



UMDONI LOCAL MUNICIPALITY

TENDER DOCUMENT

TENDER NAME : CONSTRUCTION OF MANDLALATHI COMMUNITY HALL

TENDER NO : 08/2023 MN: 69/2023

CIDB CATEGORY : 5GB OR HIGHER

NAME OF TENDERER : _____
TELEPHONE NUMBER/S : _____
E-MAIL : _____
PHYSICAL ADDRESS : _____

TENDER SUM (INCL. VAT) : **R** _____
TIME FOR COMPLETION : **6 MONTHS** _____

TENDER CLOSES AT 12H00 ON FRIDAY 19-08-2022



DARTINGO CONSULTING ENGINEERS (Pty) Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

COMPILED BY:

Dartingo Consulting Engineers (Pty) Ltd
64 Underwood Road
Pinetown
3610

Tel: (031) 266 0903/4
Fax: (031) 266 0906



ON BEHALF OF:

Umdoni Local Municipality
Cnr Bram Fischer & Williamson Streets,
Scottburgh
4180

Tel :039 976 1202 / 039 978 4313
Fax :039 976 2194/2020

SUMMARY FOR TENDER OPENING PURPOSES

[To facilitate the reading out of tender parameters at the opening of tenders, the tenderer shall complete this form and submit it with his tender]

Name of Contractor submitting the tender:

Tender amount (as stated in the Form of Offer): R.....

Alternative Tender offered? (Yes / No)

If "Yes" state amount: R

Specified Time for Completion: 6 MONTHS

Alternative Time for Completion offered? (Yes / No)

If "Yes", state time offered (weeks)

Details of contact person:

Name (Print):

Telephone No: **Fax No:**

E-mail address:.....

Cell No. :

Is Form of Offer signed by Tenderer and Witnesses? (Yes/No)

SIGNATURE:
(of person authorised to sign the tender)

Note: In the event of conflict between the data provided in this summary and that given in the tender, the latter shall prevail.

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE COLOUR	PAGE
COVER PAGE		White	-
SUMMARY FOR TENDER OPENING PURPOSES		White	i
CONTENTS		White	il

THE TENDER			
SECTION	DESCRIPTION	PAGE COLOUR	PAGE
PART T1	TENDERING PROCEDURES	White	T1-1
T1.1	Tender Notice and Invitation to Tender	White	T1-2
T1.2	Tender Data	Pink	T1-4
PART T2	RETURNABLE DOCUMENTS	Yellow	T2-1
T2.1	List of Returnable Documents	Yellow	T2-2
T2.2	Returnable Schedules	Yellow	T2-3

THE CONTRACT			
SECTION	DESCRIPTION	PAGE COLOUR	PAGE
PART C1	AGREEMENT AND CONTRACT DATA	Yellow	C1-1
C1.1	Form of Offer and Acceptance	Yellow	C1-2
C1.2	Contract Data (Part 1)	Yellow	C1-7
C1.3	Contract Data (Part 2)	Yellow	C1-10
C1.4	Form of Guarantee	White	C1-11
C1.5	Agreement with Adjudicator	White	C1-14
C1.6	Occupational Health and Safety Agreement	White	C1-15
C1.7	Notification of Construction Works	White	C1-20
PART C2	PRICING DATA	Yellow	C2-1
C2.1	Pricing Instructions	Yellow	C2-2
C2.2	Bills of Quantities	Yellow	C2-6
PART C3	SCOPE OF WORK	Blue	C3-1
C3.1	Description of the Works	Blue	C3-2
C3.2	Engineering	Blue	C3-5
C3.3	Procurement	Blue	C3-6
C3.4	Construction	Blue	C3-7
C3.5	Project Specification	Blue	C3-23
C3.6	Particular Specification	Blue	C3-60
PART C4	SITE INFORMATION	Green	C4-1
C4.1	Locality of Site	Green	C4-2
C4.2	Geotechnical Report	Green	C4-3
C4.3	Tender Drawings	Green	C4-4

PART T1: TENDERING PROCEDURES

PART T1-TENDERING PROCEDURES

CONTENTS		PAGE
T1.1	Tender Notice and Invitation to Tender	T1-2
T1.2	Tender Data	T1-4

T1.1 TENDER NOTICE AND INVITATION TO TENDER



UMDONI LOCAL MUNICIPALITY

CIDB CATEGORY: 5GB OR HIGHER

PROJECT NAME: **CONSTRUCTION OF MANDLALATHI COMMUNITY HALL**

CONTRACT No.: **08/2023 MN: 69/2022**

Tenders are hereby invited for the **Construction of Mandlalathi Community Hall**. The minimum specifications are detailed in the Tender Document. Tenderers should be registered and have CIDB contractor grading designation of **5GB OR HIGHER** and appropriate experience in civil works. The works shall be completed within the time stated in the Tender Document.

Tender documents will only be available for collection from the Municipal offices on Friday, 29/07/2022 from the finance office in the Umdoni Local Municipality's offices at Cnr Bram Fischer & Williamson Streets, Scottburgh, upon payment of a non-refundable fee of R500.00 for each document in cash.

A compulsory visual briefing meeting will be held punctually at 11h00 on Friday, 12/08/2022 and prospective tenderers are to meet the Client at uMzinto Town Hall, (Dumisa 1077 Umgai, drive, Umzinto).

Technical enquiries should be addressed to Mr of Umdoni Local Municipality on 039 976 1324 or email: sandilex@umdoni.gov.za and SCM enquires should be addressed to Mr D Nyathi at 039 976 1202 or email: davidn@umdoni.gov.za

Completed tender documents are to be placed in a sealed envelope marked: **Construction of KWAMPONDO SPORTSGROUND Tender No.: 07/2023 and must be deposited in the Tender Box at the offices of Umdoni Local Municipality's situated at Cnr Bram Fischer & Williamson Streets, Scottburgh not later than 12h00 on Friday, 19/08/2022**. Tenders will be opened in public soon after closure and only the name of the tenderer and the tender amount will be read out.

The procedure for the evaluation of responsive tenders will be Financial Offer, Quality and Preferences and Quality will be evaluated prior to financial and Preference. Functionality/quality: tender must achieve at least 60% in order to qualify for the second stage of evaluation. Tenderers must provide proof of registration on Central Suppliers Database (CSD).

Quality shall be scored independently in accordance with the following schedules:

Evaluation Schedule: Experience of Bidder
Evaluation Schedule: Financial Resources
Evaluation Schedule: Qualifications and Experience of Key Personnel
Evaluation Schedule: Quality Assurance
Evaluation Schedule: Previous Performance on similar projects

The 80/20 scoring will apply in the second stage of evaluation.

The following points will be awarded during the second stage of evaluation:

Price = 80
Preference: 20

BBBEE Status Level Contributor	Number of Points (80/20 Principle)
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-Compliant Contributor	0

TOTAL = 100

Umdoni Municipality subscribes to the Preferential Procurement Framework Act (Act No.5 of 2000).

Umdoni Municipality does not bind itself to accept the lowest or any tender and reserves the right to accept the whole or part of the tender.

Ms Thabisile Cornelia Ndlela
Municipal Manager
Umdoni Local Municipality

T1.2.1: TENDER DATA: STANDARD CONDITIONS OF TENDER

The Standard Conditions of Tender as contained in Annex C of the legislated Standard Conditions of Tender as published in Board Notice 423 of 2019 in Government Gazette 42622 of 8 August 2019

C.1 GENERAL

C.1.1 Actions

C.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in C.2 and C.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices

C.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict and abstain from any decisions where such conflict exists or recuse themselves from the procurement process, as appropriate.

Note:

1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result.

2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

C.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

C.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

C.1.3 Interpretation

C.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

C.1.3.2 These conditions of tender, the tender data and tender schedules which are required for tender evaluation purposes, shall form part of any contract arising from the invitation to tender

C.1.3.3 For the purposes of these conditions of tender, the following definitions apply

- a) **conflict of interest** means any situation in which:
 - i) *someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;*
 - ii) *an individual or tenderer is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or*
 - iii) *incompatibility or contradictory interests exist between an employee and the tenderer who employs that employee.*
- b) **comparative offer** means the price after the factors of a non-firm price and all unconditional discounts it can be utilised to have been taken into consideration;
- c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process;
- d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels;
- e) **organization** means a company, firm, enterprise association or other legal entity, whether incorporated or not, or a public body
- d) **functionality** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

C.1.4 Communication and Employer's Agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

C.1.5 Cancellation and Re-Invitation of Tenders

C.1.5.1 An employer may, prior to the award of the tender, cancel a tender if-

- a) due to changed circumstances, there is no longer a need for the engineering and construction works specified in the invitation;
- b) funds are no longer available to cover the total envisaged expenditure; or
- c) no acceptable tenders are received.
- d) there is a material irregularity in the tender process.

C.1.5.2 The decision to cancel a tender invitation must be published in the same manner in which the original tender invitation was advertised

- C.1.5.3 An employer may only with the prior approval of the relevant treasury cancel a tender invitation for the second time.

C.1.6 Procurement Procedures

C.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to C.3.13, be concluded with the tenderer who in terms of C.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders

C.1.6.2 Competitive Negotiation Procedure

- C.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of C.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of C.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

- C.1.6.2.2 All responsive tenderers or at least a minimum of not less than three responsive tenderers that are highest ranked in terms of the evaluation criteria stated in the tender data shall be invited to enter into competitive negotiations based on the principle of equal treatment, keeping confidential the proposed solutions and associated information.

Notwithstanding the provisions of C.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

- C.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to revise their tender offer based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

- C.1.6.2.4 The contract shall be awarded in accordance with the provisions of C.3.11 and C.3.13 after tenderers have been requested to submit their best and final offer.

C.1.6.3 Proposal Procedure using the Two Stage-System

C.1.6.3.2 Option 2

- C.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

- C.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data and award the contract in terms of these conditions of tender.

C.2 TENDERER'S OBLIGATIONS

C.2.1 Eligibility

C.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

C.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

C.2.2 Cost of Tendering

C.2.2.1 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.2.2.2 The cost of the tender documents charged by the employer shall be limited to the actual cost incurred by the employer for printing the documents. Employers must attempt to make available the tender documents on its website so as not to incur any costs pertaining to the printing of the tender documents.

C.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission

C.2.4 Confidentiality and Copyright of Documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation

C.2.5 Reference Documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

C.2.6 Acknowledge Addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

C.2.7 Clarification Meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

C.2.8 Seek Clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five (5) working days before the closing time stated in the tender data.

C.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

C.2.10 Pricing the Tender Offer

C.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable fourteen (14) days before the closing time stated in the tender data.

C.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

C.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data

C.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

C.2.11 Alterations to Documents

Do 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 Offers

C.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

C.2.12.2 Accept that an alternative tender offer must be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

C.2.12.3 An alternative tender offer must only be considered if the main tender offer is the winning tender.

C.2.13 Submitting a Tender Offer

- C.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.
- C.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.
- C.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.
- C.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.
- C.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked "financial proposal" and place the remaining returnable documents in an envelope marked "technical proposal". Each envelope shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.
- C.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.
- C.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.
- C.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

C.2.14 Information and Data to be Completed in all Respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

C.2.15 Closing Time

- C.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

- C.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

C.2.16 Tender Offer Validity

- C.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.
- C.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period with or without any conditions attached to such extension.
- C.2.16.3 Accept 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.2.16.4 Where a tender submission is to be substituted, a tenderer must submit a substitute tender in accordance with the requirements of C.2.13 with the packages clearly marked as "SUBSTITUTE".

C.2.17 Clarification of Tender Offer after Submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: Sub-clause C.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.

C.2.18 Provide other material

- C.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment.

Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

- C.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required

C.2.19 Inspections, Tests and Analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

C.2.20 Submit Securities, Bonds and Policies

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data

C.2.21 Check Final Draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

C.2.22 Return of other Tender Documents

If so instructed by the employer, return all retained tender documents within twenty-eight (28) days after the expiry of the validity period stated in the tender data.

C.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

C.3 THE EMPLOYER'S UNDERTAKINGS

C.3.1 Respond to Requests from the Tenderer

C.3.1.1 Unless otherwise stated in the tender Data, respond to a request for clarification received up to five (5) working days before the tender closing time stated in the Tender Data and notify all tenderers who collected tender documents.

C.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

- a) an individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
- b) the new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
- c) in the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process

C.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until three (3) working days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who collected tender documents.

C.3.3 Return Late Tender Offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

C.3.4 Opening of Tender Submissions

C.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

C.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where

applicable, the total of his prices, number of points claimed for its BBBEE status level and time for completion for the main tender offer only.

C.3.4.3 Make available the record outlined in C.3.4.2 to all interested persons upon request.

C.3.5 Two-Envelope System

C.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

C.3.5.2 Evaluate functionality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the functionality evaluation more than the minimum number of points for functionality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any points claimed on BBBEE status level. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for functionality.

C.3.6 Non-Disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

C.3.7 Grounds for Rejection and Disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

C.3.8 Test for Responsiveness

C.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

- a) complies with the requirements of these Conditions of Tender,
- b) has been properly and fully completed and signed, and
- c) is responsive to the other requirements of the tender documents.

C.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

- a) detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
- b) significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
- c) affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

C.3.9 Arithmetical Errors, Omissions and Discrepancies

C.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

C.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with C.3.11 for:

- a) the gross misplacement of the decimal point in any unit rate;
- b) omissions made in completing the pricing schedule or bills of quantities; or
- c) arithmetic errors in:
 - (i) *line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or*
 - (ii) *the summation of the prices.*

C.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and either confirm the tender offer as tendered or accept the corrected total of prices.

C.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

C.3.10 Clarification of a Tender Offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

C.3.11 Evaluation of Tender Offers

The Standard Conditions of Tender standardize the procurement processes, methods and procedures from the time that tenders are invited to the time that a contract is awarded. They are generic in nature and are made project specific through choices that are made in developing the Tender Data associated with a specific project.

Conditions of tender are by definition the document that establishes a tenderer's obligations in submitting a tender and the employer's undertakings in soliciting and evaluating tender offers. Such conditions establish the rules from the time a tender is advertised to the time that a contract is awarded and require employers to conduct the process of offer and acceptance in terms of a set of standard procedures.

The CIDB Standard Conditions of Tender are based on a procurement system that satisfies the following system requirements:	
Requirement	Qualitative interpretation of goal
Fair	The process of offer and acceptance is conducted impartially without bias, providing simultaneous and timely access to participating parties to the same information.
Equitable	Terms and conditions for performing the work do not unfairly prejudice the interests of the parties.
Transparent	The only grounds for not awarding a contract to a tenderer who satisfies all requirements are restrictions from doing business with the employer, lack of capability or capacity, legal impediments and conflicts of interest.
Competitive	The system provides for appropriate levels of competition to ensure cost effective and best value outcomes.
Cost effective	The processes, procedures and methods are standardized with sufficient flexibility to attain best value outcomes in respect of quality, timing and price, and least resources to effectively manage and control procurement processes.

The activities associated with evaluating tender offers are as follows:

- a) Open and record tender offers received
- b) Determine whether or not tender offers are complete
- c) Determine whether or not tender offers are responsive
- d) Evaluate tender offers
- e) Determine if there are any grounds for disqualification
- f) Determine acceptability of preferred tenderer
- g) Prepare a tender evaluation report
- h) Confirm the recommendation contained in the tender evaluation report

C.3.11.1 General

The employer must appoint an evaluation panel of not less than three persons conversant with the proposed scope of works to evaluate each responsive tender offer using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

C.3.11.2 Method 1: Price and Preference

In the case of a price and preference:

- 1) Score tender evaluation points for price
- 2) Score points for BBBEE contribution
- 3) Add the points scored for price and BBBEE

C.3.11.3 Method 2: Price and Preference

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system prescribed in paragraphs 4 and 4 and 5 below.

The 80/20 preference point system for acquisition of services, works or goods up to Rand value of R50 million.

- 1) (a)(i) The following formula must be used to calculate the points for price in respect of tenders with a rand value equal to, or above R 30 000 and up to Rand value of

In the case of a functionality, price and preference:

- 1) Score functionality, rejecting all tender offers that fail to achieve the minimum number of points for functionality as stated in the Tender Data.
- 2) No tender must be regarded as an acceptable tender if it fails to achieve the minimum qualifying score for functionality as indicated in the tender invitation.
- 3) Tenders that have achieved the minimum qualification score for functionality must be evaluated further in terms of the preference points system prescribed in paragraphs 4 and 4 and 5 below.

The 80/20 preference point system for acquisition of services, works or goods up to Rand value of R50 million.

(a)(i) The following formula must be used to calculate the points for price in respect of tenders with a rand value equal to, or above R 30 000 and up to Rand value of R 50 000 000 (all applicable taxes included):

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

Where

P_s = Points scored for price of tender or offer under consideration;

P_t = Price of tender or offer under consideration; and

P_{min} = Price of lowest acceptable tender or offer

- 2) The following table must be used to calculate the score out of 20 for B-BBEE:

B-BBEE status level of contributor	Number of points
1	20
2	18
3	14
4	12
5	8
6	6
7	4
8	2
Non-compliant contributor	0

- 3) A tenderer must submit proof of its B-BBEE status level of contributor.
- 4) A tenderer failing to submit proof of B-BBEE status level of contributor or is a non-complaint contributor to B-BBEE may not be disqualified but-
a) may only score points of 80 for price; and
b) scores 0 points out of 20 for B-BBEE
- 5) A tenderer may not be awarded points for B-BBEE status level of contributor if the tender documents indicate that the tenderer intends subcontracting more than 25% of the value of the contract to any other person not qualifying for at least the points that tenderer qualifies for, unless the intended subcontractor is an EME that has the capacity to execute the subcontract.
- 6) The points scored by a tenderer of B-BBEE in terms of sub regulation (2) must be added to the points scored for price under sub regulation (1)
- 7) The points scored must be rounded off to the nearest two decimal places.
- 8) Subject to sub regulation (9) and regulation (11), the contract must be awarded to the tenderer scoring the highest points.
- 9) (a) If the price offered by a tenderer scoring the highest points is not market related, the organ of state may not award the contract to that tenderer.
(b) The organ of state may –
(i) negotiate a market related price with the tender scoring the highest points or cancel the tender;
(ii) if the tenderer does not agree to a market related price, negotiate a market related price with the tenderer scoring the second highest points or cancel the tender.
(iii) if the tenderer scoring the second highest points does not agree to a market related price, negotiate a market related price with the tenderer scoring the third highest points or cancel the tender.
- (c) If a market related price is not agreed as envisaged in paragraph (b)(iii), the organ of state must cancel the tender.

The 90/10 preference points system for acquisition of services, works or goods with a Rand value above R 50 million

- 1) a)(i) The following formula must be used to calculate the points for price in respect of tenders with a rand value above R 50 000 000 (all applicable taxes included):

$$Ps = 90(1 - \frac{Pt - Pmin}{Pmin})$$

Where

Ps = Points scored for price of tender or offer under consideration;

Pt = Price of tender or offer under consideration; and

Pmin = Price of lowest acceptable tender or offer

- 2) The following table must be used to calculate the score out of 10 for B-BBEE:

B-BBEE status level of contributor	Number of points
1	10
2	9
3	6
4	5
5	4
6	3
7	2
8	1
Non-compliant contributor	0

- 1) A tenderer must submit proof of its B-BBEE status level of contributor.
- 2) A tenderer failing to submit proof of B-BBEE status level of contributor or is a non-complaint contributor to B-BBEE may not be disqualified but-
- 3) may only score points of 90 for price; and
- 4) scores 0 points out of 10 for B-BBEE
- 5) A tenderer may not be awarded points for B-BBEE status level of contributor if the tender documents indicate that the tenderer intends subcontracting more than 25% of the value of the contract to any other person not qualifying for at least the points that tenderer qualifies for, unless the intended subcontractor is an EME that has the capacity to execute the subcontract.
- 6) The points scored by a tenderer of B-BBEE in terms of sub regulation (2) must be added to the points scored for price under sub regulation (1)
- 7) The points scored must be rounded off to the nearest two decimal places.
- 8) Subject to sub regulation (9) and regulation (11), the contract must be awarded to the tenderer scoring the highest points.
- 9) (a) If the price offered by a tenderer scoring the highest points is not market related, the organ of state may not award the contract to that tenderer.
- 10) (b) The organ of state may –
- 11) (i) negotiate a market related price with the tender scoring the highest points or cancel the tender;
- 12) (ii) if the tenderer does not agree to a market related price, negotiate a market related price with the tenderer scoring the second highest points or cancel the tender.
- 13) (iii) if the tenderer scoring the second highest points does not agree to a market related price, negotiate a market related price with the tenderer scoring the third highest points or cancel the tender.
- 14) (c) If a market related price is not agreed as envisaged in paragraph (b)(iii), the organ of state must cancel the tender.

C3.11.6 Decimal Places

Score price, preferences and functionality, as relevant, to two decimal places.

C3.11.7 Scoring Price

Score the price of remaining responsive tender offers using the following formula:

$$N_{FO} = W_1 \times A$$

where:

- N_{FO} is the number of tender evaluation points awarded for the price.
- W_1 is the maximum possible number of tender evaluation points awarded for price as stated in the Tender Data.
- A is a number calculated using the formula and option described in Table F1 as stated in the Tender Data.
-

Table C.1: Formulae for calculating the value of A

Formula	Comparison aimed at achieving	Option 1 ^a	Option 2 ^a
1	Highest price or discount	$A = (1 + \frac{(P - P_m)}{P_m})$	$A = P/P_m$
2	Lowest price or percentage commission / fee	$A = (1 - \frac{(P - P_m)}{P_m})$	$A = P_m/P$
^a P_m is the comparative offer of the most favourable comparative offer P is the comparative offer of the tender offer under consideration			

C3.11.8 Scoring Preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences.

Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

C3.11.9 Scoring Functionality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data.

Calculate the total number of tender evaluation points for quality using the following formula:

$$NQ = W_2 \times S_o/M_s$$

where:

- S_o is the score for quality allocated to the submission under consideration;
- M_s is the maximum possible score for quality in respect of a submission; and
- W_2 is the maximum possible number of tender evaluation points awarded for the quality as stated in the tender data.

C.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

C.3.13 Acceptance of tender offer

Accept the tender offer; if in the opinion of the employer, it does not present any risk and only if the tenderer:

- a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement;
- b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract;
- c) has the legal capacity to enter into the contract;
- d) is not; insolvent, in receivership, under Business Rescue as provided for in chapter 6 of the Companies Act No. 2008, bankrupt or being wound up, has his/her affairs administered by a court or a judicial officer, has suspended his/her business activities or is subject to legal proceedings in respect of any of the foregoing;
- e) complies with the legal requirements, if any, stated in the tender data; and
- f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

C.3.14 Prepare contract documents

C.3.14.1 If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

- a. addenda issued during the tender period,
- b. inclusion of some of the returnable documents and
- c. other revisions agreed between the employer and the successful tenderer.

C.3.14.2 Complete the schedule of deviations attached to the form of offer and acceptance, if any.

C.3.15 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed

C.3.16 Registration of the award

An employer must, within twenty-one (21) working days from the date on which a contractor's offer to perform a construction works contract is accepted in writing by the employer, register and publish the award on the cidb Register of Projects.

C.3.17 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

C.3.18 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

T1.2.2: VARIATIONS TO THE STANDARD CONDITIONS OF TENDER

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.

Clause	Description
C.1.1.1	The Employer is: Umdoni Local Municipality Cnr Bram Fischer & Williamson Streets, Scottburgh 4180
C.1.2	VOLUME 1: ISSUED TO TENDERERS: The Tender T1: Tendering Procedures T2: Returnable Documents The Contract C1: Agreements and Contract Data C2: Pricing Data C3: Scope of Works C4: Site and Other Information VOLUME 2: ISSUED TO TENDERERS Book of Drawings
	The following documents form part of the Contract and is NOT provided by the Employer, the Contractor is required to obtain these documents for the execution of the contract: "General Conditions of Contract (GCC) for Construction Works -3rd Edition 2015" This document is issued by the South African Institution of Civil Engineering. (Short title "General Conditions of Contract 2015") and is obtainable separately. Tenderers shall obtain their own copies
	"Standardised Specifications for Civil Engineering Construction" SANS 1200. This document is obtainable separately, and Tenderers shall obtain their own copies of the applicable sections. The Occupational Health and Safety Act No 85 of 1993 and Amendment Act No 181 of 1993, and the Construction Regulations 2014. This document is obtainable separately, and Tenderers shall obtain their own copies. Umdoni Local Municipality's Occupational Health and Safety Specification in terms of the requirements of Construction Regulations 4(1)(a). This document is available for review at the offices of the Employer and/or the Employer's agent. Tenderers shall obtain their own copies.

Clause	Description
	In addition Tenderers are advised, in their own interest, to obtain their own copies of the following acts, regulations and standards referred to in this document as they are essential for the Tenderer to get acquainted with the basics of construction management, the implementation of preferential construction procurement policies and participation of targeted enterprise and labour. The Preferential Procurement Policy Framework Act No 5 of 2000, and the Preferential Procurement Policy Framework Act Regulations (January 2017) CIDB, "The Standard for Uniformity in Construction Procurement Annex C, Standard Conditions of Tender", Act 38 of 2000 read with Regulation 24 of the Construction Industry Development Regulations, (as amended) issued in terms of section 33 (August 2019) (i) The Construction Industry Development Board Act No 38 of 2000 and the Regulations in terms of the CIDB Act 38/2000, Government Notice No 692 of 9 June 2004, (ii) SANS 1921:2004 Construction and management Part 1: General Engineering and Construction Works; Part 6: HIV/AIDS Awareness. (iii) SANS 10396:2003 Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures (iv) SANS 1914:2003 Targeted Construction Procurement, Parts 1 to 6, dealing with Participation of Targeted Enterprises, Joint Ventures, Targeted Labour etc.
C.1.4	The Employer's Agent's (also referred to as the Engineer) details are as follows: Name : Dartingo Consulting Engineers (Pty) Ltd Represented by Premesh Jagganath Address : 64 Underwood Road Pinetown 3610 Tel No : (031) 266 0903 Fax No : (031) 266 0906 E-mail : premesh@dartingo.co.za / admin@dartingo.co.za Website : www.dartingo.co.za All communication between the tenderer and the employer shall be addressed to Mr Premesh Jagganath of Dartingo Consulting Engineers (Pty) Ltd, in writing
C.2	TENDERER'S OBLIGATIONS
C.2.1	Eligibility The following tenderers who are registered with the CIDB, or are capable of being so registered prior to the evaluation of submissions, are eligible to submit tenders: a. contractors who have a contractor grading designation equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 5GB or Higher of construction work, and who satisfy the following criteria: 1. Availability of resources

Clause	Description
	2. Availability of skills to manage and perform the contract – including staff which satisfies EPWP requirements (if applicable). 3. Previous experience on contracts of a similar value and nature. 4. Financial standing and capability.
	b. 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 5GB or Higher class of construction work: and, 3. the combined contractor grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a contractor grading designation determined in accordance with the sum tendered for a 5GB or Higher class of construction works c. National Treasury Central Supplier Database Registration Only Tenderers who are to be registered on the National Treasury Central Supplier (CSD) Database and have provided proof of their registration will be eligible to submit a tender offer. Proof of registration must be in the form of the Tenderers CSD registration number. Tenderers who are not registered are not precluded from submitting bids, but must be registered prior to Contract Award. In the case of Joint Venture partnerships this requirement will apply individually to each party to the Joint Venture. Tenderers who wish to register as service providers on the CSD can register online at https://secure.csd.gov.za/Account/Register. d. Attendance of Compulsory Site Briefing Only Tenderers who have attended the compulsory site briefing and have form A1 "Clarification Meeting Certificate" signed by the Employers agent or his representative will be eligible to submit a tender offer. e. Time for Completion of the Contract The time for completion of the contract must be stated in the Contract Data. f. Tenderer's Tax Clearance Certificate Tenderers shall be registered and in good standing with the South African Revenue Services (SARS) and must submit/append documentary evidence/proof in the form of a valid Tax Clearance PIN Number and/or a valid Tax Number issued by SARS. Failure to provide a valid Tax Clearance PIN number and/or Tax Number will result in the tender being rejected. Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance PIN Number and/or Tax Number.
C.2.7	Compulsory Clarification Meeting and Site Inspection The arrangements for the compulsory clarification meeting are: Location: : uMzinto Town Hall Date : Friday, 12 August 2022 Starting Time : 11h00

Clause	Description
	Tenderers must sign the attendance list in the name of the tendering entity. Addenda will be issued to and tenders will be received only from those tendering entities appearing on the attendance list.
C.2.12	Alternative Offers If a Tenderer wishes to submit an alternative tender offer, the only criteria permitted for such an alternative tender offer are a. <u>Individual Items</u> Individual items offered as alternatives to items in the Bill of Quantities will only be considered if listed and priced in Part T2 of the Contract Document, accompanied by a detailed statement as necessary.
C.2.13	Submitting a Tender Offer
C.2.13.3	Tender offers shall be submitted as an original hard copy only.
C.2.13.5	Delivery of Tender
C.2.13.5	The Employer's address for delivery of tender offers and identification details to be shown on each tender offer package are:
C.2.15.1	Location of Tender Box : Foyer of Umdoni Municipal Offices Identification Details : Municipal Manager
	Umdoni Local Municipality Construction of Mandlalathi Community Hall Contract No: 08/2023
C.2.13.6 & C.3.5	A two-envelope procedure will not be followed.
C.2.15	Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will NOT be accepted.
C.2.15	Tender Submissions The closing time for submission of tender offers is Date : Friday, 19 August 2022 Time : 12h00
C.2.16	Tender Validity The Tender Offer Validity Period is 120 days from the tender closing date
C.2.18	Contractors Staff The tender shall, when requested by the Employer to do so, submit the names of all management and supervisory staff that will be employed to supervise the labour-intensive portion of the works together with satisfactory evidence that such staff members satisfy the eligibility requirements
C.2.20	Performance Bond The tenderer is required to submit with his tender a letter of intent from an approved insurer undertaking to provide the Performance Bond to the format included in Part T2.2 of this procurement document

Clause	Description
C.2.22	Return of Tender Document Where a Tenderer who received a tender document does not submit a tender, the tender documents issued to him must be returned to the Employer within 14 days after the closing date for submission of tenders
C.2.23	Certificates The tenderer is required to submit the following certificates with his tender: 1. Either a Certificate of Contractor Registration issued by the Construction Industry Development Board OR a copy of the Application Form for registration in terms of the Construction Industry Development Board Act (Form F006). 2. An original valid Tax Clearance Certificate issued by the South African Revenue Services. 3. Copies of company registration documents 4. Joint Venture Agreement and Power of Attorney in case of Joint Ventures 5. Copies of ID documents of Shareholders/Members/Directors of the business enterprises 6. Proof of Preference Points Claimed 7. VAT Registration Certificate and Pin 8. Skills Development Levy Certificate 9. Workmen's Compensation Registration Certificate (or proof of payment of contributions in terms of the Compensation for Occupational Injuries and Diseases Act No. 130 of 1993) 10. a certificate certifying that the enterprise has no undisputed commitments to a municipality or other service provider in respect of which payment is overdue by more than 30 days (if greater than R10 million incl. VAT); 11. particulars of any contracts awarded by an organ of state during the last five years including particulars of any material non-compliance or dispute concerning their execution over this period (if >R10 000 incl. VAT); and 12. a statement indicating whether any portion of the goods or services are expected to be sourced from outside the Republic, and, if so, what portion and whether any portion or payment from the municipality or municipal entity is expected to be transferred out of the Republic (if greater than R10 million incl. VAT). 13. All other certificates as requested in T2.1
C.3 C.3.4	EMPLOYERS UNDERTAKINGS Opening of Tender Submissions The time and location for opening of the tender offers are: Time : 12h00 Date : Friday, 19 August 2022 Location : Umdoni Local Municipality
C.3.11	Method of Tender Evaluation The procedure for the evaluation of responsive tenders is Financial Offer and Preference a. Scoring financial offer: The financial offer will be scored using the following formula $N_f = W_1 \times [1 - (P - P_m) / P_m]$ where: W₁ = 80 for financial values up to R50 000 000 (inclusive of VAT) of all responsive tenders received, and 90 for financial values over R50 000 000;

Clause	Description																												
	Pm = the value of the comparative offer of the most favourable tender; P = the value of the comparative offer under consideration																												
	b. Scoring Preferences Up to 20 points (for financial values up to R50 000 000) or 10 points (for financial values over R50 000 000) will be awarded to tenderers who are found to be eligible for the preference claimed. Points will be awarded to Tenderers for attaining the BBBEE status level of contribution as per the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017 as detailed below. <table><tr><th>BBBEE Status Level Contributor</th><th>Number of Points (80/20 Principle)</th></tr><tr><td>1</td><td>20</td></tr><tr><td>2</td><td>18</td></tr><tr><td>3</td><td>14</td></tr><tr><td>4</td><td>12</td></tr><tr><td>5</td><td>8</td></tr><tr><td>6</td><td>6</td></tr><tr><td>7</td><td>4</td></tr><tr><td>8</td><td>2</td></tr><tr><td>Non-Compliant Contributor</td><td>0</td></tr></table>	BBBEE Status Level Contributor	Number of Points (80/20 Principle)	1	20	2	18	3	14	4	12	5	8	6	6	7	4	8	2	Non-Compliant Contributor	0								
BBBEE Status Level Contributor	Number of Points (80/20 Principle)																												
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6	6																												
7	4																												
8	2																												
Non-Compliant Contributor	0																												
	Tenderers are advised to study: UMDONI LOCAL MUNICIPALITY– SUPPLY CHAIN MANAGEMENT PROCUREMENT POLICY when completing Returnable Schedules and claiming points. a. Quality The quality will comprise scores for the following based on criteria indicated in the respective tender returnables and summarised as follows: The score for quality can be further broken down per individual criteria as follows: NB: Bidders are required to submit supporting documents to score full point Scoring Quality (Functionality) <u>Total Score for Quality</u> <table><tr><th></th><th>Criteria</th><th>Possible Full Points</th><th>Actual Points Obtained</th></tr><tr><td>C.3.11.9.1</td><td>Experience applicable to past 8 years</td><td>15</td><td>S1 =</td></tr><tr><td>C.3.11.9.2</td><td>Financial Resources</td><td>16</td><td>S2 =</td></tr><tr><td>C.3.11.9.3</td><td>Experience of Key Personnel</td><td>17</td><td>S3 =</td></tr><tr><td>C.3.11.9.4</td><td>Quality Assurance Plan and Control Procedures</td><td>10</td><td>S4 =</td></tr><tr><td>C.3.11.9.5</td><td>Previous Performance on Similar Projects Project 1 Project 2</td><td>21 21</td><td>*S5a = *S5b =</td></tr><tr><td></td><td>Total Possible Points</td><td>100</td><td>Total Points Obtained</td></tr></table>		Criteria	Possible Full Points	Actual Points Obtained	C.3.11.9.1	Experience applicable to past 8 years	15	S1 =	C.3.11.9.2	Financial Resources	16	S2 =	C.3.11.9.3	Experience of Key Personnel	17	S3 =	C.3.11.9.4	Quality Assurance Plan and Control Procedures	10	S4 =	C.3.11.9.5	Previous Performance on Similar Projects Project 1 Project 2	21 21	*S5a = *S5b =		Total Possible Points	100	Total Points Obtained
	Criteria	Possible Full Points	Actual Points Obtained																										
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C.3.11.9.5	Previous Performance on Similar Projects Project 1 Project 2	21 21	*S5a = *S5b =																										
	Total Possible Points	100	Total Points Obtained																										

Clause	Description				
	* To be scored by Referees				
	C.3.11.9.1 <u>Criteria:</u> Experience applicable to past 8 years only: Maximum Score = 15				
	List below 5 highest-value contracts of similar work* undertaken as main contractor within the last 8 years. Projects listed must be selected from those listed in the Proof of Experience Schedule (Form 1A, pg T2-4 of Returnable Schedule)	Points	Score	Verification Method	
	Number of contracts of similar nature of work provided				
1.1	5 or more projects of similar nature of work provided	15		<i>Bidder is to provide Certified copies of their appointment letters, Completion Certificates and Reference letters from their clients</i>	
1.2	4 or more projects of similar nature of work provided	12			
1.3	3 or more projects of similar nature of work provided	8			
1.4	2 or more projects of similar nature of work provided	5			
1.5	1 or more projects of similar nature of work provided	3			
1.6	0 or more projects of similar nature of work provided	0			
1.7	Possible Full Points =	15			
1.8	Actual Points Obtained S1 =				
<u>Note:</u> * Similar work (or Project) means building of Community Halls, Public Facilities & Service Centres					
<i>*The Employer will send the “Assessment of Performance” form (see example C.3.12) to two or more of the five references listed here. Two replies will then be used to score Criteria C.3.11.9.5.1 and C.3.11.9.5.2</i>					
	<u>C.3.11.9.2 Criteria: Financial Resources (Bank Rating): Maximum Score = 16</u>				
2.	Score one of the ratings listed below as reflected on certified bank rating received – see Form 2F pgT2-12 of the Returnable Schedule	Points	Score	Verification Method	
2.1.	Bank Rating A – Undoubted for the amount of enquiry	16		<i>Bidder to provide a letter from a recognised Bank Rating indicating the Bank Rating</i>	
2.2	Bank Rating B – Good for the amount of enquiry	12			
2.3	Bank Rating C – Good for the amount quoted if applied strictly in the way of business	9			
2.4	Bank Rating D – Fair trade for the amount of enquiry	5			
2.5	Bank Rating E – Figures considered too high Bank Rating F – Financial Position Unknown Bank Rating G – Dishonour on records Bank Rating H – Frequently Dishonoured	Not eligible to tender			
2.6	Possible Full Points =	16			
	Actual Points Obtained S2 =				
	C.3.11.9.3 <u>Criteria:</u> Experience of Key Personnel: Maximum Score = 17				
	Proposed key Personnel	Experience	Points	Score	Verification Method
3.1	Project Director	Approved Degree or Diploma in Civil Engineering	2		

Clause	Description						
		Name:	Years of appropriate experience (score one of the categories)	<5 5 to 10 >10	0 1 2		<i>Bidders to are to provide a CV for each personnel, certified copy of their ID documents and certified copy of their qualifications</i>
3.2	Site Agent/ Project Manager (Note the Site Agent may be the same person as the Project Director) Name:	Approved Degree or Diploma in Civil Engineering		2			
		Years of appropriate experience (score one of the categories)	<5 5 to 10 >10	0 1 2			
3.3	Site Foreman Name:	Approved Degree or Diploma in Civil Engineering / NQF 4 in Civil Engineering and/or Construction		2			
		Years of appropriate experience (score one of the categories)/NQF in Civil Construction	<5 5 to 10 >10	0 1 2			
3.4	Total number of full time skilled workers & artisans assigned (in addition to Project Director, Site Agent & Site Supervisor)	(score one of the categories)	0	0			
			1 - 2	1			
			3 - 4	3			
			5 or more	5			
3.5	Possible Full Points =				17		
3.6	Actual Points Obtained S3 =						
Note: * Curriculum Vitae's to be attached in Section T2-5, Schedule 1B: Key Personnel * Years of appropriate experience means experience in the field of building works. * Certified copies of IDs, Degrees and/or Diplomas to be attached if points are claimed.							
C.3.11.9.4 Criteria: Quality Assurance Plan and Control Procedures: Maximum Score = 10							
4	Score one status as listed below			Points	Score	Verification Method	
4.1	ISO Accreditation			10		<i>Bidders are to provide requested documents listed below</i>	
4.2	Own Internal QA Plan Specific to Building Work			6			
4.3	None			0			
4.4	Possible Full Points =			10			
4.5	Actual Points Obtained S4 =			=			
Note: * If 4.1 selected, attach current certified copy of ISO Accreditation Certificate. * If 4.2 selected attach a brief internal Quality Assurance Plan.							

