ Yes ☐ No
8.	Priced bills of quantities	☐ Yes ☐ No
9.	Proof of CIDB class grading: 6GB or higher.	☐ Yes ☐ No
10.	Declaration with regard to current projects	☐ Yes ☐ No

Declaration on the status of administrative compliance

Please indicate, by circling either **Yes** or **No**, whether the administrative information submitted with the original framework tender documents has changed or not. If yes, kindly provide the particulars below and any supporting documents.

……

……

……

……

Signed _____ Date .....

Name _____ Position .....

Enterprise .....

Record of Addenda to tender documents

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

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

Attach additional pages if more space is required.

Signed ..... Date .....

Name ..... Position .....

Tenderer .....

.....

.....

.....

Bidder's initials

SBD 1

PART A: INVITATION TO BID

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE SERVICES SETA					
BID NUMBER:	**PROC T664**	**CLOSING DATE 26 MARCH 2025**	**As per Tender Advert**	**CLOSING TIME:**	**11:00am**
DESCRIPTION	**APPOINTMENT OF A SERVICE PROVIDER FOR A GRADE CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE**				

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)
SERVICES SETA
Physical address: Ristone Office Park, 15 Sherborne Road, Parktown, Johannesburg, 2193.

BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO			
CONTACT PERSON	Mrs. Conny Mathebula		
TELEPHONE NUMBER	(011) 276 9621	E-MAIL ADDRESS	tenders@serviceseta.org.za
CONTACT PERSON (TECHNICAL)	Ms. Nyiko Michavi		
TELEPHONE NUMBER	(011) 694 8693	E-MAIL ADDRESS	InfrastructureTenders@serviceseta.org.za

SUPPLIER INFORMATION					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
SUPPLIER COMPLIANCE STATUS	TAX COMPLIANCE SYSTEM PIN:		**OR**	CENTRAL SUPPLIER DATABASE No:	MAAA
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	☐Yes ☐No [IF YES ENCLOSE PROOF]		*ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?*	☐Yes ☐No [IF YES, ANSWER THE QUESTIONNAIRE BELOW]	

QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

IS THE ENTITY A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	☐ YES ☐ NO
DOES THE ENTITY HAVE A BRANCH IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	☐ YES ☐ NO
DOES THE ENTITY HAVE ANY SOURCE OF INCOME IN THE RSA?	☐ YES ☐ NO
IS THE ENTITY LIABLE IN THE RSA FOR ANY FORM OF TAXATION?	☐ YES ☐ NO

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

PART B: TERMS AND CONDITIONS FOR BIDDING

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

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

SIGNATURE OF BIDDER: ……

CAPACITY UNDER WHICH THIS BID IS SIGNED:

……

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

DATE: ……...

BIDDER'S DISCLOSURE **SBD 4**

1. PURPOSE OF THE FORM

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

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

2. Bidder's declaration

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

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

Full Name	**Identity Number**	**Name of State institution**

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

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

2.2.1 If so, furnish particulars:

……
……

2.3 Does the bidder or any of its directors / trustees / shareholders / members / partners or any person having a controlling interest in the enterprise have any interest in any other related enterprise whether or not they are bidding for this contract? **YES/NO**

2.3.1 If so, furnish particulars:

……
……

3 DECLARATION

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

3.1 I have read and I understand the contents of this disclosure;

3.2 I understand that the accompanying bid will be disqualified if this disclosure is found not to be true and complete in every respect;

3.3 The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However, communication between partners in a joint venture or consortium2 will not be construed as collusive bidding.

3.4 In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications, prices, including methods, factors or formulas used to calculate prices, market allocation, the intention or decision to submit or not to submit the bid, bidding with the intention not to win the bid and conditions or delivery particulars of the products or services to which this bid invitation relates.

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

3.5 There have been no consultations, communications, agreements or arrangements made by the bidder with any official of the procuring institution in relation to this procurement process prior to and during the bidding process except to provide clarification on the bid submitted where so required by the

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

institution; and the bidder was not involved in the drafting of the specifications or terms of reference for this bid.

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

I CERTIFY THAT THE INFORMATION FURNISHED IN PARAGRAPHS 1, 2 and 3 ABOVE IS CORRECT.
I ACCEPT THAT THE STATE MAY REJECT THE BID OR ACT AGAINST ME IN TERMS OF PARAGRAPH 6 OF PFMA SCM INSTRUCTION 03 OF 2021/22 ON PREVENTING AND COMBATING ABUSE IN THE SUPPLY CHAIN MANAGEMENT SYSTEM SHOULD THIS DECLARATION PROVE TO BE FALSE.

…… ..…… Signature Date

…… …… Position Name of bidder

SBD 6.1

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

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

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

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1. GENERAL CONDITIONS

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

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

1.2 To be completed by the organ of state

(*delete whichever is not applicable for this tender*).

a) The applicable preference point system for this tender is the 90/10 preference point system.

b) The applicable preference point system for this tender is the 80/20 preference point system.

c) Either the 90/10 or 80/20 preference point system will be applicable in this tender. The lowest/ highest acceptable tender will be used to determine the accurate system once tenders are received.

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

(a) Price; and

(b) Specific Goals.

1.4 To be completed by the organ of state:

The maximum points for this tender are allocated as follows:

	POINTS
PRICE	**80**
SPECIFIC GOALS	**20**
Total points for Price and SPECIFIC GOALS	**100**

1.5 Failure on the part of a tenderer to submit proof or documentation required in terms of this tender to claim points for specific goals with the tender, will be interpreted to mean that preference points for specific goals are not claimed.

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

2. DEFINITIONS

(a) **"tender"** means a written offer in the form determined by an organ of state in response to an invitation to provide goods or services through price quotations, competitive tendering process or any other method envisaged in legislation;

(b) **"price"** means an amount of money tendered for goods or services, and includes all applicable taxes less all unconditional discounts;

(c) **"rand value"** means the total estimated value of a contract in Rand, calculated at the time of bid invitation, and includes all applicable taxes;

(d) **"tender for income-generating contracts"** means a written offer in the form determined by an organ of state in response to an invitation for the origination of income-generating contracts through any method envisaged in legislation that will result in a legal agreement between the organ of state and a third party that produces revenue for the organ of state, and includes, but is not limited to, leasing and disposal of assets and concession contracts, excluding direct sales and disposal of assets through public auctions; and

(e) **"the Act"** means the Preferential Procurement Policy Framework Act, 2000 (Act No. 5 of 2000).

(f)

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1. POINTS AWARDED FOR PRICE

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

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

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P}{P\,min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\,min}{P\,min}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmin = Price of lowest acceptable tender

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

3.2.1. POINTS AWARDED FOR PRICE

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

80/20 **or** **90/10**

$$Ps = 80\left(1 + \frac{Pt - P\,max}{P\,max}\right) \text{ or } \quad Ps = 90\left(1 + \frac{Pt - P\,max}{Pmax}\right)$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

Pmax = Price of highest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

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

4.2. In cases where organs of state intend to use Regulation 3(2) of the Regulations, which states that, if it is unclear whether the 80/20 or 90/10 preference point system applies, an organ of state must, in the tender documents, stipulate in the case of—

(a) an invitation for tender for income-generating contracts, that either the 80/20 or 90/10 preference point system will apply and that the highest acceptable tender will be used to determine the applicable preference point system; or

(b) any other invitation for tender, that either the 80/20 or 90/10 preference point system will apply and that the lowest acceptable tender will be used to determine the applicable preference point system,

then the organ of state must indicate the points allocated for specific goals for both the 90/10 and 80/20 preference point system.

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

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (90/10 system) (To be completed by the organ of state)	Number of points allocated (80/20 system) (To be completed by the organ of state)	Number of points claimed (90/10 system) (To be completed by the tenderer)	Number of points claimed (80/20 system) (To be completed by the tenderer)
Black People Ownership	3	6		
Woman Ownership	3	6		
Youth Ownership	1,5	3		
Disability Ownership	0,5	1		
Skills Transfer and Development	0	0		
Local Suppliers(Residing in a local municipality)	2	4		
Total	**10**	**20**		

DECLARATION WITH REGARD TO COMPANY/FIRM

4.3. Name of company/firm……

4.4. Company registration number: ……...

4.5. TYPE OF COMPANY/ FIRM

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

□ State Owned Company
[TICK APPLICABLE BOX]

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

i) The information furnished is true and correct;

ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form;

iii) In the event of a contract being awarded as a result of points claimed as shown in paragraphs 1.4 and 4.2, the contractor may be required to furnish documentary proof to the satisfaction of the organ of state that the claims are correct;

iv) If the specific goals have been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the organ of state may, in addition to any other remedy it may have –

(a) disqualify the person from the tendering process;

(b) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;

(c) cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) recommend that the tenderer or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, be restricted from obtaining business from any organ of state for a period not exceeding 10 years, after the *audi alteram partem* (hear the other side) rule has been applied; and

(e) forward the matter for criminal prosecution, if deemed necessary.

	…….
	SIGNATURE(S) OF TENDERER(S)
SURNAME AND NAME:	…….
DATE:	……
ADDRESS:	……
	……
	……
	……

DECLARATION OF CURRENT PROJECTS

Current value refers to current value of projects for both General Building (GB). Please list the current projects

which your company is busy executing in the table below.

If no projects at the moment the tender must indicate/write on this table

Table 1 List of current projects executed by the bidder

1. Do you have the current projects being executed Yes/No?
2. If Yes, please indicate the details on the table below. Please note that it is compulsory to answer the question and if the answer is yes, complete the table. If the question not answered or the table not completed the points will not be allocated.

Project Description	Project Value	Start date	Planned end date	Client Name	Contact Person number

Bidder's initials

Bidder's initials

THE CONTRACT

PART C1: AGREEMENT AND CONTRACT DATA

C1.1. FORM OF OFFER AND ACCEPTANCE

Offer

The employer, identified in the acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE

.
The tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the tender 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 the 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 PRICE INCLUSIVE OF VALUE ADDED TAX IS (CONTRACT PRICE)

Rand (in words); R..... …….

……

(in figures) R……

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(s) ....

Name(s) ....

Capacity ....

For the tenderer: .....

Name & signature of witness _____ Date

Acceptance (To be completed by the employer – not the bidder)

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 Consultant 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 Form of Offer and Acceptance)
Part C2	Pricing Data
Part C3	Scope of Work

and drawings and documents (or parts thereof), which may be incorporated by reference into the above listed Parts.

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Returnable 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 Form of Offer and Acceptance. No amendments to or deviations from said documents are valid unless contained in this Schedule.

The tenderer shall within two weeks of 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 securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the *conditions of contract* identified in the Contract Data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

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

For the Employer

Signature .....

Name .....

Capacity .....

Name and address of organization

Signature and Name of Witness

Signature .....

Name .....

Capacity .....

Schedule of Deviations

1 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

2 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

3 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

4 Subject . . . . . .

Details . . . . . .

. . . . . .

. . . . . .

. . . . . .

By the duly authorised 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 returnable 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.

……..

PART C2: PRICING DATA

C2.1 CONTRACT DATA

The Conditions of Contract are clauses 1 to 41 of the **JBCC Series 2000 Principal Building Agreement (Edition 6.2 - May 2018)** 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; 053-8312003;)

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.

PART C2.2: BILLS OF QUANTITIES

Item No		Quantity	Rate	Amount

SECTION 1

BILL No. 1

PRELIMINARIES

BUILDING AGREEMENT AND PRELIMINARIES

The JBCC Preliminaries Code 2103, May 2018 edition for use with the JBCC Principal Building Agreement Edition 6.2 , May 2018 is taken to be incorporated herein. The tenderer is deemed to have referred to these documents for the full intent and meaning of each clause. These clauses are referred to by number and heading only. Where standard clauses or options are not applicable to the contract such modifications or corrections as are necessary are given under each relevant clause. Where an item is not relevant to this specific contract such item is marked. "N/A" signifying "Not Applicable".

Contractors are referred to the above mentioned documents for the full intent and meaning of each clause thereof

These clauses are hereinafter referred to by clause number and heading only. Where standard clauses or alternatives are not entirely applicable to this contract such modifications, corrections or supplements as will apply are given under each relevant clause heading and such modifications, corrections or supplements shall take precedence notwithstanding anything contrary contained in the above mentioned documents

Where any item is not relevant to this specific contract such item is marked N/A, signifying "not applicable"

Carried to Summary R

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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4	5	6

PREAMBLES FOR TRADES

The Model Preambles for Trades (2008 edition) as published by the Association of South African Quantity Surveyors shall be deemed to be incorporated in these bills of quantities and no claims arising from brevity of description of items fully described in the said Model Preambles will be entertained

Supplementary preambles are incorporated in these bills of quantities to satisfy the requirements of this project. Such supplementary preambles shall take precedence over the provisions of the said Model Preambles

The contractor's prices for all items throughout these bills of quantities must take account of and include for all of the obligations, requirements and specifications given in the said Model Preambles and in any supplementary preambles

PRICING OF PRELIMINARIES

Should the contractor select Option A in terms of subclause 3.2.1 in the Contract Data - Contractor to Employer (CE) for the purpose of adjustment of these preliminaries, the amount entered into the amount column in these preliminaries is to be divided into one or more of the three categories provided namely Fixed (F), Value Related (V) and Time Related (T)

SECTION A - PRINCIPAL BUILDING AGREEMENT

Definitions

1 Clause 1.0 - Definitions and interpretation

F:..... V:.....
T:..... Item

Objective and preparations

2 Clause 2.0 - Offer acceptance and performance obligations

F:..... V:.....
T:..... Item

Carried to Summary R

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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1	Clause 3.0 - Documents F:..... V:..... T:.....	Item		
2	Clause 4.0 - Design responsibility F:..... V:..... T:.....	Item		
3	Clause 5.0 - Employer's agents F:..... V:..... T:.....	Item		
4	Clause 6.0 - Contractor's site representative F:..... V:..... T:.....	Item		
5	Clause 7.0 - Compliance with laws and regulations F:..... V:..... T:..... Without limiting the generality of the provisions of clause 7.0, the contractor's attention is drawn to the provisions of the Construction Regulations, 2003 issued in terms of the Occupational Health and Safety Act, 1993. It is specifically stated that the employer shall prepare a documented health and safety specification for the works and that the employer shall ensure that the contractor has made provision for the cost of health and safety measures during the execution of the works. The contractor shall price opposite this item for compliance with the act and the regulations and the reasonable provisions of the aforementioned health and safety specifications	Item		
6	Clause 8.0 - Works risk F:..... V:..... T:.....	Item		
	Carried to Summary		R	

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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1	Clause 9.0 - Indemnities F:..... V:..... T:.....	Item		
2	Clause 10.0 - General insurances F:..... V:.....T:.....	Item		
3	Clause 11.0 - Special insurances F:..... V:..... T:.....	Item		
4	Clause 12.0 - Effecting insurances F:..... V:.....T:.....	Item		
5	Clause 13.0 - Assignment F:..... V:..... T:.....	Item		
6	Clause 14.0 - Security F:..... V:..... T:.....	Item		
	<u>Execution</u>			
7	Clause 15.0 - Preparation for and execution of the works F:..... V:..... T:.....	Item		
8	Clause 16.0 - Site and access Clause 16.7 - *Known services* Clause 16.8 - *Protection of trees* F:..... V:..... T:.....	Item		
	Carried to Summary		R	

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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1	Clause 17.0 - Contract instructions F:..... V:..... T:.....	Item		
2	Clause 18.0 - Setting out of the works The contractor shall notify the principal agent if any encroachments of adjoining foundations, buildings, structures, pavements, boundaries, etc. exist in order that the necessary arrangements may be made for the rectification of any such encroachments. F: ..... V:.....T:.....	Item		
3	Clause 19.0 - Temporary works and plant Subclause 19.1.1 - *Enclosure of the works* Subclause 19.1.2 - *Office accommodation* Clause 19.2 - *Notice boards* F:..... V:..... T:.....	Item		
4	Clause 20.0 - Nominated subcontractors F:..... V:..... T:.....	Item		
5	Clause 21.0 - Selected subcontractors F:..... V:..... T:.....	Item		
6	Clause 22.0 - Employer's direct contractors F:..... V:..... T:.....	Item		
7	Clause 23.0 - Contractor's domestic subcontractors F:..... V:..... T:.....	Item		
	Carried to Summary		R	

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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Completion

1 Clause 24.0 - Practical completion

F:..... V:.....
T:..... Item

2 Clause 25.0 - Works completion

F:..... V:.....
T:..... Item

3 Clause 26.0 - Final completion

F:..... V:.....
T:..... Item

4 Clause 27.0 - Latent defects liability period

F:..... V:.....
T:..... Item

5 Clause 28.0 - Sectional completion

F:..... V:.....
T:..... Item

6 Clause 29.0 - Revision of date for practical completion

The removal and replacement of materials and/or workmanship which do not conform to specification or drawing shall not constitute grounds for the extension of the construction period nor for the adjustment of the contract value (Clause 29.3)

F:..... V:.....
T:..... Item

7 Clause 30.0 - Penalty for late or non-completion

F:..... V:.....
T:..... Item

Carried to Summary R

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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Payment

1 Clause 31.0 - Interim payment

Materials and goods stored off site shall not be included in the amount authorised for payment

F:..... V:.....
T:..... Item

2 Clause 32.0 - Adjustment to the contract value

All fluctuations in costs, with the exception of fluctuations in the rate of Value Added Tax, shall be for the account of the contractor

Where prices are submitted by the contractor or n/s subcontractor during the progress of the works in respect of contract instructions or in regard to a claim under the terms of the contract and notwithstanding the fact that such prices may be used in an interim payment certificate, there is to be no presumption of acceptance. Should the principal agent wish to accept any such prices prior to the issue of the final payment certificate, it shall be in writing

F:..... V:.....
T:..... Item

3 Clause 33.0 - Recovery of expense and loss

F:..... V:.....
T:..... Item

4 Clause 34.0 - Final account and final payment

F:..... V:.....
T:..... Item

5 Clause 35.0 - Payment to other parties

F:..... V:.....
T:..... Item

Carried to Summary R

Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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	Termination			
1	Clause 36.0 - Termination by employer - contractor's default F:..... V:..... T:.....	Item		
2	Clause 37.0 - Termination by employer - loss and damage F:..... V:..... T:.....	Item		
3	Clause 38.0 - Termination by contractor - employer's default F:..... V:..... T:.....	Item		
4	Clause 39.0 - Termination - cessation of the works F:..... V:..... T:.....	Item		
	Dispute			
5	Clause 40.0 - Settlement of disputes F:..... V:..... T:.....	Item		
	Contract agreement			
6	Clause 41.0 - Post tender provisions The required post tender information shall be inserted in the post tender provisions after consultation with the contractor	Item		
7	Clause 42.0 - Contractual agreement The required information of the contracting parties and the amount of the accepted contract sum shall be inserted in the contractual agreement for signature of the agreement by the contracting parties	Item		
	Carried to Summary		R	

Section 1
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Bill No. 1
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SECTION B - PRELIMINARIES

Definitions and interpretation

1 Clause 1.0 - Definitions and interpretation

F:..... V:.....
T:..... Item

Documents

2 Clause 2.1 - Checking of documents

F:..... V:.....
T:..... Item

3 Clause 2.2 - Provisional bills of quantities

F:..... V:.....
T:..... Item

4 Clause 2.3 - Availability of construction documentation

F:..... V:.....
T:..... Item

Previous work and adjoining properties

5 Clause 3.1 - Previous work - dimensional accuracy

F:..... V:.....
T:..... Item

6 Clause 3.2 - Previous work - defects

F:..... V:.....
T:..... Item

7 Clause 3.3 - Inspection of adjoining properties

F:..... V:.....
T:..... Item

Carried to Summary R

Section 1
PRELIMINARIES
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PRELIMINARIES

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Samples, shop drawings and manufacturer's instructions

1 Clause 4.1 - Samples of materials

F:..... V:.....
T:..... Item

2 Clause 4.2 - Workmanship samples

F:..... V:.....
T:..... Item

3 Clause 4.3 - Shop drawings

F:..... V:.....
T:..... Item

4 Clause 4.4 - Compliance with manufacturer's instructions

F:..... V:.....
T:..... Item

Deposits and fees

5 Clause 5.1 - Deposits and fees

F:..... V:.....
T:..... Item

Temporary services

6 Clause 6.1 - Water

F:..... V:.....
T:..... Item

7 Clause 6.2 - Electricity

F:..... V:.....
T:..... Item

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Section 1
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1	Clause 6.3 - Telecommunication facilities F:..... V:..... T:.....	Item		
2	Clause 6.4 - Ablution facilities F:..... V:..... T:.....	Item		
	Prime cost amounts			
3	Clause 7.1 - Responsibility for prime cost amounts F:..... V:..... T:.....	Item		
	Special attendance on n/s subcontractors			
4	Clause 8.1 - Special attendance F:..... V:..... T:.....	Item		
	General			
5	Clause 9.1 - Protection of the works F:..... V:..... T:.....	Item		
6	Clause 9.2 - Protection/isolation of existing/sectionally occupied works F:..... V:..... T:.....	Item		
7	Clause 9.3 - Security of the works F:..... V:..... T:.....	Item		
8	Clause 9.4 - Notice before covering work F:..... V:..... T:.....	Item		
	Carried to Summary		R	

Section 1
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1	2	3
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1	Clause 9.5 - Disturbance F:..... V:..... T:.....	Item			
2	Clause 9.6 - Environmental disturbance F:..... V:..... T:	Item			
3	Clause 9.7 - Works cleaning and clearing F:..... V:..... T:.....	Item			
4	Clause 9.8 - Vermin F:..... V:..... T:.....	Item			
5	Clause 9.9 - Overhand work F:..... V:..... T:.....	Item			

Schedule of variables

Information necessary for elections and completion of those clauses contained in the schedule which are necessary for tender purposes is given hereunder. Where no information is given it shall mean that no specific requirements are expected or that the clause is not relevant to this specific contract

10.1 - Provisional bills of quantities [clause 2.2]

The quantities are provisional **Yes**

10.2 - Availability of construction documentation [clause 2.3]

Construction documentation is complete **Yes**

Carried to Summary R

Section 1
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10.3 - Previous work - dimensional accuracy [clause 3.1]

The contractor is responsible for ensuring the dimensional accuracy and integrity of each building and must satisfy himself as to opening sizes, etc before ordering components

10.4 - Previous work - defects [clause 3.2] N/A

10.5 - Inspection of adjoining properties [clause 3.3] N/A

10.6 - Water [clause 7.2]

Option A (by contractor) Yes

Option B (by employer - free of charge) No

Option C (by employer - metered) No

10.7 - Electricity [clause 7.3]

Option A (by contractor) Yes

Option B (by employer - free of charge) No

Option C (by employer - metered) No

10.8 - Telecommunications [clause 7.4]

Telephone Yes

Facsimile No

E-mail No

10.9 - Ablution facilities [clause 7.5]

Option A (by contractor) Yes

Option B (by employer) No

Carried to Summary R

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10.10 - Protection of the works [clause 9.1]

The contractor shall provide, erect, alter as necessary, maintain, remove and make good on completion of the works, suitable hoardings or temporary fencing as necessary for the enclosure of the works and protection of the public, to the satisfaction of the Principal Agent

10.11 - Protection/isolation of existing/sectionally occupied works [clause 9.2]

Protection/isolation is required Yes

10.12 - Disturbance [clause 9.5]

The contractor shall execute the works with as little noise and disturbance as possible to adjoining premises and occupants thereof; he shall keep the site, structures, etc well watered during operations to prevent dust and shall provide, erect and remove on completion of the works, all necessary temporary dust screens, to the satisfaction of the Principal Agent

10.13 - Environmental disturbance [clause 9.6]

No specific requirements

Carried to Summary R

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SECTION C - SPECIFIC PRELIMINARIES

1 **Site instructions**

Instructions issued on site are to be recorded in triplicate in a site instruction book which is to be maintained on site by the contractor

F:..... V:.....
T:..... Item

2 **Warranties for material and workmanship**

Where warranties for materials and/or workmanship are called for, the contractor shall obtain a written warranty, addressed to the employer, from the firm supplying the materials and/or doing the work and shall deliver same to the principal agent on the certified completion of the contract. The warranty shall state that workmanship, materials and installation are warranted for a specified period from the date of final completion and that any defects that may arise during the specified period shall be made good at the expense of the firm supplying the materials and/or doing the work, upon written notice to do so. The warranty will not be enforced if the work is damaged by defects in the construction of the building in which case the responsibility for replacement shall rest entirely with the contractor

F:.....V:.....T:..... Item

Carried to Summary R

Section 1
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1	**Co-operation of contractor for cost management** It is specifically agreed that the contractor accepts the obligation of assisting the principal agent in implementing proper cost management. The contractor will be advised by the principal agent of all cost management procedures which will be implemented to ensure that the final building cost does not exceed the budget. The principal agent undertakes to make available to the contractor all budgetary allowances and cost assessments/reports to enable the proper procedure to be implemented and the contractor shall attend all cost plan review and cost management meetings. The contractor undertakes to extend these procedures, as necessary, to all subcontractors F:.....V:.....T:.....	Item			
2	**Propping of floors below** The contractor is advised that propping of floors below may be required if he wishes to use any areas of completed suspended reinforced concrete slabs for vehicle access, storage of materials and goods and location of plant, scaffolding, etc. The location of these areas and any necessary propping shall be approved by the principal agent and the cost thereof shall be borne by the contractor F:..... V:..... T:.....	Item			
3	**Testing of windows for water tightness** Each window shall be tested for water tightness with water sprayed on using adequate pressure. If in the opinion of the principal agent, the pressure proves to be inadequate, then the pressure shall be boosted by means of compressed air or other approved means F:..... V:..... T:.....	Item			
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Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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1	**Testing of flat roof waterproofing for water tightness** Flat roof waterproof areas shall be prepared with small sand dykes around them of a size and enclosing an area approved by the principal agent, flooded with water and kept "ponded" for at least 36 hours as a test to ensure the water tightness of the waterproofing and before any further construction work is carried out above the waterproofing F:..... V:..... T:.....	Item		
2	**OCCUPATIONAL HEALTH AND SAFETY ACT** The **contractor** shall comply with all the requirements set out in the Construction Regulations, 2014 issued under the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) and all amendments and revisions. 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 / lump sum document** The **contractor** must take note that compliance with the Occupational Health and Safety Act, Construction Regulations (as amended) 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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Section 1
PRELIMINARIES
Bill No. 1
PRELIMINARIES

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1	COMMUNITY LIAISON OFFICER (CLO) Provide the sum of R 85 000.00 (Eighty-Five Thousand Rand only) for payment of CLO for duration of the contract **SUMMARY OF CATEGORIES** Category : Fixed R..... Category : Value R..... Category : Time R.....		Item		
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Section 1

Bill No. 1

PRELIMINARIES

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PRELIMINARIES

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SECTION 2

BILL No. 1

FOUNDATIONS (PROVISIONAL)

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

NOTE IN RESPECT OF REMEASUREMENT OF FOUNDATIONS

Foundation brickwork and concrete walls have been measured to top of unfinished floor level

_____

EARTHWORKS

NOTE

All excavations are measured as being in "earth" and/or filling compacted to 95% modified AASHTO density

Descriptions of excavations shall be deemed to include for setting aside surplus excavated material in spoil heaps for use as filling, or for depositing within 150m of the perimeter of the excavations and spreading and roughly levelling as directed, as well as for increase in bulk and multiple handling of excavated material caused by the Contractor's method of operation

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site and for bulking

Carried to Summary R

Section 2
SKILLS CENTRE
Bill No. 1
Foundations (Provisional)

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	Working space for formwork to sides of all concrete, except columns, shall be measured only where the concrete face is less than 750mm from the face of the measured excavations Working space for formwork to sides of columns shall be measured for the width of the column face only where both: the top of the column base is more than 1,5m below the commencing level of the excavations and the column face is less than 500mm from the face of the measured excavations No claim shall be considered for any working space for formwork to concrete other than as above described or for working space beyond the sides of trench excavations for the building of brick or block walls Descriptions of excavations for working space shall be deemed to include for any additional risk of collapse so incurred and for the returning and compacting of the excavated material as described _____ **Excavations** **Excavate in earth not exceeding 2m deep below natural, elevated or reduced ground level for**				
1	Trenches	m3	79		
2	Holes	m3	1		
	(End of excavations in earth)				
3	Extra over all excavations for carting away surplus material from excavations and/or from stockpiles on site to a dumping site to be located by the Contractor	m3	79		
4	Risk of collapse of sides of reduced level excavations from natural, elevated or reduced ground level to not exceeding 1,5m deep	m2	314		
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Section 2
SKILLS CENTRE
Bill No. 1
Foundations (Provisional)

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1	Allow for keeping excavations free of all water other than subterranean water		Item		
	Filling, etc.				
2	150mm Thick Rip & Re-compact insitu material to 98% MOD.AASHTO at OMC	m3	120		
3	150mm Thick G5 Layer compacted to 98% MOD.AASHTO at OMC	m3	239		
	Tests				
4	Tests to determine the degree of compaction, etc. of ground or filling	No	4		
	Protection against termites				
5	Poisoning surface of ground in bottoms of trenches, bases, etc.	m2	408		
6	Poisoning surface of ground or filling under floors, steps, etc. including raking out 75mm deep V-shaped channels against the walls, etc. treating with poison solution, backfilling and ramming	m2	797		
	CONCRETE				
	Concrete test cubes				
7	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal Agent. Only successful tests will be paid for (Provisional)	No	4		
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
8	Bases	m3	1		
9	Ground beams	m3	79		
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Section 2
SKILLS CENTRE
Bill No. 1
Foundations (Provisional)

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1	In surface beds cast in panels on waterproofing (elsewhere)	m3	108		
	Sundries				
2	Finish top surface of concrete slabs, etc. to a smooth and even power floated surface	m2	636		
	FORMWORK				
	ROUGH FORMWORK (DEGREE OF ACCURACY III)				
	Rough formwork to sides				
3	Rectangular ground beams	m2	314		
	Movement Joints				
4	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	112		
	Saw cut joints				
5	6 x 20mm Saw cut joints in top of concrete	m	92		
	Construction joints				
6	Construction joints	m	69		
	Boxing in rough formwork to form				
7	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the soffit of surface bed.	m	659		
	REINFORCEMENT				
	High tensile steel reinforcement to structural concrete work				
8	16mm Diameter bars	t	2.41		
9	12mm Diameter bars	t	1.40		
	Carried to Summary			R	

	Mesh reinforcement				
1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	636		
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Section 2
SKILLS CENTRE
Bill No. 1
Foundations (Provisional)

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Bill No. 1

Foundations (Provisional)

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	BILL No. 2				
	CONCRETE, FORMWORK AND REINFORCEMENT				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CONCRETE				
	Concrete test cubes				
1	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal agent. Only successful tests will be paid for (Provisional)	No	4		
	Mass concrete				
	Mass concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
2	In ramps	m3	1		
	Reinforced concrete				
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days in				
3	Ring beam	m3	11		
4	Slabs	m3	11		
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Section 2
SKILLS CENTRE
Bill No. 2
Concrete, Formwork and Reinforcement

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	Sundries				
1	Finish raking top surface of concrete slabs, etc. to a smooth and even wood floated surface including additional dry sand/cement mixture added as necessary whilst the concrete is still wet	m2	43		
	FORMWORK				
	Formwork to				
2	Soffit of slabs	m2	43		
3	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	27		
	Smooth formwork to sides and soffits of rectangular beams				
4	Beams propped up exceeding 1.5m and not exceeding 3.5m high	m2	114		
	Movement Joints				
5	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	89		
	Boxing in rough formwork to form				
6	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	356		
	REINFORCEMENT				
	High tensile steel bar reinforcement to structural concrete work				
7	16mm Diameter bars	t	0.80		
8	12mm Diameter bars	t	4.19		
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Section 2
SKILLS CENTRE
Bill No. 2
Concrete, Formwork and Reinforcement

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	Mesh reinforcement				
1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	43		
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Section 2
SKILLS CENTRE
Bill No. 2
Concrete, Formwork and Reinforcement

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Section 2

Bill No. 2

Concrete, Formwork and Reinforcement

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	BILL No. 3				
	MASONRY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
1	Piers	m3	7		
2	Half brick wall	m2	123		
3	Half brick wall in beamfilling	m2	27		
4	One brick wall	m2	901		
5	One and a half brick walls	m2	57		
6	285mm Hollow walls of two half brick skins including wire ties	m2	71		
	Brick reinforcement				
7	Brick reinforcement 75mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	483		
8	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	3 100		
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	Sundries				
1	Closing 70mm cavities of hollow walls vertically with brickwork one brick wide	m	19		
	Joint forming material in movement joints				
2	38 x 1,6mm Galvanised hoop iron roof tie with one end built six courses deep into top of brickwork and other end wrapped around and nailed to trusses	No	189		
	Nutec Cement/Fibre-cement window cills				
3	Internal window sill 100mm wide	m	83		
4	External window sill 100mm wide set sloping	m	56		
	Prestressed concrete lintels				
5	110 x 75mm Lintels in lengths not exceeding 3m	m	151		
6	110 x 75mm Lintels in lengths exceeding 3m not exceeding 4.5m	m	15		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
7	Cavity wall 280mm thick consisting of two skins of 110mm brickwork and 50mm wide cavity face brick on both sides	m2	71		
8	230mm brickwork face brickwork.	m2	340		
9	460mm brickwork face brickwork on brick piers	m2	57		
	WINDOW CILLS				
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Section 2
SKILLS CENTRE
Bill No. 3
Masonry

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	Facebrick on edge window sills				
1	Window sill, facebrick on edge	m	90		
	Galvanised hoop iron cramps, ties, etc				
2	50 x 1.5mm Wall tie 605mm long, five times bent along length, with one end shot-pinned to concrete and the other end built into brickwork	No	20		
	PAVING				
	Paving of clay-brick pavers laid with butt joints to stretcher bond pattern on and including 25mm thick river-sand bed with sand & cement mixture swept into joints and hosed down, including weed killer and preparation of ground				
3	Paving to entrance walkway areas, aprons, etc to falls	m2	187		
4	220mm Wide brick-on-flat header course edging on 75mm thick mortar bed	m	120		
5	Fair raking cutting	m	13		
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SKILLS CENTRE
Bill No. 3
Masonry

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Bill No. 3

Masonry

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	BILL No. 4				
	WATERPROOFING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	DAMP-PROOFING TO WALLS				
1	375 Micron embossed black polyethylene damp-proof course to walls, cills, etc. (measured net)	m2	63		
	DAMP-PROOFING UNDER FLOORS, ETC.				
	Colour coded polyethylene sheeting complying with SANS 952, Type C in widest practicable widths with all joints lapped and sealed in accordance with the manufacturer's instructions				
2	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) under solid floors with pressure sensitive tape jointing	m2	636		
3	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) to under sides and both sides of ground beams	m2	358		
	WATERPROOFING TO ROOFS, BASEMENTS, ETC				
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Section 2
SKILLS CENTRE
Bill No. 4
Waterproofing

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	Prime with one coat bitumen primer and one layer 4mm fully bonded waterproof membrane comprising two bitumen layers reinforced with woven spun bonded polyester fabric and coated with polyethelene film for heat bonding, laid with 75mm side and 100mm end laps				
1	On soffits of slab	m2	43		
2	On flat roofs	m2	43		
	PROTECTIVE ROOFING PAINT				
	Two coats bituminous aluminium paint				
3	On waterproofing to roofs	m2	43		
4	On waterproofing to box gutters	m2	5		
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SKILLS CENTRE
Bill No. 4
Waterproofing

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Section 2

Bill No. 4

Waterproofing

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SECTION 2

BILL No. 5

ROOF COVERINGS, ETC.

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

PROFILED METAL SHEETING AND ACCESSORIES

0.58mm Thick concealed fixing roofing sheets manufactured from roll-formed from certified steel complying with ISQ 550 (3T). The profile shall have three trapezoidal ribs at 203mm centers giving a net cover of 406mm. The rib height shall be 41mm and provide capillary breaks. The male rib shall have spurs at 283mm centers to ensure a positive double interlocking action at side-laps. Each pan shall incorporate two stiffener ribs. Profiled roof sheets to be coated on both sides with "Global Coat" or "Chromadek Colour" and laid on structural timber/steel structure incorporating all necessary accessories such as flashings and eave closers in strict compliance to manufacturer's instructions

Note

The Contractor is to submit a certificate signed by the merchant, stating that the galvanised roof covering supplied complies with the required thickness specified

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Chromadek roof sheeting 50mm x 50mm purlins on appro. Underlay on prefabricated trusses to specialist details at max 1200mm centre to centre to Engineers details at 5° roof pitch

1	0,58mm Roof sheeting with pitch not exceeding 25° fixed to timber purlins (elsewhere)	m2	832		

Carried to Summary R

Section 2
SKILLS CENTRE
Bill No. 5
Roof Coverings, etc

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1	0.58mm Sheet iron side wall flashing 370mm girth	m	120		
	ROOF AND WALL INSULATION				
	50mm Thick Approved FBL foll backed aluminium blanket				
2	Insulation blanket laid taut over purlins (at approximately 1000mm centres) and fixed concurrent with roof covering with stapled longitudinal flap joints, including fixing at top and bottom edges to purlins with and including hoop iron straps	m2	832		
	TRANSLUSCENT ROOF SHEETING				
	Chromadek roof sheeting 50mm x 50mm purlins on appro. Underlay on prefabricated trusses to specialist details at max 1200mm centre to centre to Engineers details at 10° roof pitch				
3	Translucent roof sheeting including frame, waterproofed and fixed as per manufacturer's specification , size 6843 x 3000mm Wide.	No	2		
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Bill No. 5
Roof Coverings, etc

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Bill No. 5

Roof Coverings, etc

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Roof Coverings, etc

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SECTION 2

BILL No. 6

CARPENTRY AND JOINERY

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

TIMBER

All softwood to be South African Pine

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Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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DESCRIPTIONS

The term "planted on" shall mean the nailing of one timber member to another

The term "screwed on" shall mean the countersunk screwing of one timber member to another

The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screws sunk and pelleted

The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete

The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screws sunk and pelleted

Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing

Descriptions of floors, ceilings, joinery, etc. shall be deemed to include for all square cutting

Descriptions of items given in lineal metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc.

Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc. shall be deemed to include for angles, ends, etc.

_____

Prefabricated metal connector plate timber roof trusses

Roofs, etc

Carried to Summary R

Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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Allow for the preparation and submission of the following documents (applicable to ALL roofs), inclusive of Detailed shop drawings indicating truss sizes, truss positions, bracings, etc to be submitted for approval prior to commencement of fabrication,Design certificate indicating the licensed programme used, SANS specifications adhered to, general procedures and loading adopted, sizes and grading of timber components, details, etc.

NOTE:

a. All the roof trusses to be at average 1177mm centres and constructed for a 15 degrees pitch unless otherwise stated

b. All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take corrugated roof covering, purlins and fibre cement or gypsum plasterboard ceilings with brandering. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

c. Unless otherwise described all rafter feet are to extend 770mm beyond the length of the tie beam, with ends twice splay cut

d. The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer in accordance with SANS 0243 and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Principal Agent

e. The tenderer's attention is drawn to the fact that the Architect's roof truss drawings only represent the overall size and bearing points of the trusses and not the required design.

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Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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	f. Erection must be carried out as described in "The Erection and Bracing of Timber Roof Trusses" published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. g. Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing. ----------				
1	Mono pitch roof truss size 17.73m long x 2.4m high	No	10.00		
	Sundry roof timbers				
	Sawn Softwood (Grade 5)				
2	38 x 114mm Wall plate	m	104		
3	50 x 76mm Purlin including additional timber supports at spliced joints	m	1 439		
	Roof sundries				
4	Galvanised mild steel hurricane type fixing clips nailed between rafter and purlin connection (Provisional)	No	200		
	Wood preservative				
5	Two coats wood preservative applied hot on wrought exposed roof timbers	m2	851		
	Fascias and bargeboards				
	Tempered fibre-cement				
6	15 x 225mm Fascia board countersunk screwed to roof timbers (elsewhere) with two brass screws at maximum 1200mm centres and jointed with and including standard aluminium halfround cover strips at all joints	m	47		
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Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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1	15 x 225mm Barge board countersunk screwed to roof timbers (elsewhere) with two brass screws at maximum 1200mm centres and nailed with steel nails into mortar joints at maximum 750mm centres and jointed with and including standard aluminium halfround cover strips at all joints	m	57		
	Doors				
	NOTE All framed and ledged batten doors and combination doors, where battens are utilised, shall only be of construction acceptable to the Department, i.e. mortice and tenon where the tenon is exposed on the outside edges of styles and where the tenon is wedged to form a dovetailed shape				
	40mm Thick flush panel maple veneered door with lightweight core filling				
2	40mm x 0,820 x 2,032m Framed, ledged and braced batten door formed of 40 x 110mm styles and top rail, 20 x 225mm bottom ledge, 20 x 150mm middle ledge and 20 x 110mm diagonal braces, filled in flush one side with 20 x 75mm tongued, grooved and V-jointed both sides vertical boarding fixed in and including grooves in styles and top rail	No	5		
3	40mm x 0,92 x 2,032m Framed, ledged and braced batten door formed of 40 x 110mm styles and top rail, 20 x 225mm bottom ledge, 20 x 150mm middle ledge and 20 x 110mm diagonal braces, filled in flush one side with 20 x 75mm tongued, grooved and V-jointed both sides vertical boarding fixed in and including grooves in styles and top rail	No	5		
	Solid laminated flush panel doors with hardboard face suitable for paint both sides and two wrought Meranti concealed vertical edge strips				
4	40mm x 0,813 x 1,882m Door	No	2		
5	40mm x 1,613 x 2,032m Double door in two equal leaves hung folding with rebated meeting edges	No	1		
	Carried to Summary			R	

Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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FITTINGS

General

The following cupboard fittings have been measured as complete units i.e. the components of the units have not been separately measured. The descriptions, therefore, of such units shall be deemed to include all components, assembling, housing, notching, glueing, blocking, planting on and screwing with countersunk screws, edge strips, decorative plastic finish, glass, ironmongery, metalwork, paint or varnish finishes, etc (refer Architect's drawings as attached to the back of these Bills of Quantities)

Fittings to Administration Building

Cupboard: Length 8383mm, 900mm high with Rusternburg Granite worktop with bullnose edge, Windsor Cherry Melamine door fronts with 16mm x 2mm PVC edging strips, 8 Number 128Euro H-011 Alluminium cupboard door pull fitted horizontally with steel self tapper screw and 2 No. Sink 1140mm long stainless steel grade 304 (18/8) on baked enamel steel cupboard with 1 shelf and 3 swing doors as per Architect's drawing

1	Kitchen cupboard **Length 8383mm, 900mm high** (Provisional)	No	1		

Store room shelving with back uprights screwed to wall with three masonry wall plugs, 24mm wrought laminated SA pine shelves in running lenghts, fixed with two selftaping screws per rail. Provide butt joints at center of rail where necessary. 18mm x 76mm SA pine filler piece flush with front of shelf. 18mm x 76mm SA pine filler piece flush with top of shelf, Finish as for shelf. Cut to fit between uprights. Finish as for shelf. Cut to fit between rails as per drawing No: DT 54

2	Store room shelving, 9500mm length and 2000mm height (Provisional)	No	4		

Carried to Summary R

Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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	Bathroom floor cupboard: Length 2000 x 551 x 900mm high with Rustenburg Granite worktop with bull nose edge, Windsor Cherry Melamine door fronts with 16mm x 2mm PVC edging strips, 8 Number 128Euro H-011 Aluminium cupboard door pull fitted horizontally with steel self tapper screw and 2 No. Sink 1140mm long stainless steel grade 304 (18/8) on baked enamel steel cupboard with 1 shelf and 3 swing doors as per Architect's drawing				
1	Floor cupboard 2 000 x 551 x 900mm high overall comprising tops, bottoms, sides, divisions, shelves, backs, filler panels, doors, ironmongery, finishes, etc all as per architect drawing	No	2		
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Section 2
SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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Section 2

Bill No. 6

Carpentry and Joinery

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SKILLS CENTRE
Bill No. 6
Carpentry and Joinery

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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 7				
	CEILINGS, PARTITIONS AND ACCESS FLOORING				
	PREAMBLES				
	For preambles see "Specification of Material and Method to be used PW371"				
	SUPPLEMENTARY PREAMBLES				
	Descriptions:				
	Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete				
	Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere				
	CEILINGS ETC				
	SUSPENDED CEILINGS				
	1200 x 600 x 6mmThick Fibre cement vinyl clad ceiling boards on pre-painted exposed tee suspension system including main and cross tees, necessary hangers, grids, etc all as per manufacturer's instruction.				
1	Ceilings suspended not exceeding 1m below timber purlins at 2,00m centres.	m2	477		
2	"Shadowline" pre painted cornice, nailed	m	349		
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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 8				
	FLOOR COVERINGS, PLASTIC LININGS ETC				
	PREAMBLES				
	For preambles see "Specification of Material and Method to be used PW371"				
	Note : All materials shall be in colours to be selected by the Representative / Agent and, where applicable, laid to approved patterns.				
	SUPPLEMENTARY PREAMBLES				
	Vinyl tiles, sheeting, wall linings, carpets, etc. are to be supplied and laid complete on a cement screed (screed elsewhere) under guarantee by an approved firm of Specialists.				
	Prices for vinyl products are to include for cleaning off tiles on completion and apply three coats waterproof floor dressing in accordance with the Manufacturer's specification.				
	ARTIFICIAL GRASS				
	Artificial grass				
1	Artificial grass	m2	29		
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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 9				
	IRONMONGERY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Where ironmongery is described as plugged, prices are to include for screwing to and including approved patent plugs in concrete or brickwork with plaster or tiled finish				
	_____				
	The following ironmongery fixed to doors, etc.				
	Bolts and latches				
1	Roller ball catch for toilet doors and keep fixed to steel	No	6		
2	150mm Satin chrome flush bolt with a short length of brass tubing let into concrete floor as keep	No	6		
	Locks				
	The following locks are to be suitable for master key operation.				
3	Bathroom/WC mortice indicator lock set with satin chrome furniture	No	6		
4	75mm Three lever upright mortice lockset with satin chrome furniture	No	2		
5	75mm Four lever upright mortice lockset with satin chrome furniture	No	5		
6	Master Key	No	2		
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Section 2
SKILLS CENTRE
Bill No. 9
Ironmongery

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	Door closers				
1	Overhead surface mounted type door closer with aluminium casing	No	7		
	Sundries				
2	38mm Rubber door stop plugged and screwed to wall or floor	No	29		
3	19mm Stainless steel chromium plated towel rail, 600mm long, with end brackets plugged to plastered or tiled wall	No	6		
4	Approved white built-in type medicine cabinet size 380 x 610 x 100mm deep with mirror front and glass shelves and building in in tiled or plastered wall including forming recess in brickwork and making good	No	3		
	Signage				
5	400mm high aluminium signage as per specialist detail		Item		25 000.00
6	Contractor's mark-up @ 5%		Item		1 250.00
	Artwork				
7	Artwork as per the Architect's specification		Item		15 000.00
8	Contractor's mark-up @ 5%		Item		750.00
	Push and kicking plates				
9	300mm high x 1.2mm thick x 750mm long grade 304 satin finished stainless steel kicking plate.	No	20		
	Indicator plates countersunk holed for and screwed to door or brickwork with chromium plated dome-headed screws				
10	190 x 190 x 3mm Thick white perspex international FB2 sign plate with red fire extinguisher symbol plugged to brickwork	No	2		
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SKILLS CENTRE
Bill No. 9
Ironmongery

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1	75 x 150mm Aluminium international toilet sign with MALE and/or FEMALE figure screwed to door	No	5		
2	75 x 150 x Aluminium international toilet sign with paraplegic figure screwed to door.	No	1		
	Kitchen Cupboard Units				
	NOTE The kitchen cupboard units shall be of steel construction with baked enamel finish of approved colour with 18mm interior particle board worktops finished on one side and on edges with 1,2mm standard grade high pressure plastic laminate of approved pattern and colour Adjacent worktops of different units shall be neatly butt-jointed and finished off with matching cover strips and prices are to include for same All doors are to be supplied with standard locks and duplicate keys and prices of units are to include for lockable doors where applicable Prices for sink units are to include for stainless steel sinks with draining boards with single or double sinks, each complete with chromium plated flanged waste fitting, plug and chain Prices for all units are to include for fixing in position to plastered walls and on floors with screed, protecting against injury and cleaning down on completion				
	Floor and sink units				
3	Sink unit 1350mm long with single bowl sink and drainer, one shelf and three doors	No	1		
	Writing boards, Projection screens, etc.				
4	Pull down PVC screen size 2450mm wide x 1420mm high (viewing area 2350 x 1320mm) with wall mounted code SC0400 keystone brackets adjustable set of 2, size 300mm supplied and installed with all necessary accessories	No	2		
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SKILLS CENTRE
Bill No. 9
Ironmongery

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	Pinboard size 1800mm W x 1000mm H comprising of laminated soft board core pinning material beaded all round with anodised aluminium channel surround mitred at the corners.To be fitted complete with fixing brackets, screws and wall plugs at 900mm above floor level. Sample to be provided to Architect for Approval				
1	1800 wide x 1000mm high pin board	No	4		
	"Parrot Products"				
2	"BDO452" 1200 x 1200mm Aluminium framed carpet bulletin board	No	4		
	"Clipstrip" or similar and approved				
3	50 x 50 x 3mm Thick anodised aluminium corner protector fixed to walls.	m	70		
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SKILLS CENTRE
Bill No. 9
Ironmongery

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Section 2

Bill No. 9

Ironmongery

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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 10				
	METALWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Mild Steel				
	The following in twelve framed and welded mild steel security gates and fixing in position complete				
1	Single gate size 840mm x 2067mm high overall formed of 40 x 60 x 2mm rectangular hollow section framing all round mitred and welded at angles with two 40 x 6mm flat section horizontal intermediate rails with ends welded to framing and with five 19mm diameter rod vertical bars framed through intermediate rails with ends welded to framing including hinges, locking devices, etc	No	1		
	Hot-dipped galvanised mild steel				
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	Roll up see-thru galvanised and epoxy coated m/s perforated roller shutter for openings up to 2.5mm x 2.1mm. electrically operated with 220 volt hl 600 motor with manual override, with 75 x 1,0mm thick galvanised endlocked slats complete with nylon end locks, 120mm extra wide tamper proof m/s guides, powder coated ancillary components, including door curtain. 4.5mm thick end plates, guide ralls ,closed shaft, extruded aluminium t□bar with astragal rubber weather seal and single spam (no join) galv, cover box, operated with high security key switch. fixed to brick and structural beam over, electrically operated with 220 volt hl 600 motor with manual.				
1	Automated push-up slatted roller shutter for 2500 x 2100mm high opening	No	1		
	NOTE				
	The following are to be hot-dipped galvanised after fabrication of complete units				
	Hot-dipped double spelter galvanised mild steel grab rails formed of 32mm outside diameter x 1,6mm round section rails and 75mm diameter x 3mm flat section fixing flanges each three times holed and bolted to walls with M8 x 50mm expansion bolts				
2	32mm Grab rail 700mm long with two 80mm return ends bolted	No	1		
3	32mm Cranked grab rail 300 x 300 x 300mm with two 80mm return ends bolted	No	1		
	Door frames, Doors, Windows, etc.				
	Galvanised pressed steel door frames				
	1,2mm Double rebated pressed steel door frames suitable for half brick walls				
4	Door frame for door size 0,761 x 2,134m with two 100mm steel butts without striking plate or opening in frame and prepared for roller catch or closet indicators	No	7		
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	1,2mm Double rebated pressed steel door frames suitable for one brick walls				
1	Door frame for door size 0,914 x 2,134m with two 100mm steel butts without striking plate or opening in frame and prepared for roller catch or closet indicators	No	1		
2	Door frame for door size 0,914 x 2,134m with two 100mm steel butts and slotted for lock strike	No	5		
	Aluminium windows				
	Note: Tenderers are referred to architect's drawings numbered A102 annexed to these bills of quantities/accompanying these bills of quantities for tender purposes				
	The given sizes are overall, approximate and in the order of width and height. The detailed drawings and building must be carefully checked for exact sizes before placing orders. Any errors in this respect will be at the Contractor's expense and no claims for any extras in this regard will be entertained				
	Where so described windows shall be provided with burglar bars to opening and fixed sections, consisting of 20 x 5mm galvanised mild steel flat sections to standard NBP2 pattern welded at intersections and to window frame				
	Bars in front of fixed sections to be bent 75mm away from the glass surface				
	ALUMINIUM WINDOWS, DOORS, ETC				
	Epoxy powder coated aluminium windows glazed with 6mm laminated safety glass and plugged to brickwork or concrete				
	Aluminium window low E glazing, mm Thick monolithic annealed safety glass to comply with part N of SANS 10400,aluminium frame to be powder coated COLOUR: Charcoal Grey				
3	Purpose made aluminium window size 1400mm x 450mm high overall. **Ref W1**	No	8		
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1	Purpose made aluminium window size 3855mm x 2400mm high overall. **Ref W2**	No	1		
2	Purpose made aluminium window size 1285mm x 2400mm high overall. **Ref W3**	No	5		
3	Purpose made aluminium window size 900mm x 1400mm high overall. **Ref W4**	No	10		
4	Purpose made aluminium window size 800mm x 450mm high overall. **Ref W5**	No	6		
5	Purpose made aluminium window size 2485mm x 450mm high overall. **Ref W6**	No	6		
6	Purpose made aluminium window size 2485mm x 450mm high overall. **Ref W7**	No	6		
7	Purpose made aluminium window size 7570mm x 1850mm high overall. **Ref W8**	No	1		
8	Purpose made aluminium window size 2100mm x 2400mm high overall. **Ref W10**	No	1		
	STEEL STRONGROOM DOORS, VENTILATORS, ETC.				
	Strongroom doors etc suitable for 230mm walls fixed to brickwork or concrete				
9	Mild steel "AUSTIN" save frame with hinges and fitments and mild steel austin save door complete with fitments and ironmongery as supplied by manufacturer.	No	1		
	ALUMINIUM DOORS				
	Epoxy coated anodised aluminium doors, sidelights and fanlights glazed with 6mm laminated safety glass and plugged to brickwork or concrete				
	Aluminium door low E glazing, mm Thick monolithic annealed safety glass to comply with part N of SANS 10400,aluminium frame to be powder coated COLOUR: Charcoal Grey				
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SKILLS CENTRE
Bill No. 10
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	Aluminium frame section measuring 75mm x 75mm, anodised weather bar strip on all external doors, Including locks as per ironmongery schedule.				
1	Purpose made aluminium door size 900mm x 2400mm high overall. **Ref W9**	No	1		
2	Purpose made aluminium door size 1800mm x 2400mm high overall. **Ref D-1**	No	2		
3	Purpose made aluminium door size 1800mm x 2400mm high overall. **Ref D-3**	No	3		
	Sheerline or equal aluminium door frame as per AAAMSA regulations				
4	Purpose made aluminium door size 900mm x 2100mm high overall. **Ref D-4**	No	4		
	ALUMINIUM SHOPFRONTS				
	Epoxy coated anodised aluminium doors, sidelights and fanlights glazed with 6mm laminated safety glass and plugged to brickwork or concrete				
	Aluminium door low E glazing, mm Thick monolithic annealed safety glass to comply with part N of SANS 10400,aluminium frame to be powder coated COLOUR: Charcoal Grey				
	Aluminium frame section measuring 75mm x 75mm, anodised weather bar strip on all external doors, Including locks as per ironmongery schedule.				
5	Purpose made aluminium door size 2960mm x 1600mm high overall sliding door. **Ref W11**	No	1		
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Metalwork

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SECTION 2

BILL No. 11

STRUCTURAL STEELWORK

SUPPLEMENTARY PREAMBLES

Descriptions

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

Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork.

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.

STEEL COLUMNS AND BEAMS

STRUCTURAL STEEL MEMBERS (GALVANISED)

STANCHIONS / COLUMNS

Steel members to include welding, holes, black bolts, nuts, washers, rivets, bolting and riveting integral with structural steelwork.

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	Welded columns in single lengths with flat section base, top, bearer and connection plates bolted to ring beams.				
	219.1 x 6.0mm CHS Circular hollow section columns				
1	Column	t	3.648		
	254mm x 146mm x 31kg/m CH columns				
2	Column	t	0.125		
	203mm x 133mm x 25kg/m CH columns				
3	Column	t	0.145		
	RAFTER				
	203mm x 133mm x 25kg/m CH Rafter				
4	Rafter	t	0.100		
	254mm x 146mm x 31kg/m CH Rafter				
5	Rafter	t	1.010		
	160mm x 82mm x 16kg/m IPE Beam				
6	Beam	t	0.377		
	114 x 4.0mm CHS Circular hollow section beams				
	114 X 4.0mm Thick CHS cross members				
7	Steel tube	t	0.216		
	60.3 X 3.5mm Thick CHS cross members				
8	Steel tube	t	0.118		
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Structural steelwork

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	PURLING				
	75 x 50 x 20 x 2.5mm Purling				
1	Purling	t	0.271		
	RAFTER BRACING				
	50 X 50 X 5m L Cross bracing				
2	Cross bracing	t	0.288		
	FLATS				
	250 X 16m Thick flat bar				
3	Flats	t	0.365		
	BASE PLATES				
	360mm Dia x 16mm base plate bolted to concrete base				
4	16mm Base plate	t	0.005		
	450 x 300 x 20mm base plate				
5	20mm Base plate	t	0.022		
	220 x 220 x 12mm base plate				
6	12mm Base plate	t	0.021		
	END PLATES				
	475 x 254 x 20mm end plate				
7	20mm End plate	t	0.030		
	280 x 180 x 10mm end plate				
8	10mm End plate	t	0.022		
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Bill No. 11
Structural steelwork

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	GUSSET PLATES				
	6mm Gusset plate welded				
1	6mm Gusset plate	t	0.040		
	BOLTS				
	4.8 HD bolts (Galvanised)				
2	M16 Hd bolts	No	240.000		
	16mm Diameter G.R. 4.8 bolts welded (Galvanised)				
3	16mm Diameter bolts	No	240.000		
4	Delivery of steel structure to site	t	6.723		
5	Erection of steel structure on ready made footings	t	6.723		
6	Painting of all steel structure components	m2	144		
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Structural steelwork

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	BILL No.12				
	PLASTERING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Screeds				
	Screeds on concrete				
1	30mm Thick on floors and landings	m2	477		
	Internal Plaster				
	One coat cement plaster on concrete or brickwork				
2	On walls	m2	1 520		
3	On narrow widths	m2	49		
	One coat (3:1) cement plaster finished to a smooth and even steel trowelled surface				
	On concrete				
4	On ceilings	m2	32		
	External Plaster				
	One coat cement plaster on concrete or brickwork				
5	On walls	m2	178		
6	On narrow widths	m2	13		
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Bill No. 12
Plastering

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	BILL No. 13				
	TILING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Wall Tiling				
	198 x 198 x 6mm White glazed ceramic wall tiles fixed with an approved adhesive to plaster (plaster elsewhere) and with jointing compound				
1	To walls	m2	349		
	Floor Tiling				
	300 x 300mm x 9mm Full body porcelain tiles in matt finish laid to approved pattern using approved adhesive and grout, colour and pattern to architect's approval. The tenderer to allow an amount of R180.00 per square meter (exclusive of VAT) for the supply of tiles only and include for all waste, labour and profit in the applicable "rate"				
2	On floors	m2	477		
3	Cut tile skirting 100mm high	m	349		
	ALUMINIUM TRIMS				
	"M-trim" or "Genesis"12mm silver anodised aluminium straight edge trim to suit tile thickness with grey grout.				
4	On walls	m	71		
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	BILL No. 14				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Gutters, downpipes, etc.				
	0,6mm Galvanised sheet iron Class Z 275				
1	200 x 200mm Box rain water downpipe encased inside brick wall	m	6		
	Sanitary Fittings				
2	560 x 405mm White vitreous china wash hand basin complete with and including one chromium plated pillar tap, one tap hole plug, waste, plug and chain and concealed brackets	No	5		
3	560 x 405mm White vitreous china wash hand basin complete with and including one chromium plated elbow action pillar tap, one tap hole plug, waste, plug and chain and concealed brackets	No	1		
4	610 x 385mm White vitreous china wall urinal with top flush entry complete with and including concealed wall hangers, chromium plated waste outlet and grating, and 4,5 litre white vitreous china cistern complete with valveless syphonic fitting, ball valve, bracket, surface mounted chromium plated push button user control valve with plastic conduit pipe and chromium plated flush pipe with spreader	No	2		
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Plumbing and Drainaige (Provisional)

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1	WC suite comprising white vitreous china pan with P trap, 9 litre low-level white vitreous china cistern complete with valveless syphonic fitting, ball valve and matching flush pipe and heavy duty white single flap seat	No	5		
2	WC suite comprising of white vitreous china paraplegic 90 degrees outlet pan with P trap, 9 litre low level matching vitreous china cistern complete with valveless syphonic fitting, ball valve and matching flush pipe and heavy duty white single flap seat.	No	1		
	Taps, valves,etc				
	Traps, etc. including joints to steel pipes and/or fittings unless otherwise described				
3	32-40mm Butyl rubber deep seal P or S trap	No	7		
4	40-40mm Chromium plated bottle trap	No	3		
	Valves, etc. including joints to steel pipes and/or fittings unless otherwise described				
5	15mm Copper service pipe 350mm girth	No	7		
6	15mm Chromium plated full way ballcock shut-off control valve with screw type control	No	7		
7	15mm Sink mixer with waste union	No	7		
	Sanitary Plumbing				
	uPVC pipes and fittings				
8	50mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	38		
9	100mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	52		
	Extra over uPVC pipes for fittings				
10	100 x 50mm Reducer	No	2		
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1	100mm Bend	No	8		
2	100mm Junction	No	4		
3	100mm Pan connector	No	5		
4	100mm VP stub stack fitting with ABC cleaning eye lid and multiple connections for 50mm waste	No	2		
5	100mm Access bend	No	2		
6	100mm Access bend with anti-syphon horn	No	2		
7	100mm Access junction	No	2		
8	100mm Access reducing junction	No	2		
9	Two way PVC vent valve suitable for 50mm pipe	No	2		
	Galvanised mild steel screwed and socketed pipes and fittings				
10	50mm Pipe and excavation not exceeding 1m deep	m	30		
11	50mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	15		
	Extra over galvanised mild steel pipes for galvanised mild steel fittings				
12	50mm Bend	No	6		
13	50mm Bush	No	4		
	Extra over galvanised mild steel pipes for brass fittings				
14	50mm Bend	No	4		
15	50mm Bend with cleaning eye	No	2		
16	50mm Junction with cleaning eye	No	2		
17	50mm Reducing junction with cleaning eye	No	1		
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Plumbing and Drainaige (Provisional)

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	Sundries				
1	Wire balloon grating in top of pipe not exceeding 100mm diameter	No	2		
	Water Supply				
	Class O thin wall hard drawn copper pipes and fittings with capillary soldered type connections				
2	15mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	22		
3	15mm Pipe fixed in and including chase in walls	m	28		
	Extra over class O copper pipes for soldered capillary fittings				
4	15mm Fittings	No	40		
	Electric water heaters				
	"Kwikot" or similar approved				
5	150 Litre horizontal wall mounted electric water heater	No	1		
	Testing				
6	Provide all necessary apparatus, water, etc. for and test the whole of the Sanitary Plumbing and Water Supply installation to the satisfaction of the Representative/Agent and the Local Authority, rectify all defective work free of charge and leave in perfect order		Item		
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Plumbing and Drainaige (Provisional)

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	BILL No. 15				
	GLAZING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Mirrors				
	NOTE				
	Mirrors shall be of 6mm thick silvered GG quality polished float glass with rounded and polished edges and splayed corners				
	Unless otherwise described, mirrors shall have four holes for and be screwed to and including approved patent plugs in plastered or tiled wall with countersunk steel screws tap-threaded for and including screw type chromium plated dome-headed caps and felt washers				
	_____				
1	Mirror size 450 x 600mm	No	6		
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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 16				
	PAINTWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Paint on plaster, etc.				
	Two coats Plascon professional superior low sheen (PEM 1000) or Dulux weather guard ultra smooth adhesion promoted (D62) acrylic paint.				
1	On internal plastered walls	m2	1 110		
2	On external plastered walls	m2	178		
3	On internal plastered ceilings	m2	32		
	Paint on metal				
	Prepare, touch up factory primer and apply one coat universal undercoat and two full coats high gloss enamel paint				
4	On pressed steel door frames	m2	33		
	Prepare and apply one coat zinc phosphate alkyd resin primer, one coat universal undercoat and two full coats high gloss enamel paint				
5	On grille gates and screens (both sides measured on flat)	m2	4		
	Paint on wood				
	Carried to Summary			R	

Section 2
SKILLS CENTRE
Bill No. 16
Paintwork

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	Prepare, stop and apply three full coats polyurethane clear eggshell varnish, lightly sanded down between coats				
1	On general surfaces	m2	44		
	Prepare and apply one coat hardboard primer, one coat universal undercoat and two full coats high gloss enamel paint				
2	On general surfaces	m2	8		
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Section 2
SKILLS CENTRE
Bill No. 16
Paintwork

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Section 2

Bill No. 16

Paintwork

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SKILLS CENTRE
Bill No. 16
Paintwork

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Item No			Quantity	Rate	Amount
	SECTION 2				
	BILL No. 17				
	CONSERVANCY TANK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CONCRETE				
	Concrete test cubes				
1	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal agent. Only successful tests will be paid for (Provisional)	No	8		
	Mass concrete				
	Mass concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
2	Surface bed	m3	8		
	Reinforced concrete				
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days in				
3	Slabs	m3	5		
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Section 2
SKILLS CENTRE
Bill No. 17
Water storage

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	Sundries				
1	Finish raking top surface of concrete slabs, etc. to a smooth and even wood floated surface including additional dry sand/cement mixture added as necessary whilst the concrete is still wet	m2	56		
	FORMWORK				
	Formwork to				
2	Soffit of slabs	m2	28		
3	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	42		
	Smooth formwork to sides and soffits of rectangular beams				
4	Beams propped up exceeding 1.5m and not exceeding 3.5m high	m2	28		
	Movement Joints				
5	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	85		
	Boxing in rough formwork to form				
6	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	42		
	REINFORCEMENT				
	High tensile steel bar reinforcement to structural concrete work				
7	16mm Diameter bars	t	0.01		
8	12mm Diameter bars	t	0.01		
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Section 2
SKILLS CENTRE
Bill No. 17
Water storage

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	Mesh reinforcement				
1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	28		
	MASONRY				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
2	One brick wall	m2	88		
	Brick reinforcement				
3	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	264		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
4	230mm brickwork face brickwork.	m2	88		
	STEEL DOORS				
	Steel louvred doors				
	Aluminium screen as per specialist detail				
5	1750 x 200mm High steel door opening with steel louvred ventilation openings over at leas 60% on the door area as per Architect's specification. Make provision for knight latch and pad flock.	No	4		
	WATER STORAGE TANK				
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Section 2
SKILLS CENTRE
Bill No. 17
Water storage

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	All water tanks are to be strapped down (at each of the 4 stubs on top of the tank) to the supporting concrete base with 2 no. Off 4mm diameter fully galvanizes stay wires (allow for "turnbuckles" to tighten each of the "doubke strap"stay wires).each of the "double strap" stay wires are to be tied to a m12 eye bolt of which is to be drilled and fixed to the 4 corners of the concrete supporting base.the specification for the eye bolt is as follows : galvanised mild steel - m12 eye bolt with 25mm eye inside diameter and with 80mm long shank.				
1	5500 L polyurethane water tank with overflow and outlet stopcock to architect detail	No	4		
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Section 2
SKILLS CENTRE
Bill No. 17
Water storage

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Section 2

Bill No. 17

Water storage

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Bill No. 17
Water storage

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SUMMARY - SKILLS CENTRE

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Section 2
SKILLS CENTRE

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SECTION 3

BILL No. 1

FOUNDATIONS (PROVISIONAL)

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

NOTE IN RESPECT OF REMEASUREMENT OF FOUNDATIONS

Foundation brickwork and concrete walls have been measured to top of unfinished floor level

_____

EARTHWORKS

NOTE

All excavations are measured as being in "earth" and/or filling compacted to 95% modified AASHTO density

Descriptions of excavations shall be deemed to include for setting aside surplus excavated material in spoil heaps for use as filling, or for depositing within 150m of the perimeter of the excavations and spreading and roughly levelling as directed, as well as for increase in bulk and multiple handling of excavated material caused by the Contractor's method of operation

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site and for bulking

Carried to Summary R

Section 3
SIMULATION ROOM
Bill No. 1
Foundations (Provisional)

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	Working space for formwork to sides of all concrete, except columns, shall be measured only where the concrete face is less than 750mm from the face of the measured excavations Working space for formwork to sides of columns shall be measured for the width of the column face only where both: the top of the column base is more than 1,5m below the commencing level of the excavations and the column face is less than 500mm from the face of the measured excavations No claim shall be considered for any working space for formwork to concrete other than as above described or for working space beyond the sides of trench excavations for the building of brick or block walls Descriptions of excavations for working space shall be deemed to include for any additional risk of collapse so incurred and for the returning and compacting of the excavated material as described _____				
	Excavations				
	Excavate in earth not exceeding 2m deep below natural, elevated or reduced ground level for				
1	Trenches	m3	17		
2	Holes	m3	2		
	(End of excavations in earth)				
3	Extra over all excavations for carting away surplus material from excavations and/or from stockpiles on site to a dumping site to be located by the Contractor	m3	19		
4	Risk of collapse of sides of reduced level excavations from natural, elevated or reduced ground level to not exceeding 1,5m deep	m2	72		
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Section 3
SIMULATION ROOM
Bill No. 1
Foundations (Provisional)

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1	Allow for keeping excavations free of all water other than subterranean water		Item		
	Filling, etc.				
2	150mm Thick Rip & Re-compact insitu material to 98% MOD.AASHTO at OMC	m3	28		
3	150mm Thick G5 Layer compacted to 98% MOD.AASHTO at OMC	m3	56		
	Tests				
4	Tests to determine the degree of compaction, etc. of ground or filling	No	4		
	Protection against termites				
5	Poisoning surface of ground in bottoms of trenches, bases, etc.	m2	104		
6	Poisoning surface of ground or filling under floors, steps, etc. including raking out 75mm deep V-shaped channels against the walls, etc. treating with poison solution, backfilling and ramming	m2	113		
	CONCRETE				
	Concrete test cubes				
7	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal Agent. Only successful tests will be paid for (Provisional)	No	4		
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
8	Bases	m3	2		
9	Ground beams	m3	13		
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Section 3
SIMULATION ROOM
Bill No. 1
Foundations (Provisional)

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1	In surface beds cast in panels on waterproofing (elsewhere)	m3	19		
	Sundries				
2	Finish top surface of concrete slabs, etc. to a smooth and even power floated surface	m2	113		
	FORMWORK				
	ROUGH FORMWORK (DEGREE OF ACCURACY III)				
	Rough formwork to sides				
3	Rectangular ground beams	m2	68		
	Movement Joints				
4	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	42		
	Saw cut joints				
5	6 x 20mm Saw cut joints in top of concrete	m	24		
	Construction joints				
6	Construction joints	m	42		
	Boxing in rough formwork to form				
7	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	219		
	REINFORCEMENT				
	High tensile steel reinforcement to structural concrete work				
8	16mm Diameter bars	t	1.50		
9	12mm Diameter bars	t	1.50		
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Mesh reinforcement

1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	113		

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Section 3
SIMULATION ROOM
Bill No. 1
Foundations (Provisional)

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Section 3

Bill No. 1

Foundations (Provisional)

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Bill No. 1
Foundations (Provisional)

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	BILL No. 2				
	CONCRETE, FORMWORK AND REINFORCEMENT				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CONCRETE				
	Concrete test cubes				
1	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal agent. Only successful tests will be paid for (Provisional)	No	4		
	Mass concrete				
	Mass concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
2	In ramps	m3	1		
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	SECTION 3				
	BILL No. 3				
	MASONRY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
1	Piers	m3	15		
2	Half brick wall in beamfilling	m2	12		
3	One brick wall	m2	188		
	Brick reinforcement				
4	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	819		
	Joint forming material in movement joints				
5	38 x 1,6mm Galvanised hoop iron roof tie with one end built six courses deep into top of brickwork and other end wrapped around and nailed to trusses	No	130		
	Nutec Cement/Fibre-cement window cills				
6	Internal window sill 100mm wide	m	4		
	Prestressed concrete lintels				
7	110 x 75mm Lintels in lengths not exceeding 3m	m	8		
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Section 3
SIMULATION ROOM
Bill No. 3
Masonry

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1	110 x 75mm Lintels in lengths exceeding 3m not exceeding 4.5m	m	28		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
2	230mm brickwork face brickwork.	m2	48		
	WINDOW CILLS				
	Facebrick on edge window sills				
3	Window sill, facebrick on edge	m	4		
	PAVING				
	Paving of clay-brick pavers laid with butt joints to stretcher bond pattern on and including 25mm thick river-sand bed with sand & cement mixture swept into joints and hosed down, including weed killer and preparation of ground				
4	Paving to entrance walkway areas, aprons, etc to falls	m2	66		
5	220mm Wide brick-on-flat header course edging on 75mm thick mortar bed	m	44		
6	Fair raking cutting	m	44		
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Section 3
SIMULATION ROOM
Bill No. 3
Masonry

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Bill No. 3

Masonry

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Masonry

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	SECTION 3				
	BILL No. 4				
	WATERPROOFING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	DAMP-PROOFING TO WALLS				
1	375 Micron embossed black polyethylene damp-proof course to walls, cills, etc. (measured net)	m2	113		
	DAMP-PROOFING UNDER FLOORS, ETC.				
	Colour coded polyethylene sheeting complying with SANS 952, Type C in widest practicable widths with all joints lapped and sealed in accordance with the manufacturer's instructions				
2	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) under solid floors with pressure sensitive tape jointing	m2	113		
3	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) to under sides and both sides of ground beams	m2	104		
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SECTION 3

BILL No. 5

ROOF COVERINGS, ETC.

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

PROFILED METAL SHEETING AND ACCESSORIES

0.58mm Thick concealed fixing roofing sheets manufactured from roll-formed from certified steel complying with ISQ 550 (3T). The profile shall have three trapezoidal ribs at 203mm centers giving a net cover of 406mm. The rib height shall be 41mm and provide capillary breaks. The male rib shall have spurs at 283mm centers to ensure a positive double interlocking action at side-laps. Each pan shall incorporate two stiffener ribs. Profiled roof sheets to be coated on both sides with "Global Coat" or "Chromadek Colour" and laid on structural timber/steel structure incorporating all necessary accessories such as flashings and eave closers in strict compliance to manufacturer's instructions

Note

The Contractor is to submit a certificate signed by the merchant, stating that the galvanised roof covering supplied complies with the required thickness specified

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Chromadek roof sheeting 50mm x 50mm purlins on appro. Underlay on prefabricated trusses to specialist details at max 1200mm centre to centre to Engineers details at 5° roof pitch

1	0,58mm Roof sheeting with pitch not exceeding 25° fixed to timber purlins (elsewhere)	m2	142		

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SIMULATION ROOM
Bill No. 5
Roof Coverings, etc

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1	0.58mm Sheet iron side wall flashing 370mm girth	m	49		
	ROOF AND WALL INSULATION				
	50mm Thick Approved FBL foll backed aluminium blanket				
2	Insulation blanket laid taut over purlins (at approximately 1000mm centres) and fixed concurrent with roof covering with stapled longitudinal flap joints, including fixing at top and bottom edges to purlins with and including hoop iron straps	m2	142		
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Bill No. 5
Roof Coverings, etc

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Bill No. 5

Roof Coverings, etc

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Bill No. 5
Roof Coverings, etc

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SECTION 3

BILL No. 6

CARPENTRY AND JOINERY

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

TIMBER

All softwood to be South African Pine

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Section 3
SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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DESCRIPTIONS

The term "planted on" shall mean the nailing of one timber member to another

The term "screwed on" shall mean the countersunk screwing of one timber member to another

The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screws sunk and pelleted

The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete

The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screws sunk and pelleted

Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing

Descriptions of floors, ceilings, joinery, etc. shall be deemed to include for all square cutting

Descriptions of items given in lineal metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc.

Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc. shall be deemed to include for angles, ends, etc.

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Prefabricated metal connector plate timber roof trusses

Roofs, etc

Carried to Summary R

Section 3
SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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Allow for the preparation and submission of the following documents (applicable to ALL roofs), inclusive of Detailed shop drawings indicating truss sizes, truss positions, bracings, etc to be submitted for approval prior to commencement of fabrication,Design certificate indicating the licensed programme used, SANS specifications adhered to, general procedures and loading adopted, sizes and grading of timber components, details, etc.

NOTE:

a. All the roof trusses to be at average 1177mm centres and constructed for a 15 degrees pitch unless otherwise stated

b. All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take corrugated roof covering, purlins and fibre cement or gypsum plasterboard ceilings with brandering. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

c. Unless otherwise described all rafter feet are to extend 770mm beyond the length of the tie beam, with ends twice splay cut

d. The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer in accordance with SANS 0243 and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Principal Agent

e. The tenderer's attention is drawn to the fact that the Architect's roof truss drawings only represent the overall size and bearing points of the trusses and not the required design.

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Section 3
SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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	f. Erection must be carried out as described in "The Erection and Bracing of Timber Roof Trusses" published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. g. Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing. ----------				
1	Mono pitch roof truss size 9.484m long x 2.4m high	No	5.00		
	Sundry roof timbers				
	Sawn Softwood (Grade 5)				
2	38 x 114mm Wall plate	m	44		
3	50 x 76mm Purlin including additional timber supports at spliced joints	m	32		
	Roof sundries				
4	Galvanised mild steel hurricane type fixing clips nailed between rafter and purlin connection (Provisional)	No	50		
	Wood preservative				
5	Two coats wood preservative applied hot on wrought exposed roof timbers	m2	228		
	Fascias and bargeboards				
	Tempered fibre-cement				
6	15 x 225mm Fascia board countersunk screwed to roof timbers (elsewhere) with two brass screws at maximum 1200mm centres and jointed with and including standard aluminium halfround cover strips at all joints	m	30		
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Section 3
SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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1	15 x 225mm Barge board countersunk screwed to roof timbers (elsewhere) with two brass screws at maximum 1200mm centres and nailed with steel nails into mortar joints at maximum 750mm centres and jointed with and including standard aluminium halfround cover strips at all joints	m	19		
	FITTINGS				
	General				
	The following cupboard fittings have been measured as complete units i.e. the components of the units have not been separately measured. The descriptions, therefore, of such units shall be deemed to include all components, assembling, housing, notching, glueing, blocking, planting on and screwing with countersunk screws, edge strips, decorative plastic finish, glass, ironmongery, metalwork, paint or varnish finishes, etc (refer Architect's drawings as attached to the back of these Bills of Quantities)				
	Fittings to Administration Building				
	Cupboard: Length 8383mm, 900mm high with Rusternburg Granite worktop with bullnose edge, Windsor Cherry Melamine door fronts with 16mm x 2mm PVC edging strips, 8 Number 128Euro H-011 Alluminium cupboard door pull fitted horizontally with steel self tapper screw and 2 No. Sink 1140mm long stainless steel grade 304 (18/8) on baked enamel steel cupboard with 1 shelf and 3 swing doors as per Architect's drawing				
2	Kitchen cupboard **Length 8383mm, 900mm high** (Provisional)	No	1		
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Section 3
SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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	Store room shelving with back uprights screwed to wall with three masonry wall plugs, 24mm wrought laminated SA pine shelves in running lenghts, fixed with two selftaping screws per rail. Provide butt joints at center of rail where necessary. 18mm x 76mm SA pine filler piece flush with front of shelf. 18mm x 76mm SA pine filler piece flush with top of shelf, Finish as for shelf. Cut to fit between uprights. Finish as for shelf. Cut to fit between rails as per drawing No: DT 54				
1	Store room shelving, 1400mm length and 2000mm height (Provisional)	No	4		
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SIMULATION ROOM
Bill No. 6
Carpentry and Joinery

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Section 3

Bill No. 6

Carpentry and Joinery

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Bill No. 6
Carpentry and Joinery

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SECTION 3

BILL No. 7

IRONMONGERY

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

Where ironmongery is described as plugged, prices are to include for screwing to and including approved patent plugs in concrete or brickwork with plaster or tiled finish

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Kitchen Cupboard Units

NOTE

The kitchen cupboard units shall be of steel construction with baked enamel finish of approved colour with 18mm interior particle board worktops finished on one side and on edges with 1,2mm standard grade high pressure plastic laminate of approved pattern and colour

Adjacent worktops of different units shall be neatly butt-jointed and finished off with matching cover strips and prices are to include for same

All doors are to be supplied with standard locks and duplicate keys and prices of units are to include for lockable doors where applicable

Prices for sink units are to include for stainless steel sinks with draining boards with single or double sinks, each complete with chromium plated flanged waste fitting, plug and chain

Prices for all units are to include for fixing in position to plastered walls and on floors with screed, protecting against injury and cleaning down on completion

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Section 3
SIMULATION ROOM
Bill No. 7
Ironmongery

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	Floor and sink units				
1	Sink unit 1350mm long with single bowl sink and drainer, one shelf and three doors	No	1		
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SIMULATION ROOM
Bill No. 7
Ironmongery

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Bill No. 7

Ironmongery

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Bill No. 7
Ironmongery

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	BILL No. 8				
	METALWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CLE-VU GATES				
1	Single gate size 1600mm x 2067mm high Cle-Vu	No	1		
	STEEL ROLLER SHUTTERS ETC				
2	Manual push-up slatted roller shutter for 2400 x 2500mm high opening	No	1		
	GALVANISED SCREENS				
3	Mild steel galvanised screen size 3500 x 300mm High	No	2		
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Section 3
SIMULATION ROOM
Bill No. 8
Metalwork

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Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL No.9				
	PLASTERING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Screeds				
	Grano on concrete				
1	30mm Thick grano on floors and landings	m2	113		
	Internal Plaster				
	One coat cement plaster on concrete or brickwork				
2	On walls	m2	388		
3	On narrow widths	m2	84		
	External Plaster				
	One coat cement plaster on concrete or brickwork				
4	On walls	m2	66		
5	On narrow widths	m2	4		
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Section 3
SIMULATION ROOM
Bill No. 9
Plastering

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Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL No. 10				
	TILING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Wall Tiling				
	198 x 198 x 6mm White glazed ceramic wall tiles fixed with an approved adhesive to plaster (plaster elsewhere) and with jointing compound				
1	To walls	m2	10		
	ALUMINIUM TRIMS				
	"M-trim" or "Genesis"12mm silver anodised aluminium straight edge trim to suit tile thickness with grey grout.				
2	On walls	m	4		
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Section 3
SIMULATION ROOM
Bill No. 10
Tiling

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Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL No. 11				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Taps, valves,etc				
	Traps, etc. including joints to steel pipes and/or fittings unless otherwise described				
1	32-40mm Butyl rubber deep seal P or S trap	No	1		
2	40-40mm Chromium plated bottle trap	No	1		
	Valves, etc. including joints to steel pipes and/or fittings unless otherwise described				
3	15mm Copper service pipe 350mm girth	No	1		
4	15mm Chromium plated full way ballcock shut-off control valve with screw type control	No	1		
5	15mm Sink mixer with waste union	No	1		
	Sanitary Plumbing				
	uPVC pipes and fittings				
6	50mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	10		
7	100mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	12		
	Carried to Summary			R	

Section 3
SIMULATION ROOM
Bill No. 11
Plumbing and Drainaige (Provisional)

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	Extra over uPVC pipes for fittings				
1	100 x 50mm Reducer	No	2		
2	100mm Bend	No	2		
3	100mm Junction	No	2		
	Water Supply				
	Class O thin wall hard drawn copper pipes and fittings with capillary soldered type connections				
4	15mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	5		
5	15mm Pipe fixed in and including chase in walls	m	4		
	Extra over class O copper pipes for soldered capillary fittings				
6	15mm Fittings	No	8		
	Electric water heaters				
	"Kwikot" or similar approved				
7	150 Litre horizontal wall mounted electric water heater	No	1		
	Testing				
8	Provide all necessary apparatus, water, etc. for and test the whole of the Sanitary Plumbing and Water Supply installation to the satisfaction of the Representative/Agent and the Local Authority, rectify all defective work free of charge and leave in perfect order		Item		
	Carried to Summary			R	

Section 3
SIMULATION ROOM
Bill No. 11
Plumbing and Drainaige (Provisional)

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Section 3

Bill No. 11

Plumbing and Drainaige (Provisional)

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SIMULATION ROOM
Bill No. 11
Plumbing and Drainaige (Provisional)

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Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL No. 12				
	PAINTWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Paint on plaster, etc.				
	Two coats Plascon professional superior low sheen (PEM 1000) or Dulux weather guard ultra smooth adhesion promoted (D62) acrylic paint.				
1	On internal plastered walls	m2	388		
2	On external plastered walls	m2	66		
	Paint on metal				
	Prepare and apply one coat zinc phosphate alkyd resin primer, one coat universal undercoat and two full coats high gloss enamel paint				
3	On grille gates and screens (both sides measured on flat)	m2	15		
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Section 3
SIMULATION ROOM
Bill No. 12
Paintwork

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Item No			Quantity	Rate	Amount
	SECTION 3				
	BILL No. 13				
	CONSEVANCY TANK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CONCRETE				
	Concrete test cubes				
1	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal agent. Only successful tests will be paid for (Provisional)	No	1		
	Mass concrete				
	Mass concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
2	Surface bed	m3	2		
	Reinforced concrete				
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days in				
3	Slabs	m3	1		
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Section 3
SIMULATION ROOM
Bill No. 13
Water storage

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	Sundries				
1	Finish raking top surface of concrete slabs, etc. to a smooth and even wood floated surface including additional dry sand/cement mixture added as necessary whilst the concrete is still wet	m2	14		
	FORMWORK				
	Formwork to				
2	Soffit of slabs	m2	7		
3	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	11		
	Smooth formwork to sides and soffits of rectangular beams				
4	Beams propped up exceeding 1.5m and not exceeding 3.5m high	m2	7		
	Movement Joints				
5	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	21		
	Boxing in rough formwork to form				
6	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	11		
	REINFORCEMENT				
	High tensile steel bar reinforcement to structural concrete work				
7	16mm Diameter bars	t	0.01		
8	12mm Diameter bars	t	0.01		
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Section 3
SIMULATION ROOM
Bill No. 13
Water storage

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	Mesh reinforcement				
1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	7		
	MASONRY				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
2	One brick wall	m2	22		
	Brick reinforcement				
3	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	66		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
4	230mm brickwork face brickwork.	m2	22		
	STEEL DOORS				
	Steel louvred doors				
	Aluminium screen as per specialist detail				
5	1750 x 200mm High steel door opening with steel louvred ventilation openings over at leas 60% on the door area as per Architect's specification. Make provision for knight latch and pad flock.	No	1		
	WATER STORAGE TANK				
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Section 3
SIMULATION ROOM
Bill No. 13
Water storage

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	All water tanks are to be strapped down (at each of the 4 stubs on top of the tank) to the supporting concrete base with 2 no. Off 4mm diameter fully galvanizes stay wires (allow for "turnbuckles" to tighten each of the "doubke strap"stay wires).each of the "double strap" stay wires are to be tied to a m12 eye bolt of which is to be drilled and fixed to the 4 corners of the concrete supporting base.the specification for the eye bolt is as follows : galvanised mild steel - m12 eye bolt with 25mm eye inside diameter and with 80mm long shank.				
1	5500 L polyurethane water tank with overflow and outlet stopcock to architect detail	No	1		
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Section 3
SIMULATION ROOM
Bill No. 13
Water storage

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Section 3

Bill No. 13

Water storage

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SIMULATION ROOM
Bill No. 13
Water storage

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SUMMARY - SIMULATION ROOM

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Section 3
SIMULATION ROOM

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Item No		Quantity	Rate	Amount

SECTION 4

BILL No. 1

FOUNDATIONS (PROVISIONAL)

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

NOTE IN RESPECT OF REMEASUREMENT OF FOUNDATIONS

Foundation brickwork and concrete walls have been measured to top of unfinished floor level

_____

EARTHWORKS

NOTE

All excavations are measured as being in "earth" and/or filling compacted to 95% modified AASHTO density

Descriptions of excavations shall be deemed to include for setting aside surplus excavated material in spoil heaps for use as filling, or for depositing within 150m of the perimeter of the excavations and spreading and roughly levelling as directed, as well as for increase in bulk and multiple handling of excavated material caused by the Contractor's method of operation

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site and for bulking

Carried to Summary R

Section 4
GATE HOUSE
Bill No. 1
Foundations (Provisional)

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	Working space for formwork to sides of all concrete, except columns, shall be measured only where the concrete face is less than 750mm from the face of the measured excavations Working space for formwork to sides of columns shall be measured for the width of the column face only where both: the top of the column base is more than 1,5m below the commencing level of the excavations and the column face is less than 500mm from the face of the measured excavations No claim shall be considered for any working space for formwork to concrete other than as above described or for working space beyond the sides of trench excavations for the building of brick or block walls Descriptions of excavations for working space shall be deemed to include for any additional risk of collapse so incurred and for the returning and compacting of the excavated material as described _____ **Excavations** **Excavate in earth not exceeding 2m deep below natural, elevated or reduced ground level for**				
1	Trenches	m3	8		
2	Holes	m3	2		
	(End of excavations in earth)				
3	Extra over all excavations for carting away surplus material from excavations and/or from stockpiles on site to a dumping site to be located by the Contractor	m3	10		
4	Risk of collapse of sides of reduced level excavations from natural, elevated or reduced ground level to not exceeding 1,5m deep	m2	32		
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Section 4
GATE HOUSE
Bill No. 1
Foundations (Provisional)

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1	Allow for keeping excavations free of all water other than subterranean water		Item		
	Filling, etc.				
2	150mm Thick Rip & Re-compact insitu material to 98% MOD.AASHTO at OMC	m3	12		
3	150mm Thick G5 Layer compacted to 98% MOD.AASHTO at OMC	m3	12		
	Tests				
4	Tests to determine the degree of compaction, etc. of ground or filling	No	4		
	Protection against termites				
5	Poisoning surface of ground in bottoms of trenches, bases, etc.	m2	49		
6	Poisoning surface of ground or filling under floors, steps, etc. including raking out 75mm deep V-shaped channels against the walls, etc. treating with poison solution, backfilling and ramming	m2	78		
	CONCRETE				
	Concrete test cubes				
7	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal Agent. Only successful tests will be paid for (Provisional)	No	4		
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
8	Bases	m3	2		
9	Ground beams	m3	8		
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Section 4
GATE HOUSE
Bill No. 1
Foundations (Provisional)

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1	In surface beds cast in panels on waterproofing (elsewhere)	m3	8		
	Sundries				
2	Finish top surface of concrete slabs, etc. to a smooth and even power floated surface	m2	78		
	FORMWORK				
	ROUGH FORMWORK (DEGREE OF ACCURACY III)				
	Rough formwork to sides				
3	Rectangular ground beams	m2	49		
	Movement Joints				
4	Movement joint not exceeding 300mm wide formed of 13mm bitumen impregnated soft board placed vertically in position in concrete floor	m	25		
	Saw cut joints				
5	6 x 20mm Saw cut joints in top of concrete	m	10		
	Construction joints				
6	Construction joints	m	25		
	Boxing in rough formwork to form				
7	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	64		
	REINFORCEMENT				
	High tensile steel reinforcement to structural concrete work				
8	16mm Diameter bars	t	0.10		
9	12mm Diameter bars	t	0.11		
	Carried to Summary			R	

Section 4
GATE HOUSE
Bill No. 1
Foundations (Provisional)

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4	5	6

	Mesh reinforcement				
1	Mesh reinforcement with mesh reference number 193 laid in surface beds with 300mm wide side and end laps (measured net)	m2	78		
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Section 4
GATE HOUSE
Bill No. 1
Foundations (Provisional)

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Section 4

Bill No. 1

Foundations (Provisional)

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GATE HOUSE
Bill No. 1
Foundations (Provisional)

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 2				
	CONCRETE, FORMWORK AND REINFORCEMENT				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	CONCRETE				
	Reinforced concrete				
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days in				
1	Rectangular columns	m3	0.5		
2	Rectangular beams	m3	1		
	FORMWORK				
	Formwork to				
3	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	7		
	Smooth formwork to sides and soffits of rectangular beams				
4	Beams propped up exceeding 1.5m and not exceeding 3.5m high	m2	2		
	Smooth formwork to sides and soffits				
5	Column	m2	8		
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4	5	6

	Boxing in rough formwork to form				
1	100 x 100mm Chamfers along top or bottom edges of ground beams perpendicular to the sofit of surface bed.	m	51		
	REINFORCEMENT				
	High tensile steel bar reinforcement to structural concrete work				
2	16mm Diameter bars	t	0.20		
3	12mm Diameter bars	t	0.20		
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Section 4
GATE HOUSE
Bill No. 2
Concrete, Formwork and Reinforcement

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Section 4

Bill No. 2

Concrete, Formwork and Reinforcement

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GATE HOUSE
Bill No. 2
Concrete, Formwork and Reinforcement

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 3				
	MASONRY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
1	Half brick wall	m2	6		
2	Half brick wall in beamfilling	m2	4		
3	One brick wall	m2	42		
	Brick reinforcement				
4	Brick reinforcement 75mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	30		
5	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	126		
	Joint forming material in movement joints				
6	38 x 1,6mm Galvanised hoop iron roof tie with one end built six courses deep into top of brickwork and other end wrapped around and nailed to trusses	No	29		
	Nutec Cement/Fibre-cement window cills				
7	Internal window sill 100mm wide	m	8		
8	External window sill 100mm wide set sloping	m	8		
	Carried to Summary			R	

Section 4
GATE HOUSE
Bill No. 3
Masonry

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	Prestressed concrete lintels				
1	110 x 75mm Lintels in lengths not exceeding 3m	m	12		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
2	230mm brickwork face brickwork.	m2	42		
	WINDOW CILLS				
	Facebrick on edge window sills				
3	Window sill, facebrick on edge	m	8		
	Galvanised hoop iron cramps, ties, etc				
4	50 x 1.5mm Wall tie 605mm long, five times bent along length, with one end shot-pinned to concrete and the other end built into brickwork	No	29		
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GATE HOUSE
Bill No. 3
Masonry

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Section 4

Bill No. 3

Masonry

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GATE HOUSE
Bill No. 3
Masonry

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 4				
	WATERPROOFING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	DAMP-PROOFING TO WALLS				
1	375 Micron embossed black polyethylene damp-proof course to walls, cills, etc. (measured net)	m2	55		
	DAMP-PROOFING UNDER FLOORS, ETC.				
	Colour coded polyethylene sheeting complying with SANS 952, Type C in widest practicable widths with all joints lapped and sealed in accordance with the manufacturer's instructions				
2	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) under solid floors with pressure sensitive tape jointing	m2	24		
3	250 Micron green medium density damp-proof membrane laid loose on top of sand bed (elsewhere) to under sides and both sides of ground beams	m2	10		
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Item No		Quantity	Rate	Amount

SECTION 4

BILL No. 5

ROOF COVERINGS, ETC.