Clause	Description																																									
C.3.11.9.5	Criteria: Performance on Two Similar Projects undertaken within the last 8 years: Maximum Score = 42																																									
C.3.11.9.5.1	PROJECT 1 – Completed by Employer when Evaluating Tenders																																									
Note:	* The two projects (to be sourced from projects listed in C.3.11.9.1, Schedule and Form 1A, pg T2-4) will be scored here based on evaluations submitted by the previous employer under which the project was implemented * the Bidder will send "Assessment of Performance Form" (C.3.12) to two or more of the five references listed (to be sourced from projects listed in C.3.11.9.1, Schedule and Form 1A, pg T2-4) * The current Employer (Umdoni) will then complete these two pages and scores based on the reference responses received.																																									
5a.1	Project Name: _____ Value of work carried out by Contractor: R _____ Detail of work carried out by Contractor: _____ _____																																									
5a.2	Reference: Name: _____ Organisation: _____ Contact Details: _____																																									
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	C.3.11.9.5.2 PROJECT 2 – Completed by Employer when Evaluating Tenders Note: * - The two projects (to be sourced from projects listed in C.3.11.9.1, Schedule and Form 1A, pg T2-4) will be scored here based on evaluations submitted by the previous employer under which the project was implemented - the Bidder will send “Assessment of Performance Form” (C.3.12) to two or more of the five references listed (to be sourced from projects listed in C.3.11.9.1, Schedule and Form 1A, pg T2-4) - The current Employer (Umdoni) will then complete these two pages and scores based on the reference responses received. 5b.1 Project Name: _____ Value of work carried out by Contractor: R _____ Detail of work carried out by Contractor: _____ 5b.2 Reference: Name: _____ Organisation: _____ Contact Details: _____ <table border="1"> <thead> <tr> <th></th><th>Qualitative Statements as assessed by Referees (refer to returned forms C.3.12)</th><th>Points</th><th>Score</th><th>Verification Method</th></tr> </thead> <tbody> <tr> <td>5b.3</td><td>“Contractor’s Management was adequate for the contract”</td><td></td><td></td><td></td></tr> <tr> <td>5b.4</td><td>“Contractor provided suitably qualified Site personnel”</td><td>Not true</td><td>0</td><td></td></tr> <tr> <td>5b.5</td><td>“Contractor complied with Health & Safety requirements</td><td>Partially fulfilled</td><td>1</td><td></td></tr> <tr> <td>5b.6</td><td>“Contractor’s provided adequate resources for the contract”</td><td>Substantially fulfilled</td><td>2</td><td></td></tr> <tr> <td>5b.7</td><td>“Contractor’s communication and compliance to instructions was good”</td><td>Completely fulfilled</td><td>3</td><td></td></tr> <tr> <td>5b.8</td><td>“Quality of work produced was to drawings and specification”</td><td>(Score from returned reference sheet</td><td></td><td></td></tr> <tr> <td>5b.9</td><td>“Contract was completed on time”</td><td></td><td></td><td></td></tr> <tr> <td>5b.10</td><td>Possible Full Points</td><td>21</td><td></td><td></td></tr> <tr> <td>5b.11</td><td>Actual Points Obtained S5b =</td><td></td><td></td><td></td></tr> </tbody> </table> <u>Tenderers that score less than 60% of the total score allowed for quality will not be considered further.</u>		Qualitative Statements as assessed by Referees (refer to returned forms C.3.12)	Points	Score	Verification Method	5b.3	“Contractor’s Management was adequate for the contract”				5b.4	“Contractor provided suitably qualified Site personnel”	Not true	0		5b.5	“Contractor complied with Health & Safety requirements	Partially fulfilled	1		5b.6	“Contractor’s provided adequate resources for the contract”	Substantially fulfilled	2		5b.7	“Contractor’s communication and compliance to instructions was good”	Completely fulfilled	3		5b.8	“Quality of work produced was to drawings and specification”	(Score from returned reference sheet			5b.9	“Contract was completed on time”				5b.10	Possible Full Points	21			5b.11	Actual Points Obtained S5b =			
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C3.13	Acceptance of Tenders Tender offers will only be accepted on condition that: 1. The tender offer is signed by a person authorised to sign on behalf of the tenderer 2. the tenderer is registered with the Construction Industry Development Board in an appropriate contractor grading designation, by tender closing date; 3. the tenderer is not in arrears for more than 3 months with the municipal rates and taxes and municipal services charges; 4. the tender has not i. Abused the Employer's Supply Chain Management System; or ii. Failed to perform on any previous contract and has been given a written notice to this effect; and 5. The tenderer has completed the Compulsory Enterprise Questionnaires and there are no conflicts of interest that may impact on the tenderer's ability to perform the contract in the best interest of the employer or potentially compromise the tender process 6. The tenderer's declaration of compliance with the Occupational Health and Safety Act No 85 of 1993 and the Construction Regulations 2014 is included with his tender submission 7. A Tenderer who submitted a tender as a Joint Venture has included an acceptable Joint Venture Agreement with his tender submission 8. The tenderer has submitted all requests in terms of T2.1 9. Rates i. A price or rate is entered against each item where provision is made for such pricing in the Schedule of Quantities whether quantities are stated or not. ii. No two items can be bracketed together for a single price or rate. Items against which N/A, left blank or – is entered are to be considered as incomplete and will invalidate the tender. iii. Items against which NIL or zero (0) is entered in the schedule of quantities are to be considered to be fully priced and the tenderer will provide the items in question as specified at zero (0) or NIL price.
C.3.17	Copies of Contract The employer will provide the successful tenderer with 1 (one) paper copy of the signed contract.

PART T2: RETURNABLE DOCUMENTS

PART T2-RETURNABLE DOCUMENTS

CONTENTS	PAGE
T2.1. LIST OF RETURNABLE DOCUMENTS	T2-2
T2.2. RETURNABLE SCHEDULES	T2-3

T2.1. LIST OF RETURNABLE DOCUMENTS

The following documents are to be completed and returned as they constitute the tender. Whilst many of the returnables are required for the purpose of evaluating the tenders, some will form part of the subsequent contract, as they form the basis of the tender offer. For this reason, it is very important that tenderers return all information requested.

T2.1. LIST OF RETURNABLE DOCUMENTS.....	2
T2.2. RETURNABLE SCHEDULES	3
SCHEDULE 1A: PROOF OF EXPERIENCE.....	4
SCHEDULE 1B: EXPERIENCE OF PERSONNEL	5
SCHEDULE 1C: ASSESSMENT OF PERFORMANCE FORM	6
SCHEDULE 2A: CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING	7
SCHEDULE 2B: RECORD OF ADDENDA TO TENDER DOCUMENTS.....	8
SCHEDULE 2C: BROAD BASED BLACK ECONOMIC EMPOWERMENT CERTIFICATE (BBBEE).....	9
SCHEDULE 2D: CIDB REGISTRATION CERTIFICATES	10
SCHEDULE 2E: VALID TAX CLEARANCE CERTIFICATE / APPLICATION FOR TAX CLEARANCE	11
SCHEDULE 2F: TENDERER'S FINANCIAL STANDING	12
SCHEDULE 2G: COMPULSORY ENTERPRISE QUESTIONNAIRE	13
SCHEDULE 2H: CENTRAL SUPPLIER DATABASE REGISTRATION.....	15
SCHEDULE 3A: CERTIFICATE OF AUTHORITY	16
SCHEDULE 3B: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES (if applicable)	18
SCHEDULE 3C: JOINT VENTURE AGREEMENT (Only if applicable)	19
SCHEDULE 3D: REGISTRATION CERTIFICATE / AGREEMENT / ID DOCUMENT	20
SCHEDULE 3E: KEY PERSONNEL SCHEDULE.....	21
SCHEDULE 3F: SCHEDULE OF PLANT AND EQUIPMENT	22
SCHEDULE 3G: ALTERATIONS BY TENDERER OR ALTERNATIVE TENDERS.....	23
SCHEDULE 3H: PRESENT COMMITMENTS.....	25
SCHEDULE 3I: PRELIMINARY PROGRAMME	26
SCHEDULE 4A: PREFERENTIAL PROCUREMENT SCHEDULE (MBD 6.1)	27
SCHEDULE 4B: FORM OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE	29
SCHEDULE 4C: WORKMENS COMPENSATION REGISTRATION CERTIFICATE.....	30
SCHEDULE 4D: UNEMPLOYMENT INSURANCE FUND (UIF) REGISTRATION CERTIFICATE.....	31
SCHEDULE 4E: CONTRACTOR'S HEALTH AND SAFETY DECLARATION	32
SCHEDULE 4F: DECLARATION OF INTEREST (MBD 4)	34
SCHEDULE 4G: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD 8)	36
SCHEDULE 4H: CERTIFICATE OF INDEPENDENT BID DETERMINATION (MBD 9).....	38

T2.2. RETURNABLE SCHEDULES

The Returnable Schedules 1,2 & 3 as listed in section T2.1 List of Returnable Documents follow:

NOTE:

The Tenderer is required to complete each and every schedule and form in the list of returnable schedules to the best of his ability as the evaluation of the tenders will be based on the information provided by the Tenderer.

Bidders may submit returnable documents in a bound document, separate from the tender document, labelled correctly with company details, or alternatively bidders may stable required documents to the corresponding pages in this tender document.

SCHEDULE 1A: PROOF OF EXPERIENCE

Proof of experience of the company in projects of similar scope and value

The Bidder must attach to this page a copy of their Proof of Experience

Bidder is to provide copies of their appointment letters, Completion Certificates and Reference letters from their clients

EMPLOYER (Name, Tel No and Fax No)	CONSULTING ENGINEER (Name, Tel No and Email)	NATURE OF WORK	VALUE OF WORK	YEAR OF COMPLETION

**Continue if necessary*

SCHEDULE 1B: EXPERIENCE OF PERSONNEL

Tenderers shall provide details of the Site Agent(s) and General Foreman's experience in work of a similar nature to that for which their tender is submitted.

Failure to complete this schedule may result in the tender not being considered.

Contracts Manager

CONTRACTS MANAGER	NAME:.....			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

Site Agent

SITE AGENT	NAME:.....			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

Foreman

GENERAL FOREMAN	NAME:.....			
CONTRACT & CLIENT	NATURE OF WORK	POSITION HELD	VALUE OF WORK	YEAR COMPLETED

Tenderers to attach CV of the following proposed site staff:

1. Site Agent
2. Foreman
3. Contracts Manager

SCHEDULE 1C: ASSESSMENT OF PERFORMANCE FORM

Assessment of Contractor's Performance by Independent Reference

(This assessment form must be sent by the Bidder to at least **2 of the references** listed in Criteria 1 C.3.11.9.1 to obtain scores for Criteria 5a and 5b)

A verification process will be conducted by the employer (Umdoni Municipality)

Contractor (Name:)

Contract No.

Name of Contract: Year of execution:

Contract value: Employer:

Contract duration: Engineer:

Reference's Position in Contract:

Your assessment of the Contractor's performance in the following areas: <i>(please tick one of the blocks on the right hand side)</i>	Not true	Partially fulfilled	Substantially fulfilled	Completely fulfilled
"Contractor's Management was adequate for the contract"				
"Contractor provided suitably qualified Site personnel"				
"Contractor complied with Health & Safety requirements"				
"Contractor's provided adequate resources for the contract"				
"Contractor's communication and compliance to instructions was good"				
"Quality of work produced was to drawings and specification"				
"Contract was completed on time"				

Any other comments:

.....
.....

Name of person completing this assessment form (Reference):

..... ECSA Prof. Reg. No:

Representing firm:

Tel: e-mail:

Company / Official Stamp

Signature of Reference/Validator..... Date of Assessment:.....

SCHEDULE 2A: CERTIFICATE OF ATTENDANCE AT CLARIFICATION MEETING

This is to certify that

..... (Tenderer)

of(address)

.....

was represented by the person(s) named below at the compulsory meeting held for all tenderers at

..... (Location) on (date), starting at

We acknowledge that the purpose of the meeting was to acquaint ourselves with the site of the works and / or matters incidental to doing the work specified in the tender documents in order for us to take account of everything necessary when compiling our rates and prices included in the tender.

Particulars of person(s) attending the meeting:

Name Signature

Capacity

Name Signature

Capacity

Attendance of the above persons at the meeting is confirmed by the Employer's representative, namely:

Name Signature

Capacity Date & Time

Municipal Official Stamp



SCHEDULE 2B: 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 :		
No.	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

**SCHEDULE 2C: BROAD BASED BLACK ECONOMIC EMPOWERMENT CERTIFICATE
(BBBEE).**

Tenderer's Broad Based Black Economic Empowerment (BBBEE) Certificate to be inserted here

SCHEDULE 2D: CIDB REGISTRATION CERTIFICATES

The Tenderer must attach to this page a copy/copies of their CIDB Certificate/s.

LEAD PARTNER

Contractors Name:

Contractors CIDB Number:

Contractors CIDB Grading and Classification:

JOINT VENTURE PARTNER 1

Contractors Name:

Contractors CIDB Number:

Contractors CIDB Grading and Classification:

JOINT VENTURE PARTNER 2

Contractors Name:

Contractors CIDB Number:

Contractors CIDB Grading and Classification:

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

**SCHEDULE 2E: VALID TAX CLEARANCE CERTIFICATE / APPLICATION FOR TAX
CLEARANCE**

The Tenderer must attach to this page an original Tax Clearance Certificate from the South African Revenue Services in respect of his/her company, close corporation or partnership.

In the case of a joint venture between two or more firms, the tenderer shall attach an original/copy of the Tax Clearance Certificate for each of the joint venture partners.

Tenderers are to provide a Tax Clearance Certificate and/or Pin

SCHEDULE 2F: TENDERER'S FINANCIAL STANDING

In terms of Clause C.2.18.1 of the Standard Conditions of Tender, the Employer may make enquiries to obtain a bank rating from the Tenderer's bank.

To this end, the Tenderer must provide with his tender a bank rating, certified by his banker, to the effect that he will be able to successfully complete the contract at the tendered amount within the specified time for completion.

However, should the Tenderer be unable to provide a bank rating with his tender, he shall state the reasons as to why he is unable to do so, and in addition, provide the following details of his banker and bank account that he intends to use for the project.

Name of account holder:

Name of bank:

Branch name:

Account number:

Account type:

Branch code:

Telephone number:

Fax number:

Name of contact person (at bank):

Bank Rating:

Failure to provide either the required bank details or a certified bank rating with his tender, will lead to the conclusion that the Tenderer does not have the necessary financial resources at his disposal to complete the contract successfully within the specified/tendered time for construction.

The Employer undertakes to treat the information thus obtained as confidential, strictly for the use of evaluation of the tender submitted by the Tenderer.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

SCHEDULE 2G: COMPULSORY ENTERPRISE QUESTIONNAIRE

The following particulars must be furnished. In the case of a joint venture, separate enterprise questionnaires in respect of each partner must be completed and submitted.

Section 1: Name of enterprise:

Section 2: VAT registration number, if any:

Section 3: CIDB registration number, if any:

Section 4: Particulars of sole proprietors and partners in partnerships

Name*	Identity number*	Personal income tax number*

*Complete only if sole proprietor or partnership and attach separate page if more than 3 partners

Section 5: Particulars of companies and close corporations

Company registration number:

Close corporation number:

Tax reference number:

Section 6: Record in the service of the state

Indicate by marking the relevant boxes with a cross, if any sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

a member of any municipal council		an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)	
a member of any provincial legislature			
a member of the National Assembly or the National Council of Province			
a member of the board of directors of any municipal entity		a member of an accounting authority of any national or provincial public entity	
an official of any municipality or municipal entity		an employee of Parliament or a provincial legislature	

If any of the above boxes are marked, disclose the following:

Name of sole proprietor, partner, director, manager, principal shareholder or stakeholder	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

Section 7: Record of spouses, children and parents in the service of the state

Indicate by marking the relevant boxes with a cross, if any spouse, child or parent of a sole proprietor, partner in a partnership or director, manager, principal shareholder or stakeholder in a company or close corporation is currently or has been within the last 12 months in the service of any of the following:

a member of any municipal council		an employee of any provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act 1 of 1999)
a member of any provincial legislature		
a member of the National Assembly or the National Council of Province		
a member of the board of directors of any municipal entity		a member of an accounting authority of any national or provincial public entity
an official of any municipality or municipal entity		an employee of Parliament or a provincial legislature

If any of the above boxes are marked, disclose the following:

Name of spouse, child or parent	Name of institution, public office, board or organ of state and position held	Status of service (tick appropriate column)	
		Current	Within last 12 months

*insert separate page if necessary

The undersigned, who warrants that he/she is duly authorised to do so on behalf of the enterprise:

- authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my/our tax matters are in order;
- confirms that neither the name of the enterprise or the name of any partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears on the Register of Tender Defaulters established in terms of the Prevention and Combating of Corrupt Activities Act of 2004;
- confirms that no partner, manager, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise, has within the last five years been convicted of fraud or corruption;
- confirms that I/we are not associated, linked or involved with any other tendering entities submitting tender offers and have no relationship with any of the tenderers or those responsible for compiling the scope of work that could cause or be interpreted as a conflict of interest; and
- confirms that the contents of this questionnaire are within my personal knowledge and are to the best of my belief both true and correct.

Signed _____ Date _____

Name _____ Position _____

Enterprise name _____

* The schedule should be used where tenders are subject to the local Government: Municipal Finance Management Act

SCHEDULE 2H: CENTRAL SUPPLIER DATABASE REGISTRATION

The tenderer must attach hereto proof of Central Supplier Database registration.

SCHEDULE 3A: CERTIFICATE OF AUTHORITY

Indicate the status of the tenderer by ticking the appropriate box hereunder. The tenderer must complete the certificate set out below for the relevant category.

A Company	B Partnership	C Joint Venture	D Sole Proprietor	E Close Corporation

A. Certificate for Company

I, ..., chairperson of the board of directors of
....., hereby confirm that by resolution of the board
(copy attached) taken on 20..., Mr. /Ms.
acting in the capacity of, was authorized to sign all documents in
connection with this tender for contract and any contract resulting from it on behalf of
the company.

As witnesses :

1. Chairman :
Date :
2.

Tenderers must attach a copy of the Resolution of the Board

B. Certificate for Partnership

We, the undersigned, being the key partners in the business trading as
..... hereby authorize Mr./Ms.
acting in the capacity of to sign all documents in connection
with the tender for Contract and any contract resulting from it on
our behalf.

NAME	ADDRESS	SIGNATURE	DATE

NOTE : This certificate is to be completed and signed by all of the key partners upon whom rests
the direction of the affairs of the Partnership as a whole

C. Certificate for Joint Venture

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorize Mr./Ms.
....., authorized signatory of the company
....., acting in the capacity of lead partner, to sign all documents in
connection with the tender offer for Contract and any contract resulting from it on

our behalf.

This authorization is evidenced by the attached power of attorney signed by legally authorized signatories of all the partners to the Joint Venture.

NAME OF FIRM	ADDRESS	AUTHORIZING SIGNATURE, NAME & CAPACITY
Lead partner		

D. Certificate for Sole Proprietor

I, ...hereby confirm that I am the sole owner of the business trading as
.....

As witnesses:

1. _____ Signature : Sole owner : _____
2. _____ Date : _____

E. Certificate for Close Corporation

We, the undersigned, being the key members in the business trading as
..... hereby authorize Mr./Ms.
acting in the capacity of, to sign all documents in connection with the tender for
Contract and any contract resulting from it on our behalf.

NAME	ADDRESS	SIGNATURE	DATE

NOTE: This certificate is to be completed and signed by all of the key-partners upon who rests the direction of the affairs of the Partnership as a whole.

SCHEDULE 3B: CERTIFICATE OF AUTHORITY FOR JOINT VENTURES (IF APPLICABLE)

This returnable schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in joint venture and hereby authorize Mr/Ms
....., authorised signatory of the company, close corporation or partnership
....., acting in the capacity of lead partner, to sign all documents in
connection with the tender offer and any contract resulting from it on our behalf.

NAME OF FIRM	ADDRESS	DULY AUTHORISED SIGNATORY
Lead partner		Signature Name Designation
		Signature Name Designation
		Signature Name Designation

NOTE: A copy of the Joint Venture Agreement showing clearly the **percentage contribution of each partner** to the Joint Venture shall be appended to this schedule.

SCHEDULE 3C: JOINT VENTURE AGREEMENT (ONLY IF APPLICABLE)

The Tenderer must attach to this page the Joint Venture agreement document, if applicable.

SCHEDULE 3D: REGISTRATION CERTIFICATE / AGREEMENT / ID DOCUMENT

Important note to Tenderer: Registration Certificates for Companies, Close Corporations and Partnerships, or Agreements and Powers of Attorney for Joint Ventures or ID documents for Sole Proprietors, all as referred to in the foregoing forms must be inserted here

(Identity documents must be certified copies of the original)

SCHEDULE 3E: KEY PERSONNEL SCHEDULE

Job Description	Non-Local	Local
Contract Manager		
Site Agent		
Engineers		
Technologists		
Technicians		
Quantity Surveyor		
Surveyors		
General Foreman		
Foremen		
Community Officers		
Clerks		
Operators		
Bricklayers		
Learner Bricklayers		
Steel fixers		
Watchmen		
Pipe Layers		
Labourers		
* Other		
* Other		
* Other		

* To be filled in by Tenderer

Signed

Date

Name

Position

Tenderer

SCHEDULE 3F: SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I/we **presently** own or lease and will have available for this contract or will acquire or hire for this contract if my/our tender is accepted.

- a) Details of major equipment that is owned by and immediately available for this contract.

Quantity	Description, Size, Capacity, etc.
Attach additional pages if more space is required.	

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

Quantity	Description, Size, Capacity, etc.
Attach additional pages if more space is required.	

Signed Date

Name Position

Tenderer

SCHEDULE 3G: ALTERATIONS BY TENDERER OR ALTERNATIVE TENDERS

[This is not an invitation for amendments, deviations or alternatives but should the Tenderer desire to make any departures from the provisions of this contract he shall set out his proposals clearly hereunder. The Employer will not consider any amendment, alternative offers or discounts unless forms (a), (b) and (c) have been completed to the satisfaction of the Employer].

I / We herewith propose the amendments, alternatives and discounts as set out in the tables below:

a) Amendments

PAGE, CLAUSE OR ITEM NO	PROPOSED AMENDMENT

Notes:

- (1) Proposals for amendments to the General and Special Conditions of Contract are not acceptable, and will be ignored;
- (2) The Tenderer must give full details of all the financial implications of the amendments and qualifications in a covering letter attached to his tender.

b) Alternatives

PROPOSED ALTERNATIVE	DESCRIPTION OF ALTERNATIVE

Notes:

- (1) Individual alternative items that do not justify an alternative tender, and an alternative offer for time for completion should be listed here.
- (2) In the case of a major alternative to any part of the work, a separate Schedule of Quantities, programme, etc, and a detailed statement setting out the salient features of the proposed alternatives must accompany the tender.
- (3) Alternative tenders involving technical modifications to the design of the works and methods of construction shall be treated separately from the main tender offer.]

c) Discounts

ITEM ON WHICH DISCOUNT IS OFFERED	DESCRIPTION OF DISCOUNT OFFERED

[Note: The Tenderer must give full details of the discounts offered in a covering letter attached to his tender, failing which, the offer for a discount may have to be disregarded.]

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

SCHEDULE 3H: PRESENT COMMITMENTS

Employer and Contract Description	Contract Amount	Duration and Completion Date	Consulting Engineer

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

SCHEDULE 3I: PRELIMINARY PROGRAMME

The Tenderer shall detail below or attach a preliminary programme reflecting the proposed sequence and tempo of execution of the various activities comprising the work for this Contract.

The programme shall be in accordance with the information supplied in the Contract, requirements of the Project Specifications and with all other aspects of his Tender

SCHEDULE 4A: PREFERENTIAL PROCUREMENT SCHEDULE (MBD 6.1)

Tenderers who wish to claim preference points in terms of Clause 3.11 of the Tender Data must complete the schedule and sign the Declaration at the end of the schedule. Failure on the part of the tenderer to fill in and/or to sign this schedule will be interpreted to mean that preference points are not claimed.

A. POINTS FOR BBBEE

Tenderers who wish to claim points for this goal must complete the attached scorecard.

No points will be awarded if the total percentage score is less than 40 %.

For competitive bids / price quotations up to a Rand value of R1 million:

NB: The total score out of 100 % must be converted to a point out of a maximum of 15 points for BBBEE.

For competitive bids with a Rand value above R 1 million:

NB: The total score out of 100 % must be converted to a point out of a maximum of 10 points for BBBEE.

B. POINTS FOR LOCAL TENDERERS

B.1 Points Claimed

Points will be awarded as follows:

Tenderers operating from the jurisdiction of the Umdoni Local Municipality may claim 1 (10) or 2 (20) points and a further 2 (10) or 3 (20) shall be granted to Tenderers operating from the judicial area of the Umdoni Local Municipality.

Points claimed:	=	

The claim/award of points will be based on the information furnished in Section B2.

B.2 Declaration with regard to Locality

State full particulars of locality of enterprise as well as that of Head Office:

B.2.1 Address of head office of enterprise: Physical:

Postal:

.....

Telephone: Fax:

RSC levy payer's registration number:

NB: A Valid Levy Registration Certificate must be attached

B.2.2 Address of local enterprise within Umdoni Local Municipality:

Physical:
Postal:
.....
Telephone: Fax:
RSC levy payers registration number:

B.2.3 Address of local enterprise within Municipality:

Physical:
Postal:
.....
Telephone: Fax:
RSC levy payer's registration number:

Failure by the Tenderer to provide the information in Section B2 will result in no preference points being awarded for this category.

C. DECLARATION

I/we, the undersigned, who warrants that he/she is duly authorised to do so on behalf of the firm certify that points claimed, based on the equity ownership, indicated in paragraph 8 of the foregoing certificate, qualifies the firm for the preference(s) shown and I / we acknowledge that:

- i) The information furnished is true and correct.
- ii) In the event of a contract being awarded as a result of points claimed, the contractor may be required to furnish documentary proof to the satisfaction of the employer that the claims are correct.
- iii) If the claims are found to be incorrect, the employer may, in addition to any other remedy it may have -
 - a) recover costs, losses or damages it has incurred or suffered as a result of that person's conduct; and
 - b) 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;

WITNESS: 1 _____

WITNESS: 2 _____

SIGNATURE (S) OF TENDERER(S)

Date:
Address:

SCHEDULE 4B: FORM OF INTENT TO PROVIDE A PERFORMANCE GUARANTEE

[The Tenderer must attach hereto a letter from the bank or institution, with whom he has made the necessary arrangements, to the effect that the said bank or institution will be prepared to provide the required performance guarantee when asked to do so]

SCHEDULE 4C: WORKMENS COMPENSATION REGISTRATION CERTIFICATE

[The Tenderer is to attach a copy of their Workmen's Compensation Registration or proof of payment of contributions to this page]

SCHEDULE 4D: UNEMPLOYMENT INSURANCE FUND (UIF) REGISTRATION CERTIFICATE

[The Tenderer's Unemployment Insurance Fund (UIF) Registration Certificate to be inserted here]

SCHEDULE 4E: CONTRACTOR'S HEALTH AND SAFETY DECLARATION

In terms of Clause 4(4) of the OHS Act 1993 Construction Regulations 2014 (referred to as "the Regulations" hereafter), a Contractor may only be appointed to perform construction work if the Employer is satisfied that the Contractor has the necessary competencies and resources to carry out the work safely in accordance with the Occupational Health and Safety Act No 85 of 1993 and the OHS Act 1993 Construction Regulations 2014

To that effect a person duly authorised by the tenderer must complete and sign the declaration hereafter in detail.

Declaration by Tenderer

1. I the undersigned hereby declare and confirm that I am fully conversant with the Occupational Health and Safety Act No 85 of 1993 (as amended by the Occupational Health and Safety Amendment Act No 181 of 1993), and the OHS Act 1993 Construction Regulations 2014
2. I hereby declare that my company / enterprise has the competence and the necessary resources to safely carry out the construction work under this contract in compliance with the Construction Regulations and the Employer's Health and Safety Specifications.
3. I hereby undertake, if my tender is accepted, to provide a sufficiently documented Health and Safety Plan in accordance with Regulation 5(1) of the Construction Regulations, approved by the Employer or his representative, before I will be allowed to commence with construction work under the contract. I hereby agree that my company/enterprise will not have a claim for compensation for delay or extension of time because of my failure to obtain the necessary approval for the said safety plan.
4. I confirm that copies of my company's approved Health and Safety Plan, the Employer's Safety Specifications as well as the OHS Act 1993 Construction Regulations 2014 will be provided on site and will at all times be available for inspection by the Contractor's personnel, the Employer's personnel, the Engineer, visitors, and officials and inspectors of the Department of Labour.
5. I hereby confirm that adequate provision has been made in my tendered rates and prices in the bill of quantities to cover the cost of all resources, actions, training and all health and safety measures envisaged in the OHS Act 1993 Construction Regulations 2014, including the cost for specific items that may be scheduled in the bill of quantities.
6. I hereby confirm that I will be liable for any penalties that may be applied by the Employer in terms of the said Regulations for failure on my part to comply with the provisions of the Act and the Regulations as set out in Regulation 30 of the Regulations.
7. I agree that my failure to complete and execute this declaration to the satisfaction of the Employer will mean that I am unable to comply with the requirements of the OHS Act 1993 Construction Regulations 2014, and accept that my tender will be prejudiced and may be rejected at the discretion of the Employer.
8. I am aware of the fact that, should I be awarded the contract, I must submit the notification required in terms of Regulation 3 of the OHS Act 1993 Construction Regulations 2014 (*example attached hereafter*) before I will be allowed to proceed with any work under the contract.

SIGNATURE: DATE:
(of person authorised to sign on behalf of the Tenderer)

**PRO FORMA NOTIFICATION FORM IN TERMS OF THE OCCUPATIONAL HEALTH AND
SAFETY ACT 1993 , CONSTRUCTION REGULATIONS 2014**

[In terms of Regulation 3 of the Construction Regulations 2014, the successful Tenderer must complete and forward this form prior to commencement of work to the office of the Department of Labour.]

1. (a) Name and postal address of Contractor:
.....
(b) Name of Contractor's contact person:
Telephone number:
2. Contractor's compensation registration number:
3. (a) Name and postal address of client:
.....
(b) Name of client's contact person or agent:
Telephone number
4. (a) Name and postal address of designer(s) for the project:
.....
(b) Name of designer's contact person:
Telephone number
5. Name of Contractor's construction supervisor on site appointed in terms of
Regulation 6(1):
Telephone number:
6. Name/s of Contractor's sub-ordinate supervisors on site appointed in terms of regulation 6(2).
.....
7. Exact physical address of the construction site or site office:
.....
8. Nature of the construction work:
.....
9. Expected commencement date:
10. Expected completion date:
11. Estimated maximum number of persons on the construction site:
12. Planned number of subcontractors on the construction site accountable to Contractor:
13. Name(s) of subcontractors already chosen:
.....
.....

SIGNED BY:

CONTRACTOR:..... DATE:.....

CLIENT:..... DATE:.....

SCHEDULE 4F: DECLARATION OF INTEREST (MBD 4)

(Please circle the applicable answer)

1. No bid will be accepted from persons in the service of the state. Any person, having a kinship with persons in the service of the state, including a blood relationship, may make an offer or offers in terms of this invitation to bid. In view of possible allegations of favouritism, should the resulting bid, or part thereof, be awarded to persons connected with or related to persons in service of the state, it is required that the bidder or their authorised representative declare their position in relation to the evaluating/adjudicating authority and/or take an oath declaring his/her interest
2. In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Full Name: _____

Identity Number: _____

Company Registration Number: _____

Tax Reference Number: _____

VAT Registration Number: _____

Are you presently in the service of the state?

YES / NO

If so, furnish particulars.

Have you been in the service of the state for the past twelve months?

YES / NO

If so, furnish particulars.

Do you, have any relationship (family, friend, other) with persons in the service of the state and who may be involved with the evaluation and or adjudication of this bid?

YES / NO

If so, furnish particulars.

Are you, aware of any relationship (family, friend, other) between a bidder and any persons in the service of the state who may be involved with the evaluation and or adjudication of this bid?

YES / NO

If so, furnish particulars.

Are any of the company's directors, managers, principle shareholders or stakeholders in service of the state?

YES / NO

If so, furnish particulars.

Are any spouses, child or parent of the company's directors, managers, principle shareholders or stakeholders in service of the state?

YES / NO

If so, furnish particulars.

CERTIFICATION

I, _____ THE UNDERSIGNED CERTIFY THAT THE
INFORMATION FURNISHED ON THIS DECLARATION FORM IS CORRECT.