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

PROFILED METAL SHEETING AND ACCESSORIES

0.58mm Thick concealed fixing roofing sheets manufactured from roll-formed from certified steel complying with ISQ 550 (3T). The profile shall have three trapezoidal ribs at 203mm centers giving a net cover of 406mm. The rib height shall be 41mm and provide capillary breaks. The male rib shall have spurs at 283mm centers to ensure a positive double interlocking action at side-laps. Each pan shall incorporate two stiffener ribs. Profiled roof sheets to be coated on both sides with "Global Coat" or "Chromadek Colour" and laid on structural timber/steel structure incorporating all necessary accessories such as flashings and eave closers in strict compliance to manufacturer's instructions

Note

The Contractor is to submit a certificate signed by the merchant, stating that the galvanised roof covering supplied complies with the required thickness specified

_____

Chromadek roof sheeting 50mm x 50mm purlins on appro. Underlay on prefabricated trusses to specialist details at max 1200mm centre to centre to Engineers details at 5° roof pitch

1	0,58mm Roof sheeting with pitch not exceeding 25° fixed to timber purlins (elsewhere)	m2	52		

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Section 4
GATE HOUSE
Bill No. 5
Roof Coverings, etc

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1	0.58mm Sheet iron side wall flashing 370mm girth	m	29		
	ROOF AND WALL INSULATION				
	50mm Thick Approved FBL foll backed aluminium blanket				
2	Insulation blanket laid taut over purlins (at approximately 1000mm centres) and fixed concurrent with roof covering with stapled longitudinal flap joints, including fixing at top and bottom edges to purlins with and including hoop iron straps	m2	52		
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GATE HOUSE
Bill No. 5
Roof Coverings, etc

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Section 4

Bill No. 5

Roof Coverings, etc

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GATE HOUSE
Bill No. 5
Roof Coverings, etc

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SECTION 4

BILL No. 6

CARPENTRY AND JOINERY

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

TIMBER

All softwood to be South African Pine

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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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DESCRIPTIONS

The term "planted on" shall mean the nailing of one timber member to another

The term "screwed on" shall mean the countersunk screwing of one timber member to another

The term "screwed on and pelleted" shall mean the screwing of one timber member to another with the heads of screws sunk and pelleted

The term "plugged" shall mean the countersunk screwing of a timber member to and including plastic plugs in brickwork or concrete

The term "plugged and pelleted" shall mean the screwing of a timber member to and including plastic plugs in brickwork or concrete with heads of screws sunk and pelleted

Shelving, etc. described as screwed to steel must be fixed from underside and prices are to include for countersunk drilling through the steel for screw fixing

Descriptions of floors, ceilings, joinery, etc. shall be deemed to include for all square cutting

Descriptions of items given in lineal metre shall be deemed to include for mitres, stopped ends, fitted intersections, etc.

Descriptions of rounded angles, rebates, grooves, chamfers, moulded edges, etc. shall be deemed to include for angles, ends, etc.

Prefabricated metal connector plate timber roof trusses

Roofs, etc

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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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Allow for the preparation and submission of the following documents (applicable to ALL roofs), inclusive of Detailed shop drawings indicating truss sizes, truss positions, bracings, etc to be submitted for approval prior to commencement of fabrication,Design certificate indicating the licensed programme used, SANS specifications adhered to, general procedures and loading adopted, sizes and grading of timber components, details, etc.

NOTE:

a. All the roof trusses to be at average 1177mm centres and constructed for a 15 degrees pitch unless otherwise stated

b. All the roof trusses to be designed and constructed with softwood structural timber to include for live loads, wind loads and to take corrugated roof covering, purlins and fibre cement or gypsum plasterboard ceilings with brandering. Each roof truss shall have all its members accurately cut and close butted together and rigidly fixed by CSIR approved patented galvanized metal spiked connectors, fixed on both sides of each intersection by an approved method, all in accordance with the manufacturer's instructions.

c. Unless otherwise described all rafter feet are to extend 770mm beyond the length of the tie beam, with ends twice splay cut

d. The design, manufacture and transportation of the roof trusses, bracing, etc. shall be under the control of a registered Engineer in accordance with SANS 0243 and it shall be required from the manufacturer of the trusses to lodge a written guarantee that his construction has been designed by a qualified Structural Engineer and that he is in possession of a capability certificate issued by the Institute for Timber Construction and approved by the Principal Agent

e. The tenderer's attention is drawn to the fact that the Architect's roof truss drawings only represent the overall size and bearing points of the trusses and not the required design.

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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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	f. Erection must be carried out as described in "The Erection and Bracing of Timber Roof Trusses" published by the Truss Plate Association of South Africa Ltd. and the National Timber Research Institute, CSIR. g. Descriptions of roof trusses shall be deemed to include for design, manufacture, supply, hoisting and fixing in position, trimming ends, notching, etc. and for any temporary bracing. ----------				
1	Mono pitch roof truss size 8.902m long x 2.4m high	No	3.00		
	Sundry roof timbers				
	Sawn Softwood (Grade 5)				
2	38 x 114mm Wall plate	m	16		
3	50 x 76mm Purlin including additional timber supports at spliced joints	m	160		
	Roof sundries				
4	Galvanised mild steel hurricane type fixing clips nailed between rafter and purlin connection (Provisional)	No	60		
	Wood preservative				
5	Two coats wood preservative applied hot on wrought exposed roof timbers	m2	128		
	Doors NOTE All framed and ledged batten doors and combination doors, where battens are utilised, shall only be of construction acceptable to the Department, i.e. mortice and tenon where the tenon is exposed on the outside edges of styles and where the tenon is wedged to form a dovetailed shape				
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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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	40mm Thick flush panel maple veneered door with lightweight core filling				
1	40mm x 0,820 x 2,032m Framed, ledged and braced batten door formed of 40 x 110mm styles and top rail, 20 x 225mm bottom ledge, 20 x 150mm middle ledge and 20 x 110mm diagonal braces, filled in flush one side with 20 x 75mm tongued, grooved and V-jointed both sides vertical boarding fixed in and including grooves in styles and top rail	No	1		
	Solid laminated flush panel doors with hardboard face suitable for paint both sides and two wrought Meranti concealed vertical edge strips				
2	40mm x 0,813 x 1,882m Door	No	1		
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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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Section 4

Bill No. 6

Carpentry and Joinery

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Section 4
GATE HOUSE
Bill No. 6
Carpentry and Joinery

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 7				
	CEILINGS, PARTITIONS AND ACCESS FLOORING				
	PREAMBLES				
	For preambles see "Specification of Material and Method to be used PW371"				
	SUPPLEMENTARY PREAMBLES				
	Descriptions:				
	Items described as "nailed" shall be deemed to be fixed with hardened steel nails or pins or shot pinned to brickwork or concrete				
	Items described as "plugged" shall be deemed to include screwing to fibre, plastic or metal plugs at not exceeding 600mm centres, and where described as "bolted" the bolts have been given elsewhere				
	CEILINGS ETC				
	SUSPENDED CEILINGS				
	1200 x 600 x 6mmThick Fibre cement vinyl clad ceiling boards on pre-painted exposed tee suspension system including main and cross tees, necessary hangers, grids, etc all as per manufacturer's instruction.				
1	Ceilings suspended not exceeding 1m below timber purlins at 2,00m centres.	m2	5		
2	"Shadowline" pre painted cornice, nailed	m	9		
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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 8				
	IRONMONGERY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Where ironmongery is described as plugged, prices are to include for screwing to and including approved patent plugs in concrete or brickwork with plaster or tiled finish				
	_____				
	The following ironmongery fixed to doors, etc.				
	Bolts and latches				
1	Roller ball catch for toilet doors and keep fixed to steel	No	1		
2	150mm Satin chrome flush bolt with a short length of brass tubing let into concrete floor as keep	No	1		
	Locks				
	The following locks are to be suitable for master key operation.				
3	Bathroom/WC mortice indicator lock set with satin chrome furniture	No	1		
4	75mm Three lever upright mortice lockset with satin chrome furniture	No	1		
	Sundries				
5	38mm Rubber door stop plugged and screwed to wall or floor	No	2		
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Section 4
GATE HOUSE
Bill No. 8
Ironmongery

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1	19mm Stainless steel chromium plated towel rail, 600mm long, with end brackets plugged to plastered or tiled wall	No	1			
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Section 4
GATE HOUSE
Bill No. 8
Ironmongery

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Section 4

Bill No. 8

Ironmongery

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GATE HOUSE
Bill No. 8
Ironmongery

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 9				
	METALWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Door frames, Doors, Windows, etc.				
	Galvanised pressed steel door frames				
	1,2mm Double rebated pressed steel door frames suitable for half brick walls				
1	Door frame for door size 0,761 x 2,134m with two 100mm steel butts without striking plate or opening in frame and prepared for roller catch or closet indicators	No	1		
	1,2mm Double rebated pressed steel door frames suitable for one brick walls				
2	Door frame for door size 0,914 x 2,134m with two 100mm steel butts without striking plate or opening in frame and prepared for roller catch or closet indicators	No	1		
	Aluminium windows				
	Note: Tenderers are referred to architect's drawings numbered A102 annexed to these bills of quantities/accompanying these bills of quantities for tender purposes				
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Section 4
GATE HOUSE
Bill No. 9
Metalwork

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	The given sizes are overall, approximate and in the order of width and height. The detailed drawings and building must be carefully checked for exact sizes before placing orders. Any errors in this respect will be at the Contractor's expense and no claims for any extras in this regard will be entertained Where so described windows shall be provided with burglar bars to opening and fixed sections, consisting of 20 x 5mm galvanised mild steel flat sections to standard NBP2 pattern welded at intersections and to window frame Bars in front of fixed sections to be bent 75mm away from the glass surface **ALUMINIUM WINDOWS, DOORS, ETC** **Epoxy powder coated aluminium windows glazed with 6mm laminated safety glass and plugged to brickwork or concrete** **Aluminium window low E glazing, mm Thick monolithic annealed safety glass to comply with part N of SANS 10400,aluminium frame to be powder coated COLOUR: Charcoal Grey**				
1	Purpose made aluminium window size 800mm x 450mm high overall. **Ref W5**	No	1		
2	Purpose made aluminium window size 1800mm x 1600mm high overall. **Ref W11**	No	2		
3	Purpose made aluminium window size 2960mm x 1600mm high overall. **Ref W11**	No	1		
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Section 4
GATE HOUSE
Bill No. 9
Metalwork

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Section 4

Bill No. 9

Metalwork

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GATE HOUSE
Bill No. 9
Metalwork

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SECTION 4

BILL No. 10

SUPPLEMENTARY PREAMBLES

Descriptions

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

Descriptions of L-shaped and U-shaped anchor bolts shall be deemed to include bending, threading, nuts and washers and embedding in concrete. Where anchor bolts are described as embedded in sides or soffits of concrete it shall be deemed to include holes through formwork.

Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete.

STEEL COLUMNS AND BEAMS

STRUCTURAL STEEL MEMBERS (GALVANISED)

STANCHIONS / COLUMNS

Steel members to include welding, holes, black bolts, nuts, washers, rivets, bolting and riveting integral with structural steelwork.

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Section 4
GATE HOUSE
Bill No. 10
Structural steelwork

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	Welded columns in single lengths with flat section base, top, bearer and connection plates bolted to ring beams.				
	219.1 x 6.0mm CHS Circular hollow section columns				
1	Column	t	0.730		
	BASE PLATES				
	360mm Dia x 16mm base plate bolted to concrete base				
2	16mm Base plate	t	0.002		
	CAP PLATES				
	360mm Dia x 16mm cap plate bolted to concrete base				
3	16mm Base plate	t	0.002		
	BOLTS				
	4.8 HD bolts (Galvanised)				
4	M16 Hd bolts	No	16.00		
5	Painting of all steel structure components	m2	21		
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GATE HOUSE
Bill No. 10
Structural steelwork

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Section 4

Bill No. 10

Structural steelwork

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Bill No. 10
Structural steelwork

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No.11				
	PLASTERING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Screeds				
	Screeds on concrete				
1	30mm Thick on floors and landings	m2	24		
	Internal Plaster				
	One coat cement plaster on concrete or brickwork				
2	On walls	m2	54		
3	On narrow widths	m2	5		
	External Plaster				
	One coat cement plaster on concrete or brickwork				
4	On narrow widths	m2	16		
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Section 4
GATE HOUSE
Bill No. 11
Plastering

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 12				
	TILING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Wall Tiling				
	198 x 198 x 6mm White glazed ceramic wall tiles fixed with an approved adhesive to plaster (plaster elsewhere) and with jointing compound				
1	To walls	m2	54		
	Floor Tiling				
	300 x 300mm x 9mm Full body porcelain tiles in matt finish laid to approved pattern using approved adhesive and grout, colour and pattern to architect's approval. The tenderer to allow an amount of R180.00 per square meter (exclusive of VAT) for the supply of tiles only and include for all waste, labour and profit in the applicable "rate"				
2	On floors	m2	24		
	ALUMINIUM TRIMS				
	"M-trim" or "Genesis"12mm silver anodised aluminium straight edge trim to suit tile thickness with grey grout.				
3	On walls	m	44		
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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 13				
	PLUMBING AND DRAINAGE (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Sanitary Fittings				
1	560 x 405mm White vitreous china wash hand basin complete with and including one chromium plated pillar tap, one tap hole plug, waste, plug and chain and concealed brackets	No	1		
2	WC suite comprising of white vitreous china paraplegic 90 degrees outlet pan with P trap, 9 litre low level matching vitreous china cistern complete with valveless syphonic fitting, ball valve and matching flush pipe and heavy duty white single flap seat.	No	1		
	Taps, valves,etc				
	Traps, etc. including joints to steel pipes and/or fittings unless otherwise described				
3	32-40mm Butyl rubber deep seal P or S trap	No	1		
	Valves, etc. including joints to steel pipes and/or fittings unless otherwise described				
4	15mm Copper service pipe 350mm girth	No	1		
5	15mm Chromium plated full way ballcock shut-off control valve with screw type control	No	1		
6	15mm Sink mixer with waste union	No	1		
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Section 4
GATE HOUSE
Bill No. 13
Plumbing and Drainaige (Provisional)

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	Sanitary Plumbing				
	uPVC pipes and fittings				
1	50mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	8		
2	100mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	12		
	Extra over uPVC pipes for fittings				
3	100 x 50mm Reducer	No	2		
4	100mm Bend	No	8		
5	100mm Junction	No	4		
6	100mm Pan connector	No	5		
7	100mm VP stub stack fitting with ABC cleaning eye lid and multiple connections for 50mm waste	No	2		
8	100mm Access bend	No	2		
9	100mm Access bend with anti-syphon horn	No	2		
10	100mm Access junction	No	2		
11	100mm Access reducing junction	No	2		
12	Two way PVC vent valve suitable for 50mm pipe	No	2		
	Galvanised mild steel screwed and socketed pipes and fittings				
13	50mm Pipe and excavation not exceeding 1m deep	m	8		
14	50mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	5		
	Extra over galvanised mild steel pipes for galvanised mild steel fittings				
15	50mm Bend	No	2		
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Section 4
GATE HOUSE
Bill No. 13
Plumbing and Drainaige (Provisional)

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1	50mm Bush	No	2		
	Extra over galvanised mild steel pipes for brass fittings				
2	50mm Bend	No	4		
3	50mm Bend with cleaning eye	No	2		
4	50mm Junction with cleaning eye	No	2		
5	50mm Reducing junction with cleaning eye	No	1		
	Sundries				
6	Wire balloon grating in top of pipe not exceeding 100mm diameter	No	2		
	Water Supply				
	Class O thin wall hard drawn copper pipes and fittings with capillary soldered type connections				
7	15mm Pipe laid in/under floors or fixed to walls, roof timbers, etc.	m	10		
8	15mm Pipe fixed in and including chase in walls	m	8		
	Extra over class O copper pipes for soldered capillary fittings				
9	15mm Fittings	No	4		
	Testing				
10	Provide all necessary apparatus, water, etc. for and test the whole of the Sanitary Plumbing and Water Supply installation to the satisfaction of the Representative/Agent and the Local Authority, rectify all defective work free of charge and leave in perfect order		Item		
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Section 4
GATE HOUSE
Bill No. 13
Plumbing and Drainaige (Provisional)

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Section 4

Bill No. 13

Plumbing and Drainaige (Provisional)

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GATE HOUSE
Bill No. 13
Plumbing and Drainaige (Provisional)

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 14				
	GLAZING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Mirrors				
	NOTE				
	Mirrors shall be of 6mm thick silvered GG quality polished float glass with rounded and polished edges and splayed corners				
	Unless otherwise described, mirrors shall have four holes for and be screwed to and including approved patent plugs in plastered or tiled wall with countersunk steel screws tap-threaded for and including screw type chromium plated dome-headed caps and felt washers				
	_____				
1	Mirror size 450 x 600mm	No	1		
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Section 4
GATE HOUSE
Bill No. 14
Glazing

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 15				
	PAINTWORK				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Paint on plaster, etc.				
	Two coats Plascon professional superior low sheen (PEM 1000) or Dulux weather guard ultra smooth adhesion promoted (D62) acrylic paint.				
1	On internal plastered walls	m2	7		
2	On external plastered walls	m2	16		
	Paint on metal				
	Prepare, touch up factory primer and apply one coat universal undercoat and two full coats high gloss enamel paint				
3	On pressed steel door frames	m2	3		
	Paint on wood				
	Prepare, stop and apply three full coats polyurethane clear eggshell varnish, lightly sanded down between coats				
4	On general surfaces	m2	4		
	Prepare and apply one coat hardboard primer, one coat universal undercoat and two full coats high gloss enamel paint				
5	On general surfaces	m2	4		
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Section 4
GATE HOUSE
Bill No. 15
Paintwork

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Item No			Quantity	Rate	Amount
	SECTION 4				
	BILL No. 16				
	GENERAL SITEWORKS (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Site clearance				
1	Clear and grub area of the site to be built upon including digging up and removing rubbish, debris, vegetation, hedges, boulders, shrubs and trees with trunk not exceeding 200mm girth	m2	78		
2	Preparation and stripping of topsoil to a maximum of 150mm	m3	23		
	Earthworks				
	Excavation in earth for open face excavations				
3	Exceeding not exceeding 2m deep	m3	141		
	Extra over all excavations for carting away				
4	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	47		
5	Extra over open face excavations in earth for excavations in hard rock	m3	27		
	Earthworks Platform				
6	Imported G5 material from commercial sources to make up platform levels over site compacted to 95% Mod AASHTO density in layers not exceeding 150mm	m3	78		
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Section 4
GATE HOUSE
Bill No. 16
General Siteworks

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1	Scarify top 150mm layer of ground and re-compact to 93% Mod AASHTO density	m2	78		
2	Grade and trim sides of platform	m2	78		
3	Allow for keeping excavations free of all water other than subterranean water		Item		
	Tests				
4	Tests to determine the degree of compaction, etc. of ground or filling	No	6		

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Section 4
GATE HOUSE
Bill No. 16
General Siteworks

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Section 4

Bill No. 16

General Siteworks

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Bill No. 16
General Siteworks

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Section 4
GATE HOUSE

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Item No		Quantity	Rate	Amount

SECTION 5

BILL No. 1

FOUNDATIONS (PROVISIONAL)

GENERAL PREAMBLES

Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill

NOTE IN RESPECT OF REMEASUREMENT OF FOUNDATIONS

Foundation brickwork and concrete walls have been measured to top of unfinished floor level

_____

EARTHWORKS

NOTE

All excavations are measured as being in "earth" and/or filling compacted to 95% modified AASHTO density

Descriptions of excavations shall be deemed to include for setting aside surplus excavated material in spoil heaps for use as filling, or for depositing within 150m of the perimeter of the excavations and spreading and roughly levelling as directed, as well as for increase in bulk and multiple handling of excavated material caused by the Contractor's method of operation

Descriptions of carting away of excavated material shall be deemed to include loading excavated material onto trucks directly from the excavations or, alternatively, from stock piles situated on the building site and for bulking

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Section 5
ENTRANCE WALL
Bill No. 1
Foundations (Provisional)

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	Working space for formwork to sides of all concrete, except columns, shall be measured only where the concrete face is less than 750mm from the face of the measured excavations Working space for formwork to sides of columns shall be measured for the width of the column face only where both: the top of the column base is more than 1,5m below the commencing level of the excavations and the column face is less than 500mm from the face of the measured excavations No claim shall be considered for any working space for formwork to concrete other than as above described or for working space beyond the sides of trench excavations for the building of brick or block walls Descriptions of excavations for working space shall be deemed to include for any additional risk of collapse so incurred and for the returning and compacting of the excavated material as described _____				
	Excavations				
	Excavate in earth not exceeding 2m deep below natural, elevated or reduced ground level for				
1	Trenches	m3	10		
2	Holes	m3	0.3		
	(End of excavations in earth)				
3	Extra over all excavations for carting away surplus material from excavations and/or from stockpiles on site to a dumping site to be located by the Contractor	m3	6		
4	Risk of collapse of sides of reduced level excavations from natural, elevated or reduced ground level to not exceeding 1,5m deep	m2	40		
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Section 5
ENTRANCE WALL
Bill No. 1
Foundations (Provisional)

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1	Allow for keeping excavations free of all water other than subterranean water		Item		
	Filling, etc.				
	Earth filling obtained from the excavations and/or prescribed stock piles on site (not compacted)				
2	Backfilling behind retaining walls	m3	4		
	Protection against termites				
3	Poisoning surface of ground in bottoms of trenches, bases, etc.	m2	50		
	CONCRETE				
	Concrete test cubes				
4	Prepare set of three 150 x 150 x 150mm concrete strength test cubes, label and send to an approved laboratory for testing, pay all charges and submit report to the Principal Agent. Only successful tests will be paid for (Provisional)	No	6		
	Reinforced concrete with a coarse aggregate of 19mm and a minimum compressive strength of 25MPa at 28 days				
5	Strip footings	m3	4		
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Section 5
ENTRANCE WALL
Bill No. 1
Foundations (Provisional)

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Section 5

Bill No. 1

Foundations (Provisional)

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ENTRANCE WALL
Bill No. 1
Foundations (Provisional)

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	BILL No. 2				
	MASONRY				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	SUPERSTRUCTURE				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
1	Piers	m3	5		
2	285mm Hollow walls of two half brick skins including wire ties	m2	50		
	Brick reinforcement				
3	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	300		
	FACE BRICKWORK				
	Extra over for face brick: External face bricks pointed with flush horizontal and vertical joints. Firelight Travertine face brick.				
4	230mm brickwork face brickwork.	m2	100		
	Brick-on-edge header course copings, sills, etc of "Corobrik" or equally approved face bricks, pointed with recessed joints on all exposed faces				
5	220mm Brick-on-edge roller course	m	20		
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Section 5
ENTRANCE WALL
Bill No. 2
Masonry

1	2	3
4	5	6

	Signage				
1	Signage as per Architect's specification	Item			8 900.00
2	Contractor's mark-up @ 5%	Item			445.00
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Section 5
ENTRANCE WALL
Bill No. 2
Masonry

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Section 5

Bill No. 2

Masonry

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Section 5
ENTRANCE WALL
Bill No. 2
Masonry

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Item No			Quantity	Rate	Amount
	SECTION 5				
	BILL No. 3				
	WATERPROOFING				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	DAMP-PROOFING TO WALLS				
1	375 Micron embossed black polyethylene damp-proof course to walls, cills, etc. (measured net)	m2	6		
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Section 5
ENTRANCE WALL

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Item No			Quantity	Rate	Amount
	SECTION 6				
	BILL No. 1				
	GENERAL SITE WORKS (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Site clearance				
1	Clear and grub area of the site to be built upon including digging up and removing rubbish, debris, vegetation, hedges, boulders, shrubs and trees with trunk not exceeding 200mm girth	m2	2 676		
2	Remove and grub trees and tree stumps of girth over 200mm but not exceeding 1m (Provisional)	No	7		
3	Preparation and stripping of topsoil to a maximum of 150mm	m3	401		
	Earthworks Platform				
4	Imported G6 material from commercial sources to make up platform levels over site compacted to 95% Mod AASHTO density in layers not exceeding 150mm	m3	480		
5	Earth filling from the excavations to make up levels around buildings compacted to 93% modified AASHTO density	m3	43		
6	Scarify top 150mm layer of ground and re-compact to 93% Mod AASHTO density	m2	2 676		
7	Grade and trim sides of platform	m2	380		
8	Allow for keeping excavations free of all water other than subterranean water		Item		
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Section 6
EXTERNAL WORKS
Bill No. 1
General Siteworks

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1	Tests to determine the degree of compaction, etc. of ground or filling	No	25		
2	Galvanised gabion mattresses, 0.3m deep with 80mm x 100mm mesh and diaphragms at 1.0 centres and 7.3mm diameter mesh wire (Refer to Civil Engineer's Drawing: SSETA/BWLM/SDC/W002)	m3	1		
	Demolitions				
3	Remove existing 1800mm high perimeter fencing including posts and concrete footings to be replaced with a new fence.	m	617		
4	1500mm Thick concrete platform structure formed of concrete earth fill, structure to be demolished down to natural ground level and backfilling of exposed foundations leaving no surface evidence of the building	m3	250		
5	Demolish pit toilet block size approximately 8400 x 3000 x 2600mm high built of brick walls roof sheets, timber rafters and building to be removed completely by removing surface beds down to natural ground level and backfilling of exposed foundations leaving no surface evidence of the building	No	3		
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EXTERNAL WORKS
Bill No. 1
General Siteworks

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Section 6

Bill No. 1

General Siteworks

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General Siteworks

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	SECTION 6				
	BILL No. 2				
	ROADS AND PARKING (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Earthworks				
1	Extra over open face excavations in earth for excavations in soft rock	m3	21		
2	Extra over open face excavations in earth for excavations in hard rock	m3	42		
3	Allow for keeping excavations free of all water other than subterranean water		Item		
4	Selected layer imported natural gravel material (minimum G5 material to TRH14) supplied by the Contractor and brought onto site from commercial sources in filling under the paving, etc, compacted in layers not exceeding 150mm thick to 95% modified AASHTO density	m3	105		
5	Sub-base layer of imported natural gravel material (minimum C4 material to TRH14) supplied by the Contractor and brought onto site from commercial sources and compacted to 95%modified AASHTO density and process sub-base material with 3% cement	m3	105		
6	25mm Thick dry, clean, river sand layer evenly spread over filling (elsewhere) and levelled to receive paving blocks (elsewhere)	m2	700		
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Section 6
EXTERNAL WORKS
Bill No. 2
Roads and Parking

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	Tests				
1	Tests to determine the degree of compaction, etc. of ground or filling	No	16		
	Precast Concrete				
2	60mm Thick 35MPa pre cast concrete interlocking block paving of 220 x 97mm grey paving blocks in accordance with SANS Specification 1058 and laid to falls on sand layer (elsewhere) with joints filled in with sand and vibrated, including all straight cutting	m2	700		
3	Pre cast concrete municipal barrier kerbing to SANS 927 Fig. 3 in 1m lengths with 10mm wide butt joints filled in with (2:1) cement mortar and pointed with grooved half round joints and 10mm wide open butt joints at 5m centres including 15MPa/19mm mass concrete bedding size 50mm thick x 300mm wide, 20MPa/19mm mass concrete haunching size 225mm long x 225mm high x 150mm thick at joints, any necessary excavation, formwork, etc. and backfilling at back of kerbs, top soiled and levelled to adjacent surfaces	m	136		
4	Pre cast concrete walkway edge restraint to SABS 927 Fig. 12	m	90		
	Metalwork				
	Road Signs				
5	Standard "STOP" sign (R1) with standard 50mm diameter galvanised mild steel fixing post bedded into and including bases, including any necessary excavation, mass concrete, etc.	No	1		
6	Standard "Yield" sign with standard 50mm diameter galvanised mild steel fixing post bedded into and including bases, including any necessary excavation, mass concrete, etc.	No	1		
	Paintwork				
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EXTERNAL WORKS
Bill No. 2
Roads and Parking

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	Prepare and apply one coat white reflective road marking paint on pre cast concrete paving blocks				
1	"Stop" marking on road	No	1		
2	Directional marking on road	No	2		
3	Yellow and white chevron marking on speed humps	No	3		
4	"Disabled" marking on parking bay	No	1		
5	100mm Wide white or yellow parking lines	m	100		
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EXTERNAL WORKS
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Roads and Parking

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Bill No. 2

Roads and Parking

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	SECTION 6				
	BILL No. 3				
	STORM WATER, SEWER AND WATER SUPPLY (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	Water Supply				
	Pipe Trenches				
	Galvanised mild steel screwed and socketed pipes and fittings				
1	80mm Pipe laid in trenches (elsewhere)	m	80		
2	80mm Fire hydrant stand pipe (no fixing)	No	2		
	HDPE polyethylene Class 10 (SABS 533 Type 4 Part 11) pipes with O-ring screw type pressure fittings				
3	32mm Diameter pipe laid in trenches (elsewhere)	m	100		
	O-ring screw type pressure fittings for polyethylene pipes				
4	32mm Bend	No	7		
5	63 x 32mm Reducer	No	2		
6	32mm Tee	No	4		
7	63mm Tee	No	2		
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Section 6
EXTERNAL WORKS
Bill No. 3
Stormwater, Sewer and Water Supply

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	Testing				
1	Provide all necessary apparatus, water, etc for testing the whole of the water supply and fire reticulation installation to the satisfaction of the Principal Agent and Local Authority, rectify all defective work free of charge and leave in perfect working order		Item		
	Sewage Disposal				
	Pipe Trenches				
2	Excavate in earth not exceeding 2m deep for pipe trenches	m3	76		
3	Risk of collapse of sides of reduced level excavations from natural, elevated or reduced ground level to not exceeding 1,5m deep	m2	150		
4	Selected backfill (material with a PI less than 10 and maximum aggregate size 30mm) obtained from the excavations and compacted to 90% Mod AASHTO density	m3	38		
5	Selected fill bedding (granular material regarded as clean river sand or any non-cohesive material with a PI less than 6 and maximum aggregate size 20mm) obtained from the excavations under and around pipes and compacted to 90% Mod AASHTO density	m3	11		
	uPVC Class 34 (SABS 533 Type 4 Part 11) drain pipes with electro fusion or butt welded joints				
6	110mm Diameter pipes laid in trenches (elsewhere)	m	15		
7	160mm Diameter pipes laid in trenches (elsewhere)	m	50		
	Sundries				
8	15MPa/19mm Mass concrete in pre cast IE marker block set flush with ground or paving	No	4		
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EXTERNAL WORKS
Bill No. 3
Stormwater, Sewer and Water Supply

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1	Gulley not exceeding 1000mm deep to invert level comprising 100mm diameter vitrified clay gulley trap and head, fitted with 190mm diameter cast iron grating, including excavating for, bedding on and encasing in 15MPa/19mm mass concrete and fitted with and including pre cast gulley top bedded in (3:1) cement mortar	No	3		
2	ABC cast iron straight or bent cleaning eye with removable cover jointed to vitrified clay pipe and set in and including 15MPa/19mm aggregate mass concrete surround with exposed surfaces trowelled smooth	No	3		
	Precast Concrete Manholes				
3	Deep type pre cast prefabricated concrete manhole rings, exceeding 500mm but not exceeding 1000mm deep, the bottom ring set on and including 100mm thick 20MPa/19mm aggregate mass concrete base projecting 75mm beyond external face of chamber ring and sealed to ring with 75mm wide x 125mm high 20MPa/19mm agg mass concrete triangular fillet complete with pre cast concrete medium duty cover and frame comprising 125mm thick x 67kg frame and 125mm thick x 66kg cover including step irons, 20MPa/19mm agg mass concrete benching in bottom with top surfaces to falls, finished smooth with 1:1 cement plaster, 150mm vitrified clay channels, bends, junctions, etc with additional excavation and backfilling compacted to 93% Mod AASHTO density	No	5		
4	Ditto exceeding 1000mm but not exceeding 1500mm deep	No	5		
5	Provide all necessary apparatus, water, etc for testing the whole of the sewer installation to the satisfaction of the Principal Agent and Local Authority, rectify all defective work free of charge and leave in perfect working order	Item			
	Stormwater Drainage				
	All excavations are measured as being in "earth" and/or filling compacted to 98% Mod AASHTO density				
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EXTERNAL WORKS
Bill No. 3
Stormwater, Sewer and Water Supply

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	30MPa/19mm aggregate mass concrete in				
1	V-shaped channel 1500mm wide x 150mm thick concrete lining with rounded salient edges and wood float finish on exposed surfaces, laid to falls in panels not exceeding 1800mm long with 12mm bitumen impregnated softboard movement joints, including all necessary excavation and formwork, all as per drawing number	m	190		
2	Precast concrete taper chute channel	m	4		
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Stormwater, Sewer and Water Supply

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	SECTION 6				
	BILL No. 4				
	SECURITY FENCING (PROVISIONAL)				
	GENERAL PREAMBLES				
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill				
	METALWORK				
	"ClearVu" or equal and approved Category 3 Security Fencing System				
1	Supply and install fencing comprising of steel mesh panels size 3297 x 2400mm high at 3382mm centres, 4mm diameter hot dipped galvanised wire with aperture size 76,2mm x 12.7mm, panels to be reinforced with 4 x 50mm "V" recessed bands including 2 x 75mm 70 degree flanges along sides, posts cast into 600mm deep x 400mm wide 15Mpa concrete base on one side, posts 85 x 45mm tapered; posts and panels hot dipped galvanised and polymetic 6000 coated, including all single and double bolt comb clamps galvanised then polymetic 6000 coated and antivandal galvanised bolts, the fence to be fitted with anti-climb comprising 100mm high galvanised "shark tooth" type spike rails, bolted to 50mm wide ClearVu mesh flange bent along fence on top, fitted with anti-burrow comprising 500mm ripper flatwrap at the bottom, all installed according to manufacturer's instructions and specifications.	m	617		
	"ClearVu" Gate and Posts, etc.				
2	Double gate size 5900 x 2400mm high overall in two equal leaves, each leaf fitted with similar and equal anti-climb spiked rail on top, including all accessories and installed in accordance with manufacturer's instructions	No	1		
3	Pedestrian gate size 1200 x 2455mm high ditto	No	1		
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	SECTION 6			
	BILL No. 6			
	BOREHOLE			
	GENERAL PREAMBLES			
	Tenderers are advised to study the Model Preambles for Trades (September 2008 Edition) published by the Association of south African Quantity Surveyors before pricing this bill			
	NOTE IN RESPECT OF REMEASUREMENT OF FOUNDATIONS			
	Foundation brickwork and concrete walls have been measured to top of unfinished floor level			
	_____			
	BUDGETARY ALLOWANCE			
1	Provide the sum of R230 679.61 (Two Hundred and Thirty Thousand,Six Hundred and Seventy Nine Rands and Seventy Sixty One Cent) for the installation, testing and commissioning of a bore hole complete as per the Engineer's specification	Item		230 679.61
2	Contractor's mark-up @ 5%	Item		11 533.98
	Steel Tank Stand and Steel Tank			
3	Provide the sum of R 170 000.00 (One Hundred and Seventy Thousand Rands) supplied and installed complete steel stand and steel tank installed complete as per the Engineer's specifications.	Item		170 000.00
4	Contractor's mark up @ 5%	Item		8 500.00
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EXTERNAL WORKS
Bill No. 5
Borehole

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SECTION 6

BILL No. 7

SEPTIC TANK AND FRENCH DRAIN(PROVISIONAL)

SUPPLEMENTARY PREAMBLES

"Polycop" polypropylene pipes:

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

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

All pipe diameters are nominal external

Concrete pipes:

Pipes shall be jointed with ogee joints with rubber collars or socket and spigot joints with rubber rings

uPVC pipes and fittings:

Soil, waste and vent pipes and fittings shall be solvent weld jointed

Excavations

No claim for rock excavation will be entertained unless the contractor has timeously notified the quantity surveyor thereof prior to backfilling

"Soft rock" and "hard rock" shall be as defined in "Earthworks"

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Laying, backfilling, bedding, etc. of pipes

Pipes shall be laid and bedded and trenches shall be carefully backfilled in accordance with manufacturers' instructions

Where no manufacturers' 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 : Storm water drainage Pipe trenches etc shall be backfilled in accordance with clauses 3, 5.5, 5.6, 5.7 and 7 of SABS 1200 DB : Earthworks (Pipe trenches) Pipes shall be bedded in accordance with clauses 3.1 to 3.4.1, 5.1 to 5.3 and 7 of SABS 1200 LB : Bedding (Pipes). Unless otherwise described bedding of rigid pipes shall be class B bedding

EXCAVATION, FILLING, ETC OTHER THAN BULK

EARTHWORKS

SITE CLEARANCE ETC

Site clearance

1	Digging up and removing rubbish, debris, vegetation, hedges, shrubs and trees not exceeding 200mm girth, bush, etc	m2	9		
2	Rip and scarify ground level to a depth of 150mm and consolidate to 90% mod. AASHTO density (minimum CBR 3)	m2	9		

EARTHWORKS

Excavate in earth not exceeding 2m deep

3	Septic tank	m3	17		

Extra over trench and hole excavations in earth for excavations in

4	Soft rock	m3	1		

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1	Hard rock	m3	2		
	Extra over all excavations for carting away				
2	Surplus material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	20		
	Risk of collapse of excavations				
3	Risk of collapse of sides of excavations for septic tank from natural, elevated or reduced ground level exceeding 1,5m deep	m2	28		
	Keeping excavations free of water				
4	Allow for keeping all excavations entirely free from water and mud		Item		
	FILLING ETC				
	Filling of natural gravel material (G5) supplied by the contractor, compacted to 95% Mod AASHTO density				
5	Under floors, steps, pavings, etc	m3	5		
	REINFORCED CONCRETE CAST AGAINST EXCAVATED SURFACES, ETC				
	25Mpa/20mm concrete				
6	Surface bed of septic tank	m3	2		
7	Slab of septic tank	m3	2		
	SMOOTH FORMWORK (DEGREE OF ACCURACY II)				
	Smooth formwork to sides				
	Smooth formwork to soffits				
8	Slabs propped up exceeding 1.5m and not exceeding 3.5m high	m2	9		
	Smooth formwork to sides and soffits				
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REINFORCED CONCRETE

30Mpa/20mm concrete

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	REINFORCED CONCRETE				
	30Mpa/20mm concrete				
1	Slabs	m3	2		
	UNREINFORCED CONCRETE				
	19Mpa/20mm concrete behind sockets at 2mm centres maximum				
2	Anchor blocks	m3	5		
	CONCRETE SUNDRIES				
	Finishing top surfaces of concrete smooth with a power float				
3	Surface beds, slabs, etc	m2	17		
	ROUGH FORMWORK (DEGREE OF ACCURACY II)				
	Rough formwork to soffits				
4	Slabs propped up exceeding 1.5m and not exceeding 3m high	m2	9		
	Formwork to sides				
5	Edges, risers, ends and reveals not exceeding 300mm high or wide	m	12		
	REINFORCEMENT				
	Mild steel reinforcement to structural concrete work				
6	8mm Diameter bars	t	0.36		
7	10mm Diameter bars	t	0.36		
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	High tensile steel reinforcement to structural concrete work				
1	10mm Diameter bars	t	0.36		
2	12mm Diameter bars	t	0.36		
	Fabric reinforcement				
3	Type 617 fabric reinforcement in concrete surface beds	m2	9		
4	Type 617 fabric reinforcement in concrete slabs etc	m2	9		
	MASONRY				
	Brickwork in burnt clay bricks in (5:1) cement mortar				
5	One brick wall	m2	28		
6	Brick reinforcement 150mm wide built into brick walls with sufficient laps at end joints, angles and intersections (measured net)	m	84		
	WATERPROOFING				
	DAMP PROOFING OF WALLS AND FLOORS				
	One layer 250 micron green polyethylene waterproof sheeting (SANS 952-1985 type C) sealed at laps with PVC self-adhesive tape				
7	Under surface beds	m2	30		
8	Vertically behind walls	m2	73		
	Primer and two coats heavy duty bitumen emulsion waterproof coating, ABE membrane or similar approved				
9	On concrete floors	m2	8		
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1	On walls in foundations (Provisional)	m2	57		
	WATERPROOFING TO ROOFS, BASEMENTS, ETC				
	Prime with one coat bitumen primer and one layer 4mm fully bonded waterproof membrane comprising two bitumen layers reinforced with woven spun bonded polyester fabric and coated with polyethylene film for heat bonding, laid with 75mm side and 100mm end laps				
2	On soffits of slab	m2	9		
3	On flat roofs	m2	9		
4	On walls	m2	57		
5	On bottoms and sides of floor ducts, channels, etc	m2	2		
	PROTECTIVE STONE DRESSING				
	Clean crushed stone dressing free of pyrite or other contaminants, of 20 - 25mm stone evenly spread with larger stones around outlets				
6	Stone dressing behind walls	m3	73		
	PLUMBING AND DRAINAGE				
	UPVC pipes				
7	110mm Pipes in trenches	m	50		
	Extra over 110mm uPvc pipes for fittings				
8	Standard invert junction	No	4		
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Septic tank

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	Manhole ring, cover adapter and lid				
1	750mm Diameter , 250mm Long manhole ring and 750mm Round cover adaptor slab with 560mm Diameter Hole, 150mm Thick Slab and 560mm Diameter heavy duty concrete lid	No	1		
	Sundries				
2	Hole through one brick wall for 110mm pipe	No	1		
	FRENCH DRAIN				
	EARTHWORKS				
	Excavate in earth not exceeding 2m deep				
3	Trench	m3	7		
	Extra over trench and hole excavations in earth for excavations in				
4	Soft rock	m3	0.4		
5	Hard rock	m3	1		
	Risk of collapse to sides				
6	Sides of trench excavations not exceeding 1,5m deep	m2	20		
	Carting away excavated material				
7	Surplus excavated material from excavations and/or stock piles on site to a dumping site to be located by the contractor	m3	7		
	Back filling with material supplied by the contractor				
8	40-50mm washed stone filling to french drain	m3	7		
	REINFORCEMENT				
	Fabric reinforcement				
9	Type 617 fabric reinforcement in concrete slabs etc	m2	5		
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	Bidium U14 geotextile blanket				
1	Laid with 150mm overlaps to top of stone fill in french drain	m2	22		
	uPVC pipes				
2	110mm Perforated drain pipes laid between stones in french drain	m	12		
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	KIOSK AND DISTRIBUTION BOARD				
	Kiosk and distribution board				
	Supply rate				
1	Main Kiosk complete with breakers & doors	No	1		
	Install rate				
2	Main Kiosk complete with breakers & doors	No	1		
	Main - Distribution Board (DB/ABTT) - Flush Architrive complete with breakers & doors				
	Supply rate				
3	Main - Distribution Board (DB/ABTT) - Flush Architrive complete with breakers & doors	No	1		
	Install rate				
4	Main - Distribution Board (DB/ABTT) - Flush Architrive complete with breakers & doors	No	1		
	Sub - Distribution Board - Flush Architrive complete with breakers & doors				
	Supply rate				
5	Sub - Distribution Board - Flush Architrive complete with breakers & doors	No	2		
	Install rate				
6	Sub - Distribution Board - Flush Architrive complete with breakers & doors	No	2		
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Kiosk and distribution board

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	Allowance for breakers installed on site				
	Earth Leakage QA17C 63A 1P + N 6kA				
	Supply rate				
1	Earth Leakage QA17C 63A 1P + N 6kA	No	2		
	Install rate				
2	Earth Leakage QA17C 63A 1P + N 6kA	No	2		
	Surge Arrester with Indication 1 Pole + N 6kA				
	Supply rate				
3	Surge Arrester with Indication 1 Pole + N 6kA	No	3		
	Install rate				
4	Surge Arrester with Indication 1 Pole + N 6kA	No	3		
	Surge Protection and Voltage Limiting Devices (FLP-B+C MAXI V SPD)				
	Supply rate				
5	Surge Protection and Voltage Limiting Devices (FLP-B+C MAXI V SPD)	No	3		
	Install rate				
6	Surge Protection and Voltage Limiting Devices (FLP-B+C MAXI V SPD)	No	3		
	MCCB 80A 3P				
	Supply rate				
7	MCCB 80A 3P	No	1		
	Install rate				
8	MCCB 80A 3P	No	1		
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	MCB QA1 5A 1P				
	Supply rate				
1	MCB QA1 5A 1P	No	2		
	Install rate				
2	MCB QA1 5A 1P	No	2		
	MCB QA1 10A 1P				
	Supply rate				
3	MCB QA1 10A 1P	No	10		
	Install rate				
4	MCB QA1 10A 1P	No	10		
	MCB QA1 20A 1P				
	Supply rate				
5	MCB QA1 20A 1P	No	11		
	Install rate				
6	MCB QA1 20A 1P	No	11		
	MCB QA1 20A 2P				
	Supply rate				
7	MCB QA1 20A 1P	No	8		
	Install rate				
8	MCB QA1 20A 1P	No	8		
	MCB QA1 40A 2P				
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	Supply rate				
1	MCB QA1 40A 2P	No	5		
	Install rate				
2	MCB QA1 40A 2P	No	5		
	MCB QA1 40A 3P				
	Supply rate				
3	MCB QA1 40A 2P	No	4		
	Install rate				
4	MCB QA1 40A 2P	No	4		
	MCB QA1 63A 3P				
	Supply rate				
5	MCB QA1 63A 3P	No	1		
	Install rate				
6	MCB QA1 63A 3P	No	1		
	MCB QA1 80A 3P				
	Supply rate				
7	MCB QA1 80A 3P	No	2		
	Install rate				
8	MCB QA1 80A 3P	No	2		
	MCB QA1 100A 3P				
	Supply rate				
9	MCB QA1 100A 3P	No	1		
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	Install rate				
1	MCB QA1 100A 3P	No	1		
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Bill No. 1

Kiosk and distribution board

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	BILL No. 2				
	LIGHT FITTINGS AND ALL ACCESSORIES SUCH AS POLES, HOLES E.T.C				
	Light, fittings and all accessories such as poles, holes etc.				
	Type F- Outdoor Wall mount bulkhead, 20W, 1800 lm, IP65, 220 - 240V AC				
	Supply rate				
1	Type F- Outdoor Wall mount bulkhead, 20W, 1800 lm, IP65, 220 - 240V AC	No	28		
	Install rate				
2	Type F- Outdoor Wall mount bulkhead, 20W, 1800 lm, IP65, 220 - 240V AC	No	28		
	Type B - Indoor ceiling mounted 18W Bulkhead/LED/1200 Lumen				
	Supply rate				
3	Type B - Indoor ceiling mounted 18W Bulkhead/LED/1200 Lumen	No	11		
	Install rate				
4	Type B - Indoor ceiling mounted 18W Bulkhead/LED/1200 Lumen	No	11		
	Type C - Enclosed dust and waterproof and corrosion resistant fluorescent Luminaire with LED Tubes				
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Light, fittings and all accessories such as poles, holes etc.

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	Supply rate				
1	Type C - Enclosed dust and waterproof and corrosion resistant fluorescent Luminaire with LED Tubes	No	2		
	Install rate				
2	Type C - Enclosed dust and waterproof and corrosion resistant fluorescent Luminaire with LED Tubes	No	2		
	Type 3L - 3 X 22W,4FT, T5, 600 X 600 Long Recessed Flourescent Fitting With Low Brightness Reflector With Cord				
	Supply rate				
3	Type 3L - 3 X 22W,4FT, T5, 600 X 600 Long Recessed Flourescent Fitting With Low Brightness Reflector With Cord	No	33		
	Install rate				
4	Type 3L - 3 X 22W,4FT, T5, 600 X 600 Long Recessed Flourescent Fitting With Low Brightness Reflector With Cord	No	33		
	Type DL- Downlight 18W LED				
	Supply rate				
5	Type DL- Downlight 18W LED	No	21		
	Install rate				
6	Type DL- Downlight 18W LED	No	21		
	Type SL/HL - Mutto Unfold Red Pendant, Size: 325mm, Mounting: Suspended.Wattage:80W				
	Supply rate				
7	Type SL/HL - Mutto Unfold Red Pendant, Size: 325mm, Mounting: Suspended.Wattage:80W	No	9		
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	Install rate				
1	Type SL/HL - Mutto Unfold Red Pendant, Size: 325mm, Mounting: Suspended.Wattage:80W	No	9		
	Strong Room Emergency Red Light				
	Supply rate				
2	Strong Room Emergency Red Light	No	1		
	Install rate				
3	Strong Room Emergency Red Light	No	1		
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Light, fittings and all accessories such as poles, holes etc.

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Bill No. 2

Light, fittings and all accessories such as poles, holes etc.

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Light, fittings and all accessories such as poles, holes etc.

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	BILL No. 3				
	SWITCHES, SOCKETS AND POWER SKIRTING				
	Switches, sockets and power skirting				
	Ceiling mount high frequency motion sensor with toggle switches (360°, 3-8m sensing range)				
	Supply rate				
1	Ceiling mount high frequency motion sensor with toggle switches (360°, 3-8m sensing range)	No	18		
	Install rate				
2	Ceiling mount high frequency motion sensor with toggle switches (360°, 3-8m sensing range)	No	18		
	16 Amp, 1 lever, 1 way, flush mounted switch complete with cover and galvanised box				
	Supply rate				
3	16 Amp, 1 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	8		
	Install rate				
4	16 Amp, 1 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	8		
	16 Amp, 2 lever, 1 way, flush mounted switch complete with cover and galvanised box				
	Supply rate				
5	16 Amp, 2 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	4		
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Switches, Sockets and power skirting

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	Install rate				
1	16 Amp, 2 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	4		
	16 Amp, 3 lever, 1 way, flush mounted switch complete with cover and galvanised box				
	Supply rate				
2	16 Amp, 3 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	2		
	Install rate				
3	16 Amp, 3 lever, 1 way, flush mounted switch complete with cover and galvanised box	No	2		
	16 Amp, 1 lever, 2 way flush mounted switch complete with cover and galvanised box				
	Supply rate				
4	16 Amp, 1 lever, 2 way flush mounted switch complete with cover and galvanised box	No	2		
	Install rate				
5	16 Amp, 1 lever, 2 way flush mounted switch complete with cover and galvanised box	No	2		
	16 Amp, 1 lever, 3 way flush mounted switch complete with cover and galvanised box				
	Supply rate				
6	16 Amp, 1 lever, 3 way flush mounted switch complete with cover and galvanised box	No	3		
	Install rate				
7	16 Amp, 1 lever, 3 way flush mounted switch complete with cover and galvanised box	No	3		
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	16 Amp, 2 lever, 2 way flush mounted switch complete with cover and galvanised box				
	Supply rate				
1	16 Amp, 2 lever, 2 way flush mounted switch complete with cover and galvanised box	No	1		
	Install rate				
2	16 Amp, 2 lever, 2 way flush mounted switch complete with cover and galvanised box	No	1		
	Type ZS 20A "National" type "or similar approved mounted in a weatherproof "York Box" enclosure.				
	Supply rate				
3	Type ZS 20A "National" type "or similar approved mounted in a weatherproof "York Box" enclosure.	No	2		
	Install rate				
4	Type ZS 20A "National" type "or similar approved mounted in a weatherproof "York Box" enclosure.	No	2		
	Switch for 5W Dimmable down lights (Silicon controlled) with 2 lever				
	Supply rate				
5	Switch for 5W Dimmable down lights (Silicon controlled) with 2 lever	No	1		
	Install rate				
6	Switch for 5W Dimmable down lights (Silicon controlled) with 2 lever	No	1		
	16 Amp flush mounted single pole switched socket (3 pin triangular) with 3 pin euro (SANS 164-2) complete with galvanised box				
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	Supply rate				
1	16 Amp flush mounted single pole switched socket (3 pin triangular) with 3 pin euro (SANS 164-2) complete with galvanised box	No	2		
	Install rate				
2	16 Amp flush mounted single pole switched socket (3 pin triangular) with 3 pin euro (SANS 164-2) complete with galvanised box	No	2		
	16 Amp flush mounted double pole socket (3 pin triangular) with double 3 pin euro (SANS 164-2) complete with galvanised box				
	Supply rate				
3	16 Amp flush mounted double pole socket (3 pin triangular) with double 3 pin euro (SANS 164-2) complete with galvanised box	No	30		
	Install rate				
4	16 Amp flush mounted double pole socket (3 pin triangular) with double 3 pin euro (SANS 164-2) complete with galvanised box	No	30		
	2 Channel PVC power skirting complete with covers, bends, splices and all accessories				
	Supply rate				
5	2 Channel PVC power skirting complete with covers, bends, splices and all accessories	m	15		
	Install rate				
6	2 Channel PVC power skirting complete with covers, bends, splices and all accessories	m	15		
	16 Amp normal single pole switched socket outlets in power skirting including covers and fixing material				
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	Supply rate				
1	16 Amp normal single pole switched socket outlets in power skirting including covers and fixing material	No	7		
	Install rate				
2	16 Amp normal single pole switched socket outlets in power skirting including covers and fixing material	No	7		
	16 Amp, 3pin normal euro switched socket outlets in power skirting including covers and fixing material				
	Supply rate				
3	16 Amp, 3pin normal euro switched socket outlets in power skirting including covers and fixing material	No	7		
	Install rate				
4	16 Amp, 3pin normal euro switched socket outlets in power skirting including covers and fixing material	No	7		
	Weather Proof Box 2X4 S1				
	Supply rate				
5	Weather Proof Box 2X4 S1	No	2		
	Install rate				
6	Weather Proof Box 2X4 S1	No	2		
	FD4 Pedestal, floor mounting complete with 1x normal plugs 16A, 1x dedicated plugs 16A				
	Supply rate				
7	FD4 Pedestal, floor mounting complete with 1x normal plugs 16A, 1x dedicated plugs 16A	No	1		
	Install rate				
8	FD4 Pedestal, floor mounting complete with 1x normal plugs 16A, 1x dedicated plugs 16A	No	1		
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	9 Way cluster unit complete with normal plug, dedicated plug, 2 pin plug, data point and telephone point				
	Supply rate				
1	9 Way cluster unit complete with normal plug, dedicated plug, 2 pin plug, data point and telephone point	No	3		
	Install rate				
2	9 Way cluster unit complete with normal plug, dedicated plug, 2 pin plug, data point and telephone point	No	3		
	Flush mounted 40 Amp 2P isolator complete for Air Conditioning				
	Supply rate				
3	Flush mounted 40 Amp 2P isolator complete for Air Conditioning	No	8		
	Install rate				
4	Flush mounted 40 Amp 2P isolator complete for Air Conditioning	No	8		
	Outdoor, Surface mounted 30 Amp 2P isolator complete for Air Conditioning				
	Supply rate				
5	Outdoor, Surface mounted 30 Amp 2P isolator complete for Air Conditioning	No	8		
	Install rate				
6	Outdoor, Surface mounted 30 Amp 2P isolator complete for Air Conditioning	No	8		
	Flush mounted 30 Amp 2P isolator complete for Hand dryer units				
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	Supply rate				
1	Flush mounted 30 Amp 2P isolator complete for Hand dryer units	No	3		
	Install rate				
2	Flush mounted 30 Amp 2P isolator complete for Hand dryer units	No	3		
	Flush mounted 20 Amp 2P isolator complete for toilets extractor				
	Supply rate				
3	Flush mounted 20 Amp 2P isolator complete for toilets extractor	No	3		
	Install rate				
4	Flush mounted 20 Amp 2P isolator complete for toilets extractor	No	3		
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	BILL No. 4				
	CABLE TRENCHING, CABLE, TERMINATION, CABLE LABELLING AND CABLE WARNING TABLE				
	Cable trenching, cable, termination, cable labelling and cable warning table				
	35 mm² 4C PVC SWA Cable with earth wire				
	Supply rate				
1	35 mm² 4C PVC SWA Cable with earth wire	m	150		
	Install rate				
2	35 mm² 4C PVC SWA Cable with earth wire	m	150		
	Cable teminations				
	Supply rate				
3	Cable teminations	No	15		
	Install rate				
4	Cable teminations	No	15		
	10 mm² 4c PVC SWA Cable with earth wir				
	Supply rate				
5	10 mm² 4c PVC SWA Cable with earth wir	m	80		
	Install rate				
6	10 mm² 4c PVC SWA Cable with earth wir	m	80		
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	Cable teminations				
	Supply rate				
1	Cable teminations	No	8		
	Install rate				
2	Cable teminations	No	8		
	6 mm² 4c PVC SWA Cable with earth wire				
	Supply rate				
3	6 mm² 4c PVC SWA Cable with earth wire	m	150		
	Install rate				
4	6 mm² 4c PVC SWA Cable with earth wire	m	150		
	Cable teminations				
	Supply rate				
5	Cable teminations	No	15		
	Install rate				
6	Cable teminations	No	15		
	4 mm² 4c PVC SWA Cable with earth wire				
	Supply rate				
7	4 mm² 4c PVC SWA Cable with earth wire	m	130		
	Install rate				
8	4 mm² 4c PVC SWA Cable with earth wire	m	130		
	Cable teminations				
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	Supply rate				
1	Cable teminations	No	13		
	Install rate				
2	Cable teminations	No	13		
	3 x 1,5 mm² PVC insulated				
	Supply rate				
3	3 x 1,5 mm² PVC insulated	m	3 500		
	Install rate				
4	3 x 1,5 mm² PVC insulated	m	3 500		
	1.5 mm² copper earth wire				
	Supply rate				
5	1.5 mm² copper earth wire	m	3 500		
	Install rate				
6	1.5 mm² copper earth wire	m	3 500		
	3 x 2,5 mm² PVC insulated				
	Supply rate				
7	3 x 2,5 mm² PVC insulated	m	2 500		
	Install rate				
8	3 x 2,5 mm² PVC insulated	m	2 500		
	2.5 mm² copper earth wire				
	Supply rate				
9	2.5 mm² copper earth wire	m	2 500		
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Cable trenching, Cable, Termination, cable labelling and cab

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	Install rate				
1	2.5 mm² copper earth wire	m	2 500		
	3 x 4 mm² PVC insulated				
	Supply rate				
2	3 x 4 mm² PVC insulated	m	100		
	Install rate				
3	3 x 4 mm² PVC insulated	m	100		
	4 mm² copper earth wire				
	Supply rate				
4	4 mm² copper earth wire	m	100		
	Install rate				
5	4 mm² copper earth wire	m	100		
	3 x 6 mm² PVC insulated				
	Supply rate				
6	3 x 6 mm² PVC insulated	m	50		
	Install rate				
7	3 x 6 mm² PVC insulated	m	50		
	6 mm² copper earth wire				
	Supply rate				
8	6 mm² copper earth wire	m	50		
	Install rate				
9	6 mm² copper earth wire	m	50		
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Cable trenching, Cable, Termination, cable labelling and cab

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	Cable warning Tape (320mm Wide)				
	Supply rate				
1	Cable warning Tape (320mm Wide)	m	255		
	Install rate				
2	Cable warning Tape (320mm Wide)	m	255		
	Cable labelling				
	Supply rate				
3	Cable labelling		Item		
	Install rate				
4	Cable labelling		Item		
	Trenching (300mm wide X 600mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.				
	Supply rate				
5	Trenching (300mm wide X 600mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.	m	255		
	Install rate				
6	Trenching (300mm wide X 600mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.	m	255		
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Cable trenching, Cable, Termination, cable labelling and cab

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Cable trenching, Cable, Termination, cable labelling and cable warning table

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	BILL No. 5				
	CONDUIT , SLEEVES, BOSAL, INCLUDING ALL ACCESSORIES SUCH AS BENDS ELBOWS AND SADDLES				
	Conduit , sleeves, bosal, including all accessories such as bends elbows and saddles				
	20 mm Ø PVC (Power & Data) conduit				
	Supply rate				
1	20 mm Ø PVC (Power & Data) conduit	m	1 845		
	Install rate				
2	20 mm Ø PVC (Power & Data) conduit	m	1 845		
	25 mm Ø PVC (Power & Data) conduit				
	Supply rate				
3	25 mm Ø PVC (Power & Data) conduit	m	615		
	Install rate				
4	25 mm Ø PVC (Power & Data) conduit	m	615		
	25 mm Ø galvanised conduit				
	Supply rate				
5	25 mm Ø galvanised conduit	m	100		
	Install rate				
6	25 mm Ø galvanised conduit	m	100		
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	30 mm Ø galvanised conduit				
	Supply rate				
1	30 mm Ø galvanised conduit	m	50		
	Install rate				
2	30 mm Ø galvanised conduit	m	50		
	50 mm Ø PVC conduit/Kabelflex Sleeve				
	Supply rate				
3	50 mm Ø PVC conduit/Kabelflex Sleeve	m	128		
	Install rate				
4	50 mm Ø PVC conduit/Kabelflex Sleeve	m	128		
	1 & 2 way round conduit box.				
	Supply rate				
5	1 & 2 way round conduit box.	No	74		
	Install rate				
6	1 & 2 way round conduit box.	No	74		
	3 & 4 way round conduit box.				
	Supply rate				
7	3 & 4 way round conduit box.	No	74		
	Install rate				
8	3 & 4 way round conduit box.	No	74		
	Cable Trays: P8000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)				
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Bill No. 5
Conduit , Sleeves, Bosal, including all accessories such as

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	Supply rate				
1	Cable Trays: P8000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)	m	20		
	Install rate				
2	Cable Trays: P8000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)	m	20		
	Cable Trays: P9000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)				
	Supply rate				
3	Cable Trays: P9000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)	m	20		
	Install rate				
4	Cable Trays: P9000, Wire Mesh and Hangers including (Trunking, Elbows, DB entry, Cabined entry, Tee Joints, other accessories)	m	20		
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Conduit , Sleeves, Bosal, including all accessories such as

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Bill No. 5

Conduit , Sleeves, Bosal, including all accessories such as bends elbows and sad

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	BILL No. 6				
	EARTHING SYSTEM AND LIGHTNING PROTECTION				
	Earthing system and Lightning protection				
	Earthrods should ideally be spaced approximately 10m intervals and connected to the earth wire to achieve equal potential bonding.1500mm Copper Earthrods/spikes for Equipotential Bonding Links				
	Supply rate				
1	Earthrods should ideally be spaced approximately 10m intervals and connected to the earth wire to achieve equal potential bonding.1500mm Copper Earthrods/spikes for Equipotential Bonding Links	No	19		
	Install rate				
2	Earthrods should ideally be spaced approximately 10m intervals and connected to the earth wire to achieve equal potential bonding.1500mm Copper Earthrods/spikes for Equipotential Bonding Links	No	19		
	Supply and Install Down Alluminium rod strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 Aluminium Rods				
	Supply rate				
3	Supply and Install Down Alluminium rod strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 Aluminium Rods	No	57		
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Earthing system and Lightning protection

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	Install rate				
1	Supply and Install Down Alluminium rod strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 Aluminium Rods	No	57		
	Supply and install Bare Stranded Copper wires in trenches including termination for Equipotential Bonding strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 copper cable				
	Supply rate				
2	Supply and install Bare Stranded Copper wires in trenches including termination for Equipotential Bonding strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 copper cable	m	57		
	Install rate				
3	Supply and install Bare Stranded Copper wires in trenches including termination for Equipotential Bonding strictly in accordance with the relevant SANS & IEC Specifications. 50mm2 copper cable	m	57		
	Bonding of water mains-bond the proposed water main to the adjacent down conductor. All water pipes, hand basins, sinks, baths, gutters and rain water pipes shall be bonded.				
	Supply rate				
4	Bonding of water mains-bond the proposed water main to the adjacent down conductor. All water pipes, hand basins, sinks, baths, gutters and rain water pipes shall be bonded.	Item			
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Bill No. 6
Earthing system and Lightning protection

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	Install rate				
1	Bonding of water mains-bond the proposed water main to the adjacent down conductor. All water pipes, hand basins, sinks, baths, gutters and rain water pipes shall be bonded.		Item		
	UT1 Boxes (Lighting protection inspection Box)				
	Supply rate				
2	UT1 Boxes (Lighting protection inspection Box)	No	19		
	Install rate				
3	UT1 Boxes (Lighting protection inspection Box)	No	19		
	Cable bonding-all external earth wires and cable armouring from the incoming and outgoing cables will be properly crimped into cable lugs and bolted to their respective earth bars.				
	Supply rate				
4	Cable bonding-all external earth wires and cable armouring from the incoming and outgoing cables will be properly crimped into cable lugs and bolted to their respective earth bars.		Item		
	Install rate				
5	Cable bonding-all external earth wires and cable armouring from the incoming and outgoing cables will be properly crimped into cable lugs and bolted to their respective earth bars.		Item		
	Supply and install 1.2m copper coated earth spike at every Distribution Board				
	Supply rate				
6	Supply and install 1.2m copper coated earth spike at every Distribution Board	No	4		
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ELECTRICAL INSTALLATION
Bill No. 6
Earthing system and Lightning protection

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	Install rate				
1	Supply and install 1.2m copper coated earth spike at every Distribution Board	No	4		
	Trenching (300mm wide X 500mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.				
	Supply rate				
2	Trenching (300mm wide X 500mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.	m	57		
	Install rate				
3	Trenching (300mm wide X 500mm deep) and backfilling in compacted layers (300mm), including bedding and installation of warning tape above cable.	m	57		
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	BILL No. 7				
	ETHERNET NETWORK RETICULATION				
	Ethernet network Reticulation				
	9U Wall Box - Glass Front; Lockable; 2 Posts with L Profiles; 1x Fan; 1x Fixed Shelf				
	Supply rate				
1	9U Wall Box - Glass Front; Lockable; 2 Posts with L Profiles; 1x Fan; 1x Fixed Shelf	No	1		
	Install rate				
2	9U Wall Box - Glass Front; Lockable; 2 Posts with L Profiles; 1x Fan; 1x Fixed Shelf	No	1		
	24 Port Patch Panel				
	Supply rate				
3	24 Port Patch Panel	No	1		
	Install rate				
4	24 Port Patch Panel	No	1		
	24 Port 5500 HP POE Switch				
	Supply rate				
5	24 Port 5500 HP POE Switch	No	1		
	Install rate				
6	24 Port 5500 HP POE Switch	No	1		
	D-Link 24 Port				
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Section 7
ELECTRICAL INSTALLATION
Bill No. 7
Ethernet network Reticulation

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	Supply rate				
1	D-Link 24 Port	No	1		
	Install rate				
2	D-Link 24 Port	No	1		
	RJ45 CAT6 Wall Boxes				
	Supply rate				
3	RJ45 CAT6 Wall Boxes	No	2		
	Install rate				
4	RJ45 CAT6 Wall Boxes	No	2		
	RJ45 Connector - Cat6				
	Supply rate				
5	RJ45 Connector - Cat6	No	4		
	Install rate				
6	RJ45 Connector - Cat6	No	4		
	CAT6 UTP Cable Grey				
	Supply rate				
7	CAT6 UTP Cable Grey	m	250		
	Install rate				
8	CAT6 UTP Cable Grey	m	250		
	Fibre Optic Cable				
	Supply rate				
9	Fibre Optic Cable	m	100		
	Carried to Summary			R	

Section 7
ELECTRICAL INSTALLATION
Bill No. 7
Ethernet network Reticulation

1	2	3
4	5	6

	Install rate				
1	Fibre Optic Cable6	m	100		
	RJ45 outlets for data points in power skirting, floor pedestal, 9way cluster unit with cover plates				
	Supply rate				
2	RJ45 outlets for data points in power skirting, floor pedestal, 9way cluster unit with cover plates	No	9		
	Install rate				
3	RJ45 outlets for data points in power skirting, floor pedestal, 9way cluster unit with cover plates	No	9		
	Unifi UAP-AC-Pro dual band 2.4/5GHz n/ac access points				
	Supply rate				
4	Unifi UAP-AC-Pro dual band 2.4/5GHz n/ac access points	No	1		
	Install rate				
5	Unifi UAP-AC-Pro dual band 2.4/5GHz n/ac access points	No	1		
	Carried to Summary			R	

Section 7
ELECTRICAL INSTALLATION
Bill No. 7
Ethernet network Reticulation

1	2	3
4	5	6

Section 7

Bill No. 7

Ethernet network Reticulation

SUMMARY

	Page No		Amount
Total Brought Forward from Page No.	232		
	233		
	234		
Carried Forward to Summary of Section No. 7		R	

Section 7
ELECTRICAL INSTALLATION
Bill No. 7
Ethernet network Reticulation

1	2	3
4	5	6

Item No		Quantity	Rate	Amount
	SECTION 7			
	BILL No. 8			
	ALLOW THE FOLLOWING PROVISIONAL AMOUNTS			
	Allowance for the electrical connection fee for a 100kVA transformer, 3-phase, 400V supply			
	Allowance for the electrical connection fee for a 100kVA transformer, 3-phase, 400V supply			
	Supply and install			
1	Allowance for the electrical connection fee for a 100kVA transformer, 3-phase, 400V supply	Item		110 000.00
	Carried Forward to Summary of Section No. 7		R	

Section 7
ELECTRICAL INSTALLATION
Bill No. 8
Provisional amounts

1	2	3
4	5	6

SUMMARY - ELECTRICAL INSTALLATION

Total Carried to Final Summary R

Section 7
ELECTRICAL INSTALLATION

1	2	3
4	5	6

FINAL SUMMARY

Section No		Page No		Amount R c
1	PRELIMINARIES	20		
2	SKILLS CENTRE	83		
3	SIMULATION ROOM	120		
4	GATE HOUSE	164		
5	ENTRANCE WALL	173		
6	EXTERNAL WORKS	198		
7	ELECTRICAL INSTALLATION	237		
	Sub-total		R	
	CONTINGENCY			
	Allow a contingency amount of R 400 000-00 (Four Hundred Thousand Rand Only) to be used as directed by the Principal Agent.		SUM	
	Sub-total		R	
	Add : Value added Tax @ 15%		R	
	Total Carried to Form of Offer and Acceptance		R	

1	2	3
4	5	6

PART C3 SCOPE OF WORKS

1. SCOPE OF WORK/ DELIVERABLES

The company bid proposal must cover, but not limited to the following:

The successful service provider will be expected to ensure the following specific deliverables, an understanding of which must be reflected in the project proposal:
The Contractor will be required to provide site preparation works, superstructure (the project consists of a main skills centre, the simulation area, the guard house, and the feature wall), roof, finishings (Plastering, Painting,

Tiling, and Carpentry & Joinery) as well as electrical & mechanical fittings and fixtures. Install electrical infrastructure on the completion of work and submit an approved Electrical Certificate of Compliance.

Bidders might be invited to make a presentation as part of the selection process.

b. TEMPORARY WORKS

The contractor will be responsible for the erection of work sheds and all necessary preliminary site preparations to enable him to commence work on the erection of the buildings. This will include ablution facilities and water connections.

The site will be used as a work placement for skills development.

NB: Successful service providers may be subject to the vetting and due diligence process before appointment by the Services SETA.

2. THE DURATION OF ASSIGNMENT

It is envisaged that the project will be for a period of 12 months.

PART C3.1: SPECIAL NOTES TO BIDDERS

The following special conditions are for compliance and attention to bidders:

1.1. Services SETA reserve the right to call interviews with short-listed bidders before final selection.

1.2. Services SETA reserve the right to conduct supplier due diligence prior to final award or at any time during the contract period. This may include surprise site visits.

1.3. Services SETA reserve the right to appoint the bidder that proves to be fully capable and qualified to handle and execute the job.

1.4. The proposals submitted must be in line with the detailed specification.

1.5. Services SETA reserve the right to cancel or withdraw this bid if:

i. Due to changed circumstances, there is no longer a need for this services; or
ii. Funds are no longer available to cover the total envisaged expenditure; or
iii. No acceptable bids are received; or
iv. There is a material irregularity in the Bid process.

1.6. In the case of sub-contracting or joint venture agreement, Services SETA will enter into a single contract with the principal bidder.

1.7. Bidders who are not registered on Central Supplier Database (CSD) must register before submission of bids.

1.8. Any completion of the bid document in pencil or erasable ink will not be acceptable and will automatically disqualify the submitted bid.

1.9. Successful bidder will be required to sign and enter into a formal contract upon the award.

1.10. Notwithstanding shortcomings and/or inconsistencies, if any, in this specification, which is only a minimum specification, a bidder shall make provision for a complete solution that will deliver the required service efficiently and cost-effectively.

1.11. Bid documents must be submitted physically to the closing address as reflected on the Request for Quotations.

1.12. Quotations received after the closing date and time will not be accepted for consideration.

1.13. This request for bid document contains confidential information about Services SETA, which has been provided to supply potential bidders with the data necessary to provide a holistic response.

1.14. No part of the contents may be used, copied, disclosed or conveyed in whole or in part to any party, in any manner whatsoever without the prior written permission of Services SETA.

1.15. Any reproduction or transmission of information contained in this document except for the sole purpose of responding to this bid is strictly prohibited.

References to Services SETA must not be made in any literature, promotional material, and brochures

or sales presentations without the express written consent of Services SETA.

PART C3.2: OHS SPECIFICATIONS

Health and Safety Specification

APPOINTMENT OF A SERVICE PROVIDER FOR A CIDB REGISTERED CONTRACTOR FOR THE CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE

Content Page

1. Definitions

In this document the following expressions shall bear the meanings assigned to them below:

1.1 **Client** means any person for whom construction work is being performed and/or undertaken (i.e. **Services Seta** for purposes of this specification)

1.2 **Construction Regulations** means the Occupational Health and Safety Act's, No 85 of 1993, new Construction Regulations that came into effect on 01 March 2014;

1.3 **Occupational health and safety plan** means a sufficiently documented plan to the standards of the Client, which addresses hazards identified and includes safe working procedures to mitigate, reduce or control the hazards identified;

1.4 **Occupational health and safety specification** means a documented specification of all health and safety requirements pertaining to the associated works on a construction site, so as to ensure the health and safety of persons working, visiting, passing, staying and/or working close to the construction site and/or other applicable areas such as site camp;

1.5 **OHSACT** means the Occupational Health and Safety Act, No 85 of 1993, as amended;

1.6 **Principal Contractor** means an employer, as defined by Section 1 of the OHSACT who performs construction work and is appointed by the Client to be in overall control and management of the construction site and works—**Tenderer.**

2. Introduction

In terms of Construction Regulation 5(1)(b) of the OHSACT, the Client [i]**Services Seta** is required to compile an occupational health and safety specification for **Proposed : CONSTRUCTION OF A SKILLS DEVELOPMENT CENTRE IN GA-MAFEFE** to prospective tenderers/bidders.

- This specification has as objective to ensure that the principal contractor entering into a contract with the Client achieves and maintain an acceptable level of occupational health and safety performance and compliance. This document forms an integral part of the contract between the Client and the principal contractor and the principal- and other contractors should make it part of any contract/s that they may have with other contractors and/or suppliers as far as this project is concerned.
- Compliance with this document does not absolve the principal contractor from complying with any other minimum legal requirements and the principal contractor remains responsible for the health and safety of his employees, those of his mandataries as well as any persons coming on site or on adjacent properties as far as it relates to the construction activities.

3. Scope

- To develop a project specific occupational health and safety specification that addresses the reasonable and foreseeable risks, exposures and aspects of occupational health and safety as affected by the abovementioned contract work.
- The specification will provide the requirements that the principal contractor and other contractors will have to comply with in order to reduce the risks associated with the abovementioned contract work and that may lead to incidents causing injury and/or ill health, to a level as low as reasonably practicable and possible.
- Any contractor interested in submitting a bid in response to the Client's formal tender for any construction project, has to prepare and include a draft occupational health and safety plan based on this specification and the OHSACT in its tender submission. The Client will evaluate this plan as part of its formal tender adjudication processes to ensure compliance with Construction Regulation 5 that stipulates that the Client may only appoint a contractor who has the necessary competencies and resources to carry of the work appointed for safely.

4. General occupational health and safety provisions

4.1 Hazard identification and risk assessment (Construction Regulation 9)

4.1.1 Baseline Risk assessments

- Annexure 5 of this specification contains a list of baseline risk assessment headings that have been identified by the Client as possibly applicable to the abovementioned contract work. It is, by no means, exhaustive and is only offered as assistance to the contractors intending to tender for the applicable works. It therefore remains the overall responsibility of the principal contractor to consider all applicable risks and pro-actively undertake risk assessments and implement appropriate risk mitigation measures.

4.1.2 Development of risk assessments

- Every principal contractor performing construction work shall, before the commencement of any construction work or work associated with the aforesaid construction work and during such work, ensure that risk assessments are

undertaken by a competent person, appointed in writing, and the risk assessments shall form part of the occupational health and safety plan and be implemented and maintained as contemplated in Construction Regulation 9(1).

The risk assessments shall include, at least:

- The identification of the current as well as emerging risks and hazards to which persons may be exposed to;
- The analysis and evaluation of the risks and hazards identified;
- A documented plan of safe working procedures (SWP) and any method statements to mitigate, reduce or control the risks and hazards that have been identified;

A plan to monitor the application of the SWPs; and

- A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation. Based on the risk assessments, the principal contractor must develop a set of site-specific occupational health and safety rules that will be applied to regulate the occupational health and safety aspects of the construction.
- The risk assessments, together with the site-specific occupational health and safety rules, must be submitted to the Client before mobilisation on site commences.
- Despite the risk assessments listed in Annexure 5, the principal contractor is required to conduct a baseline risk assessment and the aforesaid risk assessments must be incorporated into the baseline risk assessment. The baseline risk assessment must further include the SWPs and the applicable method statements based on the risk assessments.
- Hazard identification and risk assessments must be undertaken whilst SWPs must be developed for all out-of-scope work.

4.1.3 Review of risk assessments

- The principal contractor is to review the hazards identified, the risk assessments and the SWPs at each production planning and progress report meeting as the contract work develops and progresses and each time changes are made to the designs, plans and construction methods and/or processes.
- It is also proposed that should an incident occur the SWPs and all other applicable processes be re-evaluated to ensure that the mitigation measures are still applicable and appropriate and if not a revision of the risk assessments be undertaken.
- The principal contractor must provide the Client, other contractors and all other concerned or affected parties with copies of any changes, alterations or amendments as soon as possible but within 14 calendar days of such changes.

4.2 Legal Requirements

- All Contractors entering into a contract with the Client shall, as a minimum, comply with the –
    - OHSACT and a current, up-to-date copy of the OHSACT and its Regulations must be available on site at all times;
    - Compensation for Occupational Injuries and Diseases Act, No 130 of 1993 (COIDAct) as amended. The principal contractor will be required to submit a letter of registration and “good-standing” from the Compensation Commissioner or compensation insurer before being awarded the contract. A current, up-to-date copy of the COIDAct must be available on site at all times;

4.3 Structure and responsibilities

4.3.1 Overall supervision and responsibility for occupational health and safety

- 4.3.1.1 The principal contractor (appointed in terms of Construction Regulation 5(1)(k)) is responsible to implement and maintain the occupational health and safety plan approved by the Client.
- 4.3.2The Chief Executive Officer (in terms of Section 16(1) of the OHSACT) of the principal contractor is to ensure that the Employer (as defined in the OHSACT) complies with the OHSACT. Annexure 1 “Legal Compliance Checklist” may be used for this purpose and assistance.
- 4.3.3The principal contractor’s Chief Executive Officer may appoint any person reporting to him/her as Designated Person in terms of Section 16(2) of the OHSACT. Such Designated Person is responsible to assist the Chief Executive Officer to ensure that the Employer complies with the requirements of the OHSACT.
- 4.3.4 The construction manager, assistant construction manager, construction supervisor and assistant construction supervisor(s) appointed in terms of Construction Regulation 8 are responsible for supervising the construction work and in specific to ensure that all work undertaken comply with the requirements of the OHSACT, its Regulations and the Client’s specifications.

4.3.2 Operational responsibilities for occupational health and safety

- The principal contractor shall appoint designated competent employees and/or other competent persons as outlined in the following list to assist with the operational responsibilities for occupational health and safety. This list is only the minimum requirement and is therefore in no way exhaustive.

Appointment Description	Appointment required in terms of Safety Requirements
Assistant construction manager	Construction Regulation 8(2)
Assistant construction supervisor	Construction Regulation 8(8)
Construction manager	Construction Regulation 8(1)
Construction supervisor	Construction Regulation 8(7)
Construction vehicle, mobile plant and machinery supervisor	Construction Regulation 23
Demolition supervisor	Construction Regulation 14
Drivers of construction vehicles and operators of plant	Construction Regulation 23
Electrical installation and appliances inspector	Construction Regulation 24
Emergency, security and fire coordinator	Construction Regulation 29
Excavation supervisor	Construction Regulation 13
Appointment description	Appointment required in terms of
Fall protection supervisor	Construction Regulation 10
First-aiders	General Safety Regulation 3
Firefighting equipment inspector	Construction Regulation 29
Hazardous chemical substances supervisor	Hazardous Chemicals Substances Regulations 10
Incident investigator	General Administrative Regulation 9
Ladder inspector	General Safety Regulation 13(a)
Lifting machines and equipment inspector	Construction Regulation 22
Materials hoist inspector	Construction Regulation 19
Occupational health and safety committee	OHSACT Section 19
Occupational health and safety officer	Construction Regulation 8(5)
Occupational health and safety representatives	OHSACT Section 17
Person responsible for machinery	General Machinery Regulation 2
Risk assessor	Construction Regulation 9(1)
Scaffolding supervisor	Construction Regulation 16
Stacking and storage supervisor	Construction Regulation 28
Traffic management supervisor	OHSACT Section 9(1)
Traffic safety officer	OHSACT Section 9(1)
Welding supervisor	General Safety Regulation 9

- These appointments must be in writing and the responsibilities clearly stated together with the period for which each appointment is made.
- This information must be communicated to and agreed with the appointees. Copies of appointments must be submitted to the Client together with concise CV's of the appointees as part of the principal contractor's health and safety plan and if appointed copies of the appointments included in the occupational health and safety file.
- All appointments must be approved by the Client and any changes of appointees or appointments must be communicated to the Client and agreed upon before being implemented.
- The principal contractor must, furthermore provide the Client with an organogram of all contractors that he/she has appointed or intends to appoint and keep this list updated on a weekly basis.

4.3.3 Designation of occupational health and safety representatives (Section 17 of the OHSACT)

- Where the principal contractor employs more than 20 persons including the employees of other contractors (sub-contractors) and its supervisors] he has to appoint one occupational health and safety representative for every 50 employees or part thereof.
- General Administrative Regulation 6 requires that the election, appointment and subsequent designation of the occupational health and safety representatives be executed in consultation with employee representatives or employees. (Section 17 of the OHSACT as well as General Administrative Regulation 6 and 7 refer).
- Occupational health and safety representatives have to be designated in writing and the designation must include the area of responsibility of the person and term of the designation.

4.3.4 Duties and functions of the occupational health and safety representatives (Section 18 of the OHSACT)

- 4.3.4.1The principal contractor must ensure that the designated occupational health and safety representatives conduct a weekly inspection of their respective areas of responsibility, using a checklist, and report thereon to the principal contractor.

- 4.3.4.2. Occupational health and safety representatives must be included in accident and/or incident investigations.
- 4.3.4.3 Occupational health and safety representatives must attend all occupational health and safety committee meetings.

4.3.5 Appointment of occupational health and safety committee (Section 19 of the OHSACT)

- The principal contractor must establish an occupational health and safety committee consisting of all the designated occupational health and safety representatives together with a number of management representatives that are not allowed to exceed the number of occupational health and safety representatives on the committee and a representative of the Client who shall act as the chairperson without voting rights.
- The members of the occupational health and safety committee must be appointed in writing and copies of the appointments included in the occupational health and safety file.
- The occupational health and safety committee must meet as a minimum on a monthly basis and consider, at least, the following agenda items:
    1. Opening and welcome.
    2. Members present, apologies and absent.
    3. Minutes of previous meeting.
    4. Matters arising from the previous meeting.
    5. Occupational health and safety representatives' reports.
    6. Incident and/or accident reports and investigations.
    7. Incident, accident and/or injury statistics.
    8. Other matters.
    9. Endorsement of registers and other statutory documents by a duly authorised representative of the principal contractor.
    10. Close and next meeting

4.4 Mandataries

It is a requirement that the principal contractor, when he appoints contractors or sub-contractors in terms of Construction Regulations 7(1)(c) includes an OHSACT Section 37(2) agreement (i.e. Agreement with Mandatary) in his agreement with such contractor

4.5 Administrative controls and the occupational health and safety file

4.5.1 The occupational health and safety file [Construction Regulation 7(1)(b)]

- As required by Construction Regulation 7(1)(b), the principal contractor and other contractors will each keep an occupational health and safety file on site containing the following documents as a minimum:

4.5.1.1 Copy of the construction work permit (for applicable projects) (Construction Regulation 3)
4.5.1.2. Construction Work Permit (Construction Regulation 3.).
4.5.1.3. Updated copies of the OHSACT and its Regulations as well as the COID Act (General Administrative Regulation 4.).
4.5.1.4. Proof of registration and good standing with the Compensation Commissioner or a COID Insurer [Construction Regulation 5(1)(j)].
4.5.1.5. Occupational health and safety plan agreed with the Client including the underpinning risk assessment(s) and method statements [Construction regulation 7(1)].
4.5.1.6. Copies of occupational health and safety committee meetings and other relevant minutes.
4.5.1.7. Designs and/or drawings [Construction Regulation 7(1)(b)].
4.5.1.8. A list of contractors (sub-contractors) including copies of the agreements between the parties, proof of good standing with the Compensation Commissioner or COID Insurer, and the type of work to be undertaken by each contractor (Construction Regulation 7).
4.5.1.9. Appointment and designation forms as per paragraphs 4.3.1 and 4.3.2 above.

4.5.1.10. **The following registers:**

4.5.1.10.1 Accident and/or incident register (Annexure 1 of the General Administrative Regulations);
4.5.1.10.2 Occupational health and safety representatives' inspection register;
4.5.1.10.3 Construction vehicles and mobile plant inspections by controller;
4.5.1.10.4 Daily inspections of vehicles, plant and other equipment by the operator, driver and/or user;
4.5.1.10.5 Designer's inspections and structures record;
4.5.1.10.6 Inspection and maintenance of explosive actuated fastening devices;
4.5.1.10.7 Inspection of electrical installations (including inspection of portable electrical tools, electrical equipment and other electrical appliances);
4.5.1.10.8 Fall protection inspections;
4.5.1.10.9 First-aid box content;

4.5.1.10.10 Record of first-aid treatment;
4.5.1.10.11 Fire equipment inspections and maintenance;
4.5.1.10.12 Record of hazardous chemical substances kept and used on site;
4.5.1.10.13 Ladder inspections;
4.5.1.10.14 Machine safety inspections (including machine guards, lock-outs etc
4.5.1.10.15 Inspection registers and logbooks for lifting machines and –tackle (including daily inspections by drivers/operators);
4.5.1.10.16 Inspections of scaffolding;
4.5.1.10.17 Inspections of stacking and storage;
4.5.1.10.18 Inspections of structures;
4.5.1.10.19 Pressure equipment inspections; and
4.5.1.10.20 Inspections of welding equipment.
4.5.1.11. All other applicable records.

The Client will conduct and evaluation of the principal contractor's occupational health and safety file from time to time.

4.6 Occupational health and safety goals and objectives and arrangements for monitoring and review of occupational health and safety performance

- The principal contractor is required to maintain a casualty incident frequency rate (CIFR) of not more than four (See Annexure 2 to this document: "Measuring Injury Experience") and report on this to the Client on a monthly basis.

4.7 Application for construction work permit (Construction Regulation 3)

- A client who intends to have construction work carried out, must at least 30 days before that work is to be carried out apply to the provincial director in writing for a construction work permit to perform construction work if the intended construction work will—
- a) exceed 180 days;
- b) will involve more than 1800 person days of construction work; or
- c) the works contract is of a value equal to or exceeding thirteen million rand or Construction Industry Development Board (CIDB) grading level 6.

4.8 Medical certificates of fitness (Construction Regulation 7)

- As required by Construction Regulation 7(1)(g), the principal contractor must ensure that all employees have a valid medical certificate of fitness specific to the construction work to be performed. These certificates must be issued by an occupational health practitioner in the form of Annexure 3 (i.e. Annexure 3 in the Construction Regulations).

4.9 Training, awareness and competence

- The contents and syllabi of all training required by the OHSACT and Regulations must be included in the principal contractor's occupational health and safety plan.

4.9.1 General induction training

- All members of the contractor's site management as well as all the persons appointed as responsible for occupational health and safety in terms of the Construction and other Regulations will be required to attend a general induction session.
- All employees of the principal and other contractors must be in possession of proof of general induction training.
- All subsequent and newly appointed employees must also be subjected to the induction training as soon as possible after the appointment but prior to starting working on site.

4.9.2 Site-specific induction training

- The principal contractor will be required to develop a contract work project specific induction training course based on the risk assessments for the contract work and train all employees and other contractors and their employees in this.
- All employees of the principal and other contractors must be in possession of proof that they have attended a site-specific occupational health and safety induction training at all times.

4.9.3 Other training

4.9.1. All operators, drivers and users of construction vehicles, mobile plant and other equipment must be in possession of valid proof of training and where applicable licenses or proof of competency.
4.9.2. All employees in jobs requiring training in terms of the OHSACT and Regulations must be in possession of valid proof of training.

4.9.3. Occupational health and safety training requirements [as required by the Construction Regulations and as indicated by the occupational health and safety specification and the risk assessment(s)] i.e. -

4.9.3.1 General induction (Section 8 of the OHSACT);
4.9.3.2 Site and job specific induction, including visitors (Sections 8 and 9 of the OHSACT);
4.9.3.3 Site and project manager;
4.9.3.4 Construction supervisor;
4.9.3.5 Occupational health and safety representatives [Section 18 (3) of the OHSACT];
4.9.3.6Training of the appointees indicated in paragraphs 4.3.1 and 4.3.2;
4.9.3.7 Operators and drivers of construction vehicles and mobile plant (Construction Regulation 23);
4.9.3.8 Basic fire prevention and protection (Environmental Regulations 9 and Construction Regulation 29);
4.9.3.9 Basic first-aid (General Safety Regulations 3);
4.9.3.10 Storekeeping methods and safe stacking (Construction Regulation 28); and
4.9.3.11 Emergency, security and fire coordinator.

4.9.4 Awareness and promotion

The principal contractor is required to have a promotion and awareness programme in place to create an occupational health and safety culture within employees as well as sub-contractors. The following are some of the methods that may be used:

- Toolbox talks Posters
- Visuals Competitions
- Competitions Suggestion schemes
- Participative activities such as employee "occupational health and safety circles".

4.9.5 Notices and signs

The following notices and signs are, where applicable, compulsory on the construction site as well as the contractors' yards:

Area and/or activity where notice or sign is required	**Notice or sign required in terms of**
Display of notices and signs	General Safety Regulation 2B and SABS Code 1186
Entry	General Safety Regulation 2C(2)
First-aid	General Safety Regulation 3(6)
Toilets and change rooms	Facilities Regulation 2 (5) 4(2)(f)
Storage of flammable materials	General Safety Regulation 4(8)(a)(i) and (ii) [10(e) only applicable to contractor's yards]
Grinding wheels	Driven Machinery Regulation 8(1)(7)
Machinery	General Machinery Regulation 9 (Schedule D)
Explosive actuated fastening devises	Construction Regulation 21(2)(f)
Prohibition on smoking and eating or drinking at the workplaces where high risk substances [FR5 (1)] are stored or handled	Facilities Regulation 6(b)
Non-potable water	Facilities Regulation 7(B)

4.9.6 Competence

- The principal contractor shall ensure that his and other contractors' employees appointed are competent and that all training required to undertake the work safely and without risk to health of their or other persons, has been successfully completed before work commences.
- The principal contractor shall ensure that follow-up and refresher training is conducted on a regular basis as well as the contract work progresses and the work situation or requirements changes.
- Records of all training must be kept on the occupational health and safety file for auditing purposes.

4.10 Consultation, communication and liaison

The following arrangements will apply-

- 4.10.1 Occupational health and safety liaison between the Client, the principal contractor, the other contractors, the designer and other concerned parties will be through the occupational health and safety committee. In the absence of a health and safety committee, the Client and principal contractor will agree on an alternative communication forum to be implemented.
- 4.10.2 In addition to the above, communication may be directly to the Client or his appointed Agent, verbally (followed up in writing within 14 calendar days) or in writing, as and when the need arises.

- 4.10.3 Consultation with the workforce on occupational health and safety matters will be through their supervisors, occupational health and safety representatives, the occupational health and safety committee and their elected trade union representatives, if any.
- 4.10.4 The principal contractor will be responsible for the dissemination of all relevant occupational health and safety information to the other contractors, for example design changes agreed with the Client and the designer, instructions by the Client and/or his Agent, exchange of information between contractors, the reporting of hazardous and/or dangerous conditions and/or situations etcetera.
- 4.10.5 The principal contractor will be required to do site safety walks with the Client and/or his Agent on a basis to be determined and agreed between the parties.
- 4.10.6 The principle and other contractors will be required to conduct toolbox talks with their employees on at least a weekly basis and records of these including the topics discussed must be kept on the occupational health and safety file. Employees must acknowledge the receipt of toolbox talks which record must, likewise be kept on the occupational health and safety file.
- 4.10.7 The principal contractor's most senior manager on site will be required to attend all the Client's occupational health and safety meetings.
- 4.10.8 The Client or his Agent and the principal contractor will agree on the dates, times and venues of the occupational health and safety meetings.

4.11 Checking, reporting and corrective actions

4.11.1 Monthly compliance assessment by Client [Construction Regulation 5(1)(0)]

- The Client will be conducting a periodic assessment to comply with Construction Regulation 5(1)(*o*) and to confirm that the principal contractor has implemented and is maintaining the agreed and approved occupational health and safety plan.

4.11.2 Other assessments and inspections by the Client

- The Client reserves the right to conduct other ad-hoc assessments and inspections as deemed necessary. This could include among others site safety walks.

4.11.3 Conducting an assessment

- A representative of the principal contractor must accompany the Client on all assessments and inspections and may conduct his/her own inspection at the same time. Each party will, however, take responsibility for the results of his/her own assessment and/or inspection.

4.11.4 Contractor's assessments and inspections

- The principal contractor is to conduct his own internal assessments and inspections to verify compliance with his own occupational health and safety plan and management system as well as the requirements of this specification and the compliance of other contractors under his/her control.

4.11.5 Inspections by occupational health and safety representatives and other appointees

- Occupational health and safety representatives must conduct weekly inspections of their areas of responsibility and report thereon to their foreman or supervisor whilst other appointees must conduct inspections and report thereon as specified in their appointments for example vehicle, plant and machinery drivers, operators and users must conduct daily inspections before start-up.

4.11.6 Recording and review of inspection results

- All the results of the abovementioned inspections must be in writing, reviewed at occupational health and safety committee meetings, endorsed by the chairperson of the meeting and placed on the occupational health and safety file.

4.11.7 Reporting of inspection results

- The principal contractor is required to provide the Client with a monthly report in the format as per the attached Annexure 3: "Safety, Health and Environment Risk Management Report".

4.12 Incident reporting and investigation

4.12.1 Reporting of accidents and incidents (Section 24 and General Administrative Regulation 8 of the OHSACT)

The principal contractor must report all incidents where an employee is injured on duty to the extent that he/she:

- dies
- becomes unconscious
- loses a limb or part of a limb
- is injured or becomes ill to such a degree that he/she is likely either to die or to suffer a permanent physical defect or likely to be unable for a period of at least 14 days either to work or continue with the activity for which he/she was usually employed

or where -

- a major incident occurred
- the health or safety of any person was endangered

- where a dangerous substance was spilled
- the uncontrolled release of any substance under pressure took place
- machinery or any part of machinery fractured or failed resulting in flying, falling or uncontrolled moving objects
- machinery ran out of control

to the Client within two calendar days and to the Provincial Director of the Department of Labour within seven calendar days from date of incident (Section 24 of the OHSACT and General Administrative Regulation 8), **except** that, where a person has died, has become unconscious for any reason or has lost a limb or part of a limb or may die or suffer a permanent physical defect, the incident must be reported to both the Client and the Provincial Director of the Department of Labour forthwith by telephone, telefax or e-mail. All other reports should still be completed and provided as required.

- The principal contractor is required to provide the Client with copies of all statutory reports required in terms of the OHSACT within seven calendar days of the incident occurring.
- The principal contractor is required to provide the Client with copies of all internal and external accident/incident investigation reports, including the reports contemplated in 4.11.2 (3) and (4) below, within seven calendar days of the incident occurring.

4.12.2 Accident and incident investigation (General Administrative Regulation 9)

4.12.1.1. The principal contractor is responsible for the investigation of all accidents and/or incidents where employees and non-employees were injured to the extent that he, she and/or they had to be referred for medical treatment by a doctor, hospital or clinic.

4.12.1. 2. The results of the investigation to be entered into the accident and/or incident register.

4.12.1.3. The principal contractor is responsible for the investigation of all minor and non-injury incidents as described in Section 24 (1) (b) and (c) of the OHSACT and keeping a record of the results of such investigations including the steps taken to prevent similar accidents/incidents in future.

4.12.1.4. The principal contractor is responsible for the investigation of all road traffic accidents, related to the construction activities, and keeping a record of the results of such investigations including the steps taken to prevent similar accidents in future.

4.12.1.5. The Client reserves the right to hold its own investigation into an incident or call for an independent external investigation.

5. Operational control

5.1 Emergency preparedness, contingency planning and response

5.1.1 The Contractor must appoint a competent person to act as emergency controller and/or coordinator.

5.1.2 The principal contractor must conduct an emergency identification exercise and establish what emergencies could possibly develop. He/she must then develop detailed contingency plans and emergency procedures, taking into account any emergency plan that the Client may have in place.

5.1.3 The principal contractor and the other contractors must hold regular practice drills of contingency plans and emergency procedures to test them and familiarise employees with them.

5.2 First-aid (General Safety Regulation 3)

5.2.1 The principal contractor must provide first-aid equipment and have qualified first-aider(s) on site as required by General Safety Regulation 3 of the OHSACT.

5.2.2 The contingency plan of the principal contractor must include arrangements for the speedily and timeously transportation of injured and/or ill person(s) to a medical facility or getting emergency medical support to person(s) who may require it.

5.2.3 The principal contractor must have firm arrangements with his contractors in place regarding the responsibility of these contractor's first-aid arrangements as well as treatment of injured and/or ill employees.

5.3 Security

5.3.1 The principal contractor must establish site access rules and implement and maintain these throughout the construction period. Access control must, amongst others, include the rule that non-employees will not be allowed on site unaccompanied.

5.3.2 The principal contractor must develop a set of project applicable security rules and procedures and maintain these throughout the construction period.

5.4 Accommodation of traffic

5.4.1 Where construction work is undertaken in, next to or close to a public road, the use of appropriate as well as a sufficient number of road signs is of paramount importance to protect employees against traffic and to warn all road users of the presence of construction work as well as construction employees/risks/vehicles.

5.4.2 The principal contractor shall ensure that appropriate as well as a sufficient number of road signs are posted to protect employees against traffic and to warn all road users of the presence of construction work as well as construction

employees/vehicles. These signs shall be repeated and utilised, where appropriate, as actual construction work is approached.
5.4.3 The following signage is required as a minimum where construction work is undertaken in, next to or close to a public road:
5.4.3.1. “Construction work ahead” sign at least 45 meters before the start of the construction work;
5.4.3.2. “Lane narrows” sign 30 meters before the start of the construction work;
5.4.3.3. “Keep right/left” sign 15 meters before the start of the construction work and again where the tapering begins; and
5.4.3.4. Delineators and cones every 5 meters for the entire stretch of construction work.
5.4.4 Where construction work includes excavations in or next to a public road, warning lights or visible boundary indicators should be provided after dark or when visibility is poor.
5.4.5 The maintenance of all signage and especially those that is suitable after dark should be duly managed.
5.4.6 Where appropriate duly trained flag persons should be deployed a good distance ahead of areas where traffic is deviated or lanes closed off. These flag persons should be managed assertively to ensure that they add optimal value and should they not do so they should be retrained and if necessary replaced.
5.4.7 The community liaison officer (CLO) should also be sensitised on the optimal management of traffic and the risks involved and then be instructed to increase community awareness through talking to all stakeholders including the distribution of suitable information brochures.

5.5 Fall protection [Working in elevated positions (Construction Regulation 10)]

5.5.1 A pre-emptive risk assessment will be required for any work to be carried out from a fall risk position and will be classified as “work in elevated positions”.
5.5.2 As far as is practicable, any person working in an elevated position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing suitable fall arrest equipment to prevent the person falling from the platform, ladder or other device utilised. This fall arrest equipment will be, as far as is possible, secured to a point away from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge. Alternatively any platform, slab, deck or surface forming an edge over which a person may fall may be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.
5.5.3 Where the requirement in paragraph 5.5.2 is not practicable, the person will be provided with a full body harness that will be worn and attached above the wearer’s head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system that is approved by the Client.
5.5.4 Where the requirements in paragraph 5.5.3 are not practicable, a suitable catch net, which must be able to sustain the weight of at least the average person working in the elevated position, must be erected.
5.5.5 Employees working in elevated positions must be trained to do this safely and without risk to their or other person’s health and safety.
5.5.6 Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material, i.e. skylights and openings in the roof.
5.5.7 Updated records confirming the physical and psychological fitness of employees working at elevated positions should be kept on the health and safety file at all times.

5.6 Access scaffolding (Construction Regulation 16)

- Access scaffolding must be erected, used and maintained safely in accordance with Construction Regulation 16 and SA Bureau of Standards Code of Practice, SANS 10085 entitled, “The Design, Erection, Use and Inspection of Access Scaffolding”. Detailed consideration must be given to all scaffolding to ensure that it is properly planned to meet the working requirements, designed to carry the necessary loadings and maintained in a sound condition. It must also be ensured that there is sufficient material available to erect the scaffolding properly and safely.
- Scaffolding must be erected, altered, maintained or dismantled by person(s) who has/have adequate training and experience in this type of work or under the continuous and direct supervision of such a person.

5.7 Lifting equipment (Construction Regulation 22)

- Lifting equipment must be designed and constructed in accordance with the manufactures/designers specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the Driven Machinery Regulation 18 of the OHSACT:
- The Driven Machinery Regulation requires that:

a. Lifting equipment to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the table of maximum loads should be used by the driver/operator;
b. Each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;
c. Lifting equipment be fitted with a brake or other applicable device capable of holding the MML. This brake or device must automatically prevent the downward movement of the load when the lifting power is interrupted;
d. Lifting equipment fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML;
e. Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer of the machine and where no standard is available the factor of safety must be:

- chains – 4 (four)
- steel wire ropes - 5 (five)
- fibre ropes- 10 (ten)

f. Every hook or load attaching device must be designed as such or fitted with a device that will prevent the load from slipping off or disconnecting;
g. Every lifting machine must be inspected and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturers prescription or to 110% of the MML in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person;
h. All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and
i. No person may be lifted by a lifting machine not designed for lifting persons unless in a cradle approved by an inspector of the Department of Labour.

5.8 Lifting tackle

The following requirements will apply to lifting tackle:

a. Manufactured of sound material, well-constructed and free from latent defects;
b. Clearly and conspicuously marked with an identity number;
c. Maximum mass load factor of safety:

- Natural fibre ropes - 10(ten)
- Man-made fibre ropes and woven webbing - 06(six)
- Steel wire ropes – single rope - 06(six)
- Steel wire ropes – combination slings - 08(eight)
- Mild Steel chains - 05(five)
- High tensile/alloy steel chains - 04(four)

d. Steel wire ropes must be discarded (not used any further for lifting purposes) when wear and corrosion is evident and must be examined by a competent person every three months for this purpose and the results recorded in a designated log book.

5.9 Construction vehicle and mobile plant operators

- The following requirements will apply to construction vehicle and mobile plant operators:

a. Only certified and/or competent employees may be allowed to operate any construction vehicle and mobile plant.
b. Every lifting machine operator must be trained specifically for the type of lifting machine that he or she is operating.
c. Only employees duly authorised to do so may operate any construction vehicle and mobile plant.
d. Only employees physically and psychologically fit, i.e. in possession of a medical certificate of fitness, may be allowed to operate any construction vehicle and mobile plant.

5.10 Construction vehicles and mobile plant (Construction Regulation 23)

- Construction vehicles and mobile plant will initially during the competency evaluation process be inspected by the Client prior to being allowed on a project site and suppliers of hired vehicles, plant and equipment will be required to comply with this specification as well as the OHSACT and Regulations.
- Construction vehicles and mobile plant must be:

a. Of acceptable design and construction;
b. Maintained in good working order;
c. Used in accordance with their design and intention for which they were designed;
d. Operated and/or driven by trained, competent and authorised operators/drivers. No unauthorised persons to be allowed to drive construction vehicles and mobile plant;
e. Provided with safe and suitable means of access;
f. Fitted with adequate signalling devices to make movement safe including reversing;
g. Excavations and other openings must be provided with sufficient barriers to prevent construction vehicles and mobile plant from falling into same;
h. Provided with roll-over protection;
i. Inspected daily before start-up by the driver, operator and/or user and the findings recorded in a register/log book and any defects addressed as matter of urgency;
j. Fitted with two head and two tail lights that is in good working condition whilst operating under poor visibility conditions; and
k. Used for transporting persons must have seats firmly secured and sufficient for the number of persons being transported.

- No loose tools, material etcetera is allowed in the driver and/or operators compartment/cabin nor in the compartment in which any other persons are transported.
- No person may ride on construction vehicles and mobile plant except for in a safe place designed and provided for this purpose.
- The construction site must be organised to facilitate the movement of construction vehicles and mobile plant in such a manner that pedestrians and other vehicles are not endangered. Traffic routes to be suitable, sufficient in number and adequately demarcated.
- Construction vehicles and mobile plant left unattended after hours adjacent to roads and areas where there is traffic movement must be fitted with lights, reflectors or adequate barricades to prevent moving traffic from a sudden emergency, or to come into contact with the parked construction vehicles and mobile plant.
- In addition construction vehicles and mobile plant left unattended after hours must be parked with all buckets, booms etc. full lowered, the emergency brakes engaged and, where necessary, the wheels chocked, the transmission in neutral and the motor switched off and the ignition key removed and stored safely.
- All construction vehicles and mobile plant daily inspection records must be kept in the occupational health and safety file.

5.11 Electrical installations (Construction Regulation 24)

- Any electrical work undertaken as part of the project, including the installation of temporary electricity for construction use shall be in accordance with Construction Regulation 24 and the Electrical Installation Regulations. The principal contractor must ensure that:
  a. Existing services are to be located and clearly marked before construction commences and during the progress thereof;
  b. Where the abovementioned is not possible, employees with jackhammers etc. will be protected against electric shock by the use of suitable protective equipment e.g. rubber mats, insulated handles etcetera;
  c. Electrical installations and -machinery are sufficiently robust to withstand normal working conditions on site;
  d. Temporary electrical installations must be inspected at least once per week by a competent person and a record of the inspections kept on the occupational health and safety file;
  e. Electrical machinery used on a construction site must be inspected daily before start-up by the competent driver/operator or any other competent person and a record of the inspections kept on the occupational health and safety file; and
  f. A competent person appointed in writing must control all temporary electrical installations.

5.12 Electrical and mechanical lockout

- An electrical and mechanical lockout procedure must be developed by the principal contractor and submitted to the Client for approval before construction commences. All contractors on site must be informed of and adhere to this lockout procedure.

5.13 Use and storage of flammables (Construction Regulation 25)

- The principal contractor must ensure that:
  a. No person is required or permitted to work in a place where there is the danger of fire or an explosion due to flammable vapours being present unless adequate precautions is taken;

b. Flammables stored on a construction site are stored in a well-ventilated, reasonably fire-resistant container, cage or room that is kept locked with consistent access control measures in place and sufficient firefighting equipment installed and fire prevention methods practiced for example proper housekeeping;
c. Only one day's quantity of flammable is to be kept in the workplace;
d. Containers (including empty containers) to be kept closed to prevent fumes/vapours from escaping and accumulating in low lying areas; and
e. Welding and other flammable gases to be stored segregated as to the type of gas and empty and full cylinders.

5.14 Hazardous chemical substances

- The principal contractor must ensure that:
  a. Employees receive the necessary information and training to be able to use, handle and store hazardous chemical substances safely;
  b. The risk assessments required in terms of Construction Regulation 9 include employee exposure to hazardous chemical substances and that the necessary measures be taken to protect persons from being detrimentally affected by hazardous chemical substances present or used in the workplace;
  c. Suppliers provide the necessary information in the form of material safety data sheets regarding hazardous chemical substances required to ensure the safe use, handling and storage of these substances;
  d. An up-to-date list is kept on site of hazardous chemical substances stored and used together with the material safety data sheet of the said hazardous chemical substances;
  e. Hazardous chemical substances containers be clearly marked as to the contents and main hazardous category e.g. "Flammable" or "Corrosive" and the reference number of the hazardous chemical substances on the list indicated above;
  f. Hazardous chemical substances for example asbestos dust (if applicable) is not cleared by using compressed air but should be vacuumed;
  g. No person eats or drinks in an area where hazardous chemical substances are stored or utilised; and
  h. Hazardous chemical substances waste is disposed of safely in terms of hazardous waste disposal requirements.

5.15 Storage of flammable and hazardous chemicals (Hazardous Chemical Substances Regulations)

- See paragraphs 5.13 and 5.14 above.

5.16 Fire prevention and protection

- The principal contractor must ensure that:
  a. The risk of fire is avoided;
  b. Sufficient and suitable storage of flammables is provided;
  c. All employees are instructed in the use of the firefighting equipment and know how to attempt to extinguish a fire;
  d. A sufficient number of employees are appointed and trained to act as an emergency team to deal with fires and other emergencies;
  e. Employees are informed regarding emergency evacuation procedures and escape routes;
  f. Emergency escape routes are kept clear at all times and clearly marked;
  g. Evacuation assembly points are demarcated and made known to employees;
  h. Evacuation is regularly practiced to ensure that all persons are evacuated timeously and;
  i. Roll call is held after evacuation to account for all employees and to ensure that no-one including visitors and disabled persons have been left behind; and
  j. A clearly audible, to all persons on site, siren or alarm is fitted and regularly tested.

5.17 Housekeeping (Construction Regulation 27)

- The principal contractor must ensure that:
  a. Housekeeping is continuously implemented and maintained;
  b. Materials and equipment is properly stored;
  c. Scrap, waste and debris is removed off site regularly;
  d. Materials placed for use are placed safely and not allowed to accumulate or cause obstruction to the free-flow of pedestrians and vehicular traffic;
  e. Waste and debris not to be removed by throwing from heights but by chute or crane;
  f. Where practicable, construction sites are fenced off to prevent entry of unauthorised persons;
  g. Catch platforms or -nets are erected over entry and exit ways or over places where persons are working to prevent them being struck by falling objects;

h. An unimpeded work space is maintained for every employee;
i. Every workplace is kept clean, orderly and free of tools and the likes that are not required for the work being done;
j. As far as is practicable, every floor, walkway, stair, passage and gangway is kept in good state of repair, skid-free and free of obstruction, waste and materials;
k. The walls and roof of every indoor workplace be sound and leak-free; and
l. Openings in floors, hatchways, stairways and open sides of floors or buildings are barricaded, fenced, boarded over or provided with protection to prevent persons from falling.

5.18 Stacking and storage (Construction Regulation 28)

- The principal contractor must ensure that:

a. A competent person is appointed in writing to supervise all stacking and storage on a construction site;
b. Adequate storage areas are provided and demarcated;
c. The storage areas are kept neat and under control;
d. The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
e. The items in the lower layers can support the weight exerted by the top layers;
f. Cartons and other containers that may become unstable due to wet conditions are kept dry;
g. Pallets and containers are in good condition and no material is allowed to spill out;
h. The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. (The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang);
i. The articles that make up a single tier are consistently of the same size, shape and mass;
j. Structures for supporting stacks are structurally sound and able to support the mass of the stack;
k. No articles are removed from the bottom of the stack first but from the top tier first;
l. Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
m. Stacks that are in danger of collapsing are broken down and restacked;
n. Stability of stacks are not threatened by vehicles or other moving plant and machinery;
o. Stacks are built in a header and stretcher fashion and that corners are securely bonded; and
p. Persons climbing onto stacks do not approach unguarded moving machinery or electrical installations.

5.19 Eating, changing, washing and toilet facilities (Construction Regulation 30)

5.19.1 Toilets

- The provision of toilets for each sex is required in terms of the National Building Regulations and Construction Regulation 30.
- b. Chemical toilets are allowed instead of the water borne sewerage type. Toilets have to be provided at a ratio of at least 1 toilet per 30 employees.

5.19.2 Showers

- At least cold-water showers of some sort for each sex have to be provided at a ratio of at least 1 shower per 15 employees.

5.19.3 Change rooms

- Some form of screened off changing facility must be provided separately for each sex.

5.19.4 Eating facility

- Some form of eating facility sheltered from the sun, wind and rain must be provided.

5.20 Personal and other protective equipment (Sections 8, 15 and 23 of the OHSACT)

- The principal contractor is required to proactively identify the hazards in the workplace and deal with them on an ongoing basis. He/she must either remove them or, where impracticable take steps to protect employees and make it possible for them to work safely and without risk to health under the hazardous conditions.
- Personal protective equipment should, however, be the last resort and there should always first be an attempt to apply re-engineering and other solutions to mitigating hazardous situations before the issuing of personal protective equipment is considered. Where it is not possible to create an absolutely safe and healthy workplace the principal contractor is required to inform employees regarding this and issue, free of charge, suitable equipment to protect them from any hazards being present and that allows them to work safely and without risk to health in the hazardous environment.

- It is a further requirement that the principal contractor maintain the said equipment that he/she instructs and trains the employees in the use of the equipment and ensures that the prescribed equipment is used by the employee/s in a consistent and correct manner.
- Employees do not have the right to refuse to use and/or wear the equipment prescribed by the employer and, if it is impossible for an employee to use or wear prescribed protective equipment through health or any other valid reason, the employee cannot be allowed to continue working under the hazardous condition(s) for which the equipment was prescribed but an alternative solution has to be found that may include relocating the employee.
- The principal contractor may **not charge any fee** for protective equipment prescribed by him or her **but may charge for equipment under the following conditions,** following a disciplinary hearing:
    - Where the employee requests additional issue in excess of what is prescribed;
    - Where the employee has blatantly abused or neglected the equipment leading to early failure; and
    - Where the employee has lost the equipment.

5.21 Portable electrical tools and equipment (Electrical Machinery Regulation 9)

- Portable electrical tools and equipment includes every unit that takes electrical power from a 15 ampere plug point and is moved around for use in the workplace i.e. drills, saws, grindstones, portable lights, etcetera. In addition electrical appliances such as fridges, hotplates, heaters, etcetera must be inspected regularly but at least on a weekly basis and maintained to the same standards as portable electrical tools and appliances.
- The use, inspection and maintenance of portable electrical tools and equipment must be governed by the following:
    - Regular inspections by a competent person appointed in writing;
    - Inspection results must be recorded in a register;
    - Only competent authorised persons are allowed to use portable electrical tools and equipment; and
    - The correct protective equipment is worn/used whilst operating portable electrical tools and equipment.
    - This equipment - Must be maintained in good condition at all times to prevent an electrical shock to the user;
- The main source should incorporate an earth leakage protection device or receive power through a double wound transformer or be double insulated and clearly marked as such; and
- All equipment must be fitted with a switch to allow for safe and easy starting and stopping.

5.22 Portable lights

- Where construction work is undertaken in areas where there is insufficient natural illumination to undertake construction work in a safe manner, portable lights that meet the following requirements must be provided:

    a. Must be fitted with a robust non-hygroscopic non-conducting handle;
    b. Live metal parts which may become live must be protected against contact;
    c. The lamp must be protected by a strong guard;
    d. The cable lead-in must withstand rough handling;
    e. A register be kept for each piece of equipment with findings of regular inspections undertaken to evaluate the condition of these lights;
    f. Inspections must be undertaken that concentrate on at least the plug, cord, switch, guard and any obvious faults; and
    g. When used in wet/damp/metal container conditions, it must be protected.

5.23 Public health and safety (Section 9 of the OHSACT)

- The principal contractor is responsible for ensuring that non-employees affected by the construction work are made aware of the dangers likely to arise from said construction work as well as the precautionary measures to be observed to avoid or minimise those dangers. This includes among others:

    a. Non- employees entering the site for whatever reason;
    b. The surrounding community; and
    c. Passers by the site.
- Appropriate signage must be posted to this effect and all employees on site must be instructed to ensure that non-employees are protected at all times.
- All non-employees entering the site must receive site applicable induction into the hazards and risks and the control measures for these.

5.24 Excavations (Construction Regulation 13)

- Where excavation work is undertaken as part of the reinstatement of the external storm water lines, these excavations have has to comply with the following:

    5.24.1 Excavation work must be carried out under the supervision of a competent person with at least two years practical experience in excavation work who has been appointed in writing.

5.24.2 Before excavation work begins the stability of the ground must be evaluated. 5.24.3 Whilst excavation work is being performed, the principal contractor must take suitable and sufficient steps to prevent any person from being buried or trapped by a fall or dislodgement of material.
5.24.4 No person may be required or permitted to work in an excavation that has not been adequately shored or braced.
2.24.5 Where the excavation is in stable material or where the sides of the excavation are sloped back to at least the maximum angle of repose measured relative to the horizontal plane, shoring or bracing may be left out **but only after** written permission has been obtained from the appointed competent person.
5.24.6 Shoring and bracing must be designed and constructed to safely support the sides of the excavation and prevent it from collapsing.
5.24.7 Where uncertainty exists regarding the stability of the soil the opinion of a competent professional engineer or professional technologist must be obtained, before excavation proceeds, whose opinion will be decisive. The opinion must be in writing and signed by the engineer or technologist as well as the appointed excavation supervisor.
5.24.8 No load or material may be placed near the edge of an excavation if it is likely to cause a collapse of the excavation, unless suitable shoring has been installed to be able to carry the additional load. Best practice requires a one meter clearance so as to reduce the pressure on the side walls as well as risk of material falling onto persons inside the excavation.
5.24.9 Neighbouring/adjoining buildings, structures or roads that may be affected or endangered by the excavation must be suitably protected.
5.24.10 Every excavation must be provided with means of access that must be within 6 metres of any employee within the excavation at any time. Should ladders be utilised for this purpose they should be duly secured.
5.24.11 The location and nature of any existing services such as water, electricity, gas, telecommunication etcetera must be established before any excavation is commenced with and any service that may be affected by the excavation must be protected and made safe for employees working in or near in the excavation.
5.24.12 Every excavation, including the shoring and bracing or any other method to prevent a possible collapse, must be inspected by the appointed competent person as follows:

- Daily before work commences
- After an unexpected collapse of the excavation or part thereof
- After substantial damage to any support
- After rain

5.24.13 The results of any inspections must be recorded in a register kept on site in the health and safety file.
5.24.14 Every excavation accessible to the public or that is adjacent to a public road or thoroughfare or that threatens the safety of persons, must be adequately barricaded or fenced off, on all sides, to at least one meter high and as close to the excavation perimeter as practicable. All such excavations must also be provided with warning lights or visible boundary indicators after dark or when visibility is poor.

5.25 Working in confined spaces (such as the basement)

- When construction work is undertaken in a confined space (such as the basement), the principal contractor shall ensure that –

5.25.1 The area is tested with a gas monitor for the presence of any toxic/flammable gas.
5.25.2 If any gas is detected, the areas must be force ventilated by means of a blower for at least 15 minutes where after the air must be tested again.
5.25.3 Under no circumstances may any confined space be entered while there is a toxic/flammable gas present.
5.25.4 No person shall remain within a confined space for a period of more than one hour at a time. A minimum of 5 minute rest periods on the outside in an open area must be taken after this period before re-entering.
5.25.5 Should the alarm sound on the gas monitor, all employees must exit the confined space and the immediate area must also be evacuated immediately. The area must be properly ventilated and re-tested before re-entering the confined space. Professional support should be called for if necessary.
5.25.6 All employees that have to enter a confined space must be formally trained and confirmed competent before being required to enter such areas (new employees to complete this training and be declared competent before allowed to work in a confined space).
5.25.7 After the undertaking of the necessary work in a confined space, the person in charge of the activities must confirm that all the employees are accounted.

5.26 Demolition Work

5.26.1 Demolition work must be carried out under the supervision of a competent person who has been appointed in writing.

5.26.2 A detailed structural engineering survey of the structure to be demolished must be carried out and a method statement on the procedure to be followed in demolishing the structure must be developed by a competent person, before any demolition may be commenced.

5.26.3 As demolishing progresses the structural integrity of the structure must be checked at intervals as determined in the method statement by the appointed competent person in order to prevent any premature or uncontrolled collapse.

5.26.4 Steps must be taken to ensure that where a structure is being demolished:

a. no floor, roof or any other part of the structure is overloaded with debris, material or equipment that would make it unsafe;

b. precautions are taken to prevent the collapse of the structure when any frame, support or reinforcement is cut or removed;

c. shoring or propping is applied where necessary;

d. no employee is required or allowed to work under unsupported overhanging material; and

e. the stability of an adjacent building, structure, road or services is maintained at all times.

5.26.5 The location and nature of any existing services such as water, electricity, gas etcetera must be established before any demolition is commenced with and any service that may be affected by the demolition must be protected and made safe for employees and other persons.

5.26.6 Every stairwell in a building being demolished must be adequately illuminated.

5.26.7 Convenient and safe means of access must be provided and maintained at all times.

5.26.8 A catch platform or net must be erected over every entrance to the building or structure being demolished where the likelihood exists of material or debris falling on employees and/or persons entering and leaving and every other area where the likelihood exists of material or debris falling on employees and/or persons must be fenced or barricaded.

5.26.9 No material may be dropped on the outside of the building unless the area into which it is dropped is fenced off or barricaded.

5.26.10 Waste and debris may only be disposed from a height in a chute with the following design:

a. adequately constructed and rigidly fastened and secured;

b. inclined greater than 45 degrees and enclosed on all four sides;

c. fitted with a gate or control mechanism to control the flow of material that may not freefall down the chute;

d. discharged into a container or a barricaded area; and

e. demolition equipment may only be used on floors or slabs that are able to support it.

5.27 Material hoists

- The principal contractor shall:

a. Ensure that every material hoist and its tower have been constructed of sound material in accordance with the generally accepted technical standards and are strong enough and free from defects.

b. Cause the tower of every material hoist to be-

c. Erected on firm foundations and secured to the structure or braced by steel wire guy ropes and to extend to such a distance above the highest landing as to allow a clear and unobstructed space of at least 900 mm for over travel;

d. Enclosed on all sides at the bottom, and at all floors where persons are at risk of being struck by moving parts of the hoist, except on the side or sides giving access to the material hoist, with walls or other effective means to a height of at least 2100 mm from the ground or floor level; and

e. provided with a door or gate at least 2100 mm in height at each landing and such door or gate will be kept closed, except when the platform is at rest at such a landing.

f. Cause-

- the platform of every material hoist to be designed in such a manner that it will safely contain the loads being conveyed and that the combined weight of the platform and the load does not exceed the designed lifting capacity of the hoist;
- the hoisting rope of every material hoist which has a remote winch to be effectively protected from damage by any external cause to the portion of the hoisting rope between the winch and the tower of the hoist; and
- every material hoist to be provided with an efficient brake capable of holding the platform with its maximum load in any position when the power is not being supplied to the hoisting machinery.
- Not require or permit trucks, barrows or material to be conveyed on the platform of a material hoist and no person will so convey trucks, barrows or material unless such articles are so secured or contained in such a manner that displacement thereof cannot take place during movement.

- Cause a notice, indicating the maximum mass load which may be carried at any one time and the prohibition of persons from riding on the platform of the material hoist, to be affixed around the base of the tower and at each landing.
- Not require or permit any person to operate a hoist, unless the person is competent in the operation thereof.
- Not require or permit any person to ride on a material hoist.
- Cause every material hoist to be inspected on a daily basis by a competent person who has been appointed in writing and has the experience pertaining to the erection and maintenance of material hoists or similar machinery. This inspection shall include the determination of the serviceability of the entire material hoist including guides, ropes and their connections, drums, sheaves or pulleys and all safety devices. The inspection results shall be entered and signed in a record book, which will be kept on the premises for that purpose and which would become part of the health and safety file at the end of the contract ; and
- Cause every material hoist to be properly maintained and ensure that the maintenance records in this regard are kept on site which should also become part of the health and safety file at the end of the contract.

5.28 Welding, flame cutting or similar operations

5.28.1 A competent person will be appointed to supervise welding, flame cutting or similar operations on site.

5.28.2 The following rules will govern all welding and flame cutting or similar operations:

a. The welder will be trained regarding the safe use/operation of the equipment.

b. The welder and his assistant will be provided with effective and appropriate personal protective equipment and/or clothing.

c. Cables and electrode holders will be effectively insulated.

d. The workplace will be effectively screened off to prevent bystanders from being affected by the welding rays or they will be provided with personal protective equipment.

e. Special precautions will be taken where welding is undertaken in confined spaces e.g. proper and sufficient ventilation will be provided.

f. In wet or damp conditions the welding equipment and the welder will be properly insulated and someone will be on standby to assist in the event of any emergency.

g. A qualified person will certify in writing that it is safe to enter and work in a specific confined space before welding or flame cutting is undertaken.

h. No welding, flame cutting, grinding, soldering or similar work shall be undertaken in respect of any drum, vessels or similar object or container where such object or container-

- is completely closed, unless the rise in internal pressure cannot render it dangerous; or
- contains any substance which, under the action of heat may explode or react to form dangerous or poisonous substances.

i. Where pressure vessels/welding cylinders containing oxygen or acetylene are transported or used, the proper precautionary measures will be taken against bumping, falling, rolling etcetera.

j. Gas welding hoses may only be joined with approved connectors and clamps.

k. No oil or grease may be applied to oxygen valves and fittings.

l. It is a sound practice to store pressure vessels and/or welding cylinders vertically and to secure them by means of a chain.

m. Acetylene cylinders may never be inclined in excess of 45º.

n. Proper and adequate fire prevention measures will be instituted and maintained for as long as the welding continues.

o. Where explosive and/or flammable vapours are present welding will only be done under “hot work” permits.

5.29 Transportation of employees

5.29.1 Any vehicle used to transport employees must have seats firmly secured and adequate for the number of employees to be carried. Covid -19 protocol have to be observed in transporting employees.

5.29.2 Regulation 247 of the National Road Traffic Act, Number 93 of 1996 (NRTA) stipulates that the principal contractor shall not allow employees to be transported in a vehicle unless the portion of the vehicle in which the employees are being conveyed is enclosed to a height of –

a. at least 350 mm above the surface on which employees are seated; or

b. at least 900 mm above the surface on which employees are standing,

in a manner and with a material of sufficient strength to prevent employees from falling from such vehicle when it is in motion. 5.29.3 Regulation 247 of the NRTA also stipulates that the principal contractor shall also not

allow any employees to be conveyed in the goods compartment of a vehicle together with any tools or goods, except their personal effects, unless that portion in which the employees are being conveyed is separated by means of a partition, from the portion in which such goods are being conveyed.

5.30 Demolition of asbestos if any

- Should any asbestos material be encountered that needs to be removed or demolished, the principal contractor shall ensure that:

  a. No demolition of asbestos is undertaken unless the principal contractor or any sub-contractor designated to do so is duly registered as an asbestos contractor with the Department of Labour

  b. A plan of work is developed, approved by an Approved Asbestos Inspection Authority and submitted to the Department of Labour at least 14 days prior to commencement of any asbestos demolition work. Proof that the plan of work was submitted to the Department of Labour should be available in the health and safety file which should be kept on site at all times.

  c. Asbestos waste is only disposed of in a waste disposal site specifically designated for this purpose in terms of the Environment Conservation Act, 1989 (Act 73 of 1989), as amended. A certificate from the designated disposal site should be obtained and submitted to the client for evaluation. A copy of this certificate should also be available in the health and safety file at all times.

6. Health and safety policy

- The principal contractor has to provide the Client, as an annexure to the health and safety plan, with a detailed health and safety policy outlining the principal contractor's stance on and principles adopted for health and safety.
- The covid-19 Policy have to be included too.

7. Cost for health and safety measures during the construction process

- To enable the Client to comply with Construction Regulation 5(1)(g), all potential principal contractors submitting tenders/bids have to demonstrate to the Client that sufficient provision has been made for the cost to implement and maintain the health and safety plan proposed by the principal contractor to meet the requirements of this health and safety specification as well as that of the OHSACT and its Regulations.
- A detailed schedule of costs has to be included in the health and safety plan submitted as part of the potential principal contractor's tender document. Failure by the principal contractor to adhere to this requirement will force the Client to reject the tender/bid in terms of Construction Regulation 5(1)(h) **Project specific risk assessment requirements**

9. Overview of annexures

Annexure 1: Annexure 1: Fulfilment of the Construction Regulations, 2014
Annexure 2: Duties of Principal Contractor and Contractor Construction Regulation 7
Annexure 3: Management and supervision of construction work CR8.
Annexure 4: Fulfilment of the Construction Regulations, 2014.
Annexure 5: Cost implications OHS Act
Annexure 6: Cost Implication to Construction Regulation 2014
Annexure 7: Cost implication to Cvid-19
Annexure 8 Contractors Safety File Contents Guidelines
Annexure 9: Guidelines on implementing Workplace controls: Risk Assessment (Covid-19)
Annexure 10: Evaluation Criteria

All these are part of the tender returnables.

1. I am fully aware of the above **OHS Specification** requirements to be fulfilled by the Principal contractor and contractors

…… ……

SIGNATURE **DATE**

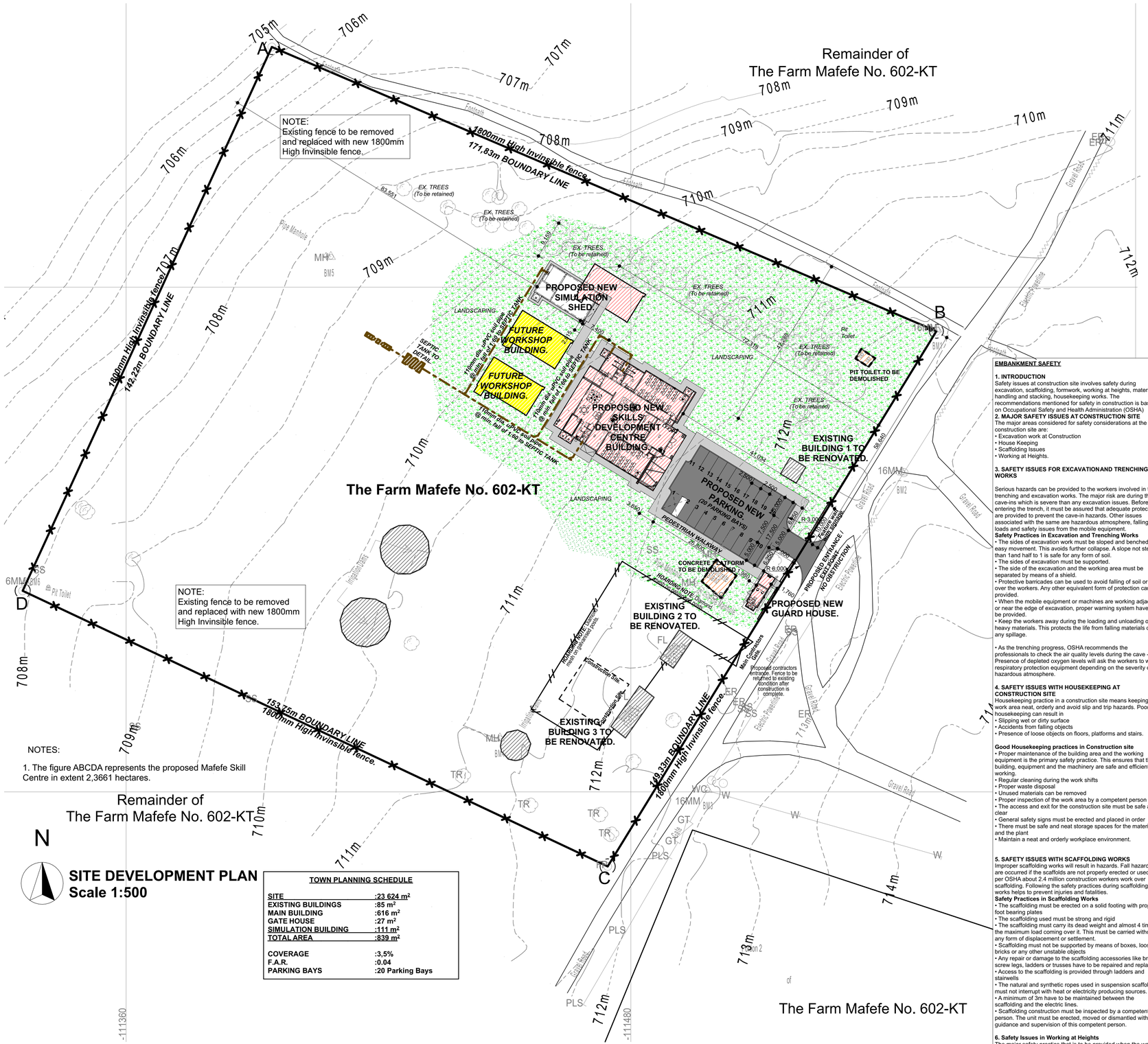
(of person authorised to sign on behalf of the Tenderer)

PART C4 SITE INFORMATION

The project site is located at:

- 24°12’14.3”S 30°06’43.6E

C4.1 DRAWINGS



NOTES:

1. The figure ABCDA represents the proposed Mafefe Skill Centre in extent 2,3661 hectares.

SITE DEVELOPMENT PLAN
Scale 1:500

TOWN PLANNING SCHEDULE

SITE	:23 624 m²
EXISTING BUILDINGS	:85 m²
MAIN BUILDING	:616 m²
GATE HOUSE	:27 m²
SIMULATION BUILDING	:111 m²
TOTAL AREA	:839 m²
COVERAGE	:3,5%
F.A.R.	:0.04
PARKING BAYS	:20 Parking Bays

EMBANKMENT SAFETY

1. INTRODUCTION
Safety issues at construction site involves safety during excavation, scaffolding, formwork, working at heights, material handling and stacking, housekeeping works. The recommendations mentioned for safety in construction is based on Occupational Safety and Health Administration (OSHA)
2. MAJOR SAFETY ISSUES AT CONSTRUCTION SITE
The major areas considered for safety considerations at the construction site are:
• Excavation work at Construction
• House Keeping
• Scaffolding Issues
• Working at Heights.

3. SAFETY ISSUES FOR EXCAVATIONAND TRENCHING WORKS

Serious hazards can be provided to the workers involved in the trenching and excavation works. The major risk are during the cave-ins which is severe than any excavation issues. Before entering the trench, it must be assured that adequate protections are provided to prevent the cave-in hazards. Other issues associated with the same are hazardous atmosphere, falling loads and safety issues from the mobile equipment.
Safety Practices in Excavation and Trenching Works
• The sides of excavation work must be sloped and benched for easy movement. This avoids further collapse. A slope not steeper than 1and half to 1 is safe for any form of soil.
• The sides of excavation must be supported.
• The side of the excavation and the working area must be separated by means of a shield.
• Protective barricades can be used to avoid falling of soil or rock over the workers. Any other equivalent form of protection can be provided.
• When the mobile equipment or machines are working adjacent or near the edge of excavation, proper warning system have to be provided.
• Keep the workers away during the loading and unloading of the heavy materials. This protects the life from falling materials or any spillage.

• As the trenching progress, OSHA recommends the professionals to check the air quality levels during the cave -ins. Presence of depleted oxygen levels will ask the workers to wear respiratory protection equipment depending on the severity of hazardous atmosphere.

4. SAFETY ISSUES WITH HOUSEKEEPING AT CONSTRUCTION SITE
Housekeeping practice in a construction site means keeping the work area neat, orderly and avoid slip and trip hazards. Poor housekeeping can result in
• Slipping wet or dirty surface
• Accidents from falling objects
• Presence of loose objects on floors, platforms and stairs.

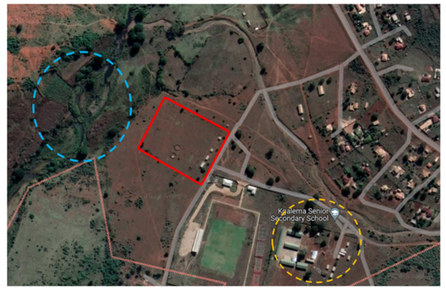
Good Housekeeping practices in Construction site
• Proper maintenance of the building area and the working equipment is the primary safety practice. This ensures that the building, equipment and the machinery are safe and efficiently working.
• Regular cleaning during the work shifts
• Proper waste disposal
• Unused materials can be removed
• Proper inspection of the work area by a competent person
• The access and exit for the construction site must be safe and clear
• General safety signs must be erected and placed in order
• There must be safe and neat storage spaces for the materials and the plant
• Maintain a neat and orderly workplace environment.

5. SAFETY ISSUES WITH SCAFFOLDING WORKS
Improper scaffolding works will result in hazards. Fall hazards are occurred if the scaffolds are not properly erected or used. As per OSHA about 2.4 million construction workers work over scaffolding. Following the safety practices during scaffolding works helps to prevent injuries and fatalities.
Safety Practices in Scaffolding Works
• The scaffolding must be erected on a solid footing with proper foot bearing plates
• The scaffolding used must be strong and rigid
• The scaffolding must carry its dead weight and almost 4 times the maximum load coming over it. This must be carried without any form of displacement or settlement.
• Scaffolding must not be supported by means of boxes, loose bricks or any other unstable objects
• Any repair or damage to the scaffolding accessories like braces, screw legs, ladders or trusses have to be repaired and replaced.
• Access to the scaffolding is provided through ladders and stairwells
• The natural and synthetic ropes used in suspension scaffolding must not interrupt with heat or electricity producing sources.
• A minimum of 3m have to be maintained between the scaffolding and the electric lines.
• Scaffolding construction must be inspected by a competent person. The unit must be erected, moved or dismantled with the guidance and supervision of this competent person.

6. Safety Issues in Working at Heights
The major safety practice that is to be provided when the workers are at heights are to provide sufficient fall protection. Greatest fatalities in the construction industry are caused due to falls. The major reasons involved in falling are:
• Unstable working surfaces
• Failure to use fall protection equipment and accessories
• Human errors

Safety Practice when Working at Heights
• Use of aerial lifts or elevated platforms to provide safer working surface
• The holes in the floors must be covered
• Personal fall arrest systems or safety net systems must be used
• Provide guard rails
• Warning lines or control lines can be installed
• Proper training of the workers regarding safety working practice
• Make workers aware about the use and maintenance of Personal protective equipment (PPE)
• Check the working condition of the equipment working at heights.

LOCALITY PLAN & WIND DIRECTION



REQUIREMENTS FOR PART XA OF THE NATIONAL BUILDING REGULATIONS

SANS 10400-XA:2011 4.2

The functional regulations cointaned in part XA of the National Building Regulations shall be deemed to be satisfied where in any building of occupancy classified in terms of Regulations A20 as A1, A2, A3, A4, C1, C2, E1, E2, E3, E4, F1, F2, F3, G1, H1, H2, H3, H4 and H5 :

1. The orientation and shading are in accordance with the requirements of SANS 204

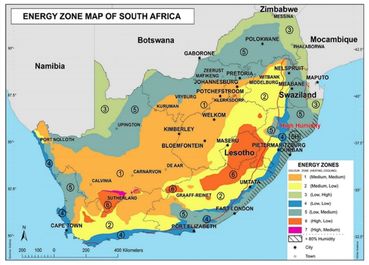
2. External walls are in accordance with the requirements of 4.4.3 of SANS 10400-XA:2011

3. Fenestration is in accordance with the requirements of 4.4.4 of SANAS 10400-XA:2011

4. Roof assembly construction is in accordance with the requirements of 4.4.5 of SANS 10400-XA:2011

5. If in-slab heating is installed,it is in accordance with the requirements of 4.4.2 of SANS 10400-XA:2011

BUILDING DETAILS



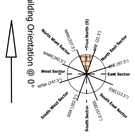
1 ORIENTATION AND SHADING

(a) ORIENTATION

In accordance with the requirements of SANS 204:2011-4.2

SANS 204:2011 4.1
Site layouts shall enable builbings to be for optional orientation given in figures

SANS 204:2011 4.2
Buildings shoud be orientated in accordance with figures B1 to B6 approximately true north. If buildings cannot be thus orientated, they shall be orientated to achieve the lowest net energy use.



(b) SHADING

In accordance with the requirements of SANS 204:2011-4.3.5

SANS 204:2011 4.5.1
Where shading is used,the building shall

(a) have a permanent feature such as veranda,balcony,fixed canopy,eaves or shading hood,which
(1) extends horizontally on both sides of the glazing for the same projection distance P
(2) provides the equivalent shading with a reveal or other shading element.

(b) have external shading device,such as a shutter,blind,vertical or horizontal building screen with blades,battens or slats,which
(1) is capable of restricting at least 80% of summer solar radiation,and
(2) if adjustable,is readily operated either manually,mechanically or electronically by the building occupants.

NOTE: Window on east & west facade to be shaded according to SANS 204:2011-4.3.5
For shading details,see fenestration schedule,plans,sections & elevations.

KEY LEGEND

- EXISTING BUILDING
- NEW PROPOSED
- DEMOLISH
- FUTURE DEVELOPMENT

NOTES

ALL MATERIALS AND CONSTRUCTION MUST COMPLY WITH THE NATIONAL BUILDING REGULATIONS (ACT NO 103 OF 1977) INCLUDING ALL AMMENDMENTS AS WELL AS THE BY-LAWS OF THE LOCAL AUTHORITIES.

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DRAWINGS ARE NOT TO BE SCALED
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BRICKFORCE IS TO BE INSTALLED EVERY 5 COURSES OF BRICKWORK
PROVIDE DPC TO WALL AT SLAB LEVEL, UNDER ALL CILLS AND TO ALL CHANGES IN FLOOR LEVELS

DRAINAGE NOTES:

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ALL DRAIN PIPES PASSING UNDER BUILDING OR FOOTINGS TO BE ENCASED IN CONCRETE OF MINIMUM 100mm THICKNESS ALL ROUND PIPE.

GLASS NOTES:

0 - 0.75 SQM		3mm GLASS
0,75 - 1,5 SQM		4mm GLASS
1.5 - SQM		6mm GLASS

WINDOWS AND SIDELIGHTS LOWER THAN 300mm FROM FLOOR 6MM SAFETY GLASS. SLIDING OR FRENCH DOORS 6MM SAFETY GLASS WITH SAFETY INDICATORS

DESIGN APPROVAL:
Approved by: _____

Signature: _____
Date: _____

NO	REVISION	DATE

DEVELOPER

IMPLEMENTING AGENT:
SERVICES SETA

ARCHITECT
studioe-DESIGN
architecture + design
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Tel: 012 664 0168 Cell: 078 402 9298
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email: donald@studioe-design.co.za
www.studioe-design.co.za

PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
SITE PLAN

FILE NO.
53.2023_ SETA SKILLS CENTRE

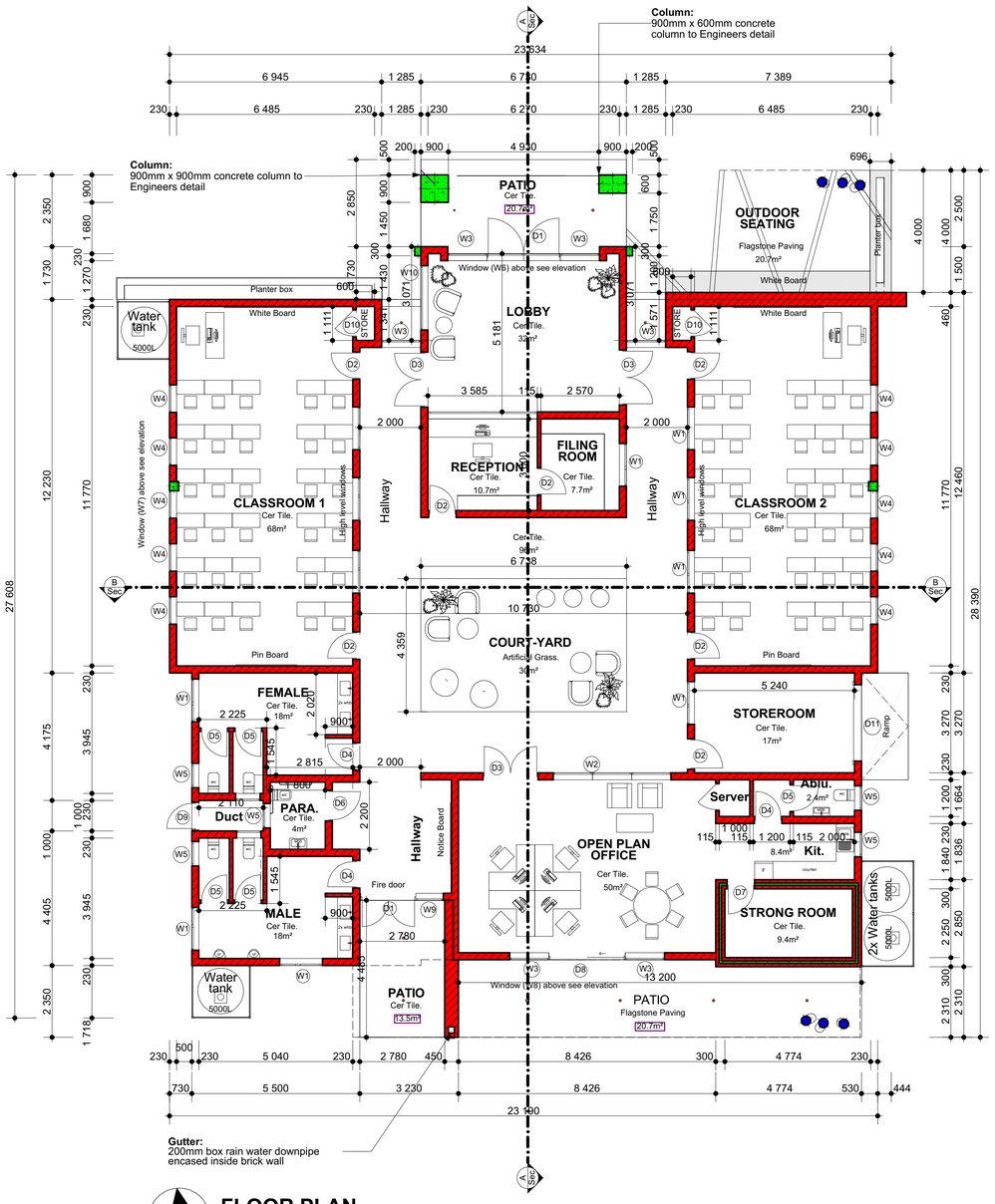
PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE **AS SHOWN**

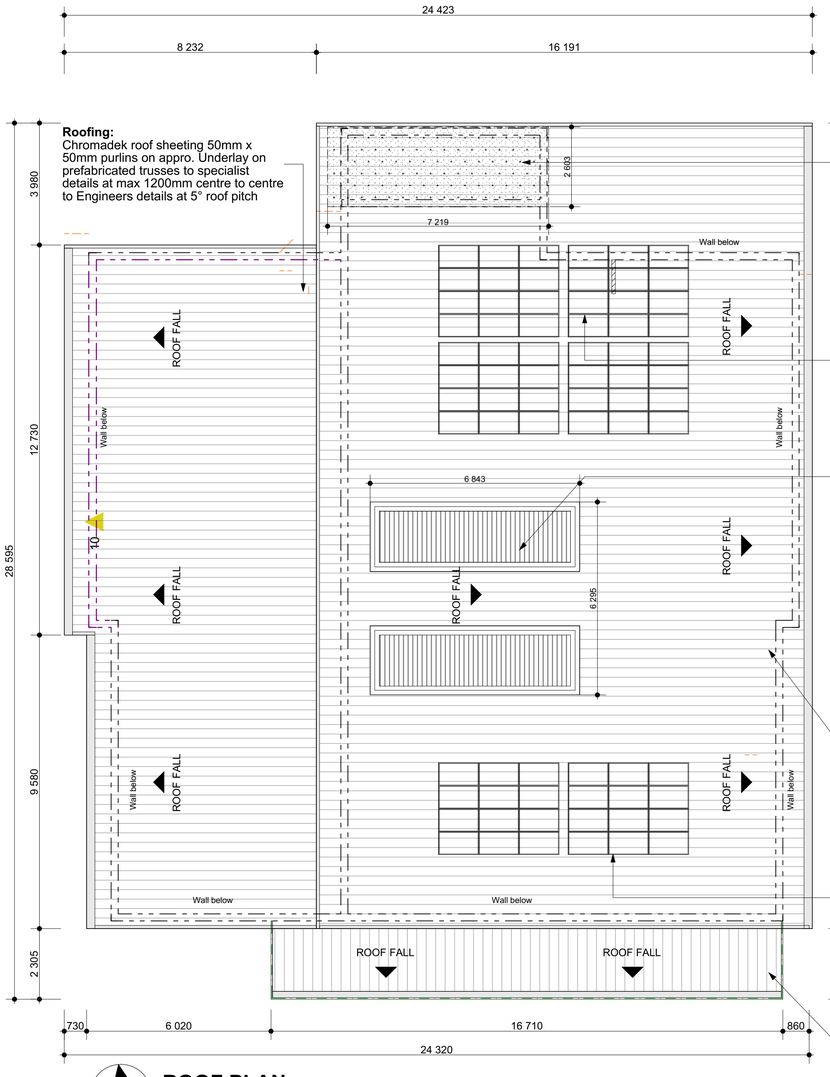
DRAWN BY: S.C.N	DATE: 20 FEB 2024
ARCHITECT: D.M.M	DATE: 20 FEB 2024
CLIENT DEPARTMENT	DATE: 20 FEB 2024

DRAWING NO.

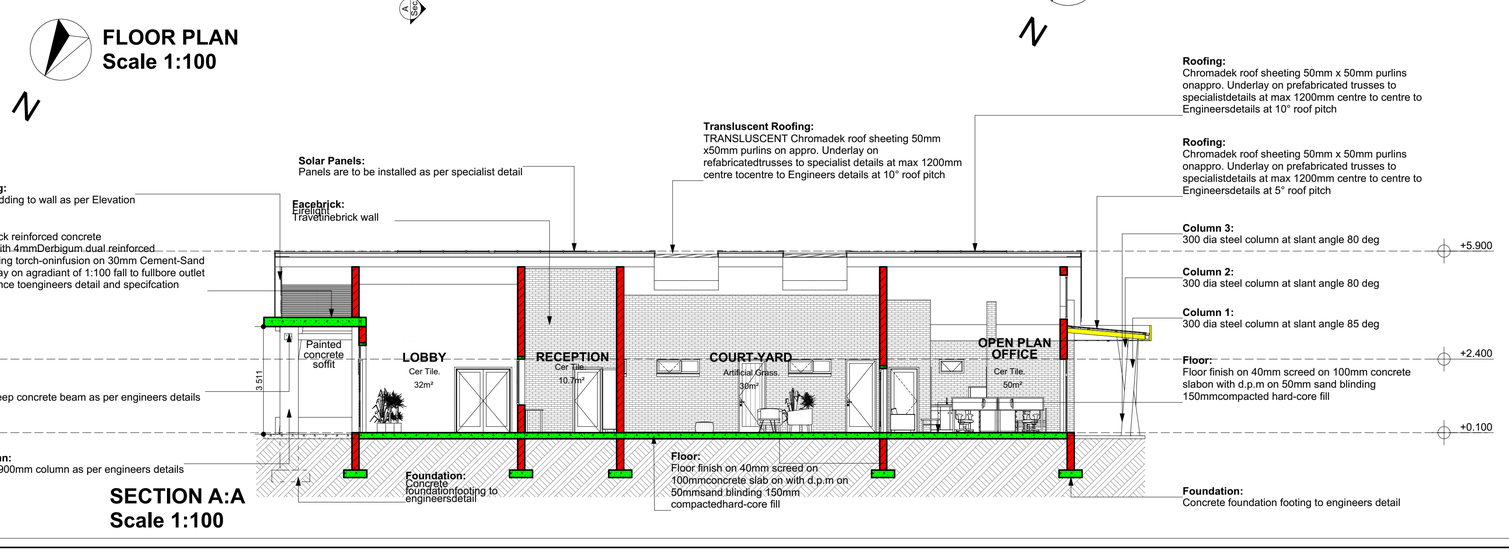
COUNCIL DRAWINGS



FLOOR PLAN
Scale 1:100



ROOF PLAN
Scale 1:100



SECTION A:A
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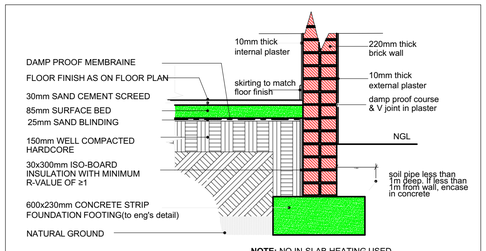
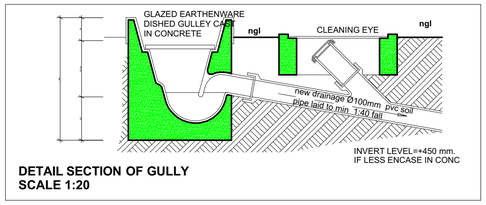


FOUNDATION DETAIL
SCALE 1:20



DETAIL SECTION OF GULLY
SCALE 1:20

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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
FLOOR PLAN; ROOF PLAN; SECTION & DETAILS

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

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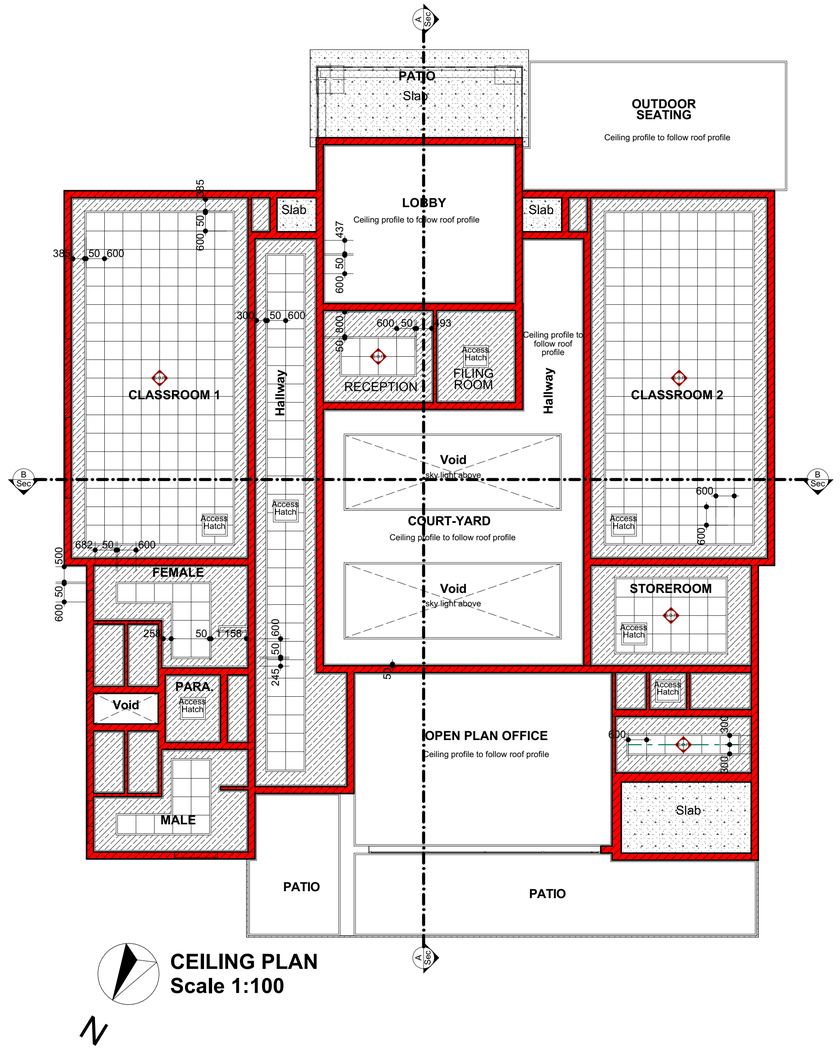

CEILING PLAN
Scale 1:100

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WINDOWS AND SIDELIGHTS LOWER THAN 300mm FROM FLOOR 6MM SAFETY GLASS. SLIDING OR FRENCH DOORS 6MM SAFETY GLASS WITH SAFETY INDICATORS

DESIGN APPROVAL:
Approved by: _____

Signature: _____
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DEVELOPER

IMPLEMENTING AGENT:

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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
CEILING PLAN

FILE NO.
53.2023_ SETA SKILLS CENTRE

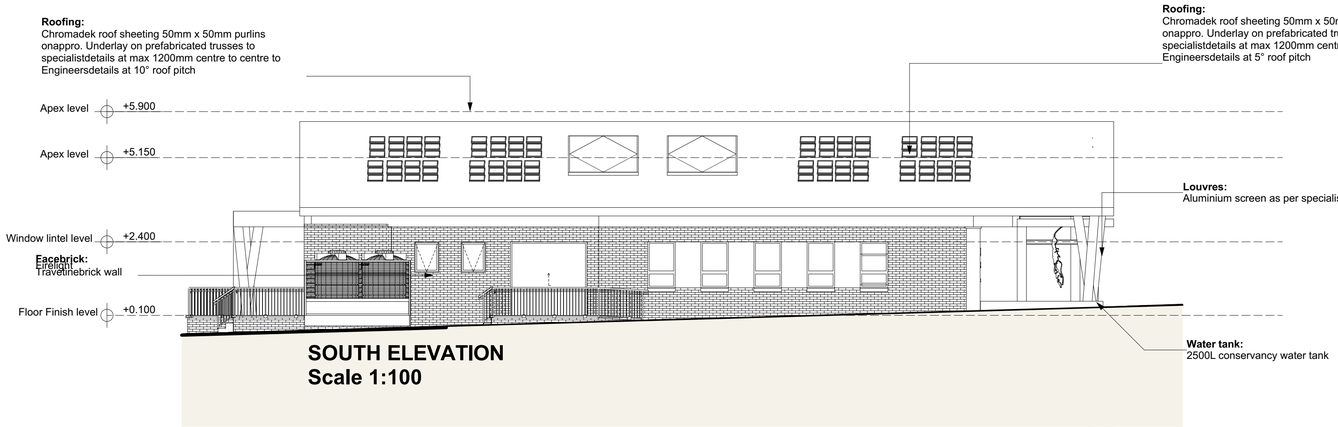
PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

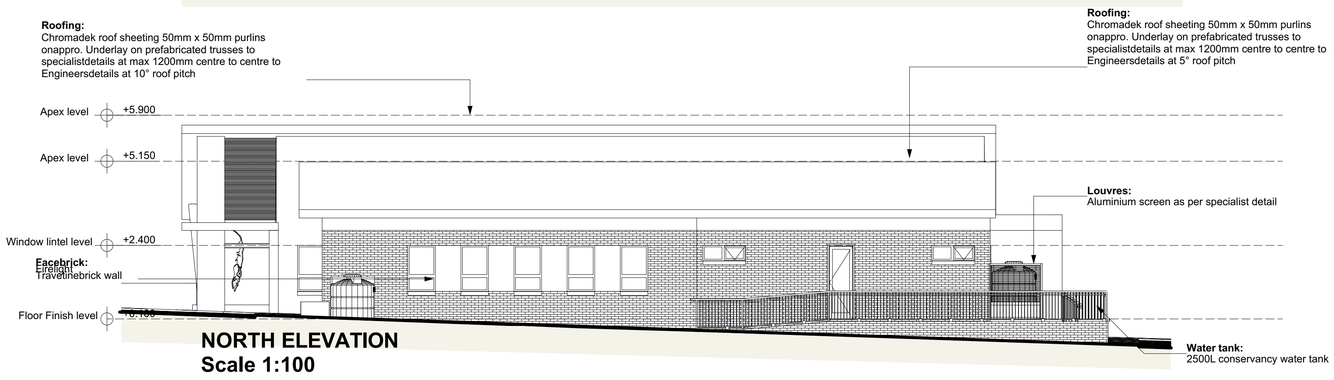
DRAWN BY: **S.C.N**	DATE: **20 FEB 2024**
ARCHITECT: **D.M.M**	DATE: **20 FEB 2024**
CLIENT DEPARTMENT	DATE: **20 FEB 2024**

DRAWING NO.

COUNCIL DRAWINGS



SOUTH ELEVATION
Scale 1:100



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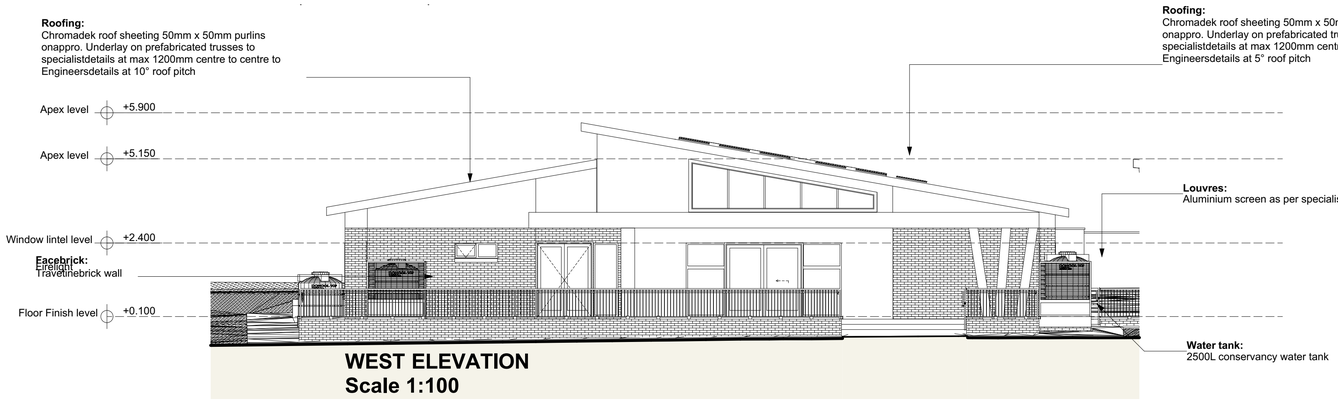

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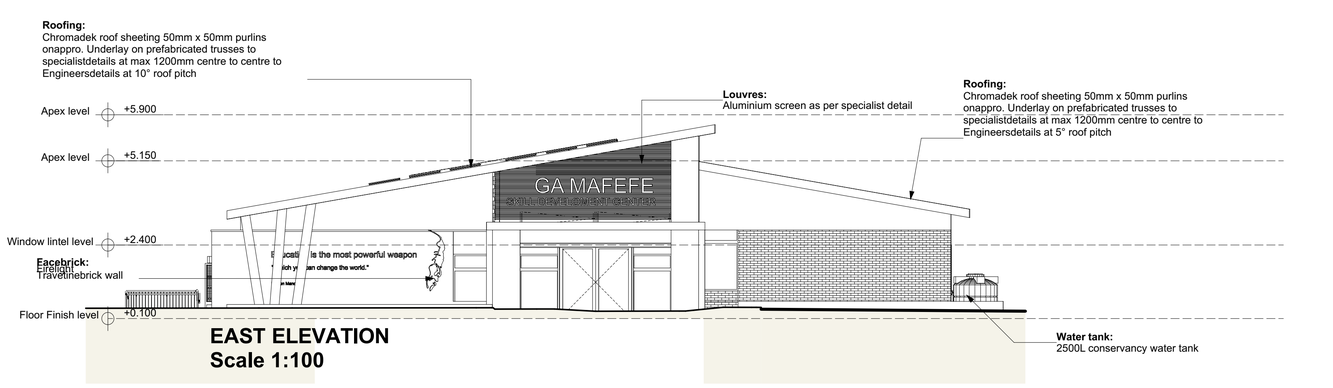

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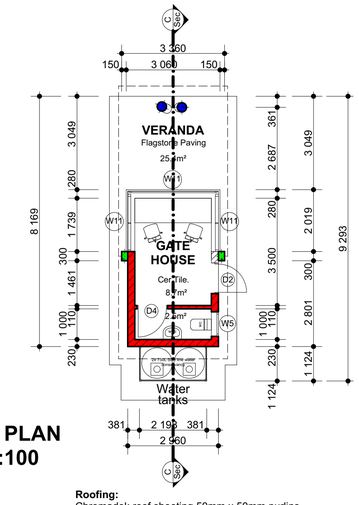
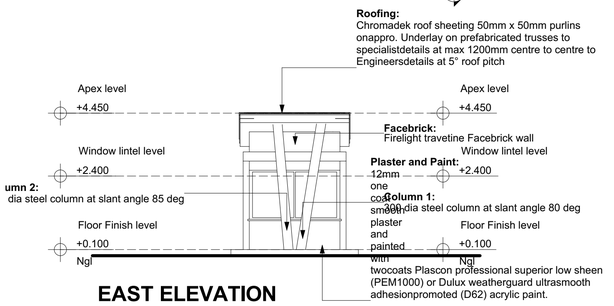


FLOOR PLAN
Scale 1:100



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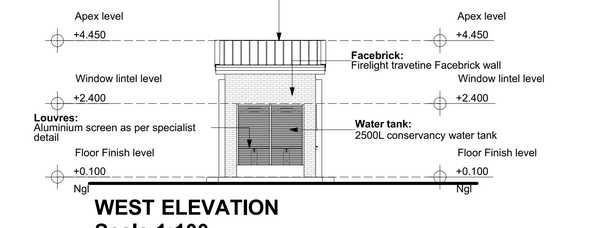

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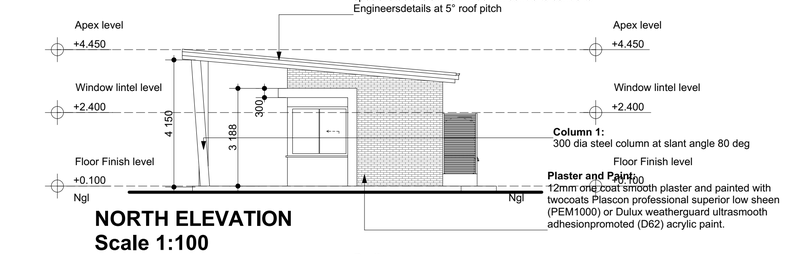

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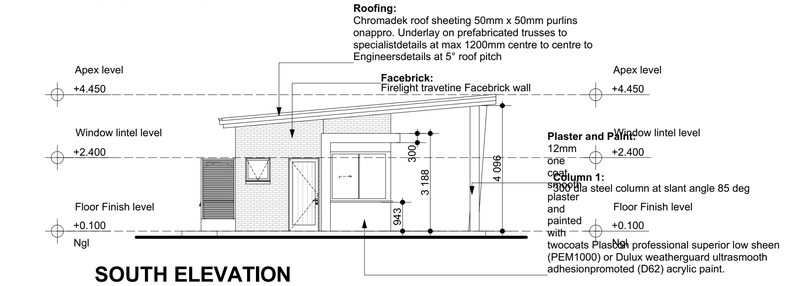
Scale 1:100



SOUTH ELEVATION
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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
ELEVATIONS (MAIN BUILDING & GATE HOUSE)

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

DRAWN BY: **S.C.N**	DATE: **20 FEB 2024**
ARCHITECT: **D.M.M**	DATE: **20 FEB 2024**
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DRAWING NO.