*ACCEPT THAT THE COUNCIL MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE
TO BE FALSE.*

SIGNATURE

DATE

POSITION

NAME OF BIDDER

SCHEDULE 4G: DECLARATION OF BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES (MBD 8)

- 1 This Municipal Bidding Document must form part of all bids invited.
- 2 It serves as a declaration to be used by municipalities and municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
- 3 The bid of any bidder may be rejected if that bidder, or any of its directors have:
 - a) abused the municipality's / municipal entity's supply chain management system or committed any improper conduct in relation to such system;
 - b) been convicted for fraud or corruption during the past five years;
 - c) willfully neglected, reneged on or failed to comply with any government, municipal or other public sector contract during the past five years; or
 - d) been listed in the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004).
- 4 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

Item	Question	Yes	No
4.1	Is the bidder or any of its directors listed on the National Treasury's Database of Restricted Suppliers as companies or persons prohibited from doing business with the public sector? (Companies or persons who are listed on this Database were informed in writing of this restriction by the Accounting Officer/Authority of the institution that imposed the restriction after the audi alteram partem rule was applied). The Database of Restricted Suppliers now resides on the National Treasury's website(www.treasury.gov.za) and can be accessed by clicking on its link at the bottom of the home page.	Yes ☐	No ☐
4.1.1	If so, furnish particulars:		
4.2	Is the bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)? The Register for Tender Defaulters can be accessed on the National Treasury's website (www.treasury.gov.za) by clicking on its link at the bottom of the home page.	Yes ☐	No ☐

Item	Question	Yes	No
4.2.1	If so, furnish particulars:		
4.3	Was the bidder or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?	Yes ☐	No ☐
4.3.1	If so, furnish particulars:		
4.4	Does the bidder or any of its directors owe any municipal rates and taxes or municipal charges to the municipality / municipal entity, or to any other municipality / municipal entity, that is in arrears for more than three months?	Yes ☐	No ☐
4.4.1	If so, furnish particulars:		
4.5	Was any contract between the bidder and the municipality / municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?	Yes ☐	No ☐
4.7.1	If so, furnish particulars:		

CERTIFICATION

I, THE UNDERSIGNED (FULL NAME)

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

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

Name

Signature

Date

SCHEDULE 4H: CERTIFICATE OF INDEPENDENT BID DETERMINATION (MBD 9)

1. This Municipal Bidding Document (MBD) must form part of all bids¹ invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).² Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
 - (a) take all reasonable steps to prevent such abuse;
 - (b) reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
 - (c) cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid:

I, the undersigned, in submitting the accompanying bid:

(Bid Number and Description)

in response to the invitation for the bid made by:

(Name of Municipality / Municipal Entity)

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

I certify, on behalf of: _____ that:
(Name of Bidder)

1. I have read and I understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect;
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
 - (a) has been requested to submit a bid in response to this bid invitation;
 - (b) could potentially submit a bid in response to this bid invitation, based on

- their qualifications, abilities or experience; and
- (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium³ will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
- (a) prices;
- (b) geographical area where product or service will be rendered (market allocation);
- (c) methods, factors or formulas used to calculate prices;
- (d) the intention or decision to submit or not to submit, a bid;
- (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
- (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.
10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

SIGNATURE

DATE

POSITION

NAME OF BIDDER

¹ Includes price quotations, advertised competitive bids, limited bids and proposals.

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

³ Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

THE CONTRACT

THE CONTRACT

PART C1	AGREEMENT AND CONTRACT DATA
PART C2	PRICING DATA
PART C3	SCOPE OF WORK
PART C4	SITE INFORMATION

PART C1: AGREEMENT AND CONTRACT DATA

C1: AGREEMENTS AND CONTRACT DATA

CONTENTS	PAGE
C1.1. FORM OF OFFER AND ACCEPTANCE.....	2
C1.2. CONTRACT DATA (PART-1)	7
C1.3. CONTRACT DATA (PART 2)	10
C1.4. FORM OF GUARANTEE.....	11
C1.5. AGREEMENT WITH ADJUDICATOR	14
C1.6. OCCUPATIONAL HEALTH AND SAFETY AGREEMENT	15
C1.7. NOTIFICATION OF CONSTRUCTION WORKS.....	20

C1.1. FORM OF OFFER AND ACCEPTANCE

A. OFFER

The Employer, Identified in the Acceptance signature block, has solicited offers to enter into a contract in respect of the following works:

Contract No : **08/2023**
Contract Name : **CONSTRUCTION OF MANDLALATHI COMMUNITY HALL**

The Tenderer, identified in the Offer signature block below, 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 authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

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

_____ Rand (in words); R _____ (in figures),

This offer may be accepted by the Employer by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Contractor in the Conditions of Contract identified in the Contract Data.

Signature

Name

Capacity

For the Tenderer

(Name and Address of Organisation)

**Name and signature
of witness**

Date _____

B. ACCEPTANCE

By signing this part of the Form of Offer and Acceptance, the Employer identified below accepts the Tenderer's Offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this Agreement and in the Contract that is the subject of this Agreement.

The terms of the contract are contained in

- Part C1 : Agreement and Contract Data, (which includes this Agreement)
- Part C2 : Pricing Data
- Part C3 : Scope of Work
- Part C4 : Site Information

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

Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this Schedule, which must be duly signed by the authorised representative(s) of both parties.

The Tenderer shall within two weeks after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), contact the Employer's agent (whose details are given in the Contact Data) to arrange the delivery of any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data at, or just after, the date of this Agreement comes into effect. Failure to fulfill any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now the Contractor) within five days after 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 binding contract between the parties,

Signature(s)

Name(s)

Capacity

**For the
Employer**

(Name and Address of Organisation)

**Name and
signature of
witness**

Date _____

C. SCHEDULE OF DEVIATIONS

Notes:

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

1. Subject	:	_____
Details	:	_____
2. Subject	:	_____
Details	:	_____
3. Subject	:	_____
Details	:	_____
4. Subject	:	_____
Details	:	_____
5. Subject	:	_____
Details	:	_____
6. Subject	:	_____
Details	:	_____
7. Subject	:	_____
Details	:	_____
8. Subject	:	_____
Details	:	_____

By the duly authorised representatives signing this Schedule of Deviations, the Employer and the Tenderer agree to and accept the foregoing Schedule of deviations as the only deviations from and amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Employer during the 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 and signed copy

of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Tenderer:

Signature

Name

Capacity

(Name and Address of Organisation)

**Name and
signature of
witness**

Date

For the Employer:

Signature

Name

Capacity

(Name and Address of Organisation)

**Name and
signature of
witness**

Date

C1.2. CONTRACT DATA (PART-1)

DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works (3RD Edition 2015) published by the South African Institution of Civil Engineering, Private Bag X200, Halfway House, 1685 is applicable to this contract.

Copies of these conditions of contract may be obtained from the South African Institution of Civil Engineering (Tel 011- 805 5947, Fax: 011 – 805 5971).

The Contract Data referred to in the General Conditions of Contract follow, with the Data to be completed Employer furnished. The Tenderer is to provide his details in the spaces provided.

CONTRACT SPECIFIC DATA

The following contract specific data are applicable to this Contract:

	Clause (GCC 2015)	
Name of Employer	1.1.1.15	Umdoni Local Municipality
Address of Employer	1.2.1	Cnr Bram Fischer & Williamson Streets, Scottburgh 4180 Tel :039 976 1202 / 039 978 4313 Fax :039 976 2194/2020
Name of Engineer	1.1.1.16	Dartingo Consulting Engineers (Pty) Ltd
Address of the Engineer	1.2.1	64 Underwood Road Pinetown 3610 P O Box 65596 Reservoir Hills 4090 Email: admin@dartingo.co.za Tel:(031) 2660903 Fax: (031) 2660906
Sub-contracting	4.4.1 & 4.4.2	Add the following Clause The contractor will be required to sub-contract up to a maximum of 30% of the work to local subcontractors. The work to be sub-contracted will be agreed with the Employer
Special Non-working days	5.8.1	All statutory holidays as declared by National or Regional Government. Election Day must be considered, if contract duration falls within any government

	Clause (GCC 2015)	
		election
Year End Break	1.1.1.12	Builders Break as prescribed by SAFCEC
Time to Deliver Deed of Guarantee	6.2	14 days after commencement date
Liability of Guarantee	6.2 & 8.6	10% of Contract Sum
Time within which Works will commenced	5.3	14 days after Commencement Date
Programme to be furnished within	5.6.1	14 days after Commencement Date
Amount to cover professional fees for repairing damage and loss	8.6.1.1.3	14% of Required to be included in the insurance sum
If required, to be arranged by		Contractor
Amount of Special Risks Insurance	8.6.1.2	Sum of total tender amount
Minimum Amount of Liability Insurance	8.6.1.3	R 3 000 000.00 for each and every claim
Day work allowances*	6.5.1.2.3	_____ % on gross remuneration of workmen and foremen actually engaged _____ % on net cost of materials actually used _____ % on Plant actually used No allowance will be made for work done or for materials and equipment for which dayworks rates have been quoted at a tender stage <i>(*if not completed, Zero (0) shall apply)</i>
Time of Completion:*	5.5.1	6 Months
Amount of penalty	5.13.1	The penalty for failing to complete the works is 0.04% of the total Tender Sum per calendar day up to a maximum of R2500.00 per day
Contract Price Adjustment Schedule	6.8.2	a = 0,21 b = 0,27 c = 0,55 d = 0,10 'L' shall be the Labour Index 'P' shall be the Contractors Equipment Index 'M' shall be the Materials Index 'F' shall be the "Fuel (Diesel)" index
Advance on material not yet built into Permanent Works	6.10.2	80 per cent (subject to provision of Indemnity for Materials on Site.)
Amount of Indemnity to be provided by the Contractor for payment of unused materials on site.*	6.10.2	R _____ * <i>(Amount to be filled in by Tenderer)</i>

	Clause (GCC 2015)	
Percentage Retention	6.10.3	10 per cent
Limit of Retention Money	6.10.3	10 percent of Contract Sum
Defects Liability Period	7.8.1	Twelve months
Adjudication	10.5.2	The determination of disputes shall be by ad-hoc adjudication

Documents to be provided by contractor on award

At the site hand over, as per **clause 5.3.1**, the contractor is to provide the following documentation for approval by the employer's agent, prior to commencement of works.

- Site Instruction Book
- Site Daily Dairy
- Company Organogram
- CV of Foremen to be employed
- CV of Site Agent to be employed
- Detailed Cashflow (linked to programme)
- Detailed Programme - MS projects (linked to cashflow)
- Safety File
- Insurance – Works insurance to the value of works
- Insurance - Special Risk insurance to the value of works
- Insurance - Public Liability insurance (5 Million)
- Performance Guarantee / Sureties (as per tender document) 10%
- Letter of Award and Acceptance Letters
- List of Sub-contractors to be used on this contract
- Quality Management System

C1.3. CONTRACT DATA (PART 2)

PART 2: DATA PROVIDED BY THE CONTRACTOR

1.0 CONTRACTING PARTY

The name of the Contractor is

The address of the Contractor is:

Physical Address

Postal Address

.....

.....

.....

.....

.....

.....

.....

.....

Telephone:.....

Fax:

Email:.....

Cell:

SIGNED ON BEHALF OF/BY THE TENDERER:

NAME

SIGNATURE

CAPACITY

DATE

C1.4. FORM OF GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means:.....

Physical address:

"Employer" means: **Umdoni Local Municipality**

"Contractor "means:

"Engineer "means: Employers Agent: **Dartingo Consulting Engineers (Pty) Ltd**

"Works"means:.....

"Site" means:

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

"Contract Sum" means: The accepted amount inclusive of tax of R

Amount in words:

"Guaranteed Sum "means: The maximum aggregate amount of R.....

Amount in words:

"Expiry Date" means: **Until issue of Certificate of Competition**

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificate and the Certificate

Completion of the Works as defined in the Contract.

TENDER NO.: 08/2023 MN: 69/2022

WHEREAS **Umdoni Local Municipality** (hereinafter referred to as the EMPLOYER) entered into, a contract with

(hereinafter referred to as the Contractor) on the _____ day of _____ 20____
for the **CONSTRUCTION OF MANDLALATHI COMMUNITY HALL**; AND WHEREAS it is provided by such contract that the contractor shall provide the Employer with security by way of a guarantee for the due and faithful fulfilment of such Contract by the Contractor;

AND WHEREAS _____
has/have at the request of the contractor agreed to give such guarantee;

NOW THEREFORE WE, _____

do hereby guarantee and bind ourselves jointly and severally as Guarantor and Co-principal Debtors to the Employer under renunciation of the benefits of division and excussion for the due and faithful performance by the Contractor of all the terms and conditions of the said Contract, subject to the following conditions:

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.
2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.
3. The Guarantor hereby acknowledges that:
 - 3.1 any reference in this Performance Guarantee to the Contract is made for the purpose of convenience and shall not be construed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship;
 - 3.2 its obligation under this Performance Guarantee is restricted to the payment of money.
4. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor hereby undertakes to pay the Employer the sum certified upon receipt of the documents identified in 4.1 to 4.3:
 - 4.1 A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer in an Interim or Final Payment Certificate has not been made in terms of the Contract and failing such payment within seven (7) calendar days, the Employer intends to call upon the Guarantor to make payment in terms of 4.2;
 - 4.2 A first written demand issued by the Employer to the Guarantor at the Guarantor's physical address with a copy to the Contractor stating that a period of seven (7) days has elapsed since the first written demand in terms of 4.1 and the sum certified has still not been paid;
 - 4.3 A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract of the sum certified in 4.
5. Subject to the Guarantor's maximum liability referred to in 1, the Guarantor undertakes to pay to the Employer the Guaranteed Sum or the full outstanding balance upon receipt of a first written demand from the Employer to the Guarantor at the Guarantor's physical address calling up this Performance Guarantee, such demand stating that:
 - 5.1 the Contract has been terminated due to the Contractor's default and that this Performance Guarantee is called up in terms of 5; or
 - 5.2 a provisional or final sequestration or liquidation court order has been granted against the Contractor and that the Performance Guarantee is called up in terms of 5; and
 - 5.3 the aforesaid written demand is accompanied by a copy of the notice of termination and/or the provisional/final sequestration and/or the provisional liquidation court order.
6. It is recorded that the aggregate amount of payments required to be made by the Guarantor in

terms of 4 and 5 shall not exceed the Guarantor's maximum liability in terms of 1.

7. Where the Guarantor has made payment in terms of 5, the Employer shall upon the date of issue of the Final Payment Certificate submit an expense account to the Guarantor showing how all monies received in terms of this Performance Guarantee have been expended and shall refund to the Guarantor any resulting surplus. All monies refunded to the Guarantor in terms of this Performance Guarantee shall bear interest at the prime overdraft rate of the Employer's bank compounded monthly and calculated from the date payment was made by the Guarantor to the Employer until the date of refund.
8. Payment by the Guarantor in terms of 4 or 5 shall be made within seven (7) calendar days upon receipt of the first written demand to the Guarantor.
9. Payment by the Guarantor in terms of 5 will only be made against the return of the original Performance Guarantee by the Employer.
10. The Employer shall have the absolute right to arrange his affairs with the Contractor in any manner which the Employer may deem fit and the Guarantor shall not have the right to claim his release from this Performance Guarantee on account of any conduct alleged to be prejudicial to the Guarantor.
11. The Guarantor chooses the physical address as stated above for the service of all notices for all purposes in connection herewith.
12. This Performance Guarantee is neither negotiable nor transferable and shall expire in terms of 2, where after no claims will be considered by the Guarantor. The original of this Guarantee shall be returned to the Guarantor after it has expired.
13. This Performance Guarantee, with the required demand notices in terms of 4 or 5, shall be regarded as a liquid document for the purposes of obtaining a court order.
14. Where this Performance Guarantee is issued in the Republic of South Africa the Guarantor hereby consents in terms of Section 45 of the Magistrate's Courts Act No 32 of 1944, as amended, to the jurisdiction of the Magistrate's Court of any district having jurisdiction in terms of Section 28 of the said Act, notwithstanding that the amount of the claim may exceed the jurisdiction of the Magistrate's Court.

Signed at

Date

Guarantor's signatory (1)

Capacity.....

Guarantor's signatory (2)

Capacity.....

Witness signatory (1)

Witness signatory (2)

C1.5. AGREEMENT WITH ADJUDICATOR

(To be completed during construction by successful Tenderer only)

This agreement is made on the day of.....20....
between the Employer (*name of company / organisation*)
of (*address*)

and the Contractor (*name of company / organisation*)
of (*address*)

(hereinafter called **the Parties**)

and

(*name*)
of (*address*)

(hereinafter called **the Adjudicator**)

Disputes or differences may arise / have arisen* between the Parties under Enquiry No.
for (Enquiry Title)

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

(* *Delete as necessary*)

IT IS NOW AGREED as follows :

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

C1.6. OCCUPATIONAL HEALTH AND SAFETY AGREEMENT

Agreement In Terms Of Section 37(2) Of the Occupational Health and Safety Act No 85 Of 1993

*(The successful Tenderer will be required to complete a written agreement
in the form set out below before commencing any work on Site)*

AGREEMENT OF INDEMNITY IN TERMS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT 1993 ENTERED INTO BETWEEN

UMDONI LOCAL MUNICIPALITY

duly represented herein by in his capacity as the
.....(designation)

(hereinafter referred to as "EMPLOYER")

and

.....(Name of contractor)

duly represented herein by(Name of representative)

in his capacity as the.....(designation)

(hereinafter referred to as "MANDATARY")

The EMPLOYER and the MANDATARY hereby agree, in terms of the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 (Act 85 of 1993, hereinafter referred to as "the Act"), that as far as the work described in 1 hereafter, the following arrangements and procedures shall apply between them to ensure compliance by the MANDATARY with the provisions of the Act, namely:

1. DESCRIPTION OF WORK :

TENDER NO : _____

TENDER NAME : _____

2. DEFINITIONS:

EMPLOYER : means any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him, but excludes a labour broker as defined in Section 1(1) of the Labour Relations Act, 1956 (Act No 28 of 1956).

MANDATARY: includes an agent, a contractor or a subcontractor for word, but without derogating from his status in his own right as an employer or a user.

3. ARRANGEMENTS AND PROCEDURES:

The MANDATARY as an employer in his own right, undertakes to acquaint the appropriate officials and employees of the MANDATARY with all relevant provisions of the Act and the regulations promulgated in terms of the Act;

The MANDATARY undertakes that all relevant duties, obligations and prohibitions imposed in terms of the Act and Regulations will be fully complied with;

The MANDATARY hereby accepts sole liability for such due compliance with the relevant duties, obligations and prohibitions imposed by the Act and Regulations and expressly absolves the EMPLOYER from itself being to comply with any of the aforesaid duties, obligations and prohibitions; and

The MANDATARY agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the MANDATARY has complied with his undertakings as set out more fully in paragraphs 1 and 2 above, which steps may include, but not be limited to, the right to inspect any appropriate site or premises.

The MANDATARY undertakes to furnish the EMPLOYER with a letter of good standing in terms of Section 89 of the Compensation for Occupational Injuries and Diseases Act 1993 (Act No 130 of 1993) before any work in terms of this agreement is commenced.

The MANDATARY undertakes to appoint a designated responsible person in terms of the Act, and to furnish the EMPLOYER with a copy of such appointment before any work in terms of this agreement is undertaken.

4. HEALTH AND SAFETY CONTRACT: GENERAL INFORMATION

- 4.1. The Occupational Health and Safety Act comprises Sections 1 to 50 and all un-repealed regulations promulgated in terms of the former Machinery and Occupational Safety Act No 6 of 1983 as amended, as well as other regulations which may be promulgated in terms of the OHS Act
- 4.2. 'Mandatory' is defined as including an agent, a contractor or a subcontractor for work, but without derogating from his status in his own right as an employer or user of plant and machinery
- 4.3. Section 37 of the Occupational Health and Safety Act potentially punishes employers (principals) for the unlawful acts or omissions of Mandatories (contractors) save where a written agreement between the parties has been concluded containing arrangements and procedures to ensure compliance with the said Act by the mandatory
- 4.4. All documents attached or referred to in the above agreement form an integral part of the agreement
- 4.5. To perform in terms of this agreement Mandatories must be familiar with the relevant provisions of the Act
- 4.6. Mandatories who utilise the services of their own Mandatories (subcontractors) are advised to conclude a similar written agreement
- 4.7. Be advised that this agreement places the onus on the mandatory to contact the employer in the event of inability to perform as per this agreement. The employer, however, reserves the right to unilaterally take any steps as may be necessary to enforce this agreement
- 4.8. The contractor shall be responsible for the full and proper implementation of the terms and provisions of the Act and its regulations in the area in which the work is to be undertaken by the contractor.
- 4.9. The contractor shall be responsible for the well-being, in relation to health and safety, of all persons coming upon or into such area in accordance with that legislation, including the implementation of any directives issued by management of **Umdoni Local Municipality** in this respect.
- 4.10. The work to be done is: **CONSTRUCTION OF MANDLALATHI COMMUNITY HALL**
- 4.11. The area/s in which the work is to be conducted is **stated under the scope of works**
- 4.12. The contractor shall familiarise himself with such area and all risks existing thereon and undertakes to report to the representative of **Umdoni Local Municipality** any hazard or risk

to health and safety which arises during the contract work in the area concerned and over which the contractor may have no control. All necessary and appropriate safety / health equipment shall be issued by the contractor to all persons working on or coming into the area.

5. OCCUPATIONAL HEALTH AND SAFETY CONDITIONS

- 5.1. The Chief Executive Officer of the Contractor shall assume the responsibility in terms of Section 16(1) of the Occupational Health and Safety Act (as amended). Should the Contractor assign any duty in terms of Section 16(2), a copy of such assignment shall immediately be provided to the representative of the Employer as defined in the Contract.
- 5.2. All work performed on the Employer's premises shall be performed under the supervision of the construction supervisor who understand the hazards associated with any work that the Contractor performs on the site in terms of Construction Regulations 2014.
- 5.3. The Contractor shall appoint a Competent Person who shall be trained on any occupational health and safety aspect pertaining to them or to the work that is to be performed.
- 5.4. The Contractor shall ensure that he familiarises himself with the requirements of the Occupational Health and Safety Act and that he/she, his/her employees, and any sub-contractors, comply with them.
- 5.5. Discipline in the interests of occupational health and safety shall be strictly enforced
- 5.6. Personal protective equipment shall be issued by the Contractor as required and shall be worn at all times where necessary.
- 5.7. Written safe work procedures and appropriate precautionary measures shall be available and enforced, and all employees shall be made conversant with the contents of these practices.
- 5.8. No substandard equipment/machinery/articles or substances shall be used on the site.
- 5.9. All incidents referred to in terms of Section 24 of the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Labour and the Employer.
- 5.10. The Employer hereby obtains an interest in the issue of any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act and into any incident involving a Contractor and/or his/her employees and/or his/her sub-contractor/s.
- 5.11. No use shall be made of any of the Employer's machinery / plant / equipment / substance / personal protective equipment or any other article without prior arrangement and written approval.
- 5.12. No alcohol or any other intoxicating substance shall be allowed on the site. Any person suspected of being under the influence of alcohol or any other intoxicating substance shall not be permitted access to or allowed to remain on the site.
- 5.13. Prior to commencement of any work, verified copies of all documents mentioned in the agreement, must be presented to the Employer.

THUS DONE AND SIGNED AT(Place) ON THIS DAY

OF 20.....

AS WITNESSES:

1

2

.....
FOR AND ON BEHALF OF
UMDONI LOCAL MUNICIPALITY

THUS DONE AND SIGNED AT(place) ON THIS DAY OF
..... 20.....

AS WITNESSES :

1.

2.

.....

This Agreement is entered into and between **Umdoni Local Municipality** hereinafter referred to as the Employer) and _____
(hereinafter referred to as the Contractor).

1. The Contractor warrants that:

- (a) he is familiar with the requirements of the Act and that he will not endanger the health and safety of the Employer's employees in any way whilst performing any work on the Site.
- (b) all his and his sub-contractor's workmen are covered in terms of the Compensation for Occupational Injuries and Diseases Act 1993, which cover shall remain in force whilst any such workmen are present on the Site.
- (c) he is in possession of the following insurance cover which shall remain in force whilst he and/or his Sub-Contractor and/or his employees are present on the Site or which shall remain in force for the duration of this contractual relationship with the Employer, whichever period is the longest:
 - (i) Insurance covering his liability to any employees, his own or sub-contractor, whose earnings are in excess as defined in the Compensation for Occupational Injuries and Diseases Act 1993.
 - (ii) Liability insurance cover as required in terms of the Contract and such other insurance cover that will adequately make provision for any possible losses and/or claims arising from his and/or his sub-contractors and/or his employees' acts and/or omissions on the Site.

2. The Contractor undertakes to:

- (a) assume the responsibility in terms of Section 16(1) of the Act and ensure that any delegations of duties in terms of Section 16(2) shall be in writing and that copies of any such delegation shall immediately be forwarded to the Employer.
- (b) ensure that all work performed on the site by himself and/or his sub-contractors and/or their respective employees shall be performed in compliance with the Act and under the supervision of the contractor's employees who are trained to understand the hazards associated with any work that the contractor performs on the Site.
- (c) appoint competent employees who shall be trained on any Occupational Health and Safety aspect pertinent to them or to the work that is to be performed.
- (d) ensure that safe work practices shall be enforced, that all employees shall be made conversant with the contents of these practices and that discipline regarding occupational health and safety is strictly enforced.
- (e) issue all such personal protective equipment as may be necessary for the type of work being performed.
- (f) ensure that no unsafe equipment / machinery and/or articles shall be used on the Site.
- (g) ensure that all incidents referred to in the Occupational Health and Safety Act shall be reported by the Contractor to the Department of Manpower as well as to the Employer and provide the Employer with copies of any written documentation relating to any incident.

- (h) ensure that the Employer obtains an interest in any formal inquiry conducted in terms of Section 32 of the Occupational Health and Safety Act regarding any incident involving a contractor and/or his sub-contractor.
- (i) ensure that no use shall be made of any of the employer's machinery, materials or equipment without written approval.
- (j) ensure that work for which the issuing of a permit is required shall not be performed prior to the obtaining of such a permit.
- (k) ensure that no alcohol or other intoxicating substance shall be allowed on the Site and that anyone suspected to be under the influence of alcohol, or any other intoxicating substance shall not be allowed on the premises.
- (l) give his full participation if and when Employer's employees inquire into Occupational Health and Safety issues.
- (m) report to the Employer's management (in writing) anything that he deems to be unhealthy and/or unsafe.

.....
SIGNED BY THE CONTRACTOR

.....
SIGNED BY THE EMPLOYER

Signature:

Signature:

Date:

Date:

Name (Print):

Name (Print):

Capacity:

Capacity:

C1.7. NOTIFICATION OF CONSTRUCTION WORKS

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 Regulation 3 of the Construction Regulations, 2014

1. (a) Name and postal address of principal contractor:

1. (b) Name and telephone number of principal contractor's contact person:

2. Principal contractor's compensation registration number: _____

3. (a) Name and postal address of client:

3. (b) Name and telephone number of client's contact person or agent:

4. (a) Name and postal address of designer(s) for this project:

4. (b) Name and telephone number of designer(s) contact person:

5. Name and telephone number of principal contractor's construction supervisor on site appointed in terms of regulation 6. (1).

6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 6.
(2):

7. Exact physical address of the construction site or site office:

8. Nature of construction work:

9. Expected commencement date:

10. Expected completion date:

11. Estimated maximum number of
persons on the construction site:

12. Planned number of contractors on
the construction site accountable to
principal contractor:

13. Name(s) of contractors already chosen:

Principal Contractor

Date

Client

Date

- This document is to be forwarded to the Department of Labour and the Umdoni Local Municipality prior to commencement of work on site.
- All principal contractors that quality to notify must do so even if another principal contractor on the same site had done so prior to the commencement of work.

PART C2: PRICING DATA

PART C2: PRICING DATA

TABLE OF CONTENTS		PAGE
C2.1	PRICING INSTRUCTIONS	C2.2
C2.2	BILL OF QUANTITIES	C2.8

C2.1. PRICING INSTRUCTIONS

1. GENERAL

The Bill of Quantities forms part of the Contract Documents and must be read and priced in conjunction with all the other documents comprising the Contract Documents, which include the Conditions of Tender, Conditions of Contract, the Specifications (including the Project Specification) and the Drawings.

The Tenderer is advised to check the number of pages and should any be found missing or in duplicate or the figures or writing indistinct or these Bill of Quantities contain any obvious errors, the Tenderer must inform the Engineer at once and have it rectified. No liability whatsoever will be admitted in respect of errors due to the foregoing.

Should there be any doubt or obscurity as to the meaning of any particular item, the Tenderer must obtain an explanation of it, in writing, from the Employer's Agent. No claims for extras arising from any such doubt or obscurity will be admitted after delivery of the tender.

2. DESCRIPTION OF ITEMS IN THE SCHEDULE

The Bill of Quantities has been drawn up generally in accordance with Civil Engineering Quantities 1990 issued by the SA Institution of Civil Engineers.

The short descriptions of the items in the Bill of Quantities are for identification purposes only and comply in general with the measurement and payment clauses of the Standardized Specifications, the Project Specifications and the Particular Specifications, read together with the relevant clauses of the Scope of Work and directives on the drawings, set out what ancillary or associated work and activities are included in the rates for the operations specified.

3. QUANTITIES REFLECTED IN THE SCHEDULE

The quantities given in the Bill of Quantities are the estimated quantities of work to be done, and will be subject to re-measurement during the execution of the work. The Contractor shall obtain the Engineer's detailed instructions for all work before ordering any materials or executing work or making arrangements for it. Any additional works or any extension of work quantities over and above that contained in the Bill of Quantities shall be agreed before the work is completed in the form of an Extra Works Authorization in the case of additional works or a Change Order in the case of an increase in quantities, whichever is the applicable. All documentation must be signed by the Engineer before the work is commenced and such additional works or increased quantities will not be paid for if certified for payment without the approved documentation.

The Works as finally completed in accordance with the Contract shall be measured and paid for as specified in the Bill of Quantities, and the contract price for the completed contract shall be computed at the relevant unit rates and prices, all in accordance with the General and Special Conditions of Contract, the Specifications and Project Specifications and the Drawings. Unless otherwise stated, items are measured net in accordance with the Drawings, and no allowance has been made for waste.

The validity of the contract will in no way be affected by differences between the quantities in the Bill of Quantities and the quantities finally certified for payment.

4. PRICING OF THE BILL OF QUANTITIES

The Tenderer shall complete the Bill in **Black Ink**.

Unit prices, extensions and totals submitted in electronic format will not be acceptable.

The prices and rates to be inserted by the Tenderer in the Bill of Quantities shall be the full inclusive prices to be paid by the Employer for the work described under the several items, and shall include full compensation for all costs and expenses that may be required in and for the completion of the work and maintenance during the defects liability period of all the work described and as shown on the drawings as well as all overheads, profits, incidentals and the cost of all general risks, liabilities and obligations set forth or implied in the documents on which the Tender is based. Reasonable unit rates and prices shall be entered in the Bill of Quantities as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

Each item shall be priced and extended to the "Total" column by the Tenderer, with the exception of the items for which only rates are required, or items which already have Prime Cost or Provisional Sums affixed thereto. If the Contractor omits to price any items in the Bill of Quantities, then these items will be considered to have a nil rate or price.

All items for which terminology such as "inclusive" or "not applicable" have been added by the Tenderer will be regarded as having a nil rate which shall be valid irrespective of any change in quantities during the execution of the Contract.

The Tenderer shall fill in rates for all items where the words "rate only" appears in the "Total" column. "Rate Only" items have been included where:

- a) an alternative item or material is contemplated and may be used at the discretion of the Engineer;
- b) variations of specified components in the make-up of a pay item may be expected; and
- c) no work under the item is foreseen at tender stage but the possibility that such work may be required is not excluded.

For "Rate Only" items no quantities are given in the "Quantity" column but the quoted rate shall apply in the event of work under this item being required. The Tenderer shall however note that in terms of the Tender Data the Tenderer may be asked to reconsider any such rates which the Employer may regard as unbalanced.

All rates and amounts quoted in the Bill of Quantities shall be in Rand and cents and shall include all levies and taxes (other than VAT). VAT will be added in the summary of the Bill of Quantities.

5. GOODS AND SERVICES SOURCED INTERNATIONALLY

It will be the Contractor's responsibility to obtain Forward Cover to avoid price increases for the Employer on any goods and services in this category. In failing to do that, any increase in prices on these items, after the Commencement Date of the Contract, shall be for the Contractor's account.

6. BUDGETARY ALLOWANCE ITEMS & PROVISIONAL SUMS

All items described as "Budgetary Allowance" shall be used as directed by the Employer and measured and valued or paid for. The Employer reserves the right, during the execution of the

works, to adjust the stated amounts upwards or downwards according to the work actually done under the item, or the item may be omitted altogether, without affecting the validity of the Contract, such approval shall be granted by the Managing Director.

The Tenderer shall not under any circumstances whatsoever delete or amend any of the sums inserted in the "Amount" column of the Bill of Quantities and in the Summary of the Bill of Quantities unless ordered or authorized in writing by the Employer before closure of tenders. Unauthorized changes made by the Tenderer to provisional items in the Bill of Quantities, or to the stated provisional percentages and sums in the Summary of the Bill of Quantities, will not be permissible.

No work for which "Budgetary Allowance" items are allowed shall be commenced without written instructions from the Project Manager. The contractor is duly informed in this document that the Budgetary Allowance Items are completely subject to the discretion of the employer and will only form part of the contract value once duly authorised by the employer and executed by the contractor to the full satisfaction of the principal agent, irrespective of the fact that the Budgetary Allowance formed part of the contract sum

7. CORRECTION OF ENTRIES

Incorrect entries shall not be erased or obliterated with correction fluid but must be crossed out neatly. The correct figures must be entered above or adjacent to the deleted entry, and the alteration must be initialed by the Tenderer.

8. ARITHMETICAL ERRORS

Arithmetical errors found in the Bill of Quantities as a result of faulty multiplication or addition, will be corrected by the Employer's Agent at the tender evaluation stage, as set out in the Standard Conditions of Tender Clause C.3.9.

9. MONTHLY PAYMENTS

Unless otherwise specified in the Specifications and Project Specifications, progress payments in Interim Certificates, referred to in Clause 6.10 of the General Conditions of Contract 2015, in respect of "sum" items in the Bill of Quantities shall be by means of interim progress installments assessed by the Engineer and based on the measure in which the work actually carried out relates to the extent of the work to be done by the Contractor.

10. CONTINGENCY

The sum provided under contingency in the Bill of Quantities is under the sole control of the Employer and may be deducted in whole or in part and shall only be expended by order of the Employer as Variation Order.

11. VALUE ADDED TAX

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

12. PRICES FOR VARIATIONS

Where prices or quotations for variations are submitted by the Contractor during the currency of the Contract, it is to be clearly understood that these are for the purpose of consideration by the

Project Manager and that there is no assumption of acceptance. The Contractor will be notified of acceptance of prices or quotations either by insertion of the amount on the variation order or by written intimation.

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

The work executed under this Contract has been measured in accordance with the sixth (6th) edition of the "Standard System of Measuring Building Work", including all amendments unless descriptions of items indicate a deviation and it shall be understood that the system of measurement which is herein adopted is the only system of measurement which will be recognised in connection with this contract

Any contradictions to this system of measurement contained in the "Standard Preambles to all Trades" shall be disregarded (unless same have been accommodated in the system of measurement) but applicable rates shall be included for all requirements stated and not measured separately in compliance with this system.

14. LABOUR INTENSIVE WORKS

Those parts of the works to be constructed using labour-intensive methods have been marked in the schedule of quantities with the letters LI in a separate column filled in against every item so designated. The works, or parts of the works so designated are to be constructed using labour-intensive methods only. The use of plant to provide such works, other than plant specifically provided for in the scope of work, is a variation to the contract. The items marked with the letters LI are not necessarily an exhaustive list of all the activities which must be done by hand, and this clause does not over-ride any of the requirements in the generic labour-intensive specification in the Scope of Works.

Where minimum labour intensity is specified by the design the contractor is expected to use his/her initiative to identify additional activities that can be done labour intensively in order to comply with the set minimum labour intensity target.

Payment for items which are designated to be constructed labour-intensively (either in this schedule or in the Scope of Works) will not be made unless they are constructed using labour-intensive methods. Any unauthorised use of plant to carry out work which was to be done labour-intensively will not be condoned and any works so constructed will not be certified for payment

15. FIXED PRICE CONTRACT

Tenderers are to take note that the contract price adjustments are not applicable to this contract. Tenderers should therefore make provision in the Contract Sum, schedule of rates, etc. for possible price increases during the contract period, as no claims in this regard shall be entertained.

16. SCALE

The scale to which the Drawings are made is only to be made use of when no figured dimensions are given either on the Drawings or in the tender documents and the figured dimensions are always to be followed though they may not coincide with the scale of the Drawings, but dimensions where possible are to be taken from the buildings.