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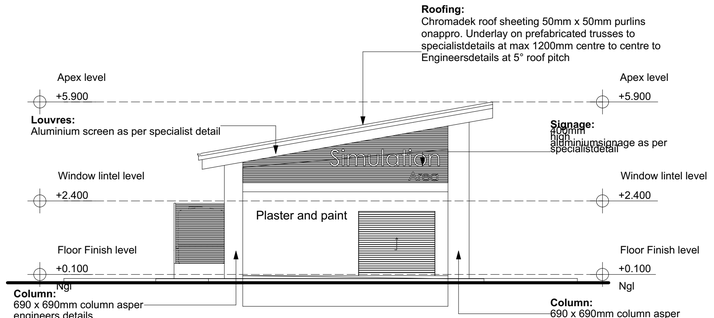
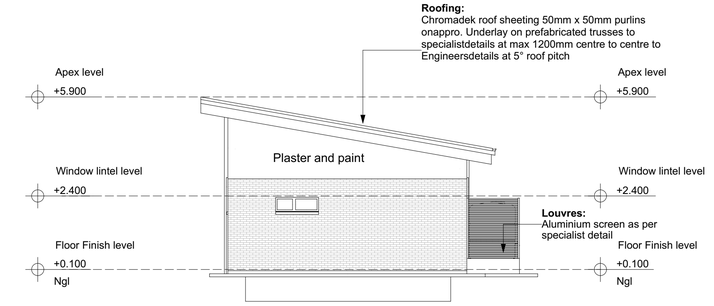


SOUTH ELEVATION
Scale 1:100



NORTH ELEVATION
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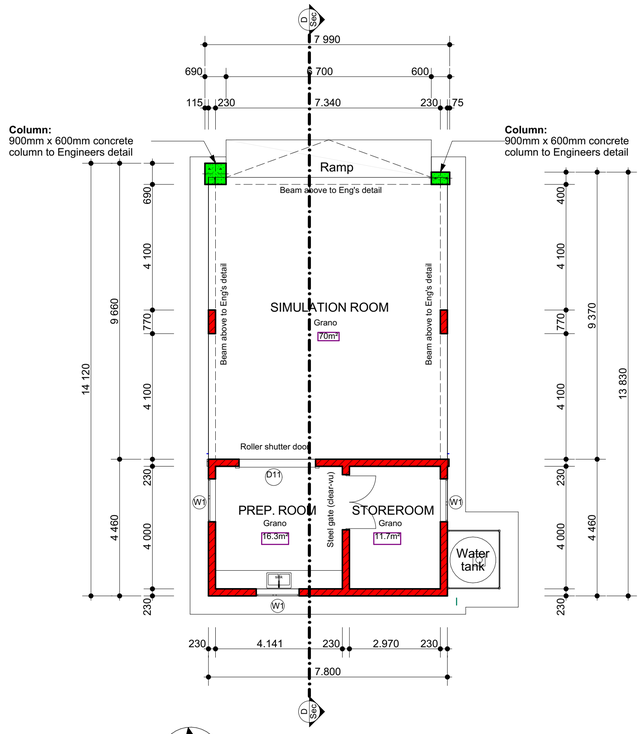
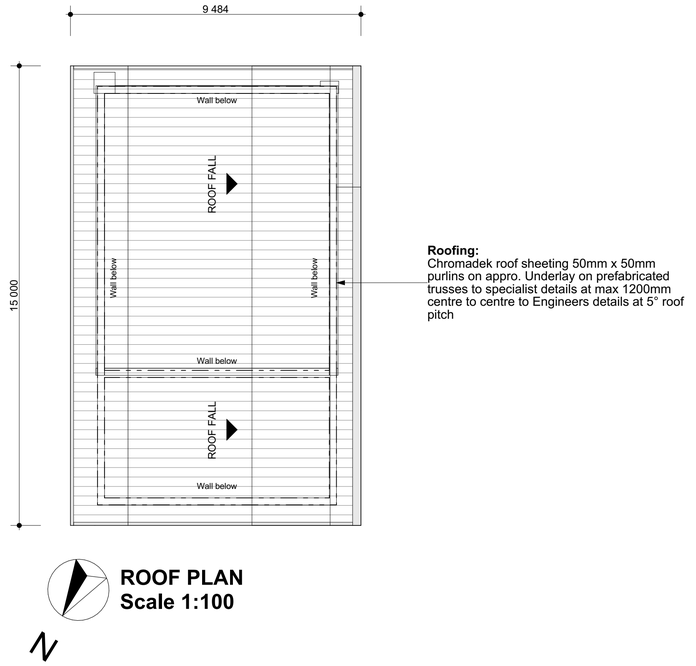


FLOOR PLAN
Scale 1:100



ROOF PLAN
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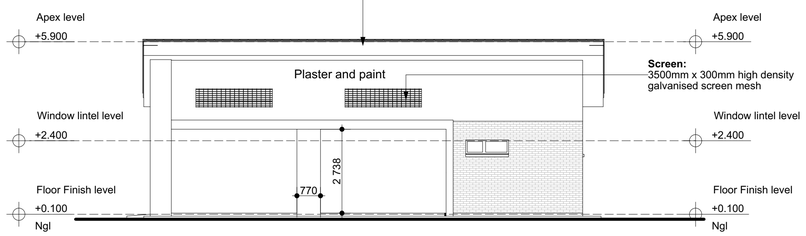
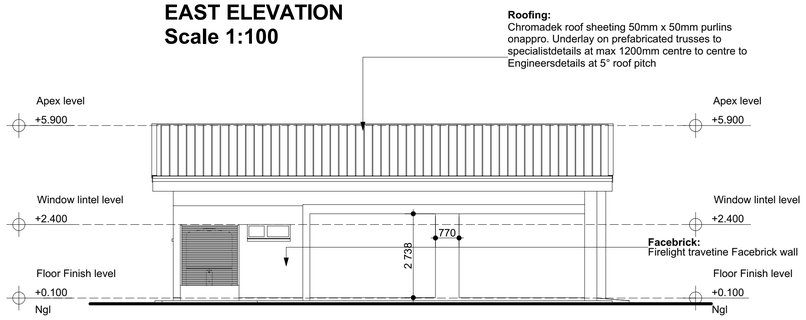


EAST ELEVATION
Scale 1:100



WEST ELEVATION
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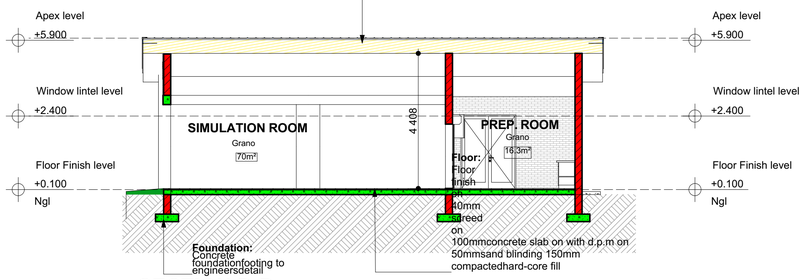
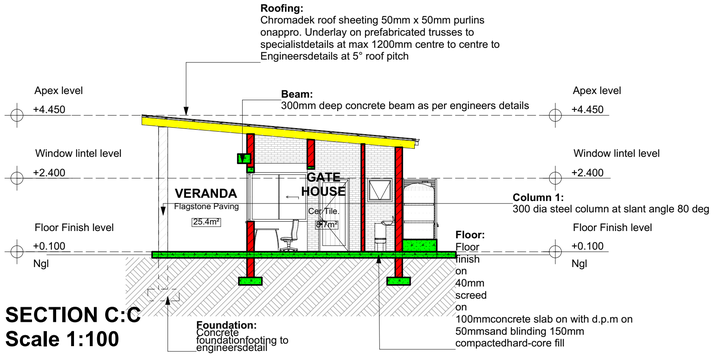


SECTION D:D
Scale 1:100



SECTION C:C
Scale 1:100

GATE HOUSE

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DEVELOPER

IMPLEMENTING AGENT:

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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
ELEVATIONS; SECTIONS & PLAN (SIMULATION). GATE HOUSE SECTION

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE **AS SHOWN**

DRAWN BY	S.C.N	DATE	20 FEB 2024
ARCHITECT	D.M.M	DATE	20 FEB 2024
CLIENT DEPARTMENT		DATE	20 FEB 2024

DRAWING NO.

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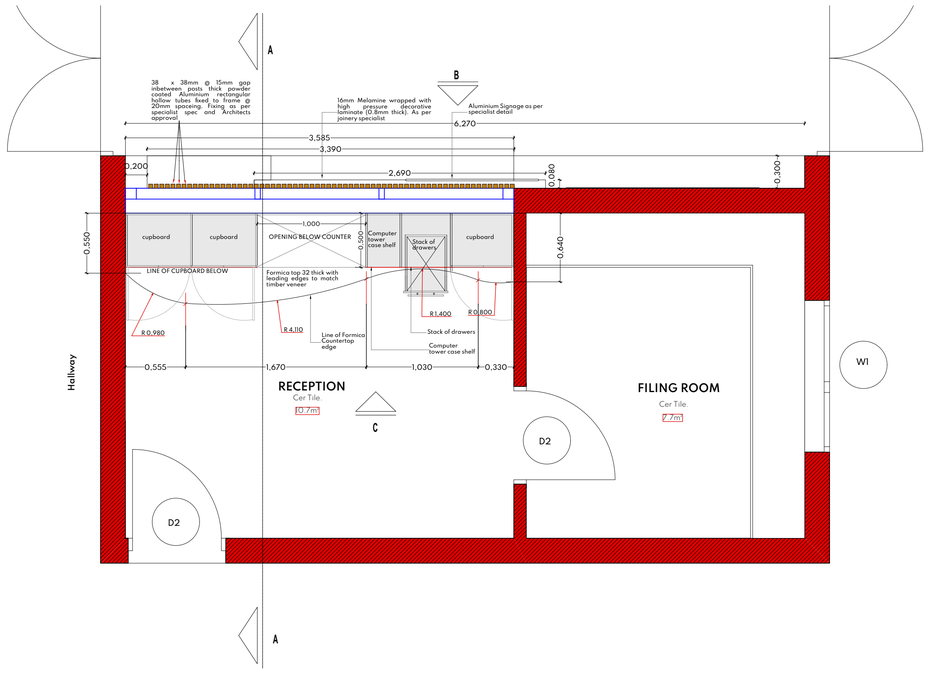
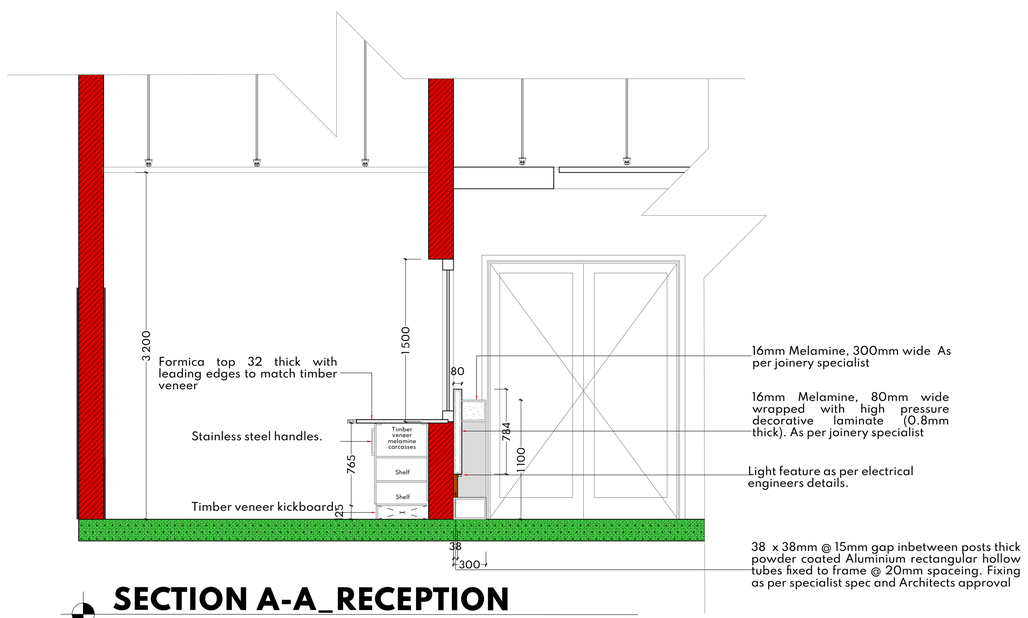


RECEPTION_BLOWN UP FLOOR LAYOUT

SCALE 1:20



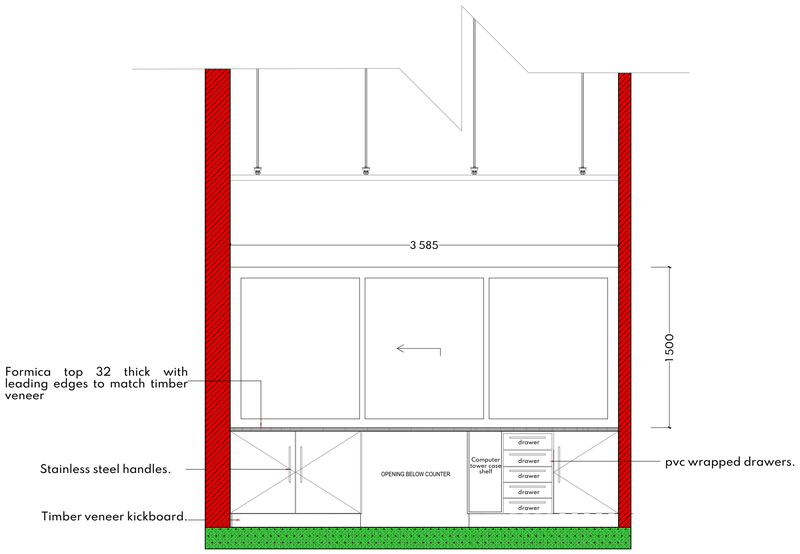
SECTION A-A_RECEPTION

SCALE 1:20

Suspended bulkhead as per specialist detail

VIEW B_RECEPTION

SCALE 1:20



VIEW C_RECEPTION

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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
RECEPTION DETAILS

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

DRAWN BY: **S.C.N**	DATE: **20 FEB 2024**
ARCHITECT: **D.M.M**	DATE: **20 FEB 2024**
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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

DRAWN BY	**S.C.N**	DATE	**20 FEB 2024**
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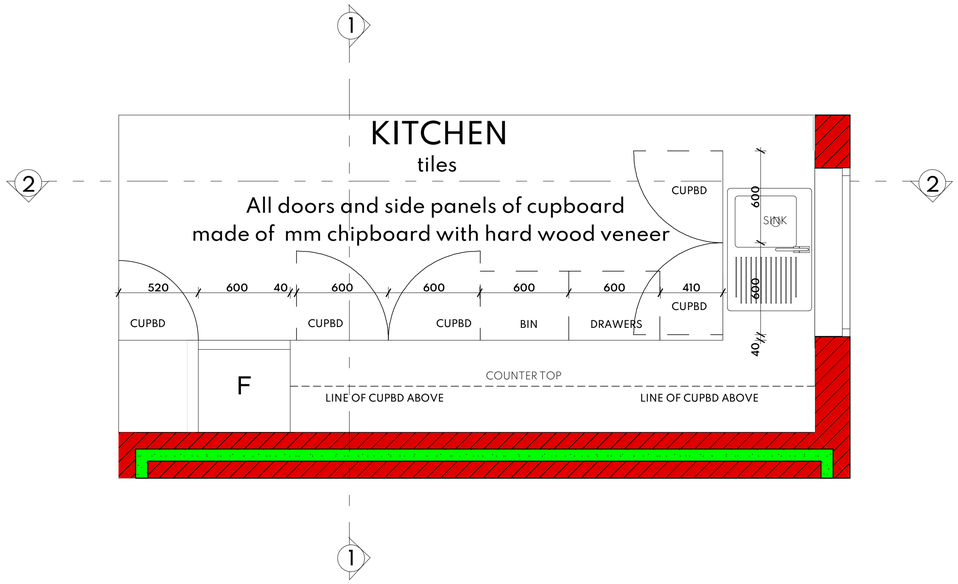
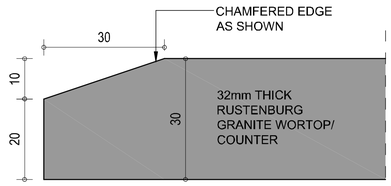


KITCHEN LAYOU PLAN
SCALE 1:20

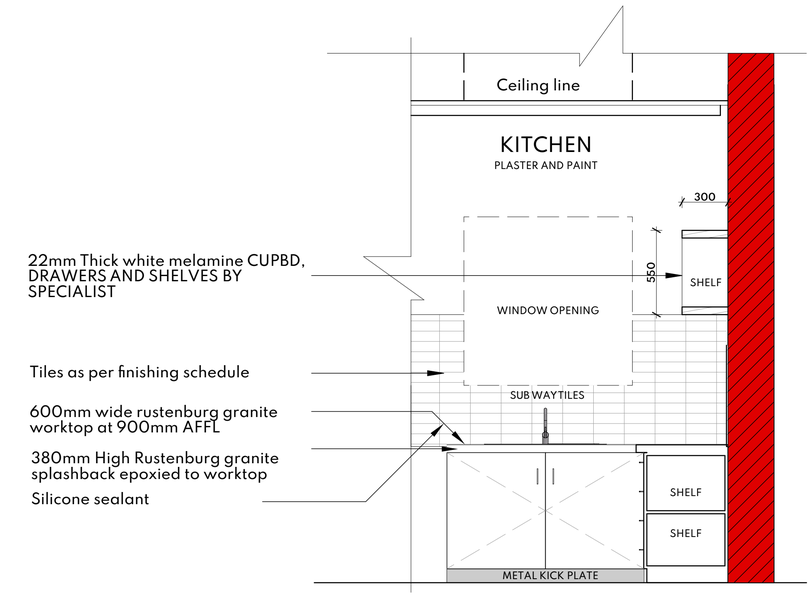
TYPICAL PERSPECTIVE VIEW
SCALE NTS

CUPBOARD NOTES

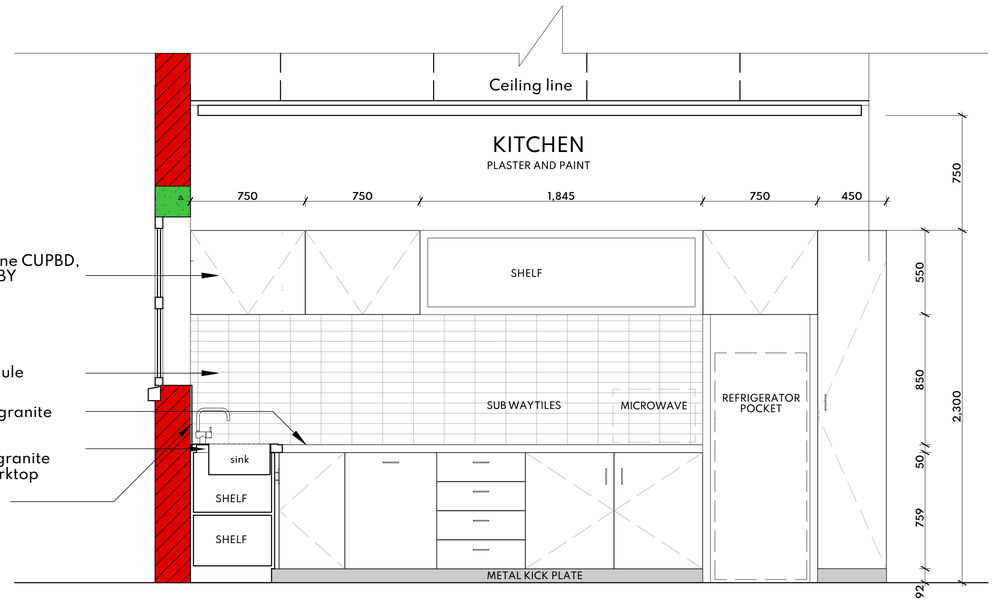
WORKTOPS:	30mm "RUSTENBURG" POLISHED GRANITE WORKTOPS WITH 5mm DOUBLE BEVELLED EDGES
PULL HANDLES:	PULL HANDLES TO FINISHES SCHEDULE
CUPBOARD DOORS:	"AMERICAN WALNUT" MELAWOOD IMPACT DOORS WITH POST FORMED WRAPPED DOORS
STRUCTURE:	WHITE MELAMINE CARCASS BASE AND SHELVES WITH MASONITE BACKING AND BLACK PAINTED CHIPBOARD KICK PLATES AND MS POST SUPPORTS
SINK:	1500x457mm STAINLESS STEEL DROP SINK
APPLIANCES:	



EDGE DETAIL
SCALE 1:5



ELEVATION 1-1
SCALE 1:20



ELEVATION 2-2
SCALE 1:20

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DRAWINGS ARE NOT TO BE SCALED.
FOUNDATIONS TO ALL BOUNDARY WALLS ARE NOT TO ENCROACH BOUNDARY
ALL ELECTRICAL AND PLUMBING WORK IS TO BE CARRIED OUT BY A REGISTERED TRADESMAN

BRICKFORCE IS TO BE INSTALLED EVERY 5 COURSES OF BRICKWORK
PROVIDE DPC TO WALL AT SLAB LEVEL, UNDER ALL CILLS AND TO ALL CHANGES IN FLOOR LEVELS

DRAINAGE NOTES:

ALL PLUMBING AND DRAINAGE WORK AND INSTALLATION OF SANITARY FITTINGS TO COMPLY WITH THE RELEVANT LOCAL AUTHORITY BYE-LAWS, REGULATIONS AND REQUIREMENTS.

PROVIDE I.E.'S TO ALL BENDS AND JUNCTIONS WITH SUITABLE MARKERS AT GROUND LEVEL.
MINIMUM FALL TO ALL DRAIN PIPES TO BE 1:40.
PROVIDE APPROVED RESEAL TRAPS TO ALL WASTE FITTINGS.
PROVIDE A.E. TO FOOT OF ALL SOIL STACKS.
I.E.'S TO WASTE PIPES TO BE FULLY ACCESSIBLE AT ALL TIMES.
ALL DRAIN PIPES PASSING UNDER BUILDING OR FOOTINGS TO BE ENCASED IN CONCRETE OF MINIMUM 100mm THICKNESS ALL ROUND PIPE.

GLASS NOTES:

0	- 0.75 SQM	3mm GLASS
0,75	- 1,5 SQM	4mm GLASS
1,5	- SQM	6mm GLASS

WINDOWS AND SIDELIGHTS LOWER THAN 300mm FROM FLOOR 6MM SAFETY GLASS. SLIDING OR FRENCH DOORS 6MM SAFETY GLASS WITH SAFETY INDICATORS

DESIGN APPROVAL:
Approved by: _____
Signature: _____
Date: _____

NO	REVISION	DATE

DEVELOPER

IMPLEMENTING AGENT:
SERVICES SETA

ARCHITECT
studioe-DESIGN
architecture + design
37 D.F Malan, Lyttlenton Manor, Centurion, 0157
Tel: 012 664 0168 Cell: 078 402 9298
Fax: 086 561 2752
email: donald@studioe-design.co.za
www.studioe-design.co.za

PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
KITCHEN DETAILS

FILE NO.
53.2023_ SETA SKILLS CENTRE

PROJECT NO.
53.2023_ SETA SKILLS CENTRE

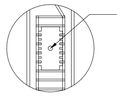
SCALE **AS SHOWN**

DRAWN BY	S.C.N	DATE	20 FEB 2024
ARCHITECT	D.M.M	DATE	20 FEB 2024
CLIENT DEPARTMENT		DATE	20 FEB 2024

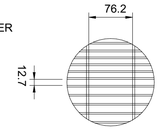
DRAWING NO.

COUNCIL DRAWINGS

INTERNAL FIXTURES
(ANTI-VANDAL)
AS PER MANUFACTURER

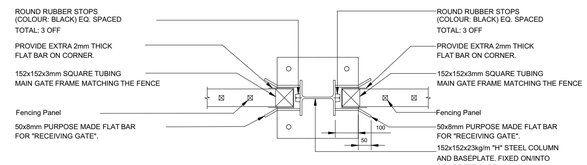


DETAIL A
SCALE 1:20

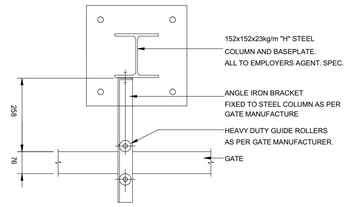


DETAIL B
SCALE 1:20

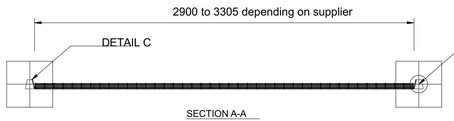
DETAIL C
SCALE 1:20



DETAIL 1
SCALE 1:10



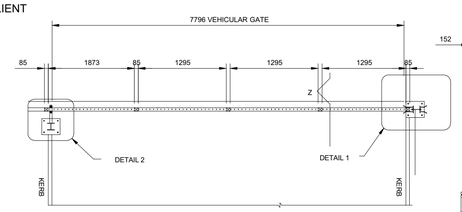
DETAIL 2 - PLAN
SCALE 1:10



SECTION A-A
SCALE 1:20

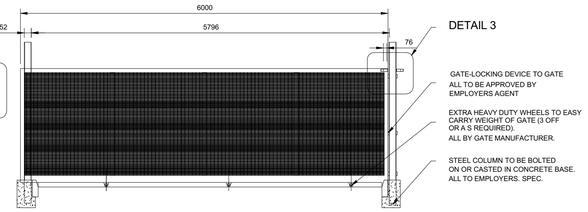
FIXING POSTS
AS APPROVED
BY CLIENT

CLEARVU FENCE SPECIFICATION (This is a Minimum specification required		
ITEM #	DESCRIPTION'	DESCRIPTION'
1	PANEL	2.4m High Security Clearvu or similar approved Galvanized Fence. 76x12.7mm Mesh apperture. Wire diameter of 3mm Horizontal and 4mm Vertical. 4 st□ening wire bend Internal fixtures-Anti Vandal/Climb etc
2	POST	Galvanized Taper Locking Post sealed with steel Cap
3	CLAMPS	Galvanized Single and Double combo Clamp or similar Approved
4	FOUNDATION	400x400x600mm 25 Mpa Concrete Foundation
6	UNDER DIG	600mm under dig/Anti-Burrow Clear VU mesh extension similar to the Fence in all respect



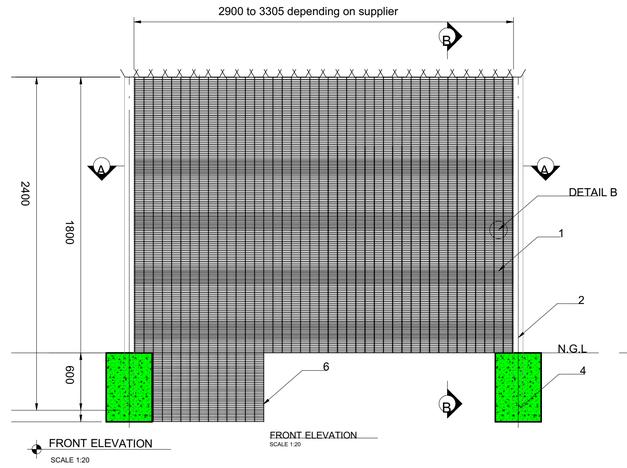
VEHICLE AND PEDESTRIAN GATE PLAN
SCALE 1:50

VEHICLE PEDESTRIAN GATE - PLAN
SCALE 1:50



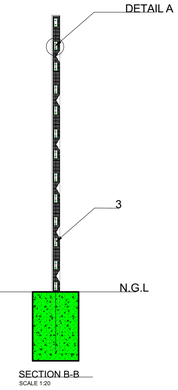
TYPICAL SLIDING GATE: ELEVATION
SCALE 1:50

SLIDING GATE - ELEVATION
SCALE 1:50

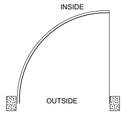


FRONT ELEVATION
SCALE 1:20

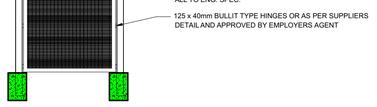
FRONT ELEVATION
SCALE 1:20



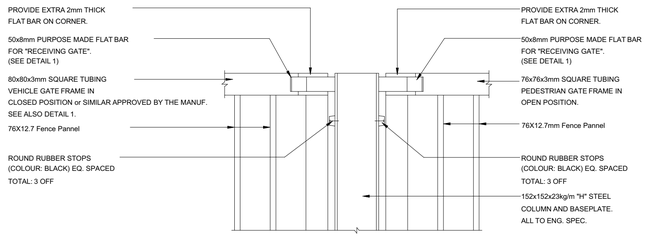
SECTION B-B
SCALE 1:20



TYPICAL PEDESTRIAN SWING GATE: PLAN
SCALE 1:50



PEDESTRIAN SWING GATE - ELEVATION
SCALE 1:50



DETAIL 3 - ELEVATION
SCALE 1:10

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GLASS WITH SAFETY INDICATORS

DESIGN APPROVAL:
Approved by: _____

Signature: _____
Date: _____

NO	REVISION	DATE

DEVELOPER

IMPLEMENTING AGENT:

SERVICES SETA

ARCHITECT

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PROJECT
PROPOSED NEW SKILLS DEVELOPMENT CENTRE ON THE FARM MAFEFE No. 602-KT AT GA-MAFEFE VILLAGE

DRAWING
FENCE AND GATE DETAILS

FILE NO.
53.2023_ SETA SKILLS CENTRE

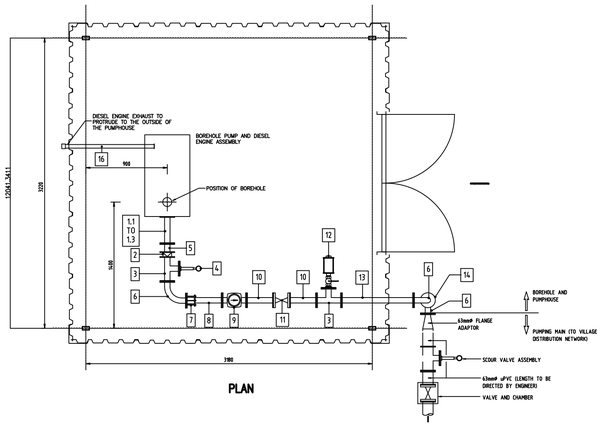
PROJECT NO.
53.2023_ SETA SKILLS CENTRE

SCALE
AS SHOWN

DRAWN BY: **S.C.N**	DATE: **20 FEB 2024**
ARCHITECT: **D.M.M**	DATE: **20 FEB 2024**
CLIENT DEPARTMENT	DATE: **20 FEB 2024**

DRAWING NO.

COUNCIL DRAWINGS

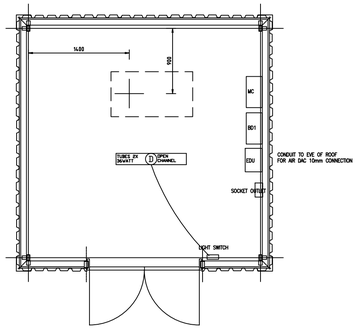


PLAN

BOREHOLE PUMPHOUSE
50mm ND PIPEWORK LAYOUT

ITEM NO	NO OFF	DESCRIPTION	DIMENSIONS
1.1	1	40mm DISCHARGE HEAD -- 40x50mm Ø STEEL REDUCER, ENDS FLANGED. 50mm Ø STEEL PIPE, ENDS FLANGED.	50Ø, 105, 200
1.2	1	50mm DISCHARGE HEAD -- 50mm Ø STEEL PIPE, ENDS FLANGED.	50Ø, 300
1.3	1	65mm DISCHARGE HEAD -- 65x50mm Ø STEEL REDUCER, ENDS FLANGED. 50mm Ø STEEL PIPE, ENDS FLANGED.	65Ø, 50Ø, 200
2	1	50mm ND WAFER TYPE NON RETURN VALVE.	
3	2	50x50mm Ø STEEL EQUAL TEE, ENDS FLANGED.	
4	1	PRESSURE GAUGE ASSEMBLY COMPLETE WITH GLYCERINE FILLED PRESSURE GAUGE & ALL FITTINGS AND FLANGE AND BOLTS TO OFFTAKE TEE.	
5	1	50mm Ø FLEXIBLE COUPLING, ENDS FLANGED.	150
6	3	90° x 50mm Ø STEEL STANDARD BEND, ENDS FLANGED.	212, 212
7	1	50mm ND VIKING JOHNSON FLANGED ADAPTOR.	
8	1	50mm Ø STEEL PIPE, ONE END FLANGED, ONE END PLAIN.	300
9	1	50mm ND FLANGED WATER METER (HENDEE COSMOS OR SIMLAR APPROVED BY THE ENGINEER) WITH VERTICAL SPINDLE TO CONFORM TO THE FOLLOWING: Max. load of 15m3/h. Low limit measuring range of +/- 5% at 0,05m3/h. Porting line of +/- 2% at 0,5m3/h.	

50mm–ND PIPE SCHEDULE

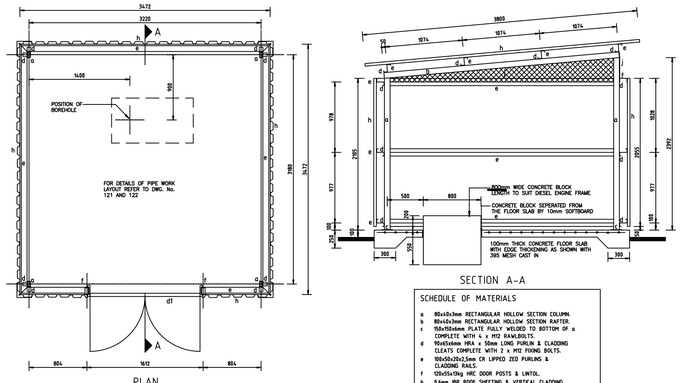


ELECTRICAL PUMP HOUSE

NOTES:

1) All conduit boxes and DB tray must be galvanized
2) All material to be used must carry the S.A.B.S mark
3) The installation must comply to SABS 0142.
4) The whole installation must be properly earthed to the supply authorities requirements
5) The whole installation must be carried out to the authorities requirements and to the satisfaction of the engineer and owner
6) The contractor must keep in touch with the progress of the building work to do the electrical installation as and when necessary

EARTHING OF BUILDING
Note 1
A)1.5m Earth rod connected with 16mm*2 copper wire to roof.Cut groove in inside of building for 20mm conduit and repair
B)Earthing shall be in accordance with the SABS 0142-1993 code of practice and the supply authority requirements.



PLAN

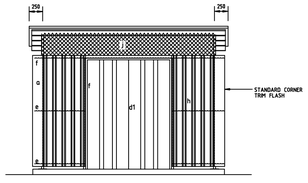
NOTE:
FOR ROOF SHEETING FIX WITH NARROW FLUTES UPPERMOST.
FOR VERTICAL CLADDING FIX WITH BROAD FLUTES OUTERMOST.

SECTION A-A

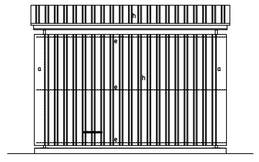
SCHEDULE OF MATERIALS

a	80x40x3mm RECTANGULAR HOLLOW SECTION COLUMN.
b	80x40x3mm RECTANGULAR HOLLOW SECTION RAFTER.
c	150x150x6mm PLATE FULLY WELDED TO BOTTOM OF a COMPLETE WITH 4 x M12 RAWLBOLTS.
d	90x55x6mm HRA x 50mm LONG PURLIN & CLADDING CLEATS COMPLETE WITH 2 x M10 FIXING BOLTS.
e	100x50x20x2,5mm CR LIPPED ZED PURLINS & CLADDING RAILS.
f	120x55x13kg HRC DOOR POSTS & LINTOL.
h	0,6mm BR ROOF SHEETING & VERTICAL CLADDING FIXED WITH HOOK BOLTS.
j	EXPANDED METAL GRID WELDED BETWEEN a,f & b ALL AROUND.
d1	1525x2032 DOUBLE LEAF PRESSED STEEL CHANL DOOR & FRAME.

BOREHOLE PUMPHOUSE – PLAN AND SECTIONS



FRONT ELEVATION



BACK ELEVATION

SCHEDULE OF MATERIALS

a	80x40x3mm RECTANGULAR HOLLOW SECTION COLUMN.
e	100x50x20x2,5mm CR LIPPED ZED PURLINS & CLADDING RAILS.
f	120x55x13kg HRC DOOR POSTS & LINTOL.
h	0,6mm BR ROOF SHEETING & VERTICAL CLADDING FIXED WITH HOOK BOLTS.
j	EXPANDED METAL GRID WELDED BETWEEN a,f & b ALL AROUND.
d1	1525x2032 DOUBLE LEAF PRESSED STEEL CHANL DOOR & FRAME.

BOREHOLE PUMPHOUSE – ELEVATIONS

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND HAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRESS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
SERVICES SETA
15 SHERBORNE ROAD
PARKTOWN 2193
Tel: 011 276 9600
www.servicesseta.org.za
customercare@servicesseta.org.za
APPROVAL: _____ PI TECH ENG 201270031

RedNoW Technologies
Postal: Postnet suite # 29 Private Bag X2 Edenglen 1613
Physical: 9 Astronaut Avenue Complan Ext 1 Kempton Park 1619
Email: wmmutia@yahoo.com / wmmutia@gmail.com
Cell: 083 306 0565
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutia@yahoo.com

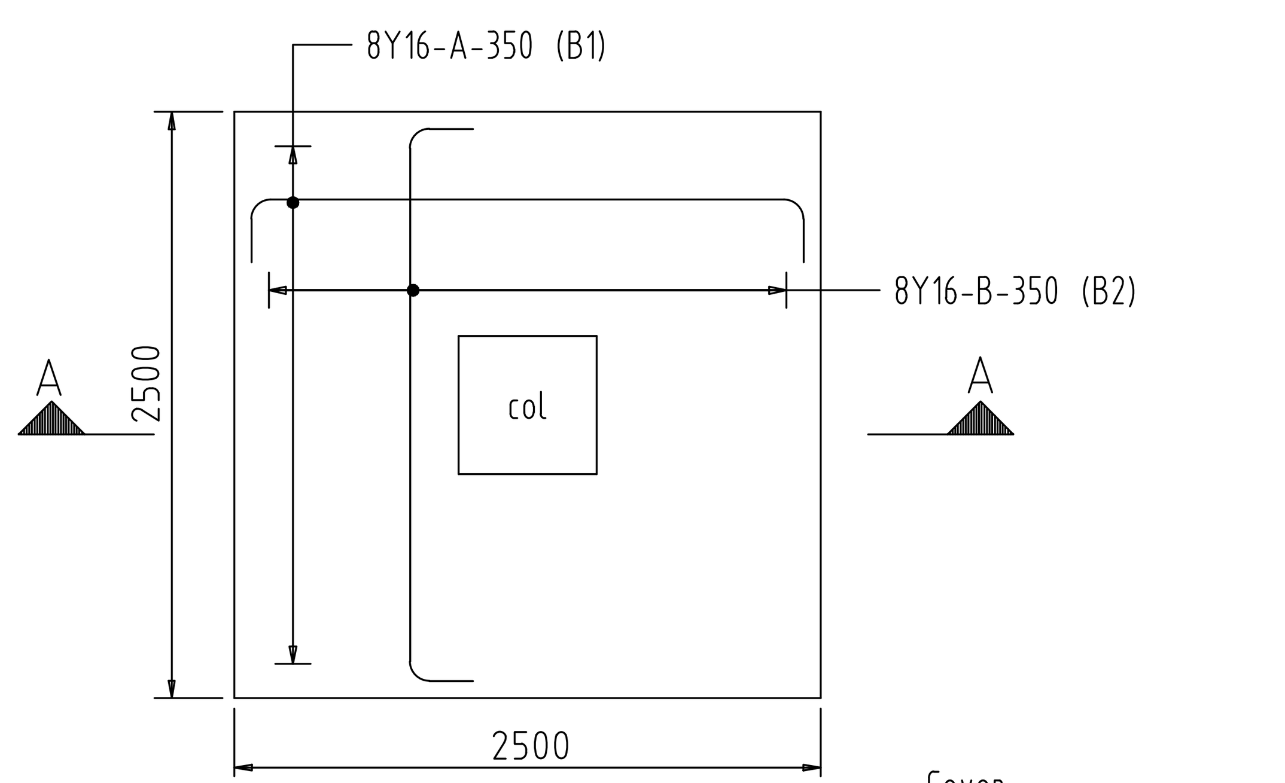
DESCRIPTION:
BOREHOLE DETAILS

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/BD/007
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

TENDER DRAWINGS

A1

MEMBER	REINFORCEMENT							DIMENSIONS				
	TYPE & DIA	MARK	UNITS	No/ UNIT	TOTAL No	LENGTH	SHAPE CODE	A	B	C	D	E/A
	Y16	A	4	8	32	2800	35	2400				
	Y16	B	4	8	32	2800	35	2400				
	Y16	E	4	4	16	1700	54	190	1390			
	R10	F	4	3	12	1600	60	340	340			



PLAN

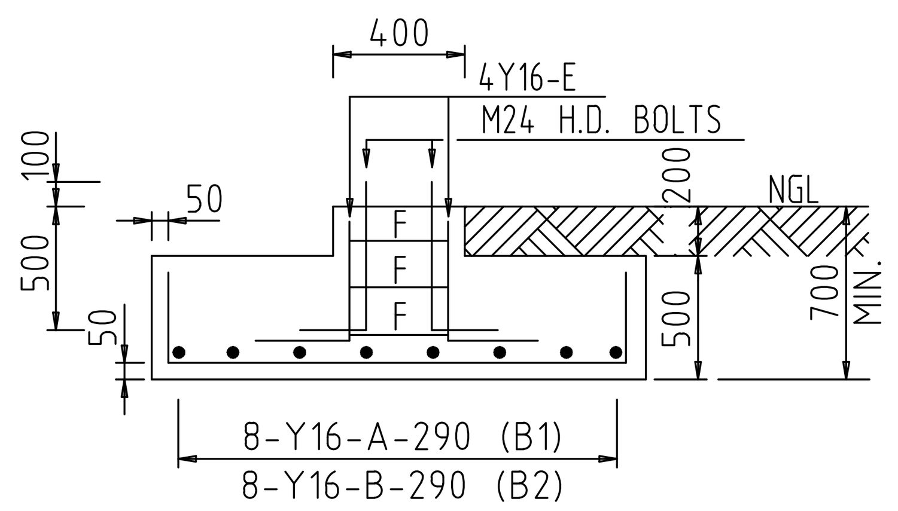
Cover:

Bottom : 75 mm

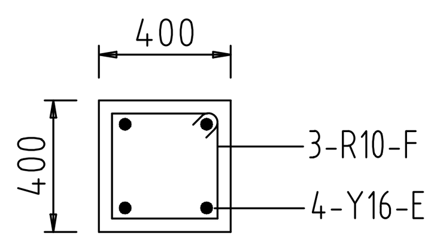
Sides : 50 mm

Top : 50 mm

Columns : 30 mm

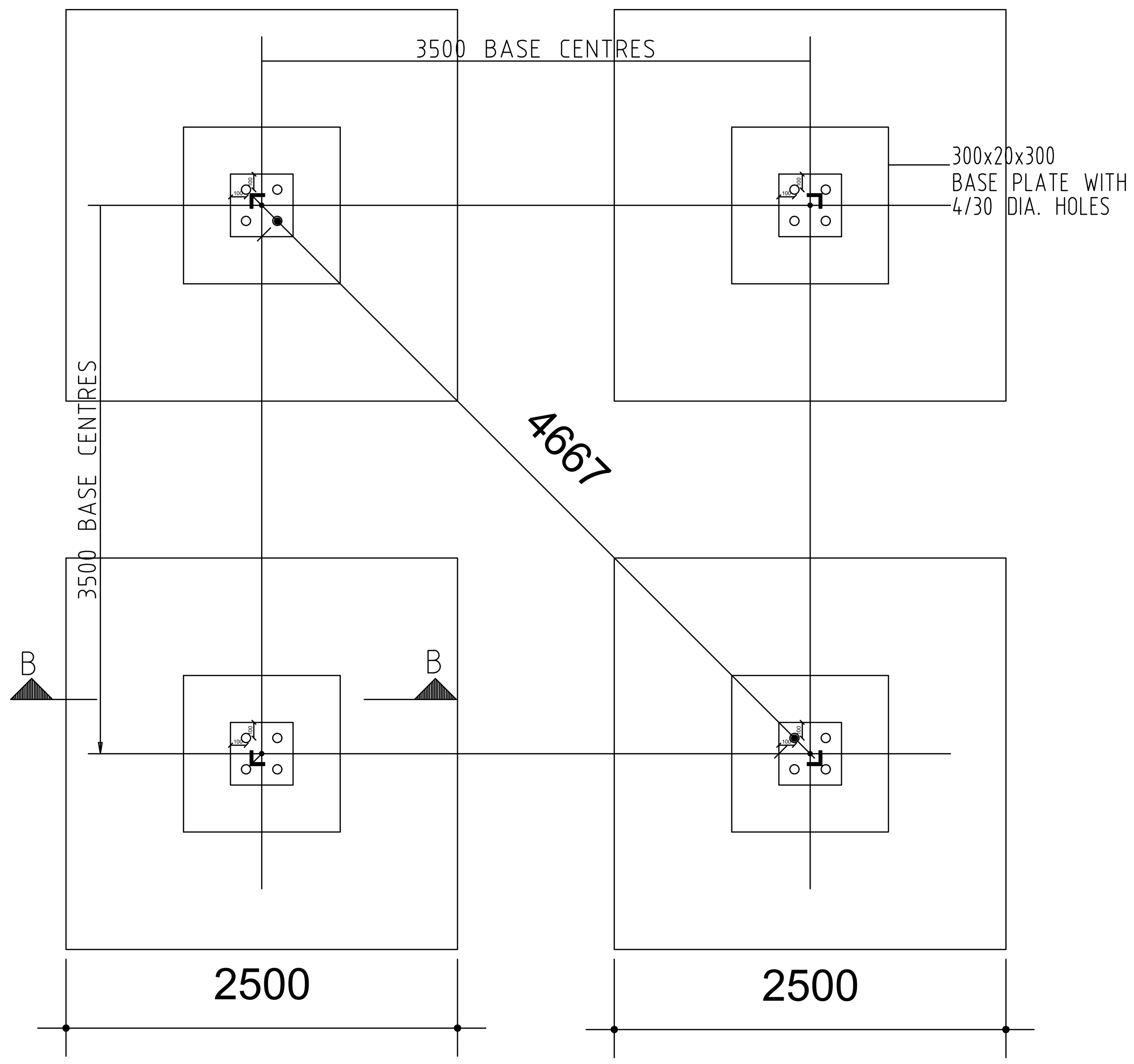


SECTION A-A



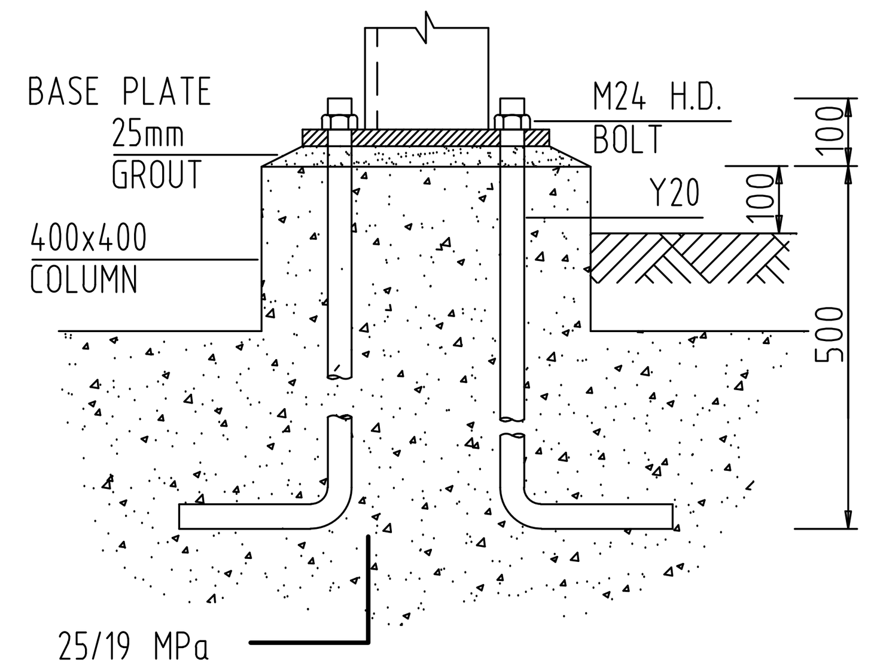
PLAN

BASES AND COLUMNS REINFORCEMENT LAYOUT
AMD BENDING SCHEDULE



ELEVATED TANK FOUNDATION
GENERAL ARRANGEMENT & DETAILS OF 15m HIGH STAND

PLAN



SECTION B-B
LAYOUT OF BASEPLATES

FOUNDATION LOADING PER BASE (kn)			
VERTICAL			HORIZONTAL
DEAD	LIVE	WIND	WIND
26	290	±98	11

NOTES:

i) MAX. BEARING PRESSURE : 150 kPA.

ii) COMPACT SOIL TO 93% MOD. AASHTO.

iii) ENGINEER TO INSPECT FOUNDATIONS BEFORE CASTING.

iv) THREADED HOLDING DOWN BOLTS, NUTS AND WASHERS TO BE SUPPLIED AND BUILT IN BY CIVIL CONTRACTOR.

TENDER DRAWINGS

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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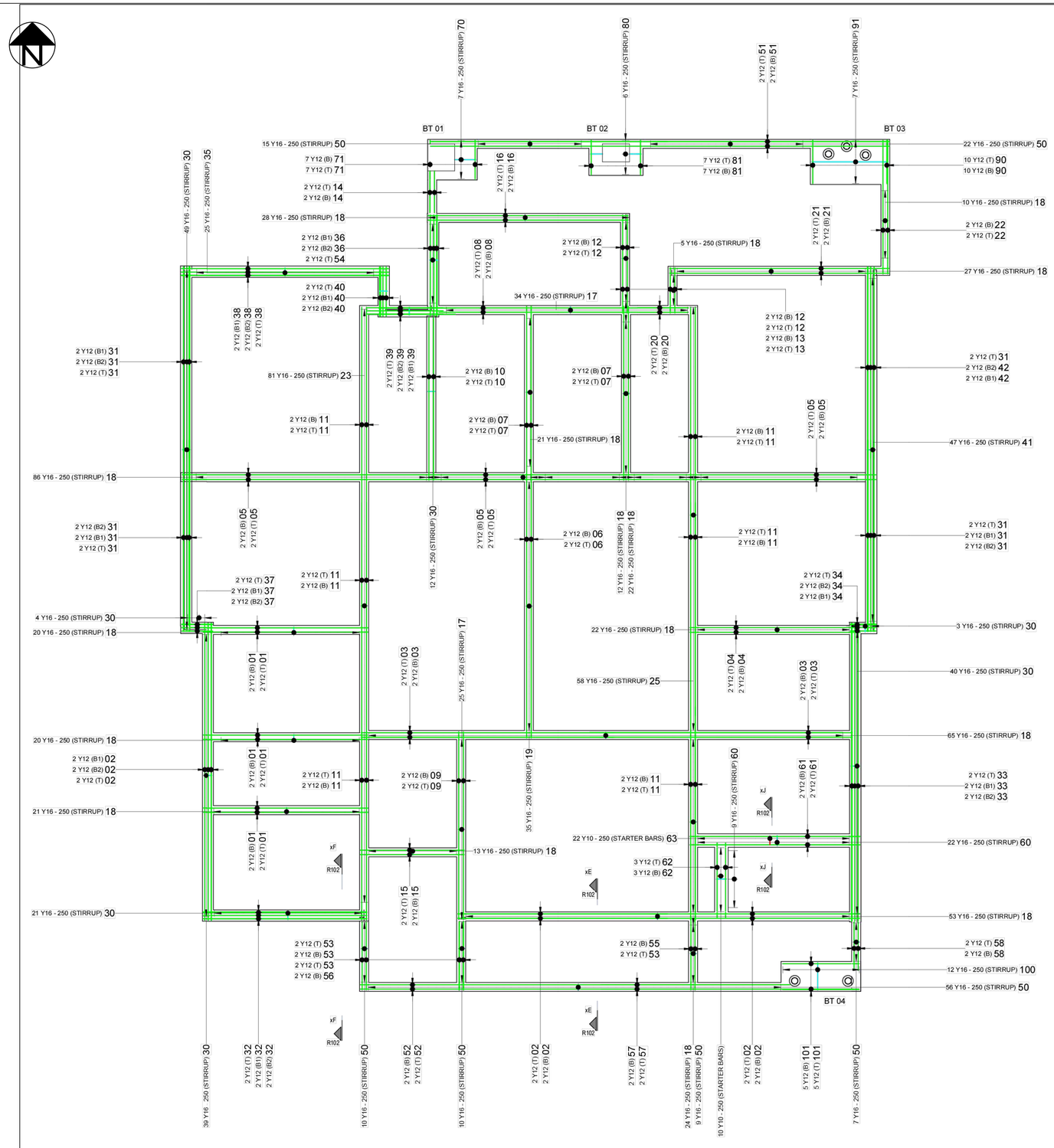
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
STEEL ELEVATED TANK

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SET/006
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1



GROUND BEAM REINFORCEMENT LAYOUT
Scale 1 : 75

1.0 EXCAVATIONS AND FOUNDATIONS

1.1 ALL EXCAVATIONS FOR FOUNDATIONS (WHERE NOT PILED) TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.

1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU MATERIAL (NOT ON FILL).

1.3 THE TOP LEVEL OF ALL FOUNDATIONS TO BE AT LEAST 300MM BELOW FINAL OUTSIDE GROUND LEVEL OR FINISHED FLOOR LEVEL, WHICHEVER IS THE LOWER.

1.4 ASSUMED SAFE BEARING CAPACITY OF SOIL UNDER FOUNDATIONS – 250KPA. (REFER TO GEOTECHNICAL REPORT)

1.5 ALL RISING FOUNDATION BRICKWORK TO HAVE CONTINUOUS BRICKFORCE EVERY 2ND COURSE AND CAVITY TO BE FILLED TO UNDERSIDE OF STEPPED DPC WITH 13MM AGGREGATE, 15MPA CONCRETE TAKING CARE NOT TO ALLOW ANY HONEYCOMBING

1.6 ALL FINAL FOUNDATION SIZES, DEPTH AND DETAILS ARE SUBJECT TO CONFIRMATION ON SITE BY ENGINEER.

1.7 THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF ALL DEEP EXCAVATIONS AND FOR ERECTING READY FENCE AND OR HOARDING AROUND THE SITE TO PREVENT ENTRY AFTER WORKING HOURS AND THE GENERAL SAFETY OF THE SITE AT ALL TIMES.

1.8 ALL FOUNDATION EXCAVATIONS TO BE BELOW ANY SIGNS OF ORGANIC MATERIAL OR ROOTS ETC.

0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED.AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DICREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

0.5 ALL SANS SPECIFICATIONS MENTIONED IN THE NOTES,ON THE DRAWINGS AND IN PROJECT SPECIFICATIONS SHALL BE AVALAIBLE ON SITE AT ALL TIMES IN HARD COPY FORMAT.

0.6 ALL INSTRUCTIONS FROM THE ENGINEER TO BE WRITTEN IN THE SITE INSTRUCTION BOOK,THAT SHOULD BE PROVIDED BY THE CONTRACTOR.

0.7 PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY BE USED WITH THE ENGINEER'S PRIOR APPROVAL.

0.8 UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING,DRAINAGE FALLS AND FINISHES ARE ACCORDING TO THE ARCHITECT DETAILS AND SPECIFICATIONS.

0.9 THE CONTRACTOR SHALL DISCLOSE HIS PROPOSED BUILDING SEQUENCE IN BOARD TERMS BEFORE SITE ESTABLISHMENT.

0.10 ANY DEVIATIONS FROM THE CONSTRUCTION DRAWINGS PLANNED BY THE CONTRACTOR SHALL BE PROPOSED TO THE ENGINEER IN FULL DETAIL FOR A DECISION. THE ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUCH DEVIATIONS,BUT IF APPROVED,THE APPROVAL SHALL BE IN WRITTING.

0.11 REFER TO ALL RELEVANT DRAWINGS BY:-
ARCHITECTS — STRUCTURAL ENGINEERS
ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

0.12 ALL COLUMNS, WALLS AND BEAMS TO BE PLACED CENTRALLY ON GRID/ CENTRE LINES UNLESS DIMENSIONED OTHERWISE.

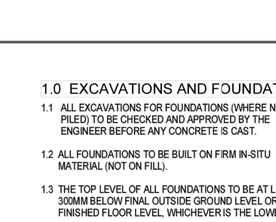
0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

0.14 THE CONTRACTOR IS TO COMPLY AT ALL TIMES WITH ALL RELEVANT MUNICIPAL REGULATIONS AND BYLAWS IN THE AREA OF THE SITE AND IS TO ENSURE THAT HE HAS A SET OF APPROVED BUILDING PLANS ON SITE AT ALL TIMES

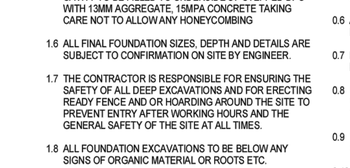
0.15 ALL PRODUCTS SPECIFIED FOR USE ARE TO BE USED STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS AT ALL TIMES.

0.16 SHOULD THE ENGINEER BE REQUIRED ON SITE,48 HRS NOTICE SHOULD BE REQUESTED IN WRITTING,FAILURE TO DO SO,THE ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR COST IMPLICATIONS.

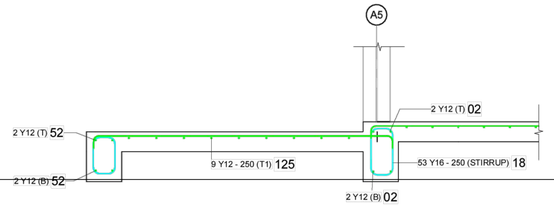
0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING. THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.



SECTION xJ-xJ
Scale 1 : 25



SECTION xF-xF
Scale 1 : 25



BEAM SCHEDULE

TYPE	DESCRIPTION
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
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3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G. CONCRETE SITE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227. MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LD.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE, BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO SHIMS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANLITE" uPvC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPvC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB–2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
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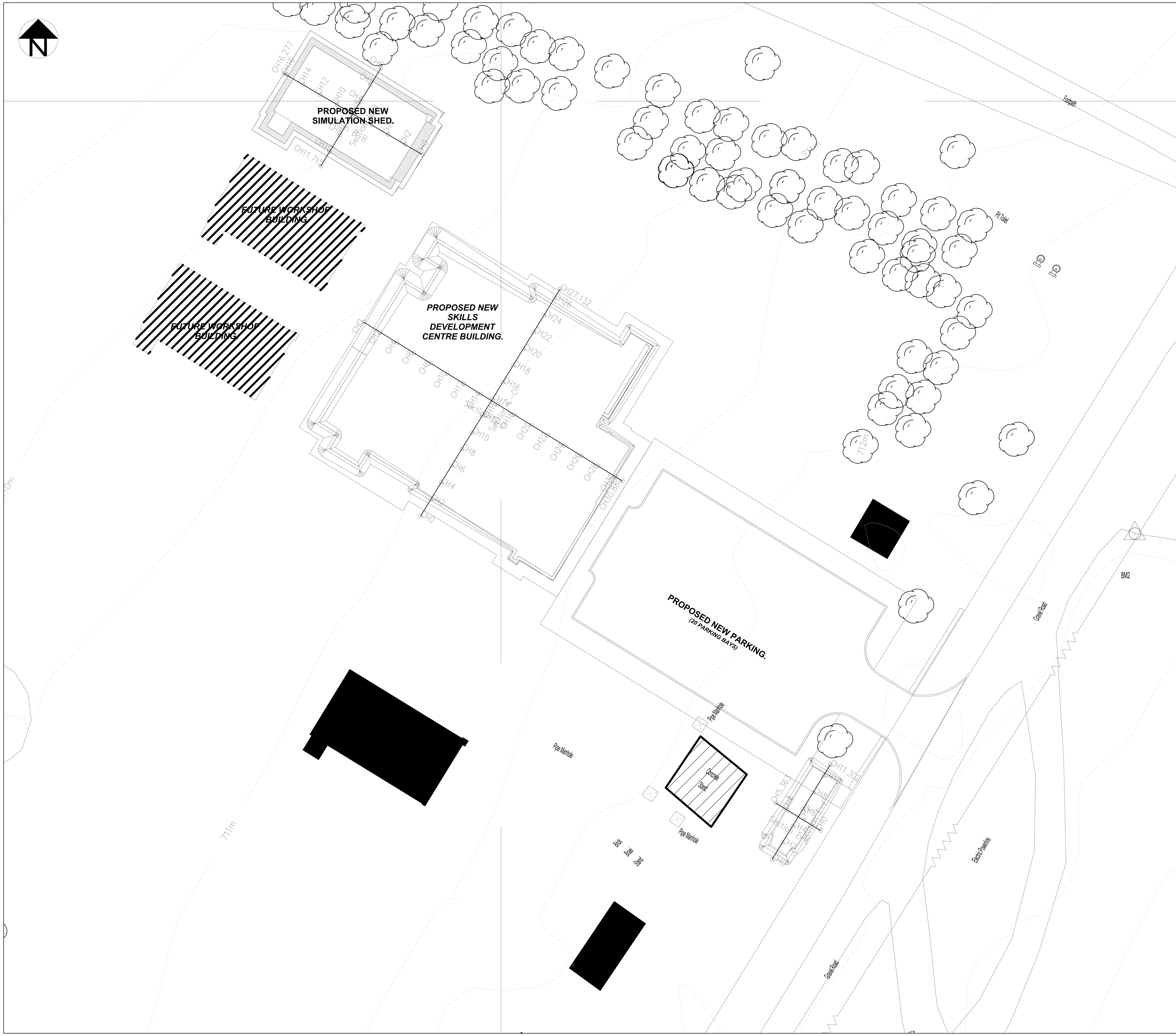
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: GROUND BEAM REINFORCEMENT LAYOUT

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/102
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

TENDER DRAWINGS



SIMULATION BUILDING				
PI 1	0.000	−111467.771	2677676.633	Section A–A
PI 2	11.715	−111461.640	2677686.616	

SIMULATION BUILDING				
PI 1	0.000	−111471.926	2677685.416	Section B–B
PI 2	16.277	−111457.889	2677677.176	

SKILLS DEVELOPMENT CENTRE				
PI 1	0.000	−111471.804	2677722.246	Section C–C
PI 2	27.132	−111486.002	2677699.126	

SKILLS DEVELOPMENT CENTRE				
PI 1	0.000	−111466.006	2677702.496	Section D–D
PI 2	30.889	−111492.328	2677718.661	

SECURITY GATE				
PI 1	0.000	−111512.531	2677754.279	Section E–E
PI 2	5.363	−111507.961	2677751.472	

SECURITY GATE				
PI 1	0.000	−111507.588	2677757.204	Section F–F
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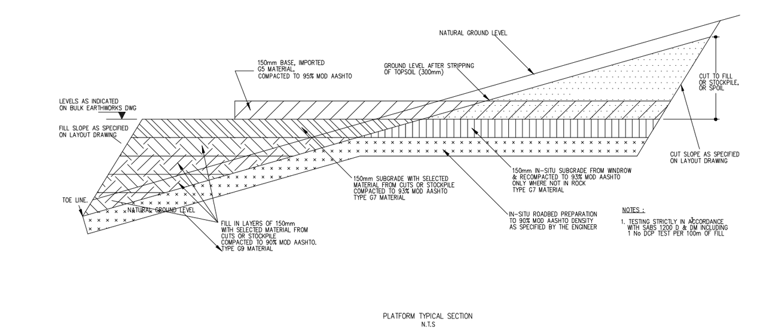

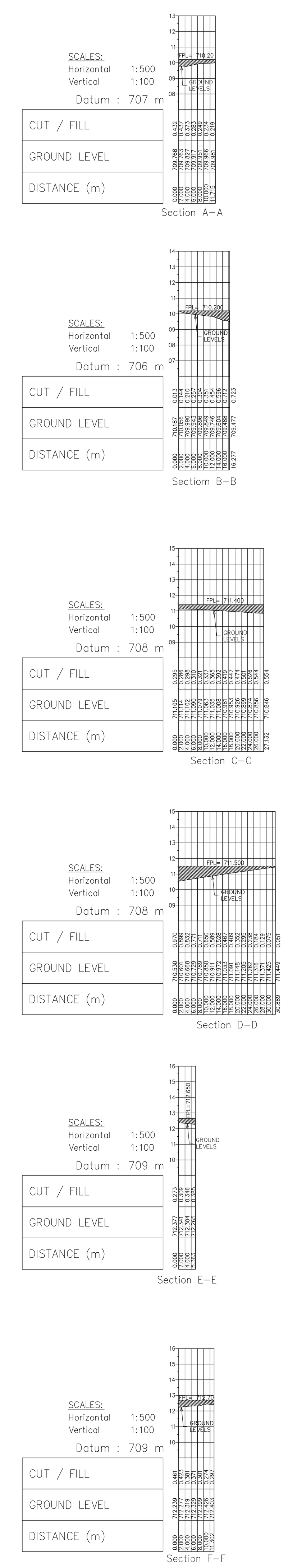

TENDER DRAWINGS

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

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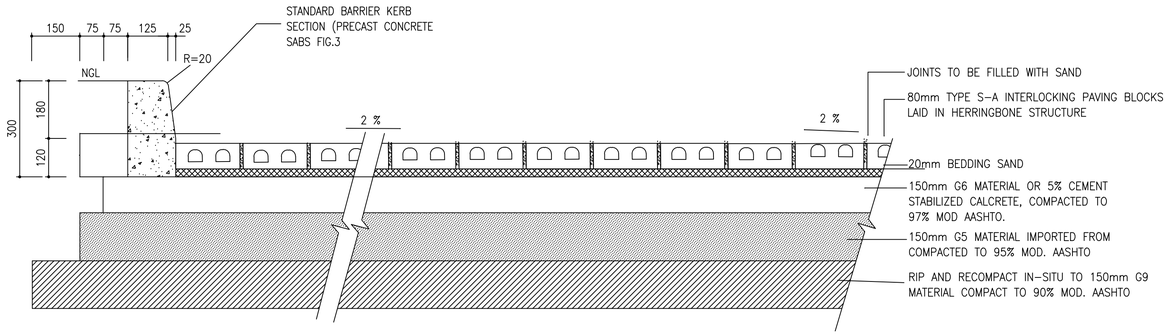
Cell: 083 306 0565

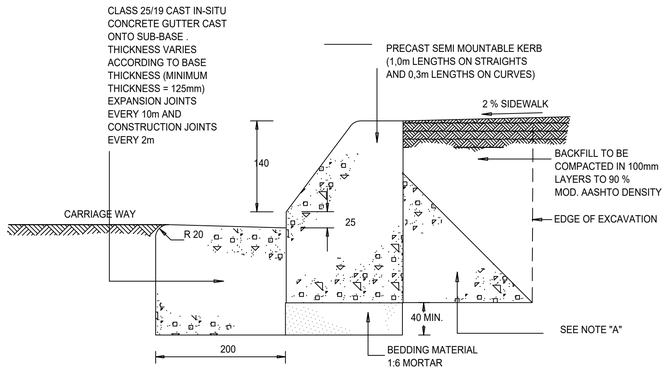
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
PLATFORMS DETAILS

PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/PL/002	
DESIGN BY:	MWM MAPOTSE	MWM
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1



TYPICAL PAVEMENT DETAIL (1:10)



OPTION 2: SEMI-MOUNTABLE KERB (FIG. 7)

DESCRIPTION OF PAVEMENT LAYERS		
60mm THICK ACCESS ROAD		
LAYER No.	DESCRIPTION	TRH14 MATERIAL TYPE
1	80mm PAVING BLOCK	PAVING
2	150mm G6 SUB-BASE COURSE IMPORTED & CEMENT STABILIZED COMPACTED TO 95% MOD. AASHTO DENSITY PI < 6	C3
3	150mm (G5) IMPORTED FROM BORROW PIT	G5
4	150mm ROADBED PREPARATION RIPPED AND RECOMPACTED TO 90% MOD.AASHTO DENSITY CBR > 25 , PI < 12 (G6)	G6

NOTES:

1. ALL SLEEVES TO BE INSTALLED TO 1000mm BACK OF KERBING.
2. TREES AND LAMP POLES ALTERNATE AT 15m.
3. THE STRENGTH OF ALL PIPES ARE TO BE DETERMINED USING CLASS B BEDDING OR BETTER AND SPECIFIED AS EITHER 50 D, 75 D OR 100 D
4. ALL SERVICES TO BE AS SHALLOW AS POSSIBLE BUT NOT TO HAVE COVER LESS THAN 600mm. DEPTH TO BE TO THE SPECIFICATION OF THE RELEVANT SERVICE PROVIDER.
5. PRECAST KERBS SHALL BE LAYED ON A 50mm MORTAR BED
6. WHERE THE SUBGRADE IS TOO WET, THE ENGINEER SHALL ORDERTHAT THEROADBED BE SCARIFIED, LEFT TO DRY AND RECOMPACTED TO THE SHOWN DENSITY
7. WHERE COLLAPSIBLE SOILS ARE ENCOUNTERED THE ROADBED SHALL BE COMPACTED USING AN IMPACT OR NEUMATIC ROLLER

TENDER DRAWINGS

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMATIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMATIC AGGREGATE
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CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVELITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1601.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVELITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWD, LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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APPROVAL _____ PI TECH ENG: 20127003

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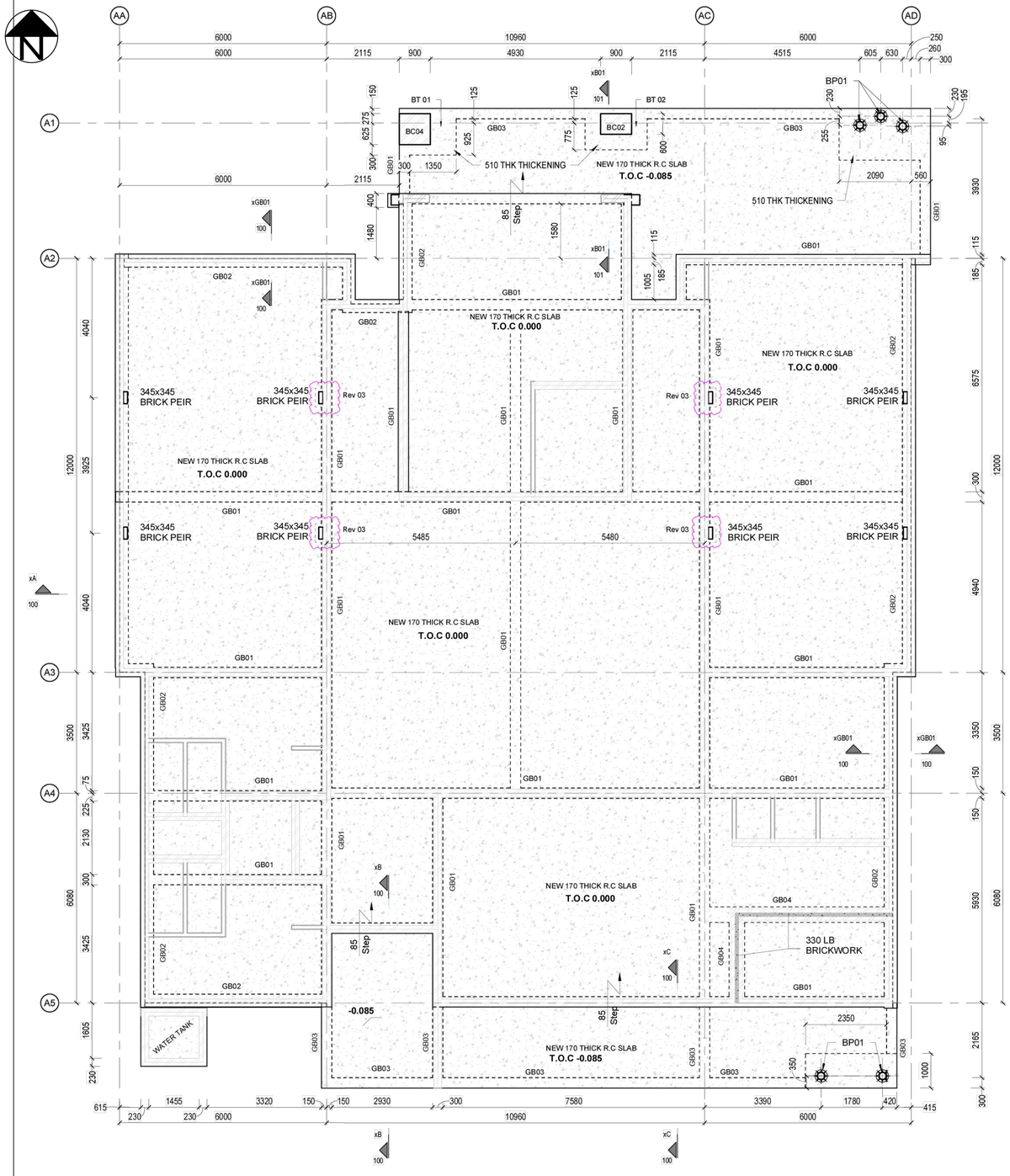
Cell: 083 304 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

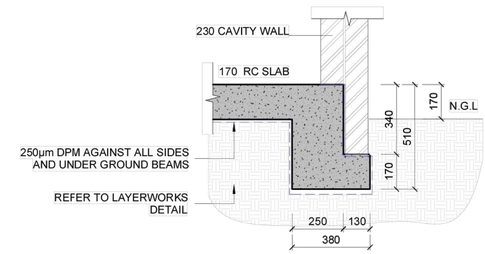
DESCRIPTION:
ROAD & PARKING DETAILS

PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/RPD/008	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1



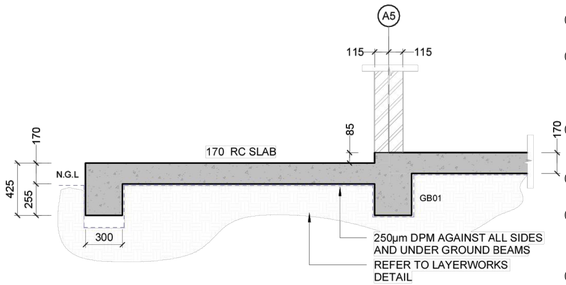
FOUNDATION LAYOUT - SKILL CENTRE

Scale 1 : 75



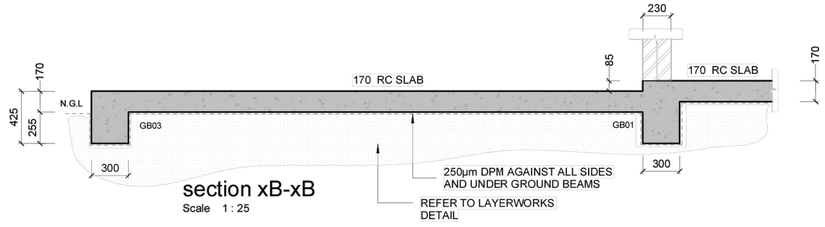
SECTION GB1

Scale 1 : 15



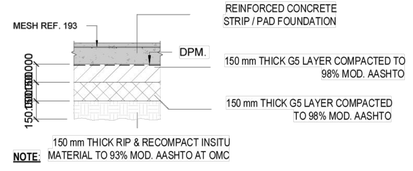
section xC-xC

Scale 1 : 25



section xB-xB

Scale 1 : 25



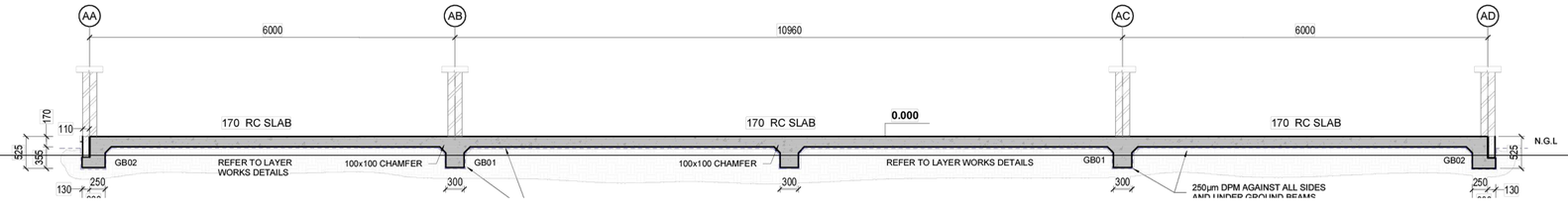
NOTE: LAYERWORKS ASSUMES AN INSITU CBR > 15.

LAYERWORKS DETAILS: FOUNDATIONS \ SURFACEBED

Scale 1 : 25

GROUND BEAM SCHEDULE	
TYPE	DESCRIPTION
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM

COLUMN SCHEDULE	
TYPE	DESCRIPTION
BC01	345x345 BRICK PEIR
BC02	900x600 BRICK PEIR
BC03	1110x600 BRICK PEIR
BC04	900x900 BRICK PEIR
SC01	254x146x31 UB
SC02	CHS219.1X6.0
SC03	203x133x25 UB



0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED,AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DICREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

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0.9 THE CONTRACTOR SHALL DISCLOSE HIS PROPOSED BUILDING SEQUENCE IN BOARD TERMS BEFORE SITE ESTABLISHMENT.

0.10 ANY DEVIATIONS FROM THE CONSTRUCTION DRAWINGS PLANNED BY THE CONTRACTOR SHALL BE PROPOSED TO THE ENGINEER IN FULL DETAIL FOR A DECISION. THE ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUCH DEVIATIONS,BUT IF APPROVED,THE APPROVAL SHALL BE IN WRITTING.

0.11 REFER TO ALL RELEVANT DRAWINGS BY:-
ARCHITECTS — STRUCTURAL ENGINEERS
ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

0.12 ALL COLUMNS, WALLS AND BEAMS TO BE PLACED CENTRALLY ON GRID/ CENTRE LINES UNLESS DIMENSIONED OTHERWISE.

0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

0.14 THE CONTRACTOR IS TO COMPLY AT ALL TIMES WITH ALL RELEVANT MUNICIPAL REGULATIONS AND BYLAWS IN THE AREA OF THE SITE AND IS TO ENSURE THAT HE HAS A SET OF APPROVED BUILDING PLANS ON SITE AT ALL TIMES

0.15 ALL PRODUCTS SPECIFIED FOR USE ARE TO BE USED STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS AT ALL TIMES.

0.16 SHOULD THE ENGINEER BE REQUIRED ON SITE,48 HRS NOTICE SHOULD BE REQUESTED IN WRITTING,FAILURE TO DO SO,THE ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR COST IMPLICATIONS.

0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING. THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.

KEY:

NEW WALL

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE.
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWS, LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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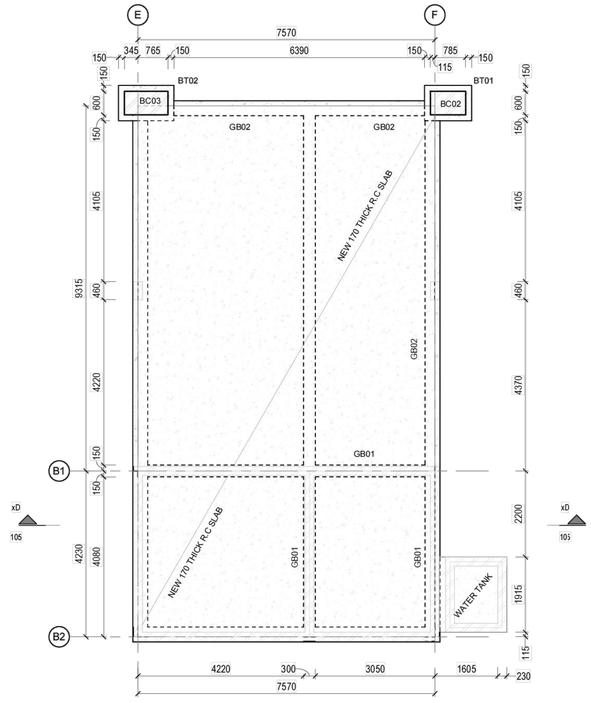
PARKTOWN 2193
Tel: 011 276 9600
www.servicesseta.org.za
APPROVAL _____ Pr TECH ENG: 201270031

REDNOW TECHNOLOGIES
Postal: Postnet suite # 29, Private Bag X2, Edenglen, 1613
Physical: 6 Antraciet Avenue, Croydon Ext 1, Kempton Park, 1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

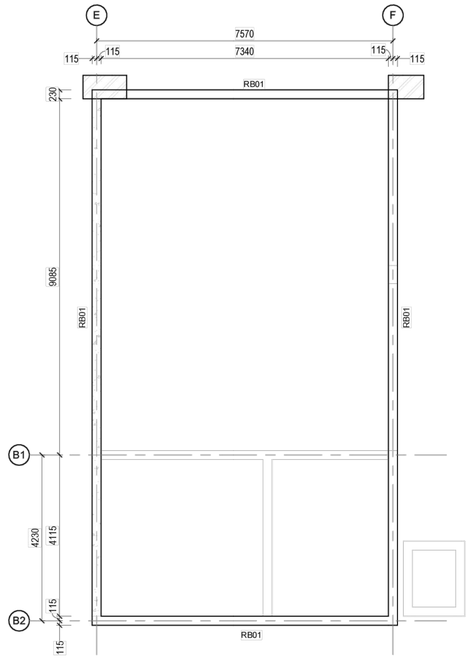
DESCRIPTION:	FOUNDATION AND SURFACE BED LAYOUT
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/100
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE
	A1

TENDER DRAWINGS



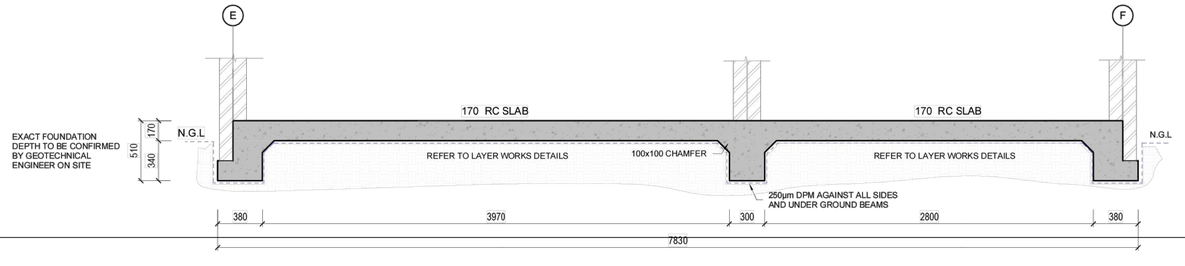
FOUNDATION LAYOUT - SIMULATION ROOM

Scale 1 : 75



SIMULATION AREA - RING BEAM LAYOUT

Scale 1 : 75



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1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU MATERIAL (NOT ON FILL).

1.3 THE TOP LEVEL OF ALL FOUNDATIONS TO BE AT LEAST 300MM BELOW FINAL OUTSIDE GROUND LEVEL OR FINISHED FLOOR LEVEL, WHICHEVER IS THE LOWER.

1.4 ASSUMED SAFE BEARING CAPACITY OF SOIL UNDER FOUNDATIONS – 250KPA. (REFER TO GEOTECHNICAL REPORT)

1.5 ALL RISING FOUNDATION BRICKWORK TO HAVE CONTINUOUS BRICKFORCE EVERY 2ND COURSE AND CAVITY TO BE FILLED TO UNDERSIDE OF STEPPED DPC WITH 13MM AGGREGATE, 15MPA CONCRETE TAKING CARE NOT TO ALLOW ANY HONEYCOMBING

1.6 ALL FINAL FOUNDATION SIZES, DEPTH AND DETAILS ARE SUBJECT TO CONFIRMATION ON SITE BY ENGINEER.

1.7 THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF ALL DEEP EXCAVATIONS AND FOR ERECTING READY FENCE AND OR HOARDING AROUND THE SITE TO PREVENT ENTRY AFTER WORKING HOURS AND THE GENERAL SAFETY OF THE SITE AT ALL TIMES.

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ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

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0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING, THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.

BEAM SCHEDULE.

TYPE	DESCRIPTION
	<varies>
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

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SEWER NOTES:

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CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

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MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
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THE INFLOW OF STORMWATER TO BE PROHIBITED.

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PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
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PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND BENCHING. PRECAST CONCRETE SECTION TO BE PLACED AND GROUTED COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
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ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANULITE" STRUCTURAL WALL.