17. UNITS OF MEASUREMENT

The units of measurement described in the Bill of Quantities are metric units for which the standard international abbreviations are used. Abbreviations used in the Bill of Quantities, including some non-standard abbreviations, are as follows:

metre	m
kilometre	km
kilogram	kg
metric ton	ton
square metre	m ²
hectare	ha
square kilometre	km ²
cubic metre	m ³
Sum	Lump Sum
Provisional Sum	P.Sum
Prime Cost Sum	PC Sum
Percentage	%
Number	No.
Man-day	day
hour	hr

C2.2. BILL OF QUANTITIES

DECLARATION

(In respect of completeness of Tender)

UMDONI LOCAL MUNICIPALITY
CONSTRUCTION OF MANDLALATHI COMMUNITY HALL
CONTRACT NUMBER: 08/2023

I/we, the undersigned, have read and understood the pricing instructions, all project specifications and drawings before pricing the Bill of Quantities. I/we hereby declare that the Bill of Quantities are properly priced forming Part C2.2 of this Contract Document which my/our tender for the above Contract

The offered total of the prices inclusive of value added tax (VAT) is:

R (in figures)
.....
.....
.....RAND (in words)

SIGNED ON BEHALF OF/BY THE TENDERER:

NAME

SIGNATURE

CAPACITY

DATE

SIGNED BY WITNESS:

NAME

SIGNATURE

DATE

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.1	SABS 1200A	FIXED CHARGE ITEMS				
1.1.1	8.3.1	Contractual Requirements	Sum	1		
	8.3.2	Establishment of Facilities on Site				
	8.3.2.1	Facilities for the Engineer				
1.1.2	PSAB 4.1	(a) Furnished office for the Engineer (1 No.)	Sum	1		
1.1.3	PSAB 2.1	(c) Nameboard (1 No.)	Sum	1		
1.1.4	PSAB 4.2	(d) Survey Equipment and Assistant	Sum	1		
1.1.5		(e) Provision of Rain Gauge	Sum	1		
	8.3.2.2	Facilities for the Contractor				
1.1.6		(a) Office and storage sheds	Sum	1		
1.1.7		(e) Ablution and latrine facilities	Sum	1		
1.1.8		(f) Tools and equipment	Sum	1		
1.1.9		(g) Water supplies, electric power and communications	Sum	1		
1.1.10		(h) Dealing with Water	Sum	1		
1.1.11		(i) Access	Sum	1		
1.1.12		(j) Plant	Sum	1		
	8.3.3	Other Fixed-Charge Obligations (Tenderer must specify)				
1.1.13		(a)	Sum	1		
1.1.14		(b)	Sum	1		
1.1.15		(c)	Sum	1		
1.1.16		(d)	Sum	1		
1.1.17	PES	Preparation and establishment of all procedures required to achieve and ensure compliance with the requirements of the Environmental Management Plan (EMPr provided by Engineer), to achieve and ensure compliance with the requirements of the EMPr	Sum	1		
1.1.18	8.3.4	Removal of Site Establishment	Sum	1		
1.1.19	PSA7	AS-Built information and records (to be claimed on completion and handover of as-built to client)	Sum	1		
Carried Forward/....						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
1.1.20	PE	Health and Safety Compliance to OHS Act (1993 as amended) and construction regulations (CR 2014). Additional compliance to Clients H&S Specifications and Covid 19 Compliance as per Covid 19 Regulations. Appointment of a full-time construction health and safety officer for the duration of the contract	Sum	1		
1.1.21	PE	Preparation of risk assessments, safe work procedures, the project H&S file and the H&S plan, Covid 19 procedures and protocols and any other H&S matters the contractor deems necessary, including handing over to the Client on completion of the works (to include for requirements of subcontractors)	Sum	1		
1.1.22	PE	The provision of PPE and protective clothing and other H&S matters that the contractor deems necessary. PPE to include Respiratory face masks (for Covid 19), surgical gloves for security and cleaning teams and all other covid-19 requirements	Sum	1		
1.1.23	PLW	Compliance with all EPWP conditions and specifications	Sum	1		
Total Carried Forward to Summary						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.2	SABS 1200A	SCHEDULED TIME-RELATED ITEMS				
1.2.1	8.4.1	Contractual Requirements	Sum	1		
	8.4.2	Operation and maintenance of the facilities on site for the duration of the contract, except where otherwise stated				
	8.4.2.1	Facilities for the Engineer				
1.2.2	PSAB 4.1	(a) Furnished office for the Engineer (1 No.)	Sum	1		
1.2.3		(c) Nameboard	No.	1		
1.2.4	PSAB 4.2	(d) Survey equipment and materials	Sum	1		
1.2.5		(e) Provision of Rain Gauge	No.	1		
	8.4.2.2	Facilities for the Contractor				
1.2.6		(a) Office and storage sheds	Sum	1		
1.2.7		(e) Ablution and latrine facilities	Sum	1		
1.2.8		(f) Tools and equipment	Sum	1		
1.2.9		(g) Water supplies, electric power and communications	Sum	1		
1.2.10		(h) Dealing with Water	Sum	1		
1.2.11		(i) Access	Sum	1		
1.2.12		(j) Plant	Sum	1		
1.2.13	8.4.4	Company and Head Office Overhead Costs	Sum	1		
1.2.14		Supervision for duration of construction	Sum	1		
	8.4.5	Other Time-Related Obligations (Tenderer must Specify)				
1.2.15		(a)	Sum	1		
1.2.16		(b)	Sum	1		
1.2.17		(c)	Sum	1		
1.2.18		(d)	Sum	1		
1.2.19	PE	Updating and amending the risk assessments, safe work procedures, the project H&S file, the H&S plan, provision of protective clothing and any other H&S matters that the contractor deems necessary, for the full duration of the contract	Sum	1		
1.2.20	PES	Full compliance with the Environmental Management Plan	Sum	1		
Carried Forward/....						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
1.2.21	PSA7	Mark up a set of construction drawings with "as built" information and submit to the Engineer on a monthly basis	Sum	1		
1.2.22	PLW	Compliance with all EPWP conditions and specifications	Sum	1		
Total Carried Forward to Summary						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.3	SABS 1200A	SUMS STATED PROVISIONALLY BY ENGINEER				
1.3.1		(a) Control Testing	P Sum	1		R30 000.00
1.3.2		Contractors mark up on items (a) above	%	30000		
1.3.3		(b) Community Liaison	P Sum	1		R70 000.00
1.3.4		Contractors mark up on items (b) above	%	70000		
1.3.5		(c) Allow Provisional Sum for repairs of damaged services that could not have been reasonably foreseen or prevented by the contractor	P Sum	1		R25 000.00
1.3.6		Contractors mark up on items (c) above	%	25000		
1.3.7		(d) Relocation of existing services as instructed by Engineer	P Sum	1		R25 000.00
1.3.8		Contractors mark up on items (d) above	%	25000		
1.3.9		(e) Setting up costs for Sub-contractors	P Sum	1		R50 000.00
1.3.10		Contractors mark up on items (e) above	%	50000		
1.3.11		(f) Environmental-Audits by environmental control officer, appointed by the Engineer	P Sum	1		R150 000.00
1.3.12		Contractors mark up on items (f) above	%	150000		
1.3.13		(g) Health and Safety Assessments, Audits and managing risk assessment by H&S consultant appointed by the Engineer	P.Sum	1		R150 000.00
1.3.14		Contractors mark up on items (g) above	%	150000		
1.3.15		(h) Allow Provisional sum for additional topographical survey	P Sum	1		R30 000.00
1.3.16		Contractors mark up on items (h) above	%	30000		
1.3.17		(i) Allow Provisional sum for additional geotechnical investigation	P Sum	1		R25 000.00
1.3.18		Contractors mark up on items (i) above	%	25000		
1.3.19		(j) Engineering Construction Monitoring for the duration of the contract	P Sum	1		R150 000.00
1.3.20		Contractors mark up on items (j) above	%	150000		
1.3.21		(k) Allow Provisional Sum for the construction of a borehole and an elevated water tank	P Sum	1		R300 000.00
1.3.22		Contractors mark up on items (k) above	%	300000		
Total Carried Forward to Summary						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.4	SABS 1200A	TEMPORARY WORKS				
1.4.1	8.8.3	Protection of existing structures and fences (including temporary structures) until construction in the vicinity is complete	Sum	1		
	8.8.4 c)	Excavate by hand in soft material to expose existing services for				
1.4.2		(a) Electrical Cables	m ³	10		Rate Only
1.4.3		(b) Water Pipes	m ³	10		Rate Only
		Additional Survey				
1.4.4	8.8.5	(a) Survey in terms of Land Survey Act (Locate and record boundary pegs)	P Sum	1		R15 000.00
1.4.5		Contractors mark up on items (a) above	%	15000		
1.4.6		(b) Additional Survey required for redesign and relocation of existing services	P Sum	1		R20 000.00
1.4.7		Contractors mark up on items (b) above	%	20000		
Total Carried Forward to Summary						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.5	SABS 1200A	DAY WORKS				
		Allow for dayworks for sundry items not covered by measured items: (Provisional item)				
1.5.1		LABOUR				
1.5.1.1		Foreman	hr	25		
1.5.1.2		Skilled Labourers	hr	35		
1.5.1.3		Semi Skilled Labourers	hr	40		
1.5.1.4		Unskilled Labourers	hr	55		
1.5.2		MATERIALS				
1.5.2.1		Provisional sum for cost of material	P Sum	1		R20 000.00
1.5.2.2		Contractors mark-up on material	%	20000		
1.5.3		PLANT				
		Tenderer to insert the hire rate at which each item will be charged, which is to cover all relevant costs of plant hire, including operating crew				
1.5.3.1		Lowbed transport of plant to and from site	km	300		
1.5.3.2		10m³ tipper	hr	35		
1.5.3.3		Excavator	hr	40		
1.5.3.4		Tractor-Loader-Backhoe (T L B)	hr	30		
1.5.3.5		Roller Compactor (Bomag 90 or equivalent)	hr	20		
1.5.3.6		Plate Compactor	hr	20		
1.5.3.7		Water Tanker	Days	10		
Total Carried Forward to Summary						

PRELIMINARY AND GENERAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
1.1		FIXED CHARGE ITEMS				
1.2		SCHEDULED TIME-RELATED ITEMS				
1.3		SUMS STATED PROVISIONALLY BY ENGINEER				
1.4		TEMPORARY WORKS				
1.5		DAY WORKS				
TOTAL PRELIMINARIES & GENERAL CARRIED FORWARD						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.1	SABS 1200 DA	EARTHWORKS (SMALL WORKS)				
2.1.1	8.3.2	Restricted Excavations				
	8.3.2 (a)	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose up to 2.0m deep				
2.1.1.1		Foundation Trenches (700mm wide)	m ³	160.00		
2.1.1.2		Bases (1.05 x 1.05mm)	m ³	30.00		
2.1.2	8.3.2 (b)	Extra over items 3.2.1 for excavation in				
2.1.2.1		1) Soft Rock excavation	m ³	10.00		
2.1.2.2		2) Hard rock excavation	m ³	10.00		
2.1.2.3		3) Boulder excavation, class A	m ³	5.00		
2.1.2.4		4) Boulder excavation, class B	m ³	5.00		
2.1.3		CARTING AWAY				
2.1.3.1		Extra over for loading, carting and dumping of all surplus material from excavations and/or stockpiles on site to a dumping site to be located by the engineer/contractor material (no allowance made for increase in bulk):				
2.1.3.1.1		In spoil heaps where directed on site.	m ³	120.00		
2.1.4	8.3.4	WORKING SPACE EXCAVATIONS				
2.1.4.1		Back excavation of vertical sides of excavation in earth exceeding 500mm deep not exceeding 1,5m deep for working space including backfilling compacted to 90% Mod AASHTO density maximum density and carting away unsuitable material				
2.1.4.1.1		For placing and removing formwork to strip footings etc 500mm away from excavated face	m ²	110.00		
2.1.4.2		Risk of collapse of excavations other than bulk:				
2.1.4.2.1		Sides of trench and hole excavations not exceeding 1,5m deep.	m ²	420.00		
2.1.5		DEALING WITH WATER				
2.1.5.1		Keeping excavations free of water	item	1.00		
2.1.6	8.3.3	EXCAVATIONS ANCILLARIES				
2.1.6.1		Rip and compact depth of 150mm to 90% MOD AASHTO				
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.1.6.1.1		Under floors, foundations, etc	m ²	300.00		
2.1.6.2	8.3.3.1	Earth filling obtained from the excavations and/or prescribed stock piles on site or imported material, including haulage from perimeter of excavations or stock piles, compacted to 90% Mod AASHTO density. Rate to include for field density test (incl. OMC testing)				
2.1.6.2.1		(a) Backfilling to trenches, bases, etc	m ³	140.00		
2.1.6.2.2	8.3.4	(b) from importation from commercial or off-site sources selected by the contractor	m ³			Rate Only
		1) Supply & Place G5 material in layers not exceeding 150mm compacted to 95 % MOD AASHTO				
2.1.6.2.3		Under surface bed	m ³	45.00		
		2) Supply & Place G7 material in layers not exceeding 150mm compacted to 93 % MOD AASHTO				
2.1.6.2.4		Under foundations and bases, etc	m ³	40.00		
2.1.7		SOIL POISONING				
2.1.7.1		Approved brand of anti-termite soil poison applied by a Registered Pest Control company and guaranteed against termite infestation for ten years:				
2.1.7.1.1		Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m ²	400.00		
3.1.7.1.2		To bottoms and sides of trenches etc	m ²	575.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.2	SABS 1200 GA	CONCRETE (Small Works)				
2.2.1.	8.2	SCHEDULE FORMWORK ITEMS				
2.2.1.1	8.2.1	Rough formwork to				
2.2.1.1.1		Narrow widths up to 300mm	m	30.00		
2.2.1.1.2		Columns encased in brickwork	m ²	110.00		
2.2.1.1.3		Strip footings and Bases in foundations, etc	m ²	115.00		
2.2.1.2	8.2.2	Smooth formwork to				
2.2.1.2.1		Edges, risers, ends and reveals not exceeding 300mm	m ²	90.00		
2.2.1.2.2		Sides and soffit of beam of ring beam	m ²	135.00		
2.2.2	8.3	REINFORCEMENT				
2.2.2.1	8.3.1	In varying Diameter bars.				
2.2.2.1.1		Mild steel reinforcement to structural concrete work:	t	0.70		
2.2.2.1.2		High tensile steel reinforcement to structural concrete work:	t	2.6		
2.2.2.2	8.3.2	Fabric reinforcement:				
2.2.2.2.1		Ref 193 mesh reinforcement in apron slab	m ²	120.00		
2.2.2.2.2		Ref 395 mesh reinforcement in surface bed & walkway	m ²	310.00		
2.2.3	8.4	SCHEDULED CONCRETE ITEMS				
2.2.3.1		Unreinforced concrete cast against excavated surfaces				
2.2.3.1.1		15MPa/19mm concrete:				
2.2.3.1.1.1	8.4.2	Surface blinding layer under surface beds, footings, bases, etc	m ³	27.00		
2.2.3.1.2	8.4.3	Screeds wood floated on concrete:				
2.2.3.1.2.1		Average 40mm thick on floors.	m ²	290.00		
2.2.3.1.2.2		Average 40mm thick on floors to falls	m ²	15.00		
2.2.3.2		Reinforced concrete cast in formwork				
2.2.3.2.1	8.4.3	20MPa/19mm Concrete				
2.2.3.2.1.1		Apron Slabs	m ³	12.00		
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.2.3.2.2	8.4.3	30MPa/19mm Concrete				
2.2.3.2.2.1		Surface beds cast in panels on waterproofing	m ³	31.00		
2.2.3.2.2.2		Strip footings	m ³	33.00		
2.2.3.2.2.3		Bases	m ³	6.00		
2.2.3.2.2.4		Ring Beams	m ³	13.00		
2.2.3.2.2.5		Columns	m ³	10.00		
2.2.4		CONCRETE SUNDRIES				
2.2.4.1	8.4.4	Unformed surface finishes				
2.2.4.1.1		Finishing top surfaces of concrete smooth with a wood float				
2.2.4.1.1.1		Apron slab	m ²	120.00		
2.2.4.1.1.2		Walkway	m ²	10.00		
2.2.4.1.2		Finishing top surfaces of concrete smooth with a steel float				
2.2.4.1.2.1		Surface beds	m ²	290.00		
2.2.4.1.2.2		Surface beds, slabs, etc. to falls.	m ²	15.00		
2.2.4.2	8.5	MOVEMENT JOINTS				
2.2.4.2.1		Isolation joints with 10mm jointex between vertical concrete and brick surfaces:				
2.2.4.2.1.1		10mm Joints not exceeding 300mm high	m	15.00		
2.2.4.2.2		Saw cut joints:				
2.2.4.2.2.1		3 x 35mm Saw Cut Joints in top of concrete	m	150.00		
2.2.4.2.3		Construction Joint				
2.2.4.2.3.1		Horizontal construction joints through concrete including 1,0kg/m ² 1,25mm thick 'Xypex Concentrate 07160' cementious slurry coat and 28 x 12mm thick 'Xypex Kuniseal C-31DS' pressed to concrete and pinched to triangular shape concrete joint waterproofing material to one face applied in strict accordance with the manufacturer's instructions:	m	22.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.3	PB	BUILDING WORKS				
2.3.1		MASONRY				
2.3.1.1		Brickwork of NFP "Coro Maxi" bricks in class II mortar to be used in foundations				
2.3.1.1.1		One brick wall	m ²	110.00		
2.3.1.1.2		Half brick wall for encasing columns	m ²	18.00		
2.3.1.2		Face Brickwork of Country Classic -Travertine class FBX bricks in class II mortar to be used in superstructure				
2.3.1.2.1		One brick walls faced both sides	m ²	264.00		
2.3.1.2.2		Half brick wall for encasing columns	m ²	75.00		
2.3.1.2.3		Brickwork on end to form lintels above windows and doors	m	32.00		
2.3.1.2.4		Face brick lintel, etc.				
2.3.1.2.4.1		Extra over brickwork for header course lintel	m	10.00		
2.3.1.2.4.2		Extra over brickwork for header course coping	m	15.00		
2.3.1.2.5		Brick-on-edge sills, bed on and including cement mortar with pointed horizontal and vertical joints.				
2.3.1.2.5.1		170mm Wide sill set sloping and slightly projecting	m	32.00		
2.3.2		BRICKWORK SUNDRIES				
2.3.2.1		Joint forming material in movement joints				
2.3.2.1.1		10mm Jointex or equally approved compressible membrane in vertically between brick skins and concrete	m ²	20.00		
2.3.2.2		Brickwork reinforcement				
2.3.2.2.1		150mm Wide reinforcement built in horizontally	m	1680.00		
2.3.2.2.2		75mm Wide reinforcement built in horizontally	m	450.00		
2.3.2.3		Turning pieces				
2.3.2.3.1		230mm Wide turning piece to lintels etc	m	32.00		
2.3.2.4		Galvanised hoop iron cramps, ties, etc				
2.3.2.4.1		30 x 1,6mm Cramp 500mm long with one end fixed to wood and other end built into brickwork	No.	42.00		
2.3.2.5		Bagging of 1: 3 cement and sand mix				
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.3.2.5.1		On brick walls	m ²	264.00		
2.3.2.6		Prestressed fabricated lintels:				
2.3.2.6.1		114 x 90mm Lintels in lengths not exceeding 3m.	m	32.00		
2.3.3		WATERPROOFING				
2.3.3.1		DAMPPROOFING OF WALLS AND FLOORS				
2.3.3.1.1		One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
2.3.3.1.1.1		In walls	m ²	35.00		
2.3.3.1.2		One layer of 250 micron "Gundle USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape":				
2.3.3.1.2.1		Under surface beds	m ²	300.00		
2.3.3.1.2.2		Under window sills	m ²	32.00		
2.3.3.1.3		Two coats "Brixeal" bitumen emulsion waterproof coating				
2.3.3.1.3.1		On bagged brick walls	m ²	264.00		
2.3.3.2		BANDAGE FLASHINGS ETC				
2.3.3.2.1		Approved flexible reinforced glass fibre waterproofing				
2.3.3.2.1.1		Bandage cover flashing strip 200mm wide including sealing edges	m	90.00		
2.3.3.3		JOINT SEALANTS ETC				
2.3.3.3.1		Pro-struct Dymonic NT Polyurethane elastomeric sealing compound including backing cord, bond breaker, primer, etc: or similar approved				
2.3.3.3.1.1		10 x 5mm In saw cut joints in floors	m	150.00		
2.3.3.3.1.2		10 x 10mm In vertical expansion joints including raking out expansion joint filler as necessary	m	10.00		
2.3.3.3.2		Approved silicone sealant at:				
2.3.3.3.2.1		Junction of aluminium windows, doors etc, and plastered walls	m	125.00		
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.3.4		ROOF COVERINGS				
2.3.4.1		PROFILED METAL SHEETING AND ACCESSORIES				
2.3.4.1.1		0.58mm Galvanised steel, GRS IBR 890, Z200 spelter ISQ 550 Chromadek Kingfisher Blue finish top coat and Pebble Grey backing coat roof sheeting, fixed to timber intermediate purlins at max 2300mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners.				
2.3.4.1.1.1		Roof covering with pitch not exceeding 25 degrees (measured on flat)	m ²	400.00		
2.3.4.1.2		0.8mm thick Aluminium flashings and accessories				
2.3.4.1.2.1		Apex capping to match roof sheets.	m	30.00		
2.3.4.1.2.2		Fascia flashing to match roof sheets	m	90.00		
2.3.4.1.2.3		Fascia boards to match roof sheets	m	90.00		
2.3.4.2		ROOF INSULATION				
2.3.4.2.1		Sisalation FR 405 or similar approved - Double sided reflective foil laminate incorporating layers of kraft paper and reinforcing scrim, laminated together with low density polyethylene (293gsm):				
2.3.4.2.1.1		Insulation laid taut over purlins at up to 1200mm centres and fixed concurrent with roof covering including galvanised straining wire and double sided tape to overlap joints and at ends fixed to timber purlins	m ²	400.00		
2.3.5		CARPENTRY AND JOINERY				
2.3.5.1		PREFABRICATED ROOF TRUSSES, ETC.				
2.3.5.1.1		Plate Nailed Timber Roof Construction Trusses to be spaced at +/- 1160 / 1170 c/c (as dimensioned on roof plan) resting on 114 x 38mm wall plates. HURRICANE CLIPS or similar approved to be used at eaves overhangs. At all other purlin/truss intersections double wound 2,5mm diameter galvanised wire. Roof pitch to be 15°. All exposed roof timber to be painted with 2 coats ABE PROVONITE or similar approved, before fixing of roof sheets, fascias and bargeboards. The following in plate nailed timber roof trusses with pitch of 15 degrees from an approved supplier, delivered to site, hoisted into position, fixed and braced on timber wall plates:				
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.3.5.1.1.1		Symmetrical full truss, spanning 11600mm overall between 230mm face brick-walls, 2550mm high, with both rafter feet projecting 518mm beyond external wall face	No.	12.00		
2.3.5.1.1.2		Symmetrical full truss, spanning 4173mm overall between 230mm face brick walls, 1000mm high, with both rafter feet projecting 318mm beyond external wall face.	No.	3.00		
2.3.5.1.1.3		Trusses in hip set consisting of double main truss spanning 10560mm between 230mm face brick walls, 2550mm high, four hip trusses, four half trusses and fifteen jack trusses, rafter feet projecting 303mm beyond external face	No.	4.00		
2.3.5.2		ROOF CONSTRUCTION				
2.3.5.2.1		Sawn South African Softwood:				
2.3.5.2.1.1		38 x 38mm Battens for barge fixing	m	125.00		
2.3.5.2.1.2		50 x 76mm Purlins	m	280.00		
2.3.5.2.1.3		38 x 114mm Wall plates including setting level in cement mortar bedding	m	90.00		
2.3.5.2.1.4		38 x 152mm Gang board	m	30.00		
2.3.5.3		SUNDRIES				
2.3.5.3.1		Teco Hurricane Clip' or similar approved steel framing anchor between timber rafters and purlins at eaves	No.	40.00		
2.3.5.3.2		2.5mm Double wound galvanised wire at all purlin/truss intersections	No.	144.00		
2.3.6		CEILINGS PARTITIONS AND ACCESS FLOORING				
2.3.6.1		NAILED UP AND SCREW UP CEILINGS				
		9mm "Jumbo Plasterboard Tapered Edge" fixed at 90 degrees to direction of battens with tapered edge of board facing down using 25mm drywall screws at 150mm centres, with 50mm "Jumbo" tape to all joints:				
		Wall bandering to be fixed 38mm away from wall surface to allow for fixing of 75mm gypsum cornice.				
2.3.6.1.1		Horizontal ceilings including 38 x 38mm sawn softwood bandering at 400mm centres with clout nails to underside of truss tie beams, finish the entire ceiling with 3.5mm thick 'Jumbo Skimming Plaster'	m ²	270.00		
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.3.6.1.2		Extra over ceiling for 600 x 600mm trap door formed of 50 x 76mm wrought softwood rebated framing with 38 x 50mm sawn softwood cross brander covered with ceiling	No.	2.00		
2.3.6.2		CORNICES				
2.3.6.2.1		75mm "Jumbo" coved Gypsum plasterboard cornice fixed with "Decofix Pro Adhesive".	m	90.00		
2.3.7		PAINTWORK				
2.3.7.1		ON CEILING BOARDS				
		Apply one coat Plascon Professional Gypsum and Plaster Primer (PP700) and two coats Plascon Hygiene Low Sheen (PHT/THL) - White:				
2.3.7.1.1		On ceiling boards.	m²	270		
2.3.7.1.2		On interior gypsum cornices not exceeding 300 mm	m	90		
2.3.8		TILING				
2.3.8.1		FLOOR TILING & SKIRTING				
		LGZ1921 600 x 600 x 9mm thick rectified cream glazed porcelain tile with a Matt R9 finish and 4 PEI Rating - as supplied by Lime Green Sourcing Solutions KZN, fixed with "TAL Goldstar 6HR" adhesive, jointing of tiles to be epoxy grouted and laid on 40mm screed (screed elsewhere measure), movement joints to be formed in tiling layout, taken through full depth of bedding coat & over background movement joints not exceeding 5m on RC slabs and surface beds:				
2.3.8.1.1		On floors and landings laid flat.	m²	260.00		
2.3.8.1.2		On floors and landings laid to falls.	m²	20.00		
2.3.8.1.3		600 x 75mm high cut and laid tiles vertical skirting	m	90.00		
2.3.8.2		SKIRTING, NOSINGS, ETC				
2.3.8.2.1		Aluminium skirting, nosings, etc.:				
2.3.8.2.1.1		10mm M-Trim aluminium straight edge trim at thresholds (Code-ASE100) as supplied by Kirk Marketing.	m	12.00		
2.3.8.2.1.2		30 x 20mm M-Trim aluminium retrofit stair nosing at edge	m	5.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.4		IRONMONGERY				
2.4.1		SUNDRIES				
		Union or similar approved:				
2.4.1.1		AL8730AS 40Ømm door stop plugged & screwed to floor with 50mm long brass screw as supplied by manufacturer.	No	9.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.5		METALWORK				
2.5.1		ALUMINIUM DOORS				
		Notes: All extruded aluminium with mitred corners to form close joints. All doors are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Door to include all handles, hinges, lock sets and keys as supplied by manufacturer. Flush bolts to be installed on meeting style edge of single leaf (top & bottom) with metal keeps to drilled holes on floor & wall. Provide cabin hooks to both leaves. Door to include aluminium door frame to manufactures specifications and installed on 230mm face brick wall, as per supplier's instructions.				
2.5.1.1		25 micron Bronze Anodised Aluminium, double leaf, glazed staggered cottage pane door (size 1800 x 2060mm), glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Exposure class of class 1 exterior and performance class of heavy duty (SABS 545). (D2)	No.	1.00		
2.5.1.2		25 micron Bronze Anodised Aluminium, single leaf, glazed staggered cottage pane door (size 900 x 2060mm), glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Exposure class of dry interior and performance class of heavy duty (SABS 545). (D1)	No.	9.00		
2.5.2		ALUMINIUM WINDOWS				
		Note: All extruded aluminium with mitred corners to form close joints. All windows are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Windows to include handles, hinges & locks as supplied by manufacturer and install as per manufacturers specifications.				
		25 micron Bronze Anodised Aluminium, profile of single rebated windows glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Windows to consist of 8mm square anodised aluminium (bronze) horizontal bars at 150 C/CRS fixed to frame with stainless steel, tamper proof, self-tapping screws or similar approved.				
2.5.2.1		Window size: 2360 x 1180 mm, 4 x 2 with top sash top hung (W1)	No.	12.00		
Carried Forward/....						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
2.5.2.2		Window size: 590 x 1170 mm, 1 x 3 with upper 2 sash top hung (W2)	No.	2.00		
2.5.2.3		Window size: 2950 x 590 mm, 4 x 1 with top sash hung (W3)	No.	1.00		
2.5.3		SECURITY GATES Notes: Gates to include hinges, locks, keys and other accessories as supplied by manufacturer and installed as per manufacturers specifications. Gate to be fixed to 230mm face brick wall. Trellidor T800, matt bronze aluminium retractable security gate with slam lock or similar approved by engineers.				
2.5.3.1		Double gates for door opening 1800 x 2060mm	No.	1.00		
2.5.3.2		Single gate for door opening 900 x 2060mm	No.	9.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.6		PLUMBING AND DRAINAGE				
2.6.1		RAINWATER DISPOSAL				
2.6.1.1		Watertite' or similar approved seamless aluminium rainwater disposal:				
2.6.1.1.1		150 x 130 x 0.8mm Thick 'Ogee' eaves gutter with colourtech G4 paint finish, fixed with concealed brackets,	m	90.00		
2.6.1.1.2		100mm Diameter Fluted aluminium rainwater downpipes	m	15.00		
2.6.2		EXTRA OVER ITEMS				
2.6.2.1		Extra over 100mm rainwater pipe for bend	No.	12.00		
2.6.2.2		Extra over 100mm upvc rainwater pipe for eaves or plinth offset 550mm projection	No.	4.00		
2.6.2.3		Extra over 150mm Ogee eaves gutter for corners	No.	8.00		
2.6.2.4		Extra over 150mm Ogee eaves gutter for outlet including boring hole through gutter	No.	4.00		
Total Carried Forward to Summary						

HALL AUDITORIUM

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
2.1		EARTHWORKS (SMALL WORKS)				
2.2		CONCRETE (Small Works)				
2.3		BUILDING WORKS				
2.4		IRONMONGERY				
2.5		METALWORK				
2.6		PLUMBING AND DRAINAGE				
TOTAL HALL AUDITORIUM CARRIED FORWARD						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.1	SABS 1200 D	EARTHWORKS				
3.1.1	8.3.2	Bulk Excavation				
	8.3.2 (a)	Excavate for ablution pit structure in all materials and use for backfill or embankment or dispose of up to 4.0m deep				
		a) 0.0m up to 2.0m	m³	100.00		
		b) 2.0m up to 4.0m	m³	45.00		
3.1.2	8.3.2 (b)	Extra over items 3.2.1 for excavation in				
3.1.2.1		1) Soft Rock excavation	m³	10.00		
3.1.2.2		2) Hard rock excavation	m³	15.00		
3.1.2.3		3) Boulder excavation, class A	m³	2.00		
3.1.2.4		4) Boulder excavation, class B	m³	2.00		
	8.3.3	Restricted Excavation				
3.1.3	8.3.3 (a)	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose up to 2.0m deep				
3.1.3.1		Foundation Trenches (700mm wide)	m³	16.00		
3.1.4	8.3.3 (b)	Extra over items 3.2.1 for excavation in				
3.1.4.1		1) Soft Rock excavation	m³	2.00		
3.1.4.2		2) Hard rock excavation	m³	2.00		
3.1.4.3		3) Boulder excavation, class A	m³	1.00		
3.1.4.4		4) Boulder excavation, class B	m³	1.00		
3.1.5		CARTING AWAY				
3.1.5.1		Extra over for loading, carting and dumping of all surplus material from excavations and/or stockpiles on site to a dumping site to be located by the engineer/contractor material (no allowance made for increase in bulk):				
3.1.5.1.1		In spoil heaps where directed on site.	m³	110.00		
3.1.6	8.3.4	WORKING SPACE EXCAVATIONS				
3.1.6.1		Back excavation of vertical sides of excavation in earth exceeding 500mm deep not exceeding 3.0m deep for working space including backfilling compacted to 90% Mod AASHTO density maximum density and carting away unsuitable material				
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.1.6.1.1		For placing and removing formwork to strip footings etc 500mm away from excavated face	m ²	75.00		
3.1.6.2		Risk of collapse of excavations other than bulk:				
3.1.6.2.1		Sides of trench and hole excavations not exceeding 1,5m deep.	m ²	50.00		
3.1.7		DEALING WITH WATER				
3.1.7.1		Keeping excavations free of water	item	1.00		
3.1.8	8.3.3	EXCAVATIONS ANCILLARIES				
3.1.8.1		Rip and compact depth of 150mm to 90% MOD AASHTO				
3.1.8.1.1		Under floors, foundations, etc	m ²	15.00		
3.1.8.2	8.3.3.1	Earth filling obtained from the excavations and/or prescribed stock piles on site or imported material, including haulage from perimeter of excavations or stock piles, compacted to 90% Mod AASHTO density. Rate to include for field density test (incl. OMC testing)				
3.1.8.2.1		(a) Backfilling to trenches, bases, etc	m ³	10.00		
3.1.8.2.2	8.3.4	(b) from importation from commercial or off-site sources selected by the contractor	m ³			Rate Only
		1) Supply & Place G5 material in layers not exceeding 150mm compacted to 95 % MOD AASHTO				
3.1.8.2.3		Under surface bed	m ³	10.00		
		2) Supply & Place G7 material in layers not exceeding 150mm compacted to 93 % MOD AASHTO				
3.1.8.2.4		Under foundations and bases, etc	m ³	14.00		
3.1.9		SOIL POISONING				
3.1.9.1		Approved brand of anti-termite soil poison applied by a Registered Pest Control company and guaranteed against termite infestation for ten years:				
3.1.9.1.1		Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m ²	50.00		
3.1.9.1.2		To bottoms and sides of trenches etc	m ²	115.00		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.2	SABS 1200 GA	CONCRETE (Small Works)				
3.2.1.	8.2	SCHEDULE FORMWORK ITEMS				
3.2.1.1	8.2.1	Rough formwork to				
3.2.1.1.1		Narrow widths up to 300mm	m	28.00		
3.2.1.1.2		Walls of VIP Structure	m ²	130.00		
3.2.1.1.3		Strip footings	m ²	30.00		
3.2.1.2.2		Soffit of Pit Roof Slab	m ²	27.00		
3.2.1.2	8.2.2	Smooth formwork to				
3.2.1.2.1		Edges, risers, ends and reveals not exceeding 300mm	m ²	75.00		
3.2.2	8.3	REINFORCEMENT				
3.2.2.1	8.3.1	In varying Diameter bars.				
3.2.2.1.1		Mild steel reinforcement to structural concrete work:	t	0.10		
3.2.2.1.2		High tensile steel reinforcement to structural concrete work:	t	2.2		
3.2.2.2	8.3.2	Fabric reinforcement:				
3.2.2.2.1		Ref 193 mesh reinforcement in apron slab	m ²	35.00		
3.2.2.2.1		Ref 395 mesh reinforcement in surface bed	m ²	25.00		
3.2.3	8.4	SCHEDULED CONCRETE ITEMS				
3.2.3.1		Unreinforced concrete cast against excavated surfaces				
3.2.3.1.1		15MPa/19mm concrete:				
3.2.3.1.1.1	8.4.2	Surface blinding layer under surface beds, footings, bases, etc	m ³	5.00		
3.2.3.1.2	8.4.3	Screeds wood floated on concrete:				
3.2.3.1.2.1		Average 40mm thick on floors.	m ²	65.00		
3.2.3.2		Reinforced concrete cast in formwork				
3.2.3.2.1	8.4.3	20MPa/19mm Concrete				
3.2.3.2.1.1		Apron Slabs	m ³	4.00		
3.2.3.2.2	8.4.3	30MPa/19mm Concrete				
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.2.3.2.2.1		Surface beds cast in panels on waterproofing	m³	3.00		
3.2.3.2.2.2		Floor of VIP structure	m³	7.00		
3.2.3.2.2.3		Roof Slab of VIP structure	m³	7.00		
3.2.3.2.2.4		Strip footings	m³	4.00		
3.2.3.2.2.5		Foundation footings VIP	m³	10.00		
3.2.3.2.2.6		Walls of VIP Structure	m³	17.00		
3.2.4		CONCRETE SUNDRIES				
3.2.4.1	8.4.4	Unformed surface finishes				
3.2.4.1.1		Finishing top surfaces of concrete smooth with a wood float				
3.2.4.1.1.1		Apron slab	m²	35.00		
3.2.4.1.2		Finishing top surfaces of concrete smooth with a steel float				
3.2.4.1.2.1		Surface beds	m²	65.00		
3.2.4.2	8.5	Movement Joints				
3.2.4.2.1		Isolation joints with 10mm jointex between vertical concrete and brick surfaces:				
3.2.4.2.1.1		10mm Joints not exceeding 300mm high	m	12.00		
3.2.4.2.2		Saw cut joints:				
3.2.4.2.2.1		3 x 35mm Saw Cut Joints in top of concrete	m	10.00		
3.2.4.3		Box out holes for				
3.2.4.3.1		Manhole openings 450mm x 600mm	No	3.00		
3.2.4.3.2		VIP Pit Toilet openings	No	8.00		
3.2.4.3.3		Openings for vents 110mm dia	No	8.00		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.3	PB	BUILDING WORKS				
3.3.1		MASONRY				
3.3.1.1		Brickwork of NFP "Coro Maxi" bricks in class II mortar to be used in foundations				
3.3.1.1.1		One brick wall	m ²	20.00		
3.3.1.2		Face Brickwork of Country Classic -Travertine class FBX bricks in class II mortar to be used in superstructure				
3.3.1.2.1		One brick walls faced both sides	m ²	100.00		
3.3.1.2.2		Half brick wall	m ²	35.00		
3.3.1.2.3		Brickwork on end to form lintels above windows and doors	m	10.00		
3.3.1.2.4		Face brick lintel, etc.				
3.3.1.2.4.1		Extra over brickwork for header course lintel	m	5.00		
3.3.1.2.4.2		Extra over brickwork for header course coping	m	5.00		
3.3.1.2.5		Brick-on-edge sills, bed on and including cement mortar with pointed horizontal and vertical joints.				
3.3.1.2.5.1		170mm Wide sill set sloping and slightly projecting	m	10.00		
3.3.2		BRICKWORK SUNDRIES				
3.3.2.1		Joint forming material in movement joints				
3.3.2.1.1		10mm Jointex or equally approved compressible membrane in vertically between brick skins and concrete	m ²	12.00		
3.3.2.2		Brickwork reinforcement				
3.3.2.2.1		150mm Wide reinforcement built in horizontally	m	410.00		
3.3.2.2.2		75mm Wide reinforcement built in horizontally	m	170.00		
3.3.2.3		Turning pieces				
3.3.2.3.1		230mm Wide turning piece to lintels etc	m	10.00		
3.3.2.4		Galvanised hoop iron cramps, ties, etc				
3.3.2.4.1		30 x 1,6mm Cramp 500mm long with one end fixed to wood and other end built into brickwork	No.	24.00		
3.3.2.5		Bagging of 1: 3 cement and sand mix				
3.3.2.5.1		On brick walls	m ²	100.00		
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.3.2.6		Prestressed fabricated lintels:				
3.3.2.6.1		114 x 90mm Lintels in lengths not exceeding 3m.	m	32.00		
3.3.3		WATERPROOFING				
3.3.3.1		DAMPPROOFING OF WALLS AND FLOORS				
3.3.3.1.1		One layer of 375 micron "Consol Plastics Brikrip DPC" embossed damp proof course				
3.3.3.1.1.1		In walls	m ²	12.00		
3.3.3.1.2		One layer of 250 micron "Gundle USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape":				
3.3.3.1.2.1		Under surface beds	m ²	24.00		
3.3.3.1.2.2		Under window sills	m ²	2.00		
3.3.3.1.3		Two coats "Brixeal" bitumen emulsion waterproof coating				
3.3.3.1.3.1		On bagged brick walls	m ²	100.00		
3.3.3.2		BANDAGE FLASHINGS ETC				
3.3.3.2.1		Approved flexible reinforced glass fibre waterproofing				
3.3.3.2.1.1		Bandage cover flashing strip 200mm wide including sealing edges	m	35.00		
3.3.3.3		JOINT SEALANTS ETC				
3.3.3.3.1		Pro-struct Dymonic NT Polyurethane elastomeric sealing compound including backing cord, bond breaker, primer, etc: or similar approved				
3.3.3.3.1.1		10 x 5mm In saw cut joints in floors	m	10.00		
3.3.3.3.1.2		10 x 10mm In vertical expansion joints including raking out expansion joint filler as necessary	m	8.00		
3.3.3.3.2		Approved silicone sealant at:				
3.3.3.3.2.1		Junction of aluminium windows, doors etc, and plastered walls	m	45.00		
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.3.4		ROOF COVERINGS				
3.3.4.1		PROFILED METAL SHEETING AND ACCESSORIES				
3.3.4.1.1		0.58mm Galvanised steel, GRS IBR 890, Z200 spelter ISQ 550 Chromadek Kingfisher Blue finish top coat and Pebble Grey backing coat roof sheeting, fixed to timber intermediate purlins at max 2300mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners.				
3.3.4.1.1.1		Roof covering with pitch not exceeding 25 degrees (measured on flat)	m ²	65.00		
3.3.4.1.2		0.8mm thick Aluminium flashings and accessories				
3.3.4.1.2.1		Apex capping to match roof sheets.	m	13.00		
3.3.4.1.2.2		Fascia flashing to match roof sheets	m	35.00		
3.3.4.1.2.3		Fascia boards to match roof sheets	m	35.00		
3.3.4.2		ROOF INSULATION				
3.3.4.2.1		Sisalation FR 405 or similar approved - Double sided reflective foil laminate incorporating layers of kraft paper and reinforcing scrim, laminated together with low density polyethylene (293gsm):				
3.3.4.2.1.1		Insulation laid taut over purlins at up to 1200mm centres and fixed concurrent with roof covering including galvanised straining wire and double sided tape to overlap joints and at ends fixed to timber purlins	m ²	65.00		
3.3.5		CARPENTRY AND JOINERY				
3.3.5.1		PREFABRICATED ROOF TRUSSES, ETC.				
3.3.5.1.1		Plate Nailed Timber Roof Construction Trusses to be spaced at +/- 1160 / 1170 c/c (as dimensioned on roof plan) resting on 114 x 38mm wall plates. HURRICANE CLIPS or similar approved to be used at eaves overhangs. At all other purlin/truss intersections double wound 2,5mm diameter galvanised wire. Roof pitch to be 15°. All exposed roof timber to be painted with 2 coats ABE PROVONITE or similar approved, before fixing of roof sheets, fascias and bargeboards. The following in plate nailed timber roof trusses with pitch of 15 degrees from an approved supplier, delivered to site, hoisted into position, fixed and braced on timber wall plates:				
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.3.5.1.1.1		Monopitch truss, spanning 5040mm overall between 230mm face brick-walls, 1340mm high, with both rafter feet projecting 431mm beyond external wall face	No.	16.00		
3.3.5.2		ROOF CONSTRUCTION				
3.3.5.2.1		Sawn South African Softwood:				
3.3.5.2.1.1		38 x 38mm Battens for barge fixing	m	35.00		
3.3.5.2.1.2		50 x 76mm Purlins	m	55.00		
3.3.5.2.1.3		38 x 114mm Wall plates including setting level in cement mortar bedding	m	35.00		
3.3.5.2.1.4		38 x 152mm Gang board	m	10.00		
3.3.5.3		SUNDRIES				
3.3.5.3.1		Teco Hurricane Clip' or similar approved steel framing anchor between timber rafters and purlins at eaves	No.	40.00		
3.3.5.3.2		2.5mm Double wound galvanised wire at all purlin/truss intersections	No.	80.00		
3.3.5.4		FRAMED DOORS ETC				
		All doors to be manufactured according to SABS 545				
3.3.5.4.1		Solid laminated external quality flush panel door with commercial veneer suitable for painting with face over edge edging, hung to steel frame (elsewhere measured):				
3.3.5.4.1.1		42mm Flush Panelled Semi Solid Door with Masonite Veneer Size 830 x 2032mm (D4)	No.	6		
3.3.5.4.1.2		42mm Flush Panelled Semi Solid Door with masonite veneer including 100mm high under cut, overall size 900 x 2032mm high (D5)	No.	2		
3.3.6		CEILINGS PARTITIONS AND ACCESS FLOORING				
3.3.6.1		NAILED UP AND SCREW UP CEILINGS				
		9mm "Jumbo Plasterboard Tapered Edge" fixed at 90 degrees to direction of battens with tapered edge of board facing down using 25mm drywall screws at 150mm centres, with 50mm "Jumbo" tape to all joints:				
		Wall bandering to be fixed 38mm away from wall surface to allow for fixing of 75mm gypsum cornice.				
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.3.6.1.1		Horizontal ceilings including 38 x 38mm sawn softwood brandering at 400mm centres with clout nails to underside of truss tie beams, finish the entire ceiling with 3.5mm thick 'Jumbo Skimming Plaster'	m²	50.00		
3.3.6.1.2		Extra over ceiling for 600 x 600mm trap door formed of 50 x 76mm wrought softwood rebated framing with 38 x 50mm sawn softwood cross brander covered with ceiling	No.	2.00		
3.3.6.2		CORNICES				
3.3.6.2.1		75mm "Jumbo" coved Gypsum plasterboard cornice fixed with "Decofix Pro Adhesive".	m	88.00		
3.3.7		PAINTWORK				
3.3.7.1		On Ceiling Boards Apply one coat Plascon Professional Gypsum and Plaster Primer (PP700) and two coats Plascon Hygiene Low Sheen (PHT/THL) - White:				
3.3.7.1.1		On ceiling boards.	m²	50.00		
3.3.7.1.2		On interior gypsum cornices not exceeding 300 mm	m	88.00		
3.3.7.2		On Wood Plascon Woodcare Knot Seal (PK 2) to all knots & resinous areas & Plascon Plaster Primer (UC56); three coats Plascon Velveglo (VLW):				
3.3.7.2.1		On Doors	m²	20.00		
3.3.7.3		On Metal Apply one primer coat Plascon Metalcare WB primer; 1 undercoat Plascon Velveglo Water-based; 2 finishing coats Plascon Velveglo Water-based paint:				
3.3.7.3.1		On door frames	m²	5.00		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.4		IRONMONGERY				
3.4.1		HINGES, BOLTS, ETC				
3.4.1.1		Union or similar approved:				
3.4.1.1.1		X-SS194FSL-3-SS Falling butt hinges.	No	24		
3.4.2		LOCKS				
3.4.2.1		Union or similar approved:				
3.4.2.1.1		21314-76/8SS 8mm WC deadlock.	No	6		
3.4.2.1.2		SS5004-73SS escutcheon on rose bathroom	No	6		
3.4.2.1.3		37651AS facility indicator bolt.	No	2		
3.4.3		LOCKSETS				
3.4.3.1		Union or similar approved:				
3.4.3.1.1		Radius Lever CZ692-24SC to take 2-lever upright	No	8		
3.4.4		HANDLES				
3.4.4.1		Union or similar approved:				
3.4.4.1.1		PHD-BT-150-22SS 150mm bolt through handle 22mm diameter.	No	6		
3.4.4.1.2		PHD-CF300-22SS 300mm Pull handle flange fixed	No	2		
3.4.5		PUSH PLATES				
3.4.5.1		Union or similar approved				
3.4.5.1.1		SS76X228-06SS Push Plate 76 x 228mm stainless steel blank, grade 304.	No	6		
3.4.6		DOOR CLOSERS				
3.4.6.1		Union or similar approved:				
3.4.6.1.1		DC300DA Rack and Pinion Closure EN3-6 DA Silver	No	2		
3.4.6.1.2		DCA154-EV1 Parallel arm bracket	No	2		
3.4.7		LETTERS, NAMEPLATES, ETC				
3.4.7.1		Union or similar approved:				
3.4.7.1.1		SS5066-06SSE10 (Male)	No	1		
3.4.7.1.2		SS5066-06SSE11 (Female)	No	1		
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.4.7.1.3		SS5066-06SSE14 (Paraplegic)	No	2		
3.4.8		BATHROOM FITTINGS				
3.4.8.1		Union or similar approved:				
3.4.8.1.1		3mm Thick steel plate twice bent as shown, size 240 x 130 x 100mm, with two 30mm diameter holes to support roller, fixed to wall with two 8mm diameter rawl bolts, steel to be finished with one coat zinc-chromate, one coat universal undercoat & two coats gloss enamel -	No	8		
3.4.8.1.2		Roller to consist of a 28mm diameter x 2mm thick hollow steel pipe 280mm long with one end welded to a 40mm x 3mm steel plate and other end holed for padlock (refer	No	8		
3.4.8.2		Railman or similar approved:				
3.4.8.2.1		Railman DL2 300 x 300 x 300mm Dog leg side rail in	No	2		
3.4.8.2.2		Railman SR2 750mm Back rail for cistern in stainless	No	2		
3.4.8.3		Kimberley-Clark or similar approved:				
3.4.8.3.1		Series 1 Code 099060' folded paper towel dispenser,		2		
3.4.8.3.2		Code 427518' soap dispenser, plugged.		2		
3.4.9		SUNDRIES				
3.4.9.1		Union or similar approved:				
3.4.9.1.1		87001SS Satin stainless steel floor mounted door stop plugged.	No	2		
3.4.9.1.2		SS8025SS Hat and Coat Hook with buffer.	No	8		
3.4.9.1.3		110mm vent pipe 4m long (black) complete with fly screen and pipe clamps.	No	8		
3.4.9.1.4		VIP zoo pit 200 pedestal and lid	No	8		
3.4.9.1.5		Cast iron manhole cover and frame double seal 450x600 type 8A	No	3		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.5		METALWORK				
3.5.1		ALUMINIUM DOORS Notes: All extruded aluminium with mitred corners to form close joints. All doors are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Door to include all handles, hinges, lock sets and keys as supplied by manufacturer. Flush bolts to be installed on meeting style edge of single leaf (top & bottom) with metal keeps to drilled holes on floor & wall. Provide cabin hooks to both leaves. Door to include aluminium door frame to manufactures specifications and installed on 230mm face brick wall, as per supplier's instructions.				
3.5.1.2		25 micron Bronze Anodised Aluminium, single leaf, glazed staggered cottage pane door (size 900 x 2060mm), glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Exposure class of dry interior and performance class of heavy duty (SABS 545). (D1)	No.	2.00		
3.5.2		ALUMINIUM WINDOWS Note: All extruded aluminium with mitred corners to form close joints. All windows are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Windows to include handles, hinges & locks as supplied by manufacturer and install as per manufacturers specifications. 25 micron Bronze Anodised Aluminium, profile of single rebated windows glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Windows to consist of 8mm square anodised aluminium (bronze) horizontal bars at 150 C/CRS fixed to frame with stainless steel, tamper proof, self-tapping screws or similar approved.				
3.5.2.2		Window size: 590 x 1180 mm, 1 x 2 with upper 2 sash top hung (W4)	No.	2.00		
3.5.2.3		Window size: 590 x 590 mm, 1 x 1 with top sash hung (W5)	No.	1.00		
Carried Forward/....						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
3.5.3		SECURITY GATES Notes: Gates to include hinges, locks, keys and other accessories as supplied by manufacturer and installed as per manufacturers specifications. Gate to be fixed to 230mm face brick wall. Trellidor T800, matt bronze aluminium retractable security gate with slam lock or similar approved by engineers.				
3.5.3.1		Double gates for door opening 1800 x 2060mm	No.	1.00		
3.5.3.2		Single gate for door opening 900 x 2060mm	No.	9.00		
3.5.4		GALVANISED PRESSED STEEL DOOR FRAME				
3.5.4.1		1,2mm Rebated frames suitable for half brickwall				
3.5.4.1.1		Frame for door 830 x 2032mm high (D4)	No.	6.00		
3.5.4.1.2		Frame for door 900 x 2032mm high (D5)	No.	2.00		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.6		PLUMBING AND DRAINAGE				
3.6.1		RAINWATER DISPOSAL				
3.6.1.1		Watertite' or similar approved seamless aluminium rainwater disposal:				
3.6.1.1.1		150 x 130 x 0.8mm Thick 'Ogee' eaves gutter with colourtech G4 paint finish, fixed with concealed brackets,	m	12.00		
3.6.1.1.2		100mm Diameter Fluted aluminium rainwater downpipes	m	2.00		
3.6.2		EXTRA OVER ITEMS				
3.6.2.1		Extra over 100mm rainwater pipe for bend	No.	2.00		
3.6.2.2		Extra over 100mm upvc rainwater pipe for eaves or plinth offset 550mm projection	No.	2.00		
3.6.2.3		Extra over 150mm Ogee eaves gutter for corners	No.	4.00		
3.6.2.4		Extra over 150mm Ogee eaves gutter for outlet including boring hole through gutter	No.	2.00		
Total Carried Forward to Summary						

ABLUTION BLOCK

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
3.1		EARTHWORKS				
3.2		CONCRETE (Small Works)				
3.3		BUILDING WORKS				
3.4		IRONMONGERY				
3.5		METALWORK				
3.6		PLUMBING AND DRAINAGE				
TOTAL ABLUTION BLOCK CARRIED FORWARD						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.1	SABS 1200 DA	EARTHWORKS (SMALL WORKS)				
4.1.1	8.3.2	Restricted Excavations				
	8.3.2 (a)	Excavate for restricted foundations, footings and trenches in all materials and use for backfill or embankment or dispose up to 2.0m deep				
4.1.1.1		Foundation Trenches (700mm wide)	m³	12.00		
4.1.2	8.3.2 (b)	Extra over items 3.2.1 for excavation in				
4.1.2.1		1) Soft Rock excavation	m³	2.00		
4.1.2.2		2) Hard rock excavation	m³	1.00		
4.1.2.3		3) Boulder excavation, class A	m³	1.00		
4.1.2.4		4) Boulder excavation, class B	m³	1.00		
4.1.3		CARTING AWAY				
4.1.3.1		Extra over for loading, carting and dumping of all surplus material from excavations and/or stockpiles on site to a dumping site to be located by the engineer/contractor material (no allowance made for increase in bulk):				
4.1.3.1.1		In spoil heaps where directed on site.	m³	8.00		
4.1.4	8.3.4	WORKING SPACE EXCAVATIONS				
4.1.4.1		Back excavation of vertical sides of excavation in earth exceeding 500mm deep not exceeding 1,5m deep for working space including backfilling compacted to 90% Mod AASHTO density maximum density and carting away unsuitable material				
4.1.4.1.1		For placing and removing formwork to strip footings etc 500mm away from excavated face	m²	8.00		
4.1.4.2		Risk of collapse of excavations other than bulk:				
4.1.4.2.1		Sides of trench and hole excavations not exceeding 1,5m deep.	m²	35.00		
4.1.5		DEALING WITH WATER				
4.1.5.1		Keeping excavations free of water	item	1.00		
4.1.6	8.3.3	EXCAVATIONS ANCILLARIES				
4.1.6.1		Rip and compact depth of 150mm to 90% MOD AASHTO				
4.1.6.1.1		Under floors, foundations, etc	m²	40.00		
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.1.6.2	8.3.3.1	Earth filling obtained from the excavations and/or prescribed stock piles on site or imported material, including haulage from perimeter of excavations or stock piles, compacted to 90% Mod AASHTO density. Rate to include for field density test (incl. OMC testing)				
4.1.6.2.1		(a) Backfilling to trenches, bases, etc	m ³	8.00		
4.1.6.2.2	8.3.4	(b) from importation from commercial or off-site sources selected by the contractor	m ³			Rate Only
		1) Supply & Place G5 material in layers not exceeding 150mm compacted to 95 % MOD AASHTO				
4.1.6.2.3		Under surface bed	m ³	2.00		
		2) Supply & Place G7 material in layers not exceeding 150mm compacted to 93 % MOD AASHTO				
4.1.6.2.4		Under foundations and bases, etc	m ³	3.00		
4.1.7		SOIL POISONING				
4.1.7.1		Approved brand of anti-termite soil poison applied by a Registered Pest Control company and guaranteed against termite infestation for ten years:				
4.1.7.1.1		Under floors etc, including forming and poisoning shallow furrows against foundation walls etc, filling in furrows and ramming	m ²	40.00		
4.1.7.1.2		To bottoms and sides of trenches etc	m ²	45.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.2	SABS 1200 GA	CONCRETE (Small Works)				
4.2.1.	8.2	SCHEDULE FORMWORK ITEMS				
4.2.1.1	8.2.1	Rough formwork to				
4.2.1.1.1		Narrow widths up to 300mm	m	5.00		
4.2.1.1.3		Strip footings	m ²	8.00		
4.2.1.2	8.2.2	Smooth formwork to				
4.2.1.2.1		Edges, risers, ends and reveals not exceeding 300mm	m ²	40.00		
4.2.2	8.3	REINFORCEMENT				
4.2.2.1	8.3.1	In varying Diameter bars.				
4.2.2.1.1		Mild steel reinforcement to structural concrete work:	t	0.04		
4.2.2.1.2		High tensile steel reinforcement to structural concrete work:	t	0.08		
4.2.2.2	8.3.2	Fabric reinforcement:				
4.2.2.2.1		Ref 193 mesh reinforcement in apron slab	m ²	20.00		
4.2.2.2.2		Ref 395 mesh reinforcement in surface bed	m ²	12.00		
4.2.3	8.4	SCHEDULED CONCRETE ITEMS				
4.2.3.1		Unreinforced concrete cast against excavated surfaces				
4.2.3.1.1		15MPa/19mm concrete:				
4.2.3.1.1.1	8.4.2	Surface blinding layer under surface beds, footings, bases, etc	m ³	2.00		
4.2.3.1.2	8.4.3	Screeds wood floated on concrete:				
4.2.3.1.2.1		Average 40mm thick on floors.	m ²	12.00		
4.2.3.2		Reinforced concrete cast in formwork				
4.2.3.2.1	8.4.3	20MPa/19mm Concrete				
4.2.3.2.1.1		Apron Slabs	m ³	2.00		
4.2.3.2.2	8.4.3	30MPa/19mm Concrete				
4.2.3.2.2.1		Surface beds cast in panels on waterproofing	m ³	2.00		
4.2.3.2.2.2		Strip footings	m ³	3.00		
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.2.4		CONCRETE SUNDRIES				
4.2.4.1	8.4.4	Unformed surface finishes				
4.2.4.1.1		Finishing top surfaces of concrete smooth with a wood float				
4.2.4.1.1.1		Apron slab	m ²	20.00		
4.2.4.1.2		Finishing top surfaces of concrete smooth with a steel float				
4.2.4.1.2.1		Surface beds	m ²	12.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.3	PB	BUILDING WORKS				
4.3.1		MASONRY				
4.3.1.1		Brickwork of NFP "Coro Maxi" bricks in class II mortar to be used in foundations				
4.3.1.1.1		One brick wall	m ²	10.00		
4.3.1.2		Face Brickwork of Country Classic -Travertine class FBX bricks in class II mortar to be used in superstructure				
4.3.1.2.1		One brick walls faced both sides	m ²	40.00		
4.3.1.2.3		Brickwork on end to form lintels above windows and doors	m	5.00		
4.3.1.2.4		Face brick lintel, etc.				
4.3.1.2.4.1		Extra over brickwork for header course lintel	m	3.00		
4.3.1.2.4.2		Extra over brickwork for header course coping	m	3.00		
4.3.1.2.5		Brick-on-edge sills, bed on and including cement mortar with pointed horizontal and vertical joints.				
4.3.1.2.5.1		170mm Wide sill set sloping and slightly projecting	m	32.00		
4.3.2		BRICKWORK SUNDRIES				
4.3.2.1		Joint forming material in movement joints				
4.3.2.1.1		10mm Jointex or equally approved compressible membrane in vertically between brick skins and concrete	m ²	2.00		
4.3.2.2		Brickwork reinforcement				
4.3.2.2.1		150mm Wide reinforcement built in horizontally	m	50.00		
4.3.2.2.2		75mm Wide reinforcement built in horizontally	m	20.00		
4.3.2.3		Turning pieces				
4.3.2.3.1		230mm Wide turning piece to lintels etc	m	5.00		
4.3.2.4		Galvanised hoop iron cramps, ties, etc				
4.3.2.4.1		30 x 1,6mm Cramp 500mm long with one end fixed to wood and other end built into brickwork	No.	8.00		
4.3.2.5		Bagging of 1: 3 cement and sand mix				
4.3.2.5.1		On brick walls	m ²	40.00		
4.3.2.6		Prestressed fabricated lintels:				
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.3.2.6.1		114 x 90mm Lintels in lengths not exceeding 3m.	m	10.00		
4.3.3		WATERPROOFING				
4.3.3.1		DAMPPROOFING OF WALLS AND FLOORS				
4.3.3.1.1		One layer of 375 micron "Consol Plastics Brikgrip DPC" embossed damp proof course				
4.3.3.1.1.1		In walls	m ²	3.00		
4.3.3.1.2		One layer of 250 micron "Gundle USB Green" waterproof sheeting sealed at laps with "Gunplas Pressure Sensitive Tape":				
4.3.3.1.2.1		Under surface beds	m ²	12.00		
4.3.3.1.2.2		Under window sills	m ²	1.00		
4.3.3.1.3		Two coats "Brixeal" bitumen emulsion waterproof coating				
4.3.3.1.3.1		On bagged brick walls	m ²	40.00		
4.3.3.2		BANDAGE FLASHINGS ETC				
4.3.3.2.1		Approved flexible reinforced glass fibre waterproofing				
4.3.3.2.1.1		Bandage cover flashing strip 200mm wide including sealing edges	m	12.00		
4.3.3.3		JOINT SEALANTS ETC				
4.3.3.3.1		Approved silicon sealant at				
		Junction of aluminium windows, doors etc and plastered walls	m	20.00		
4.3.4		ROOF COVERINGS				
4.3.4.1		PROFILED METAL SHEETING AND ACCESSORIES				
4.3.4.1.1		0.58mm Galvanised steel, GRS IBR 890, Z200 spelter ISQ 550 Chromadek Kingfisher Blue finish top coat and Pebble Grey backing coat roof sheeting, fixed to timber intermediate purlins at max 2300mm centres using Hex Flange Head + EPDM Seal self drilling Type 17 drill point, No. 12-11 x 85mm long fasteners.				
4.3.4.1.1.1		Roof covering with pitch not exceeding 25 degrees (measured on flat)	m ²	18.00		
4.3.4.1.2		0.8mm thick Aluminium flashings and accessories				
4.3.4.1.2.1		Apex capping to match roof sheets.	m	30.00		
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.3.4.1.2.2		Fascia flashing to match roof sheets	m	20.00		
4.3.4.1.2.3		Fascia boards to match roof sheets	m	20.00		
4.3.4.2		ROOF INSULATION				
4.3.4.2.1		Sisalation FR 405 or similar approved - Double sided reflective foil laminate incorporating layers of kraft paper and reinforcing scrim, laminated together with low density polyethylene (293gsm):				
4.3.4.2.1.1		Insulation laid taut over purlins at up to 1200mm centres and fixed concurrent with roof covering including galvanised straining wire and double sided tape to overlap joints and at ends fixed to timber purlins	m ²	18.00		
4.3.5		CARPENTRY AND JOINERY				
4.3.5.1		PREFABRICATED ROOF TRUSSES, ETC.				
4.3.5.1.1		Plate Nailed Timber Roof Construction				
		Trusses to be spaced at +/- 1160 / 1170 c/c (as dimensioned on roof plan) resting on 114 x 38mm wall plates. HURRICANE CLIPS or similar approved to be used at eaves overhangs. At all other purlin/truss intersections double wound 2,5mm diameter galvanised wire. Roof pitch to be 15°. All exposed roof timber to be painted with 2 coats ABE PROVONITE or similar approved, before fixing of roof sheets, fascias and bargeboards.				
		The following in plate nailed timber roof trusses with pitch of 15 degrees from an approved supplier, delivered to site, hoisted into position, fixed and braced on timber wall plates:				
4.3.5.1.1.1		Monopitch truss, spanning 3915mm overall between 230mm face brick-walls, 1400mm high, with both rafter feet projecting 431mm beyond external wall face	No.	4.00		
4.3.5.2		ROOF CONSTRUCTION				
4.3.5.2.1		Sawn South African Softwood:				
4.3.5.2.1.2		50 x 76mm Purlins	m	15.00		
4.3.5.2.1.3		38 x 114mm Wall plates including setting level in cement mortar bedding	m	8.00		
4.3.5.2.1.4		38 x 152mm Gang board	m	6.00		
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.3.5.3		SUNDRIES				
4.3.5.3.1		Teco Hurricane Clip' or similar approved steel framing anchor between timber rafters and purlins at eaves	No.	8.00		
4.3.5.3.2		2.5mm Double wound galvanised wire at all purlin/truss intersections	No.	144.00		
4.3.6		CEILINGS PARTITIONS AND ACCESS FLOORING				
4.3.6.1		NAILED UP AND SCREW UP CEILINGS				
		9mm "Jumbo Plasterboard Tapered Edge" fixed at 90 degrees to direction of battens with tapered edge of board facing down using 25mm drywall screws at 150mm centres, with 50mm "Jumbo" tape to all joints:				
		Wall bandering to be fixed 38mm away from wall surface to allow for fixing of 75mm gypsum cornice.				
4.3.6.1.1		Horizontal ceilings including 38 x 38mm sawn softwood bandering at 400mm centres with clout nails to underside of truss tie beams, finish the entire ceiling with 3.5mm thick 'Jumbo Skimming Plaster'	m²	12.00		
4.3.6.1.2		Extra over ceiling for 600 x 600mm trap door formed of 50 x 76mm wrought softwood rebated framing with 38 x 50mm sawn softwood cross brander covered with ceiling	No.	1.00		
4.3.6.2		CORNICES				
4.3.6.2.1		75mm "Jumbo" coved Gypsum plasterboard cornice fixed with "Decofix Pro Adhesive".	m	15.00		
4.3.7		PAINTWORK				
4.3.7.1		ON CEILING BOARDS				
		Apply one coat Plascon Professional Gypsum and Plaster Primer (PP700) and two coats Plascon Hygiene Low Sheen (PHT/THL) - White:				
4.3.7.1.1		On ceiling boards.	m²	12.00		
4.3.7.1.2		On interior gypsum cornices not exceeding 300 mm	m	15.00		
4.3.8		TILING				
4.3.8.1		FLOOR TILING & SKIRTING				
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
		LGZ1921 600 x 600 x 9mm thick rectified cream glazed porcelain tile with a Matt R9 finish and 4 PEI Rating - as supplied by Lime Green Sourcing Solutions KZN, fixed with "TAL Goldstar 6HR" adhesive, jointing of tiles to be epoxy grouted and laid on 40mm screed (screed elsewhere measure), movement joints to be formed in tiling layout, taken through full depth of bedding coat & over background movement joints not exceeding 5m on RC slabs and surface beds:				
4.3.8.1.1		On floors and landings laid flat.	m ²	12.00		
4.3.8.1.3		600 x 75mm high cut and laid tiles vertical skirting	m	15.00		
4.3.8.2		SKIRTING, NOSINGS, ETC				
4.3.8.2.1		Aluminium skirting, nosings, etc.:				
4.3.8.2.1.1		10mm M-Trim aluminium straight edge trim at thresholds (Code-ASE100) as supplied by Kirk Marketing.	m	1.00		
4.3.8.2.1.2		30 x 20mm M-Trim aluminium retrofit stair nosing at edge	m	5.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.4		IRONMONGERY				
4.4.1		SUNDRIES				
		Union or similar approved:				
4.4.1.1		AL8730AS 40Ømm door stop plugged & screwed to floor with 50mm long brass screw as supplied by manufacturer.	No	1.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.5		METALWORK				
4.5.1		ALUMINIUM DOORS				
		Notes: All extruded aluminium with mitred corners to form close joints. All doors are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Door to include all handles, hinges, lock sets and keys as supplied by manufacturer. Flush bolts to be installed on meeting style edge of single leaf (top & bottom) with metal keeps to drilled holes on floor & wall. Provide cabin hooks to both leafs. Door to include aluminium door frame to manufactures specifications and installed on 230mm face brick wall, as per supplier's instructions.				
4.5.1.2		25 micron Bronze Anodised Aluminium, single leaf, glazed staggered cottage pane door (size 900 x 2060mm), glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Exposure class of dry interior and performance class of heavy duty (SABS 545). (D1)	No.	1.00		
4.5.2		ALUMINIUM WINDOWS				
		Note: All extruded aluminium with mitred corners to form close joints. All windows are to be fixed with stainless steel self-tapping screws to AAMSA standards & fully sealed with silicone to form water-tight joint between 230 mm face brickwork and frame. Windows to include handles, hinges & locks as supplied by manufacturer and install as per manufacturers specifications.				
		25 micron Bronze Anodised Aluminium, profile of single rebated windows glazed with 5mm clear floated glass, fully sealed with clear silicone sealant a between glass panels and aluminium profile. Windows to consist of 8mm square anodised aluminium (bronze) horizontal bars at 150 C/CRS fixed to frame with stainless steel, tamper proof, self-tapping screws or similar approved.				
4.5.2.1		Window size: 1180 x 1180 mm 2 x 2 with upper sash top hung(W7)	No.	2.00		
4.5.2.2		Window size: 1770 x 1180 mm, 2 x 3 with upper 2 sash top hung (W6)	No.	1.00		
Carried Forward/....						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
4.5.3		SECURITY GATES				
		Notes: Gates to include hinges, locks, keys and other accessories as supplied by manufacturer and installed as per manufacturers specifications. Gate to be fixed to 230mm face brick wall.				
		Trellidor T800, matt bronze aluminium retractable security gate with slam lock or similar approved by engineers.				
4.5.3.2		Single gate for door opening 900 x 2060mm	No.	1.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.6		PLUMBING AND DRAINAGE				
4.6.1		RAINWATER DISPOSAL				
4.6.1.1		Watertite' or similar approved seamless aluminium rainwater disposal:				
4.6.1.1.1		150 x 130 x 0.8mm Thick 'Ogee' eaves gutter with colourtech G4 paint finish, fixed with concealed brackets,	m	6.00		
4.6.1.1.2		100mm Diameter Fluted aluminium rainwater downpipes	m	4.00		
4.6.2		EXTRA OVER ITEMS				
4.6.2.1		Extra over 100mm rainwater pipe for bend	No.	2.00		
4.6.2.2		Extra over 100mm upvc rainwater pipe for eaves or plinth offset 550mm projection	No.	2.00		
4.6.2.3		Extra over 150mm Ogee eaves gutter for corners	No.	2.00		
4.6.2.4		Extra over 150mm Ogee eaves gutter for outlet including boring hole through gutter	No.	2.00		
Total Carried Forward to Summary						