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LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
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Tel: 011 276 9600
www.serviceseta.org.za

REDNOW TECHNOLOGIES
Postal: Postnet suite # 29, Private Bag X3, Edenglen, 1613
Physical: 6 Astronaut Avenue, Croydon Ext 1, Kempton Park, 1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

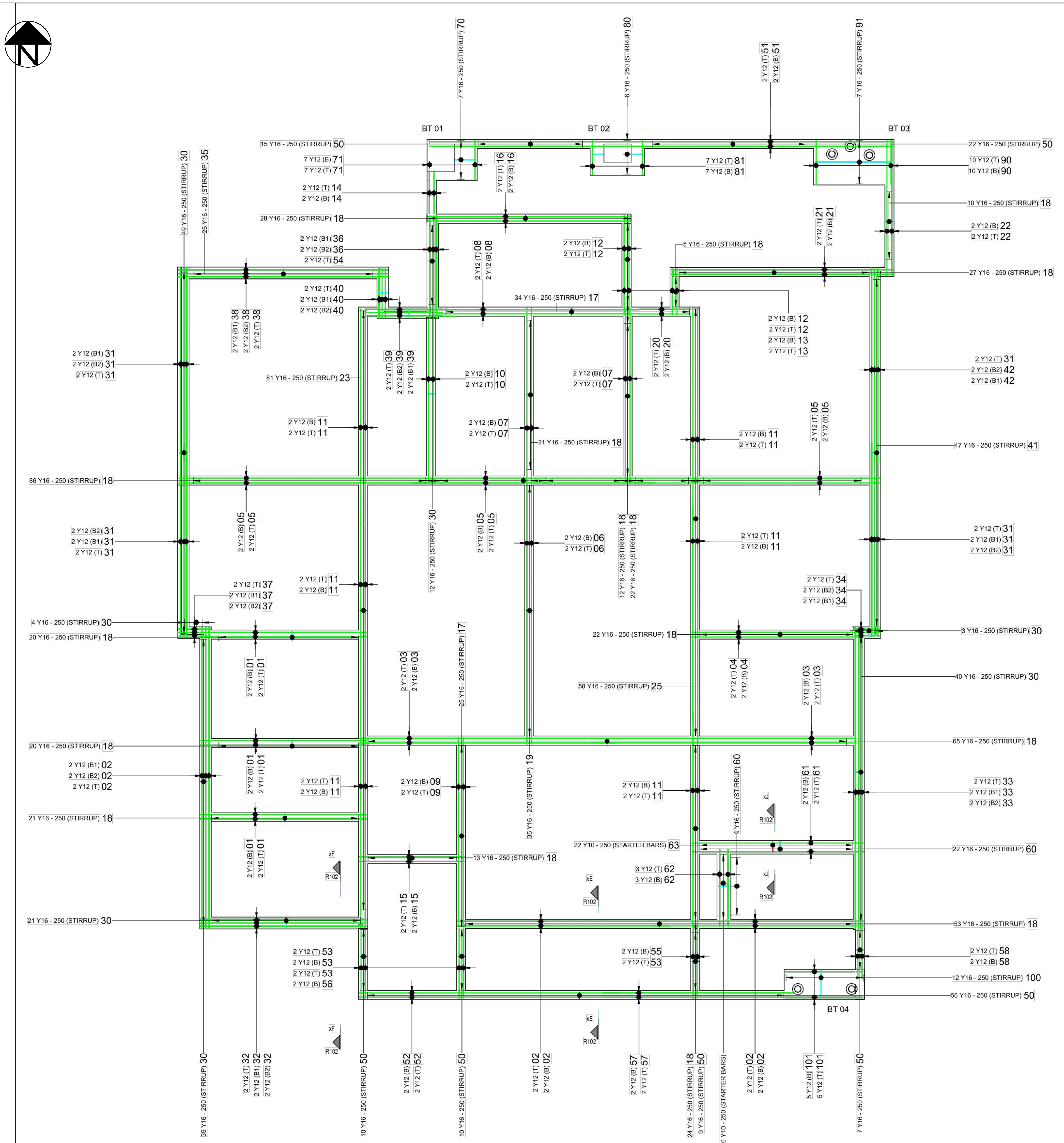
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: FOUNDATION REINFORCEMENT SURFACE LAYOUT

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/101
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

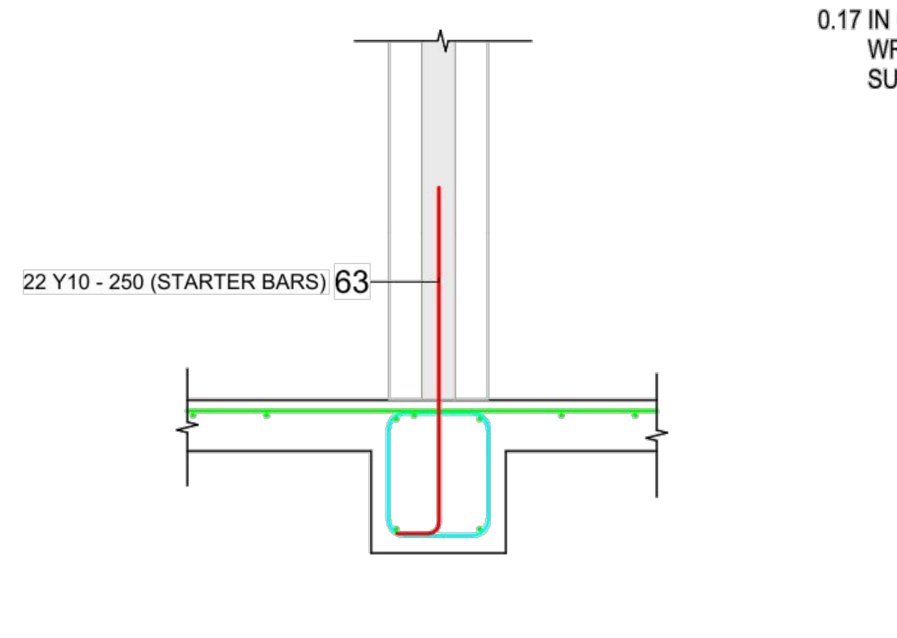
A1

TENDER DRAWINGS



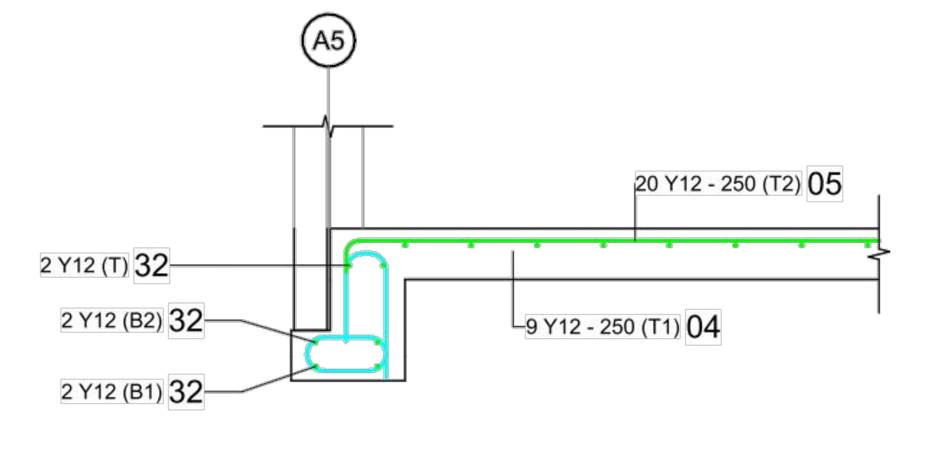
GROUND BEAM REINFORCEMENT LAYOUT

Scale 1 : 75



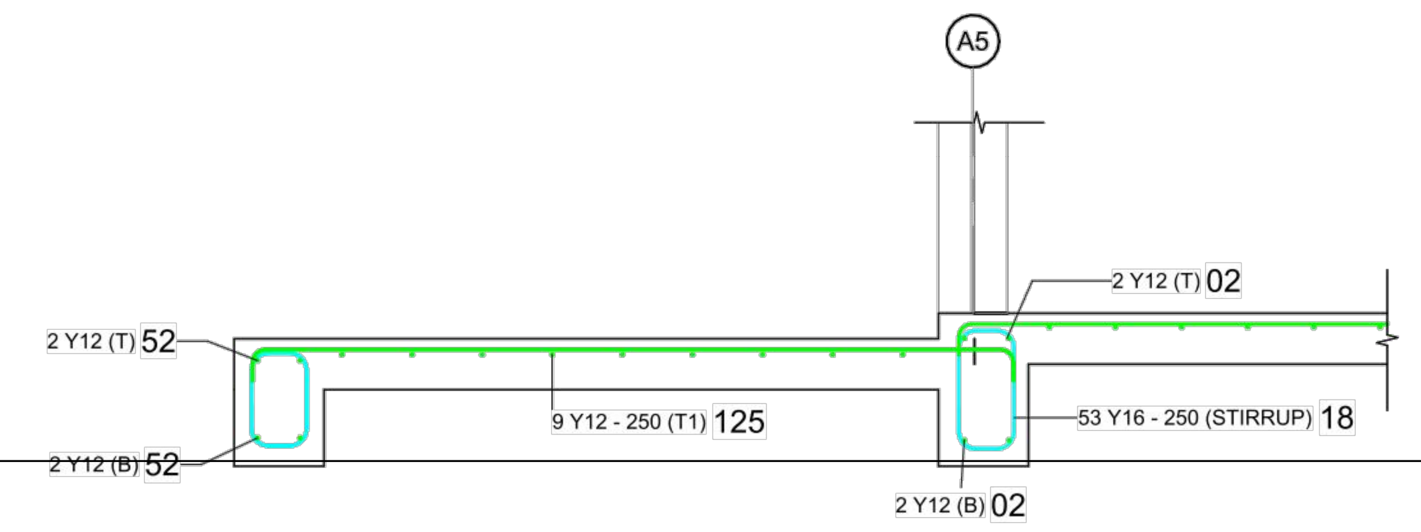
SECTION xJ-xJ

Scale 1 : 25



SECTION xF-xF

Scale 1 : 25



1.0 EXCAVATIONS AND FOUNDATIONS

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1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU MATERIAL (NOT ON FILL).

1.3 THE TOP LEVEL OF ALL FOUNDATIONS TO BE AT LEAST 300MM BELOW FINAL OUTSIDE GROUND LEVEL OR FINISHED FLOOR LEVEL, WHICHEVER IS THE LOWER.

1.4 ASSUMED SAFE BEARING CAPACITY OF SOIL UNDER FOUNDATIONS – 250KPA. (REFER TO GEOTECHNICAL REPORT)

1.5 ALL RISING FOUNDATION BRICKWORK TO HAVE CONTINUOUS BRICKFORCE EVERY 2ND COURSE AND CAVITY TO BE FILLED TO UNDERSIDE OF STEPPED DPC WITH 13MM AGGREGATE, 15MPA CONCRETE TAKING CARE NOT TO ALLOW ANY HONEYCOMBING

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ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

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0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

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BEAM SCHEDULE

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GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
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TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
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SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227. MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
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ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
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CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

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ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
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LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
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DESCRIPTION:	GROUND BEAM REINFORCEMENT LAYOUT
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/102
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE
	A1

TENDER DRAWINGS

GROUND BEAMS REBAR SCHEDULE

WEWWWWWT NAME	NUM	MARK	TYPE	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)
GROUND BEAM 01	4	01	Y12	12	5500	20	5495	0	0	0	0
GROUND BEAM 01	1	02	Y12	8	7000	20	6995	0	0	0	0
GROUND BEAM 01	1	03	Y12	4	8420	20	8420	0	0	0	0
GROUND BEAM 01	2	04	Y12	4	5670	20	5670	0	0	0	0
GROUND BEAM 01	3	05	Y12	12	8010	20	8010	0	0	0	0
GROUND BEAM 01	2	06	Y12	4	8790	20	8790	0	0	0	0
GROUND BEAM 01	4	07	Y12	8	5800	20	5795	0	0	0	0
GROUND BEAM 01	1	08	Y12	4	6630	20	6625	0	0	0	0
GROUND BEAM 01	1	09	Y12	4	6250	20	6245	0	0	0	0
GROUND BEAM 01	2	10	Y12	4	5420	20	5415	0	0	0	0
GROUND BEAM 01	4	11	Y12	24	7110	20	7105	0	0	0	0
GROUND BEAM 01	1	12	Y12	4	3270	20	3270	0	0	0	0
GROUND BEAM 01	1	13	Y12	4	1510	20	1505	0	0	0	0
GROUND BEAM 01	2	14	Y12	4	1390	20	1390	0	0	0	0
GROUND BEAM 01	1	15	Y12	4	3460	20	3455	0	0	0	0
GROUND BEAM 01	1	16	Y12	4	6670	20	6670	0	0	0	0
GROUND BEAM 01	3	17	Y16	65	1310	60	410	200	0	0	0
GROUND BEAM 01	16	18	Y16	449	1310	60	200	410	0	0	0
GROUND BEAM 01	1	19	Y16	35	1350	60	430	200	0	0	0
GROUND BEAM 01	1	20	Y12	4	1700	20	1700	0	0	0	0
GROUND BEAM 01	1	21	Y12	4	7310	20	7315	0	0	0	0
GROUND BEAM 01	2	22	Y12	4	4450	20	4455	0	0	0	0
GROUND BEAM 01	1	23	Y16	81	1300	60	405	200	0	0	0
GROUND BEAM 01	1	24	Y16	22	1460	60	435	250	0	0	0
GROUND BEAM 01	1	25	Y16	58	1280	60	200	395	0	0	0
GROUND BEAM 02	6	30	Y16	173	1450	75	300	150	410	280	130
GROUND BEAM 02	4	31	Y12	20	6380	20	6375	0	0	0	0
GROUND BEAM 02	2	32	Y12	6	5460	20	5460	0	0	0	0
GROUND BEAM 02	2	33	Y12	6	9940	20	9935	0	0	0	0
GROUND BEAM 02	2	34	Y12	6	860	20	860	0	0	0	0
GROUND BEAM 02	2	35	Y16	32	1460	75	300	150	410	280	130
GROUND BEAM 02	1	36	Y12	4	3380	20	3375	0	0	0	0
GROUND BEAM 02	2	37	Y12	6	1050	20	1050	0	0	0	0
GROUND BEAM 02	2	38	Y12	6	6920	20	6920	0	0	0	0
GROUND BEAM 02	1	39	Y12	6	2560	20	2555	0	0	0	0
GROUND BEAM 02	2	40	Y12	6	1650	20	1645	0	0	0	0
GROUND BEAM 02	1	41	Y16	47	1460	75	310	150	410	280	130
GROUND BEAM 02	2	42	Y12	4	6410	20	6410	0	0	0	0
GROUND BEAM 03	6	50	Y16	129	1140	60	200	325	0	0	0
GROUND BEAM 03	2	51	Y12	8	7900	20	7900	0	0	0	0
GROUND BEAM 03	1	52	Y12	4	8630	20	8625	0	0	0	0
GROUND BEAM 03	2	53	Y12	8	2260	20	2260	0	0	0	0
GROUND BEAM 03	1	54	Y12	2	3380	20	3375	0	0	0	0
GROUND BEAM 03	1	55	Y12	2	2430	20	2425	0	0	0	0
GROUND BEAM 03	1	56	Y12	2	2310	20	2305	0	0	0	0
GROUND BEAM 03	2	57	Y12	4	6290	20	6285	0	0	0	0
GROUND BEAM 03	2	58	Y12	4	1610	20	1610	0	0	0	0
GROUND BEAM 04	2	60	Y16	31	1640	60	350	425	0	0	0
GROUND BEAM 04	1	61	Y12	4	5670	20	5670	0	0	0	0
GROUND BEAM 04	1	62	Y12	6	2520	20	2515	0	0	0	0
GROUND BEAM 04	2	63	Y10	32	1280	37	1160	145	0	0	0

GROUND BEAM REBAR WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
GROUND BEAM 04	Y10	25 kg
<varies>	Y12	1117 kg
<varies>	Y16	2362 kg
TOTAL		3504 kg

Member	Bar Mark	Type & Size	No. of mbrs.	No. of Bars in Each	Total No.	Length of each bar † mm	Shape	A* mm	B* mm	C* mm	D* mm	E/R* mm
BASE TYPE 01												
	70	Y16	1	7	7	4000	60	410	1550	0	0	0
	71	Y12	1	14	14	1300	20	1300	0	0	0	0
BASE TYPE 02												
	80	Y16	1	6	6	4300	60	410	1700	0	0	0
	81	Y12	1	14	14	1150	20	1150	0	0	0	0
BASE TYPE 03												
	90	Y12	1	20	20	1450	20	1450	0	0	0	0
	91	Y16	1	7	7	6000	60	410	2550	0	0	0
BASE TYPE 04												
	100	Y16	1	12	12	2800	60	430	920	0	0	0
	101	Y12	1	10	10	2550	20	2550	0	0	0	0

BASE REBAR WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
<varies>	Y12	78.84 kg
<varies>	Y16	204.36 kg
TOTAL		283.20 kg

SLAB REBAR SCHEDULE

MEMBER NAME	NUM	MARK	TYPE	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)
RC SLAB REBAR	1	110	Y12	5	6730	38	110	6570	110	0	0
RC SLAB REBAR	1	111	Y12	13	6640	38	110	6480	110	0	0
RC SLAB REBAR	1	112	Y12	6	1620	38	120	1440	120	0	0
RC SLAB REBAR	1	113	Y12	6	6860	38	110	6700	110	0	0
RC SLAB REBAR	1	114	Y12	116	7990	37	110	7910	0	0	0
RC SLAB REBAR	1	115	Y12	68	7910	20	7910	0	0	0	0
RC SLAB REBAR	1	116	Y12	9	5980	37	100	5910	0	0	0
RC SLAB REBAR	1	117	Y12	20	7530	37	110	7450	0	0	0
RC SLAB REBAR	1	118	Y12	20	7450	20	7450	0	0	0	0
RC SLAB REBAR	1	119	Y12	4	6350	37	110	6270	0	0	0
RC SLAB REBAR	1	120	Y12	16	6420	37	6340	110	0	0	0
RC SLAB REBAR	1	121	Y12	50	8250	37	8170	110	0	0	0
RC SLAB REBAR	1	122	Y12	23	9320	37	9240	110	0	0	0
RC SLAB REBAR	1	123	Y12	23	7560	37	7480	110	0	0	0
RC SLAB REBAR	1	124	Y12	17	5950	37	5870	110	0	0	0
RC SLAB REBAR	1	125	Y12	9	5480	20	5480	0	0	0	0
RC SLAB REBAR	1	126	Y12	64	2710	38	110	2550	110	0	0
RC SLAB REBAR	1	127	Y12	9	3220	38	100	3070	110	0	0
RC SLAB REBAR	1	128	Y12	5	8040	37	7945	120	0	0	0
RC SLAB REBAR	1	129	Y12	12	8040	37	7950	120	0	0	0
RC SLAB REBAR	1	130	Y12	20	4420	38	120	4240	120	0	0
RC SLAB REBAR	1	131	Y12	10	2990	38	110	2825	110	0	0
RC SLAB REBAR	1	132	Y12	7	4290	38	110	4135	110	0	0
RC SLAB REBAR	1	133	Y12	5	4010	38	110	3845	110	0	0
RC SLAB REBAR	1	134	Y12	16	2640	38	110	2475	110	0	0
RC SLAB REBAR	1	135	Y12	4	6290	37	110	6205	0	0	0

SLAB REBAR WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
RC SLAB REBAR	Y12	3234 kg
TOTAL		3234 kg

1.0 EXCAVATIONS AND FOUNDATIONS

1.1 ALL EXCAVATIONS FOR FOUNDATIONS (WHERE NOT PILED) TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.

1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU MATERIAL (NOT ON FILL).

1.3 THE TOP LEVEL OF ALL FOUNDATIONS TO BE AT LEAST 300MM BELOW FINAL OUTSIDE GROUND LEVEL OR FINISHED FLOOR LEVEL, WHICHEVER IS THE LOWER.

1.4 ASSUMED SAFE BEARING CAPACITY OF SOIL UNDER FOUNDATIONS – 250KPA. (REFER TO GEOTECHNICAL REPORT)

1.5 ALL RISING FOUNDATION BRICKWORK TO HAVE CONTINUOUS BRICKFORCE EVERY 2ND COURSE AND CAVITY TO BE FILLED TO UNDERSIDE OF STEPPED DPC WITH 13MM AGGREGATE, 15MPA CONCRETE TAKING CARE NOT TO ALLOW ANY HONEYCOMBING

1.6 ALL FINAL FOUNDATION SIZES, DEPTH AND DETAILS ARE SUBJECT TO CONFIRMATION ON SITE BY ENGINEER.

1.7 THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF ALL DEEP EXCAVATIONS AND FOR ERECTING READY FENCE AND OR HOARDING AROUND THE SITE TO PREVENT ENTRY AFTER WORKING HOURS AND THE GENERAL SAFETY OF THE SITE AT ALL TIMES.

1.8 ALL FOUNDATION EXCAVATIONS TO BE BELOW ANY SIGNS OF ORGANIC MATERIAL OR ROOTS ETC.

0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DICREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

0.5 ALL SANS SPECIFICATIONS MENTIONED IN THE NOTES,ON THE DRAWINGS AND IN PROJECT SPECIFICATIONS SHALL BE AVALAIBLE ON SITE AT ALL TIMES IN HARD COPY FORMAT.

0.6 ALL INSTRUCTIONS FROM THE ENGINEER TO BE WRITTEN IN THE SITE INSTRUCTION BOOK,THAT SHOULD BE PROVIDED BY THE CONTRACTOR.

0.7 PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY BE USED WITH THE ENGINEER'S PRIOR APPROVAL.

0.8 UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING,DRAINAGE FALLS AND FINISHES ARE ACCORDING TO THE ARCHITECT DETAILS AND SPECIFICATIONS.

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D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
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NO STEPS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 558.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANULITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
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MW MAPOTSE Pr Tech Eng 201270031
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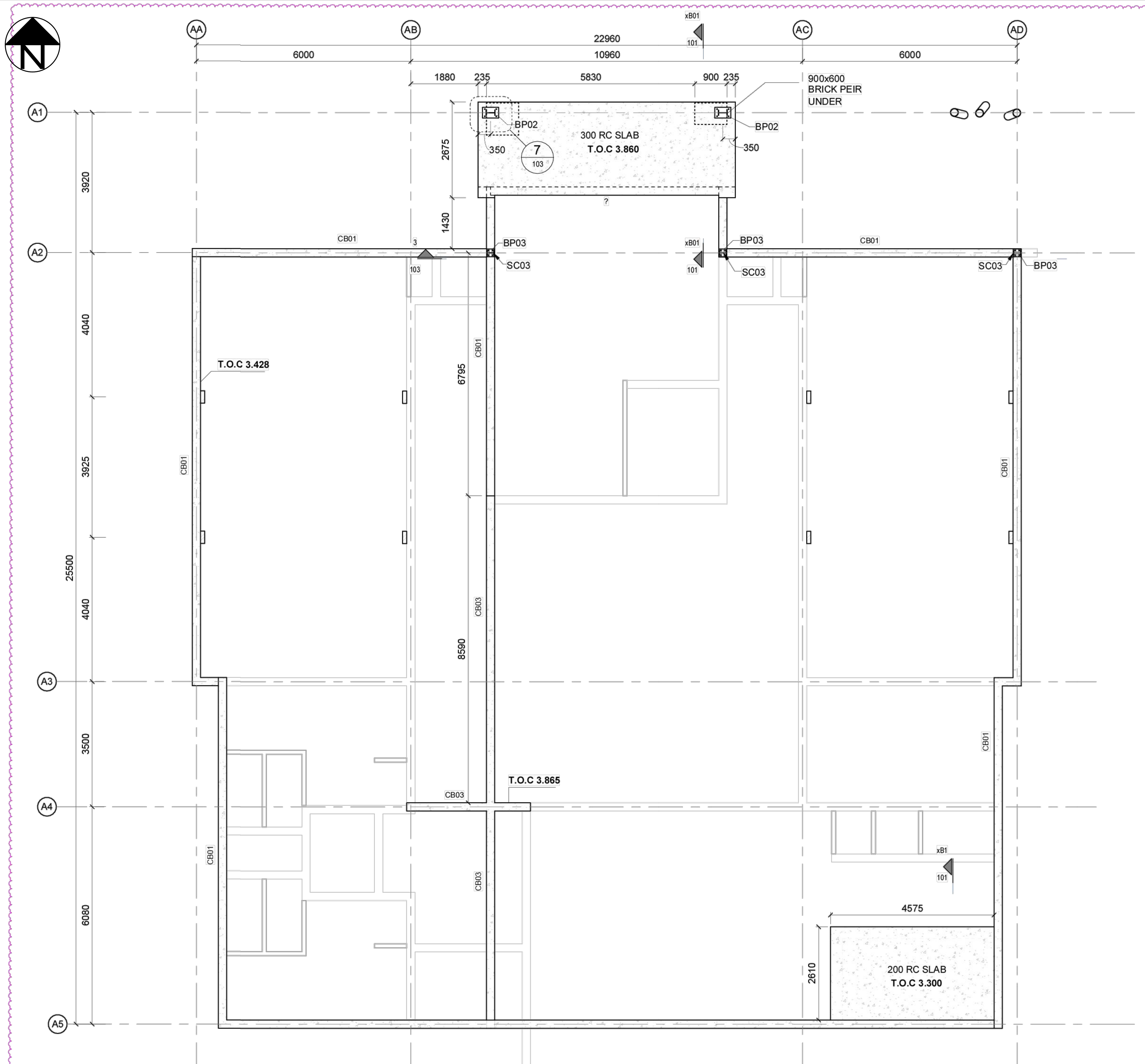
DESCRIPTION: REINFORCEMENT BENDING SCHEDULE

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/103
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

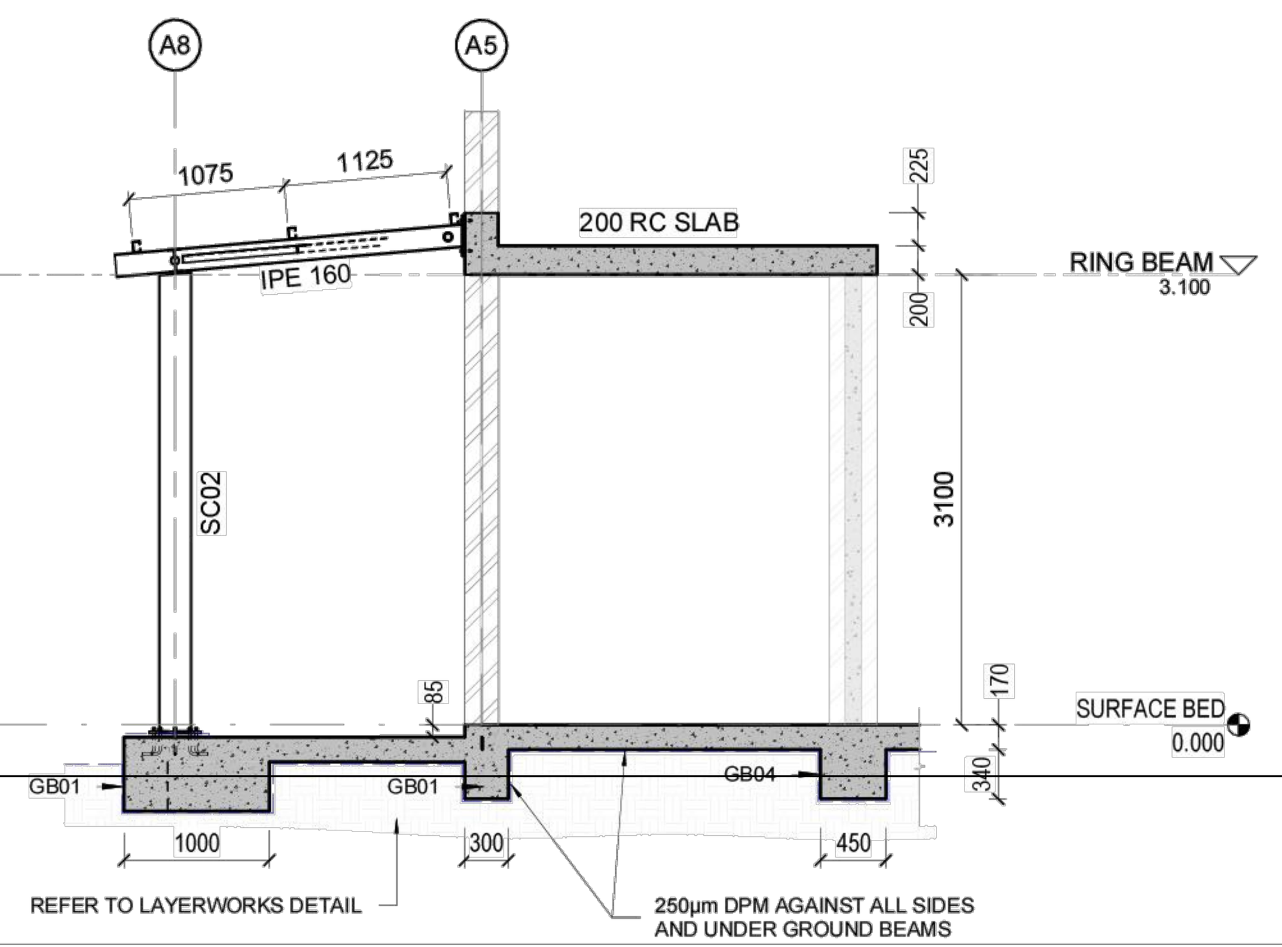
A1

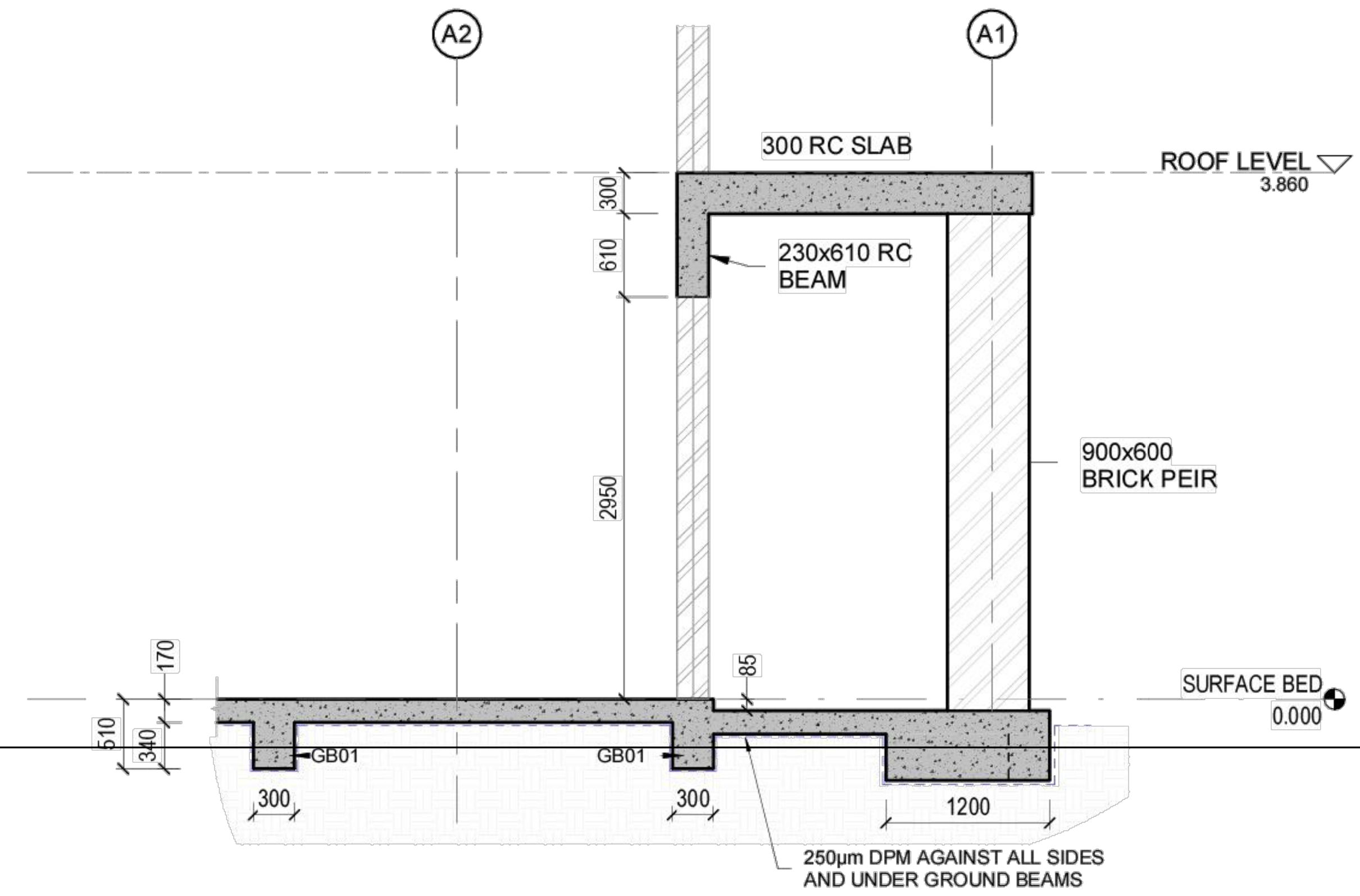
TENDER DRAWINGS



RING BEAM LAYOUT

Scale 1 : 75





4.0 STRUCTURAL STEEL NOTES

4.1 Structural steelwork shall comply with the requirements of SANS 2001:CSI, SANS 1200H:1990 and the relevant projectspecifications.

4.2 The engineer's drawings are intended as design drawings with the purpose of showing the design intent.

4.3 The contractor shall prepare complete fabrication drawings (Clause 4.2.4 of SANS : CS1) which shall be submitted to the engineer for approval before fabrication commences. The contractor allow 14 working days for checking and approval by the engineer, and shall also allow for any changes required by the engineer.

4.4 A certificate from the steel manufacture in which the grade of the structural steel is verified shall be handed to the engineer for approval.

4.5 All dimensions shall be checked on site before preparation of shop drawings commences.any discrepancies shall be handed to the engineer for approval.

4.6 Setting out points(S.O.P'S) at member centroids shall conform to those shown on general arrangement drawings . No accentricities , exept those shown on the engineer's drawings shall be allowed.

4.7 The proposed method and sequence of erection of the structure shall be submitted to the engineer for written approval .such submission is to take place at the time shop drawing submittal . the contravtor shall indicate the proposed method of propping to ensure stability of the structures during erection, such stability during erection remians the contractor responsibilitie's. where temporary bracing or propping is required, the contractor shall be responsible for the design, erection , manufacture and removal(where necessary) thereof proposal of such bracing or propping shall be submitted to the engineer at an early stage for his perusal.

4.8 Corrosion protection.
- 4.8.1 Cold Rolled Steelwork
  - a) Hot dip galvanise to SANS 121 (ISO 1461).
- 4.8.2 Hot Rolled Steelwork - External
  - a) Shop Applied
    - i) Abrasive blast to Sa 2½
    - ii) 1st Coat: Zinc rich epoxy primer 75 μm dry film thickness.
    - iii) 2nd Coat: High build epoxy MIO (micaceous iron oxide) 125 μm dry film thickness.
  - b) Site Applied
    - i) 3rd Coat: High solid aliphatic polyurethane finish 80 μm dry film thickness.
- 4.8.3 Hot Rolled Steelwork - Internal, Visible
  - a) Shop Applied
    - i) Abrasive blast to Sa 2½
    - ii) 1st Coat: High solid zinc phosphate primer 80 μm dry film thickness.
  - b) Site Applied
    - i) 2nd Coat: High build recoatable epoxy MIO (micaceous iron oxide) 120 μm dry film thickness.
- 4.8.4 Hot Rolled Steelwork - Internal, Hidden
  - a) Hot dip galvanise to SANS 121 (ISO 1461), minimum coating thickness of 70 μm and an average of 85 μm.
- 4.8.5 Where required for fireproofing, Intumecent paint is to be applied as specified by the Architect.
- 4.8.5 Preference should be given to the use of paint with a low or no volatile organic compound (VOC) content.

4.9 The contractor shall produce evidence, acceptable to the engineer, that welding. procedures to SANS 2001 - C52, clause 5.2.

4.10 Welds shall conform to SANS 10167:2004 ,SANS 44:2009 and AWS D1.1 specifications:
* where no welds size are shown, the minimum weld size shall be 6 mm, The contractor shall design and detail connections to transfer the full force capacity of the connected members through the connection.
* when using eletric arc welding ,all eletrodes shall be E7018. for any other welding process to be used, the contractor shall apply in writting, for the approval from the engineer for eletrodes to be used.
* all butt welds shall develop the full strength of the elements being joined.
* all splices shall develop the full strength of the elements being joned.
* all welding shall be done by suitably qualified and experienced welders using proper equipment in good condition. no site welding without engineers approval.
* the contractor shall design all welds and, where necessary , gussets of sufficient strentgh shall be provided to obtain the required weld length to ensure the full strength of the connection.at the connections of all bracing members, the bolt should be adequate to develop the full tensile capacity of the bracing member.all truss and girder members to be welded all round both sides.allow for gusset plates to ensure adequate welding length to develop full tensile capacity of members where necessary.

4.11 Testing of welds.
10% of all fillet welds and 100% of butt welds to be subjected to non-destructive testing

4.12 All shop splices are to be indicated on drawings

4.13 Where applicable,non-shrink grout shall be provided under base plates before any primary loads are applied to the structure.

4.14 The contractor shall, at the commencement of the project , acquaint himself with the avalaibility and delivery time of the products and steel profiles specified on the drawings so that such material can be ordered well in advance.

4.15 where slotted holes for bolts occur, the nut shall be hand tightended and lock-nut be provided unless noted otherwise.

4.16 All hot rolled steelwork shall be grade S355JR, all hollow tube steelwork shall be grade S355JR and all cold formed steelwork shall be grade S355JR.

4.17 All fixing bolts for structural steelwork shall be M20 grade 8.8 unless noted otherwise.

4.18 Paint specificatoin for the bolts: 3 days before the erection of the structural steelwork all bolts to be cleaned and decreased within 2 days of erection.all bolts are to be coated with 1 coat of sigmadur gloss or equilvalent.

4.19 See architectural drawings for final colour of structural steelwork (paint sample to be submitted for approval)

4.20 All welds shall be 6mm continuous fillet welds unless noted otherwise.

4.21 When steelwork connects to existing structures, the steelwork contractor shall check all site dimensions and levels before fabrication and erection.

4.22 Traceability of steel.
All steel to be marked with the manufacturer's test certificate number to ensure full traceability and to facilitate re-use of the steel members.

4.23 Marking steelwork.
Completed components shall be marked with a durable and distinguishing erection mark, section size, steel grade and manufacturer's test certificate number in such a way so as not to damage the component. Marking shall be in a discrete location. Hardstamping may be used unless noted otherwise.

COLUMN SCHEDULE

TYPE	DESCRIPTION
BC01	345x345 BRICK PEIR
BC02	900x600 BRICK PEIR
BC03	1110x600 BRICK PEIR
BC04	900x900 BRICK PEIR
SC01	254x146x31 UB
SC02	CHS219.1X6.0
SC03	203x133x25 UB

BEAM SCHEDULE

TYPE	DESCRIPTION
	<varies>
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB01	230x425 RC BEAM
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
PL01	75x50x20x2.5 CFLC
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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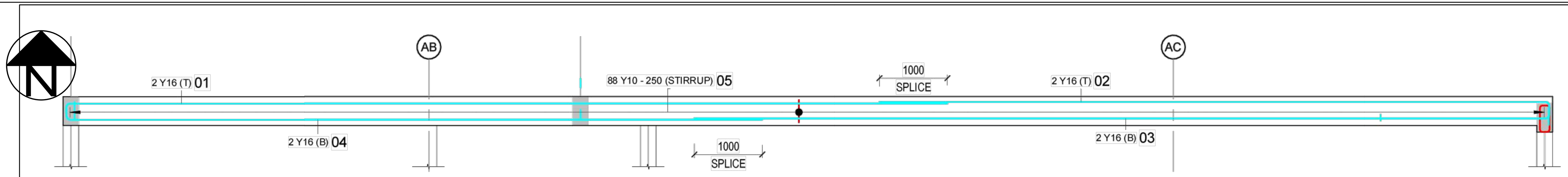
DESCRIPTION:	RING BEAM LAYOUT & DETAILS
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/104
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

TENDER DRAWINGS



SECTION - BEAM 100
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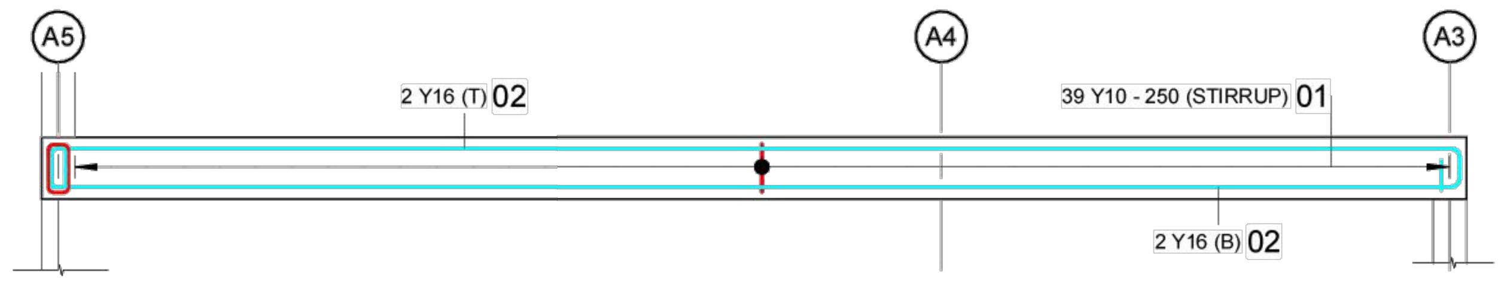

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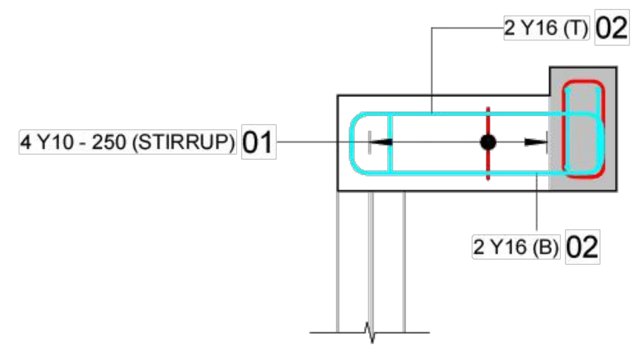

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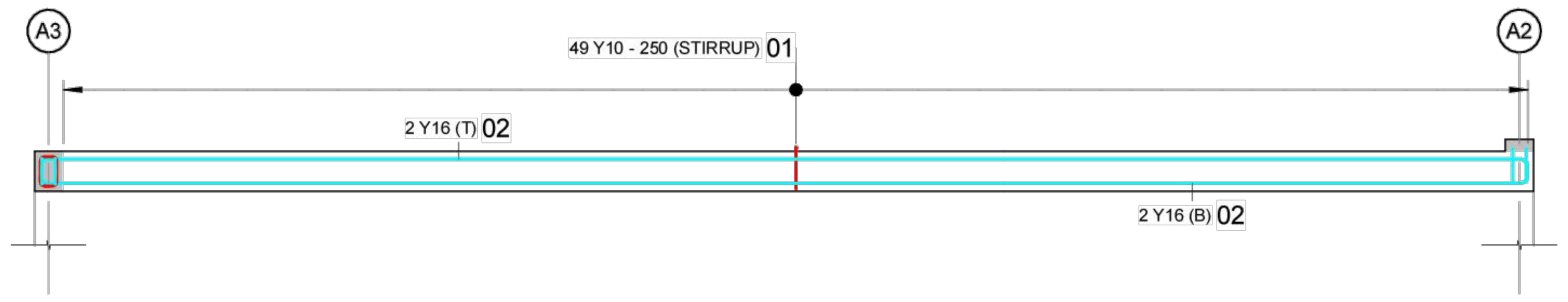

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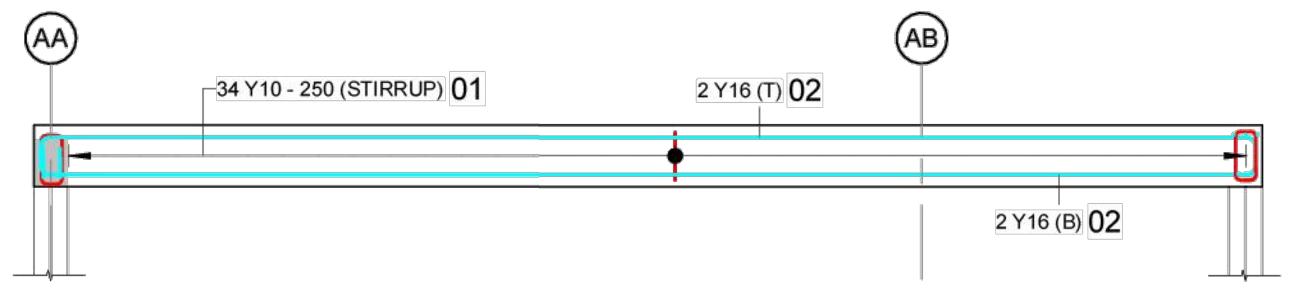

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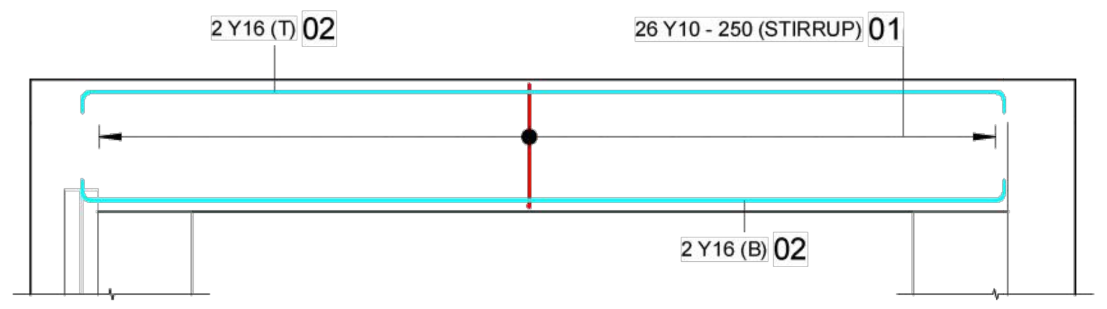

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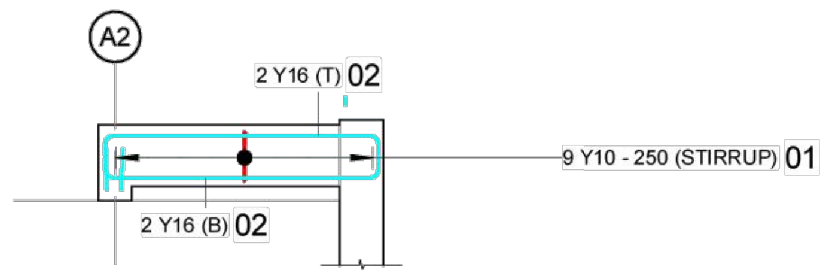

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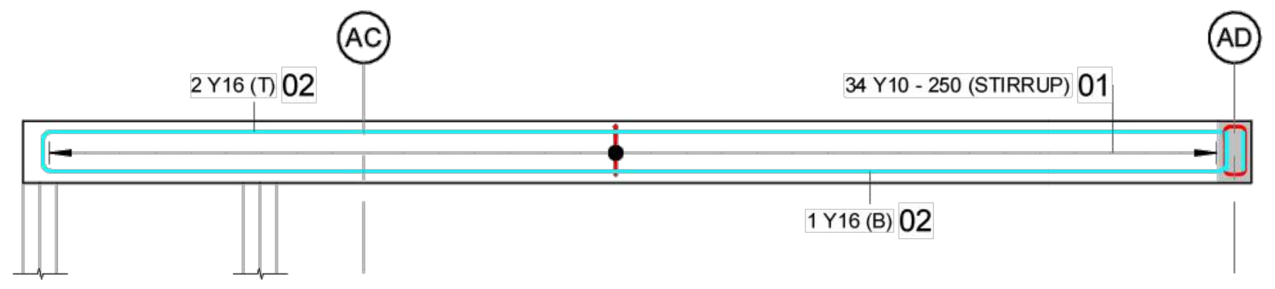

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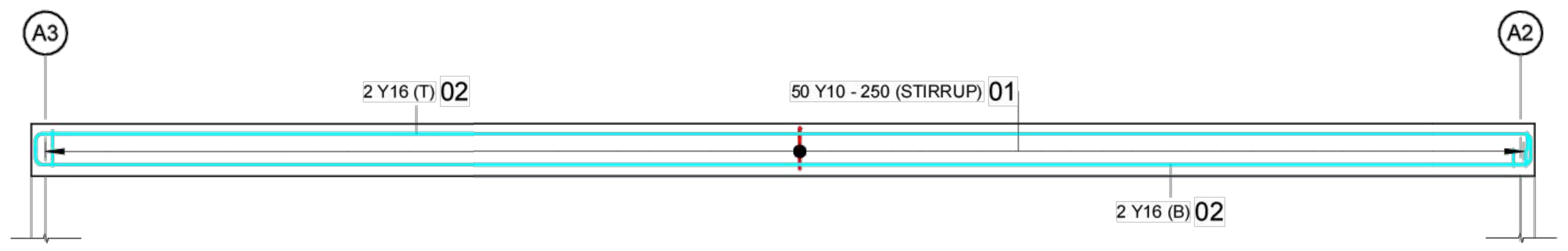

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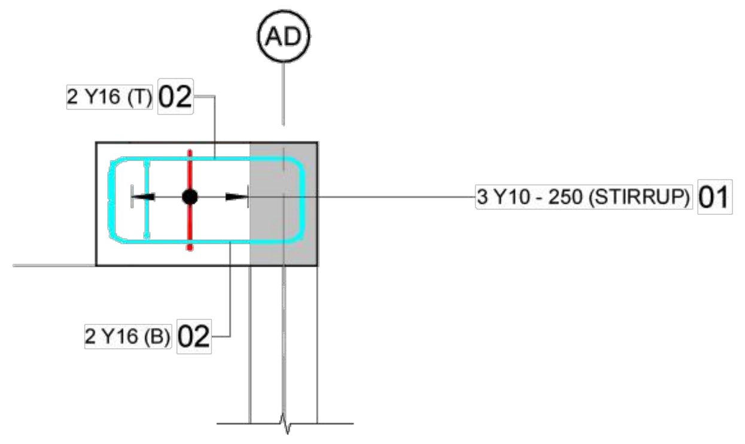
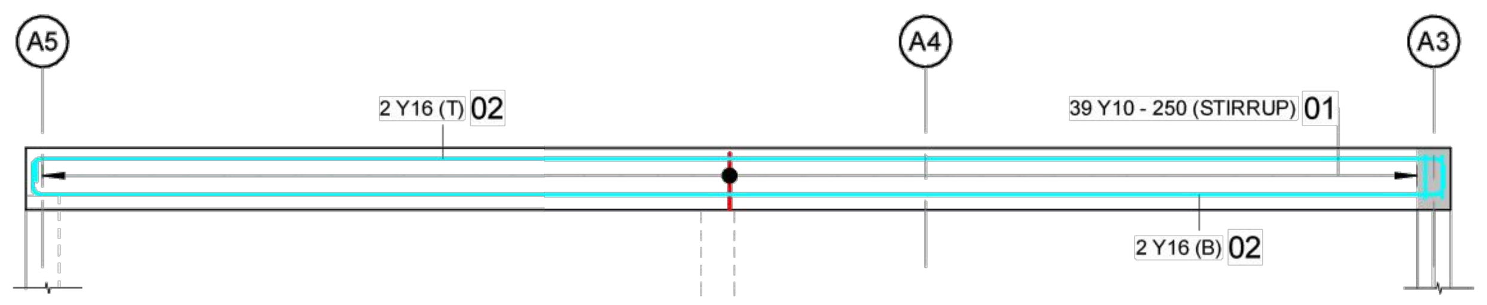


SECTION - BEAM 109
Scale 1 : 25

RING BEAM WEIGHT SUMMARY		
MEMBER NAME	TYPE	WEIGHT
<varies>	Y10	357 kg
<varies>	Y16	863 kg
TOTAL		1220 kg



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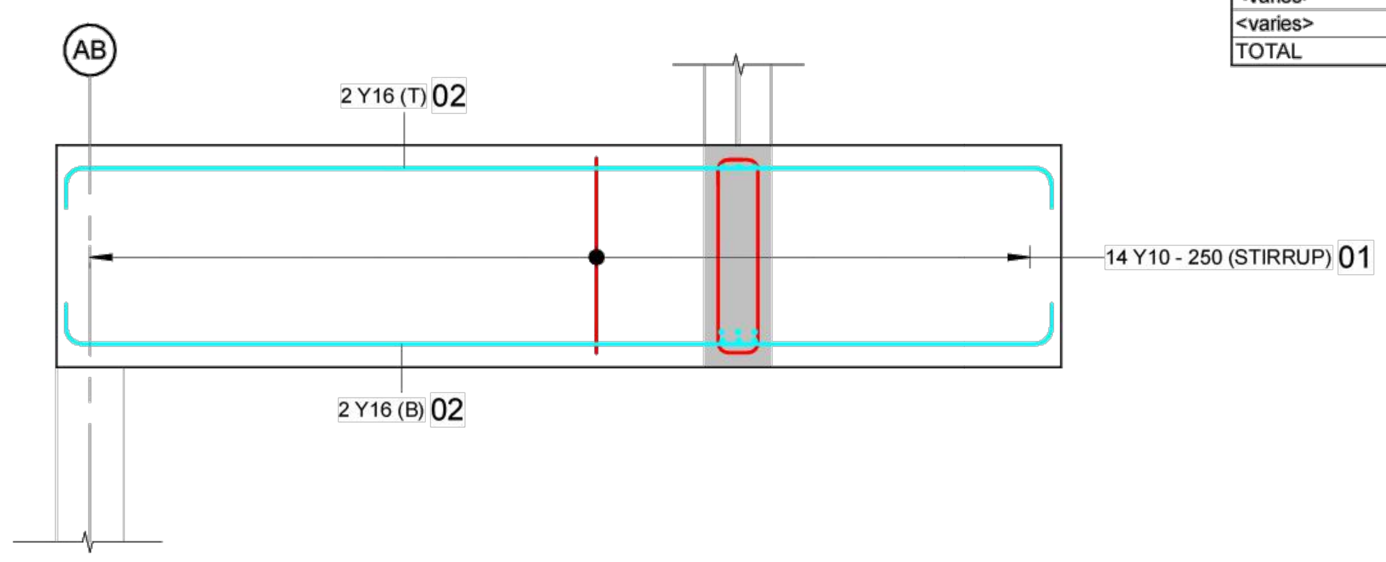

SECTION - BEAM 112
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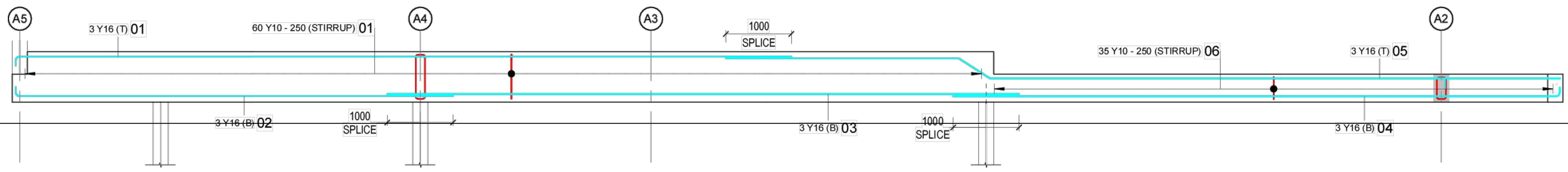

Member	Bar Mark	Type & Size	No. of mbrs.	No. of Bars in Each	Total No.	Length of each bar † mm	Shape	A* mm	B* mm	C* mm	D* mm	E/R* mm	Rev. No.
BEAM 100													
	01	Y16	1	2	2	13075	34	12980	0	0	0	0	
	02	Y16	1	2	2	9975	34	9870	0	0	0	0	
	03	Y16	1	2	2	12700	34	12600	0	0	0	0	
	04	Y16	1	2	2	10350	34	10250	0	0	0	0	
	05	Y10	1	88	88	1025	60	145	340	0	0	0	
BEAM 101													
	01	Y10	1	39	39	1025	60	145	340	0	0	0	
	02	Y16	1	4	4	9950	35	9730	0	0	0	0	
BEAM 102													
	01	Y10		0	4	850	60	150	250	0	0	0	
	02	Y16		0	4	1100	35	880	0	0	0	0	
BEAM 103													
	01	Y10	1	49	49	1050	60	150	345	0	0	0	
	02	Y16	1	4	4	12350	35	12150	0	0	0	0	
BEAM 104													
	01	Y10	1	34	34	1025	60	145	340	0	0	0	
	02	Y16	1	4	4	8600	35	8380	0	0	0	0	
BEAM 105													
	01	Y10	1	26	26	2050	60	150	845	0	0	0	
	02	Y16	1	4	4	6575	35	6365	0	0	0	0	
BEAM 106													
	01	Y10	1	9	9	1025	60	150	340	0	0	0	
	02	Y16	1	4	4	2100	35	1895	0	0	0	0	
BEAM 107													
	01	Y10	1	34	34	1025	60	340	145	0	0	0	
	02	Y16	1	3	3	8375	35	8175	0	0	0	0	
BEAM 108													
	01	Y10	1	50	50	1025	60	150	340	0	0	0	
	02	Y16	1	4	4	12375	35	12180	0	0	0	0	
BEAM 109													
	01	Y10	1	3	3	1050	60	150	340	0	0	0	
	02	Y16	1	4	4	900	35	680	0	0	0	0	
BEAM 110													
	01	Y10	1	39	39	1150	60	150	400	0	0	0	
	02	Y16	1	4	4	9950	35	9730	0	0	0	0	
BEAM 111													
	01	Y16	1	3	3	11900	34	11785	0	0	0	0	
	02	Y16	1	3	3	6750	34	6645	0	0	0	0	
	03	Y16	1	3	3	9600	20	9590	0	0	0	0	
	04	Y16	1	3	3	9325	34	9215	0	0	0	0	
	05	Y16	1	3	3	12750	41	3540	570	8660	320	0	
	06	Y10	1	35	35	1050	60	150	345	0	0	0	
BEAM 112													
	01	Y10	1	14	14	1725	60	150	680	0	0	0	
	02	Y16	1	4	4	3625	35	3410	0	0	0	0	

BEAM SCHEDULE

TYPE	DESCRIPTION
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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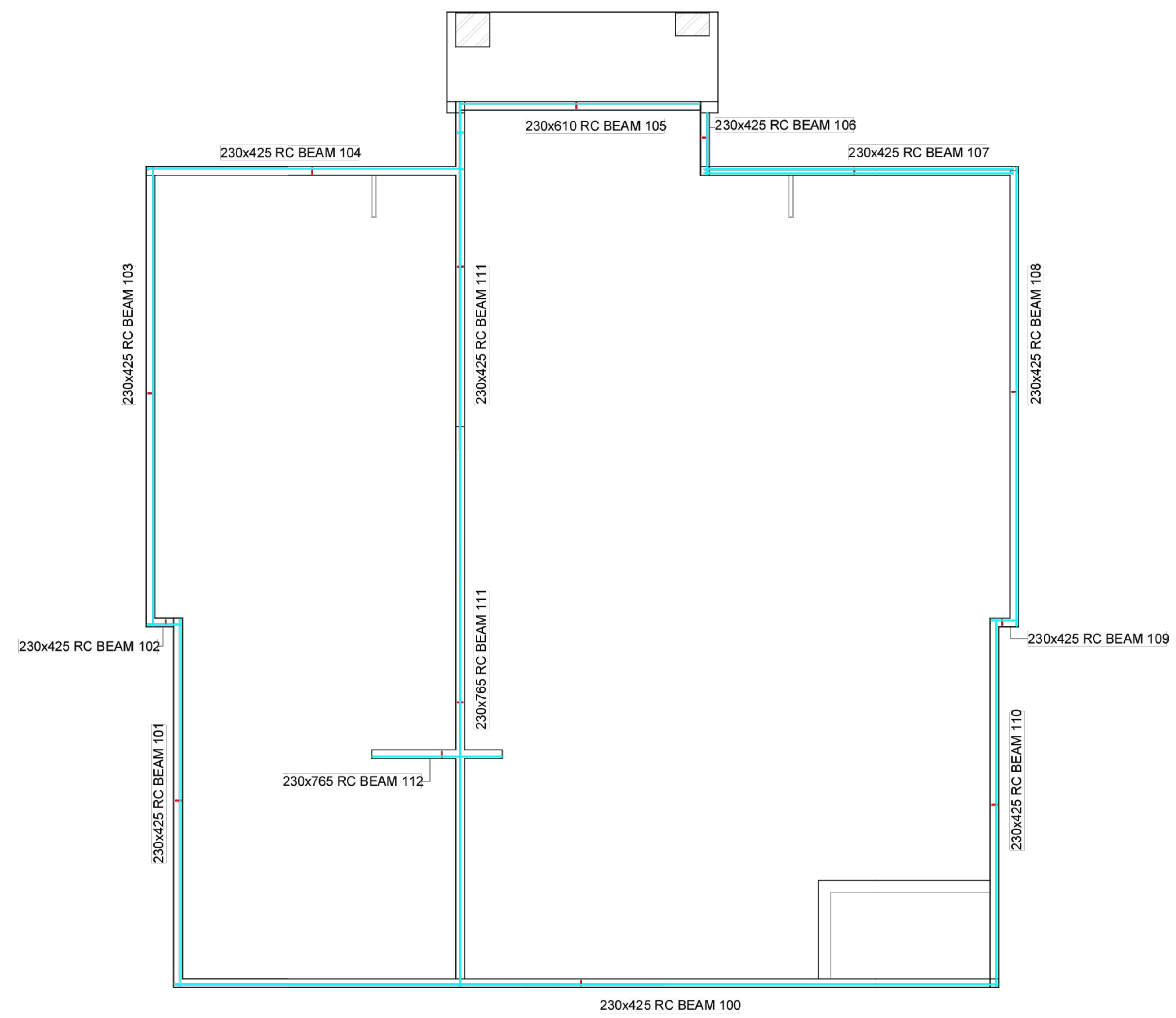
Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: RING BEAM REINFORCEMENT BENDING SCHEDULE

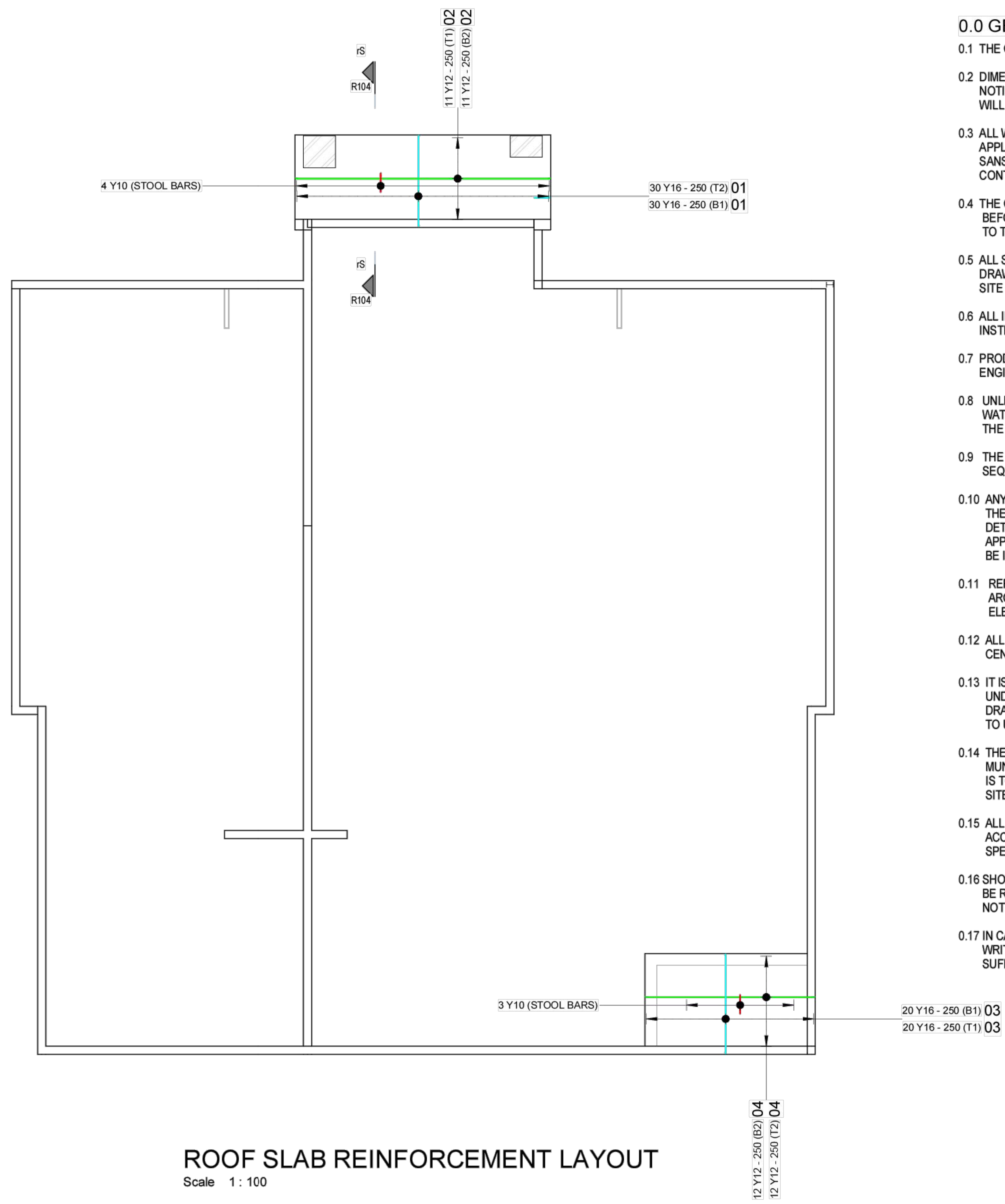
PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/SD/105	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1

TENDER DRAWINGS



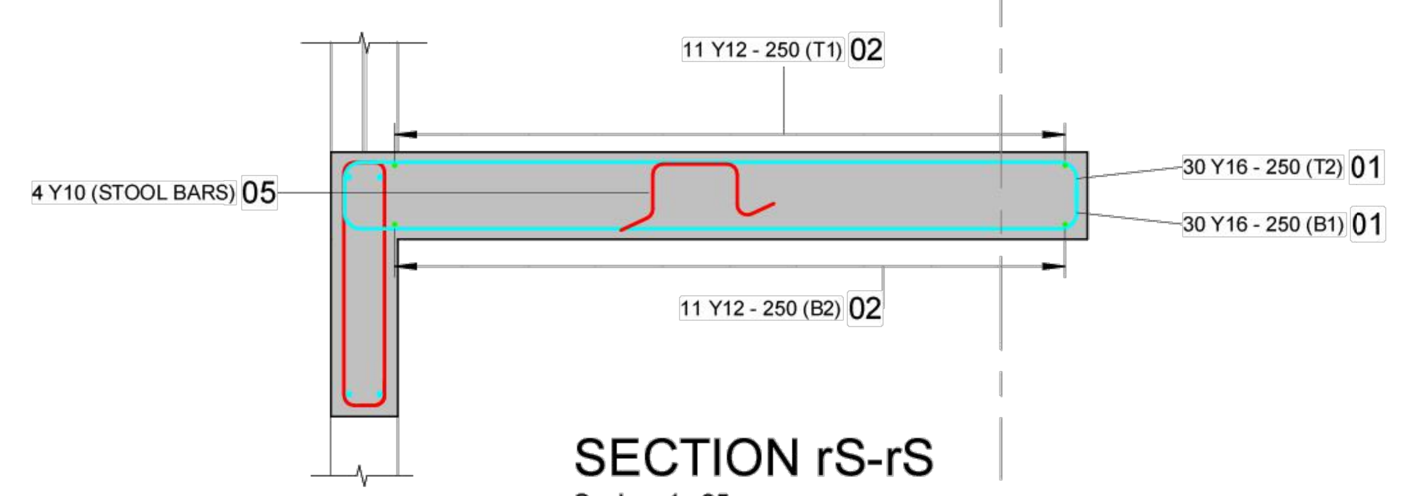
RING BEAM REINFORCEMENT LAYOUT

Scale 1 : 100



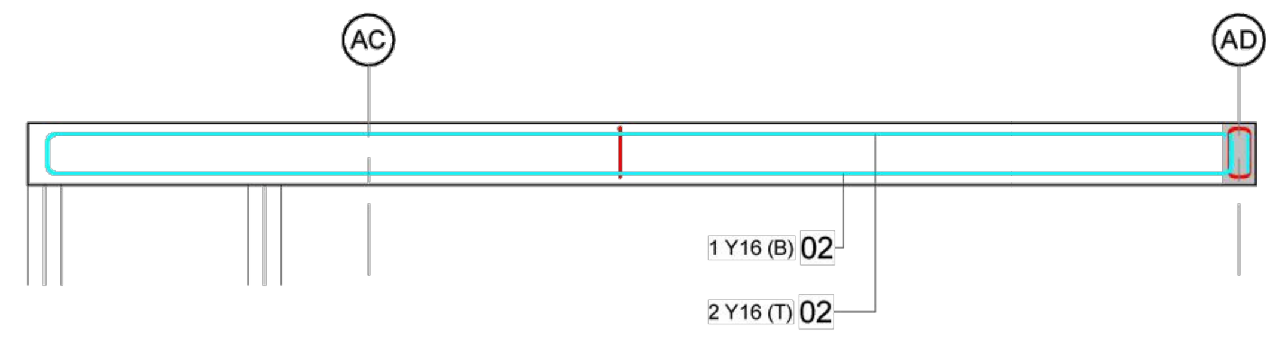
ROOF SLAB REINFORCEMENT LAYOUT

Scale 1 : 100



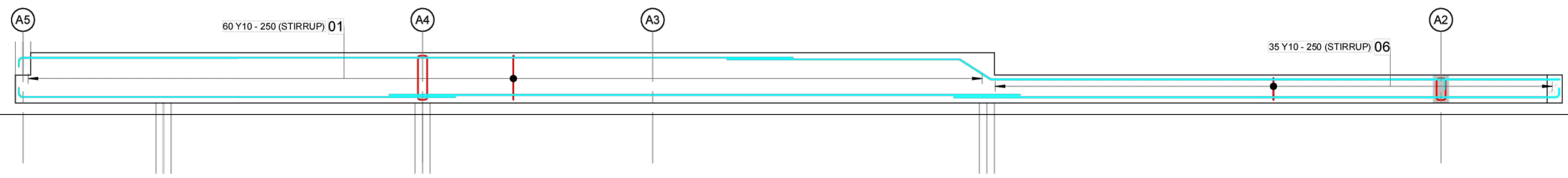
SECTION rS-rS

Scale 1 : 25



SECTION - BEAM 107

SCALE 1 : 50



0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED.AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

0.5 ALL SANS SPECIFICATIONS MENTIONED IN THE NOTES,ON THE DRAWINGS AND IN PROJECT SPECIFICATIONS SHALL BE AVALAIBLE ON SITE AT ALL TIMES IN HARD COPY FORMAT.

0.6 ALL INSTRUCTIONS FROM THE ENGINEER TO BE WRITTEN IN THE SITE INSTRUCTION BOOK,THAT SHOULD BE PROVIDED BY THE CONTRACTOR.

0.7 PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY BE USED WITH THE ENGINEER'S PRIOR APPROVAL.

0.8 UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING,DRAINAGE FALLS AND FINISHES ARE ACCORDING TO THE ARCHITECT DETAILS AND SPECIFICATIONS.

0.9 THE CONTRACTOR SHALL DISCLOSE HIS PROPOSED BUILDING SEQUENCE IN BOARD TERMS BEFORE SITE ESTABLISHMENT.

0.10 ANY DEVIATIONS FROM THE CONSTRUCTION DRAWINGS PLANNED BY THE CONTRACTOR SHALL BE PROPOSED TO THE ENGINEER IN FULL DETAIL FOR A DECISION. THE ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUCH DEVIATIONS,BUT IF APPROVED,THE APPROVAL SHALL BE IN WRITTING.

0.11 REFER TO ALL RELEVANT DRAWINGS BY:-
ARCHITECTS STRUCTURAL ENGINEERS
ELECTRICAL ENGINEERS MECHANICAL ENGINEERS

0.12 ALL COLUMNS, WALLS AND BEAMS TO BE PLACED CENTRALLY ON GRID/ CENTRE LINES UNLESS DIMENSIONED OTHERWISE.

0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

0.14 THE CONTRACTOR IS TO COMPLY AT ALL TIMES WITH ALL RELEVANT MUNICIPAL REGULATIONS AND BYLAWS IN THE AREA OF THE SITE AND IS TO ENSURE THAT HE HAS A SET OF APPROVED BUILDING PLANS ON SITE AT ALL TIMES

0.15 ALL PRODUCTS SPECIFIED FOR USE ARE TO BE USED STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS AT ALL TIMES.

0.16 SHOULD THE ENGINEER BE REQUIRED ON SITE,48 HRS NOTICE SHOULD BE REQUESTED IN WRITTING,FAILURE TO DO SO,THE ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR COST IMPLICATIONS.

0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING. THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.

Member	Bar Mark	Type & Size	No. of mbrs.	No. of Bars in Each	Total No.	Length of each bar † mm	Shape	A* mm	B* mm	C* mm	D* mm	E/R* mm	Rev. No.
ROOF SLAB													
	01	Y16	1	60	60	2750	38	145	2535	145	0	0	
	02	Y12	1	22	22	7375	38	150	7140	150	0	0	
	03	Y16	1	40	40	2900	38	100	2770	100	0	0	
	04	Y12	1	24	24	4875	38	100	4745	100	0	0	
	05	Y10	1	4	4	850	83	300	185	125	125	0	
	06	Y10	1	3	3	650	83	300	85	125	125	0	

ROOF SLAB WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
ROOF SLAB	Y10	3 kg
ROOF SLAB	Y12	248 kg
ROOF SLAB	Y16	443 kg
TOTAL		694 kg

RING BEAM WEIGHT SUMMARY..

MEMBER NAME	TYPE	WEIGHT
.BEAM 111	Y10	63 kg
.BEAM 107	Y16	13 kg
TOTAL		76 kg

.RING BEAMS REBAR SCHEDULE

MEMBERS				NUMBER		SHAPE					E/R
NAME	NUM	MARK	TYPE	TOTAL	LENGTH	CODE	A (mm)	B (mm)	C (mm)	D (mm)	(mm)
.BEAM 107	1	01	Y16	1	8380	35	8175	0	0	0	0
.BEAM 111	1	01	Y10	60	1700	60	145	675	0	0	0

BEAM SCHEDULE

TYPE	DESCRIPTION
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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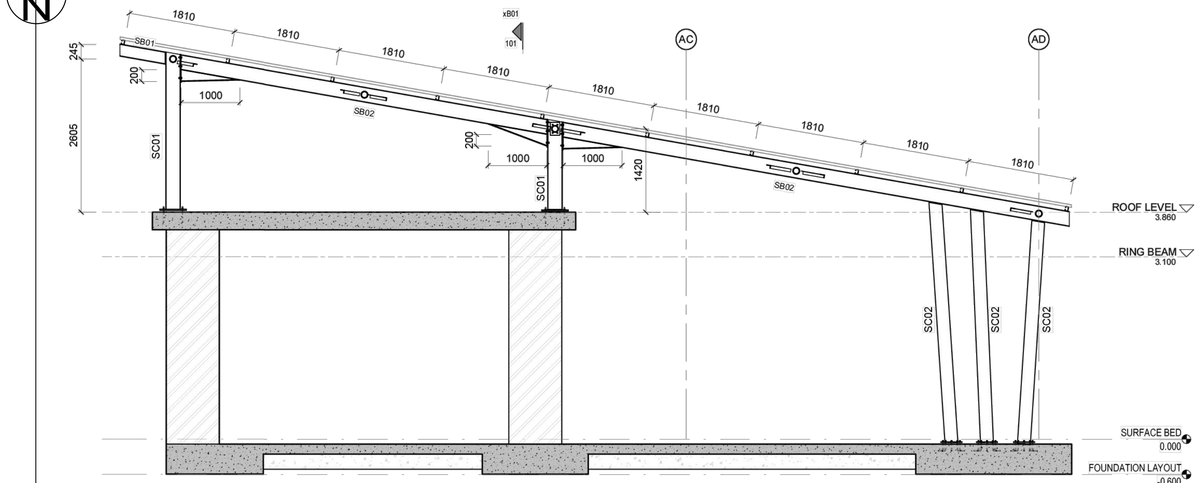
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:	RING BEAM REINFORCEMENT LAYOUT
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/106
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

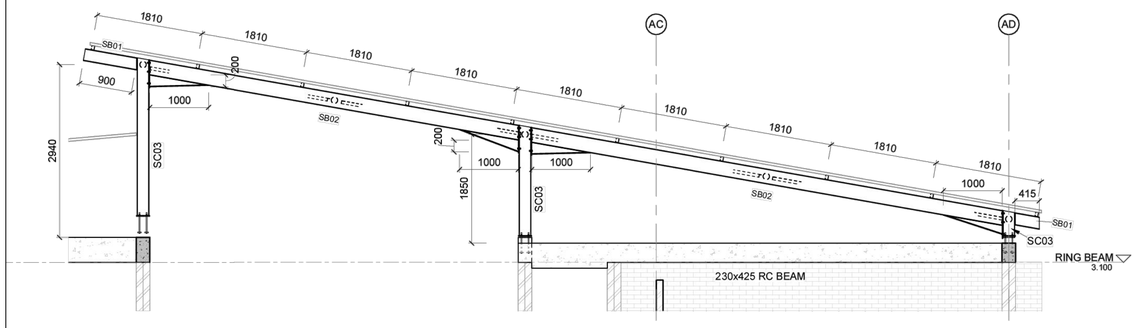
A1

TENDER DRAWINGS



SECTION xSD1

Scale 1 : 50



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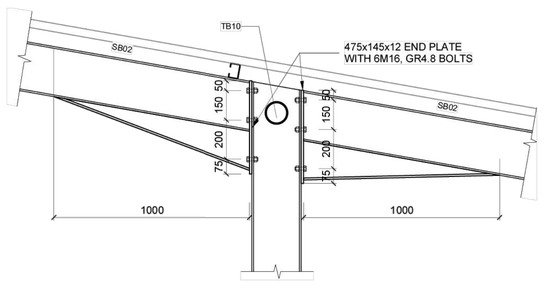

SECTION xSD1_D01

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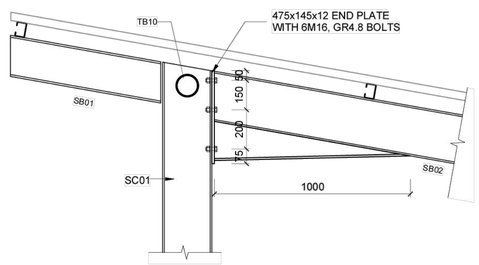
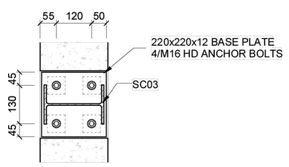


SECTION xSD1_D02

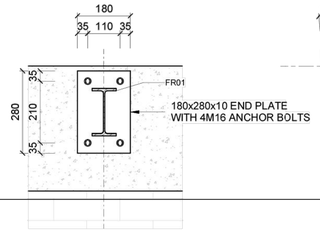
Scale 1 : 15

BEAM SCHEDULE.	
TYPE	DESCRIPTION
	<varies>
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB01	230x425 RC BEAM
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
PL01	75x50x20x2.5 CFLC
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

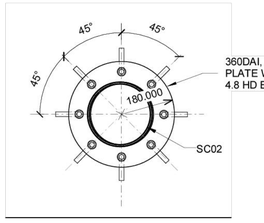
COLUMN SCHEDULE	
TYPE	DESCRIPTION
BC01	345x345 BRICK PEIR
BC02	900x600 BRICK PEIR
BC03	1110x600 BRICK PEIR
BC04	900x900 BRICK PEIR
SC01	254x146x31 UB
SC02	CHS219.1X6.0
SC03	203x133x25 UB



BASE PLATE BP03



DETAIL ED01



BASE PLATE BP01

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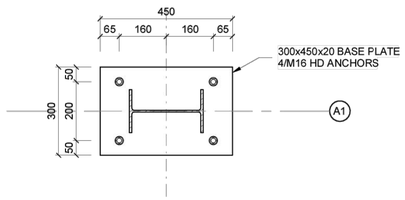
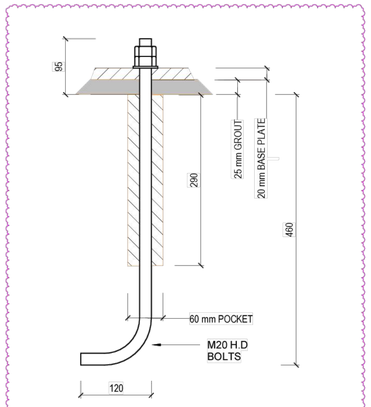


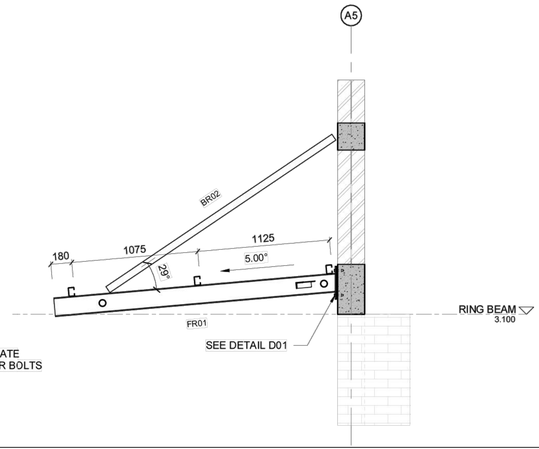
BASE PLATE BP02

Scale 1 : 10



HD BOLT DETAIL

Scale 1 : 5



SECTION xSD4

4.0 STRUCTURAL STEEL NOTES

4.1 Structural steelwork shall comply with the requirements of SANS 2001:CSI, SANS 1200H:1990 and the relevant projectspecifications.

4.2 The engineer's drawings are intended as design drawings with the purpose of showing the design intent.

4.3 The contractor shall prepare complete fabrication drawings (Clause 4.2.4 of SANS : CS1) which shall be submitted to the engineer for approval before fabrication commences. The contractor allow 14 working days for checking and approval by the engineer, and shall also allow for any changes required by the engineer.

4.4 A certificate from the steel manufacture in which the grade of the structural steel is verified shall be handed to the engineer for approval.

4.5 All dimensions shall be checked on site before preparation of shop drawings commences.any discrepancies shall be handed to the engineer for approval.

4.6 Setting out points(S.O.P'S) at member centroids shall conform to those shown on general arrangement drawings . No accentricities , exept those shown on the engineer's drawings shall be allowed.

4.7 The proposed method and sequence of erection of the structure shall be submitted to the engineer for written approval .such submission is to take place at the time shop drawing submittal , the contravtor shall indicate the proposed method of propping to ensure stability of the structures during erection, such stability during erection remians the contractor responsibilitie's. where temporary bracing or propping is required, the contractor shall be responsible for the design, erection , manufacture and removal(where necessary) thereof proposal of such bracing or propping shall be submitted to the engineer at an early stage for his perusal.

4.8 Corrosion protection.
- 4.8.1 Cold Rolled Steelwork
  - a) Hot dip galvanise to SANS 121 (ISO 1461).
- 4.8.2 Hot Rolled Steelwork - External
  - a) Shop Applied
    - i) Abrasive blast to Sa 2½
    - ii) 1st Coat: Zinc rich epoxy primer 75 µm dry film thickness.
    - iii) 2nd Coat: High build epoxy MIO (micaceous iron oxide) 125 µm dry film thickness.
  - b) Site Applied
    - i) 3rd Coat: High solid aliphatic polyurethane finish 80 µm dry film thickness.
- 4.8.3 Hot Rolled Steelwork - Internal, Visible
  - a) Shop Applied
    - i) Abrasive blast to Sa 2½
    - ii) 1st Coat: High solid zinc phosphate primer 80 µm dry film thickness.
  - b) Site Applied
    - i) 2nd Coat: High build recoatable epoxy MIO (micaceous iron oxide) 120 µm dry film thickness.
- 4.8.4 Hot Rolled Steelwork - Internal, Hidden
  - a) Hot dip galvanise to SANS 121 (ISO 1461), minimum coating thickness of 70 µm and an average of 85 µm.
- 4.8.5 Where required for fireproofing, Intumecent paint is to be applied as specified by the Architect.
- 4.8.5 Preference should be given to the use of paint with a low or no volatile organic compound (VOC) content.

4.9 The contractor shall produce evidence, acceptable to the engineer, that welding. procedures to SANS 2001 - C52, clause 5.2.

4.10 Welds shall conform to SANS 10167:2004 ,SANS 44:2009 and AWS D1.1 specifications:
* where no welds size are shown, the minimum weld size shall be 6 mm, The contractor shall design and detail connections to transfer the full force capacity of the connected members through the connection.
* when using eletric arc welding ,all eletrodes shall be E7018. for any other welding process to be used, the contractor shall apply in writting, for the approval from the engineer for eletrodes to be used.
* all butt welds shall develop the full strength of the elements being joined.
* all splices shall develop the full strength of the elements being joned.
* all welding shall be done by suitably qualified and experienced welders using proper equipment in good condition. no site welding without engineers approval.
* the contractor shall design all welds and, where necessary , gussets of sufficient strentgh shall be provided to obtain the required weld length to ensure the full strength of the connection.at the connections of all bracing members, the bolt should be adequate to develop the full tensile capacity of the bracing member.all truss and girder members to be welded all round both sides.allow for gusset plates to ensure adequate welding length to develop full tensile capacity of members where necessary.

4.11 Testing of welds.
10% of all fillet welds and 100% of butt welds to be subjected to non-destructive testing

4.12 All shop splices are to be indicated on drawings

4.13 Where applicable,non-shrink grout shall be provided under base plates before any primary loads are applied to the structure.

4.14 The contractor shall, at the commencement of the project , acquaint himself with the avalability and delivery time of the products and steel profiles specified on the drawings so that such material can be ordered well in advance.

4.15 where slotted holes for bolts occur, the nut shall be hand tightended and lock-nut be provided unless noted otherwise.

4.16 All hot rolled steelwork shall be grade S355JR, all hollow tube steelwork shall be grade S355JR and all cold formed steelwork shall be grade S355JR.

4.17 All fixing bolts for structural steelwork shall be M20 grade 8.8 unless noted otherwise.

4.18 Paint specificatoin for the bolts: 3 days before the erection of the structural steelwork all bolts to be cleaned and decreased within 2 days of erection.all bolts are to be coated with 1 coat of sigmadur gloss or equilvalent.

4.19 See architectural drawings for final colour of structural steelwork (paint sample to be submitted for approval)

4.20 All welds shall be 6mm continuous fillet welds unless noted otherwise.

4.21 When steelwork connects to existing structures, the steelwork contractor shall check all site dimensions and levels before fabrication and erection.

4.22 Traceability of steel.
All steel to be marked with the manufacturer's test certificate number to ensure full traceability and to facilitate re-use of the steel members.