GUARD HOUSE

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
4.1		EARTHWORKS (SMALL WORKS)				
4.2		CONCRETE (Small Works)				
4.3		BUILDING WORKS				
4.4		IRONMONGERY				
4.5		METALWORK				
4.6		PLUMBING AND DRAINAGE				
TOTAL GUARD HOUSE CARRIED FORWARD						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.1	SABS 1200C	SITE CLEARANCE				
5.1.1		SITE CLEARANCE				
		Clear and Grub				
5.1.1.1		Clear & strip site from vegetation and trees	m ²	1800.00		
5.1.1.2		Remove and grub all trees and tree stumps including de-stumping and disposal for girth:				
5.1.1.2.1		(a) over 1m and up to 2m	No.	5.00		
5.1.1.2.2		(b) over 2m	No.	3.00		
5.1.1.3		Transport materials and debris to unspecified sites and dump.	m ³	40.00		
5.2	SABS 1200 D	EARTHWORKS				
5.2.1		Topsoiling				
5.2.1.1		Remove topsoil, 150 mm thick, stockpile and maintain	m ²	1250.00		
5.2.2		Bulk Excavation	m ³	1580.00		
5.2.3		Extra over excavations other than bulk in earth for excavation in:				
5.2.3.1		(i) Intermediate Material	m ³	25.00		
5.2.3.2		(ii) Hard rock excavation	m ³	25.00		
5.2.3.3		(iii) Boulder Class A	m ³	5.00		
5.2.3.4		(vi) Boulder Class B	m ³	5.00		
5.2.4		Import of material				
5.2.4.1		Extra over for importation of materials from commercial sources or from borrow pits	m ³			Rate Only
5.2.5		Carting Away				
		Extra over all excavations for loading, carting and dumping surplus excavated material (no allowance made for increase in bulk)				
5.2.5.1		Dispose of surplus material were directed to.	m ³	75.00		
5.2.6		Keeping excavations free of water:				
5.2.6.1		Keeping excavations free of water other than subterranean water	Sum	1.00		
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
5.2.7	PG	Prescribed density tests on filling:				
5.2.7.1		"Modified AASHTO Density" test	No	4.00		
5.2.7.2		"Field Density" test including "Optimum Moisture Content" (four readings per test)	No	4.00		
5.3		GRASSING				
		Before planting, all areas are to be raked free of stones and other superfluous matter and brought to a weed free fine tilth by harrowing.				
		The full responsibility of maintaining the grassed areas shall rest with the Contractor until the end of the maintenance period and he must therefore allow for his prices accordingly. The maintenance shall include watering, where necessary re-grassing of unsatisfactory areas and any other work which is necessary to achieve a full, healthy and weed free grass cover before the end of the maintenance period.				
5.3.1		Ground preparation				
5.3.1.1		Cultivation and preparation of areas to be planted	m²	178.00		
5.3.2		Grass Planting:				
5.3.2.1		Supply and lay 'Kikuyu' turf over site	m²	178.00		
5.3.3		Fertilising:				
5.3.3.1		Fertilising garden soil with "Superphosphate" or similar approved fertiliser spread at a rate of 1.5kg/10m² including working evenly into top 100mm depth of soil.	kg	45.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.4		WATER STORAGE TANKS				
5.4.1	SABS 1200 DA	EARTHWORKS				
	8.3.2	Excavation in earth not exceeding 2m deep:				
5.4.1.1	8.3.2 (a)	Trenches.	m ³	48.00		
5.4.1.2		Excavate to reduce level for tank	m ³	25.00		
5.4.2	8.3.2 (b)	Extra over items 3.2.1 for excavation in				
5.4.2.1		1) Soft Rock excavation	m ³	1.00		
5.4.2.2		2) Hard rock excavation	m ³	1.00		
5.4.2.3		3) Boulder excavation, class A	m ³	1.00		
5.4.2.4		4) Boulder excavation, class B	m ³	1.00		
5.4.3	8.3.4	WORKING SPACE EXCAVATIONS				
		Risk of collapse of excavations (shoring)				
5.4.3.1		Sides of trench and hole excavations not exceeding 1,5m deep	m ²	140.00		
5.4.4		EARTH FILLING, ETC. (PROV)				
5.4.4.1	8.3.3	Rip and compact depth of 150mm to 90% MOD AASHTO				
5.4.4.1.1		Under floors, foundations, etc	m ²	5.00		
	8.3.3.1	Earth filling obtained from the excavations and/or prescribed stock piles on site or imported material, including haulage from perimeter of excavations or stock piles, compacted to 95% Mod AASHTO density. Rate to include for field density test (incl. OMC testing)				
5.4.4.1.2.1		Backfilling to trenches, holes, etc	m ²	45.00		
5.4.4.1.2.2	8.3.4	(b) from importation from commercial or off-site sources selected by the contractor	m ³			rate only
5.4.4.2		1) Supply & Place G5 material in layers not exceeding 150mm compacted to 95 % MOD AASHTO				
5.4.4.2.1		Under surface bed	m ³	3.00		
5.4.4.3		2) Supply & Place G7 material in layers not exceeding 150mm compacted to 93 % MOD AASHTO				
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
5.4.4.3.1		Under foundations and bases, etc	m ³	10.00		
5.4.5		COMPACTION				
5.4.5.1		Compaction of surfaces:				
5.4.5.1.1		Compaction of ground surface under floors etc . including scarifying for a depth of 150mm, breaking adding decomposed dolerite material where necessary	m ³	25.00		
5.4.6	SABS 1200 GA	CONCRETE (Small Works)				
5.4.6.1	8.2	SCHEDULE FORMWORK ITEMS				
5.4.6.1.1	8.2.1	Rough formwork to				
5.4.6.1.1.1		Narrow widths up to 300mm	m	5.00		
5.4.6.1.1.2		Strip footings	m ²	30.00		
5.4.6.1.2	8.2.2	Smooth formwork to				
5.4.6.1.2.1		Edges, risers, ends and reveals not exceeding 300mm	m ²	10.20		
5.4.7	8.3	REINFORCEMENT				
5.4.7.1	8.3.2	Fabric reinforcement:				
5.4.7.1.1		Ref 617 mesh reinforcement in apron slab	m ²	18.00		
5.4.8	8.4	SCHEDULED CONCRETE ITEMS				
		Unreinforced concrete cast against excavated surfaces				
5.4.8.1		15MPa/19mm concrete:				
5.4.8.1.1	8.4.2	Surface blinding layer under surface beds, footings, bases, etc	m ³	2.00		
		Reinforced concrete cast in formwork				
5.4.8.2	8.4.3	30MPa/19mm Concrete				
5.4.8.2.1		Surface beds cast in panels on waterproofing	m ³	3.00		
5.4.8.2.2		Strip footings	m ³	10.00		
5.4.9		CONCRETE SUNDRIES				
	8.4.4	Unformed surface finishes				
5.4.9.1		Finishing top surfaces of concrete smooth with a steel float				
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
5.4.9.1.1	PB	Surface beds	m ²	18.00		
5.4.10		BUILDING WORKS				
5.4.10.1		BRICKWORK				
5.4.10.1		Load bearing brickwork of NFX bricks (14 Mpa nominal compressive strength) in cement mortar:				
5.4.10.1.1		One brick wall	m ²	55.00		
5.4.10.2		Face Brickwork of Country Classic -Travertine class FBX bricks in class II mortar				
5.4.10.2.1		One brick wall	m ²	18.00		
5.4.11		BRICKWORK SUNDRIES				
		Brickwork Reinforcement :				
5.4.11.1		150mm Wide reinforcement built in horizontally.	m	200.00		
5.4.12		WATERPROOFING				
		One layer of 250 micron Consol Plastics Gunplas USB Green or similar approved waterproof sheeting sealed at laps (minimum 150mm laps) with Gunplas Pressure Sensitive Tape at aqll joints				
5.4.12.1		Under surface beds.	m ²	18.00		
5.4.13		TANKS				
		Polyethylene Rainwater Storage Tanks				
5.4.13.1		4500 litre Polyethylene rainwater storage tank, including 75 x 75mm inlet and 20mm diameter outlet, the tank tied down with and including four 4mm galvanised wire ties, the top end looped and protected by 15mm hose pipe and hooked around bracket, the other end fixed to and including anchor of 12mm diameter high tensile rod 500mm girth cast into concrete base. (Concrete base	No	1.00		
5.4.13.2		1500 litre Polyethylene rainwater storage tank, including 75 x 75mm inlet and 20mm diameter outlet, the tank tied down with and including four 4mm galvanised wire ties, the top end looped and protected by 15mm hose pipe and hooked around bracket, the other end fixed to and including anchor of 12mm diameter high tensile rod 500mm girth cast into concrete base. (Concrete base elsewhere measured).	No	4.00		
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
5.4.14		SUNDRIES				
5.4.14.1		20mm Rough brass locking cock, jointed to 20mm diameter mild steel pipe 220mm long, including all necessary connectors, the pipes jointed to connection on water tanks and supported with bracket formed of 3mm galvanised mild steel plate size 50 x 300mm high, the plate once holed for pipe and twice holed for and including 8mm diameter expansion bolts, including necessary mortices in concrete base	No	5.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.5	PF	FENCING				
		The contractor is to refer to Drawing Number 100 for the fencing and gate details.				
5.5.1		Supply and install Clear Vu fencing. Aperture - 12mm x 76mm; 2.1m high; galvanised and PVC coated (4mm after coating); including spikes	m	200.00		
5.5.2		Supply and install pedestrian gate to suit Clear Vu fencing including spikes. Size 1.2m x 2,1m high	No	1.00		
5.5.3		Supply and install vehicular access gate to suit Clear Vu fencing including spikes. Size 1.2m x 2,1m high	No	1.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.6	SABS 1200 LE	STORMWATER DRAINAGE: V-DRAINS				
5.6.1		EXCAVATION OTHER THAN BULK				
5.6.1.1		Excavation, Trim & Shape to form V-Drains	m³	90.00		
5.6.1.2		Rip and compact depth of 150mm to 90% MOD AASHTO	m²	35.00		
5.6.1.3		Extra over for loading, carting and dumping of all surplus material from excavations and/or stockpiles on site to a dumping site to be located by the engineer/contractor material (no allowance made for increase in bulk):	m³	65.00		
5.6.1.4		Back excavation for working space for placing and removing formwork to 'V' drain etc. from flush excavated face	m²	35.00		
5.6.2		REINFORCED CONCRETE CAST IN FORMWORK				
5.6.2.1	8.2	SCHEDULE FORMWORK ITEMS				
	8.2.1	Rough formwork to				
5.6.2.1.1		Rough formwork to sides:				
5.6.2.1.2		Sides of V-Drains	m²	35.00		
5.6.2.2	8.3	REINFORCEMENT				
5.6.2.2.1	8.3.1	In varying Diameter bars.				
5.6.2.2.2	8.3.2	Fabric reinforcement:				
5.6.2.2.2.1		Ref 193 mesh reinforcement in apron slab	m²	20.00		
5.6.2.3	8.4	SCHEDULED CONCRETE ITEMS				
	8.4.3	30MPa/19mm Concrete				
5.6.2.3.2.2		Concrete lining for V-drains	m³	24.00		
5.6.2.4		CONCRETE SUNDRIES				
	8.4.4	Unformed surface finishes				
5.6.2.4.1		Finishing top surfaces of concrete smooth with a wood float				
5.6.2.4.2		Sides of V-Drain	m²	20.00		
5.6.2.5	8.5	MOVEMENT JOINTS				
5.6.2.5.1		Movement joints softboard between concrete joints				
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
5.6.3	SABS 1200 LE	STORMWATER PIPES				
5.6.3.1	8.2.1	On class C bedding - 375mm ND Class 100D concrete pipe	m	50.00		
5.6.3.2	8.3.2 (b)	Extra over items 3.2.1 for excavation in				
5.6.3.2.1		1) Soft Rock excavation	m³	10.00		
5.6.3.2.2		2) Hard rock excavation	m³	10.00		
5.6.4	8.2.8	STORMWATER MANHOLES & CATCHPITS FOR V-DRAINS				
5.6.4.1	8.2.8(a)	Stormwater manhole not exceeding 2m deep as per detail 1265/CSW103, including 150mm thick reinforced class 20/19 concrete base including benching, 230mm thick NFX bricks in english bond including 1:3 mortar screed on floors, concrete base to be cast onto in-situ ground at 95% MOD AASHTO - INCLUDE SLAB, LID AND MESH IN BASE	No	2.00		
5.6.4.2	8.2.8(b)	V-Drain Corner Catcpit size 1,46 x 1,46m not exceeding 1m deep, 250mm reinforced concrete base, 230mm wide wall, 150mm 25MPa reinforced concrete cover, complete as per detail 1265/CSW103	No	3.00		
5.6.4.3		V-Drain Catcpit size 1,46 x 1,46m not exceeding 1m deep, 250mm reinforced concrete base, 230mm wide wall, 150mm 25MPa reinforced concrete cover, complete as per detail 1265/CSW103	No	2.00		
5.6.4.4	8.2.9	Headwall: Construct headwall end of 375mm pipe stormwater pipe complete consisting of 230mm wide wall approximately 1,5m long, 3m wide and ,8m high with brick on edge raking coping all fair faced and brickforce every 3rd course, 25MPa concrete 150mm slab with 400 x 150mm toe beam with Y10 and ref. 245 mesh reinforcement with rough broom finish, 150 to 250mm hand stone 300mm deep, ,3m deep reno mattress on bidim A4, splitter box with outlet, and pipe to be cut flush with headwall, on insitu ripped and recompacted material to 93% MOD-AASHTO density, all as per drawing 1265/CSW102	No	2.00		
5.6.5		TESTING				
5.6.5.1		Testing stormwater drainage system	Sum	1.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.7		SOIL DRAINAGE				
5.7.1		uPVC Class 34 pipes including imported pipe bedding material as necessary:				
5.7.1.1		110mm Pipe fixed vertically or ramped to cleaning eyes etc in ground (no excavation)	m	15.00		
5.7.1.2		110mm Pipe laid in and including trenches not exceeding 1m deep.	m	15.00		
5.7.2		SUBSOIL DRAINAGE				
5.7.2.1		Kaytech Flo-Drain or similar approved	m ²	10.00		
5.7.2.2		110mm Geopipe	m	15.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.8		CHAIRS, OFFICE FURNITURE, ETC				
5.8.1		FIRE APPLIANCES ETC.				
		Chubb' or similar approved:				
5.8.1.1		5kg Carbon dioxide fire extinguisher to SABS 810 with wall mounting bracket including backboard, plugged	No	5.00		
5.8.2		CUPBOARDS & FURNITURE IN GUARD HOUSE				
		Cupboard fittings shall be constructed from 16mm melamine faced "V313" Bison Board with 2mm thick high impact edging glued to all edges for doors, car-case, divisions, shelves, etc. The back is to be 9mm melamine faced Bison Board fixed with brass. Shelves are to be provided with approved pressed metal adjustable supports recessed into divisions and end panels.				
		Doors shall be hung on chromium plated piano hinges. Doors are to be fitted with a recessed hardwood pull handle, two chromium plated barrel bolts and approved cylinder cupboard deadlock. Paired doors are to have rebated meeting edges				
		All exposed hardwood surfaces to be painted with a paint system comprising one coat 10% diluted and two finishing coats polyurethane varnish with an eggshell finish. Prior to painting all irregular surfaces are to be filled with approved wood filler.				
		Prices shall include for assembling and fixing complete in position, including all necessary brackets, wall bands, cleats, cover fillets, painting, drilling, screwing and nailing, etc and painting exposed fillets to match.				
		All dimensions are to be determined on site before fabrication.				
		Cupboard unit in Guard House:				
Carried Forward/....						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
		Floor cupboard unit size 2000mm long x 600mm wide x 750mm high overall, formed of two 16mm thick Bison Melawood cupboard doors size 530 x 478mm high each to either side of cupboard unit with one drawer above each cupboard door size 530 x 159mm high including standard telescopic rollers, and one worktop between cupboards formed of 32mm Bison Dura water resistant particle board with bullnose edge laminated with 1mm thick Formica high pressure laminate HG & postformed in Storm Grey (423). Reverse side to have Formica HPL-BK brown backer. Exposed edges to have matching edging. Worktop to be fixed onto wall via timber supports over cupboards, carcass to comprise of 16mm thick Bison commercial blockboard with exposed edges to receive matching edging, worktop comprising of 32mm Bison Dura water resistant particle board with bullnose edge, mounted on 75mm high x 12mm thick timber skirting with 22mm diameter timber quadrant, ironmongery to be "Union 25mm AL5102-25AS"	NO	1.00		
5.8.3		FURNITURE IN GUARD HOUSE & OFFICES				
5.8.3.1		1400mm Rectangular office desk with melamine surface finish, top thickness 38mm, side thickness 16mm. Unit size is 1400mm long x 700mm wide x 750mm high, with cabinet and drawer with lock capability	No	6.00		
5.7.3.2		Black office chair, no arms 825mm high x 450mm wide x 560mm long with square tube steel frame with fabric covering	No	6.00		
5.7.3.3		White stackable Polypropylene chairs, with no sides with a weight loading of 120kg, seat height of 430mm, dimensions, 390mm long x 370mm wide x 810mm high	No	400.00		
5.7.3.4		Rectangular steel table 0.7mm thickness, 1.8m long	No	10.00		
Total Carried Forward to Summary						

EXTERNAL WORKS						
Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
5.1-5.3		SITE CLEARANCE, EARTHWORKS & GRASSING				
5.4		WATER TANKS				
5.5		FENCING				
5.6		STORMWATER				
5.7		SOIL DRAINAGE				
5.8		FURNITURE				
TOTAL EXTERNAL WORKS CARRIED FORWARD						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
6.1	PE	ELECTRICAL				
6.1.1		PREAMBLES Refer to the attached Specifications for the Electrical Installation. The Tenderer must at all times read the Bills of Quantities in conjunction with the specification and drawings prior to pricing this section.				
6.1.2		GUARANTEE AND MAINTENANCE				
6.1.2.1		Guarantee and maintenance for the complete installation of Electrical Installation including fittings, materials and workmanship for a period of TWELVE MONTHS after date of completion and handover.	item	1		
6.1.3		TESTING				
6.1.3.1		Allow for testing, balancing and commissioning the whole of the electrical installation as laid down in the specification and for re-testing as may be required after the making good of all defective work to the satisfaction of the Engineer.	item	1		
6.1.4		AS-BUILT DRAWINGS				
6.1.4.1		Provision for the drawings showing all site cable routes, conduit routes, draw boxes and positions of outlets, etc.	item	1		
6.1.5		CERTIFICATE OF COMPLIANCE				
6.1.5.1		Provision for the Certificate of Compliance to be issued on completion of the project.	item	1		
6.1.6		EARTHING AND BONDING AND LIGHTNING PROTECTION				
6.1.6.1		Allow for earthing and bonding and lightning protection as required by the applicable regulations and the Engineers requirements	item	1		
6.1.7		LABELLING AND MARKING				
6.1.7.1		Allow for marking and labelling of all equipment, cables, plugs, light switches etc.	item	1		
6.1.8		GENERAL ATTENDANCE				
6.1.8.1		Allow for attendance on the lightning protection sub-contractors	item	1		
6.1.9		DISTRIBUTION BOARDS Supply, Installation and commissioning of the Distribution Board, including making off all wire connections (external wiring, conduit, armoured cable and terminations given elsewhere)				
Carried Forward/....						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
		DB-H (As per schematic drawing)				
6.1.9.1		Supply	No.	1		
6.1.9.2		Install	No.	1		
6.1.10		CABLES				
		Supply, delivery and laying of PVC/SWA/PVC ECC copper cables as specified, excluding terminations and cable supports. Lengths given shall be taken as measured lengths to cable runs from terminal to terminal and rates quoted shall include for off-cuts and wastage.				
		95 mm ² 4 core PVC/SWA/PVC ECC Cable				
6.1.10.1		Supply	m	75		
6.1.10.2		Install	m	75		
		16 mm ² 4 core PVC/SWA/PVC ECC Cable				
6.1.10.3		Supply	m	50		
6.1.10.4		Install	m	50		
6.1.11		CABLE TERMINATIONS				
		Including the supply and fitting of Pratley Cable gland, shroud, making off the cable and fitting the gland to gland plates, switchgear or equipment including final connections of cable tails with lugs onto board terminals and including earth in ECC cable				
		95 mm ² 4 core PVC/SWA/PVC ECC Cable				
6.1.11.1		Supply	No.	2		
6.1.11.2		Install	No.	2		
		16 mm ² 4 core PVC/SWA/PVC ECC Cable				
6.1.11.3		Supply	m	2		
6.1.11.4		Install	m	2		
		CABLE SLEEVES				
6.1.12		Supply and Installation of Cable Sleeves as specified, in trenches or cast in concrete, excluding trenching or backfilling.				
		110mm Ø Rigid Cable Sleeve				
6.1.12.1		Supply	m	25		
6.1.12.2		Install	m	25		
		110mm Diameter long radius bend				
6.1.12.3		Supply	No.	4		
6.1.12.4		Install	No.	4		
Carried Forward/....						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
6.1.12.5		50mm Ø Rigid Cable Sleeve				
6.1.12.6		Supply	m	50		
		Install	m	50		
		50mm Diameter long radius bend				
6.1.12.7		Supply	No.	4		
6.1.12.8		Install	No.	4		
6.1.13		EXCAVATIONS				
		Excavations other than bulk in soft excavation not exceeding 2m deep for:				
		Allowance is to be made for the installation of cable markers and warning sheets				
6.1.13.1		In trenches for cables and sleeves	m³	50		
6.1.13.2		Extra over "soft excavation" for excavation in intermediate excavations	m³	5		
6.1.13.3		Extra over "soft excavation" for excavation in hard rock excavations	m³	5		
6.1.13.4		Backfilling of trenches	m³	50		
		Risk of collapse of excavations other than bulk				
6.1.13.5		Sides of trenches and hole excavations not exceeding 1.5m deep	m³	50		
6.1.14		CONDUITS				
		Supply and installation of PVC and Galvanised conduit. Lengths given shall be taken as measured horizontal and vertical runs between conduit terminations. Rates quoted shall allow for wastage, offcuts, couplings, cuttings, bending, jointing socket and tees.				
		20mm Conduit				
6.1.14.1		Supply	m	950		
6.1.14.2		Install	m	950		
		25mm Conduit				
6.1.14.3		Supply	m	420		
6.1.14.4		Install	m	420		
		P2000 Trunking				
6.1.14.5		Supply	m	250		
6.1.14.6		Install	m	250		
Carried Forward/....						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
6.1.15		CONDUIT BOXES & ENDS				
		Terminate and connect one pair of conduit ends including supply and installation of 1, 2, 3 or 4 way box on surface or in brickwork. Either round, 50mm x 100mm, 100mm x 100mm (excluding coverplates), including holes for conduit.				
		20mm Conduit				
6.1.15.1		Supply	No.	80		
6.1.15.2		Install	No.	80		
		25mm Conduit				
6.1.15.3		Supply	No.	50		
6.1.15.4		Install	No.	50		
6.1.16		CONDUIT ENDS				
		Terminate and connect one pair of conduit ends including lock nuts, bushes, etc. connecting into board tray, wiring channel etc. including cutting holes for conduit entries, but excluding conduit box.				
		20mm uPVC Conduit				
6.1.16.1		Supply	No.	25		
6.1.16.2		Install	No.	25		
		25mm uPVC Conduit				
6.1.16.3		Supply	No.	25		
6.1.16.4		Install	No.	25		
6.1.17		CONDUCTORS				
		Supply and installation of PVC insulated copper conductors drawn into conduit or wiring channel in groups of 2, 3, 4, etc. with the required colour coding, but excluding any wiring connections.				
		1,5 mm² PVC Conductors				
6.1.17.1		Supply	m	2 500		
6.1.17.2		Install	m	2 500		
		2.5 mm² PVC Conductors				
6.1.17.3		Supply	m	500		
6.1.17.4		Install	m	500		
		4 mm² PVC Conductors				
6.1.17.5		Supply	m	200		
6.1.17.6		Install	m	200		
Carried Forward/....						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
6.1.18		EARTH CONDUCTORS				
		Supply and drawing into conduit PVC insulated earth conductors, excluding any connections				
		1.5mm ² Conductors				
6.1.18.1		Supply	m	500		
6.1.18.2		Install	m	500		
		2.5mm ² Conductors				
6.1.18.3		Supply	m	200		
6.1.18.4		Install	m	200		
6.1.19		LIGHT SWITCHES				
		Supply, fitting and electrical connection of a flush or surface mounted 16A switch in 100 x 50 excluding box (for flush type) and conduit connections, but including cover plates.				
		16A 1 Lever				
6.1.19.1		Supply	No.	15		
6.1.19.2		Install	No.	15		
		16A 2 Lever				
6.1.19.3		Supply	No.	3		
6.1.19.4		Install	No.	3		
6.1.20		LUMINAIRES				
		Supply and Installation of the following luminaires, complete with lamps as specified				
		1 x PL 13W Recessed CFL Down Lighter				
6.1.20.1		Supply	No.	20		
6.1.20.2		Install	No.	20		
		2 x 18W Wall Mounted Bulkhead				
6.1.20.3		Supply	No.	25		
6.1.20.4		Install	No.	25		
		2 x 18W Ceiling Mounted Bulkhead				
6.1.20.5		Supply	No.	4		
6.1.20.6		Install	No.	4		
		2 x 58W Prismatic fluorescent fitting				
6.1.20.7		Supply	No.	25		
6.1.20.8		Install	No.	25		
Carried Forward/....						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
Brought Forward/....						
6.1.21		DAYLIGHT SWITCHES / PHOTO-CELLS				
		Supply and installation of approved daylight switch.				
		Royce-Thompson Daylight Switch				
6.1.21.1		Supply	No.	3		
6.1.21.2		Install	No.	3		
6.1.22		SOCKET OUTLETS				
		Supply, fitting and electrical connection of flush or surface mounted switched socket in either 100 x 100, 100 x 50, round box or wiring channel, excluding box (for flush type) and conduit connections, but including cover plate.				
		16A SSO c/w coverplate				
6.1.22.1		Supply	No.	15		
6.1.22.2		Install	No.	15		
		16A Double SSO c/w coverplate				
6.1.22.3		Supply	No.	6		
6.1.22.4		Install	No.	6		
6.1.23		CABLE MARKERS				
		Allow to supply marking tape and cable markers				
		PVC warning marking tape				
6.1.23.1		Supply	m	100		
6.1.23.2		Install	m	100		
6.1.24		PROVISIONAL SUMS				
6.1.24.1		Allow for a main power supply connection and liaison with the power Supply Authority	P.Sum	1		
6.1.24.2		Allowance for Profit and Attendance on item above	%	350 000		
6.1.24.3		Allow Provisional Sum For Lightning Protection system	P.Sum	1		
6.1.24.4		Allowance for Profit and Attendance on item above	%	25 000		
6.1.24.5		Contingency amount to be directed for use as per the Electrical Engineers instructions.	P.Sum	1		
6.1.24.6		Allowance for Profit and Attendance on item above	%	25 000		
Total Carried Forward to Summary						

ELECTRICAL

Item No.	Payment Ref	Description	Unit	Quantity	Rate	Amount
6.1		ELECTRICAL				
TOTAL ELECTRICAL CARRIED FORWARD						

SUMMARY OF SCHEDULES

SCHEDULE	DESCRIPTION	AMOUNT
1	PRELIMINARIES AND GENERAL	_____
2	HALL AUDITORIUM	_____
3	ABLUTION BLOCK	_____
4	GUARD HOUSE	_____
5	EXTERNAL WORKS, SITE SERVICES AND SUNDRIES	_____
6	ELECTRICAL	_____
	SUB-TOTAL "A"	=====
	CONTINGENCIES	
	Add: 10% of the above Sub Total "A" as a Provisional Sum to cover to cost of Contingencies and to be expended only as the Engineer may direct	_____
	VALUE ADDED TAX	
	Add: 15% Value Added Tax of the above Sub total "B"	_____
	TOTAL OFFER:	=====

PART C3: SCOPE OF WORK

PART C3: SCOPE OF WORK

PART C3	SCOPE OF WORK	PAGE NO
C3.1.	DESCRIPTION OF THE WORKS	2
C3.2.	ENGINEERING.....	5
C3.3.	PROCUREMENT.....	6
C3.4.	CONSTRUCTION AND MANAGEMENT REQUIREMENTS	7
C3.5.	PROJECT SPECIFICATIONS.....	25
C3.6	PARTICULAR SPECIFICATION.....	70

C3.1. DESCRIPTION OF THE WORKS

C3.1.1. EMPLOYER'S OBJECTIVES

The project entails the construction of a multipurpose community hall namely Mandlalathi Hall within the eMandlalathi area in ward 2. The Total population that will benefit from the project is approximately 1330 and number of households is approximately 255.

Purpose of the project is to create an inducive and safe mass gathering environment & dignified public gathering space for the community. A significant need for the proposed Mandlalathi Hall project is evident from the following:

The community may sometimes be open for the whole community or for a specialized group within the greater community. Members of a community will gather for group activities, social support, public information, religious events, school functions, Youth Activities, and other purposes.

All operations necessary for the execution of the works and for the construction of any temporary works shall, as far as compliance with the requirements of the contract permit, be carried on so as to cause minimum interference with the local community and other contractors working in the area.

- Construction of new community hall.
- Site to include the following features:
- Hall auditorium
- VIP toilets
- Guard House
- External Fencing

Note that it is the **Umdoni Local Municipality** objective to construct this project using labour intensive methods. In particular and where physically possible, the following activities will be undertaken 'by hand', using labour intensive construction techniques:

- Platform formation, levelling, and earthworks,
- Stormwater management (Prov. Head walls and soak aways)
- Construction of Hall Building including admin offices
- Construction of male, female, and paraplegic VIP Toilets – Dry Pit
- Construction of Guard House
- 2.1m High ClearVu or Similar approved Security Fencing with vehicular and pedestrian access.
- Construction of gravel access
- Rainwater Harvesting Tanks

C3.1.2. OVERVIEW AND EXTENT OF WORKS

The proposed scope of works (SoW) includes, but is not limited to the following:

- Hall auditorium - Seating and stage area
- Entrance / Foyer
- Office X 2

- Guard House
- Male, Female and Disable Ablution Block - (Dry Pit system)
- Erection of a new Clear vu boundary fence, approximately 180m, (or Similar approved) and Access gates
- The Site enclosed by the Fence is approximately 1600m²

C3.1.3. LOCATION OF THE WORKS

The project is located in the southern Kwa-Zulu Natal, within the township of eMandlalathi which is approximately 12.3 km North West of Dududu. The jurisdiction of the site is within the Umdoni Local Municipality. The site is opposite the Amandlalathi Primary school, which is accessible via an unnamed gravel road.

DISTRICT MUNICIPALITY	LOCAL MUNICIPALITY	DESCRIPTION	CO-ORDINATES OF APPROXIMATE PROJECT SITE	
			LATITUDE	LONGITUDE
Ugu District Municipality	Umdoni Local Municipality	eMandlalathi Township, Ward 2	30° 8'0.30"S	30°31'49.40"E

C3.1.4. TEMPORARY WORKS

The Contractor shall be required to carry out the following temporary works in accordance with minimum acceptable quality standards as stipulated in the reference standards.

The temporary works include the following:

1. Trench dewatering and site water control
2. Formwork
3. Shoring

C3.1.5. NATURE OF GROUND AND SUBSOIL CONDITIONS

There has been a desktop geotechnical investigation undertaken for this project, which is available from the consultant upon request. It shall be the responsibility of the Contractor to have inspected the site and have satisfied himself as to the nature of the ground and subsoil conditions.

No claims for additional payment or an extension of time shall be considered on account of the existing site conditions and nature of the ground and subsoil.

C3.1.6. DETAILS OF CONTRACT

The Works to be executed under this contract include earthworks, layer works, excavation, concrete works, masonry works, and other works involved in the construction of the proposed Works.

Schedule of Areas

Room	Area
Hall	
Apron	110.022 m ²
RWHT 1	6.223 m ²
RWHT 2	6.223 m ²
RWHT 3	6.250 m ²
Covered Entrance	16.915 m ²
Office 1	9.822 m ²
Office 2	9.822 m ²
Main Hall	185.148 m ²
Stage	29.618 m ²
Total Hall:	380.044 m²
Ablutions	
Walkway	7.731 m ²
Ablutions Apron	34.209 m ²
Ablutions RWHT 1	2.250 m ²
Ablutions RWHT 2	2.250 m ²
Ablution Entrance	1.889 m ²
Female Ablution Common Area	7.492 m ²
Female Disabled	3.240 m ²
Female Cubicles (Total)	5.409 m ²
Male Ablutions Common Area	7.492 m ²
Male Disabled	3.240 m ²
Male Cubicles (Total)	5.409 m ²
Total Ablutions:	80.612 m²
Guard House	
Guard House Apron	17.209 m ²
Guard Room	5.010 m ²
Stoep	2.797 m ²
Total Guard House:	25.016 m²
Total Buildings:	485.672 m²
Total Site:	1816.061 m²
Floor Area Ratio (FAR):	26.74%

C3.2. ENGINEERING

C3.2.1. EMPLOYER'S DESIGN

Mandalalathi Community Hall has been designed to suit the minimum acceptable standards to **Umdoni Local Municipality** requirements. The Contractor shall be furnished with all necessary details and drawings necessary for the successful completion of the project.

C3.2.2. DESIGN BRIEF AND PROCEDURES

The Contractor shall use the designs availed by the Engineer in the contract document and is expected to submit a written program of works for both the permanent and temporary works prior to commencement of any work on site. The Contractor shall notify the Engineer of any changes to the program of works before any task execution.

The Contractor shall be responsible for the design of the following:

1. All temporary works required for construction
2. Shoring where required for deep excavations
3. Dewatering of trench during excavations
4. Blasting for heavy duty rock

C3.2.3. DRAWINGS

The drawings issued to tenderers, as part of the tender documents must be regarded as provisional and preliminary for the tenderer's benefit to generally assess the scope of work. The drawings are issued separately to the bound tender and contract document.

The work shall be carried out in accordance with the latest available revision of the drawings approved for construction.

At commencement of the contract, the Engineer shall deliver to the Contractor three copies of the construction drawings and any instructions required for the commencement of the works. From time to time thereafter during the progress of the works, the Engineer may issue further drawings or revisions for construction purposes as may be necessary for adequate construction, completion and defects correction of the works.

Drawings listed below are issued separately in Part C4 and is for **Tender Purposes Only**

C3.3. PROCUREMENT

C3.3.1. PREFERENTIAL PROCUREMENT PROCEDURES

The conditions associated with the granting of preferences, if any, and the sanctions relating to a breach of preferencing conditions are contained in the **Umdoni Local Municipality** Supply Chain Management Policy of the Local Government Municipal Finance management. This document is available from the Employers website at <https://www.umdoni.gov.za/> or available for review at the offices of the employer or their agent.

Resources standards

In terms of this contract the Contractor shall comply with the Preferential Procurement Policy Framework Act, 2000: Preferential Procurement Regulations, 2017 Tenders will be evaluated in terms as per the Tender Data.

Notwithstanding this, a minimum of 5% of the award value of the contract is to be subcontracted in terms of clause 9.(2) of the PPPFA, Preferential Procurement Regulations, 2017. The award value is the value of the Contract at the time of award, exclusive of VAT, provisional sums and all allowances for escalation and contingencies provided by the Employer.

If during the execution of the contract, the Contractor does not achieve the tendered Contract Participation Goal (CPG) of 30%, the Contractor shall pay to the Employer penalties equal to one times the difference between the tendered CPG of 30% and the actual CPG achieved during construction. The Contractor is to submit a methodology statement for approval by the employer, prior to commencement of construction, as to how the CPG target will be achieved.

The penalties (if any) will be determined and applied prior to the release of any retention monies due to the Contractor on issue of the Contract Completion Certificate.

C3.3.2. SUBCONTRACTING

The successful tenderer must subcontract a minimum of 30% of the value of the contract to an Exempted Micro Enterprise (EME) which is 51% owned by black people living in rural areas in terms of paragraph 4(1)(v) of the PPPFA Regulations of 2017 and Umdoni Municipality's SCM Policy.

Umdoni Local Municipality may make available the list of all suppliers registered on a database approved by the National Treasury to provide the required goods or services in respect of the applicable designated groups mentioned above from which the tenderer must select a supplier.

C3.3.3. CONTRACTOR PARTICIPATION GOAL (CPG) PARTNER

The Employer will require that the contractor utilise a CPG partner on the contract as part of development of emerging contractors. The CPG partner will be approved by the Employer and will be required to undertake 30% of the scope of work. Should the contractor be unable to provide a CPG partner, the Employer will provide one on the contract. Tenderers are also referred to Contract Data, Clause 4.4.7 in this regard.

C3.4. CONSTRUCTION AND MANAGEMENT REQUIREMENTS

C3.4.1. GENERAL

The following parts of SANS 1921 Construction and Management Requirements for works contracts and associated specification data are applicable:

SANS 1921-1	General engineering and construction works
SANS 1921-2	Accommodation of Traffic on Public Roads

These specifications shall be applicable to the contract under consideration and the Contractor shall comply with all requirements relevant to the project.

Essential details relevant to this contract in accordance to SANS 1921: 2004 are given in the table below.

Certain aspects however require further attention as described hereafter.

The associated specification data are as follows:

Clause	Specification data associated with SANS 1921- 1
	Essential Data
4.1.7	The requirements for drawings, information and calculations for which the Contractor is to be responsible is detailed in the project specifications.
4.2.1	The responsibility strategy assigned to the Contractor for the works is A.
4.3	The planning, programme and method statements are to comply with the following: The programme shall be prepared in bar (Gantt) chart form, preferably using a project management software tool such as <i>Microsoft Project</i> and shall be issued to the Engineer in both hard copy and electronic format. The programme shall be structured to cover all items of work conceivable including all work to be done by Sub-Contractors and shall clearly indicate the critical path The programme must clearly show the intermediate milestone dates to be achieved taking the indicative construction sequences into account. In addition to any other constraints the construction sequence and timing shall take into account Regular meetings must be held with the Engineer. Method statements shall be prepared in accordance with the requirements of the project specifications.
4.3.3	The period of notice shall be a minimum of one working day.
	Variations
All relevant	In all clauses where it appears, replace the word "Employer" with "Engineer"
4.1.10	Where reference is made to "SANS 2001", substitute with "SABS 1200"
4.4	The successful Tenderer shall furnish the Employer a detailed Quality Control Plan and Procedures document (QCP&P) for approval by the Engineer prior to commencement of work. The document shall cover all workmanship and materials, the document is to include approval procedures and checklist templates. The document should also detail "hold points" which need signed off approval by the Engineer or his/her representative.

Clause	Specification data associated with SANS 1921- 1
	Additional Clauses
4.6 (e)	Managing and disposing of water will include for by-pass arrangements, of temporary earthworks, cofferdams, pumping equipment, well-pointing, de-watering equipment etc. for dealing with all possible flows whether or not the existing flow path is being interfered with during construction.
4.7.4	No blasting will be permitted within 10m of any structure, pipeline or service unless the Contractor can satisfy the Engineer that his proposed blasting methods and controls are such that no damage will be caused to the adjoining structure, pipeline, or service. The Contractor will be required to provide equipment for and take vibro-recordings at no additional cost to the Employer.
4.8.1	The Contractor shall be responsible for protection from damage to any structures or services that might be affected by the excavations or works. The Contractor shall, before submitting his tender, carefully study the tender drawings and inspect on site the routes of the proposed pipelines and structures to be constructed in close proximity to existing structures and services and make allowance in his rates for protection of structures and services by use of special construction methods such as close shoring, sheet piling.
4.10	The Contractor shall dispose all surplus and unsuitable material in legal spoil areas of his own choice. He shall be responsible for all arrangements necessary to obtain such spoil sites.
4.11	<u>Testing:</u> <u>Compaction testing (AASHTO densities):</u> - The Contractor shall make arrangements with a soil testing laboratory to undertake the following tests and to pass the test results to the Engineer. The costs of such tests shall be included in the rates tendered for the appropriate item in the Bill of Quantities. Material imported from outside the Contract Site as working surfaces, subgrade improvement or for fill material: One CBR and indicator test per 200m³ of compacted material brought on to site, (river sand will normally be exempted from this requirement). A sample and one CBR indicator test of the material proposed for importation shall be submitted to the Engineer for approval prior to the commencement of importation. Fill material in place: One density and moisture content per 100m³ of compacted fill. Compacted subgrade or finished level: One density and moisture content per 200m² of compacted surface area. Should any of the above density tests fail to comply with the specified requirements, the Contractor shall at his own expense remedy the failure and submit a new test to the Engineer. <u>Determination of Compaction:</u> - Determination of the standard of compaction achieved shall be carried out in accordance with Standard methods of testing road construction materials published by the Department of Transport Division of National Roads, Publication TMH.1.