4.23 Marking steelwork.
Completed components shall be marked with a durable and distinguishing erection mark, section size, steel grade and manufacturer's test certificate number in such a way so as not to damage the component. Marking shall be in a discrete location. Hardstamping may be used unless noted otherwise.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G. CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227. MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
HORIZ. REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO BRICKS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 564.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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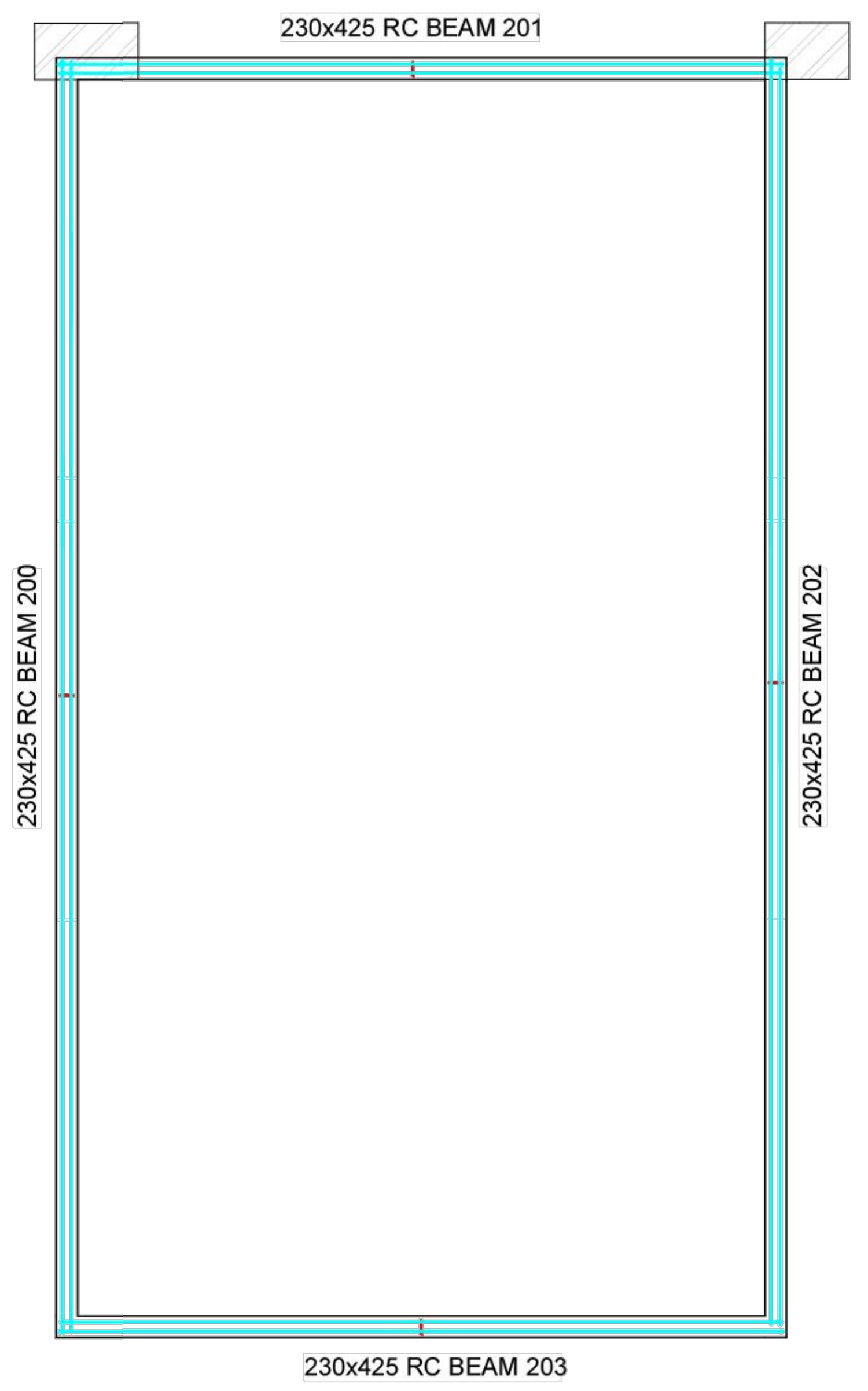
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: SECTION AND DETAILS

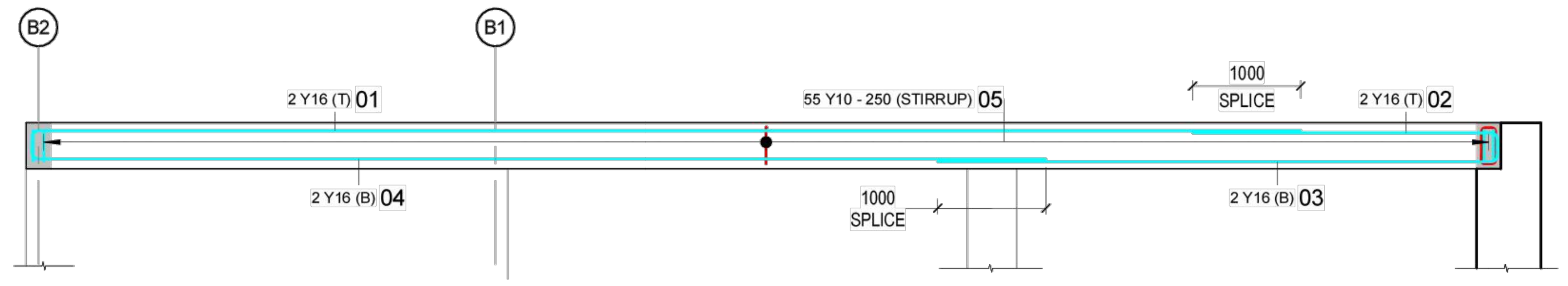
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/107
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

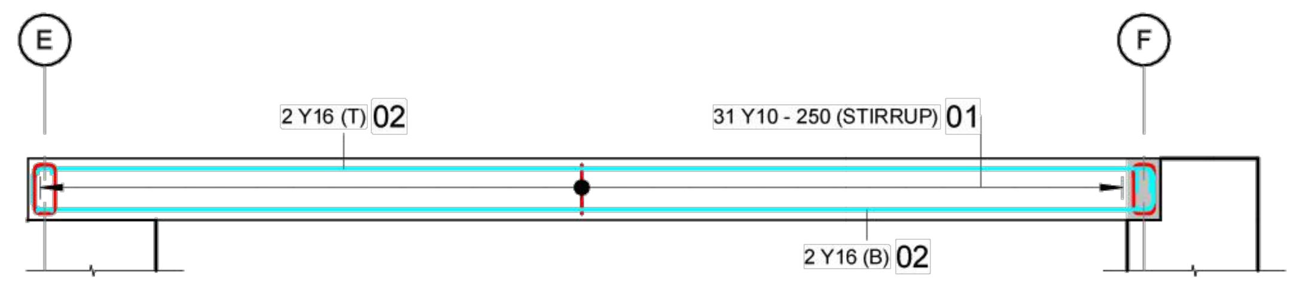
TENDER DRAWINGS



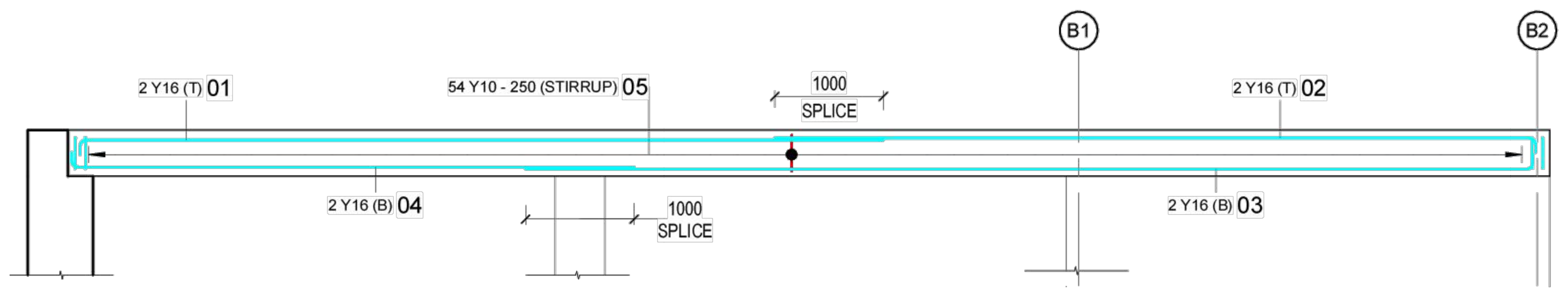
RING BEAM REINFORCEMENT LAYOUT
Scale 1 : 75



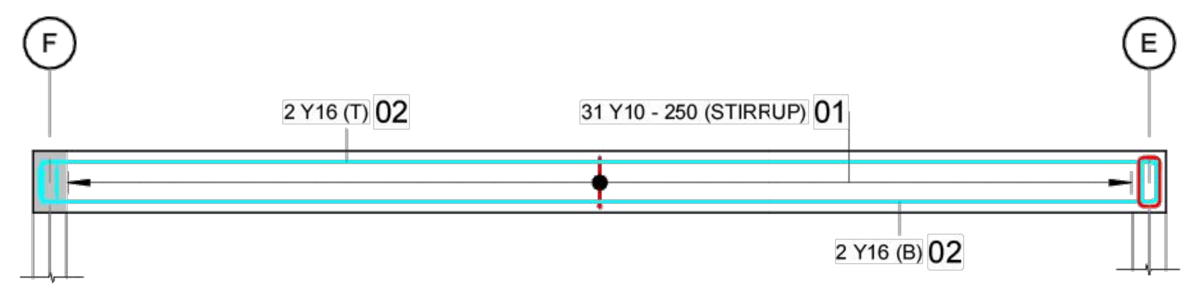
SECTION - BEAM 200
Scale 1 : 50



SECTION - BEAM 201
Scale 1 : 50



SECTION - BEAM 202
Scale 1 : 50



SECTION - BEAM 203
Scale 1 : 50

Member	Bar Mark	Type & Size	No. of mbrs.	No. of Bars in Each	Total No.	Length of each bar † mm	Shape	A* mm	B* mm	C* mm	D* mm	E/R* mm	Rev. No.
BEAM 200													
	01	Y16	1	2	2	11850	34	11755	0	0	0	0	
	02	Y16	1	2	2	2925	34	2830	0	0	0	0	
	03	Y16	1	2	2	5300	34	5190	0	0	0	0	
	04	Y16	1	2	2	9500	34	9395	0	0	0	0	
	05	Y10	1	55	55	1050	60	150	345	0	0	0	
BEAM 201													
	01	Y10	1	31	31	1050	60	145	345	0	0	0	
	02	Y16	1	4	4	7950	35	7735	0	0	0	0	
BEAM 202													
	01	Y16	1	2	2	7525	34	7415	0	0	0	0	
	02	Y16	1	2	2	7125	34	7020	0	0	0	0	
	03	Y16	1	2	2	9400	34	9295	0	0	0	0	
	04	Y16	1	2	2	5300	34	5190	0	0	0	0	
	05	Y10	1	54	54	1050	60	150	345	0	0	0	
BEAM 203													
	01	Y10	1	31	31	1050	60	150	345	0	0	0	
	02	Y16	1	4	4	7925	35	7720	0	0	0	0	

RING BEAM WEIGHT SUMMARY. Copy 1

MEMBER NAME	TYPE	WEIGHT
<varies>	Y10	110 kg
<varies>	Y16	286 kg
TOTAL		396 kg

0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED.AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DICREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

0.5 ALL SANS SPECIFICATIONS MENTIONED IN THE NOTES,ON THE DRAWINGS AND IN PROJECT SPECIFICATIONS SHALL BE AVALAIBLE ON SITE AT ALL TIMES IN HARD COPY FORMAT.

0.6 ALL INSTRUCTIONS FROM THE ENGINEER TO BE WRITTEN IN THE SITE INSTRUCTION BOOK,THAT SHOULD BE PROVIDED BY THE CONTRACTOR.

0.7 PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY BE USED WITH THE ENGINEER'S PRIOR APPROVAL.

0.8 UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING,DRAINAGE FALLS AND FINISHES ARE ACCORDING TO THE ARCHITECT DETAILS AND SPECIFICATIONS.

0.9 THE CONTRACTOR SHALL DISCLOSE HIS PROPOSED BUILDING SEQUENCE IN BOARD TERMS BEFORE SITE ESTABLISHMENT.

0.10 ANY DEVIATIONS FROM THE CONSTRUCTION DRAWINGS PLANNED BY THE CONTRACTOR SHALL BE PROPOSED TO THE ENGINEER IN FULL DETAIL FOR A DECISION. THE ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUCH DEVIATIONS,BUT IF APPROVED,THE APPROVAL SHALL BE IN WRITTING.

0.11 REFER TO ALL RELEVANT DRAWINGS BY:-
ARCHITECTS — STRUCTURAL ENGINEERS
ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

0.12 ALL COLUMNS, WALLS AND BEAMS TO BE PLACED CENTRALLY ON GRID/ CENTRE LINES UNLESS DIMENSIONED OTHERWISE.

0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

0.14 THE CONTRACTOR IS TO COMPLY AT ALL TIMES WITH ALL RELEVANT MUNICIPAL REGULATIONS AND BYLAWS IN THE AREA OF THE SITE AND IS TO ENSURE THAT HE HAS A SET OF APPROVED BUILDING PLANS ON SITE AT ALL TIMES

0.15 ALL PRODUCTS SPECIFIED FOR USE ARE TO BE USED STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS AT ALL TIMES.

0.16 SHOULD THE ENGINEER BE REQUIRED ON SITE,48 HRS NOTICE SHOULD BE REQUESTED IN WRITTING,FAILURE TO DO SO,THE ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR COST IMPLICATIONS.

0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING. THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.

BEAM SCHEDULE

TYPE	DESCRIPTION
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
RB01	230x425 RC BEAM
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
SERVICES SETA
15 SHERBORNE ROAD
PARKTOWN 2193
Tel: 011 276 9600
www.serviceseta.org.za
customercare@serviceseta.org.za
APPROVAL: ______ Pr TECH ENG: 201270031

Postal: Postnet suite # 29
Private Bag X2
Edenglen
1613
Physical: 9 Antrasiet Avenue
Croydon Ext 1
Kempton Park
1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

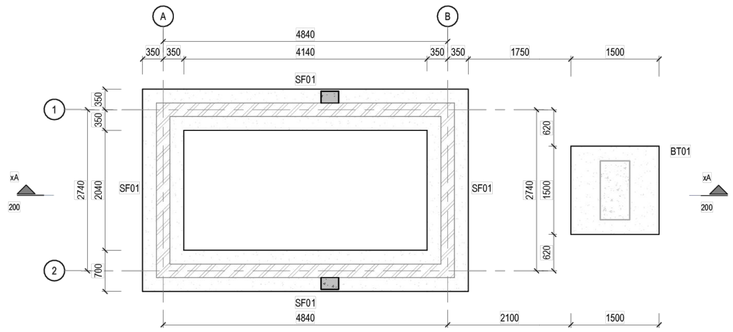
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: SIMULATION ROOM RING BEAM REINFORCEMENT LAYOUT

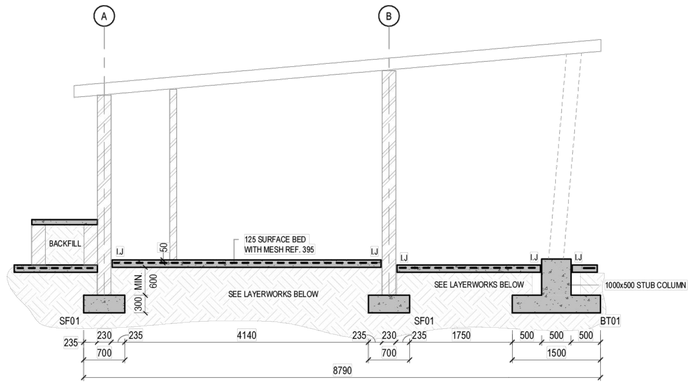
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/108
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

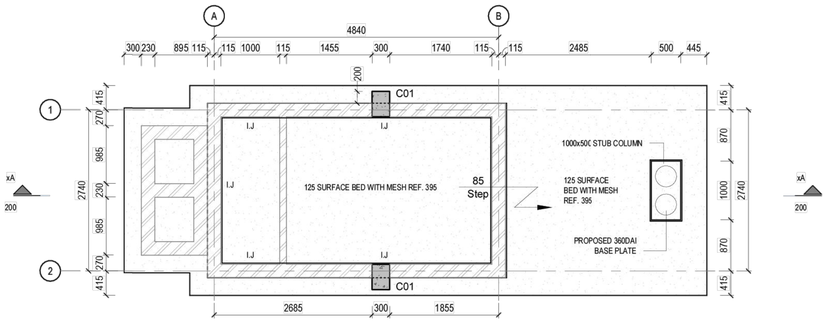
TENDER DRAWINGS



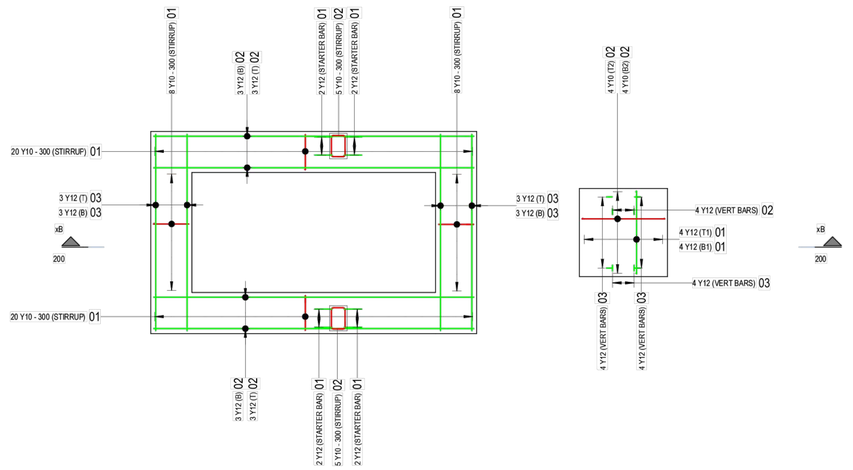
FOUNDATION LAYOUT
SCALE 1 : 50



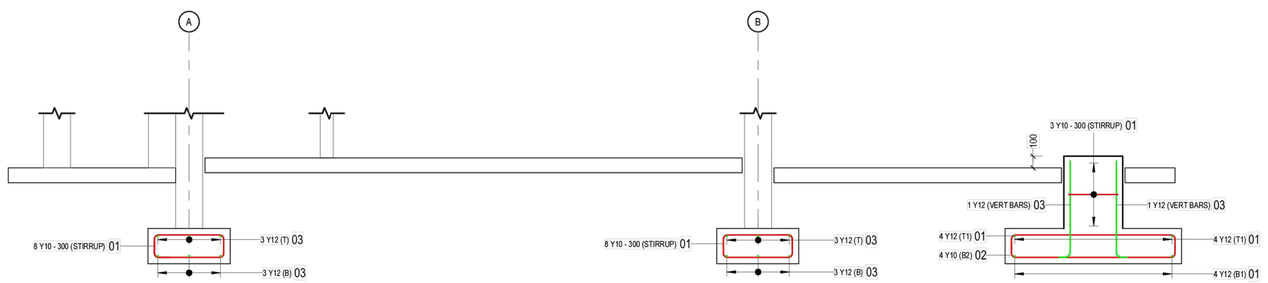
SECTION xA-xA
SCALE 1 : 50



SURFACE BED LAYOUT
SCALE 1 : 50



FOUNDATION REINFORCEMENT LAYOUT
SCALE 1 : 50



REINFORCEMENT SECTION - xB
SCALE 1 : 25

COLUMN SCHEDULE	
TYPE MARK	**TYPE**
C01	300x430 RC COLUMN
STUB COLUMN	1000x500 RC COLUMN

REBAR FLOOR WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
<varies>	Y10	81 kg
<varies>	Y12	129 kg
TOTAL		210 kg

REBAR FLOOR SCHEDULE

MEMBER NAME	NUM	MARK	TYPE	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)
BASE TYPE 01		01	Y12	8	1600	35	1400	0	0	0	0
BASE TYPE 01		02	Y10	8	1600	35	1400	0	0	0	0
C01 STARTER BAR		01	Y12	8	1610	37	300	1340	0	0	0
C01 STARTER BAR		02	Y10	10	1350	60	370	240	0	0	0
~~GUARD HOUSE - REINFORCEMENT~~		~~01~~	~~Y10~~	~~56~~	~~1730~~	~~60~~	~~200~~	~~600~~	~~0~~	~~0~~	~~0~~
GUARD HOUSE - REINFORCEMENT		02	Y12	12	5440	20	5440	0	0	0	0
GUARD HOUSE - REINFORCEMENT		03	Y12	12	3340	20	3340	0	0	0	0
STUB COLUMN REBAR		01	Y10	3	2810	60	920	420	0	0	0
STUB COLUMN REBAR		02	Y12	4	790	37	725	100	0	0	0
STUB COLUMN REBAR		03	Y12	12	890	37	825	100	0	0	0

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 413, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MO NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 400mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 C AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE.
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE 90 DEGREE CONCRETE FLOOR HAUNCHES IN PRECAST CONCRETE, SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANJUTE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANJUTE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB–2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
SERVICES SETA
15 SHERBORNE ROAD
PARKTOWN 2193
Tel: 011 276 9600
www.serviceseta.org.za

RednoW Technologies
Postal: Postnet suite # 29 Private Bag X3 Silverglen 1613
Physical: 9 Retroviet Avenue Croydon Ext 1 Kempton Park 1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

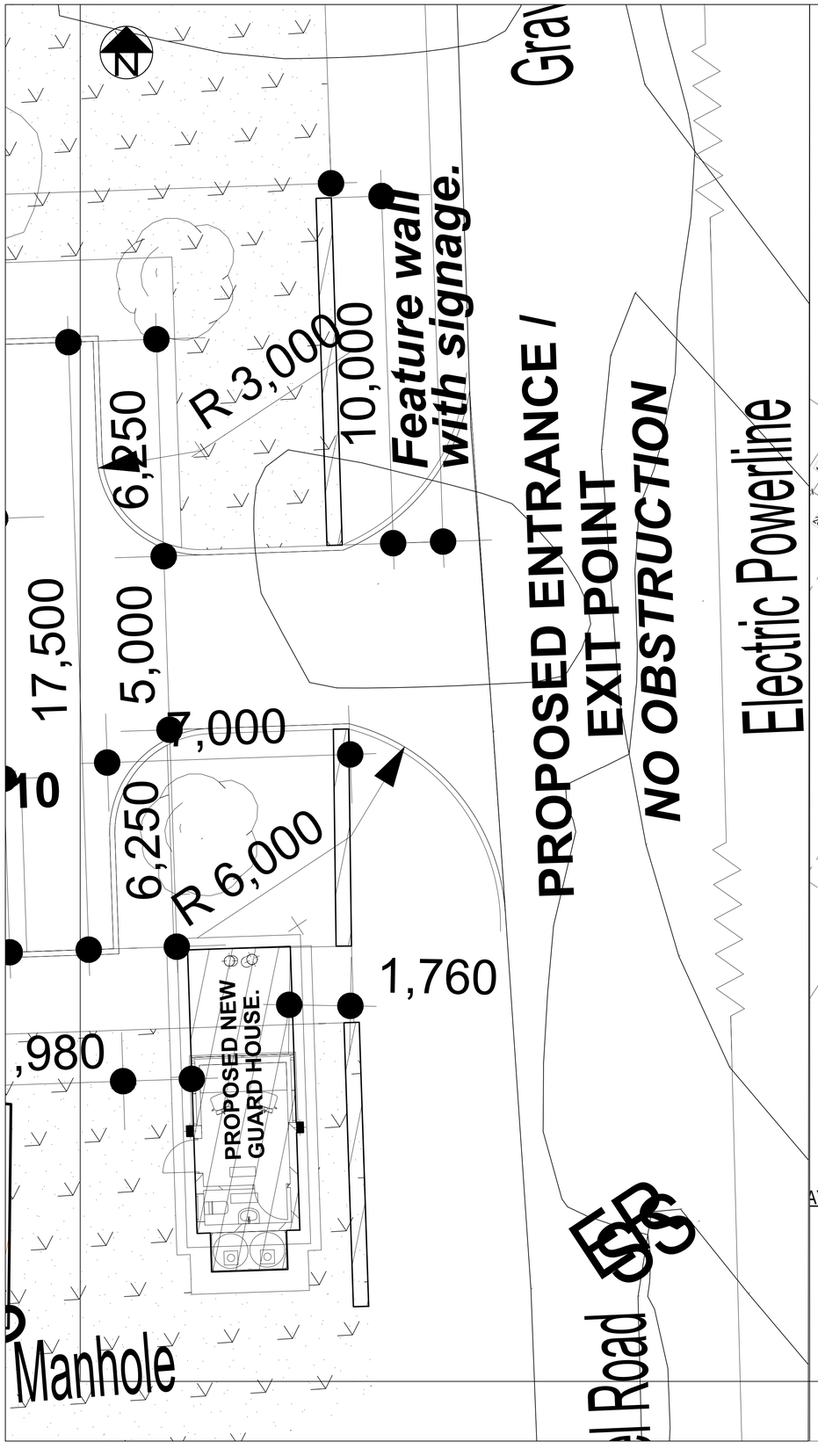
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
GUARD HOUSE – LAYOUT

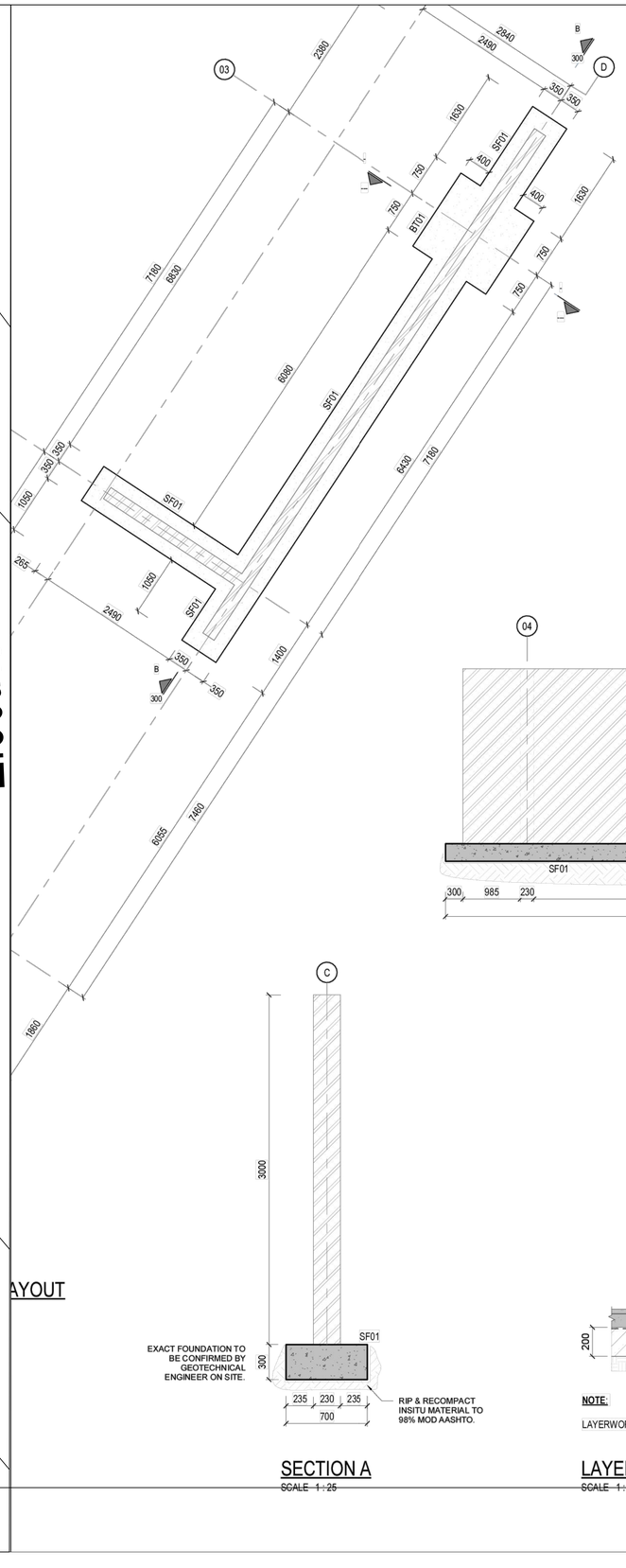
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/109
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

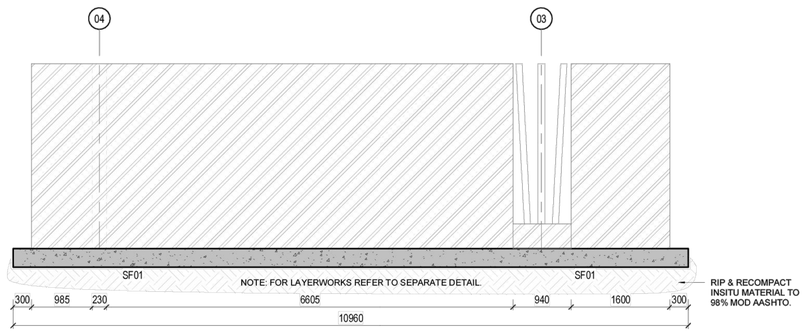
A1

TENDER DRAWINGS



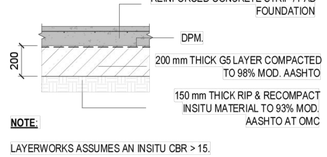
AYOUT





SECTION B
SCALE 1 : 50

SECTION A
SCALE 1 : 25



NOTE:
LAYERWORKS ASSUMES AN INSITU CBR > 15.

LAYERWORKS DETAILS: FOUNDATIONS
SCALE 1 : 20

FOUNDATION SCHEDULE	
TYPE MARK	**TYPE**
BT01	1500x1500x300 RC BASE
SF01	700x300 RC S.F

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:6 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE EXCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DIKERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 558.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVALITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVALITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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REDNOW TECHNOLOGIES
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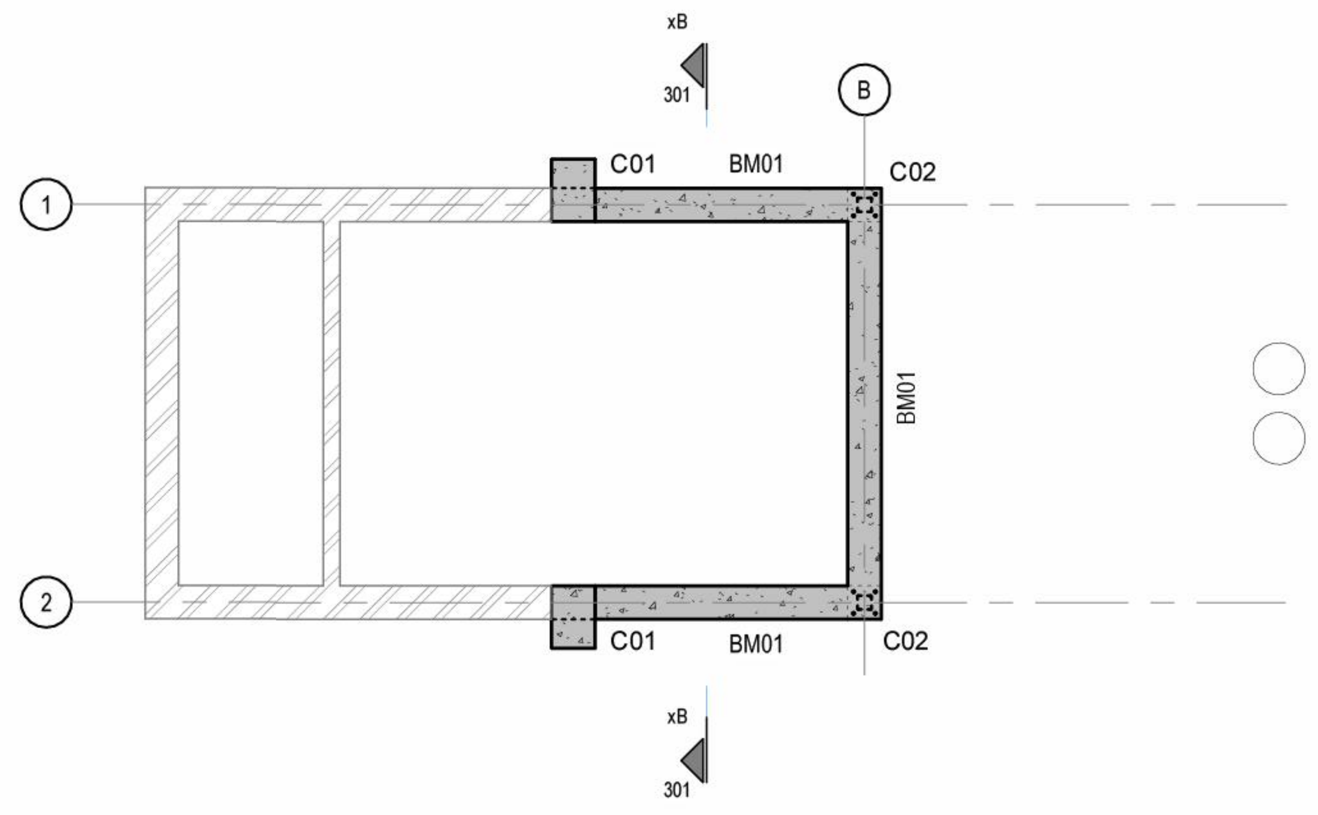
Cell: 083 306 0565

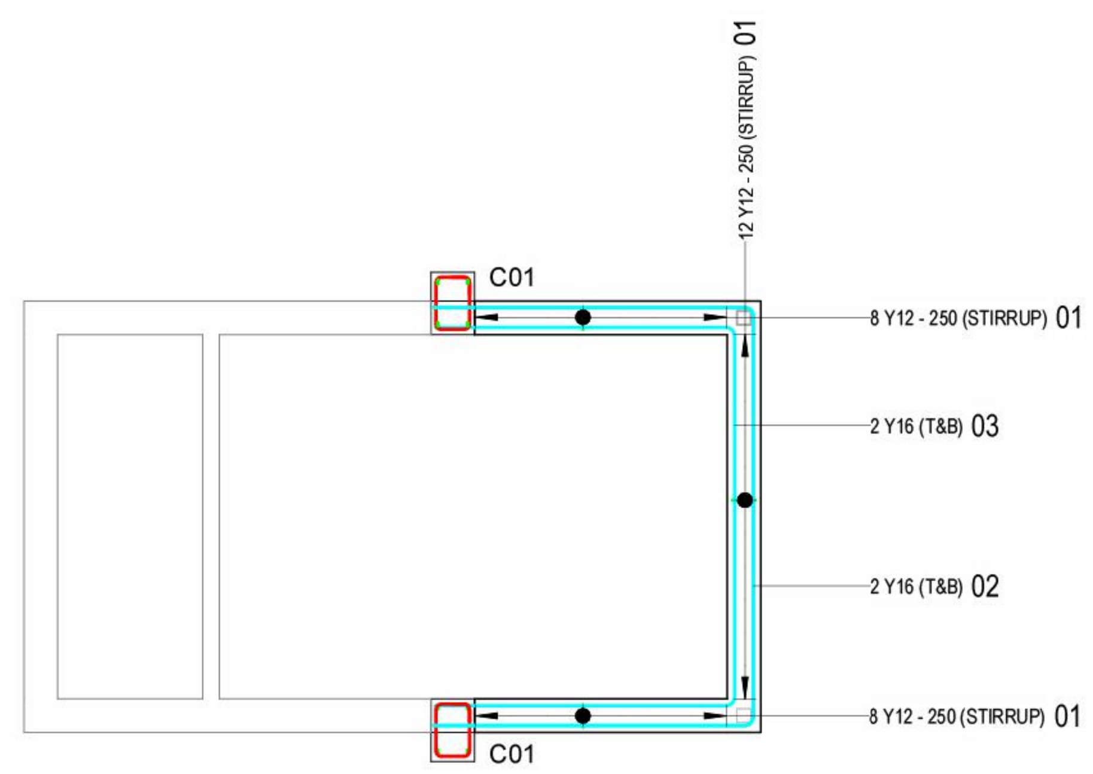
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:	BOUNDARY WALL FOUNDATION
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/WSC/SD/110
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE
	A1

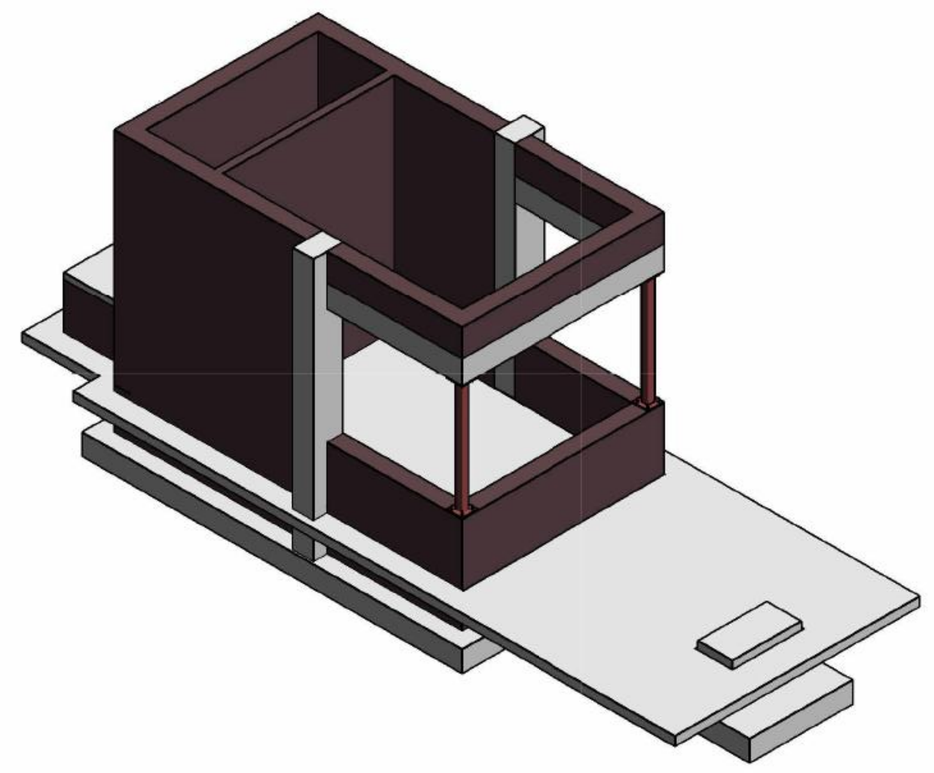
TENDER DRAWINGS



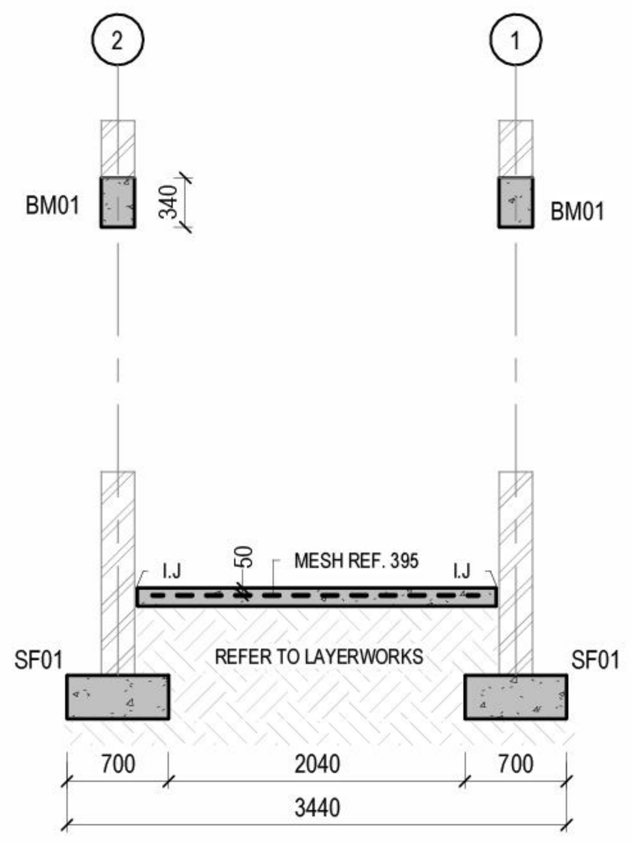
BEAM LAYOUT
SCALE 1 : 50



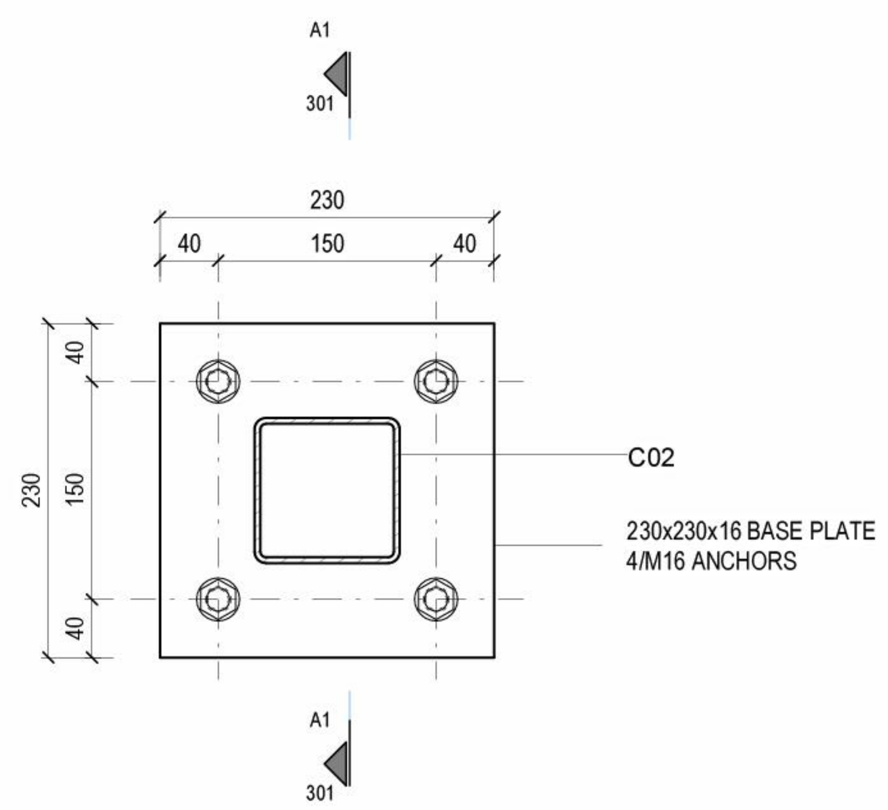
BEAM REINFORCEMENT LAYOUT
SCALE 1 : 50



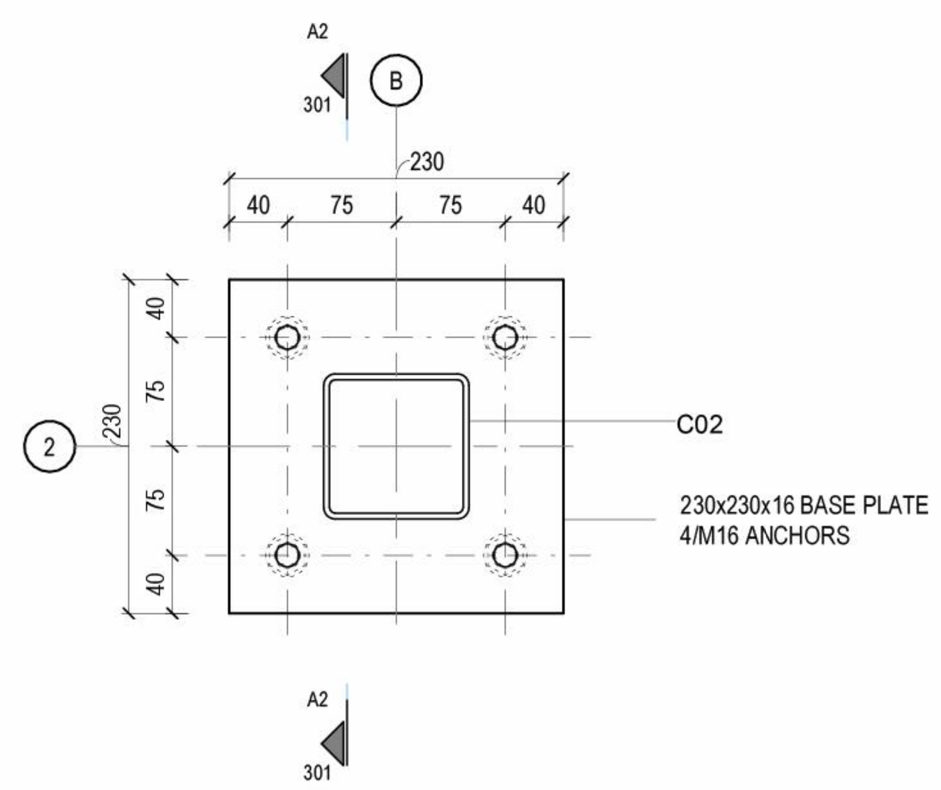
{3D}
SCALE



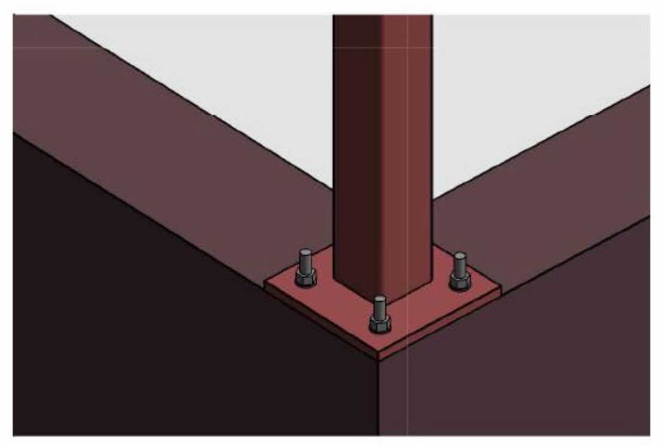
SECTION xB-xB
SCALE 1 : 50

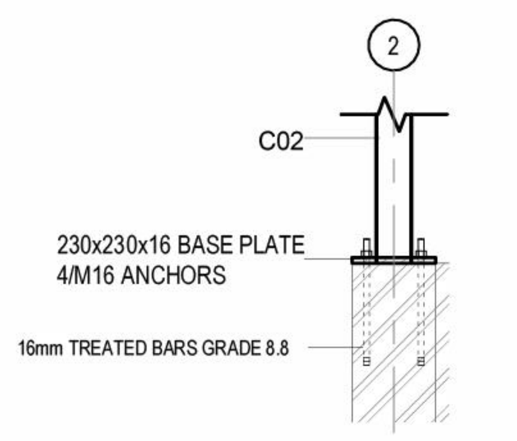


PLAN - BASE PLATE DETAIL BOT.
SCALE 1 : 5

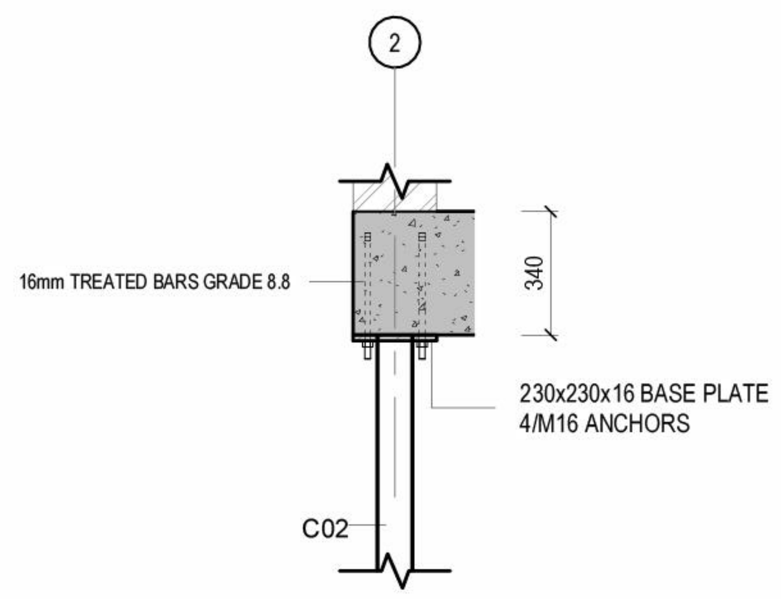


PLAN - BASE PLATE DETAIL TOP.
SCALE 1 : 5





SECTION A1 BOT - SECTION
SCALE 1 : 20



SECTION A2 TOP - SECTION
SCALE 1 : 20

FRAMING SCHEDULE

TYPE MARK	TYPE
BM01	230x340 RC BEAM

REBAR FLOOR WEIGHT SUMMARY

MEMBER NAME	TYPE	WEIGHT
BM01	Y12	25 kg
BM01	Y16	44 kg
TOTAL		69 kg

REBAR FLOOR SCHEDULE

MEMBER NAME	MEMBER NUM	MARK	TYPE	NUMBER TOTAL	LENGTH	SHAPE CODE	A (mm)	B (mm)	C (mm)	D (mm)	E/R (mm)
BM01		01	Y12	28	1010	60	170	280	0	0	0
BM01		02	Y16	2	7230	38	2210	2895	2210	0	0
BM01		03	Y16	2	6680	38	2070	2620	2070	0	0

COLUMN SCHEDULE

TYPE MARK	TYPE
C02	100x100x4.0 SHS
C01	300x430 RC COLUMN
BRICK PIER	340x340 BWK COLUMN
STUB COLUMN	1000x500 RC COLUMN

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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DESCRIPTION:	GUARD HOUSE – BEAM LAYOUT
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/111
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

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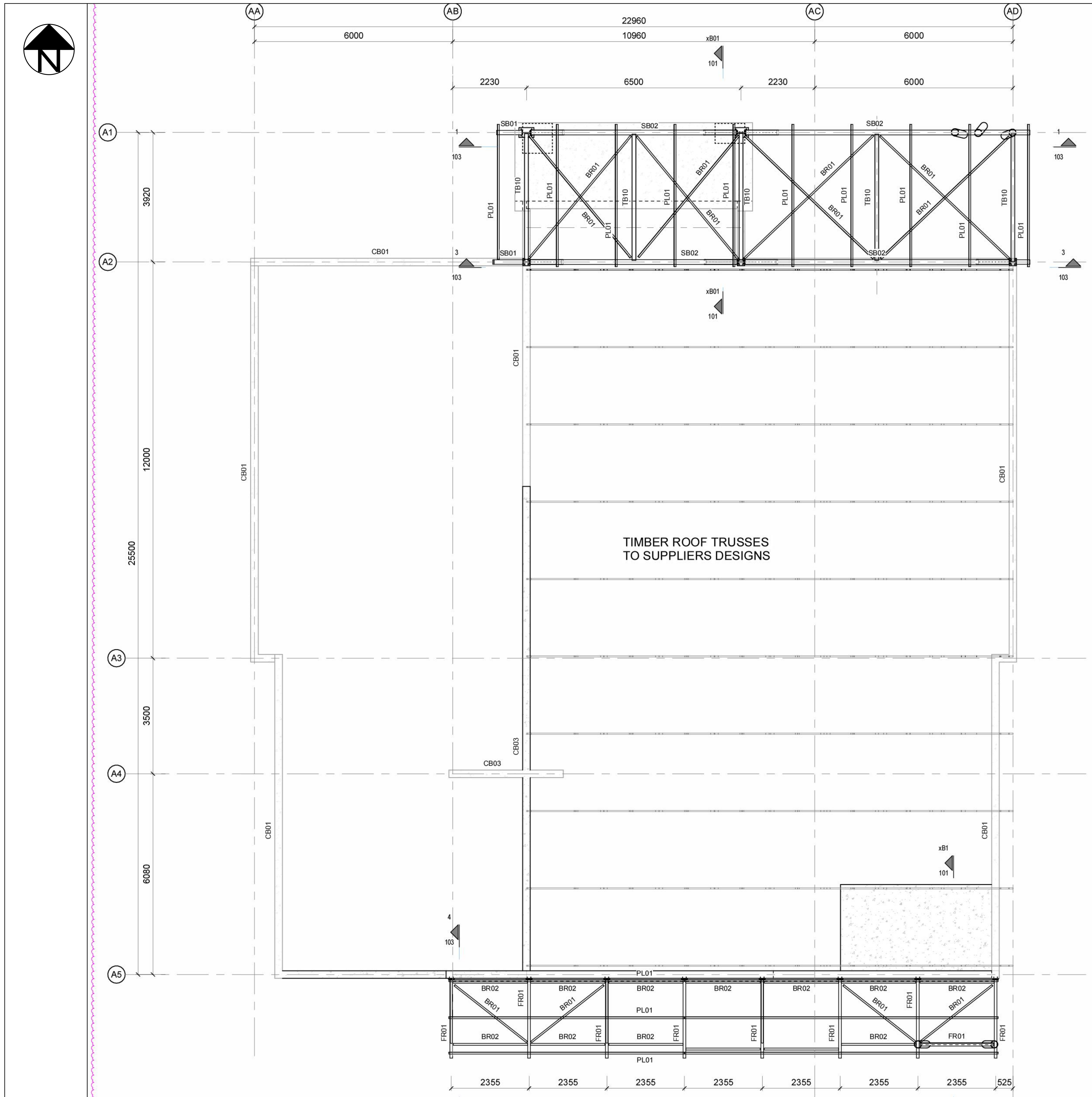
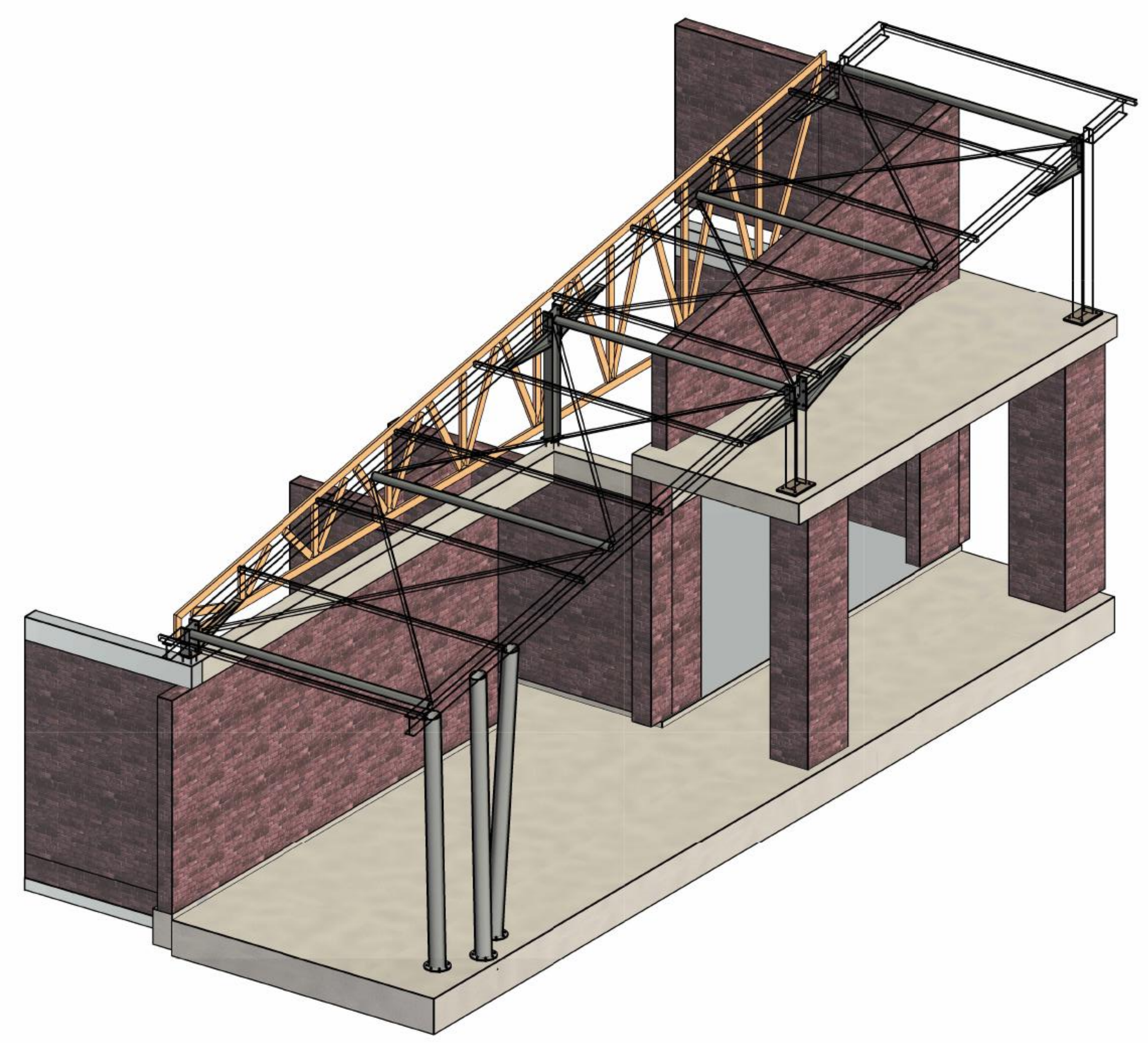
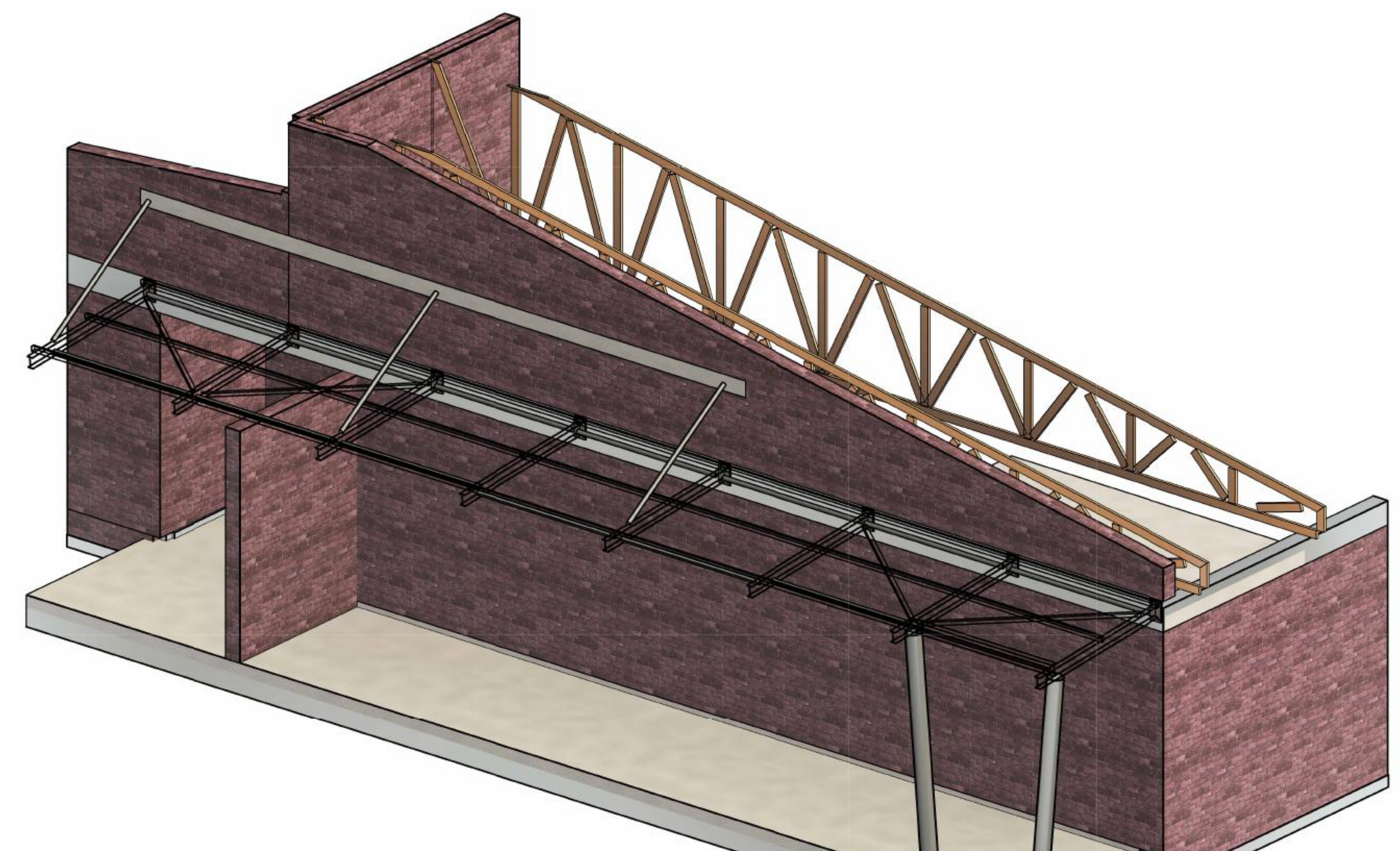
TENDER DRAWINGS



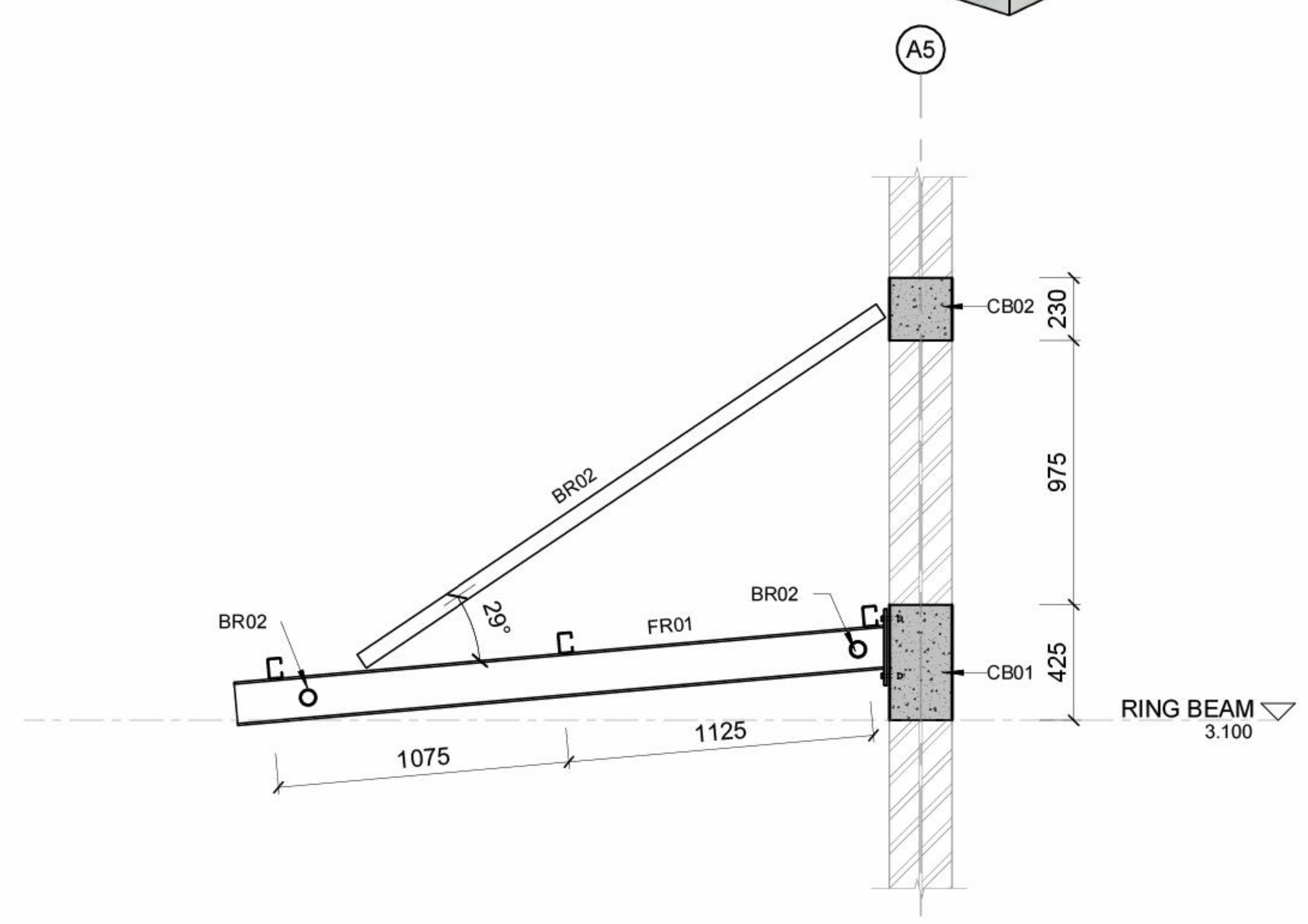
ROOF LAYOUT
Scale 1 : 75



3D VIEW 01
Scale



3D VIEW 02
Scale



SECTION xSD5
Scale 1 : 25

COLUMN SCHEDULE

TYPE	DESCRIPTION
BC01	345x345 BRICK PEIR
BC02	900x600 BRICK PEIR
BC03	1110x600 BRICK PEIR
BC04	900x900 BRICK PEIR
SC01	254x146x31 UB
SC02	CHS219.1X6.0
SC03	203x133x25 UB

BEAM SCHEDULE

TYPE	DESCRIPTION
	<varies>
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB01	230x425 RC BEAM
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
PL01	75x50x20x2.5 CFLC
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
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www.serviceseta.org.za
customercare@serviceseta.org.za
APPROVAL: _____ Pr TECH ENG: 201270031

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Physical: 9 Antrasiet Avenue, Croydon Ext 1, Kempton Park 1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: STRUCTURAL STEEL ROOF TRUSSES LAYOUT

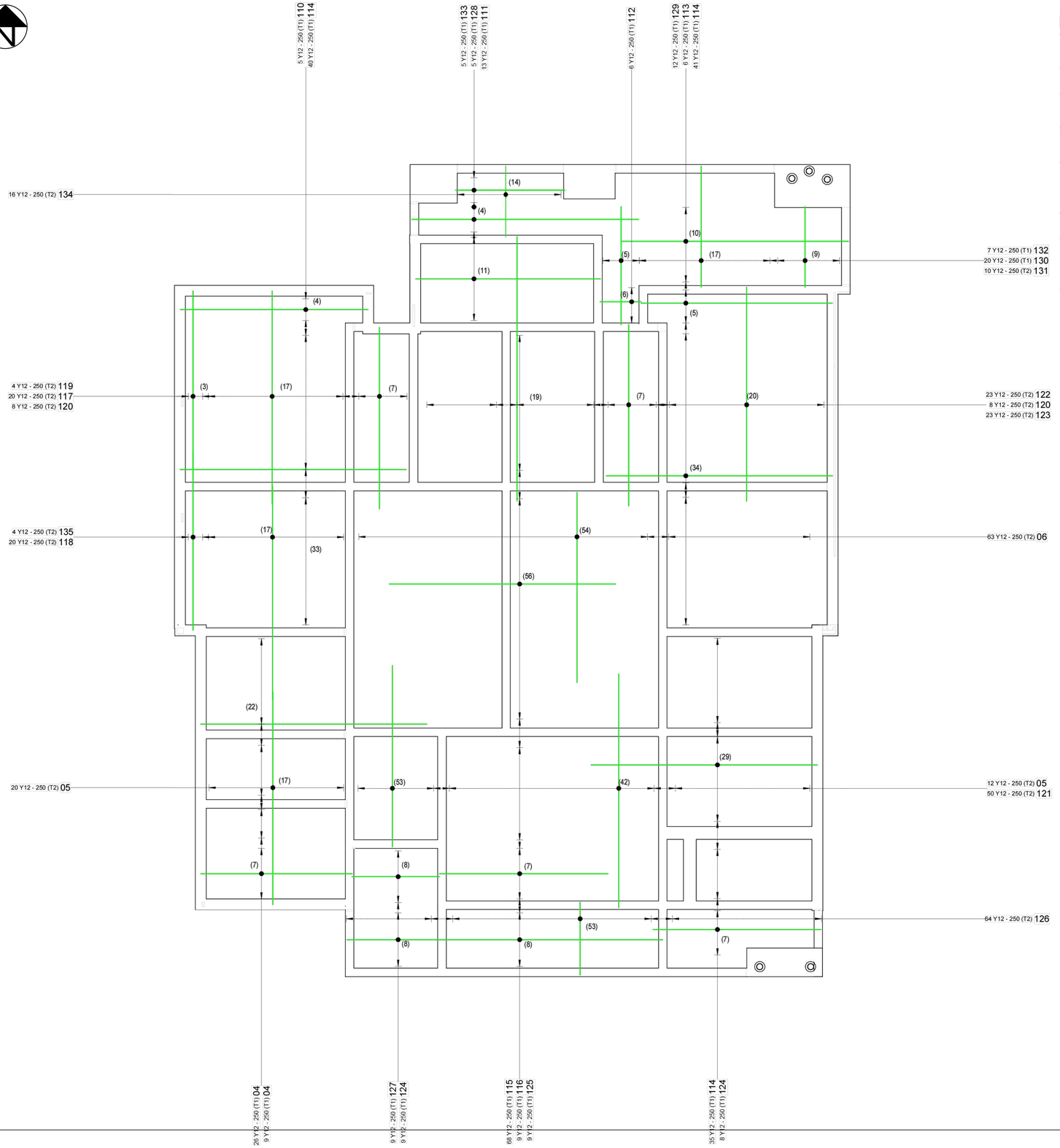
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/112
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

FOR CONSTRUCTION

TENDER DRAWINGS

RNT/SSETA/MSC/SDP/001



1.0 EXCAVATIONS AND FOUNDATIONS

1.1 ALL EXCAVATIONS FOR FOUNDATIONS (WHERE NOT PILED) TO BE CHECKED AND APPROVED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.

1.2 ALL FOUNDATIONS TO BE BUILT ON FIRM IN-SITU MATERIAL (NOT ON FILL).

1.3 THE TOP LEVEL OF ALL FOUNDATIONS TO BE AT LEAST 300MM BELOW FINAL OUTSIDE GROUND LEVEL OR FINISHED FLOOR LEVEL, WHICHEVER IS THE LOWER.

1.4 ASSUMED SAFE BEARING CAPACITY OF SOIL UNDER FOUNDATIONS – 250KPA (REFER TO GEOTECHNICAL REPORT)

1.5 ALL RISING FOUNDATION BRICKWORK TO HAVE CONTINUOUS BRICKFORCE EVERY 2ND COURSE AND CAVITY TO BE FILLED TO UNDERSIDE OF STEPPED DPC WITH 13MM AGGREGATE, 15MPA CONCRETE TAKING CARE NOT TO ALLOW ANY HONEYCOMBING

1.6 ALL FINAL FOUNDATION SIZES, DEPTH AND DETAILS ARE SUBJECT TO CONFIRMATION ON SITE BY ENGINEER.

1.7 THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THE SAFETY OF ALL DEEP EXCAVATIONS AND FOR ERECTING READY FENCE AND OR HOARDING AROUND THE SITE TO PREVENT ENTRY AFTER WORKING HOURS AND THE GENERAL SAFETY OF THE SITE AT ALL TIMES.

1.8 ALL FOUNDATION EXCAVATIONS TO BE BELOW ANY SIGNS OF ORGANIC MATERIAL OR ROOTS ETC.

0.0 GENERAL NOTES.

0.1 THE CONTRACTOR TO KEEP A FULL SET OF DRAWINGS ON SITE.

0.2 DIMENSIONS AND LEVELS MUST NOT BE SCALED OR ASSUMED.AFTER NOTIFICATION, DISCREPANCIES OR MISSING DIMENSIONS AND LEVELS WILL BE CORRECTED IN WRITTING BY THE ENGINEER.

0.3 ALL WORK SHALL BE EXECUTED IN STRICT ACCORDANCE WITH THE APPLICABLE PARTS OF THE LATEST EDITION OF SANS 10400, SANS 2001, SANS 1200 ,THE OSH ACT AND THE PROJECT SPECIFICATION IN THE CONTRACT DOCUMENTS.

0.4 THE CONTRACTOR SHALL CHECK ALL PROJECT DIMENSIONS ON SITE BEFOREHAND,ANY DICREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER.

0.5 ALL SANS SPECIFICATIONS MENTIONED IN THE NOTES,ON THE DRAWINGS AND IN PROJECT SPECIFICATIONS SHALL BE AVALAIBLE ON SITE AT ALL TIMES IN HARD COPY FORMAT.

0.6 ALL INSTRUCTIONS FROM THE ENGINEER TO BE WRITTEN IN THE SITE INSTRUCTION BOOK,THAT SHOULD BE PROVIDED BY THE CONTRACTOR.

0.7 PRODUCTS DIFFERENT TO THOSE SPECIFIED MAY BE USED WITH THE ENGINEER'S PRIOR APPROVAL.

0.8 UNLESS OTHERWISE INDICATED ON DRAWINGS, ALL WATERPROOFING,DRAINAGE FALLS AND FINISHES ARE ACCORDING TO THE ARCHITECT DETAILS AND SPECIFICATIONS.

0.9 THE CONTRACTOR SHALL DISCLOSE HIS PROPOSED BUILDING SEQUENCE IN BOARD TERMS BEFORE SITE ESTABLISHMENT.

0.10 ANY DEVIATIONS FROM THE CONSTRUCTION DRAWINGS PLANNED BY THE CONTRACTOR SHALL BE PROPOSED TO THE ENGINEER IN FULL DETAIL FOR A DECISION. THE ENGINEER IS UNDER NO OBLIGATION TO APPROVE SUCH DEVIATIONS,BUT IF APPROVED,THE APPROVAL SHALL BE IN WRITTING.

0.11 REFFER TO ALL RELEVANT DRAWINGS BY:-
ARCHITECTS — STRUCTURAL ENGINEERS
ELECTRICAL ENGINEERS — MECHANICAL ENGINEERS

0.12 ALL COLUMNS, WALLS AND BEAMS TO BE PLACED CENTRALLY ON GRID/ CENTRE LINES UNLESS DIMENSIONED OTHERWISE.

0.13 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT HE UNDERSTANDS AND COMPLIES WITH ALL RELEVANT ENGINEERING DRAWINGS AND SPECIFICATIONS AND IS ADEQUATELY EXPERIENCED TO UNDERTAKE ALL ASPECTS OF THE WORK SAFELY.

0.14 THE CONTRACTOR IS TO COMPLY AT ALL TIMES WITH ALL RELEVANT MUNICIPAL REGULATIONS AND BYLAWS IN THE AREA OF THE SITE AND IS TO ENSURE THAT HE HAS A SET OF APPROVED BUILDING PLANS ON SITE AT ALL TIMES

0.15 ALL PRODUCTS SPECIFIED FOR USE ARE TO BE USED STRICTLY ACCORDING TO MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS AT ALL TIMES.

0.16 SHOULD THE ENGINEER BE REQUIRED ON SITE,48 HRS NOTICE SHOULD BE REQUESTED IN WRITTING,FAILURE TO DO SO,THE ENGINEER WILL NOT BE HELD RESPONSIBLE FOR ANY DELAYS OR COST IMPLICATIONS.

0.17 IN CASE OF THE FIELD ENGINEERING QUIRIES TO THE ENGINEER, IN WRITTING. THE CONTRACTOR SHALL HAVE A PROPOSED SOLUTION AND SUFFICIENT DIGITAL PHOTOGRAPHS TO SHOW THE PROBLEM.

BEAM SCHEDULE

TYPE	DESCRIPTION
BR01	50x50x5 L
BR02	60.3x3.5 CHS
CB01	230x425 RC BEAM
CB02	230x230 RC BEAM
CB03	230x765 RC BEAM
FR01	IPE 160
GB01	300x510 RC BEAM
GB02	525x250x380 RC L-BEAM
GB03	300x425 RC BEAM
GB04	450x510 RC BEAM
PL01	75x50x20x2.5 CFLC
SB01	203x133x30 UB
SB02	254x146x31 UB
TB10	CHS114x4.5

LEGEND

TOC	TOP OF CONCRETE	CJ	CONSTRUCTION JOINT
TOW	TOP OF WALL	SJ	SAW CUT JOINT
D/S	DOWNSTAND CONCRETE	MJ	MOVEMENT JOINT
U/S	UPSTAND CONCRETE	IJ	ISOLATION JOINT
RWP	RAINWATER PIPE	FB	FULL BORE OUTLET

KEY:

NEW WALL

EXISTING WALL TO REMAIN

EXISTING WALL TO BE DEMOLISHED

ALL DIMENSIONS TO BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK. ANY DISCREPANCIES TO BE REPORTED TO THE AUTHOR IMMEDIATELY. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND STRUCTURAL DRAWINGS.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISON DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRDANCE WITH SABS 1200 G. CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227. MORTAR SHALL BE MIXED 1:6 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1045 FOR HIGH STRENGTH MORTAR. THE SLUMP OF THE MO NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF 25MPa/19mm AGGREGATE.
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND WALLS OF PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANULITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANULITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB–2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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Cell: 083 306 0565

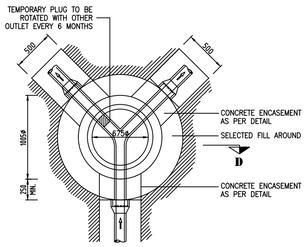
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION: SURFACEBED REINFORCEMENT LAYOUT

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/001
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

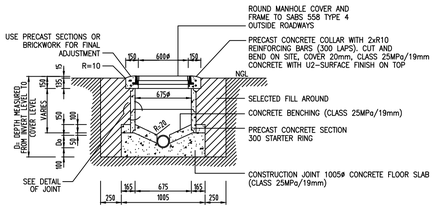
A1

TENDER DRAWINGS



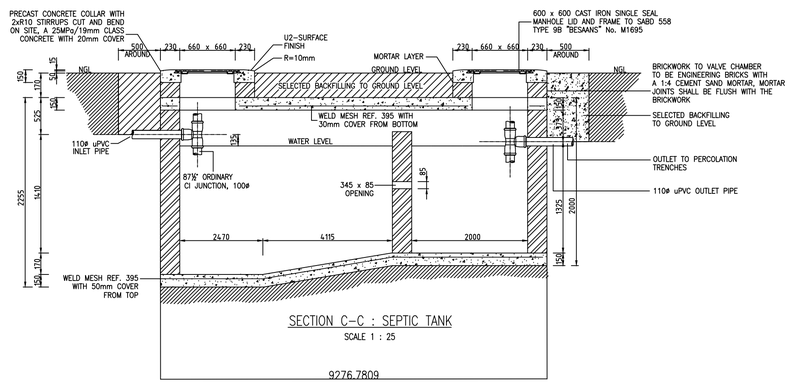
PLAN : MANHOLE
WHEN D ≤ 950

SCALE 1 : 20



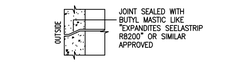
SECTION D–D : MANHOLE
WHEN D ≤ 950

SCALE 1 : 20



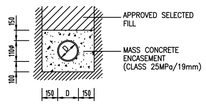
SECTION C–C : SEPTIC TANK

SCALE 1 : 25



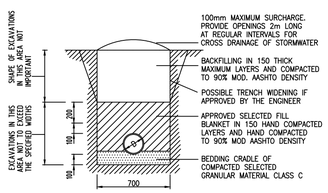
DETAIL OF MANHOLE JOINT

SCALE 1 : 5



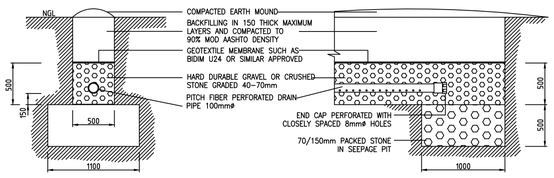
CONCRETE ENCASEMENT

SCALE 1 : 20



TYPICAL EXCAVATION/BACKFILL
FOR SEWERS

SCALE 1 : 20

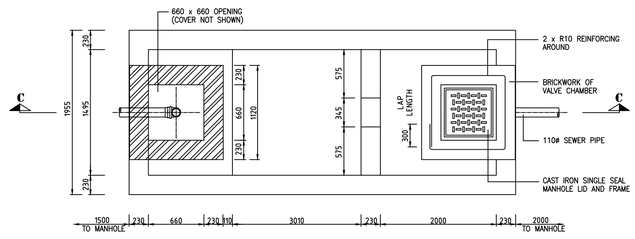


SECTION A–A : PERCOLATION TRENCH

SCALE 1 : 25

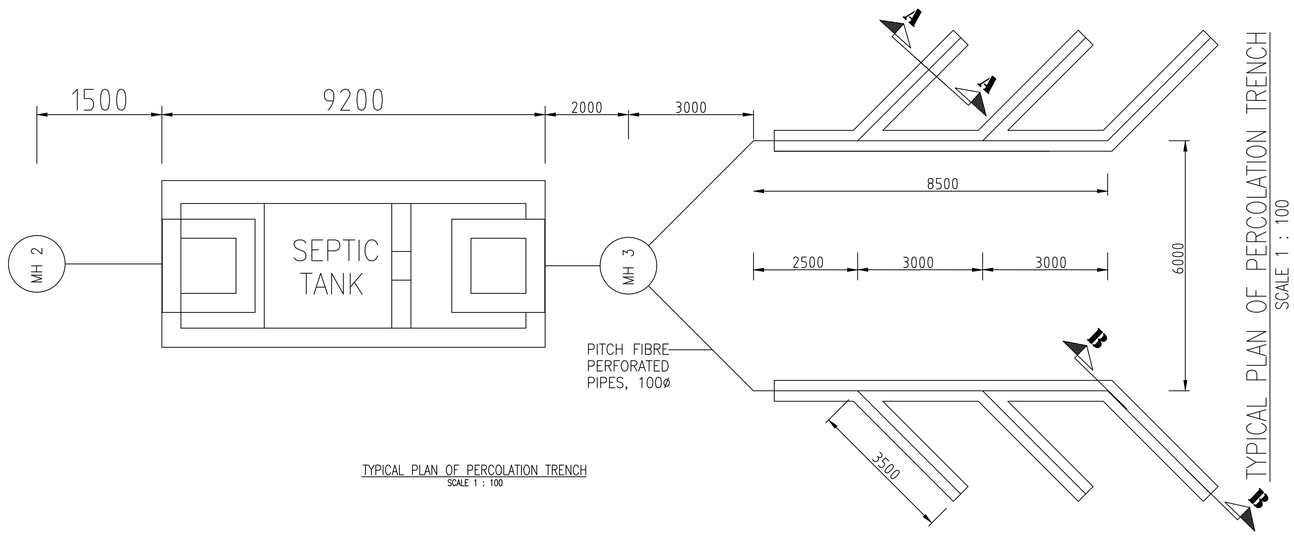
LONGITUDINAL SECTION B–B :
PERCOLATION TRENCH

SCALE 1 : 25



PLAN : SEPTIC TANK

SCALE 1 : 25



TYPICAL PLAN OF PERCOLATION TRENCH

SCALE 1 : 100

SEPTIC TANK

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MANLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MANLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB–2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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APPROVAL: _____ Pr TECH ENG: 201270031

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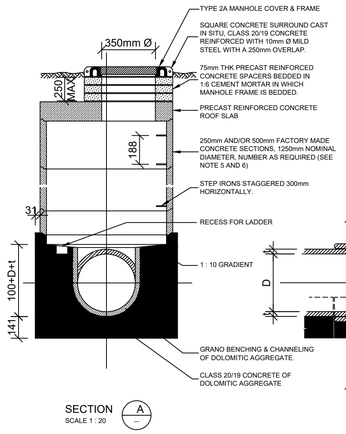
DESCRIPTION:
SITE SEPTIC TANK

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/ST/003
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

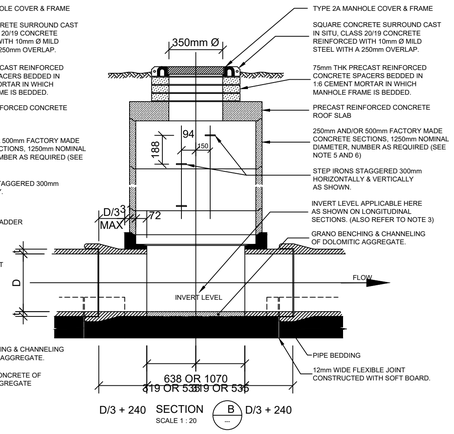
A1

TENDER DRAWINGS

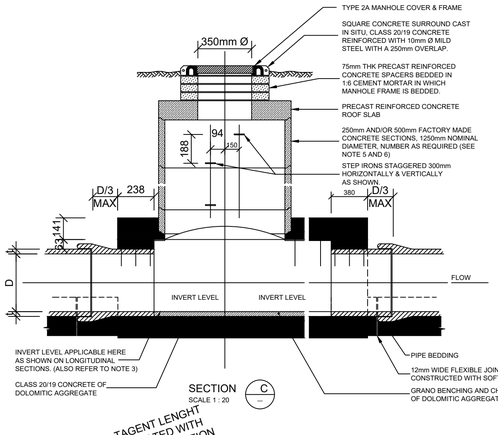
SEWER DETAIL 1



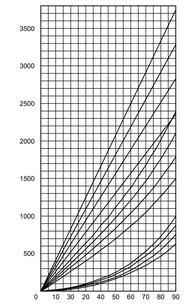
SECTION A
SCALE 1 : 20



SECTION B
SCALE 1 : 20

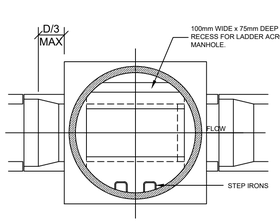


SECTION C
SCALE 1 : 20

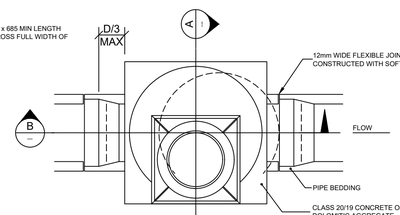


NOTES :

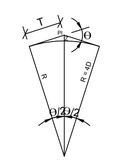
1. CONCRETE FOR MANHOLES TO BE OF DOLOMITIC ORIGIN.
2. CHANNELING AND BENCHING IN MANHOLES AND CULVERT SECTIONS TO BE OF GRANOLITHIC CONCRETE AND MUST BE CONSTRUCTED WITH A FINAL THICKNESS OF 25mm FOR CHANNELONG AND 50mm FOR BENCHING.
3. THE INVERT LEVELS AS SHOWN ON LONGITUDINAL SECTIONS REFER TO THE BC AND EC OF THE CURVED CULVERT SECTION.
4. CONCRETE COVER TO ALL REINFORCING TO BE 40mm MIN.
5. CONCRETE SECTIONS MUST BE FIXED WITH AN EPOXY AND SILICA POWDER (WHICH HAS BEED APPROVED BY THE ENGINEER).
6. FACTORY MADE MANHOLE SECTIONS TO BE IN ACCORDANCE WITH SABS 1294 - 1981.
7. NO PART OF THE MANHOLE MAY BE FINISHED OFF WITH CEMENT-WASH OR MORTAR.



PLAN - ROOF SLAB REMOVED
SCALE 1 : 20

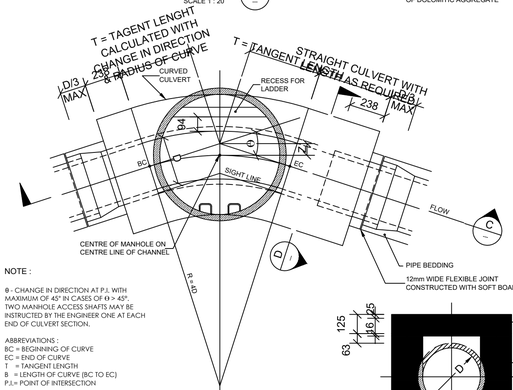


PLAN - SHOWING MANHOLE COVER & FRAME
SCALE 1 : 20



FORMULAE :
T = R Tan θ/2
Z = R (Sec θ/2 - 1)
B = πRN/180 (θ in grad)

VALUES OF B, T & Z AGAINST θ

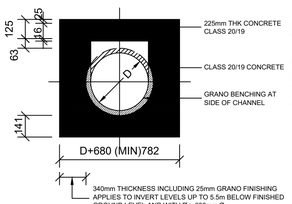


NOTE :

θ - CHANGE IN DIRECTION AT P.I. WITH MAXIMUM OF 45° IN CASES OF θ > 45°. TWO MANHOLE ACCESS SHAFTS MAY BE INSTRUCTED BY THE ENGINEER ONE AT EACH END OF CULVERT SECTION.

ABBREVIATIONS :
BC = BEGINNING OF CURVE
EC = END OF CURVE
T = TANGENT LENGTH
B = LENGTH OF CURVE (BC TO EC)
P.I.= POINT OF INTERSECTION

PLAN - ROOF SLAB REMOVED
SCALE 1 : 20



SECTION D
SCALE 1 : 20

DESCRIPTION OF REINFORCING (SECTION C & D):

a = 20mm Ø RODS x 450mm LONG @ 150mm c/c PLACED VERTICALLY.

b = 12mm Ø RODS @ 150mm c/c BENT AS SHOWN IN SECTION D.