Clause	Specification data associated with SANS 1921- 1
	<u>Tests at the Employer's Request (New Sub-Clause):</u> - Where CBR, indicator tests and the like are required on materials from within the Contract Site the Contractor shall also make arrangements with a soils testing laboratory to undertake these tests, the costs of which have been allowed for in the Bill of Quantities as a provisional sum. Payment for such tests will be per sample tested and reported to the Engineer.
4.15	<u>Survey beacons:-</u> The Contractor shall take special precautions to protect all permanent survey beacons or pegs such as bench-marks, stand boundary pegs and trigonometrical beacons, regardless whether such beacons or pegs were placed before or during the execution of the Contract. If any such beacons or pegs have been disturbed by the Contractor or his employees, the Contractor shall have them replaced by a registered land surveyor at his own cost.
4.17	<u>Existing Services:-</u> The Contractor shall make himself acquainted with the position of all existing services before any excavation or other work likely to affect the existing services is commenced. The Contractor will be held responsible for any damage to known existing services caused by or arising out of his operations and any damage shall be made good at his own expense. Damage to unknown services shall be repaired as soon as possible and liability shall be determined on site when such damage should occur.
4.19	<u>Management of the Environment: -</u> The work shall be undertaken in accordance with the Environmental Management Programme which forms part of this document. <u>Overhaul: -</u> No payment will be made for overhaul on this contract unless provision is made therefor in specific items. <u>Security: -</u> The Contractor shall provide security watchmen for the contract as he deems fit at no extra cost for the Employer. The Contractor must ensure that all his employees as well as the employees of his subcontractors are able to identify themselves as members of the construction team.

SANS 1921-2: Accommodation Of Traffic On Public Roads Occupied By The Contractor	
Clause	Specification Data
4.10.1	The contractor shall provide the following traffic control facilities: Traffic-control devices such as flagmen, STOP and GO signs, traffic signals. Statuary permanent and temporary road signs and barricades. Channelization devices and barricades including delineators, cones, road studs, road marking, etc. Barriers such as New Jersey, plastic movable barriers, etc. Warning Devices on plant and construction vehicles. Road markings.
Clause	Specification data

Variations:	
Additional Clauses	
4.14	Add this new clause: “Failure to maintain road signs, warning signs, etc, in a good condition shall constitute ample reason for the engineer to bring the works to a stop until the road signs, etc, have been repaired to his satisfaction. The contractor may not commence constructional activities before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual Volume 2 Chapter 13. The contractor shall submit proposals in connection with directional signs to the engineer for approval prior to construction.”

C3.4.2. CONSTRUCTION PROGRAMME AND PENALTY

The Contractor shall submit a programme for construction of the works to the Engineer within fourteen (14) days after delivery of the Letter of Acceptance and before he starts work on site, clearly indicating how he intends meeting the required completion dates for all sections of the Works, taking due account of the agreed completion date. The Contractor will not be allowed to commence construction prior to the submission and approval of his programme as described above. No additional payments or extensions of time will be awarded to the Contractor, should he fail to meet the above requirement.

Should the Contractor fall behind programme with the work, the Engineer shall have the right to request a revised programme from the Contractor which clearly indicates how the Contractor intends to meet the final completion dates and/or to insist on whatever additional plant, labour and materials are required to bring the contract back on programme. No extra payments to the Contractor will be allowed in such cases.

The Contract Completion Period is indicated in the Contract Data in section C1.2. The penalty for late completion shall be as indicated in the Contract Data. The full penalty shall be applied should the Contractor fail to meet the completion period.

The Contractor will be required to submit a realistic construction and labour resource programme and proposed cashflow with his tender.

C3.4.3. CERTIFICATION BY RECOGNISED BODIES

Wherever possible items and materials for construction of the works shall comply with the relevant South African Bureau of Standards Specifications and with the British Standards where these are applicable in the absence of local standards.

The Contractor, when using materials conforming to a Standard Specification shall if called upon furnish the Engineer with certificates of tests showing that the materials do so conform.

C3.4.4. EQUIPMENT AND MATERIALS SUPPLIED BY THE EMPLOYER

The following material is to be supplied by the Employer:

“None”

C3.4.5. SITE FACILITIES AVAILABLE

1) CONTRACTOR'S CAMP SITE AND DEPOT

(Read with SANS 1921-1:2004 clause 4.14)

The Contractor will be permitted to locate his offices, storage facilities, workshops, latrines, etc., on a site approved by the Engineer, in liaison with the employer. Temporary buildings and fencing are to be neat and presentable and the surrounding areas must at all times be kept in a neat, clean and orderly condition. The Contractor must not cut down or damage any trees nor make any excavation without the written permission of the Engineer and will be required to restore the site to its original condition on completion of the Works.

All buildings and latrines shall be in accordance with the Local Authority and State Health regulations and shall be kept in a clean, sanitary condition to the satisfaction of the Engineer.

2) ACCOMMODATION OF EMPLOYEES

No employees except for security guards will be allowed to sleep or be accommodated on the site.

No housing is available for the Contractor's employees and the Contractor shall make his own arrangements to house his employees and to transport them to site.

No informal housing or squatting will be allowed.

The Contractor shall provide the necessary ablution facilities at his camp site and the site of the works for the use of his employees. Chemical toilets only will be allowed where temporary facilities have to be provided.

3) POWER, WATER AND OTHER SERVICES

The Contractor shall make his own arrangements concerning the supply of electrical power, water and all other services. No direct payment will be made for the provision of electricity, water and other services. The cost thereof shall be deemed to be included in the rates and amounts tendered for the various items of work for which these services are required, or in the Contractor's preliminary and general items as the case may be.

C3.4.6. SITE FACILITIES REQUIRED

1) ENGINEER'S OFFICE

The Contractor is to provide a temporary office for use by the Engineer as per clause PSAB 4.1. The offices should be able to accommodate one full time Engineer's Representative and his assistant.

2) LABORATORY FACILITIES

The Contractor will not be required to provide a testing laboratory on site for use by the Engineer.

No testing laboratory is required on-site by the Engineer.

3) SANITARY FACILITIES

The Contractor shall provide screened latrines as necessary for his employees, including local labour, the siting of which shall be to the satisfaction of the Engineer. They shall be constructed and maintained by the Contractor to the satisfaction of the Engineer and in accordance with the requirements of Government, Provincial and/or Local Authority. All applicable fees and charges due under any health by law or any or all of the above authorities shall be paid by the Contractor.

Pit latrines will not be permitted and chemical toilets would be preferred, or where possible, flush units shall be used. The latrines shall be kept in a thoroughly clean, sanitary and orderly condition and shall be serviced at least twice a month.

These facilities shall be provided within two days of the commencement of the Works and the Contractor shall strictly enforce their use.

In addition, food preparation areas shall be provided with adequate washing facilities and food refuse shall be stored in sealed refuse bins which shall be removed from site at least twice weekly, to prevent the attraction of vermin.

The contractor shall take steps to ensure that littering by construction workers does not occur and persons shall be employed on site to collect litter from the site and immediate surroundings.

4) TELEPHONE FACILITIES

The Contractor will not be required to provide a telephone for use by the Engineer. The contractor will however be required to cover cell phone costs for the engineer's site staff. Appropriate items have been provided in the Schedule of Quantities to cover these costs.

5) HOUSING FACILITIES

The Contractor will not be required to provide housing facilities for the Engineer's staff.

6) PARKING FACILITIES

The Contractor will be required to provide at least one parking bay for the Engineer.

7) ENGINEER'S TRANSPORT

The Contractor will not be required to provide transport for the Engineer's staff.

8) SECURITY

The Contractor will be responsible for providing adequate security for the Works and for the site establishment. All costs associated with the provision of security staff shall be borne by the Contractor and should be allowed for in the rates tendered for items in the Schedule of Quantities. No additional payments will be made for security measures taken during the contract period, other through the schedule items in the Schedule of Quantities.

9) REFUSE CONTAINERS AND DISPOSAL

Adequate containers, for the collection of refuse, shall be provided by the Contractor. All containers shall have lids. Arrangements for refuse disposal shall be made with the local authority. No separate payment shall be made for this item

C3.4.7. SECURITY OF CONTRACTORS SITE

The provision of security for the Contractor's Site Establishment and for the entire length of the contract shall be his own responsibility and no claims for additional security measures taken during the currency of the contract will be considered

C3.4.8. SURVEY CONTROL AND SETTING OUT

Survey controls have been set by the Employer. Control is available throughout the work site and control marks may be Deep Bench Marks (DBM), nails, pins, scribes in concrete or secondary control markers. Where any discrepancies are apparent, the Contractor shall submit a discrepancies report to the Engineer.

Due to the fact that the area is an already developed township, there is an abundance of unknown existing services. It is therefore expected of the contractor to set out the entire works prior to any construction activities taking place. The proving of existing services shall follow on from the setting out.

Once services are exposed, there may be deviations to the original design of the proposed works, where they conflict with these existing services. Should this be the case, the contractor may be required to undertake tache surveys of the proposed route, the costs of which shall be borne by the employer.

C3.4.9. AS-BUILTS

The contractor shall provide all and any information necessary that is required by the Engineer for the compilation of as-built drawings.

The information required for as-builts will include but may not be limited to:

- (i) Survey of the constructed works such as final ground levels, cover levels, invert levels, positions of new and relocated services, etc.
- (ii) Mark-up of construction drawings showing any changes and/or alterations/deviations approved by the Engineer.

The position and depth of the following items shall be supplied:

The information shall be supplied in a digital ASCII format. Should a Digital Terrain Modelling package be used for this purpose, the following naming convention shall be adopted,

Code	=	Intermediate point
Tag	=	Depth (Z)
Y	=	Y - Co-ordinate
X	=	X - Co-ordinate

A CAD drawing or "Stick" diagram indicating the scope of works. This shall be supplied in either .dxf, AutoCAD 2010 (.dwg), or Model Maker (.kcd) formats.

The Contractor shall also be responsible for provision of alignment of existing services encountered during the course of construction, as as-built information

Failure to comply with the above, will result in non-payment of amounts that the Engineer deems is necessary to obtain the required data/information for the compilation of the as-builts.

No final payment for any portion of the works shall be made until the required "As-Built" information has been submitted and approved by the Engineer.

C3.4.10. EXISTING SERVICES

The Contractors attention is drawn to the fact that the information regarding existing services is given in good faith and without guarantee. The Contractor must also liaise with the relevant authorities regarding existing services within the area and confirm/obtain details of existing services prior to commencing work on the site of works.

1) LOCATION OF SERVICES

The Contractor shall obtain from the relevant authority the latest available drawings showing the location of services already installed

The location or proving of existing services shall be undertaken immediately after the completion of the survey and setting out of the works. The position of the existing services, once verified, shall be indicated on the layout plans as **as-built information**.

The contractor may be required to use detection equipment to confirm the physical location of underground services

A provisional allowance has been made in the Bill of Quantities for hand excavation to locate existing services, where ordered by the Engineer.

2) CARE, DAMAGE AND PROTECTION

The Contractor shall so carry out all his operations as not to encroach on, or interfere with, trespass on, or damage adjoining lands, buildings, properties, road structures, pipelines, places and things, in the vicinity of the Works and so as not to interfere in any way at any time with the smooth and continuous operation of the existing facilities.

The Contractor shall take all the necessary steps to protect any existing works against damage which may arise as a result of his operations on Site. The Contractor shall bear the cost of the repair of damage to any service the possible existence of which could reasonably have been ascertained by him in good time.

The service authorities will not bear the costs for the replacement of damaged infrastructure.

Where the Contractor is responsible for the cost of repairs carried out by a Service Authority, the Contractor will be billed directly by the Service Authority concerned.

3) RELOCATION OF EXISTING SERVICES

The Contractor may be required to arrange for the relocation of certain services and pay the required charges and fees. An allowance for this work has been made in the Bill of Quantities.

C3.4.11. BLASTING

No blasting will be permitted within 10m of any structure, pipeline or service unless the Contractor can satisfy the Engineer that his proposed blasting methods and controls are such that no damage will be caused to the adjoining structure, pipeline or service. The Contractor will provide for vibro-recordings to be taken at no additional cost to the Employer.

C3.4.12. WORKING SPACE

Working space shall generally be more than 1m from the works.

It must be noted that services such as telephone and power poles, stay poles and stay wires and fences may be located within close proximity of the Works. Existing fences are located in some instances across the pipeline route.

The Contractor will be required to take due care for the protection of and will be liable for damage to, or physical loss of, property located adjacent to the Works.

A provisional sum has been allowed for in the Schedule of Quantities for the protection of, removal and reinstatement of any of the abovementioned property. This does not include for compensation, if required, for damage to infrastructure or property.

C3.4.13. SPOIL MATERIAL

No indiscriminate spoiling of material will be allowed. All surplus or unsuitable material shall be spoiled in designated areas as directed by the Engineer.

The site of the works shall be kept in a clean and orderly condition to the satisfaction of the Engineer. Shuttering, propping, scaffolding, etc. after striking is to be removed immediately to the Contractor's workshop or store yards, or to its next place of use. Waste material, empty cement pockets, pipes, manhole rings, etc. are not to be left lying at the site of operation.

C3.4.14. DESIGNATED BORROW

The designated borrow for this Contract will be indicated to the Contractor on-site by the Engineer.

The Contractor shall be responsible for working the borrow pit in a manner which will allow for acceptable rehabilitation. The contractor shall not be required to rehabilitate the borrow.

Costs of working the borrow pit, with the exception of dealing with overburden, are to be included in the rates and prices in the Bill of Quantities.

C3.4.15. CONSTRUCTION IN CONFINED AREAS

It may be necessary for the Contractor to work within confined areas. Except where provided for in the specifications, no additional payment shall be made for work done in restricted areas. In certain places the width of the fill material and pavement layers may decrease to zero and the working space may be confined. The method of construction in these confined areas largely depends on the Contractor's constructional plant. However, the Contractor shall note that, unless otherwise provided for in terms of the scheduled payment items in the **SABS 1200** Specifications or these project specifications, measurement and payment shall be in accordance with the specified cross sections and dimensions only, irrespective of the method

used for achieving these cross sections and dimensions, and that the Bided rates and amounts shall include full compensation for all special equipment and construction methods and for all difficulties encountered when working in confined areas and narrow widths, and at or around obstructions, and that no extra payment shall be made nor shall any claim for additional payment be considered in such cases.

C3.4.16. DEALING WITH WATER

The Contractor shall be responsible for dealing with all water during construction from whatever source, and the cost of all dewatering unless otherwise itemised in the Bill of Quantities shall be deemed to be included in the tender price.

C3.4.17. CONTRACTOR'S SITE AGENT

The Contractor shall appoint a suitably qualified and competent Site Agent who shall be on the site on a full time basis and at all times when work is being performed, for the full duration of the contract.

C3.4.18. SITE MEETINGS

The Engineer shall arrange monthly site meetings between the Representatives of the Engineer, the Employer and the Contractor, together with any other interested or affected party who the Engineer may require to be in attendance.

The Site Agent shall be present at all meetings and shall be fully empowered to make decisions at all levels pertaining to the Contract.

The Site Agent shall prepare and submit reports on progress, programme and cash flows at each and every site meeting.

C3.4.19. ABNORMAL RAINFALL

The numbers of days per month on which work is expected not to be possible as a result of **normal rainfall**, and for which the Contractor shall make provision in his tendered rates, prices and programme, are listed in Table in section C1. Only the number of days lost as a result of adverse weather conditions, exceeding the number of days listed in Table, will qualify for consideration of extension of time.

During the execution of the Works, the Engineer's Representative will certify a day lost due to abnormal rainfall and adverse weather conditions only:

- if no work was possible on the relevant working day on any item which is on the critical path according to the latest approved construction programme; or
- if less than 30% of the work force and plant on site could work during that specific working day.

Extension of time as a result of abnormal rainfall and adverse weather conditions shall be calculated monthly being equal to the number of working days certified by the Engineer's Representative as lost due to rainfall and adverse weather conditions, less the number of days allowed for as in Table, which could result in a negative figure for certain months.

The total extension of time as a result of abnormal climatic conditions for which the Contractor may apply, shall be the cumulative algebraic sum of the monthly extensions. Should the sum thus obtained be negative, the extension of time shall be taken as nil."

The total number of days lost per month due to rainfall will be calculated by subtracting the expected number of days lost due to normal rainfall as given in the table below, from the actual number of rainfall days for the month, as recorded at the Rainfall Station indicated below or from rain gauge data and shall be calculated in accordance with the following formula:

$$E = N_a - N_n$$

Where

- E = Extension of time in calendar days in respect of the calendar month under consideration.
- Na = Actual number of days during the calendar month on which a rainfall of 10mm or more has been recorded.
- Nn = Average number of days, as derived from existing rainfall records, on which a rainfall of 10mm or more has been recorded for the calendar month.

The total number of days lost due to rainfall shall be the algebraic sum of all monthly totals for the period under consideration, but if this total is negative, the time for completion shall not be reduced due to abnormal rainfall. Extension of time for part of a month shall be calculated using pro-rata values.

For the purposes of this contract, the data below shall be taken as normal rainfall.

Month	Expected number of working days lost as result of normal rainfall
January	5
February	5
March	4
April	1
May	1
June	1
July	1
August	1
September	2
October	3
November	4
December	4
Total number of Expected working days lost as result of normal rainfall	32

C3.4.20. LOCAL LABOUR AND SUB-CONTRACTORS

It is the intention that this Contract should make the maximum possible use of the local labour force which is at present under-employed, as well as small emerging contractors from the area.

The Contractor shall ensure that all applicable legislation requirements relating to employing local labour are met. Local labour shall be employed for all unskilled requirements. Where possible, at least half the above number shall consist of women.

To this end it shall be required of the Contractor to limit the use of non-locals to key personnel only. At the commencement of the Contract, the Contractor shall submit to the Engineer for his approval a "Key Personnel" data sheet stating how many non-local key personnel he intends to utilise in the various categories.

The numbers stated in the abovementioned data sheet will be strictly controlled during the contract period and any increase in numbers shall be subject to the approval of the Employer.

The employment of such local labour is to be affected by the Contractor through liaison with the Community Liaison Officers (CLOs) / Project Steering Committee associated with the project. The CLO/ Project Steering Committee shall assist the Contractor with the recruitment of local labourers to ensure an equitable distribution of people employed from the ward in the vicinity of the works.

The nett local labour rate has been determined at **the latest SAFCEC rate per task or per day** (i.e. after all deductions as required by law). Overtime will be paid as per legal requirements. Labour will not be rotated during the construction period.

The use of local sub-contractors and suppliers and the use of emerging and previously disadvantaged individuals and companies in general will be strongly favoured during tender adjudication.

C3.4.21. LABOUR-INTENSIVE CONSTRUCTION METHODS

Labour Intensive Construction shall mean the economically efficient employment of as great a portion of labour as is technically feasible to produce a standard of construction as demanded by the specifications with completion by the Due Completion Date, thus the effective substitution of labour for equipment.

Appropriate portions of the Works included in the Contract shall be executed using Labour Intensive Construction methods.

Except where the use of plant is essential in order, in the opinion of the Engineer, to meet the specified requirements by the Due Completion Date, the Contractor shall use only hand tools and equipment in the construction of those portion(s) of the Works that are required in terms of these Project Specifications to be constructed using Labour Intensive Construction methods.

These portions of the Works shall be constructed utilizing only locally employed labour and/or the labour of local sub-contractors, supplemented to the extent necessary and unavoidable by the Contractors key personnel unless otherwise instructed by the Engineer and in accordance with the further provisions of the relevant sections of Portion B of the Project Specifications.

The portions of the Works to be executed using Labour Intensive Construction methods are:

- Construction of brick headwalls and catch pits.
- Bedding, selected fill, backfilling and compaction of all pipe trenches irrespective of depth, but assisted by mechanical compaction equipment in order to achieve the specified densities;
- Transportation and spoiling of all trench materials, where the disposal site is located within 20 metres of source;
- Cleaning and tidying up of the Site;
- Dismantling and re-erection of fences;

- Mixing and placing of concrete work;
- Fixing of reinforcement steel to final positions;

In respect of those portions of works which are not listed above, the construction methods adopted and plant utilized shall be at the discretion of the Contractor, provided always that the construction methods adopted and plant utilized by the Contractor are appropriate in respect of the nature of the Works to be executed and the standards to be achieved in terms of the Contract.

C3.4.22. ACCOMMODATION FOR WORKERS

Workers who are not recruited locally must be provided with housing in accordance with any prevailing applicable legislation. Sleeping accommodation will not be allowed on the Site of the Works.

To avoid any misunderstanding or unnecessary conflict with the Tribal Authorities in respect of the accommodation of workers, the Contractor is required to consult with the local Project Steering Committee in this regard at the commencement of the Contract.

C3.4.23. REQUIREMENTS FOR ACCOMMODATION OF TRAFFIC

1) GENERAL

The Contractor will be responsible for the safe and easy passage of public traffic past and on sections of roads of which he has occupation or where work has to be done near traffic. Accommodation of traffic, where applicable shall comply with SANS 1921-2: 2004: Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor shall obtain this specification from Standards South Africa if accommodation of traffic will be involved on any part of the construction works.

2) BASIC REQUIREMENTS

The travelling public shall have the right of way on public roads, and the Contractor shall make use of approved methods to control the movement of his equipment and vehicles so as not to constitute a hazard on the road.

The Contractor shall ensure that all road signs, barricades, delineators, flagmen and speed controls are effective and that courtesy is extended to the public at all times.

Failure to maintain road signs, warning signs or flicker lights, etc., in a good condition shall constitute ample reason for the Engineer to suspend the work until the road signs, etc., have been repaired to his satisfaction.

The Contractor may not commence constructional activities affecting existing roads before adequate provision has been made to accommodate traffic in accordance with the requirements of this document and the South African Road Traffic Signs Manual.

The Contractor shall construct and maintain all temporary drainage works necessary for temporary deviations.

The Contractor shall provide and grant access to persons whose properties fall within or adjoin the area in which he is working.

3) TRAFFIC SAFETY OFFICER

Where warranted by traffic conditions on or near the site, the Contractor shall nominate a suitable member of his staff as traffic safety officer to be responsible for the arrangement and maintenance of all the measures for the accommodation of traffic for the duration of the project. Duties of the traffic safety officer shall be as set out in SANS 1921 Part 2 and shall also be in compliance with the Occupational Health and Safety Act No 85 of 1993 and the Construction Regulations 2014.

4) PAYMENT

The Contractor's tendered rates for the relevant items in the Bill of Quantities shall include full compensation for all possible additional costs which may arise from the accommodation of traffic, and no claims for extra payment due to inconvenience as a result of the modus operandi will be considered.

Items that may be considered for payment are specified in SABS 1200 Standardized Specifications and the related project specification

C3.4.24. OCCUPATIONAL HEALTH AND SAFETY

(Read with SANS 1921 - 1: 2004 Clause 4.18 and the Particular Safety Specification)

1) GENERAL STATEMENT

It is a requirement of this contract that the Contractor shall provide a safe and healthy working environment and to direct all his activities in such a manner that his employees and any other persons, who may be directly affected by his activities, are not exposed to hazards to their health and safety. To this end the Contractor shall assume full responsibility to conform to all the provisions of the Occupational Health and Safety Act No 85 and Amendment Act No 181 of 1993, and the OHSA 1993 Construction Regulations 2014 issued by the Department of Labour.

For the purpose of this contract the Contractor is required to confirm his status as mandatory and Employer in his own right for the execution of the contract by entering into an agreement with the Employer in terms of the Occupational Health and Safety Act by executing the Agreement form C1.2.4 included in Section C1: Agreements and Contract Data.

2) HEALTH AND SAFETY SPECIFICATIONS AND PLANS TO BE SUBMITTED AT TENDER STAGE

a) Employer's Health and Safety Specification

The Employer's Health and Safety Specification will be included in the tender documents as part of the Project Specifications.

b) Contractor's Health and Safety Plan

The successful Tenderer shall, on receipt of notification that he has been awarded the contract, submit without delay his own documented Health and Safety Plan for the execution of the work under the contract. His Health and Safety Plan must at least cover the following:

- (i) a proper risk assessment of the works, risk items, work methods and procedures in terms of Regulations 7 to 28;

- (ii) pro-active identification of potential hazards and unsafe working conditions;
- (iii) provision of a safe working environment and equipment;
- (iv) statements of methods to ensure the health and safety of Sub-Contractors, employees and visitors to the site, including safety training in hazards and risk areas (*Regulation 5*);
- (v) monitoring health and safety on the site of works on a regular basis, and keeping of records and registers as provided for in the Construction Regulations;
- (vi) details of the Construction Supervisor, the Construction Safety Officers and other competent persons he intends to appoint for the construction works in terms of Regulation 6 and other applicable regulations; and
- (vii) details of methods to ensure that his Health and Safety Plan is carried out effectively in accordance with the Construction Regulations 2014.

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

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

3) COST OF COMPLIANCE WITH THE OSHA CONSTRUCTION REGULATIONS

The rates and prices tendered by the Contractor shall be deemed to include all costs for conforming to the requirements of the Act, the Construction Regulations and the Employer's Health and Safety Specification as applicable to this contract. Should the Contractor fail to comply with the provisions of the Construction Regulations, he will be liable for penalties as provided in the Construction Regulations and in the Employer's Health and Safety Specification.

Items that may qualify for remuneration will be specified in the Safety Specifications included or in the Project specifications.

C3.4.25. ENVIRONMENTAL MANAGEMENT

A provisional sum and various items with provisional quantities have been included in the Bill of Quantities for the environmental rehabilitation to be carried out by the Contractor or a 'selected' sub-contractor.

The contractor is to work closely with the Environmental Management Programme (EMPr) and ensure that all works are adhered to. The EMPr is provided in the particular specifications or provided as a separate document by the Environmental Control Officer (ECO)

C3.4.26. COURTESY

In all dealings with the public, the Contractor shall bear in mind their right to enjoy the use of public and private facilities, and the Employer's desire to interfere as little as possible with this right.

The Contractor is requested to deal with all contact with the public with deliberate courtesy and understanding. Any conflicts or disputes with the public shall be referred to the Engineer.

C3.4.27. FINISHING, TIDYING AND PERIOD OF MAINTENANCE

Progressive and systematic finishing and tidying must form an essential part of this Contract. On no account must spoil, rubble, materials, equipment or unfinished operations be allowed to accumulate in such a manner as to unnecessarily impede the activities of others, and in the event of this occurring, the Employer shall have the right to withhold payment for as long as may be necessary in respect of the relevant works in the area(s) concerned without thereby prejudicing the rights of others to institute claims against the Contractor on the grounds of unnecessary obstruction.

Finishing and tidying must not be deferred to the end of the Contract. The Contractor will be entitled, subject to reaching prior agreement with the Engineer, to request that work in specific areas be inspected and certified as complete, prior to certification of completion of the whole of the Works included in the Contract, in accordance with the provisions provided always that the Works in any such specific area will not be certified as complete, until the whole of the works within the specific area concerned, including all finishing and tidying has been fully completed to the satisfaction of the Engineer.

All finishing and tidying shall be carried out to the best advantage of the project as a whole and in the closest co-operation with the Contractors.

C3.5. STANDARD SPECIFICATIONS

C3.5.1. STANDARD SPECIFICATIONS

The standard specifications on which this contract is based are the South African Bureau of Standards Standardized Specifications for Civil Engineering Construction SABS 1200 series. Although not bound in nor issued with this Document, the following Sections of the Standardized Specifications of SABS 1200 shall form part of this Contract:

("SABS" has been changed to "SANS, without change to the contents of the specifications).

C3.5.2. PROJECT SPECIFICATIONS

Although not bound in nor issued with this Document, the following Sections of the Standardised Specifications of SANS 1200 shall form part of this Contract:

SANS No	Title
SANS 1200 A	General
SANS 1200 AB	Engineers Office
SANS 1200 C	Site Clearance
SANS 1200 D	Earthworks
SANS 1200 DA	Earthworks (Small Works)
SANS 1200 DB	Earthworks (Pipe Trenches)
SANS 1200 DM	Earthworks (Roads, Subgrade)
SANS 1200 G	Concrete (Structural)
SANS 1200 GA	Concrete (Small Works)
SANS 1200 HB	Cladding and Sheeting
SANS 1200 LE	Stormwater Drainage

C3.5.3. OTHER APPLICABLE SANS STANDARDS

The following SANS specifications are also referred to in this document and the Contractor is advised to obtain them from Standards South Africa (a division of SANS) in Pretoria.

SANS 10396: 2003:	Implementing Preferential Construction Procurement Policies using Targeted Procurement Procedures
SANS 1921-1 (2004):	Construction and Management Requirements for Works Contracts Part 1: General Engineering and Construction Works
SANS 1921-1 (2004):	Construction and Management Requirements for Works Contracts Part 2: Accommodation of Traffic on Public Roads.
SANS 1921-6 (2004):	Construction and Management Requirements for Works Contracts Part 6: HIV I AIDS Awareness

The standardised specifications (SANS 1200) must be read in conjunction with the new SANS 1921 family of standards. In case of any discrepancy or conflict between the two, the SANS 1200 specification shall take precedence and shall govern.

Refer also to the Preface on interim situation until full suite of SANS Series of Specifications is available, on the first page of the Project Specification.

The term "project specifications" appearing in any of the SANS 1200 standardised specifications is deemed to be equivalent to the term "scope of work" in SANS Specifications.

C3.6. PROJECT SPECIFICATIONS

STATUS

Should any requirement of the project specification conflict with any requirement of the applicable standardised or particular specifications, the requirements of the project specification shall prevail.

PSA REF.	SABS 1200A	GENERAL (As applicable to SABS 1200A)
1	1	SCOPE
1.1	1.1. (a)	Replace Last Paragraph with Following:- This specification covers requirements, principles and responsibilities of a general nature, which is usually encountered on civil engineering contractors as well as the requirements for Contractors site establishment. Engineering contractors may therefore cover items of work not encountered in this particular contract. In case of any discrepancy or conflict between the project specification and any part or parts of the particular specification, the project specification shall prevail.
2	2	INTERPRETATIONS
2.1	2.2	Applicable Editions of Standardized Specifications: “Delete the contents of Subclause 2.2 and replace with the following: Each standard or section referred to in a Standardized Specification shall be deemed to be the latest edition, including all amendments issued by the relevant body and published at least three calendar months prior to the closing date for the receipt of tenders for this Contract, unless specified in the last clause of Portion 1 of the Project Specification.
2.2	2.3	Measurement and Payment Replace the definitions for fixed charge, time-related charge and value-related charge with the following:- <u>Fixed Charge</u> A charge that is not subject to adjustment on account of variation in the value of the contract amount or the Contract time of completion. <u>Time-Related Charge</u> A charge, the amount of which is varied in accordance with the time for completion of the work as adjusted in accordance with the provisions of the contract. <u>Value-Related Charge</u> A charge, the amount of which is varied pro rata the final value of the measured work executed and valued in accordance with the provisions of the contract.
2.3	2.8.1	Items in Schedule of Quantities Amend the first sentence as underlined below: “.....stated in the relevant subclause of Clause 8 of the applicable Standardized Specification <u>or in the Measurement and Payment clause of the applicable Standard Specification section or in the Particular Specification Section</u> in addition to the cost to the Contractor.....”
3.	3	MATERIALS
3.1	3.1	Official Standardisation Mark

PSA REF.	SABS 1200A	GENERAL (As applicable to SABS 1200A)
		All materials that are required to comply with a standard specification, shall bear the official standardisation mark.
4	5	CONSTRUCTION
4.1	5.3	Protection of Existing Structures Shoring of trenches in the vicinity of existing structures will be measured under "shoring" in the relevant section of the Schedule of Quantities. Should the Contractor consider additional works, necessary to ensure the safety of these structures, he may tender rates for these works under the relevant item in Section A of the Schedule of Quantities.
4.2	5.4	Underground Services A sum has been provisionally allowed in Section A of the Schedule of Quantities for the hire and use of specialist equipment to locate underground cables. Payment against this item will be made on production of invoices by the Contractor.
4.3	5.8	Ground and access to works Add the following: "On completion of operations the Contractor shall restore the ground surface, wherever it may have been disturbed, to its original condition by filling in all ruts with material similar to the material within the rut and levelling the ground and, where necessary, planting grass and shrubs as may be required. Any boundary fences which have been removed or damaged by his operations and activities shall be repaired and/or reinstated at the Contractor's expense".
4.4	5.9	Accommodation of Traffic <i>(additional subclause)</i> Where construction work has to be carried out on or near public roads, the Contractor shall deal with traffic as specified in SANS 1921-2 (2004): Construction and Management Requirements for Works Contracts, Part 2: Accommodation of Traffic on Public Roads occupied by the Contractor. The Contractor is also referred to Project Specification PS-9.
5	7	CONTROL TESTING
5.1	7.5	add the following General Over and above the normal control tests which the Contractor is required to carry out and which are included in the rates tendered, control testing, as and when ordered by the Engineer, shall be carried out by an approved laboratory and shall be paid for on the basis of invoices only, from the provisional sum allowed in Section 1 of the Schedule of Quantities. Should the results of any test fail to comply with the specification, the cost of such test shall be borne by the Contractor. The Contractor shall submit such samples as laid down in the Specification or as required by the Engineer to be tested. Complete

PSA REF.	SABS 1200A	GENERAL (As applicable to SABS 1200A)						
		results of the tests done on behalf of the Contractor must be submitted with the samples. Samples must be submitted timeously so that tests can be completed before material is ordered. The Employer will not be prepared to consider claims for delays to the Works resulting from waiting for test results. It is in the Contractor's own interest to submit material samples, concrete cubes or other components required for testing in good time in order to assist in avoiding or restricting delays. Measurement and Payment <table><tr><th>Item</th><th>Unit</th></tr><tr><td>a) Control Testing</td><td>Stated Sum</td></tr><tr><td>b) Overheads, charges and profit on (a) Above</td><td>%</td></tr></table>	Item	Unit	a) Control Testing	Stated Sum	b) Overheads, charges and profit on (a) Above	%
Item	Unit							
a) Control Testing	Stated Sum							
b) Overheads, charges and profit on (a) Above	%							
6	8	MEASUREMENT AND PAYMENT						
6.1	8.1.1	Method of Measurement, All Sections Amend as underlined below: Except where otherwise specified in Clause 8 of a Standardised Specification <u>or in the Measurement and Payment clause of an applicable Standard or Particular Specification section</u> or in the Project Specification or in the Preamble to the Schedule, all items.						
6.2	8.8	Temporary Works Add the following: The contractor shall price under this item for any temporary measures he might take in order to protect the Works during construction due to the uncontrolled flow of storm water. These measures would include the construction of temporary earth mounds and channels, inlet manholes, protection berms, etc. Should the Engineer allow the Contractors to leave these temporary works in place no extra payment will be made.						
7		AS-BUILT RECORDS Add the following: The Contractor shall keep aside a complete set of drawings for the sole purpose of marking up changes to the Engineer's drawings. Within 30 days of the date of having completed the general reinstatement of any section of the pipeline/road, or having built the proposed structure, the Contractor shall forward these marked up drawings to the Engineer for the purpose of compiling, on an ongoing basis, As-Built Record Drawings. The Contractor shall utilise the services of an approved engineering surveyor to compile the record drawings and in particular to accurately define the positions of all the valves, pipes, buildings etc. The contractor is to submit all survey information in the form of digital copies to the Engineer, for As-Built purposes. The contractor is to mark up						

PSA REF.	SABS 1200A	GENERAL (As applicable to SABS 1200A)
		all existing services located during the construction, on a layout, which must be submitted to the Engineer for the completion of the As-Built All As-Built record Information must be submitted to the consultant before completion is achieved. Final Progress Payments (before any retention is released) will only be made once all As-Built record Information has been submitted and verified by the Engineer. Photographic Record Continuous photographic evidence of monthly construction progress must be kept and maintained by the contractor and submitted to the engineer upon request. Photographs will be required for monthly progress reports and form part of the close out report upon completion of the project.