C = 12mm Ø RODS @ 75mm c/c.

d = 12mm Ø DISTRIBUTION RODS @ 150mm c/c.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1601.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWC LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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Cell: 083 306 9565

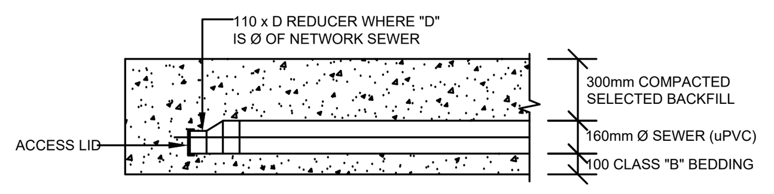
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
SEWER DETAILS

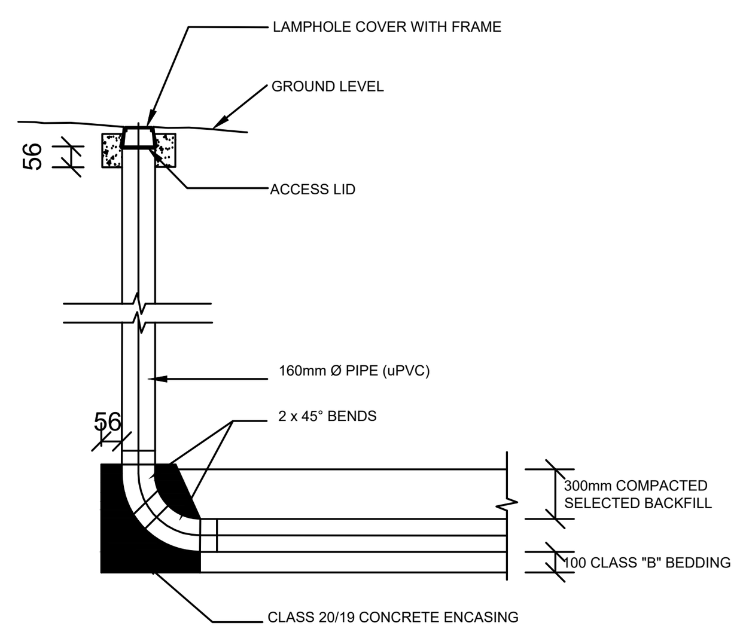
PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/SD/005	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1

TENDER DRAWINGS

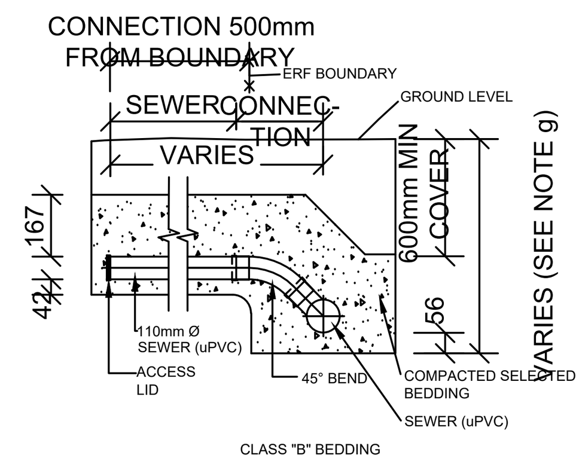
SEWER DETAIL 2



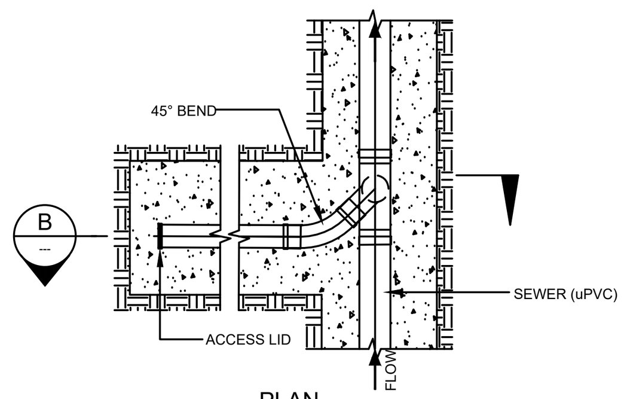
SECTION - STOPEND DETAIL



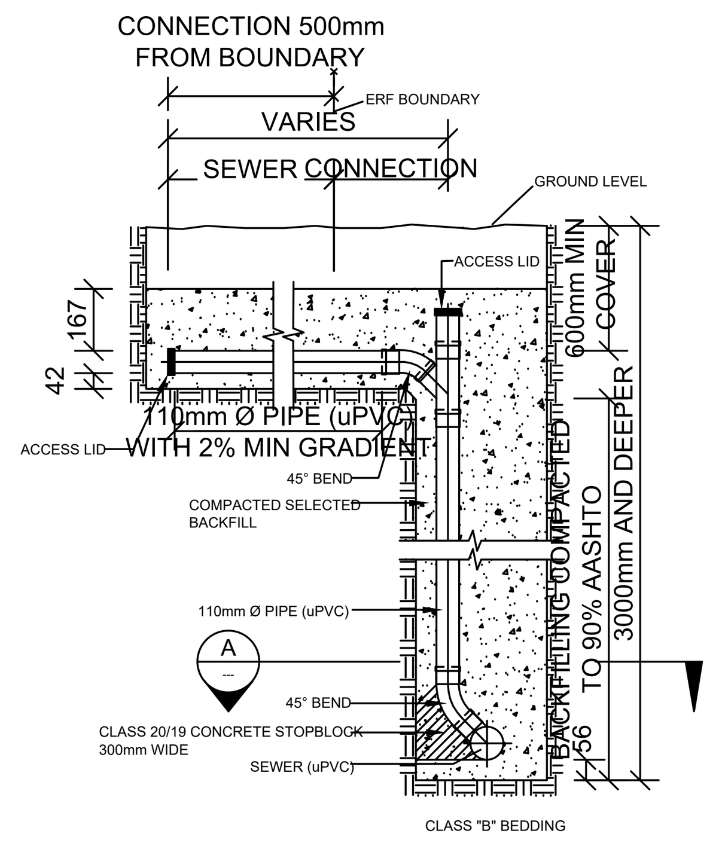
SECTION - CLEANING EYE DETAIL



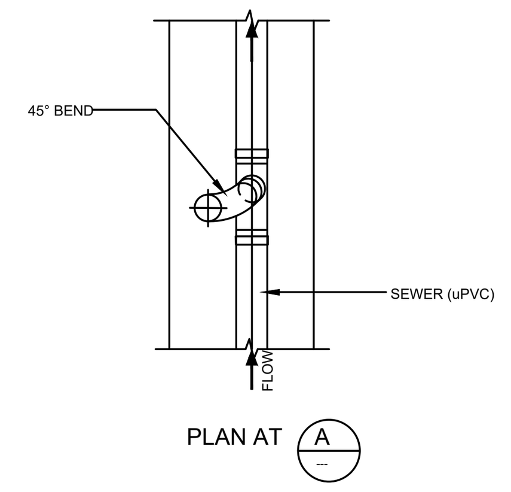
SECTION B



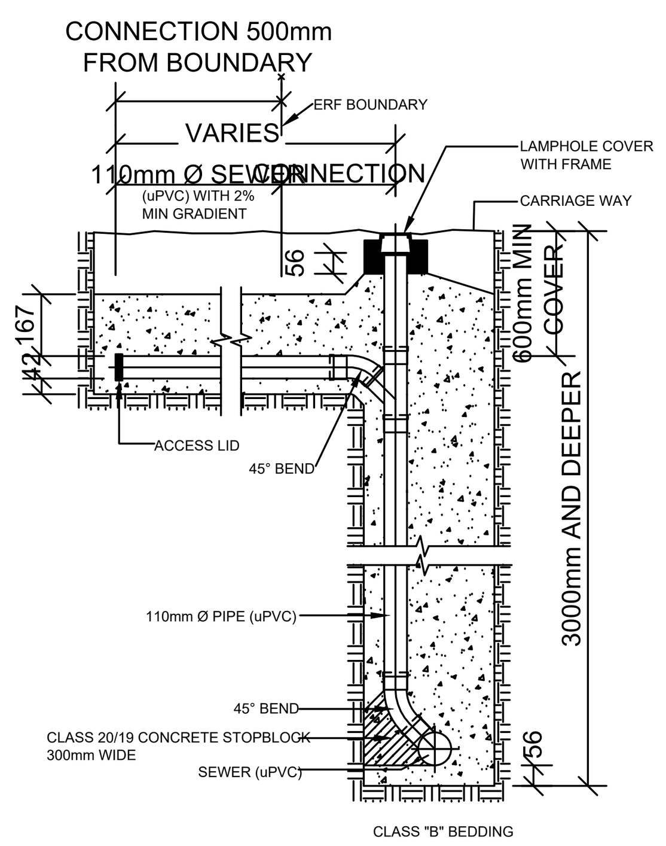
PLAN
HOUSE CONNECTION TYPE 2
(SEE NOTE b)



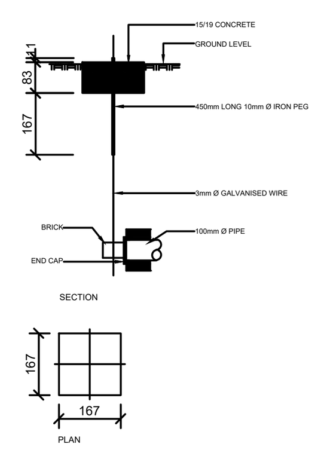
SECTION



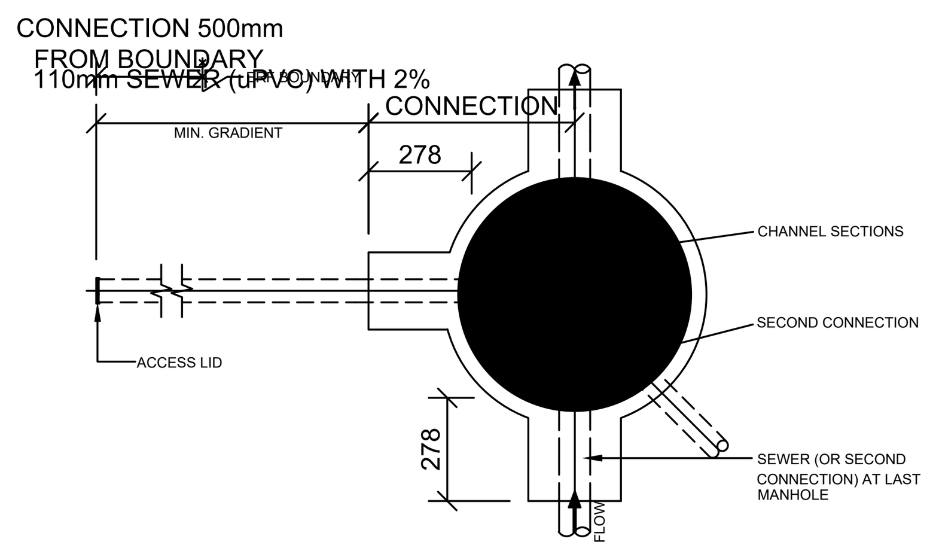
PLAN AT A
HOUSE CONNECTION TYPE 1 (SEE NOTE a)



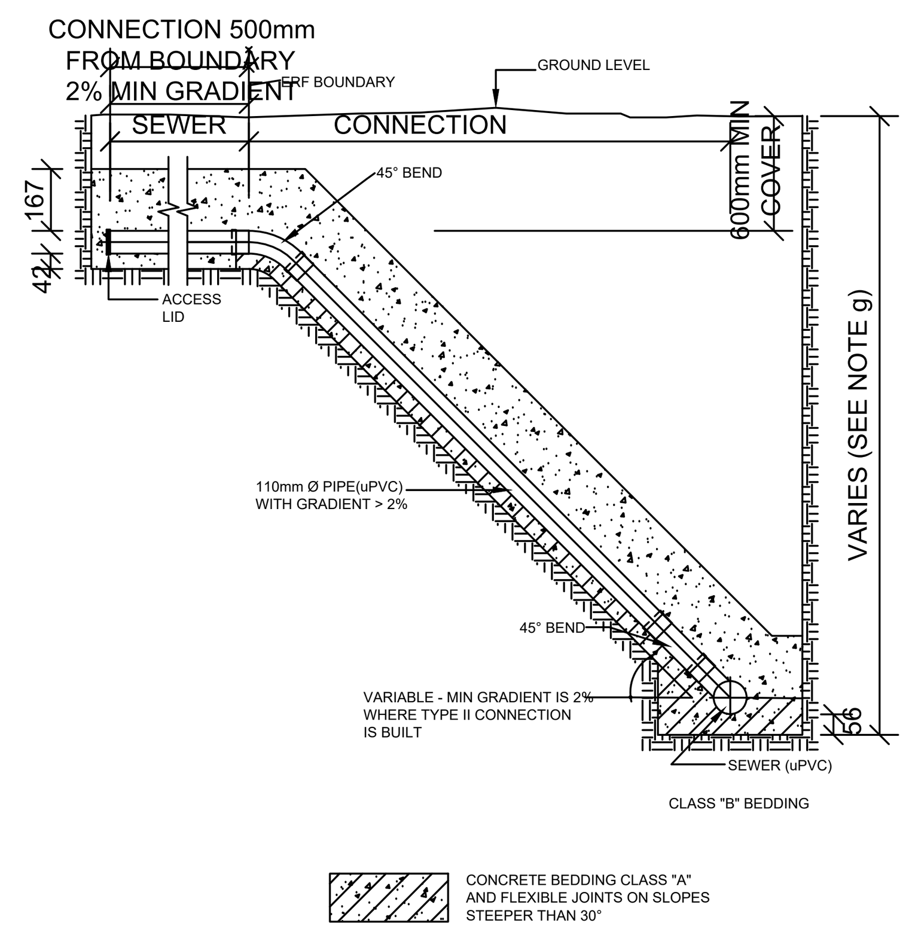
SECTION
HOUSE CONNECTION TYPE 4
(SEE NOTE d)



MARKER BLOCK TO SHOW POSITION (dim) OF HOUSE CONNECTION



PLAN
HOUSE CONNECTION TYPE 5 (SEE NOTE f)



SECTION

HOUSE CONNECTION TYPE 3
(SEE NOTE c)

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
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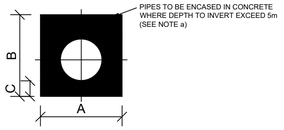
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
SEWER DETAILS

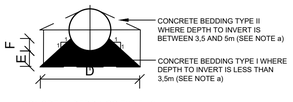
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/005
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

TENDER DRAWINGS

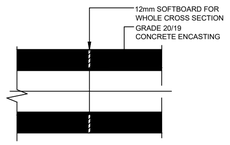
A1



CONCRETE ENCASING FOR EARTHENWARE PIPES



CONCRETE BEDDINGS TYPE I & II



SECTION OF FLEXIBLE JOINTS IN CONCRETE ENCASTING

PIPE Ø(mm)	CONCRETE ENCASTING		CONCRETE BEDDING			CONCRETE VOLUMES		m³/m
	A & B	C	D	E	F	TYPE 1	TYPE 2	EN-CASE
100	285	75	335	75	35	0.022	0.046	0.067
150	340	75	415	75	50	0.030	0.064	0.087
200	395	75	480	75	60	0.037	0.081	0.109
225	425	75	525	75	70	0.043	0.093	0.122
250	500	100	610	100	75	0.062	0.133	0.179
300	560	100	690	100	90	0.075	0.162	0.212
375	645	100	805	100	110	0.095	0.207	0.260

NOTES

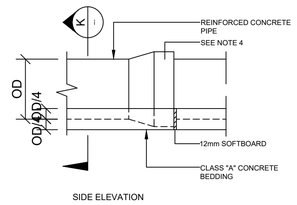
a) FOR EARTHEN PIPES TO A INVERT LESS THAN 3,5m: USE TYPE I CONCRETE BEDDING. BETWEEN 3,5 AND 5m USE TYPE II CONCRETE BEDDING. DEEPER THAN 5m : ENCASE IN CONCRETE.

b) CONCRETE BEDDING TYPE I AND TYPE II MUST BE 1:3:6/19 CONCRETE AND CONCRETE ENCASING GRADE 19/20 AND MUST BE CAST MONOLITHICALLY. ONLY VERTICAL CONSTRUCTION JOINTS WILL BE PERMITTED. ON A WRITTEN INSTRUCTION FROM THE ENGINEER FLEXIBLE JOINTS MUST BE CONSTRUCTED IN THE CONCRETE ENCASING OR TYPE II CONCRETE BEDDING AT THE SPECIFIED PIPE JOINTS.

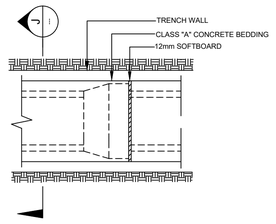
c) EARTHENWARE PIPES IN TUNNELS, ROADCROSSINGS, OR IF DEPTH EXCEEDS 5m MUST BE ENCASED IN CONCRETE.

d) IN THE CASE OF 300mm AND 375mm Ø PIPES, NO BACKFILLING WILL BE PERMITTED, EXCEPT THE FIRST 300mm, UNTIL THE CONCRETE BEDDING (ONLY TYPE II) OR CONCRETE ENCASING HAS REACHED A COMPRESSIVE STRENGTH OF 15MPa.

e) MEANING OF ABBREVIATIONS:
OD = OUTSIDE DIAMETER
ID = INSIDE DIAMETER



SIDE ELEVATION



PLAN

SPECIFIED CONCRETE COMPRESSION STRENTHS		
GRADE	7 DAYS	28 DAYS
20/19	15 MPa	20 MPa
15/19	10 MPa	15 MPa

NOTES

BACKFILLING OF TRENCH EXCAVATIONS

1) SELECTED BACKFILL CLASS I : IMPLIES APPROVED SELECTED MATERIAL FROM TRENCH EXCAVATION, FREE FROM STONES AND WITH A OPTIMUM MOISTURE CONTENT.

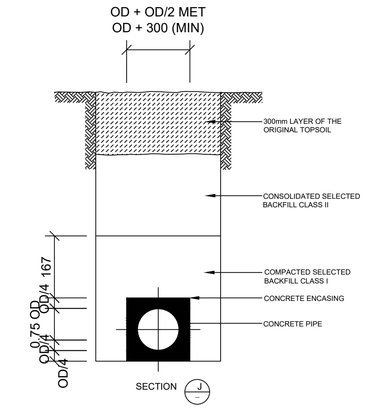
2) SELECTED BACKFILL CLASS II : IMPLIES SELECTED BACKFILL FROM TRENCH EXCAVATION, WHICH SHALL NOT CONTAIN ANY STONES LARGER THAN 150mm Ø.

3) CLASS "A" BEDDING / ENCASING CONCRETING BETWEEN JOINTS SHALL BE CARRIED OUT IN ONE CONTINUOUS OPERATION USING CLASS 20/19 CONCRETE.

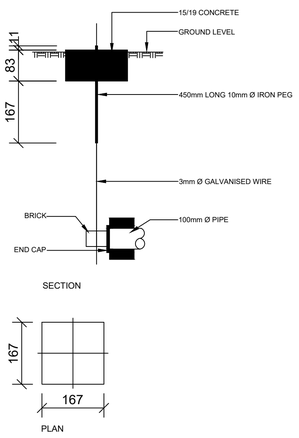
4) FLEXIBLE JOINTS MUST BE PROVIDED, AT EACH PIPE JOINT IN A CLASS "A" CONCRETE BEDDING / ENCASING, WITH A 12mm THICK SOFTBOARD PLACED VERTICALLY FOR THE ENTIRE CONCRETE AREA. PIPEJOINTS MUST BE PROVIDED WITH COMPRESSIBLE MATERIAL SUCH A FOAM PENETRATING THE EXCEEDING 6, FREE FROM STONES EXCEEDING 20mm, ORGANIC MATTER AND LUMPS OF CLAY.

5) EXCCEPT FOR THE 300mm BACKFILL ON THE TOP OF THE PIPE, THE BALANCE OF THE TRENCH MAY BE BACKFILLED WHEN THE CLASS "A" BEDDING / ENCASING HAS OBTAINED THE COMPRESSIVE STRENGHT OF 15MPa.

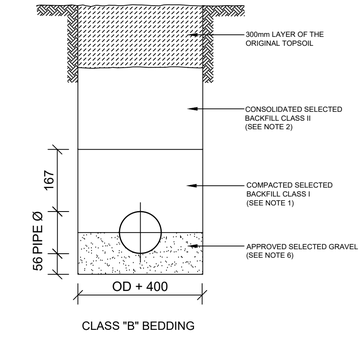
CONCRETE BEDDING AND CONCRETE ENCASING FOR CONCRETE PIPELINES



CONCRETE ENCASING TYPE I FOR CONCRETE PIPELINES



MARKER BLOCK TO SHOW POSITION (4m) OF HOUSE CONNECTION
SCALE 1 : 50

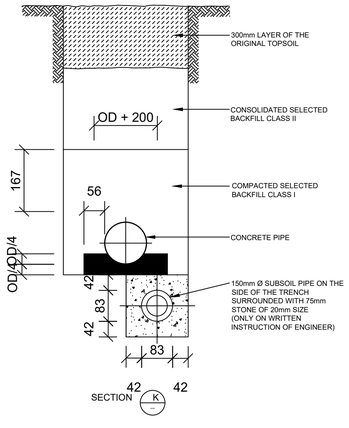


CLASS "B" BEDDING

SELECTED BACKFILL BEDDINGS FOR EARTHENWARE, FIBRE CEMENT, uPVC, AND HDPE PIPES

NOTE

CLASS "B" BEDDING SHALL ONLY BE PERMITTED ON WRITTEN INSTRUCTION BY ENGINEER.



CLASS "A" CONCRETE BEDDING FOR CONCRETE PIPELINES

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
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NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWC LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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Cell: 083 306 0565

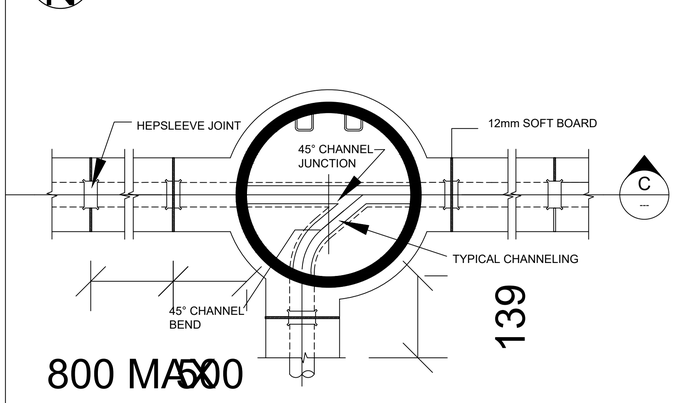
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
SEWER DETAILS

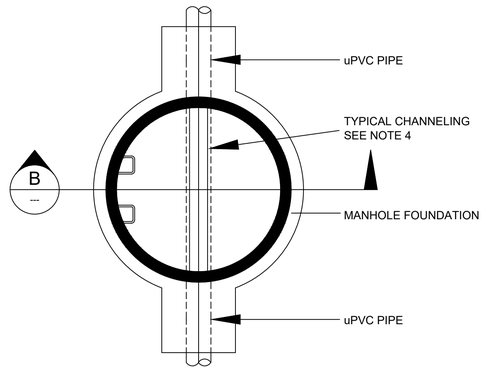
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SD/005
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

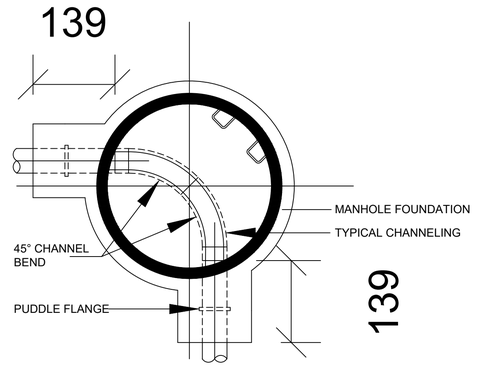
TENDER DRAWINGS



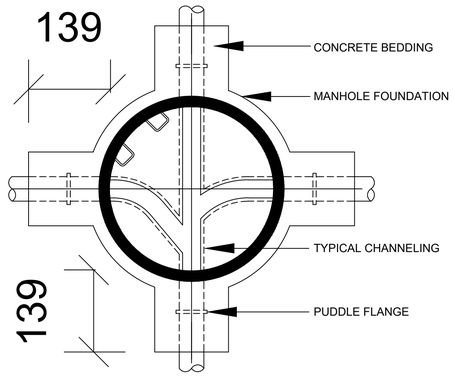
PLAN
(TYPICAL EXAMPLE WHERE CLAY PIPES ARE USED)



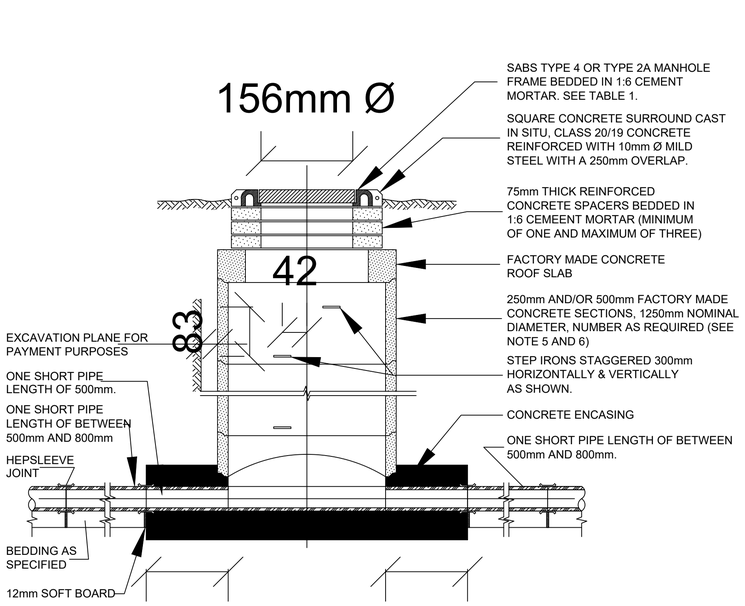
PLAN
(TYPICAL EXAMPLE WHERE uPVC PIPES ARE USED)

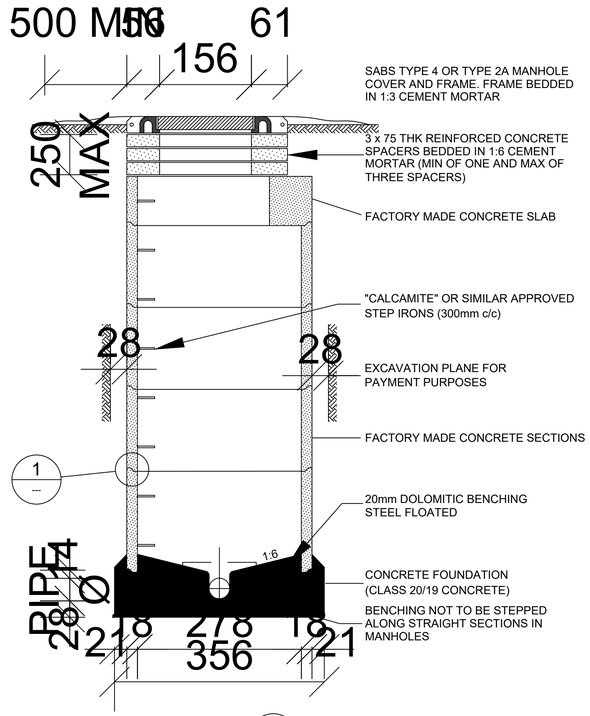


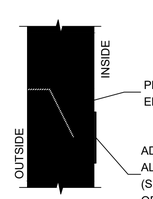
PLAN
(TYPICAL EXAMPLE WHERE HDPE PIPES ARE USED)



PLAN







DETAIL 1
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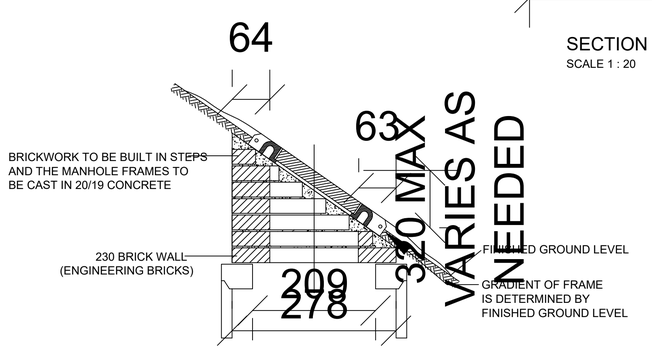

BUILT IN MANHOLE FRAME

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

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1	20.02.24	MWM	SKETCH
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SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
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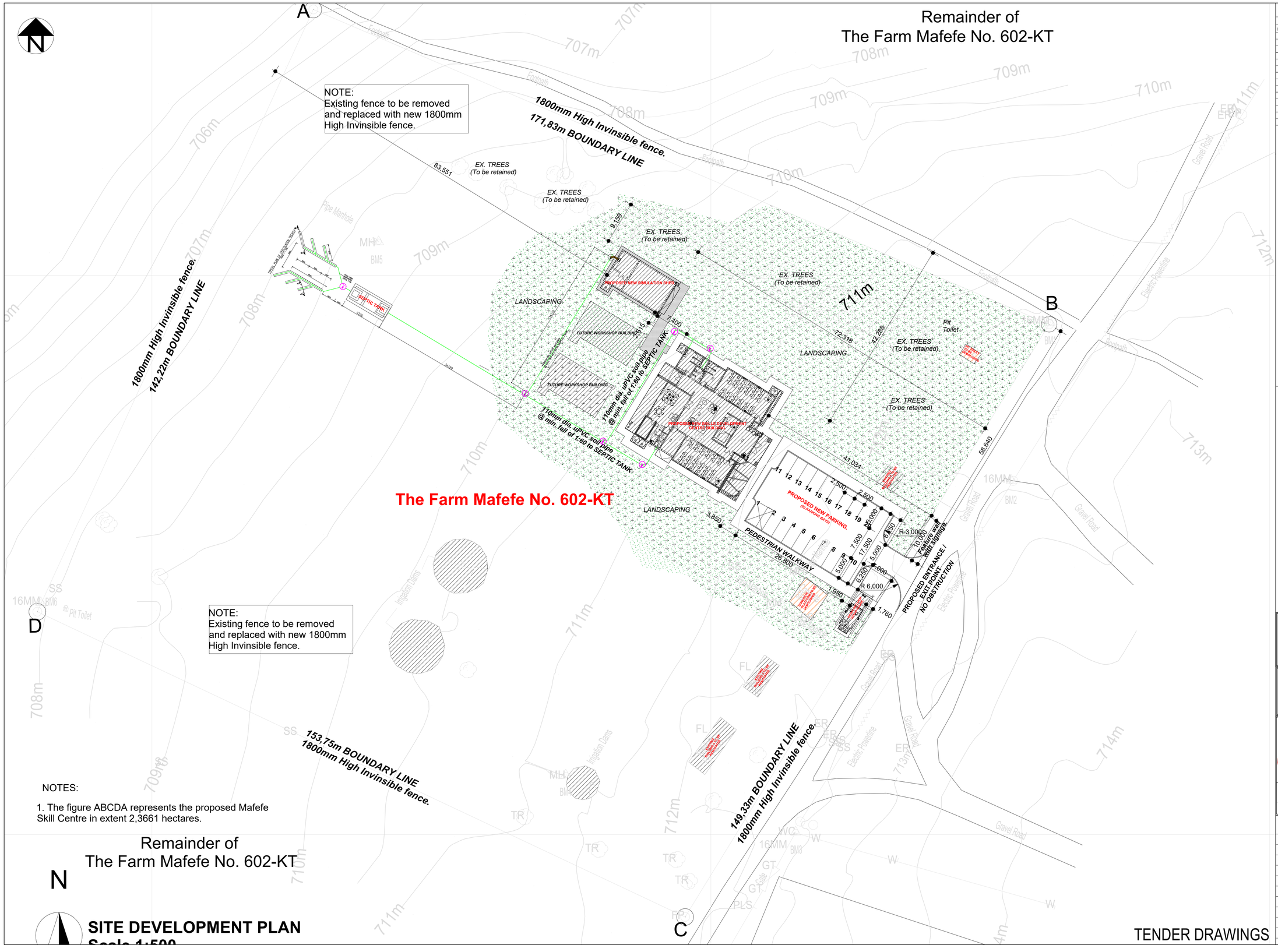
Cell: 083 306 9565
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
SEWER DETAILS

PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/SD/005	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1

TENDER DRAWINGS



NOTE:
Existing fence to be removed and replaced with new 1800mm High Invinsible fence.

NOTES:

1. The figure ABCDA represents the proposed Mafefe Skill Centre in extent 2,3661 hectares.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

CLIENT:
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PARKTOWN 2193
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www.servicesseta.org.za
SERVICES SETA

REDNOW Technologies
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Private Bag X2
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Physical: 6 Astronaut Avenue
Croydon Ext 1
Kempton Park
1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

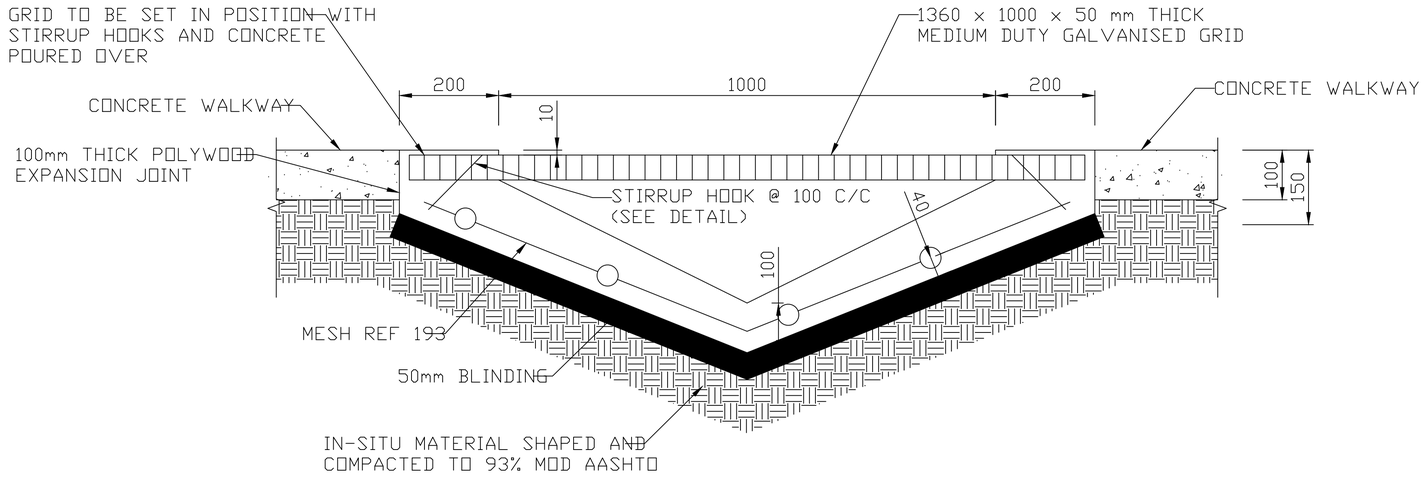
DESCRIPTION:
SITE LAYOUT PLAN

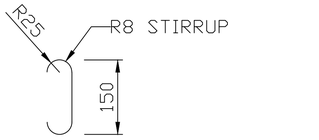
PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/SDP/D01
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

A1

NOTE

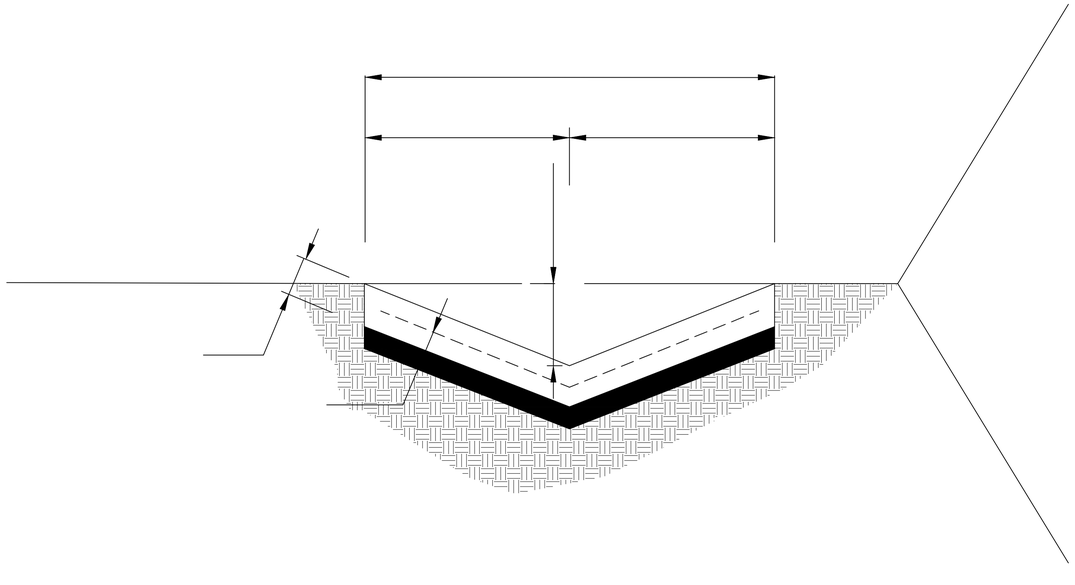
1. TRANSITION FROM CONCRETE V-DRAIN CROSSING PATHWAY TO BE 1m.
2. CONCRETE CHANNEL TO BE CONSTRUCTED WITH 19/25 CONCRETE AND REINFORCED WITH MESH REF 193. MIN COVER 40mm.
3. CONTRACTOR TO INDENT GRID SLIGHTY (8mm) TO MAKE SURE STIRRUPS ARE FLUSH WITH GRID BEFORE POURING CONCRETE.





STIRRUP HOOK DETAIL

CONCRETE V-DRAIN CROSSING PATHWAY



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1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVALITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1600.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVALITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
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APPROVAL _____ Pr TECH ENG 201270031

REDNOW Technologies
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Cell: 083 306 0565
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
V DRAIN DETAILS

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/VD/009
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

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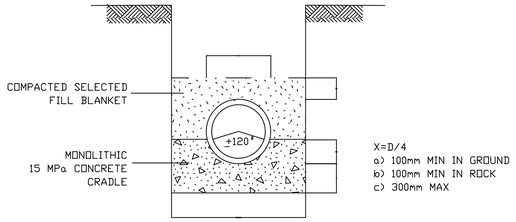
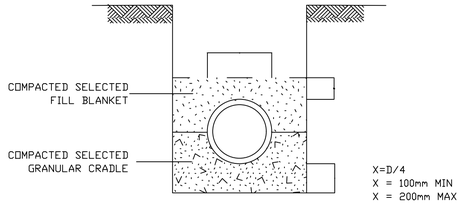
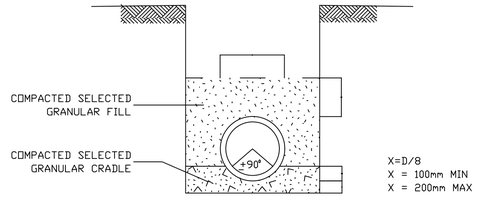


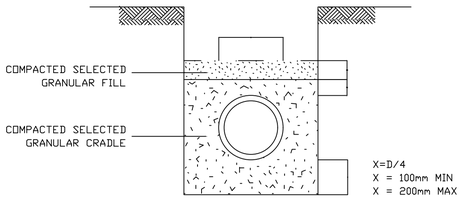
RIGID PIPE ON CLASS A BEDDING



RIGID PIPE ON CLASS B BEDDING

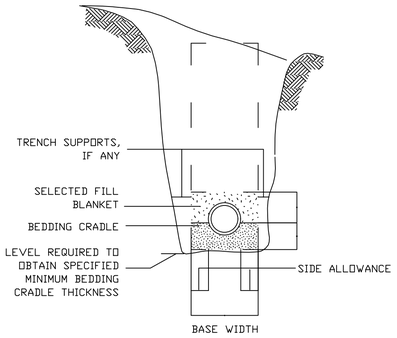


RIGID PIPE ON CLASS C-BEDDING

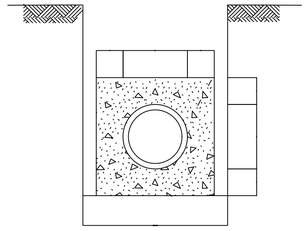


FLEXIBLE PIPE SUPPORTED ON
SELECTED GRANULAR MATERIAL
DETAIL OF PIPE BEDDING

NOMINAL PIPE DIA (mm)	TRENCH BASE WIDTH, W(mm)
100mm	500
150mm	550
200mm	600
250mm	650
300mm	700
400mm	800

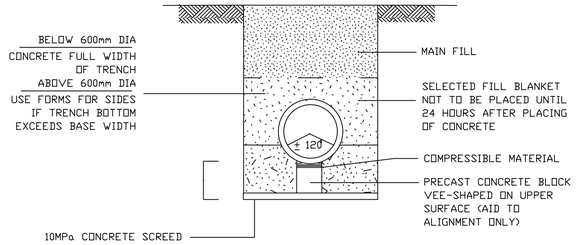


MEASUREMENT OF BEDDING

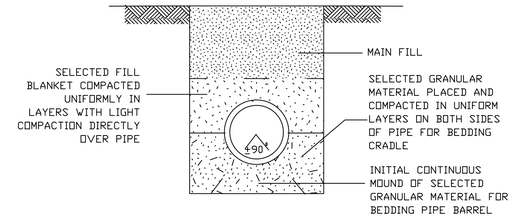


DETAIL OF CONCRETE ENCASEMENT

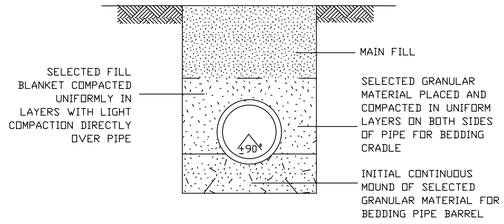
NOMINAL PIPE DIA (mm)	DIMENSION,C (mm)
100mm	100
150mm	100
200mm	150
250mm	200
300mm	200



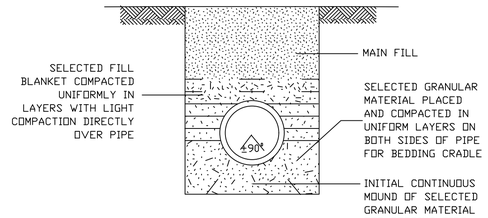
CONSTRUCTION OF RIGID PIPE
ON CLASS A BEDDING



CONSTRUCTION OF RIGID PIPE
ON CLASS B BEDDING



CONSTRUCTION OF RIGID PIPE
ON CLASS C BEDDING



FLEXIBLE PIPE SUPPORTED ON
SELECTED GRANULAR MATERIAL
CONSTRUCTION METHOD OF PIPE BEDDING

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS - 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS - 30MPa/19mm
ALL OTHER CONCRETE - 25MPa/19mm
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NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVALITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVALITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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APPROVAL: _____ Pr TECH ENG 20127003

RednoW Technologies
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Physical: 9 Antravoit Avenue, Croydon Ext 1, Kempton Park, 1619
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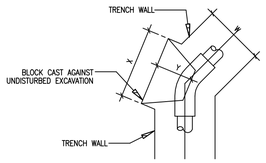
Cell: 083 306 0565
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
WATER DETAILS

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/WD/004
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

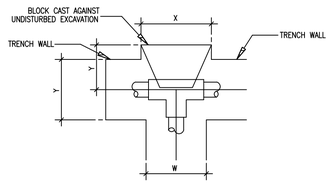
TENDER DRAWINGS

A1



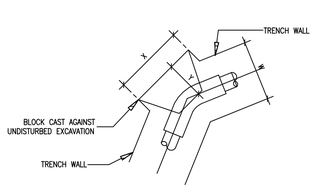
THRUST BLOCK FOR 45° BEND

NOMINAL DIAMETER ø (mm)	DIMENSIONS					
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL (m³)	
300	1 400	700	2 200	1 000	1,400
250	1 300	650	1 600	800	0,800
200	1 200	600	1 200	600	0,430
150	1 000	500	1 000	500	0,250
100	1 000	500	350	250	0,043
75	800	400	350	200	0,028



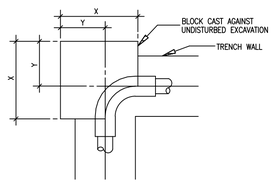
THRUST BLOCK FOR TEE

NOMINAL DIAMETER ø (mm)	DIMENSIONS					
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL (m³)	
300	1 400	700	2 700	1 300	2,550
250	1 300	650	2 150	1 100	1,500
200	1 200	600	1 600	800	0,720
150	1 000	500	1 300	650	0,400
100	1 000	500	500	300	0,075
75	800	400	450	300	0,054



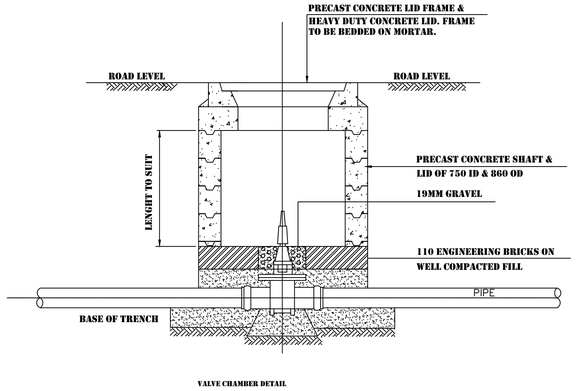
THRUST BLOCK FOR 22 ½° BEND

NOMINAL DIAMETER ø (mm)	DIMENSIONS					
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL (m³)	
300	1 400	700	1 000	500	0,350
250	1 300	650	760	400	0,220
200	1 200	600	600	400	0,150
150	1 000	500	500	300	0,075
100	1 000	500	400	300	0,024
75	800	400	300	200	0,018



THRUST BLOCK FOR 90° BEND

NOMINAL DIAMETER (mm)	DIMENTIONS					
	D (mm)	Z (mm)	X (mm)	Y (mm)	VOL (m³)	
300	1 400	700	2 700	1 400	5,00
250	1 300	650	2 150	1 100	3,00
200	1 200	600	1 600	800	1,54
150	1 000	500	1 300	700	0,80
100	1 000	500	500	300	0,12
75	800	400	450	300	0,08



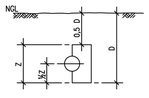
VALVE CHAMBER DETAIL

NOTES :

1 ALL GALV: MEDIUM GRADE SABS 62.
2 ALL DIMENSIONS IN mm.
3 BOX LENGTH TO BE PLACED IN THE DIRECTION OF THE PIPE.
4 CONCRETE STRENGTH = 20 MPa (28 DAE/DAYS.)
CONCRETE COVER = 50mm.
5 WHERE THE VALVE BOX IS PLACED IN THE ROAD OR PAVEMENT, THE TOP OF THE CONCRETE COLLAR MUST BE FLAT.
6 WRAPPED uPVC TAPE OVER THE DENSOTAPE.

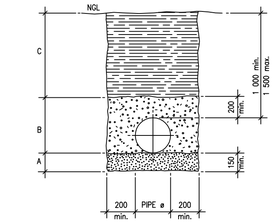
NOTES :

1. THIS TABLE WAS CALCULATED FOR ANCOR BLOCKS IN SANDY SOILS.
2. USE 10 mPA CONCRETE.
3. HALF THE DEPTH OF THE ANCOR BLOCK NEEDS TO BE BELOW THE PIPE AXIS.
4. KEEP THE CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. ANCOR BLOCKS FOR PIPE ø LARGER THAN 300mm & HIGHER TEST PRESSURES THAN 18 BAR NEEDS TO BE DESIGNED BY THE ENGINEER.
6. ANCOR BLOCKS AT PADDLE FLANGES NEEDS TO BE REINFORCED & DESIGNED BY THE ENGINEER.
7. IN CASES OF SOFT CLAY & SILTY SANDS, THE ANCOR BLOKS NEED TO BE DESIGNED BY THE ENGINEER.



SECTION

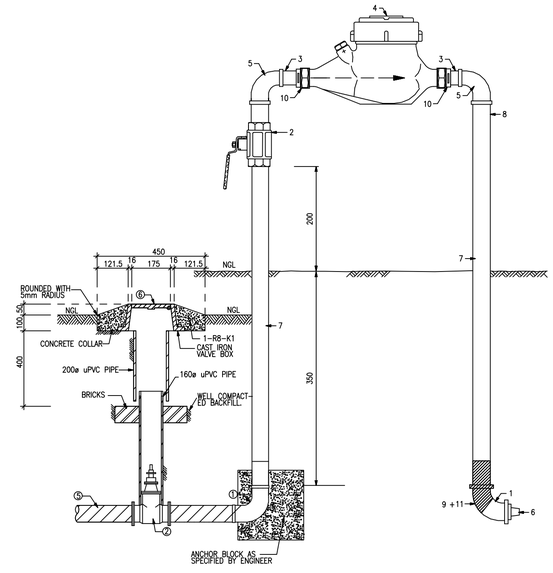
No.	ITEM DESCRIPTION	WATER CONNECTION SIZES	
①	ELBOWS, GALV.	80ø	100ø
②	VALVE	RSV 80ø	RSV 100ø
③	NIPPLE	50ø	80ø
④	PLUGS, GALV.	80ø	100ø
⑤	"DENSOTAPE" & uPVC TAPE WRAPPING	YES	YES
⑥	CONCRETE VALVE BOX	YES	YES



A: SELECTED BEDDING LAYER (UNCOMPACTED)
B: SELECTED BACK FILL (AGGREGATE max. 10mm)
C: BACK FILL (COMPACTED)

TYPICAL CROSS SECTION OF PIPE TRENCH
SCALE: NTS

ANCHOR BLOCKS
SCALE: NTS



TYPICAL STANDPIPE FOR 80ø, 100ø, 150ø
WATER CONNECTION

TENDER DRAWINGS

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS - 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE.
PRECAST CONCRETE SECTIONS - 30MPa/19mm
ALL OTHER CONCRETE - 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "FLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

CLIENT:
SERVICES SETA
15 SHERBORNE ROAD
PARKTOWN 2193
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www.serviceseta.org.za
customercare@serviceseta.org.za
APPROVAL _____ Pr TECH ENG 201270031

redNOW! Technologies
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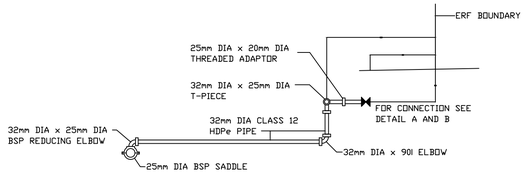
Physical: 9 Astroniet Avenue Croydon Ext 1 Kempton Park 1619
Email: wmmutla@yahoo.com / wmmutla@gmail.com
Cell: 083 306 0565
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
WATER DETAILS

PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/WD/004	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1

WATER DETAIL 3

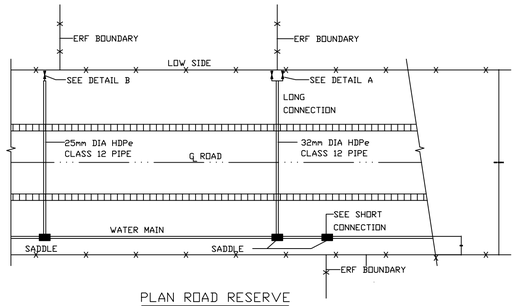


SECTION OF LONG DOUBLE ERF CONNECTION

N.T.S.

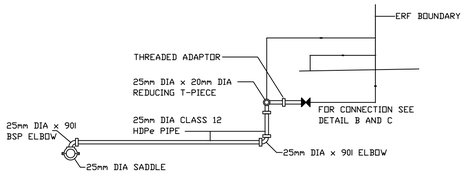
NOTE ON VALVES:

1. ONLY 'AINSWORTH' LH CLOSE, CAPTOP, NON-RISING SPINDLE RESILIENT SEAL VALVES TO BE USED.
2. ALL VALVES TO BE MARKED WITH A 'V' ON KERB PERPENDICULAR TO VALVE.
3. WHERE WATER PIPELINES CROSS ROADS, THE ENTRY AND EXIT POINTS SHALL BE MARKED 'W' AT EITHER SIDE OF THE ROAD - ON KERBS.
4. ALL WATER CONNECTION VALVES SHALL BE SUITABLE MARKED FOR EASY LOCATING WHEN METERS ARE INSTALLED.



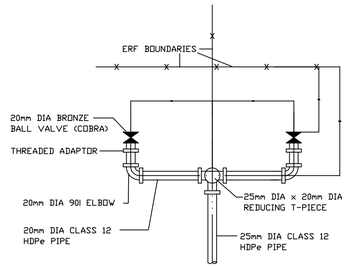
PLAN ROAD RESERVE

N.T.S.



SECTION OF SHORT DOUBLE ERF CONNECTION

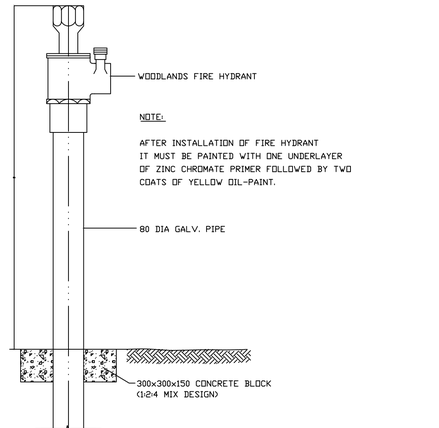
N.T.S



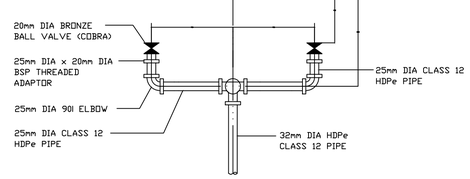
DETAIL C

(SHORT DOUBLE ERF CONNECTION)

N.T.S.



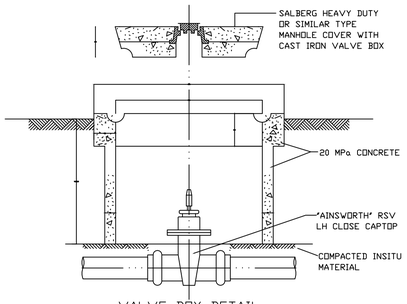
SECTION



DETAIL A

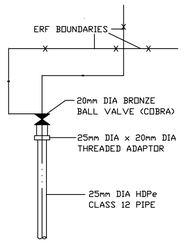
(LONG DOUBLE ERF CONNECTION)

N.T.S.



VALVE BOX DETAIL

N.T.S.



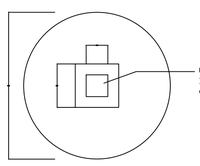
DETAIL B

(SINGLE ERF CONNECTION)

N.T.S.

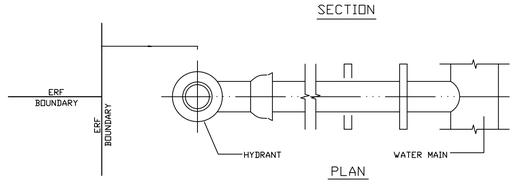
GATE VALVE KEY

N.T.S.



VALVE COVER

N.T.S.



PLAN

FIRE HYDRANT DETAIL

N.T.S.

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS - 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
BRICK REINFORCEMENT IN ACCORDANCE WITH BS 785 SHALL BE PROVIDED IN EVERY FOURTH LAYER OF ALL LOAD BEARING BRICKWORK.

TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITIC AGGREGATE
PRECAST CONCRETE SECTIONS - 30MPa/19mm
ALL OTHER CONCRETE - 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO DRIERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "MAINLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "MAINLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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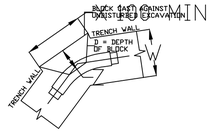
MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
WATER DETAILS

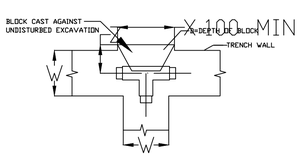
PROJECT:	MAFEFE SKILLS CENTRE	
DRAWING NO:	RNT/SSETA/MSC/WD/004	
DESIGN BY:	MW MAPOTSE	
DRAWN BY:	REDNOW TECHNOLOGIES	
CHECKED BY:	MW MAPOTSE	
APPROVED	MW MAPOTSE	
		A1

TENDER DRAWINGS

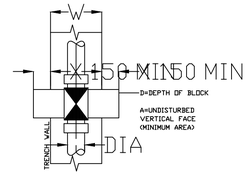
WATER DETAIL 2



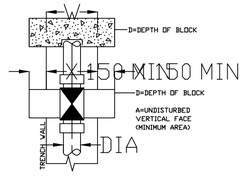
THRUST BLOCK FOR 45° BEND



THRUST BLOCK FOR TEE



THRUST BLOCK FOR GATE VALVE



THRUST BLOCKS FOR GATE VALVE AND END CAP AT END CAP POSITIONS

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	1200	450	0,49	650	0,74	850	0,98
250	1000	350	0,34	550	0,51	700	0,68
200	800	300	0,22	450	0,33	550	0,44
150	600	250	0,13	350	0,19	450	0,25
100	400	150	0,06	250	0,09	300	0,11
75	300	100	0,03	150	0,05	200	0,06
50	200	100	0,02	100	0,02	150	0,03

1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. Z SHALL BE THE MINIMUM OF X/2 OR W/2
4. HALF OF THE DEPTH OF THE BLOCK SHALL BE BELOW THE PIPE AXIS
5. KEEP COUPLINGS AND FLANGES 25mm CLEAR FROM CONCRETE

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	1200	550	0,64	800	0,96	1100	1,27
250	1000	450	0,44	700	0,67	900	0,89
200	800	350	0,29	550	0,43	700	0,57
150	600	300	0,16	400	0,24	550	0,32
100	400	200	0,07	300	0,11	350	0,14
75	300	150	0,04	200	0,06	300	0,08
50	200	100	0,02	150	0,03	200	0,04

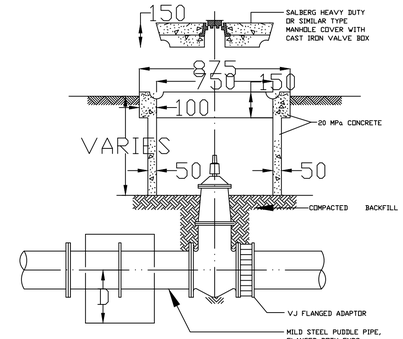
1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. Z SHALL BE THE MINIMUM OF X/2 OR W/2
4. HALF OF THE DEPTH OF THE BLOCK SHALL BE BELOW THE PIPE AXIS
5 KEEP COUPLINGS AND FLANGES 25mm CLEAR FROM CONCRETE

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	500	500	0,64	850	0,96	1150	1,27
250	450	350	0,45	600	0,67	850	0,89
200	400	250	0,29	400	0,43	600	0,57
150	350	150	0,16	200	0,24	350	0,32
100	300	150	0,07	150	0,11	150	0,14
75	250	150	0,04	150	0,06	150	0,08
50	200	150	0,02	150	0,03	150	0,04

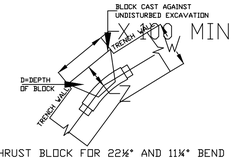
1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. X – DIMENSION SHALL BE 150mm MINIMUM
4. THE BLOCK DEPTH SHALL BE MEASURED FROM THE PIPE AXIS DOWNWARDS
5 KEEP COUPLINGS AND FLANGES 25mm CLEAR OF CONCRETE

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	500	500	0,64	850	0,96	1150	1,27
250	450	350	0,45	600	0,67	850	0,89
200	400	250	0,29	400	0,43	600	0,57
150	350	150	0,16	200	0,24	350	0,32
100	300	150	0,07	150	0,11	150	0,14
75	250	150	0,04	150	0,06	150	0,08
50	200	150	0,02	150	0,03	150	0,04

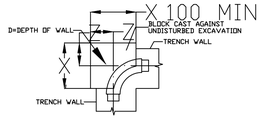
1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. X – DIMENSION SHALL BE 150mm MINIMUM
4. THE BLOCK DEPTH SHALL BE MEASURED FROM THE PIPE AXIS DOWNWARDS
5 KEEP COUPLINGS AND FLANGES 25mm CLEAR OF CONCRETE



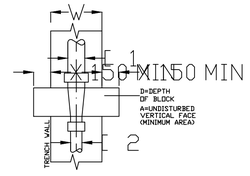
SECTION
N.T.S.



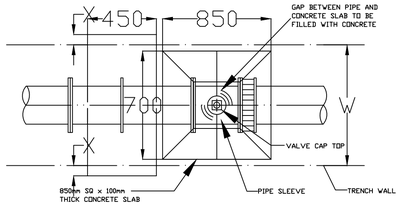
THRUST BLOCK FOR 22½° AND 11¼° BEND
(X AND A TO BE HALVED FOR 11¼° BENDS)



THRUST BLOCK FOR 90° BEND



THRUST BLOCK FOR REDUCER



PLAN
N.T.S.

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	1200	250	0,25	350	0,38	450	0,50
250	1000	200	0,18	300	0,26	350	0,35
200	800	150	0,11	250	0,17	300	0,22
150	600	100	0,06	200	1,00	250	0,13
100	400	100	0,04	100	0,04	150	0,06
75	300	100	0,03	100	0,03	100	0,03
50	200	100	0,02	100	0,02	100	0,02

1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. Z SHALL BE THE MINIMUM OF X/2 OR W/2
4. HALF OF THE DEPTH OF THE BLOCK SHALL BE BELOW THE PIPE AXIS
5 KEEP COUPLINGS AND FLANGES 25mm CLEAR FROM CONCRETE

NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
		900 kPa		1350 kPa		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
300	1200	750	0,90	1150	1,35	1550	1,81
250	1000	650	0,63	950	0,94	1250	1,26
200	800	500	0,40	750	0,60	1000	0,81
150	600	400	0,23	600	0,34	750	0,46
100	400	250	0,10	400	0,15	500	0,20
75	300	200	0,06	300	0,09	400	0,12
50	200	150	0,03	200	0,04	250	0,05

1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. Z SHALL BE THE MINIMUM OF X/2 OR W/2
4. HALF OF THE DEPTH OF THE BLOCK SHALL BE BELOW THE PIPE AXIS
5. KEEP COUPLINGS AND FLANGES 25mm CLEAR FROM CONCRETE

NOMINAL DIAMETER	NOMINAL DIAMETER	DEPTH OF BLOCK	MAXIMUM TESTING PRESSURE					
			900 kPa		1350 kPa		1800 kPa	
Ø1 (mm)	Ø 2 (mm)	D (mm)	X (mm)	A (m²)	X (mm)	A (m²)	X (mm)	A (m²)
350	300/250	750	300	0,43	450	0,64	600	0,85
300	250/200	700	250	0,35	400	0,53	550	0,71
250	200/150	650	250	0,29	350	0,43	450	0,57
200	150/100	600	200	0,22	300	0,32	400	0,43
150	100/75	500	150	0,12	200	0,18	250	0,24
100	75/50	400	150	0,06	150	0,08	150	0,11
75	50	300	100	0,03	150	0,04	150	0,05

1. THIS TABLE IS VALID FOR 100 kPa EARTH BEARING PRESSURE
2. X= DIMENSION MAY BE REDUCED FOR HIGHER EARTH BEARING PRESSURES
3. X= DIMENSION SHALL BE 150mm MINIMUM
4. HALF OF THE DEPTH OF THE BLOCK SHALL BE BELOW THE PIPE AXIS
5 KEEP COUPLINGS AND FLANGES 25mm CLEAR OF CONCRETE

VALVE BOX FOR uPVC PIPEWORK > 200 ND

THRUST BLOCK TABLE

NOMINAL DIAMETER	DEPTH OF BLOCK	MAX TESTING PRESSURE	
		1800 kPa	
Ø (mm)	D (mm)	X (mm)	A (m²)
350	550	1350	1.73
300	500	1150	1.27
250	450	850	0.88

ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK COMMENCES. REFER ANY DISCREPENCIES TO THE ENGINEER.

REVISIONS

REV.	DATE	BY	REVISION DESCRIPTION
1	20.02.24	MWM	SKETCH
2	28.03.24	MWM	ISSUED FOR INFORMATION
3	23.04.24	MWM	ISSUED FOR TENDER

SEWER NOTES:

CONCRETE:
ALL CONCRETE TO BE DONE IN ACCRODANCE WITH SABS 1200 G.
CONCRETE STRENGTHS:
ALL STRUCTURAL ELEMENTS – 25MPa / 19mm.

LOAD BEARING BRICKWORK:
BRICKS SHALL BE GENERAL PURPOSE CLAY BRICKS TO SABS 227.
MORTAR SHALL BE MIXED 1:4 WITH ORDINARY PORTLAND CEMENT TO SABS 471, AND SAND TO SABS 1043 FOR HIGH STRENGTH MORTARS THE SLUMP OF THE MIX NOT EXCEED 50mm.
MINIMUM THICKNESS OF ALL LOAD BEARING BRICK WALLS TO BE 230mm.
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TRENCHES:
EXCAVATIONS AND BACKFILLING OF TRENCHES TO COMPLY WITH SABS 1200 DB.
BEDDING OF PIPES TO COMPLY WITH SABS 1200 LB.
SEWERS TO BE ENCASED IN CONCRETE AS DETAILED WHEN COVER IS LESS THAN 450mm.
THE INFLOW OF STORMWATER TO BE PROHIBITED.

MANHOLES AND FITTINGS:
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITC AGGREGATE AND SHALL COMPLY WITH SABS 1200 GA OR SABS 1200 G AS APPLICABLE.
PRECAST CONCRETE SECTIONS TO COMPLY WITH SABS 1294.
ALL CONCRETE BENCHING AND SEALERS TO COMPRISE OF DOLOMITC AGGREGATE
PRECAST CONCRETE SECTIONS – 30MPa/19mm
ALL OTHER CONCRETE – 25MPa/19mm
CHANNELS IN MANHOLES TO BE LAID IN THE WET CONCRETE FLOOR AND THE FIRST PRECAST CONCRETE SECTION TO BE PLACED AND THE BENCHING COMPLETED WITHIN 2 HOURS AFTER CASTING THE CONCRETE FLOOR.
NO ORDERS WILL BE PERMITTED FOR THE BENCHING. BENCHING TO BE STEEL TROWELLED TO A SMOOTH FINISH.
CAST IRON MANHOLE COVERS AND FRAMES TO COMPLY WITH SABS 554.
STEP IRONS TO BE GALVANISED AND TO COMPLY WITH SABS 1247.

REINFORCEMENT:
STEEL WELDED MESH REINFORCING SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1024.

PIPES:
ALL PIPES TO BE "WAVKLITE" uPVC STRUCTURAL DRAIN PIPES TO SABS 1605.
ALL BENDS,JUNCTIONS, ACCESS JUNCTIONS AND GULLEYS TO BE "WAVKLITE" STRUCTURAL WALL.

MAIN PIPES AND FITTINGS WERE SIZED UP TO THE OUTSIDE CONSTRUCTION.
INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECTS DRAWINGS.

WATER NOTES:
ALL WATER PIPES TO BE uPVC CLASS 6 PIPES.
ALL TEES, REDUCERS, END CAPS AND BENDS TO BE "PLASSON" COMPRESSION FITTINGS.
MAIN FITTINGS AND PIPES WERE SIZED UP TO THE OUTSIDE CONSTRUCTION, INTERNAL PIPING AND FITTINGS TO BE DONE AS PER ARCHITECT'S DRAWINGS.
LAY AND BED HDPE PIPES ON GRANULAR BEDDING FOR FLEXIBLE PIPES PER DWG. LB-2, COMPLETE WITH COMPRESSION FITTINGS AND COUPLINGS.

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Cell: 083 306 0565

MW MAPOTSE Pr Tech Eng 201270031
TEL: +2783 306 0565
e-mail : wmmutla@yahoo.com

DESCRIPTION:
WATER DETAILS

PROJECT:	MAFEFE SKILLS CENTRE
DRAWING NO:	RNT/SSETA/MSC/WD/004
DESIGN BY:	MW MAPOTSE
DRAWN BY:	REDNOW TECHNOLOGIES
CHECKED BY:	MW MAPOTSE
APPROVED	MW MAPOTSE

TENDER DRAWINGS

A1

MULTI-DISCIPLINED CONSULTING ENGINEERS and PROJECT MANAGERS

Reg: 2009/014237/07 VAT4680255090

Thembakele Consulting Engineers ©

UNIT 6, GARDENS BUSINESS PARK
ATELJEE STREET
RANDPARK RIDGE, 2156

SUITE 80
PRIVATE BAG X09
WELTEVREDEN
PARK, 1715

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FAX: 011 475 9140
EMAIL: admin@thembakele.co.za

CONSOLIDATED DRAWING REGISTER AND DISTRIBUTION LOG

ISSUE LOG SHEET 1 OF 1

PROJECT DESCRIPTION :	GA-MAFEFE SETA SKILLS DEVELOPMENT CENTRE ELECTRICAL SERVICES	ISSUED TO:	TENDERER
PURPOSE OF ISSUE :	TENDER	FOR ATTENTION:	TENDERER
PROJECT NO. :	TCE 1238		
ISSUE DATE :	Tuesday, 26 November 2024	Day	26
ISSUED BY :	J Binda	Month	11
NOTES :	DRAWINGS FOR TENDER PURPOSES	Year	2024

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DOCUMENT NO.	DESCRIPTION	DOC. TYPE	MEDIUM	LATEST REVISION	SIZE	ISSUE SET & DATE 1 QTY	1 REV	2 QTY	2 REV	3 QTY	3 REV	4 QTY	4 REV	5 QTY	5 REV	6 QTY	6 REV	7 QTY	7 REV	8 QTY	8 REV	9 QTY	9 REV	10 QTY	10 REV
TCE-1238A-DD-EE-101	Ga-Mafefe High level Reticulation Layout	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-201	Ga-Mafefe Lighting Layout (Skills Development	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-202	Ga-Mafefe Lighting Layouts (Guard House &	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-203	Ga-Mafefe Power Layout (Skills Development	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-204	Ga-Mafefe Power Layouts (Guard House &	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-301	Ga-Mafefe Distribution Kiosk Single Line Diagram	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-302	Ga-Mafefe Main DB Single Line Diagram (DB-Main)	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-303	Ga-Mafefe Guard House Single Line Diagram (DB-	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-304	Ga-Mafefe Simulation Shed Single Line Diagram	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-401	Ga-Mafefe Lightning Protection Layouts (Skills	DRAWING	ELECTRONIC	A	A1	1	A																		
TCE-1238A-DD-EE-402	Ga-Mafefe Lightning Protection Layouts (Guard	DRAWING	ELECTRONIC	A	A1	1	A																		

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RECEIVED BY:		**SIGNATURE:**		**DATE:**	

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MULTI-DISCIPLINED CONSULTING ENGINEERS and PROJECT MANAGERS

Reg: 2009/014237/07 VAT4680255090

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CONSOLIDATED DRAWING REGISTER AND DISTRIBUTION LOG | **ISSUE LOG SHEET 1 OF 1**

PROJECT DESCRIPTION :	**GA-MAFEFE SETA SKILLS DEVELOPMENT CENTRE MECHANICAL SERVICES**	**ISSUED TO:**	**TENDERER**
PURPOSE OF ISSUE :	**TENDER**	**FOR ATTENTION:**	**TENDERER**
PROJECT NO. :	**TCE 1238**		
ISSUE DATE :	Tuesday, 26 November 2024	**Day**	26
ISSUED BY :	J Binda	**Month**	11
NOTES :	DRAWINGS FOR TENDER PURPOSES	**Year**	2024

ISSUE SET & DATE

1	2	3	4	5	6	7	8	9	10
26									
11									
2024									

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TCE-1238-PD-M-AC-100	HEATING, VENTILATION & AIR-CONDITIONING LAYOUT	DRAWING	ELECTRONIC	A	A0	1	*A*																
TCE-1238-PD-M-F-400	FIRE SITE PLAN	DRAWING	ELECTRONIC	A	A0	1	*A*																
TCE-1238-PD-M-F-401	FIRE PROTECTION LAYOUT	DRAWING	ELECTRONIC	A	A0	1	*A*																

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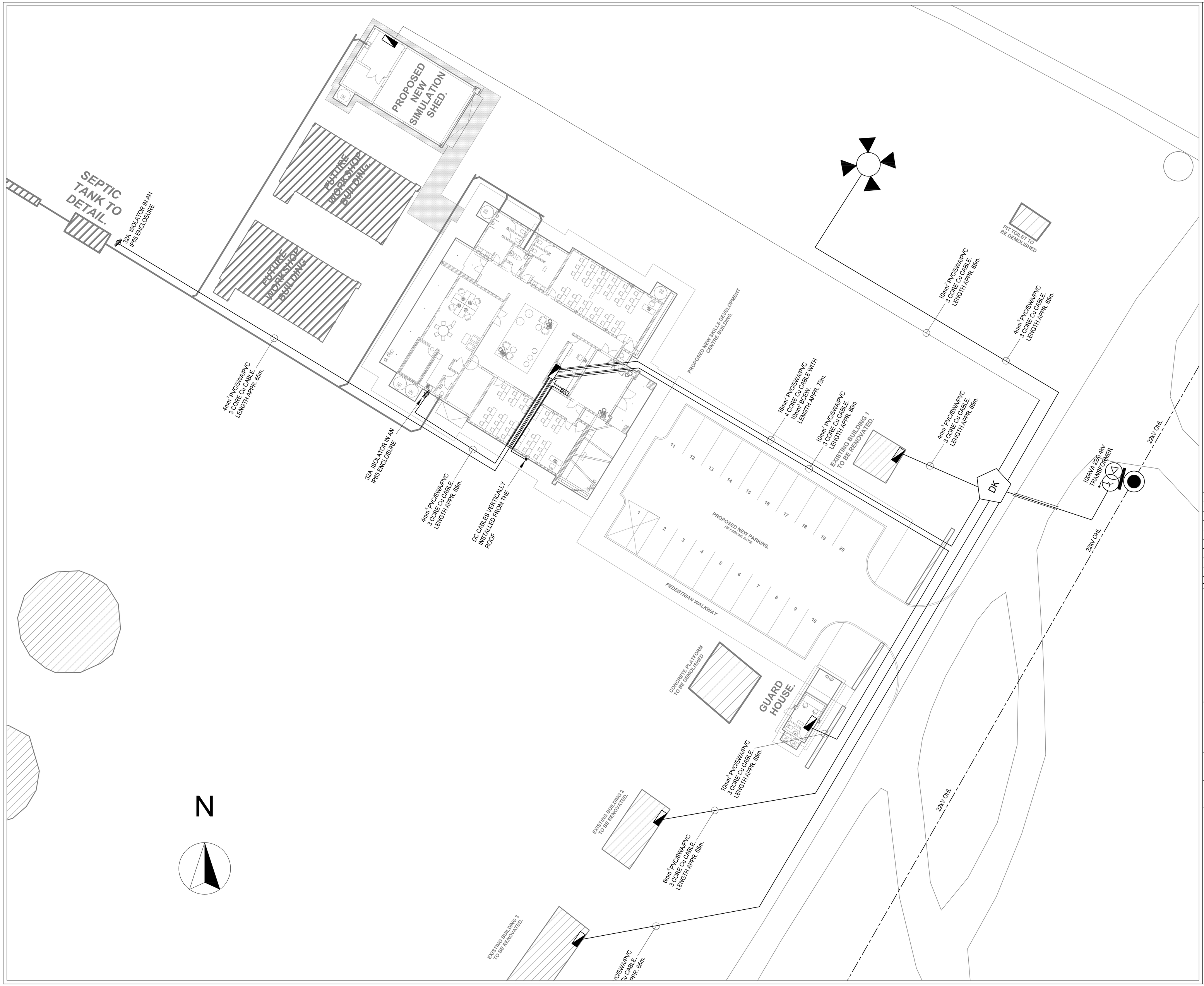
RECEIVED BY:		**SIGNATURE:**		**DATE:**	



TCE-1238A

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ALL WORK TO BE IN ACCORDANCE TO N.R.B.
REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.

ELECTRICAL LEGEND

- ELECTRICAL DISTRIBUTION BOARD
- 3PH ISOLATOR (IP65 ENCLOSURE)
- INV 5kVA SOLAR PV INVETOR
- OVER HEAD LINE POLE
- 22kV OVER HEAD LINE
- DK DISTRIBUTION KIOSK
- 100kVA 22/0.4kV POLE MOUNTED TRANSFORMER
- HIGH MAST LIGHT
- 110mm uPVC SLEEVES

NOTES:

-

REV No	DATE	DESCRIPTION
REVA	29/04/2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

LOW-VOLTAGE-RETICULATION

DESIGNED BY	DRAWN BY	CHECKED BY
MN	MN	JB

DRAWING UNITS	MM	SCALE	1:75

RESPONSIBLE PROFESSIONAL			
DATE	NAME	SIGNATURE	PR NUMBER
DATE	M. NKGADIMA		201170306

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SIZE	DRAWING NUMBER	REV
A1	TCE-1238A-005	A

FAN SCHEDULE

UNIT REF.	No. OF	DESCRIPTION	VARIABLE SPEED	AIR QTY. (L/s) EACH	ESP (Pa)	FAN SPEED (RPM)	POWER REQUIREMENTS (V / Ph / Hz)	RATED INPUT POWER (kW)	RATED CURRENT (A)	START UP CURRENT (A)
FAF-01	01	* HIT150 IN-LINE TUBE FAN c/w 2 OF SONEX SOUND ATTENUATORS - FRESH AIR	SPEED CONTROLLER	45.00	200	-----	230 / 1 / 50	0.110	0.510	-----
FAF-02	01	* HIT100 IN-LINE TUBE FAN c/w 2 OF SONEX SOUND ATTENUATORS - FRESH AIR	SPEED CONTROLLER	15.00	200	-----	230 / 1 / 50	0.070	0.300	-----
EAF-01	01	** WX12 WALL MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	412.50	10	-----	230 / 1 / 50	0.085	0.370	-----
EAF-02	01	** WX6 WALL MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	68.00	-----	-----	230 / 1 / 50	0.034	0.150	-----
EAF-03	01	** WX6 WALL MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	68.00	-----	-----	230 / 1 / 50	0.034	0.150	-----
EAF-04	01	** WX12 WALL MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	213.75	45	-----	230 / 1 / 50	0.085	0.370	-----
EAF-05	01	** WX6 WALL MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	68.00	-----	-----	230 / 1 / 50	0.034	0.150	-----
EAF-06	01	** VX150 CEILING MOUNTED FAN - EXTRACT AIR	SPEED CONTROLLER	62.00	-----	-----	230 / 1 / 50	0.025	0.110	-----

*AMS OR SIMILAR APPROVED
**XPELAIR OR SIMILAR APPROVED

AIR CONDITIONING - INDOOR UNIT SCHEDULE

UNIT REF.	No. OF	DESCRIPTION	MODEL No.	AIR QTY. (L/s) EACH	CAPACITY(kW) COOLING	CAPACITY(kW) HEATING	POWER REQUIREMENTS (V / Ph / Hz)	POWER REQUIREMENTS ABSORBED (kW)
AC-01	01	* 4-WAY CASSETTE SLIT UNIT	PLA-RP125BA	517.00	12.30	14.00	---	---
AC-02	01	* MIDWALL SPLIT UNIT	MSZ-DM25VA	158.00	2.50	3.15	---	---

*MITSUBISHI OR SIMILAR APPROVED

AIR CONDITIONING - OUTDOOR UNIT SCHEDULE

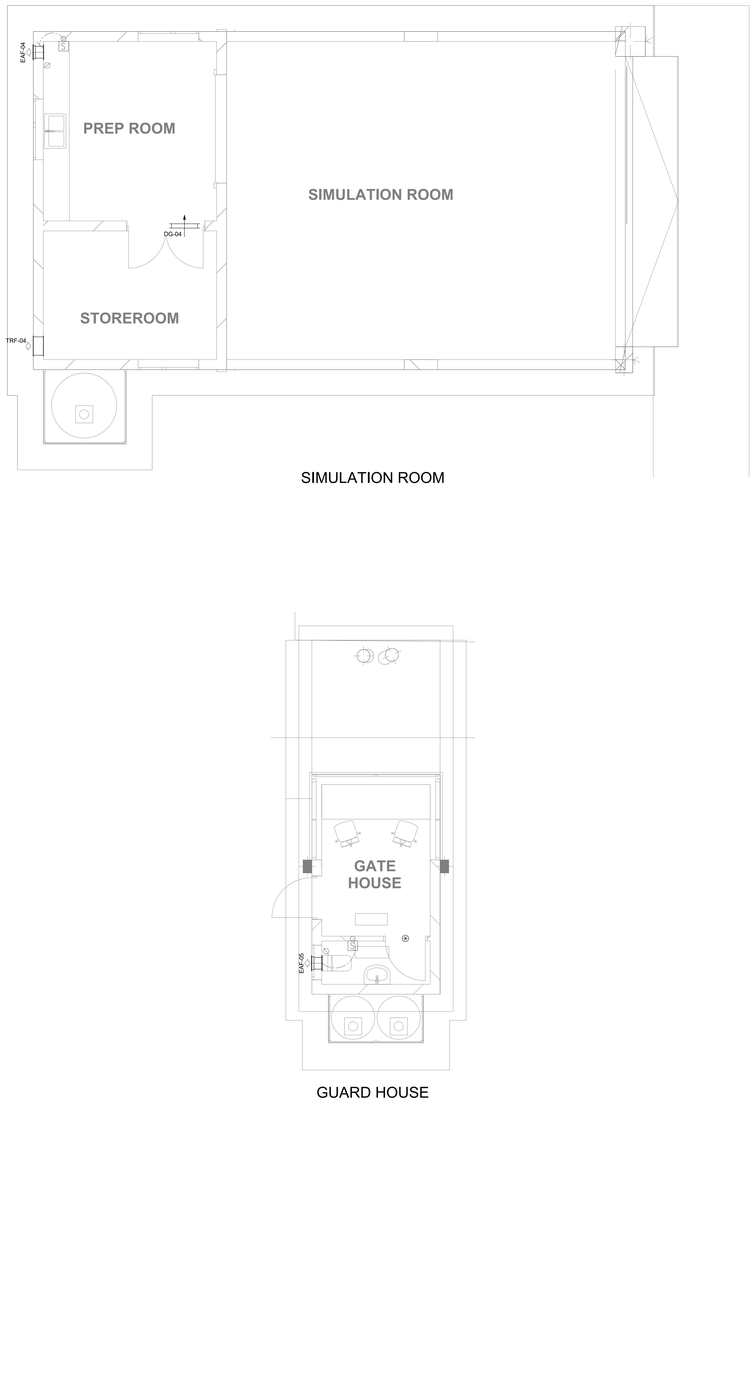
UNIT REF.	No. OF	DESCRIPTION	MODEL No.	UNIT WEIGHT (kg)	(V / Ph / Hz)	INPUT (kW)
ODU-01	01	* SPLIT CONDENSER UNIT	PUHZ-P125VHA3	99	230 / 1 / 50	4.11
ODU-02	01	* SPLIT CONDENSER UNIT	MUZ-DM25VA	24	230 / 1 / 50	0.85

*MITSUBISHI OR SIMILAR APPROVED

AIR TERMINAL SCHEDULE

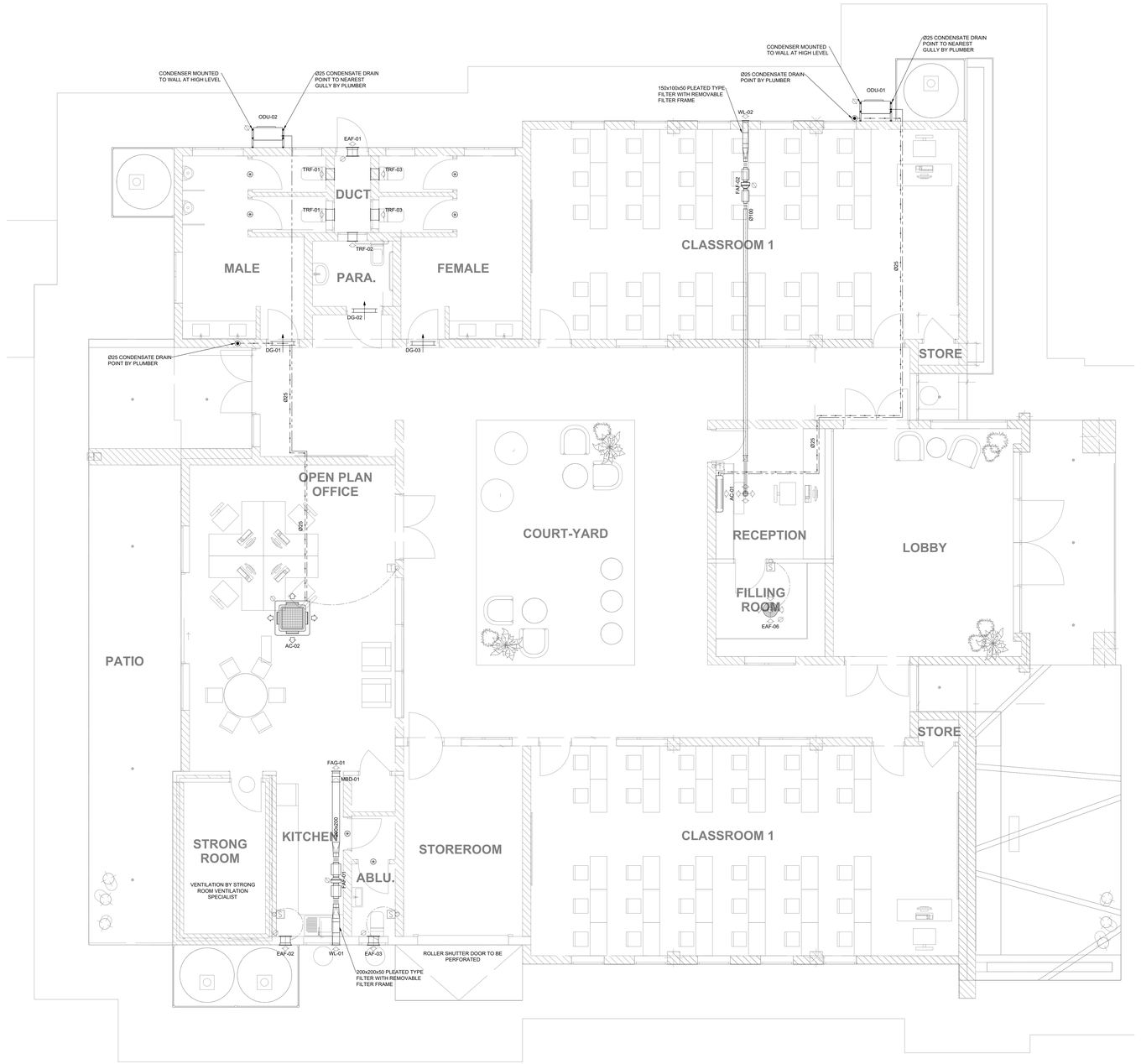
UNIT REF.	No. OF	DESCRIPTION	AIR QTY. (L/s) EACH
FAG-01	01	*FRESH AIR DISC VALVE - 200x200 NECK SIZE	45.00
FAD-01	01	*FRESH AIR DISC VALVE - Ø100 NECK SIZE	15.00
MBD-01	01	*MANUAL BALANCING DAMPER - Ø200x200 NECK SIZE	45.00
MBD-02	01	*MANUAL BALANCING DAMPER - Ø100 NECK SIZE	15.00
WL-01	01	*WEATHER LOUVRE - 200x200 NECK SIZE	45.00
WL-02	01	*WEATHER LOUVRE - 150x100 NECK SIZE	15.00
TRF-01	02	*TRANSFER GRILLE - 550x200 NECK SIZE	96.00
TRF-02	01	*TRANSFER GRILLE - 350x200 NECK SIZE	60.00
TRF-03	02	*TRANSFER GRILLE - 550x200 NECK SIZE	81.00
TRF-04	01	*TRANSFER GRILLE - 450x200 NECK SIZE	213.75
DG-01	01	*DOOR GRILLE - 550x400 NECK SIZE	192.00
DG-02	01	*DOOR GRILLE - 300x300 NECK SIZE	60.00
DG-03	01	*DOOR GRILLE - 550x200 NECK SIZE	162.00
DG-04	01	*DOOR GRILLE - 550x350NECK SIZE	213.75

*TROX / RICKARD OR SIMILAR APPROVED



SIMULATION ROOM

GUARD HOUSE



SKILLS DEVELOPMENT CENTRE

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GENERAL NOTES:
- ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE ANY WORK IS PUT IN HAND.
- ALL WORK TO COMPLY TO LOCAL MUNICIPAL BY- LAWS.
- HVAC SUB-CONTRACTOR IS RESPONSIBLE TO ENSURE ALL CO-ORDINATION & CORRECT DIMENSIONING OF DRAWINGS IS DONE WITH ALL OTHER RESPECTIVE CONTRACTORS PRIOR TO PROCUREMENT & INSTALLATION.
- QUALITY MUST BE ADHERED TO ALL STANDARDS AS PER TENDER SPECIFICATIONS

HVAC NOTES:
1. THIS DRAWING FORMS PART OF THE SPECIFICATION AND MUST BE READ IN CONJUNCTION WITH THE SAME.
2. ALL DUCTWORK TO BE MANUFACTURED IN ACCORDANCE WITH ABS-1238-1979 LOW VELOCITY DUCT STANDARDS.
3. ALL DUCT SIZES SHOWN ARE ACTUAL SHEETMETAL SIZES.
4. SUPPLY DUCTS TO BE EXTERNALLY INSULATED WITH 25mm FRK. INSULATION - UNLESS OTHERWISE SPECIFIED.
5. ALL OTHER DUCTS TO BE UNINSULATED, UNLESS SPECIFIED.
6. ALL EXPOSED DUCTS TO BE PAINTED TO SPECIFICATION.
7. ALL DUCTS WITH SEMI-PERIMETER OF 1150mm OR LESS TO BE "S & DRIVE" JOINTS, AND DUCTS ABOVE TO BE MEZZ FLANGED.
8. ALL BENDS TO HAVE INTERNAL RADIUS OF 150mm AND SPLITTERS UNLESS OTHERWISE SPECIFIED.
9. ALL ROUND DUCT BENDS UP TO Ø500mm TO HAVE A RADIUS OF 200mm - OVER Ø500mm TO HAVE A RADIUS OF 300mm.
10. DUCT SHOES TO BE 150mm LONG @ 45°.
11. SPIGOTS TO BE 100mm LONG, UNLESS OTHERWISE STATED.

HVAC BUILDERSWORK:
12. ALL OPENINGS TO BE 150mm BIGGER THAN DUCT SIZES SHOWN (BUILDER TO MAKE GOOD AFTER DUCTS ARE INSTALLED).
13. ALL OPENINGS TO BE 50mm BIGGER THAN GRILLE SIZES SHOWN WHICH INCLUDES A 25mm THK. TIMBER FRAME ALL AROUND OPENING - BY BUILDER.
14. SLEEVES IN WALLS, SLABS & BEAMS (SIZE SHOWN ON DRAWING) (BUILDER TO MAKE GOOD AFTER DUCTS ARE INSTALLED).

LEGEND:

	400V / 3PH / 50HZ POWER SUPPLY TERMINATING IN ISOLATOR WITHIN ONE METER OF EQUIPMENT - BY ELECTRICIAN.
	230V / 1PH / 50HZ POWER SUPPLY TERMINATING IN ISOLATOR WITHIN ONE METER OF EQUIPMENT - BY ELECTRICIAN.
●	DOOR TO BE UNDERCUT BY 25mm MINIMUM - BY BUILDER
T	WALL MOUNTED THERMOSTAT AT 1350 AFFL. (c/w Ø25mm CONDUIT AND 4x4 BOX IN WALL) - BY ELECTRICIAN AND BUILDER)
S	WALL MOUNTED ON/OFF SWITCH AT 1350 AFFL. (c/w Ø25mm CONDUIT AND 4x4 BOX IN WALL) - BY ELECTRICIAN AND BUILDER)

ABBREVIATIONS:

DG	DOOR GRILLE
EAD / G	EXTRACT AIR DIFFUSER OR GRILLE
TG	TRANSFER GRILLE
WL	WEATHER LOUVRE
MOS	MEASURE ON SITE
NTS	NOT TO SCALE
TRF	TRANSFORMATION OF DUCT
WMS	WIRE MESH SCREEN
c/w	COMPLETE WITH

LINE TYPE LEGEND:

	CONDENSATE DRAIN PIPE
	REFRIGERATION PIPE
	CENTRE LINE
	FLEXIBLE DUCT
	ELECTRICAL CABLE

PRELIM DESIGN

REV No	DATE :	DESCRIPTION:
A	25.06.2024	ISSUED FOR INFORMATION

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

PROJECT DETAILS
GA-MAFEFE SETA SKILLS DEVELOPMENT CENTRE
GROUND FLOOR
HVAC SERVICES

CONTRACT No
TCE 1238

DISCIPLINE
MECHANICAL

DRAWING DESCRIPTION
HEATING, VENTILATION & AIR-CONDITIONING LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
HN	KO	HN

DRAWING UNITS	mm	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
25.06.2024	DLB		200270109

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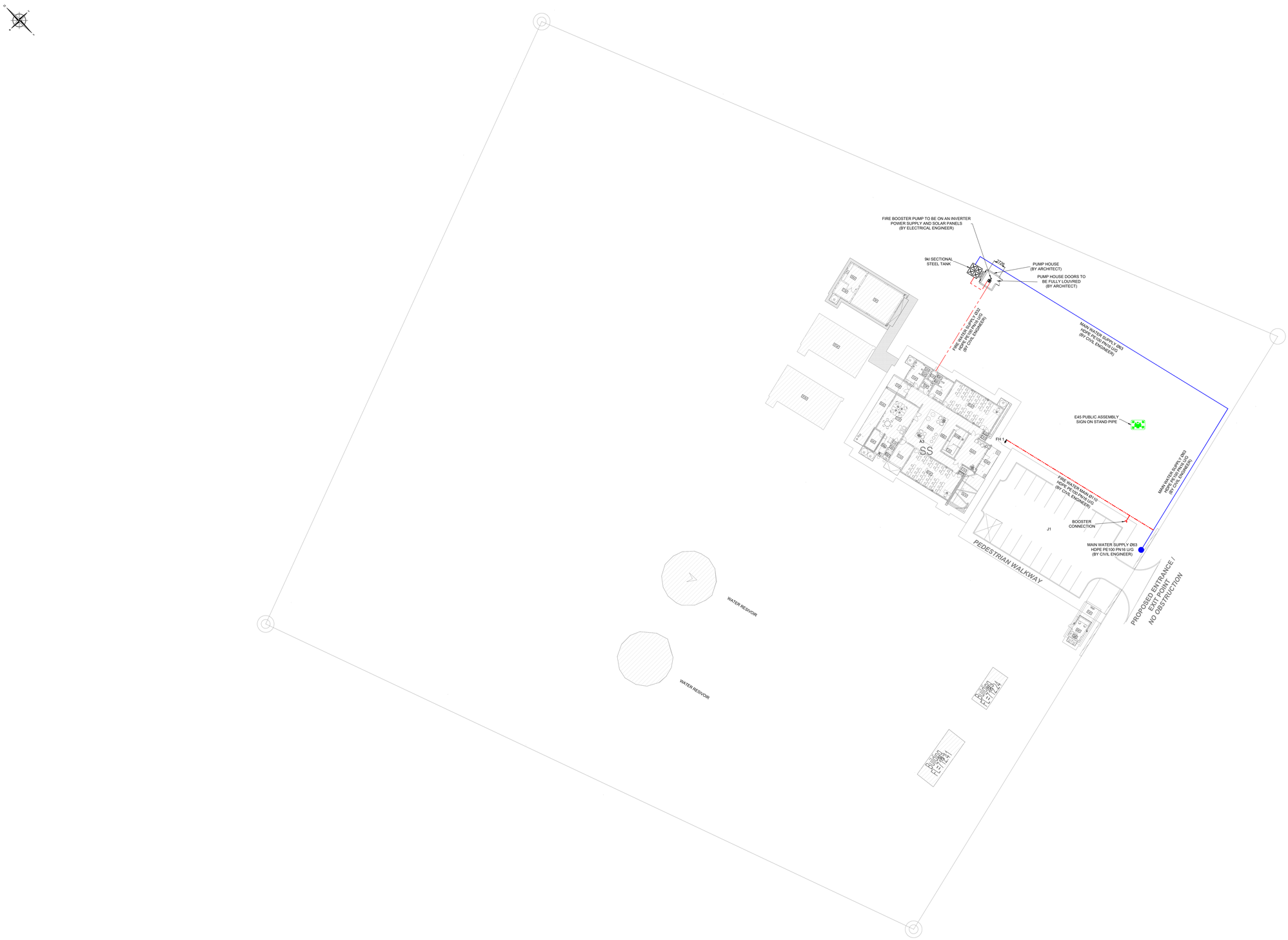
SIZE	DRAWING NUMBER	REV
A0	TCE-1238-PD-M-AC-100	A



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LEGEND

- ESCAPE ROUTES
- FIRE WALL (120 MINUTES)
- FIRE WALL (60 MINUTES)
- FIRE WALL (30 MINUTES)

'A' - CLASS A 60mm SELF CLOSING FIRE DOOR
'B' - CLASS B 120mm SELF CLOSING FIRE DOOR
'D' - CLASS D 120mm WITH IMPACT TEST SELF CLOSING FIRE DOOR
'E' - CLASS E 30mm SELF CLOSING FIRE DOOR
- 4.5 kg DCP FIRE EXTINGUISHER
- 9 kg DCP FIRE EXTINGUISHER
- 9kg CO2 FIRE EXSTINGUISHER
- FIRE HYDRANT
- FIRE HOSE REEL

IV.		ISOLATING VALVE
PRV		PRESSURE REDUCING VALVE
M		WATER METER
		NON-RETURN VALVE
		Y STRAINER
P		PRESSURE GAUGE
		PUMP
NTS		NOT TO SCALE

FIRE SIGNAGE LEGEND

FIRE SIGNAGE NOTES:

1. ALL FIRE AND DIRECTIONAL SIGNAGE MUST BE PHOTOLUMINESCENT AND COMPLY WITH SANS 1186 - 1 & 5
2. ALL SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH SANS 10400 PART T.
3. ALL PHOTOLUMINESCENT FIRE AND DIRECTIONAL SIGNS ARE TO BE FRAMED WITH MITRED CORNERS AND CONCEALED BJOIK JOINTS. FRAMES MUST BE MANUFACTURED FROM ALUMINUM.
4. ALL WALL-MOUNTED FIRE AND DIRECTIONAL SIGNAGE TO BE CONCEALED SCREWED TO BRICKWORK, NO DOUBLE-SIDED TAPE.
5. ALL SUSPENDED FIRE AND DIRECTIONAL SIGNAGE TO BE HUNG ON STAINLESS STEEL WIRE.
6. SIGNAGE IN OFFICE AREAS TO BE 190mmx190mm SINGLE PICTOGRAM SIZE COMBINATIONS.
7. SIGNAGE EXTERNAL TO BUILDING TO BE ABS IN NON- PHOTOLUMINESCENT.
8. ALL FINAL SIGNAGE DETAILS AND POSITIONS TO BE AS PER ARCHITECTS SPECIFICATIONS.

PRELIM DESIGN

REV No	DATE :	DESCRIPTION:
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SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

PROJECT DETAILS

GA-MAFEFE SETA SKILLS DEVELOPMENT CENTRE
GROUND FLOOR
FIRE SERVICES

CONTRACT No

TCE 1238

DISCIPLINE

MECHANICAL

DRAWING DESCRIPTION

FIRE SITE PLAN

DESIGNED BY	DRAWN BY	CHECKED BY
HN	KO	HN

DRAWING UNITS	mm	SCALE	1:300

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
25.06.2024	DLB		200270109

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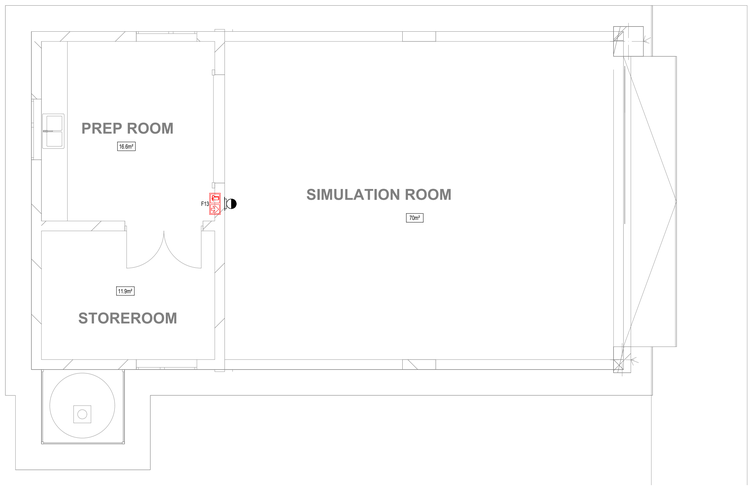
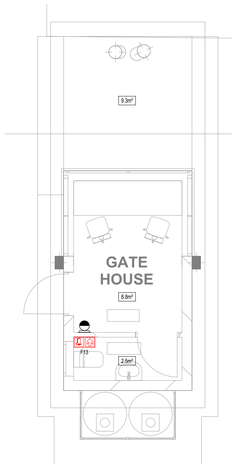
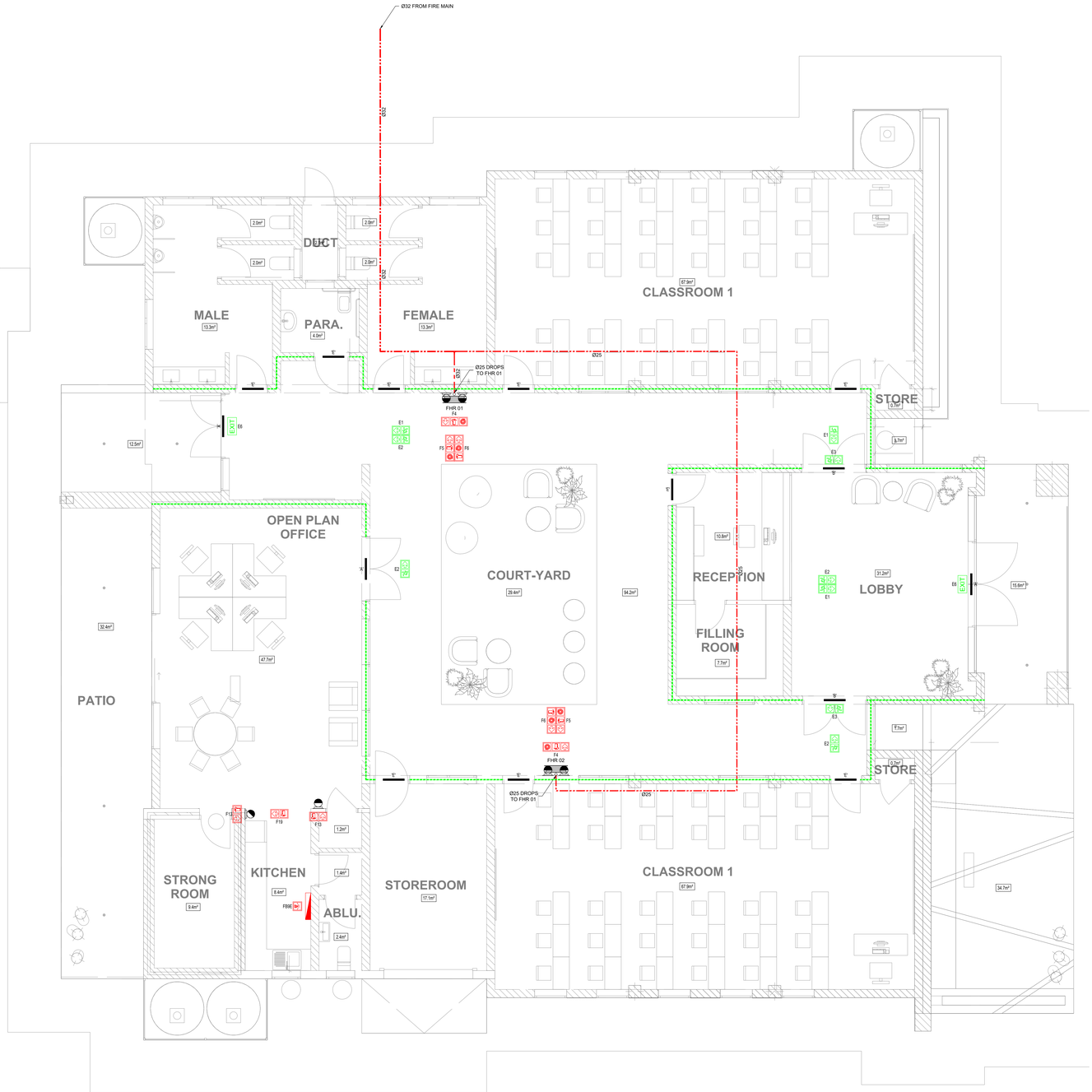
SIZE	DRAWING NUMBER	REV
A0	TCE-1238-PD-F-AC-400	A



SIMULATION ROOM



GUARD HOUSE



SKILLS DEVELOPMENT CENTRE

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IV		ISOLATING VALVE
PRV		PRESSURE REDUCING VALVE
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		NON-RETURN VALVE
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NTS		NOT TO SCALE

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REV No	DATE :	DESCRIPTION:
A	25.06.2024	ISSUED FOR INFORMATION

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

PROJECT DETAILS

GA-MAFEFE SETA SKILLS DEVELOPMENT CENTRE
GROUND FLOOR
FIRE SERVICES

CONTRACT No

TCE 1238

DISCIPLINE

MECHANICAL

DRAWING DESCRIPTION

FIRE SITE PLAN

DESIGNED BY	DRAWN BY	CHECKED BY
HN	KO	HN

DRAWING UNITS	mm	SCALE	1:300

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
25.06.2024	DLB		200270109

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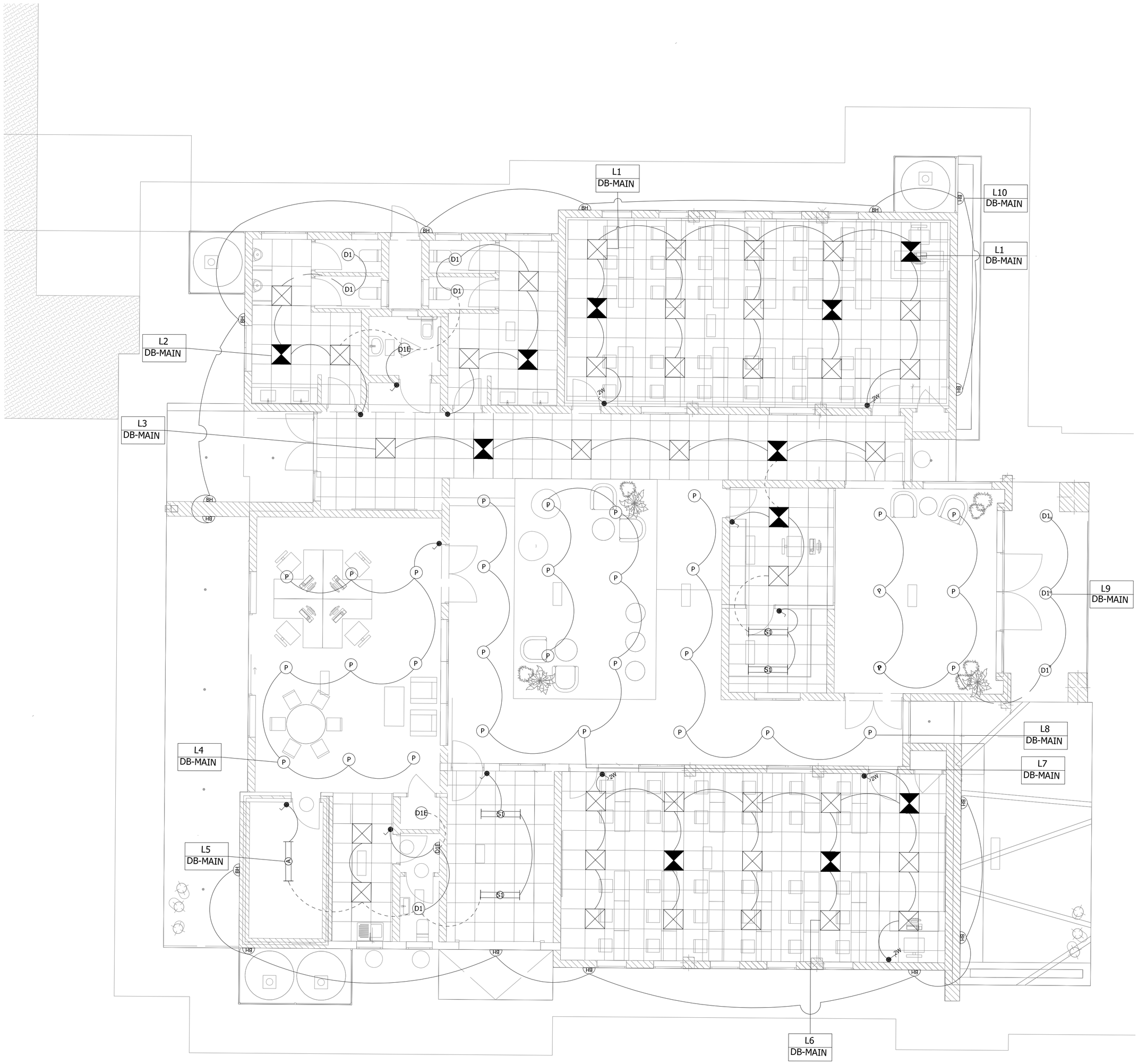
SIZE	DRAWING NUMBER	REV
A0	TCE-1238-PD-F-AC-401	A



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TCE1238A

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REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.

- 39W LED 600 x 600 LIGHT FITTING COMPLETE WITH CABTREE AND DRIVE LIGHT EFFICACY 111.5 lm/W
- 39W LED 600 x 600 LIGHT FITTING COMPLETE WITH CABTREE AND DRIVE LIGHT EFFICACY 111.5 lm/W WITH 60MINUTES BATTERY BACKUP
- (P) 30W LED PENDANT LIGHT FITTING COMPLETE WITH POTHOOK AND A 3m CABLE LIGHT FITTING OF 57.2 lm/w
- (D1) 18W LED DOWNLIGHT COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W
- (D1E) 18W LED DOWNLIGHT COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W WITH 60MINUTES BATTERY BACKUP
- (D2) 18W LED WAL MOUNTED COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W WITH (FOR INTERNAL USE)
- (BH) 26W LED BULKHEAD LIGHT FITTING
- 30W LED SURFACE MOUNTED VAPOUR PROOF LIGHT FITTING WITH EFFICACY OF 148lm/W

REV No	DATE	DESCRIPTION
A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

MAIN-BUILDING-LIGHTING-LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

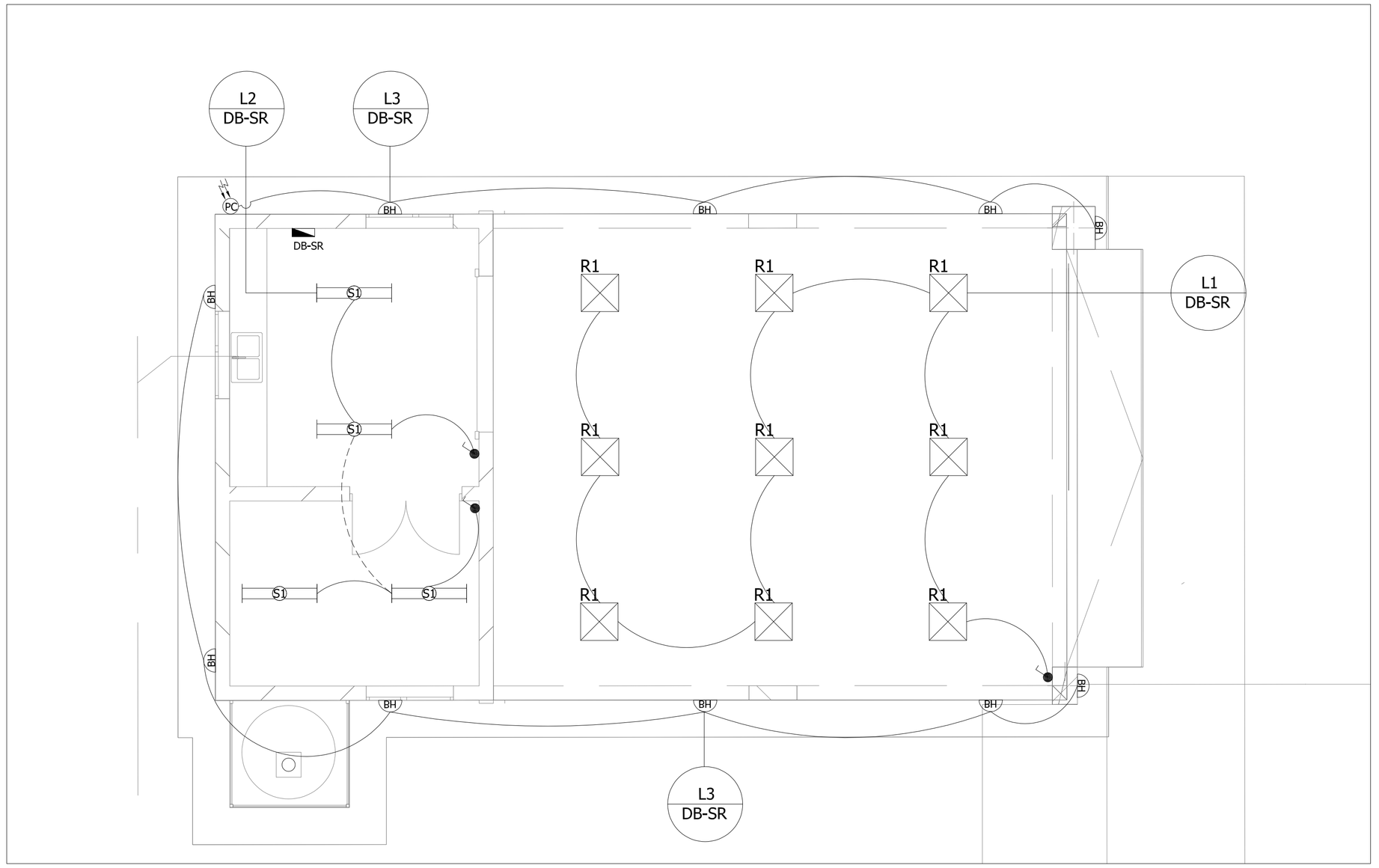
DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	MNKGADIMA		201170306

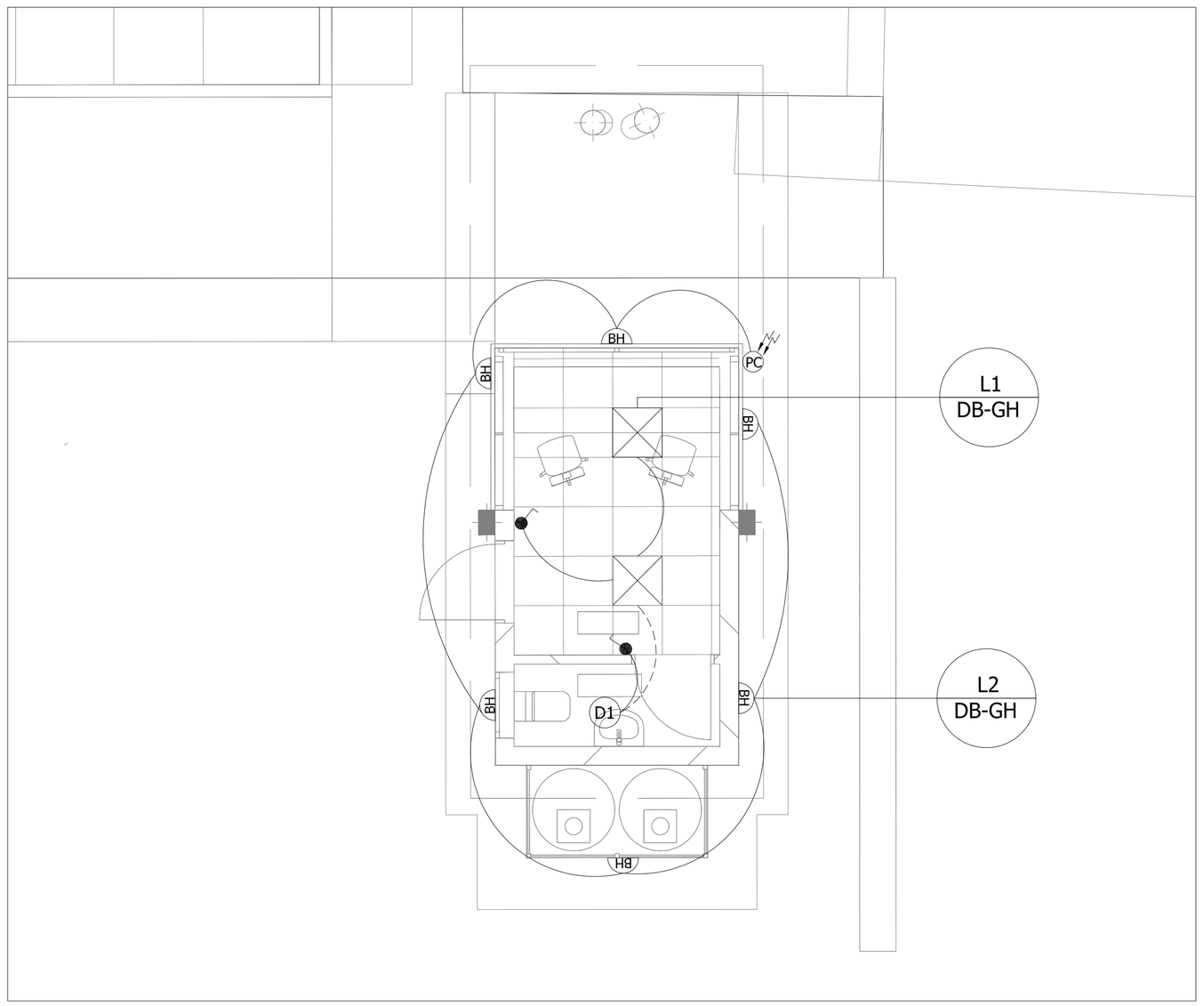
Thembakele
CONSULTING
ENGINEERS (PTY) LTD

UNIT 6,
GARDENS BUSINESS PARK
ATELIEE STREET
RANDPARK RIDGE
2156

Web address:
www.thembakele.co.za
Telephone: 011 475 4560
Facsimile: 011 475 9140

SIZE	DRAWING NUMBER	REV
PAPERSIZE	2401-M-001	T





TCE-1238A

ALL DIMENSIONS AND HEIGHTS ARE TO BE CHECKED ON SITE BEFORE WORK IS PUT IN HAND.
ALL WORK AND MATERIAL ARE TO COMPLY TO RELEVENT SABS CODES WHERE APPLICABLE.
BRAND NAMES DENOTE SIMILAR OR EQUALY APPROVED.
ALL WORK TO BE IN ACCORDANCE TO N.R.B.
REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.

ELECTRICAL LEGEND

- ELECTRICAL DISTRIBUTION BOARD
- RT — 39W LED 600 x 600 LIGHT FITTING COMPLETE WITH CABTREE AND DRIVE LIGHT EFFICACY 111.5 lm/W
- RTE — 39W LED 600 x 600 LIGHT FITTING COMPLETE WITH CABTREE AND DRIVE LIGHT EFFICACY 111.5 lm/W WITH 60MINUTES BATTERY BACKUP
- P — 30W LED PENDANT LIGHT FITTING COMPLETE WITH POTHOOK AND A 3m CABLE LIGHT FITTING OF 57.2 lm/w
- D1 — 18W LED DOWNLIGHT COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W
- D1E — 18W LED DOWNLIGHT COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W,WITH 60MINUTES BATTERY BACKUP
- D2 — 18W LED WAL MOUNTED COMPLETE WITH DRIVER AND CABTREE LIGHT EFFICACY OF 92.5lm/W,WITH (FOR INTERNAL USE)
- BH — 26W LED BULKHEAD LIGHT FITTING
- S1 — 30W LED SURFACE MOUNTED VAPOUR PROOF LIGHT FITTING WITH EFFICACY OF 148lm/W

REV NO	DATE	DESCRIPTION:
A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE

GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

SS-&-GH-LIGHTING-LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
DATE	M. NKGADIMA		201170306

Thembakele CONSULTING ENGINEERS (PTY) LTD

UNIT 6,
GARDENS BUSINESS PARK
ATELJEE STREET
RANDPARK RIDGE
2156

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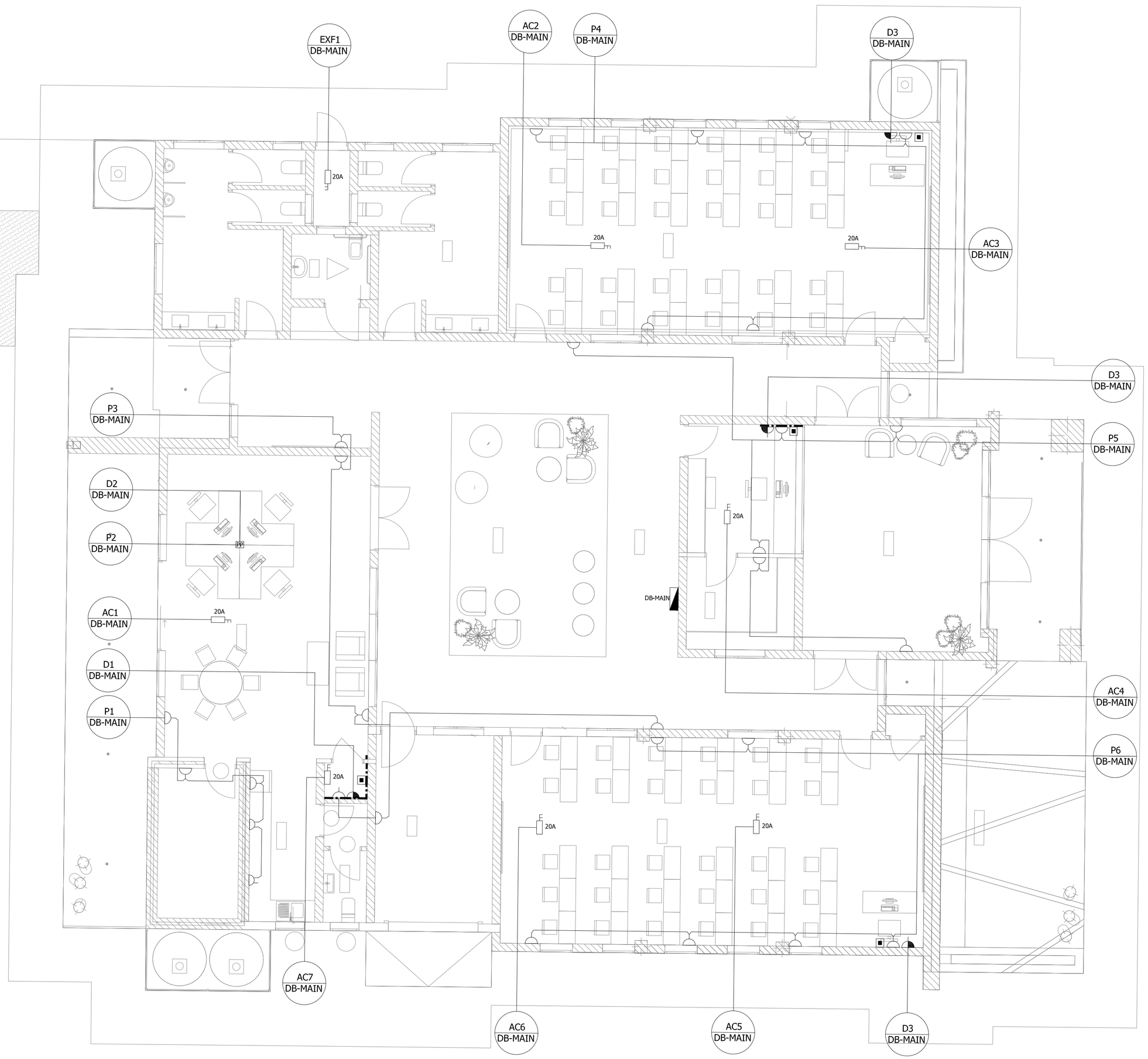
SIZE	DRAWING NUMBER	REV
A1	TCE-1238A-DD-EE-202	A



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TCE-1238A

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ELECTRICAL LEGEND

- ELECTRICAL DISTRIBUTION BOARD
- PP — POWER POLE PEDESTAL CONSISTS OF:
  - TELEPHONE OUTLET @300mm AFFL
  - DATA OUTLET @300mm AFFL
  - 16A 3-PIN DEDICATED SOCKET OUTLET @300mm AFFL
  - 16A 3-PIN NORMAL SOCKET OUTLET @300mm AFFL
- za — COMBINATION SWITCH SOCKET OUTLET c/w 1x NORMAL TRIANGULAR OUTLET & 1x 3-Pin C/W Earth Contact (Euro Socket) HEXAGONAL OUTLET @300mm AFFL
- za — 3-Pin C/W Earth Contact (Euro Socket) HEXAGONAL SWITCH SOCKET OUTLET & USB CHARGING PORT @1000mm AFFL (Above Counter Top)
- DOUBLE SWITCH SOCKET OUTLET @300mm AFFL
- DOUBLE SWITCH SOCKET OUTLET @1150mm AFFL
- WP — WEATHERPROOF SWITCH SOCKET OUTLET
- 16A 3-PIN DEDICATED SOCKET OUTLET @300mm AFFL
- PS DJ — DATA OUTLET IN POWERSKIRTING
- TELEPHONE OUTLET @300mm AFFL
- DJ — DATA OUTLET @300mm AFFL
- SINGLE PHASE ISOLATOR
- THREE PHASE ISOLATOR
- AC — AIR CONDITIONER CONTROL
- HEATER WITH 20A SINGLE ISOLATOR @ 300mm AFFL
- 3 COMPARTMENT POWERSKIRTING MOUNTED AT 300mm AFFL

REV No	DATE	DESCRIPTION
A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

MAIN-BUILDING-POWER-LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M.NKGADIMA		201170306

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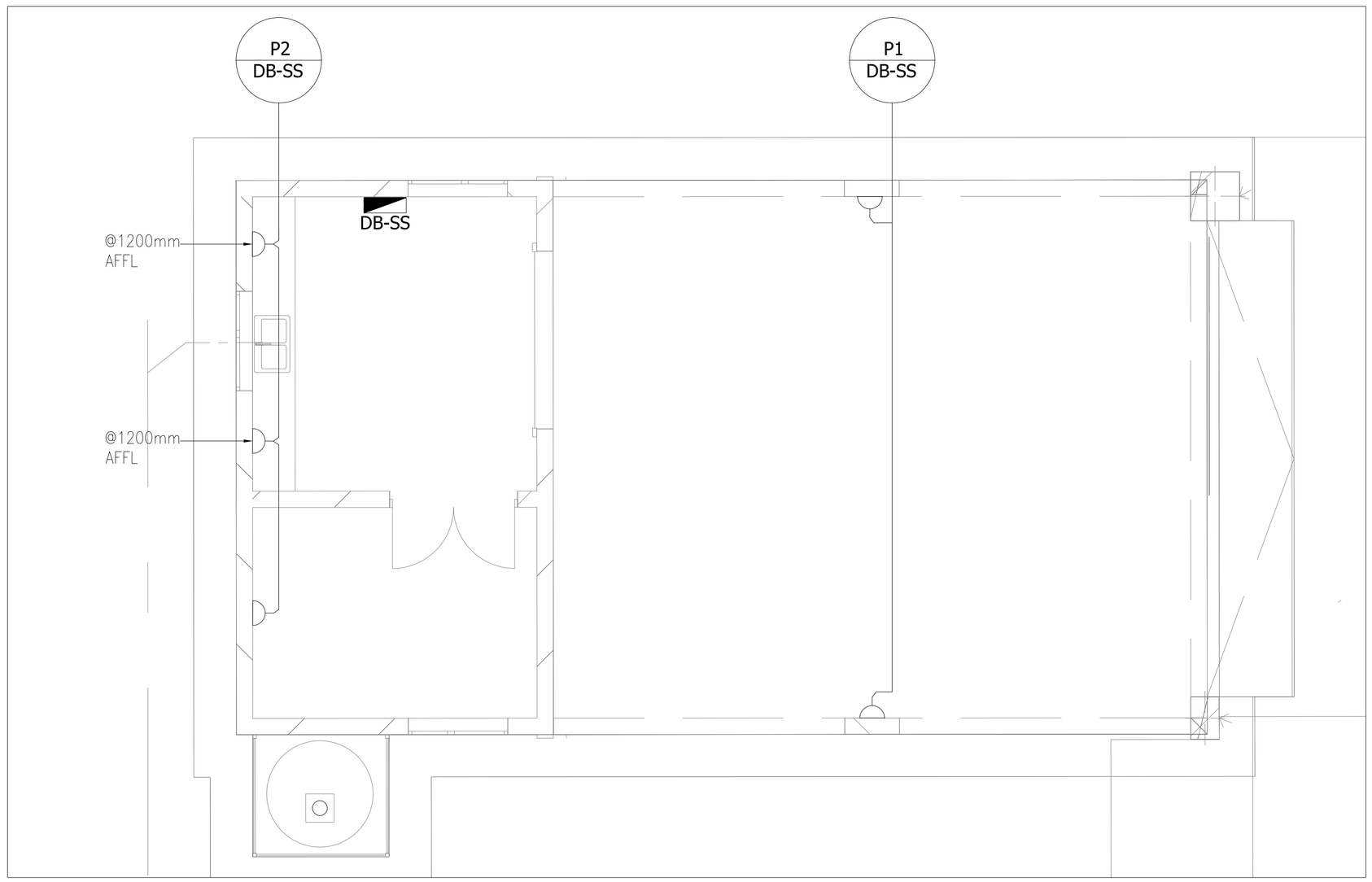
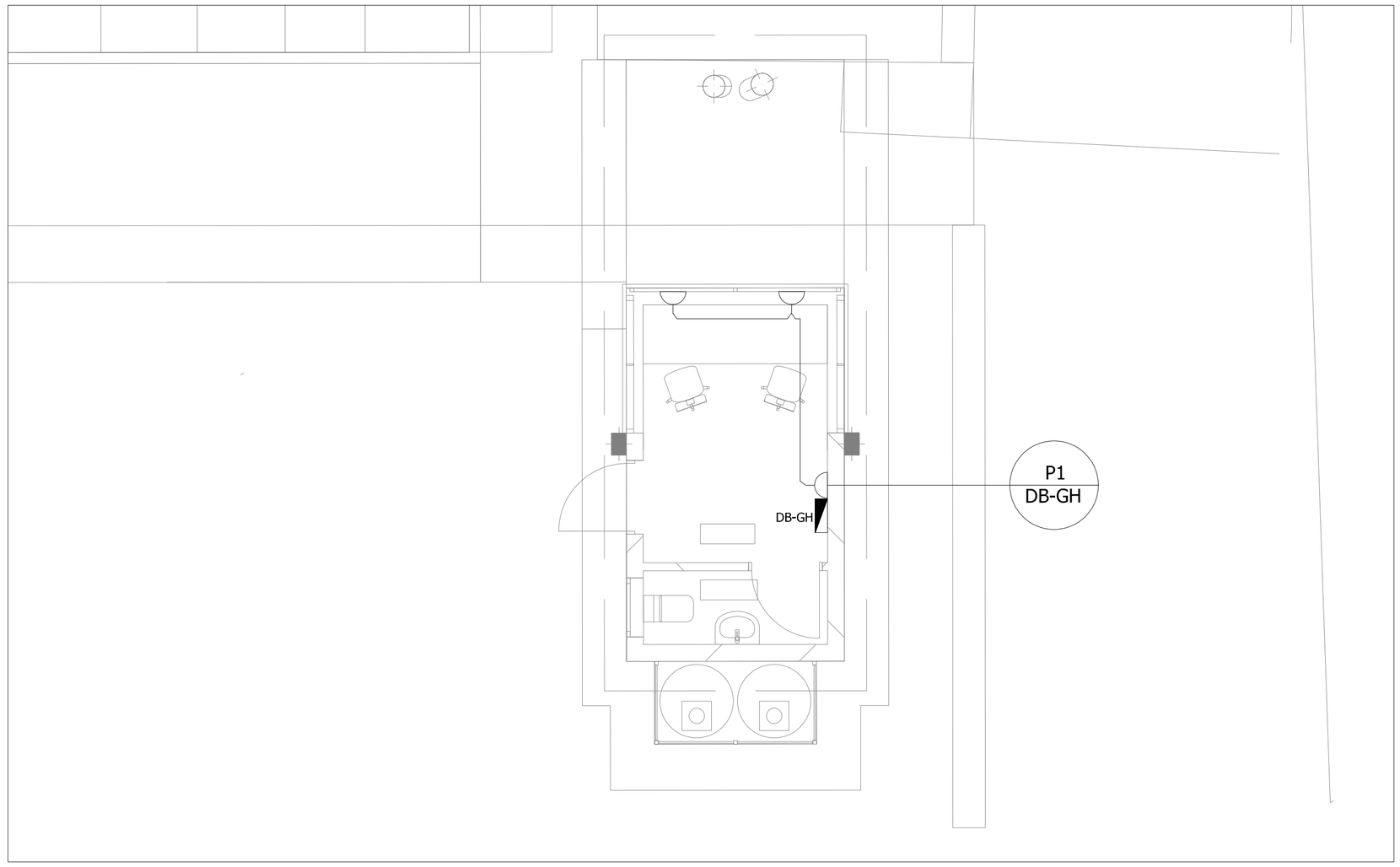
SIZE	DRAWING NUMBER	REV
A1	TCE-1238A-DD-EE-203	A



SIMULATION SHED



GUARD HOUSE

TCE-1238A

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ELECTRICAL LEGEND

ELECTRICAL DISTRIBUTION BOARD

16A 3-PIN NORMAL SOCKET OUTLET @300mm AFFL

REV No	DATE :	DESCRIPTION:
A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE

GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

SS-&-GH-POWER-LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M. NKGADIMA		201170306

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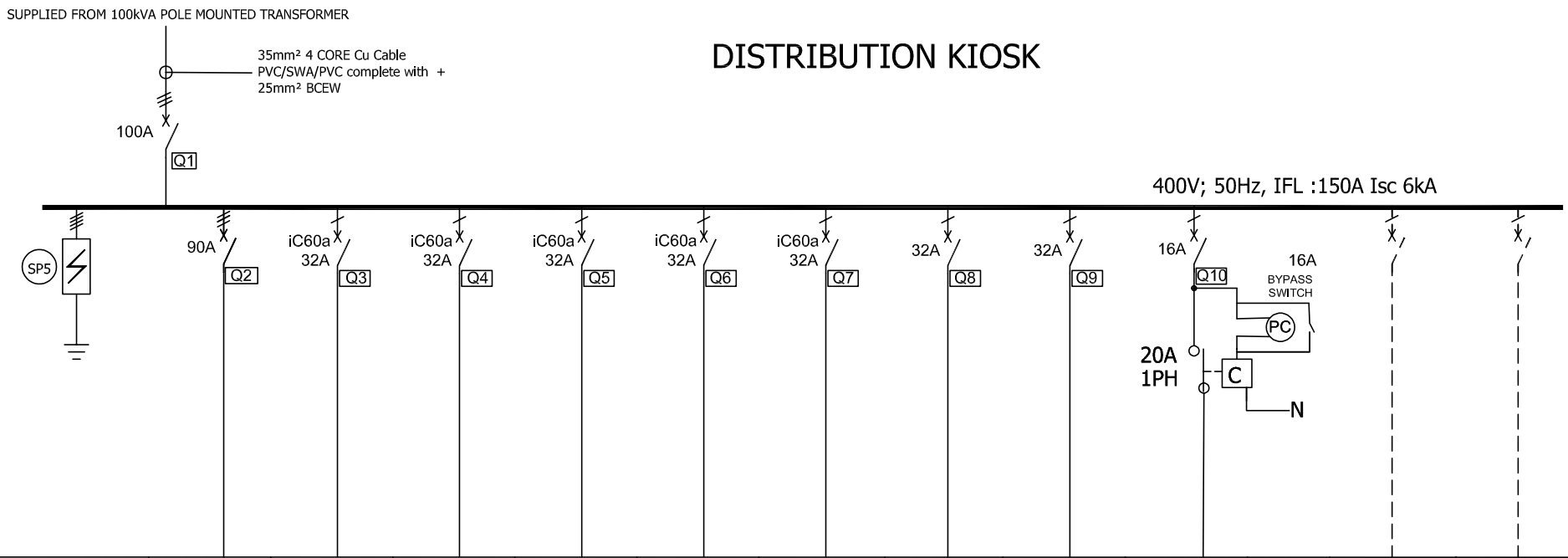
SIZE	DRAWING NUMBER	REV
A1	TCE-1238A-DD-EE-204	A

DISTRIBUTION KIOSK

DISTRIBUTION KIOSK												
BUS RATING	150A											
FAULT LEVEL	6kA											
TYPE	Floor Standing	√	Surface Mounted		Recessed							
ACCESS	Front		Back		Both	√						
CABLE ENTRY	Top		Bottom	√	Both							
BUSBAR ENTRY	-		Bottom		Both							
CABLE EXIT	Top		Bottom	√	Both							
CONSTRUCTION	With Doors		No Doors		Lockable Doors	√						
	Form of Separation	FORM 1										
LIMITING DIMS	1000mm (W); 600mm(D); 1500mm(H)											
COLOUR	Frame	TBC			Normal Panel	TBC						
	UPS Panels	-			Emergency Panel	-						
SWITCHGEAR	Manufacturer	Schneider or similar & equivalent										
	Type	Switchgear to be of fixed type										
		MCCBs; MCBs and Isolators										
PROTECTION	No Cascading		√	Cascading Warning Label								
METER	KWh meter											
OTHER	Door to be fitted with viewing window											
SPARE SPACE	20%											
IP	65											



CIRCUIT NUMBERING	Main DB	DB - SR	DB - GH	DB - HOUSE 1	DB - HOUSE 2	DB - HOUSE 3	SEWER PUMP	WATER PUMP	HIGH MAST		WORKSHOP (FUTURE)	WORKSHOP (FUTURE)
LOAD (kW)	32.2	6.2	3.1	1.13	1.13	1.13	1.5	1.5	1.2		-	-
CONDUCTOR /CABLE (mm²)	C-16	C-10	C-10	C-6	C-6	C-6	C-4	C-4	C-4		-	-
PHASE BALANCING	R;W;B	R	W	B	R	W	R;W;B	R;W;B	B		R;W;B	R;W;B
CIRCUIT DESCRIPTION	FEEDER			FEEDER		FEEDER	PLANT SUPPLY		LIGHTING		FUTURE	

TCE-1238A

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LEGEND:

- MINATURE CIRCUIT BREAKER / MOULDED CASE CIRCUIT BREAKER
- ISOLATOR
- FUSE SWITCH
- TIME-SWITCH WITH BYPASS SWITCH
- EARTH LEAKAGE
- MASTER SWITCH
- CONTACTOR
- ELECTRONIC METER
- PHOTOCELL
- OVERRIDE ROTARY SWITCH
- SP4 CLASS 2 PROTECTION, NORTHERN TECHNOLOGIES SAD20PR WITH O/C PROTECTION CB
- SP3 DEHNVENTI M TNS 253

NOTE:
1. C - X mm² - CABLE SUPPLY

REV No	DATE :	DESCRIPTION:
REVA	29/04/2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

DISTRIBUTION-KIOSK-SINGLE-LINE-DIAGRAM

DESIGNED BY	DRAWN BY	CHECKED BY
MN	MN	JB

DRAWING UNITS	-	SCALE	N.T.S

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-2024	M. NKGADIMA		201170306

Thembakele CONSULTING ENGINEERS (PTY) LTD

UNIT 6,
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2156

Web address: www.thembakele.co.za
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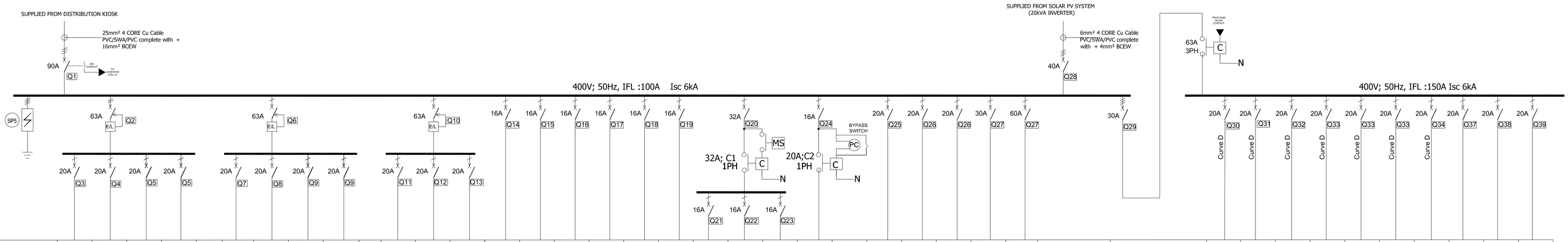
Facsimile: 011 475 9140

SIZE	DRAWING NUMBER	REV
A3	TCE1238A-DD-EE-301	A

MAIN BUILDING DB							
BUS RATING	150A						
FAULT LEVEL	6kA						
TYPE	Floor Standing		Surface Mounted		Recessed	√	
ACCESS	Front	√	Back		Both		
CABLE ENTRY	Top		Bottom		Both	√	
BUSBAR ENTRY	-		Bottom		Both		
CABLE EXIT	Top		Bottom		Both	√	
CONSTRUCTION	With Doors		No Doors		Lockable Doors	√	
	Form of Separation	FORM 1					
LIMITING DIMS	1000mm (W); 400mm(D); 1200mm(H)						
COLOUR	Frame	ORANGE		Normal Panel	WHITE		
	UPS Panels	-		Emergency Panel	-		
SWITCHGEAR	Manufacturer	Schneider or similar & equivalent					
	Type	Switchgear to be of fixed type					
		MCCBs; MCBs and Isolators					
PROTECTION	No Cascading		√	Cascading Warning Label			
METER	NO						
OTHER	-						
SPARE SPACE	20%						
IP	46						

DB-MAIN



CIRCUIT NUMBERING	P1	P2	P3	P4		P5	P6	P7	SP		SP	SP	SP	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10		D1	D2	D3	SP	SP	PV SUPPLY	NON-ESSENTIAL	AC1	AC2	AC3	AC4	AC5	AC6	AC7	SP	EXF1	EXF2
LOAD (kW)	1.5	1.4	1.5	1.1		1.8	1.5	1.2	-		-	-	-	0.5	0.35	0.24	0.27	0.23	0.5	0.27	0.21	0.4	0.39		1.4	1.4	1.4	-	-	15	16	1.5	1.5	1.5	1.5	1.5	1.5	1.5	-	0.25	0.25
CONDUCTOR /CABLE (mm²)	4	4	4	4		4	4	4	-		-	-	-	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5		4	4	4	-	-	C-6	10	4	4	4	4	4	4	4		4	4
PHASE BALANCING	R	R	R	R		W	W	W	W		B	B	B	R	W	B	R	W	B	R	R	R	W		W	W	W	-	-	R;W;B	R;W;B	B	B	R	W	B	R	W	B	R	W
CIRCUIT DESCRIPTION	NORMAL SSO					NORMAL SSO					NORMAL SSO			LIGHTING			LIGHTING				LIGHTING			FEEDER TO GH					SUPPLY FROM PV	NON-ESSENTIAL SECTION	GEYSER	AIR CONDITIONER							EXTRACTION FAN	

TCE-1238A

ALL DIMENSIONS AND HEIGHTS ARE TO BE CHECKED ON SITE BEFORE WORK IS PUT IN HAND.
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REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.

LEGEND:

- MINATURE CIRCUIT BREAKER / MOULDED CASE CIRCUIT BREAKER
- ISOLATOR
- FUSE SWITCH
- TIME-SWITCH WITH BYPASS SWITCH
- EARTH LEAKAGE
- MASTER SWITCH
- CONTACTOR
- ELECTRONIC METER
- PHOTOCELL
- OVERRIDE ROTARY SWITCH
- SP4 CLASS 2 PROTECTION. NORTHERN TECHNOLOGIES SAD20PR WITH O/C PROTECTION CB
- SP5 DEHNVENTI M TNS 255

NOTE:
1. C - X mm² - CABLE SUPPLY

REV No	DATE :	DESCRIPTION:
REVA	29/04/2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

MAIN-BUILDING-SINGLE-LINE-DIAGRAM

DESIGNED BY	DRAWN BY	CHECKED BY
MN	MN	JB

DRAWING UNITS	-	SCALE	N.T.S

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M. NKGADIMA		20117030 6

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2156

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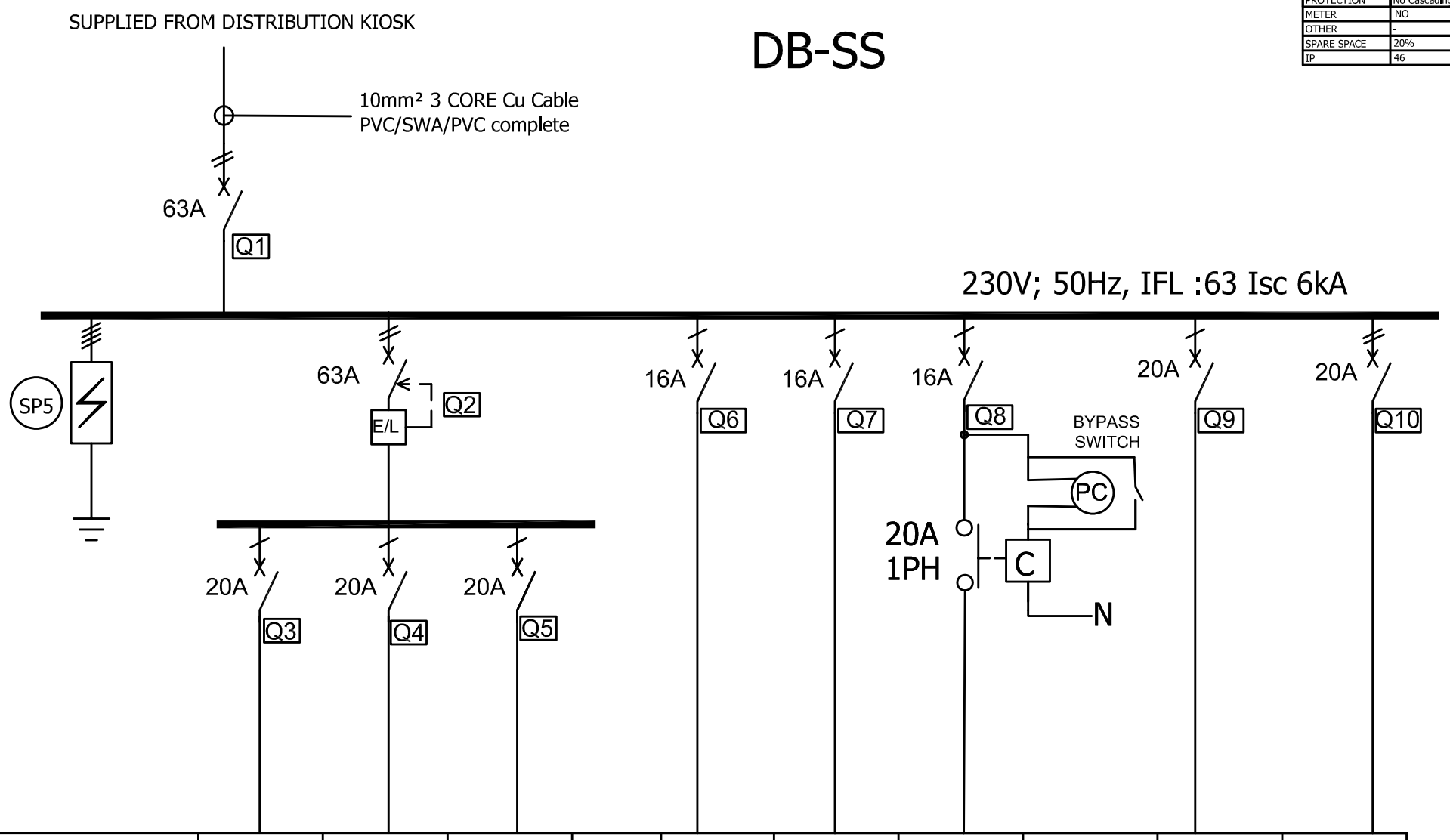
SIZE	DRAWING NUMBER	REV
A1	TCE1238A-DD-EE-302	A

DB-SS

SIMULATION SHED DB						
BUS RATING	63A					
FAULT LEVEL	6kA					
TYPE	Floor Standing		Surface Mounted		Recessed	✓
ACCESS	Front	✓	Back		Both	
CABLE ENTRY	Top		Bottom		Both	✓
BUSBAR ENTRY	-		Bottom		Both	
CABLE EXIT	Top		Bottom		Both	✓
CONSTRUCTION	With Doors		No Doors		Lockable Doors	✓
	Form of Separation	FORM 1				
LIMITING DIMS	600mm (W); 200mm(D); 1000mm(H)					
COLOUR	Frame	ORANGE	Normal Panel	WHITE		
	UPS Panels	-	Emergency Panel	-		
SWITCHGEAR	Manufacturer	Schneider or similar & equivalent				
	Type	Switchgear to be of fixed type				
		MCCBs; MCBs and Isolators				
PROTECTION	No Cascading		✓ Cascading Warning Label			
METER	NO					
OTHER	-					
SPARE SPACE	20%					
IP	46					



CIRCUIT NUMBERING	P1	P2	SP		L1	L2	L3		SP	SP
LOAD (kW)	0.7	1.05	-		0.28	0.12	0.26		-	-
CONDUCTOR /CABLE (mm²)	4	4	-		2.5	2.5	-		-	-
PHASE BALANCING	R	R	R		R	R	R		R	R
CIRCUIT DESCRIPTION	NORMAL SSO				LIGHTING				SPARE	

TCE-1238A

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LEGEND:

- MINATURE CIRCUIT BREAKER / MOULDED CASE CIRCUIT BREAKER
- ISOLATOR
- FUSE SWITCH
- TIME-SWITCH WITH BYPASS SWITCH
- EARTH LEAKAGE
- MASTER SWITCH
- CONTACTOR
- ELECTRONIC METER
- PHOTOCELL
- OVERRIDE ROTARY SWITCH
- CLASS 2 PROTECTION, NORTHERN TECHNOLOGIES SAD20PR WITH O/C PROTECTION CB
- DEHNVENTI M TNS 255

NOTE:
1. C - X mm² - CABLE SUPPLY

REV No	DATE :	DESCRIPTION:
REVA	29/04/2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

SIMULATION-SHED-SINGLE-LINE-DIAGRAM

DESIGNED BY	DRAWN BY	CHECKED BY
MN	MN	JB

DRAWING UNITS	-	SCALE	N.T.S

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M. NKGADIMA		201170306

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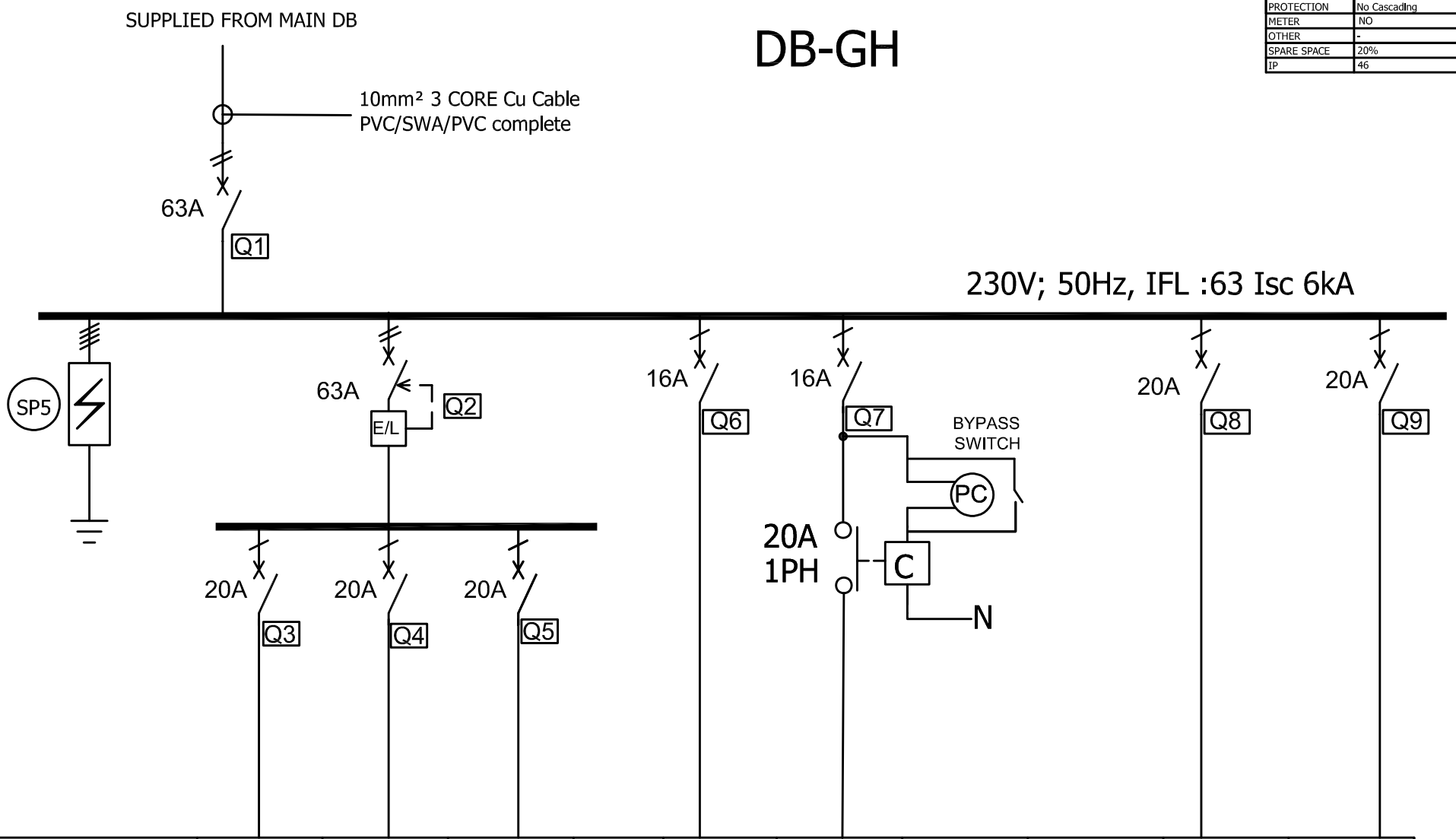
SIZE	DRAWING NUMBER	REV
A3	TCE1238A-DD-EE-303	A

DB-GH

GUARD HOUSE DB							
BUS RATING	63A						
FAULT LEVEL	6kA						
TYPE	Floor Standing		Surface Mounted		Recessed	✓	
ACCESS	Front	✓	Back		Both		
CABLE ENTRY	Top		Bottom		Both	✓	
BUSBAR ENTRY	-		Bottom		Both		
CABLE EXIT	Top		Bottom		Both	✓	
CONSTRUCTION	With Doors		No Doors		Lockable Doors	✓	
	Form of Separation	FORM 1					
LIMITING DIMS	600mm (W); 200mm(D); 1000mm(H)						
COLOUR	Frame	ORANGE	Normal Panel	WHITE			
	UPS Panels	-	Emergency Panel	-			
SWITCHGEAR	Manufacturer	Schneider or similar approved					
	Type	Switchgear to be of fixed type					
		MCCBs; MCBs and Isolators					
PROTECTION	No Cascading		✓ Cascading Warning Label				
METER	NO						
OTHER	-						
SPARE SPACE	20%						
IP	46						



CIRCUIT NUMBERING	P1	SP	SP		L1	L2			Gate Motor	SP
LOAD (kW)	1.05	-	-		0.1	0.16			1.5	-
CONDUCTOR /CABLE (mm²)	4	-	-		2.5	2.5			4	-
PHASE BALANCING	W	W	W		W	W			W	
CIRCUIT DESCRIPTION	NORMAL SSO				LIGHTING					

TCE-1238A

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ALL WORK AND MATERIAL ARE TO COMPLY TO RELEVENT SABS CODES WHERE APPLICABLE.
BRAND NAMES DENOTE SIMILAR OR EQUALY APPROVED.
ALL WORK TO BE IN ACCORDANCE TO N.R.B.
REPORT DISCREPANCIES TO ARCHITECT OR ENGINEER.

LEGEND:

- MINATURE CIRCUIT BREAKER / MOULDED CASE CIRCUIT BREAKER
- ISOLATOR
- FUSE SWITCH
- TIME-SWITCH WITH BYPASS SWITCH
- EARTH LEAKAGE
- MASTER SWITCH
- CONTACTOR
- ELECTRONIC METER
- PHOTOCELL
- OVERRIDE ROTARY SWITCH
- SP4 CLASS 2 PROTECTION. NORTHERN TECHNOLOGIES SAD20PR WITH O/C PROTECTION CB
- SP5 DEHNVENTI M TNS 255

NOTE:
1. C - X mm² - CABLE SUPPLY

REV No	DATE :	DESCRIPTION:
REVA	29/04/2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS
SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE
ELECTRICAL

DRAWING DESCRIPTION
GUARD-HOUSE-SINGLE-LINE-DIAGRAM

DESIGNED BY	DRAWN BY	CHECKED BY
MN	MN	JB

DRAWING UNITS	-	SCALE	N.T.S

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M. NKOADIMA		201170306

Thembakele CONSULTING ENGINEERS (PTY) LTD
UNIT 6,
GARDENS BUSINESS PARK
ATELJEE STREET
RANDPARK RIDGE
2156
Web address: www.thembakele.co.za
Telephone: 011 475 4560
Facsimile: 011 475 9140

SIZE	DRAWING NUMBER	REV
A3	TCE1238A-DD-EE-304	A

TCE-1238A

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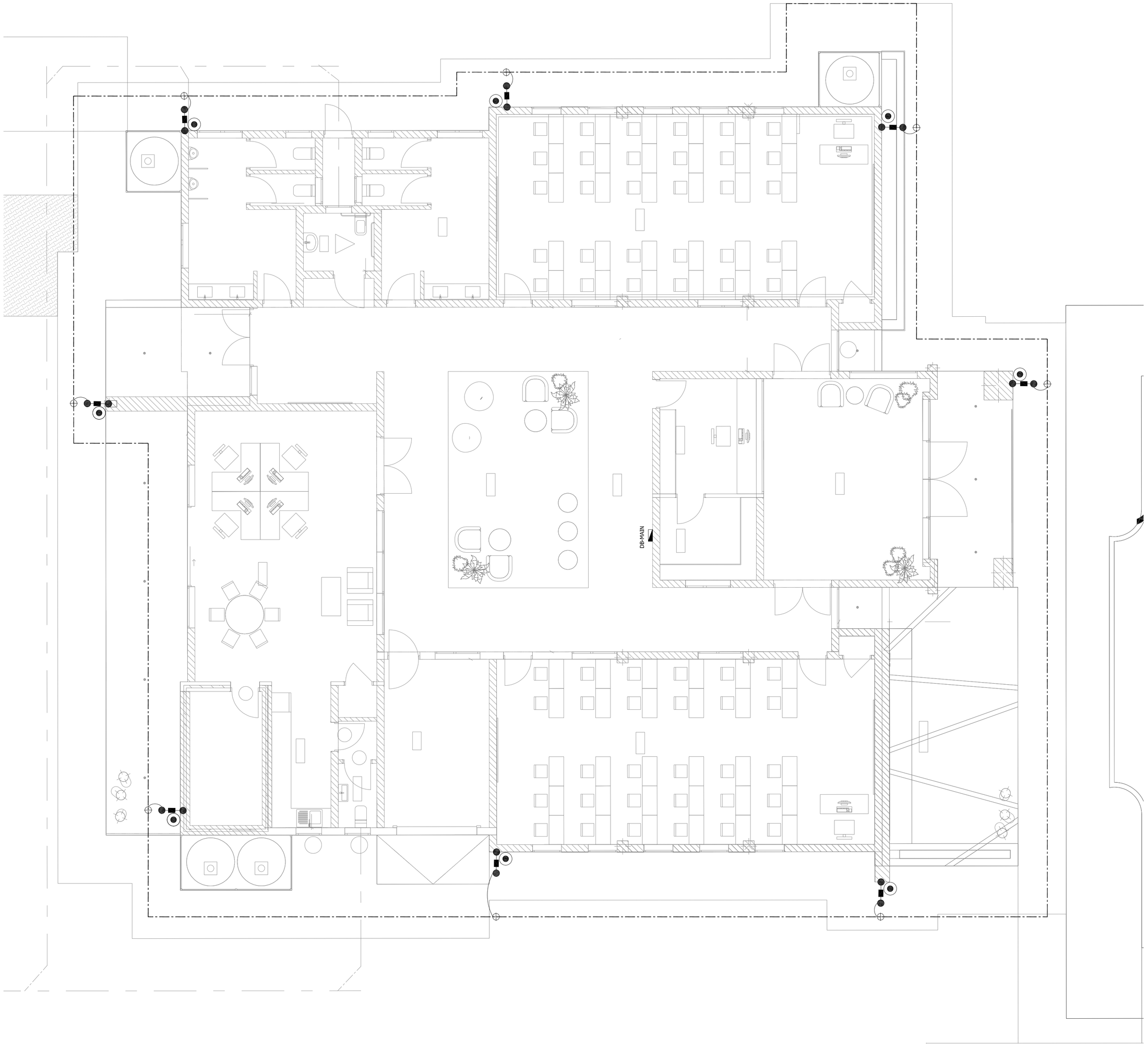
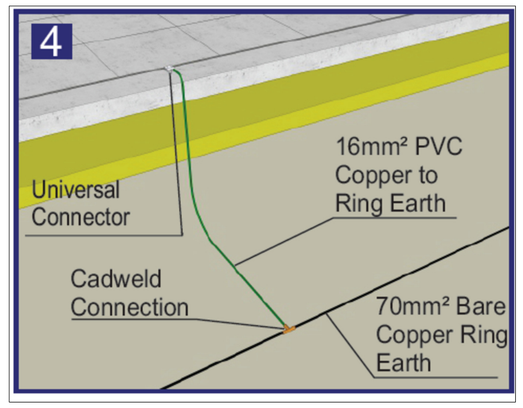
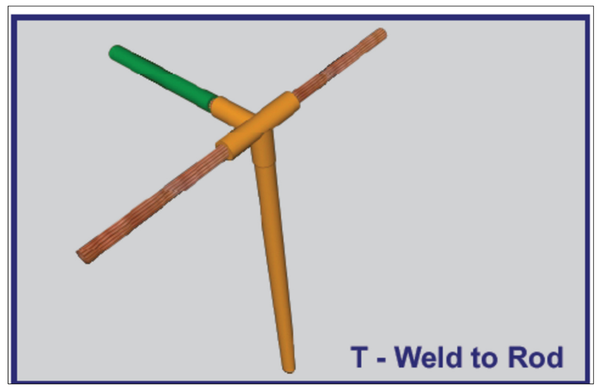
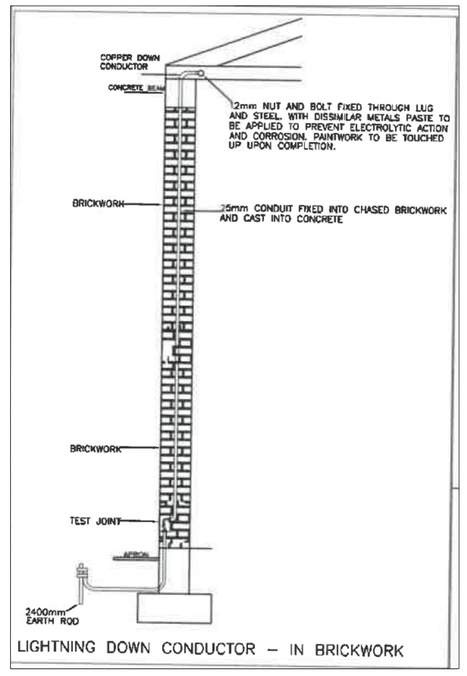




EXAMPLE OF A CADWELD



EXAMPLE OF A T WELDED ROD



EXAMPLE OF A DOWN CONDUCTOR

LEGEND

- 1m STAINLESS STEEL FINIAL (AIR TERMINAL
- COPPER DOWN CONDUCTOR
- ALUMINIUM CONDUCTOR ø8mm (50mm²) FIXED ONTO CONDUCTOR HOLDER.
- 70mm² BCEW BURRIED @ 500mm BELOW GROUND LEVEL. THE CONDUCTOR SHALL BE 1000mm AWAY FROM THE EDGE OF THE BUILDING.
- 16mm VERTICALLY DRIVEN 2,4m EXTENSIBLE EARTH ROD
- CAD WELD CONNECTION
- CAD WELD CONNECTION
- CAD WELD CONNECTION

NOTES:

1. EARTHING AND LIGHTNING PROTECTION SHALL BE IN ACCORDANCE WITH SANS 10313.PROTECTION AGAINST LIGHTING.
2. SHEET METAL ROOF STRUCTURE TO BE USED AS NATURAL AIR TERMINAL.
3. CAD WELDING METHOD SHALL BE USED IN ALL CONNECTION.
4. BONDING OF ISOLATED ROOF STRUCTURE TO BE ALLOWED FOR.
5. LIGHTNING PROTECTION CONDUCTOR TO BE INSTALLED ON THE APEX OF THE ROOF.

REV No	DATE	DESCRIPTION
A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE
GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

MAIN-BUILDING-LIGHTNING-PROTECTION

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
29-04-24	M.NKGADIMA		201170306

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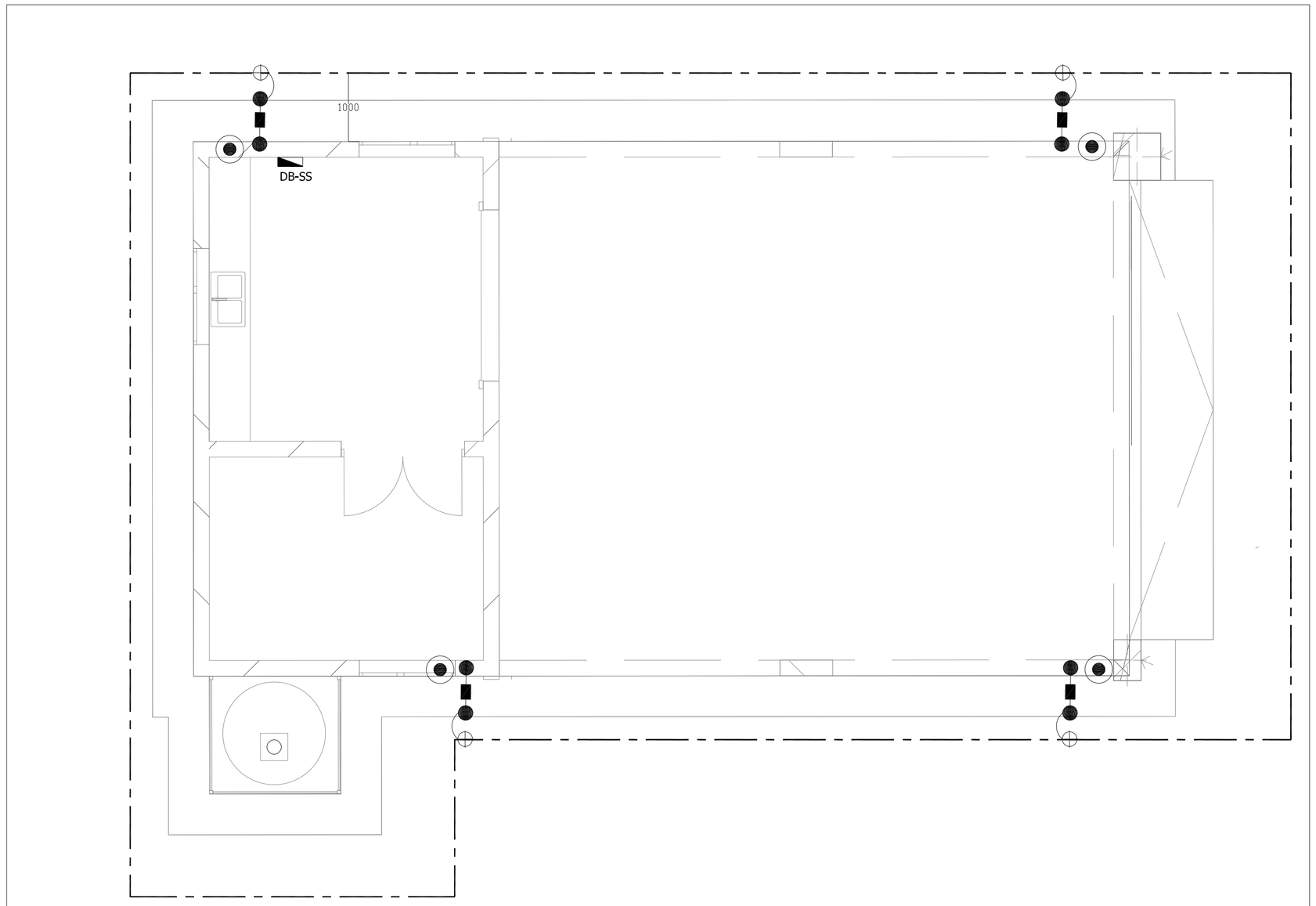
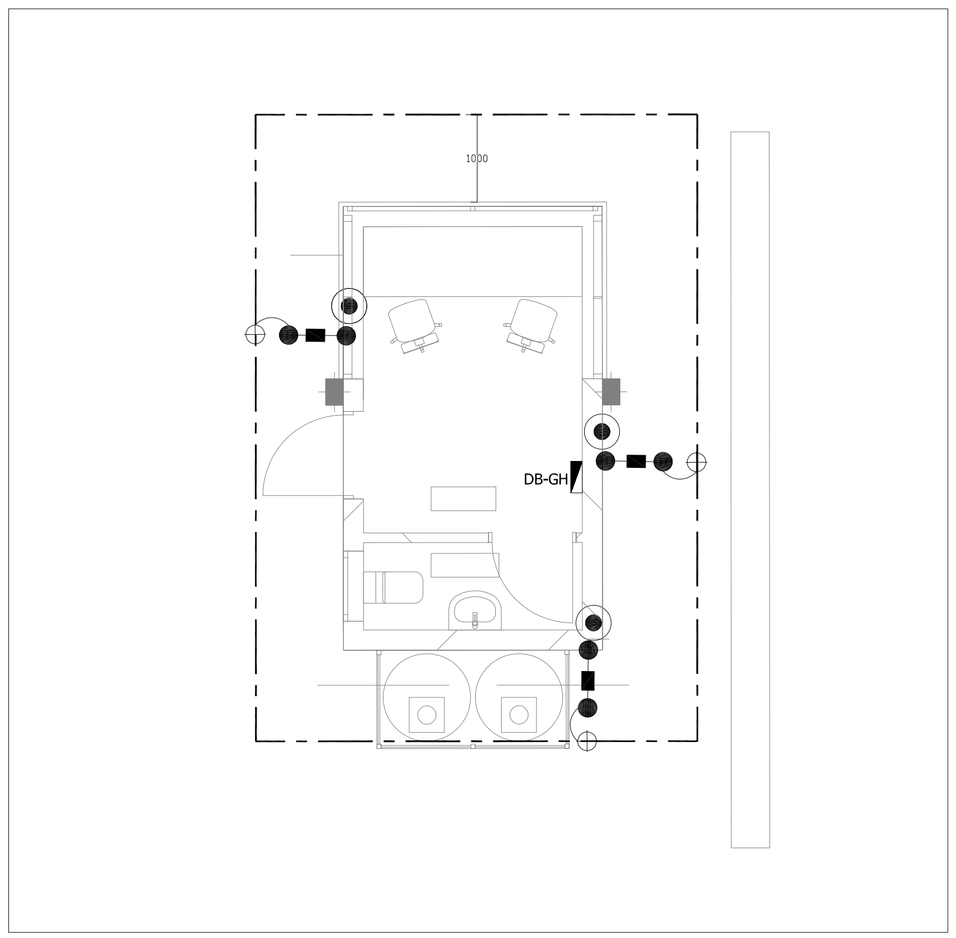
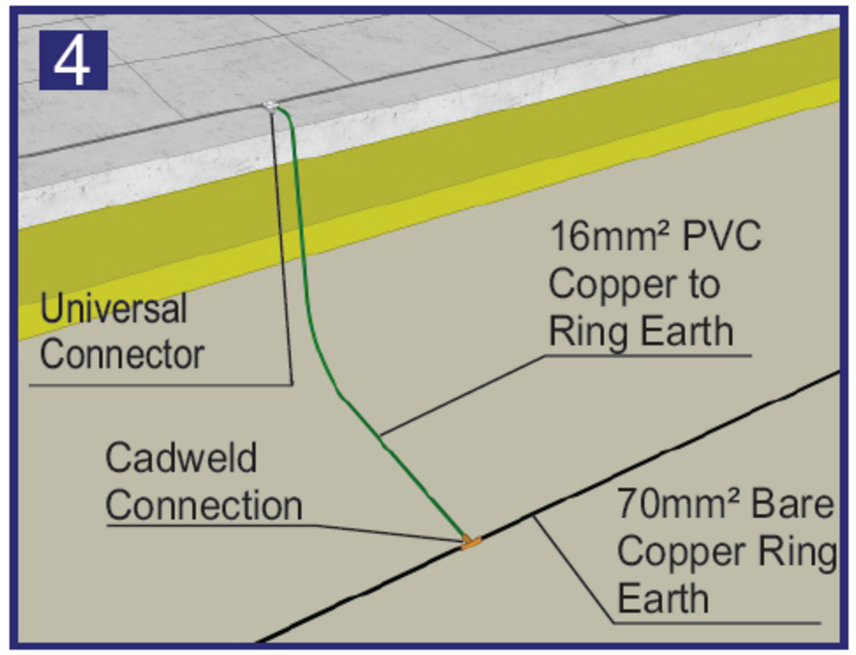
SIZE	DRAWING NUMBER	REV
A1	TCE-1238A-DD-EE-401	A



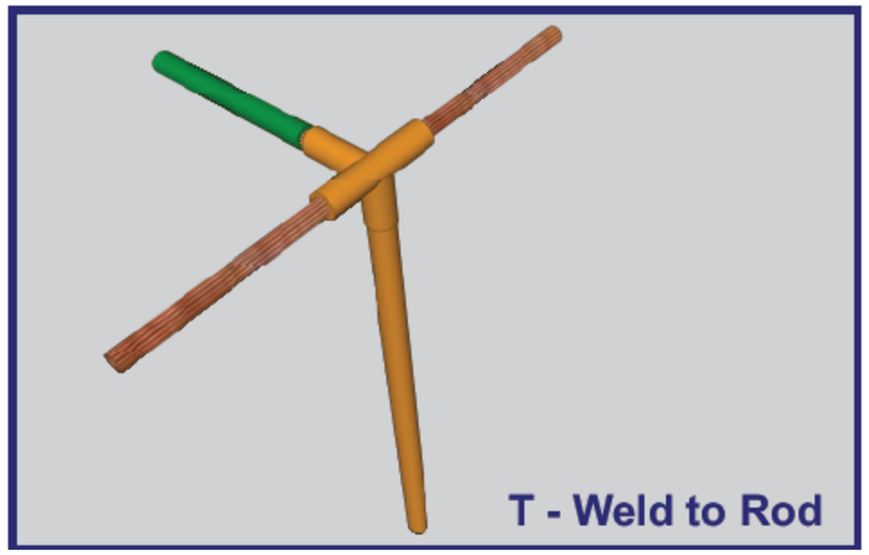
SIMULATION SHED EARTHING TERMINATION AND DOWN CONDUCTORS SYSTEMS



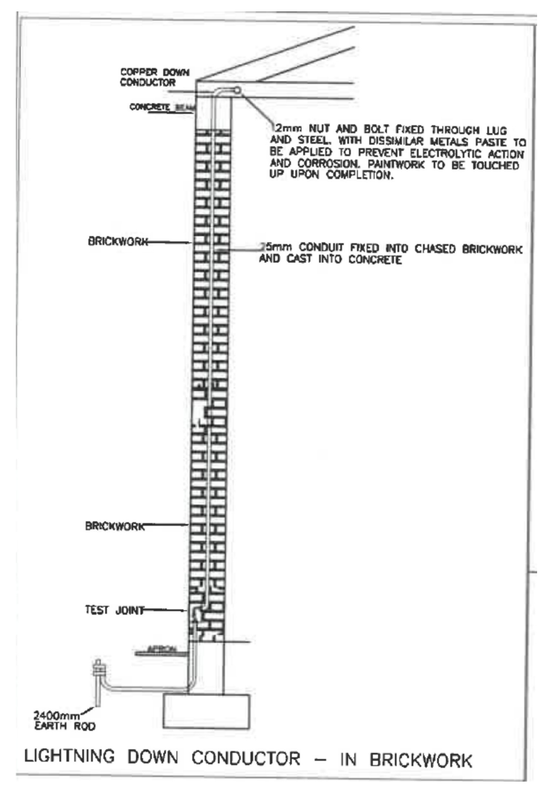
GUARD HOUSE EARTHING TERMINATION AND DOWN CONDUCTORS SYSTEMS



EXAMPLE OF A CADWELD



EXAMPLE OF A T WELDED ROD



EXAMPLE OF A DOWN CONDUCTOR

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A	29-04-2024	ISSUED FOR TENDER

SIZE ON ORIGINAL DRAWING 100 mm

CLIENT LOGO

SERVICES SETA

PROJECT DETAILS

SKILLS DEVELOPMENT CENTRE

GA-MAFEFE VILLAGE

CONTRACT No

DISCIPLINE

ELECTRICAL

DRAWING DESCRIPTION

GH-LIGHTNING-PROTECTION-LAYOUT

DESIGNED BY	DRAWN BY	CHECKED BY
MN	JM	JB

DRAWING UNITS	MM	SCALE	1:50

RESPONSIBLE PROFESSIONAL

DATE	NAME	SIGNATURE	PR NUMBER
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