PSAB REF.	SABS 1200AB	ENGINEERS OFFICE (As Applicable to SABS 1200 AB)
1	1.	SCOPE This specification includes the requirements for offices and the minimum associated facilities for the use of the Engineer on site.
2.	3.	MATERIALS
2.1	3.1	Nameboard Details of the nameboards are shown on the relevant drawings. The nameboard, as specified, shall be supplied and erected by the Contractor within two weeks of construction commencement.
3	4	PLANT
3.1	4.1	Telephone Delete the sub-clause and substitute the following: The contractor shall not provide a cellular phone for the use of the Engineer or his representative. The contractor will be required to pay all consumption and call charges with the provision that the total cellular phone call charges shall be R500.00 per phone per week.
4.	5	CONSTRUCTION
4.1	5.2	Engineers Office The Contractor shall supply, transport and erect a site office for the exclusive use of the Engineer, within the Contractors site establishment. The contractor shall arrange for the provision of an electrical power supply for the duration of the contract for the Engineers office. Should this not be available immediately, a generator is to be provided in the interim. The following furnishings must be provided for the sole use of the Engineer: The Contractor shall supply and furnish one-air conditioned "Kwikjack" (6m x 3m) for the use of the Engineer and his/her staff and one air-conditioned "Kwikjack" (9m x 3.4m) conference facility for conducting meetings. In addition the following shall be provided and properly maintained: a) electrical installation to include a light and two 15a plug points plus two adequately sized air conditioning units (for heating and cooling) for each unit b) one refrigerator of at least 100litre capacity c) one kettle of at least 2 litre capacity d) one tea set comprising six cups and saucers, six teaspoons, one teapot, one sugar bowl and one milk jug e) covered parking for two vehicles f) un-covered parking space for two vehicles g) two "barhold" or similar wall mounted racks each with 6 clamps suitable for hanging a0 sized drawings h) one large meeting table i) ten additional chairs

PSAB REF.	SABS 1200AB	ENGINEERS OFFICE (As Applicable to SABS 1200 AB)
		The tendered rate shall include for the supply, transport to site and installation of the office and furnishings as listed as well as removal thereof at the end of the contract. The contractor shall maintain and clean the office and furnishings as listed, for the duration of the contract and shall provide adequate insurance for the office and furnishings against any loss, damage or breakage and he shall indemnify the Engineer and Employer against any claim in this regard.
4.2	5.5	Survey Assistant The Contractor shall provide a survey assistant for full time use by the Engineer for the duration of the Contract. The survey assistant shall have at least a minimum S2 tertiary qualification in civil engineering and shall be identified by the Engineer for employment by the Contractor. The survey assistant will assist the Engineer's Representative with survey work, measurement, recording of construction record information and other work as directed by the Engineer. The remuneration of the survey assistant is to be indicated under time-related P&G costs. In addition to remuneration, the Contractor is to allow for the cost of accommodation for the survey assistant as indicated under time-related P&G costs. Accommodation is to be provided by the Contractor but approved by the Engineer In addition to the survey assistant the Contractor shall provide the following equipment per site for the full duration of the Contract and make available to the Engineer as often as required by him the following instruments :- 1 No. Engineers Automatic level with aluminium tripod. 1 No. 30m Stilon measuring tape. 1 No. 5m telescopic metal levelling staff with canvas bag 1 No. staff angle bubble The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period. The Contractor shall keep the equipment continuously insured against any loss, damage, or breakage and he shall indemnify the Engineer and the Employer against any claims in this regard. Upon completion of the Works, the ownership of the equipment shall revert to the Contractor.
5	7	TESTING
5.1	7.1	Methods of Testing Replace Sentence With :- "A Provisional sum has been allowed in the schedules for the Contractor, when so instructed by the Engineer, to have approved laboratories conduct tests on the works over and above the routine tests specified in the standardised specifications. Only when the results of such tests indicate that the materials for workmanship are in accordance with the specifications shall the employer bear the costs thereof. In all other cases the costs of the tests and the rectification of the defects shall be borne by the contractor.

PSC REF.	SABS 1200C	SITE CLEARANCE (As applicable to SABS 1200 C)
1	1.	SCOPE This specification covers the removal of vegetation, boulders of size up to 0.15m ³ , surface obstructions and removal of structures, not directly associated with or incidental to any excavation.
2	3.	MATERIALS
2.1	3.1	Disposal of Material Add the following :- “The Contractor shall make his own arrangements for disposal of material”.
3	5.	CONSTRUCTION
3.1	5.1	Areas to Be Cleared and Grubbed Clearing is required along the new pipeline routes and site of structures and ancillary works.
3.2	5.3	Clearing Add the following new Sub-Clause
3.2.1	5.3.1	Remove and Replace Fence (New Sub-Clause) Where the pipeline route crosses an existing fence, a section of fencing not exceeding 10m in length shall be temporarily removed for the construction of the pipeline. The fencing shall be reinstalled to original condition immediately the pipeline is backfilled in the vicinity of removed fence. The contractor shall erect a temporary fence at the end of each day's operations over the section of the removed fence.
3.3	5.5	Reclear Surfaces The Contractor shall clear areas prior to commencing construction in the specific area. Consequently reclearing will not be paid for and the costs of reclearing will be to the Contractors account.
3.4	5.8	Demolition of Structures Add the following new Sub-Clauses:
3.4.1	5.8.1	Removal and Re-Erection of Structures Where the Contractor is directed to dismantle structures to facilitate construction and thereafter to re-erect the same structures, the structure shall be erected at the same location, or such other location as may be required by the owner within the same property, using the same or similar

PSC REF.	SABS 1200C	SITE CLEARANCE (As applicable to SABS 1200 C)
		materials as those set aside when removing the structure. The acceptance of the work by the Engineer and certification for payment shall be subject to the Contractor submitting to the Engineer documentary evidence of the owner's satisfaction that the re-erected structure the overriding consideration being that it shall be in a condition no worse than that pertaining prior to its removal. The tendered rates shall include for the provision of a detailed photographic and written record of the structures before dismantling commences and following re-erection.
3.4.2	5.8.2	Demolition of Building Structures Where the Contractor is directed to demolish structures, the Contractor shall provide a Method Statement for the approval of the Engineer. Entering upon the premises for the purpose of the demolition shall not commence before the Contractor has received a release form, duly authorised by representatives of the Employer and the Engineer, in which any special conditions applicable to the demolition are documented.
4.	8	MEASUREMENT AND PAYMENT
4.1	8.2	Scheduled Items
4.1.1	8.2.1	Clear and Grub The payment width for trenches shall be the minimum base widths as stipulated in clause PSDB 3.4. The payment area for structures shall be the nett concrete plan foundation as per clause PSDB 3.5.
4.1.2	8.2.10	Remove Topsoil to a Nominal Depth of 150 mm and Stockpile Delete from the sub-clause heading the words: 'to a Nominal Depth of 150 mm'
4.1.3	8.2.11	Restoration of Fences to Servitude Boundary (New Sub-Clause) Separate payment will be made for dealing with fences in the manner specified in PSC 5.3.1 above as scheduled.
4.1.4	8.2.12	Temporary Fencing Closures (New Sub-Clause) Separate payment will be made for dealing with fences in the manner specified in PSC 5.3.2 above including re-instatement as scheduled.
4.1.5	8.2.13	Removal and Re-Erection of Structures (New Sub-Clause) Separate payment will be made for removing and re-erecting structures in the manner specified in PSC 5.8.1 above as scheduled and including for the costs of photographic and written records.

PSC REF.	SABS 1200C	SITE CLEARANCE (As applicable to SABS 1200 C)
4.1.6	8.2.14 Demolition of Building Structures (New Sub-Clause)	Separate payment will be made for demolishing structures in the manner specified in PSC 5.8.2 above as scheduled and including for the cost of removal of rubble to an approved spoil site, backfilling any excavations and compacting to 90% mod AASHTO and shaping the ground level in line with the natural terrain.
4.1.7	8.2.15 Demarcation Fencing (New Sub-Clause)	Payment will be made per linear metre in the manner specified in PSC 5.3.3 above and removal on completion of the works.
4.1.8	8.2.16 Demarcation Fencing (New Sub-Clause)	Payment will be made per linear metre of temporary fencing installed in the manner specified in PSC 5.3.3 above, and the rate shall include for maintaining such fencing in good condition, including daily surveillance and repair, throughout the duration of construction and removal on completion of the works. Add the following new Sub-Clause
4.2	8.2.17	Saw cutting of existing asphalt/sidewalk surface of thickness: (up to 80mm) Unit : m The unit of measure shall be the linear metre of the asphalt cut according to the plans or as instructed by the Engineer. The rate shall include for the supply of an approved asphalt saw cutting machine and all other necessary equipment for saw cutting of asphalt.
4.3	8.2.18	Remove existing road/sidewalk asphalt surfacing to spoil (up to 80mm) Unit : m2 The unit of measure shall be the square metre. The rate shall cover the cost of removing, loading, transporting, and disposal to spoil of all existing road asphalt surfacing. The rate shall take into account that this work will have to be carried out in more than one operation depending on the construction programme and traffic accommodation.
4.3	8.2.19	Remove existing precast concrete sidewalk pavers and stockpile Unit : m2 The unit of measure shall be the square metre of existing precast sidewalk pavers based on the trench width used for measurement purposes as ordered by the Engineer. The rate shall include the removal of the concrete pavers, loading, transporting, off-loading and stockpiling to a site as selected by the Contractor and approved by the Engineer regardless of distance.
4.4	8.2.20	Remove existing gravel layer works to stockpile and maintain (for use as selected layers) as instructed by Engineer Unit : m3 The unit of measure shall be the cubic metre. The rate shall include for the

PSC REF.	SABS 1200C	SITE CLEARANCE (As applicable to SABS 1200 C)
		selective removal of existing gravel layer works to the required depth as instructed by the Engineer, loading, transporting, stockpiling, and maintaining of stockpile within a free haul distance of 0,5km for later reinstatement. The rate shall take into account that this work will have to be carried out in more than one operation depending on the construction programme and traffic accommodation.
4.5	8.2.21	Remove existing gravel layer works to spoil Unit : m3 The unit of measure shall be the cubic metre. The rate shall include for the selective removal of existing gravel layer works to the required depth as instructed by the Engineer, loading, and transporting to spoil as per Clause PSC 3.1 : Disposal of Material. The rate shall take into account that this work will have to be carried out in more than one operation depending on the construction programme and traffic accommodation.
4.6	8.2.22	Excavate for and remove existing precast concrete kerb and channelling to spoil as instructed by Engineer Unit : m The unit of measure shall be the metre length of existing kerbing and channelling removed as ordered by the Engineer. The rate shall include the removal of the concrete kerbing and associated concrete backing, loading, transporting and disposal to spoil sites selected by the Contractor and approved by the Engineer.
4.7	8.2.23	Saw cutting of existing concrete surface of thickness: (up to 80mm) Unit : m The unit of measure shall be the linear metre of the concrete cut according to the plans or as instructed by the Engineer. The rate shall include for the supply of an approved concrete saw cutting machine and all other necessary equipment for saw cutting of concrete.
4.8	8.2.24	Break out and remove existing concrete sidewalk Unit : m3 The unit of measure shall be the cubic metre. The rate shall include for the breaking out and removal of the existing concrete sidewalk, loading and transporting to spoil. The rate shall take into account that this work will have to be carried out in more than one operation depending on the construction programme and traffic accommodation.

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
1.	1.	SCOPE
1.1	1.1	This Specification includes the bulk earthworks required
2.	3.	MATERIALS
2.1	3.1.2	Classes of Excavation
		The classes of excavation in clause 3.1.2 shall in general apply to all excavations where use is made of conventional methods and plant and equipment. Where labour-intensive methods applicable to targeted labour are specified, soft excavations shall be defined as follows:
2.1.1	3.1.2(a) <u>Soft excavation</u>	Soft excavation for labour-intensive work where excavations are to be carried out by hand methods, shall be excavation in material that can be efficiently removed and loaded with picks, shovels and other hand tools by an average able-bodied person or group of persons. Soft excavation shall include small boulders that can be removed by hand methods. Soft excavation can be further broken down by introduction of an additional class such as "Soft Excavation Class A", which is excavation defined as soft, but which can only be excavated with difficulty. The criteria for classifying Soft Excavation Class A shall be as follows: <u>Granular material</u>: - dense material with high resistance to penetration by the point of a geological pick; several blows are required for removal of material; 7 to 15 blows of the dynamic cone penetrometer are required to penetrate 100 mm; and <u>Cohesive materials</u> - stiff to very stiff material requiring 6 to 8 blows of the dynamic cone penetrometer to penetrate 100 mm, where: "stiff" material can be indented by thumbnail; slight indentation produced by pushing a geological pick point into the soil; cannot be moulded by fingers; and where: "very stiff" material can be indented by thumbnail with difficulty; slight penetration of point produced by blow of geological pick. Where soft excavation class A material is encountered, it shall be measured and paid for as an extra over soft excavation.
2.2	3.2	Classification For Placing Purposes
2.2.1	3.2.1	<u>Material Suitable for Embankments and Terraces</u>
		The material classified as "suitable" under this section will not be suitable for placing around the inlet pipework to the reservoirs. The material placed around the pipework passing through the specified embankment shall be "selected fill material" that has a P1 not exceeding 6 and that is free from vegetation and from lumps and stones of diameter exceeding 30 mm.

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
3.	5.	CONSTRUCTION
3.1	5.1	Precautions
3.1.1	5.1.1	<u>Safety</u>
	5.1.1.2	<u>Safeguarding of excavations</u>
		<i>Add the following subparagraph:</i>
		“(g) The Contractor or his agent or his representative shall not require or allow any person to work under unsupported overhanging material or in an excavation which is more than 1,5m deep, and any excavation which has not been adequately supported or braced if there is a danger of the overhanging material or the sides of the excavation collapsing. The support, shoring or bracing to be designed and constructed by the Contractor, shall be strong and sturdy enough to support the sides of the excavation in question.”
3.1.1	5.1.1.3	<u>Explosives</u>
		Explosives shall only be used, with written consent of the Engineer.
3.1.2	5.1.2	<u>Negligence</u>
	5.1.2.4	Where a service is damaged due to negligence, the Contractor shall, over and above the provisions of Clause 5.1.2.4 of SABS 1200D, bear the costs of supplying the consumers affected, by alternative sources
3.2	5.2	Methods And Procedures
3.2.1	5.2.2.1	Excavations for general earthworks and for structures
		<i>Add the following additional subparagraph:</i>
		“(f) The Contractor shall so plan his cut-to-fill operations that all excavated material is used in the manner that is most appropriate.
		The Contractor shall conserve all suitable surplus material and he shall not borrow, spoil or waste any material unnecessarily. If excavated material designated for a particular purpose become contaminated, is incorrectly used or becomes unavailable through injudicious planning of excavation operations, the Contractor shall replace the contaminated material and make good any shortfall with material of quality at least equal to that of the said selected material.
		Where selection of excavated material is required, the method of excavation shall be so arranged as to avoid double handling. Wherever possible excavated material shall be placed in its final position without being stockpiled. If stockpiling is unavoidable, materials intended for different uses shall be stockpiled separately
3.2.2	5.2.3	<u>Placing and Compaction</u>
		The material for embankments shall be placed in layers not exceeding 200 mm prior to compaction. Each layer shall be compacted to a density of 95% MOD AASHTO. This requirement is applicable to backfilling in restricted areas and also backfilling against structures.

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
3.2.3	5.2.4	<u>Finishing</u> All banks shall have a slope not greater than 1:2.
4.	8.	MEASUREMENT AND PAYMENT
4.1	8.3	Scheduled Items
4.1.1	8.3.2	<u>Bulk Excavation</u> a) No extra-over item will be scheduled for “intermediate” excavation.
4.1.2	8.3.3	<u>Restricted Excavation</u> a) No extra-over item will be scheduled for “intermediate” excavation.
4.1.3		<u>Trimming of Bulk Excavations</u> An extra-over item will be scheduled for hand-trimming of excavations to an average depth of 75 mm over the extent of the proposed structure as shown on the Drawings.
4.1.4	8.3.5	<u>Extra-over Item to Provide Working Space</u> No item will be scheduled for additional working space around structures and the Contractor shall allow for this in his excavation rates.
4.1.5	8.3.7	<u>Additional Lateral Support</u> No item will be allowed for additional lateral support between structures and the Contractor shall allow for all lateral support in his rates. Should the Engineer deem the lateral support to be unsatisfactory, the Contractor shall provide additional support at his own expense.
4.1.6	8.3.8	<u>Existing Services</u>
4.1.6.1	8.3.8.2	Protection of Existing Services Items for the protection of structures adjacent to the major excavations will be included in the Schedule as a lump sum. No items will be included for the protection of existing pipework, and this must be included in the general excavation rates.
4.1.7	8.3.9	<u>Backfill against Structures</u> No item will be measured for backfilling against structures and the Contractor shall allow for this in his rates, with due regard to the working space and the safe angle of repose of the excavated material, where the excavation is unprotected.

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
1	3	MATERIALS
1.1	3.2.1	Embankments & Backfill Embankment material shall be compacted to 90% modified AASHTO density.
1.2	3.3	Backfilling and Embankments Add new Sub-Clause: Sufficient material arising from excavations for structures, foundations, footing and the like and which is suitable for forming embankments and backfilling against finished structures shall be temporarily stockpiled in the vicinity of the structures. All other material from the excavations shall be disposed of as directed by the Engineer.
2	4	PLANT
2.1	4.3	Compaction Plant Add new Sub-Clause: Where plant is used for applying the dynamic load, controlling the moisture content and grading or mixing shall be capable of achieving the compaction specified using the material available for the construction of the works
3	5	CONSTRUCTION
3.1	5.1.1	Barricading and Lighting (Refer SANS 1921-1 Clause 4.18.2 and 4.18.3) Delete the Sub-Clause and substitute: Without limiting any obligation which the Contractor may have in terms of any Act, Ordinance or other legislation, the Contractor shall ensure that all excavations which are accessible to the public or which is adjacent to a public road or thoroughfare, or by which the safety of persons may be endangered are protected as set out in clause 13 of the General Safety Regulations of the Occupational Health and Safety Act, 1993 and that watchmen are employed to ensure that barricades, barriers and lights are effective at all times. Trench excavations shall be protected by means of at least two horizontal double sided 'red/white: chevron tapes approved by the Engineer. The tapes shall be stretched tightly between supports along both sides and ends of the excavation at levels approximately 0,45m and 1, 12m above the ground. The supports shall consist of poles or iron standards securely planted in solid ground at not more than 10m centres so as to enclose the spoil and the excavations Bridges for vehicles and/or pedestrians shall be provided along the route of the work as and where may be considered necessary by the Engineer. They shall consist of a number of suitably sized steel plates laid across open excavated trenches. They shall be protected on each side by a stout two rail time fence, at least 1 m high, consisting of 150 x 75mm time verticals set firmly into the ground, 75mm x 50mm rails securely fastened

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		to them. At least 4 lamps or reflective markers must be provided at each crossing. Where construction is in, or across, public roads the barricades or barriers and temporary road signs shall be erected. All such signs and positioning thereof shall comply with the requirements set out in Road Note 13 read in conjunction with the SA Road Traffic Signs Manual.
3.2	5.1.1.2	Safeguarding of Excavations (Refer SANS 1921-1 Clause 4.18.3) In sub-clause a) delete the words "Machinery and Occupational Safety Act" in the third and forth lines and substitute "regulations to the Occupational Health and Safety Act, 1993"
3.3	5.1.3	Existing Services (Refer SANS 1921-1 Clause 4.17) Add to the Sub-Clause: All existing services on the site may not be shown on the Drawings or be visible on the site. The Engineer may order excavation by hand in order to search for and expose services. An item has been included in the Bill of Quantities to cover the cost of such work if so ordered by the Engineer. Where a service is damaged because of the Contractor's negligence, he shall be liable for the costs involved in the repair of the service and any other costs consequent upon the interruption of the damaged services.
3.4	5.1.5	Excessive Pollution (Refer SANS 1921-1 Clause 4.19) Add the words "noise and", before the word "dust" in the first line.
3.5	5.1.6	Excavated Material Not to Endanger or Interfere (Refer SANS 1921-1 Clause 4.10) Delete the last sentence and substitute: "All material that is unsuitable or not required for backfilling shall be disposed of within the Project Area and spread. No additional payment will be made for these activities."
3.6	5.1.8	Road Traffic Control Delete from the third and fourth lines and words "and such barricades and warning lights as are ordered" and add: An item has been included in the Bill of Quantities to cover the relevant costs.
3.7	5.2.1	Site Preparation Delete the last sentence and substitute: "Material so removed shall be disposed of by the Contractor to Sites designated by the Engineer".
3.8	5.2.2	Excavation (Refer SANS 1921-1 Clause 4.10) Add to the Sub-Clause:

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		(h) Where outside shuttering is ordered by the Engineer. the excavations shall be carried out for an extra width of not more than 600mm all around the structure, measured from the base of the face to be shuttered. to allow for the shuttering to be fixed. this extra excavation and refilling where necessary is to be measured and paid for under quantities allowed for this purpose in the Schedule. Outside shuttering shall be used for the construction of all major structures unless ordered otherwise by the Engineer. (i) Where permanent concrete is to be placed against an excavated face. the excavation shall be trimmed to ensure that there is no projection greater than 20mm protruding into the excavation profile. (j) The Contractor shall not spoil, waste or stockpile excavated material without approval.
3.9	5.2.3.1	Embankments In the thirteenth line delete "600mm" and substitute "300mm" In the sixteenth line delete "300mm" and substitute "150mm" Delete the nineteenth line and substitute the following: Each layer shall be compacted to achieve 90% modified AASHTO density except where indicated otherwise on the Drawings
3.9.1	5.2.6.1	Freehaul Delete the wording of Sub-Clause 5.26.1 and replace with the following: All haul will be regarded as freehaul. No overhaul will be paid under this contract.
3.9.2	5.2.6.2	Overhaul Delete the Sub-Clause: 5.2.6.2
3.10	5.2.3.2	Restricted Backfill and Compaction at Structures Delete the eighth and ninth lines and substitute: Not exceeding 250mm and compacted by means of mechanical tampers to achieve a 90% modified AASHTO density except where indicated otherwise on the Drawings.
3.11	5.2.5.2	Topsoiling Delete the wording of Sub-Clause 5.2.5.2 and replace with the following: Where scheduled, topsoil shall be placed on all surfaces and on embankments and shall be lightly compacted by wheeled vehicles or by tamping, and trimmed neatly to the required lines grades and levels. The final thickness of topsoil after compaction shall be at least 100mm. prior to topsoiling, the surfaces to be topsoiled shall be prepared by pulling horizontal ruts into the soil with the tines of a front-end loader or other suitable method to retard erosion of the topsoil
3.12	5.2.5.3	Grassing

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		In addition to complying with the requirements of this Subclause the Contractor shall comply with Particular Specs PG (according to the type of grassing scheduled) :
3.13	5.2.6.1	Freehaul Delete the wording of Sub-Clause 5.26.1 and replace with the following: All haul will be regarded as freehaul. No overhaul will be paid under this contract.
3.14	5.2.6.2	Overhaul Delete the Sub-Clause: 5.2.6.2
4	6	TOLERANCES
4.1	6.3	Excavation by Mechanical Means Add to the Sub-Clause: Where bulk excavation is carried out by earthmoving equipment, such excavation will only be allowed to within a level of 300mm, or less as ordered by the Engineer, above the general level to which the ground has to be reduced, the balance of the bulk excavation being carried out by hand or by other means approved by the Engineer.
5	7	TESTING
5.1	7.1	Tests to the Contractors Account The Contractor shall make arrangements with a soils testing laboratory to undertake the following tests and to pass the test results to the Engineer. The costs of such tests shall be included in the rates tendered for the appropriate item in the Bill of Quantities. a) <i>Material imported from outside the Contract Site as working surfaces, subgrade improvement or for fill material</i> One CBR and indicator test per 200m³ of compacted material brought on site, (river sand will normally be exempted from this requirement). A sample and one CBR and indicator test of the material proposed for importation shall be submitted to the Engineer for approval prior to the commencement of importation. b) <i>Fill material in place</i> One density and moisture content per 100m³ of compacted fill c) <i>Compacted subgrade or finished level</i> One density and moisture content per 200m² of compacted surface area.

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		Should any of the above density tests fail to comply with the specified requirements, the Contractor shall at his own expense remedy the failure and submit a new test to the Engineer.
5.2	7.2	Determination of Compaction Add to the Sub-Clause: Determination of the standard of compaction achieved shall be carried out in accordance with Standard methods of testing road construction materials published by the Department of Transport Division of National Roads, Publication TMH.1.
5.3	7.2 a)	Tests at the Employer's Request (New Sub-Clause) Where CBR, indicator tests and the like are required on materials from within the Contract Site the Contractor shall also make arrangements with a soils testing laboratory to undertake these tests, the costs of which have been allowed for in the Bill of Quantities as a provisional sum. Payment for such tests will be per sample tested and reported to the Engineer.
6	8	MEASUREMENT AND PAYMENT
6.1	8.1.1	Basic Principles Delete the third line of the first sentence and substitute: "material in backfilling, forming embankments, etc., including any necessary additional offloading, stock-piling and reloading and the cost of disposal of any" In the seventh line delete "Drawing DA-2" and substitute "Fig DA-2"
6.2	8.1.2	Basic Principles Delete the first line of the first sentence and substitute: "Excavations which are required to be backfilled, or partially backfilled, will be measured as if taken out" Delete the fifth and sixth lines and substitute: "other such structures, the volume will be measured from the finished outline of the concrete, or the blinding to the concrete (as the case may be), as shown on the Drawings.
6.3	8.1.3	Basic Principles Delete the third line and substitute: "will be measured as part of the bulk excavation or restricted excavation, as applicable".
6.4	8.3.1(a)	Excavation Add to the Sub-Clause:

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		Where removal to greater depths is ordered, the area measured for payment will unless otherwise scheduled, be increased pro rata to the average increase in depth.
6.5	8.3.1(b) Excavation	Drawing DA-1 in the third line to read "Fig DA-1" Delete the third line of the second sentence and substitute: "offloading to stockpile, stockpiling and reloading as may be necessary, spreading or backfilling, compacting and watering"
6.6	8.3.1(c) Excavation	"Drawing DA-1" in the last line to read "Fig DA-1"
6.7	8.3.2(a) Restricted Excavation	Drawing DA-2 in the fourth line to read "Fig DA-2"
6.8	8.3.4	Importation of Materials
		Delete the last five lines and substitute:
6.9	8.3.4.1	for embankment construction
		The rate shall cover the cost of royalties (if any) and acquiring suitable material, loading, transporting with freehaul distance, unloading, spreading in layers not exceeding 150mm thick, watering, compacting to 90% Mod AASHTO density, trimming slopes of embankment to required outline all in accordance with the Specifications. The rate shall also include for carrying out density testing and the disposal of any surplus material.
6.10	8.3.4.2	for backfilling around structures
		The rate shall cover the cost of royalties (if any) and acquiring suitable material. loading, transporting with freehaul distance, unloading, and spreading in layers not exceeding 150mm thick, watering. compacting to 90% Mod AASHTO density, trimming upper surfaces to the required outline all in accordance with the Specifications.
6.11	8.3.9	Additional Compaction (New Sub-Clause)
		Where so scheduled additional compaction over that required to achieve 90% Mod AASHTO density in order to achieve the scheduled higher density shall be paid for by the volume so compacted Unit m ³
		The rate shall include for all additional plant, labour and materials necessary to achieve the additional compaction scheduled.
6.12	8.3.10	Survey of Surrounding Structures before Blasting (New Sub-Clause)
		The rate shall cover the cost to examine and measure up any buildings, houses or structures in the vicinity of the proposed blasting and establish

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		and record together with the owners thereof the extent of cracking or damage that may exist before commencement of blasting operations.
6.13	8.3.11	Photographic Record (New Sub-Clause) The rate shall cover the cost of providing a photographic record of neighbouring structures before blasting commences.

PS DK REF.	SABS 1200DK	GABIONS AND PITCHING (As Applicable to SABS 1200 DK)
1	3	MATERIALS
1.1	3.1.1.1	Quality Add to the Sub-Clause: The stone shall be subjected to the weathering test. The stone shall be subjected to the durability test.
1.2	3.1.1.3	PVC Coating (New Sub-Clause) Add to the Sub-Clause: The wire used for the fabrication of wire mesh cages and for lacing and bracing operations shall be plain zinc-coated mild steel wire. No PVC coating will be required.
1.3	3.1.2	Gabions Cages The gabion baskets and mattresses shall be as follows: Gabion boxes constructed of double twisted, hexagonal wire mesh gabions of nominal 80 mm mesh, with 3,4mm o/d frame wire and 2,7mm o/d mesh wire. Complete with partitions at 1 m centres. All wire is mild steel to SANS 1580 - 2005, Class A, zinc coated by heavy duty hot dip galvanising to SANS 675 - 2007. Each basket shall be complete as described in SANS 1200 DK.
1.4	3.1.3	Geotextile Add to the Sub-Clause: Geotextile filter blanket shall consist of "non-woven" spun-bound polyester fabric having a mass of 210 g/m ² , permeability of 0,003 m/s and multi-direction tensile strength of 16 000 N/m.
1.5	3.2.1	Stone Add to the Sub-Clause: The type of pitching shall be +Extra Heavy/+Heavy /+Medium/+Light In Table 2, Column 2, for extra heavy, replace 300 with 500.
1.6	3.2.3	Wire netting Add to the Sub-Clause: Wire netting for gabion and mattress cages shall be hexagonal steel wire mesh strengthened by selvages of heavier wire and by mesh diaphragms that divide the cases into 1 m compartments. Nominal 80 mm mesh shall be used for gabion cages with 2,4 mm diameter galvanised steel wires. Nominal 60 mm mesh shall be used for mattress cages with 2,0 mm diameter galvanised steel wires. Selvedge wire shall be galvanised and the diameter shall be in accordance with Table 3 of SABS 1200 DK
2	5	CONSTRUCTION
2.1	5.1.3	Type of cage (New Sub-Clause) The size of cages for gabions shall be a maximum of 3 000 x 1 000 x 1 000 mm and shall be divided into cells having a volume not greater than one cubic metre. The size of cages for mattresses shall be a maximum of

PS DK REF.	SABS 1200DK	GABIONS AND PITCHING (As Applicable to SABS 1200 DK)
		2 000 x 1 000 x 300 mm and shall be divided into cells having a volume not greater than 0,3 m3.
2.2	5.1.4	Diaphragms (New Sub-Clause) Each diaphragm shall be connected in the same manner to the sides and top panels in addition to the bottom panel.
2.3	5.2.3	Assembly Add to the Sub-Clause: All gabion and mattress cages shall be connected to adjacent gabion and/or mattress cages by lacing the adjacent selvages together with 2,0 mm dia. galvanised steel wire. The lacing shall be in accordance with Sub-Clause 5.1.2.
2.4	5.2.4	Rockfilling Particular care shall be taken in the filling gabions and mattresses so as to ensure that the voids in the rockfill are reduced to the minimum that can be reasonably achieved. In order to minimise the voids in the rockfilling, the filling shall proceed in layers not exceeding 300 mm deep and each layer shall be rodded and barred so as to compact the rockfill before filling of the next layer commences. Where appropriate, hand packing of selected rock particles shall be carried out.
2.5	5.2.4.2	Mattresses used in revetments and aprons Add to the Sub-clause: Where gabions and mattresses are placed in exposed positions the rock particles forming the exposed faces shall be specially selected so as to present a fair and even surface.
2.6	5.3.4	Wired Pitching Add to the Sub-Clause: The areas in which wired or grouted wire pitching is to be used will be indicated on site by the Engineer.
3	8	MEASUREMENT AND PAYMENT
3.1	8.2.3	Extra Over 8.2.2 for Packing Selected Stone for Exposed Face Add to the Sub-Clause: The method of selecting and packing stone for exposed faces as scheduled shall be as specified in Sub-clause 5.2.7 - Special Finish.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
1	3	MATERIALS
1.1	3.1	APPROVAL OF MATERIALS <i>Add to the Sub-clause:</i> Only potable water shall be used for concrete mixing.
1.2	3.2	CEMENT
1.2.1	3.2.1	APPLICABLE SPECIFICATIONS <i>Add to the Sub-Clause:</i> Ordinary Portland cement having an equivalent sodium monoxide content (calculated as $Na_2O + 0.658 K_2O$) exceeding 0.6% may not be used in any reinforced concrete other than in combination with an approved coarse aggregate, which has been shown by testing to be non-reactive in respect of potential alkali-aggregate reaction. Sulphate Resisting or Low Alkali Portland Cement complying with the abovementioned criteria must be used with any other approved coarse aggregate. All cement of a particular type must be supplied from the same source for the duration of the Contract.
1.2.1	3.2.3	STORAGE OF CEMENT <i>Add to the Sub-Clause:</i> Cement shall not be kept in storage for longer than 8 weeks without the Engineer's permission. Cement, if not delivered in bulk for storage in an approved silo, must be stored in a separate room with a raised floor constructed of heavy planks supported on bricks, or similar. This room must be completely damp-proof and well ventilated. Cement must be used in the order that it is delivered.
1.3	3.4	AGGREGATES
1.3.1	3.4.1	APPLICABLE SPECIFICATION <i>Add to the Sub-Clause:</i> Fine aggregate must be clean, naturally occurring siliceous sand. The broken shell content determined in accordance with SABS Method 847 must not exceed 30 percent in the case of 26.5mm aggregate size and 25 percent in the case of 19.0mm aggregate size respectively. The results of grading analysis tests on all the aggregates shall be kept. Sand from a source selected by the Contractor and approved by the Engineer after testing by the Contractor, will be used under this Contract. Fine and coarse aggregates must comply fully with the requirements of SABS 1083.
1.3.2	3.4.2	USE OF PLUMS <i>Add to the Sub-Clause:</i> The use of plums will not be permitted in any of the strength concrete specified on the Works.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
1.4	3.5	ADMIXTURES
1.4.1	3.5.1	APPROVAL OF ADMIXTURES REQUIRED
		<i>Delete and add the following:</i>
		The use of admixtures that improve workability and water retention will be approved subject to compliance with the following standards:
		Chemical admixtures: AASHTO M194 "Chemical Admixtures for Concrete"
2	4	PLANT
2.1	4.2	BATCHING PLANT
		<i>Add to the Sub-Clause:</i>
		Reports on calibration of weigh batching plant, clearly stating the date of the test shall be submitted to the Engineer.
2.2	4.5	FORMWORK
2.2.1	4.5.1	DESIGN
		<i>Add to the Sub-Clause:</i>
		The Contractor shall arrange for a Professional Engineer to design and sign the drawings for the formwork. The formwork shall be designed to limit deflection to a value not exceeding 1/360 th of the span between supports.
2.2.2	4.5.2	FINISH
		<i>Delete the Sub-Clause and substitute the following:</i>
		The quality of the finished surfaces of the concrete shall be as shown on the drawings. Generally all surfaces are to be smooth, and only those surfaces which will be covered under permanent backfill may be cast using rough shutters.
2.2.3	4.5.3	TIES
		<i>Add to the Sub-Clause:</i>
		The spacing and method of fixing shutters and filling of voids shall be subject to the approval of the Engineer.
		Metal ties shall be placed in a plastic sheath with plastic cone plugs on either end to allow easy removal of the tie. Once the shutters are removed, the cone plugs shall be removed and the metal ties withdrawn. A heated reinforcing rod shall then be inserted into the plastic sleeve to allow removal of the sleeve. The voids left in the concrete once the ties and sleeves are removed, shall be thoroughly cleaned out, filled with an expansive grout and thoroughly compacted with a reinforcing rod.
		The use of non-recoverable metal ties cast into the concrete member is preferable. In the case of water retaining structures the non-recoverable ties shall be supplied with a centrally welded water bar.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3	5	CONSTRUCTION
3.1	5.1	REINFORCEMENT
3.1.1	5.1.2	FIXING
		<i>Delete from the eighth and ninth lines the following:</i> "or, if permitted by the Engineer, by welding".
3.1.2	5.1.3	COVER
		<i>Add to the Sub-Clause:</i> Binding wire used for fixing reinforcement must be tightly bound around the nodes at bar intersections with cut ends bent inwards. A nominal reduction of the minimum specified cover by 3mm will be allowed for binding wire. The Contractor shall use only high quality cement mortar cover blocks to maintain the specified cover to reinforcement. Mortar must be made using the same quality cement as specified for strength concrete and mixed in the same cement/sand proportions as employed in the concrete elements in which they are placed. Cover blocks shall not be less than 7 days old at time of installation and shall have been cured by full immersion in water for a period of not less than 3 days.
3.2	5.2	FORMWORK
3.2.1	5.2.1	CLASSIFICATION OF FINISHES

Add to the Sub-Clause:

Table 5

CLASS	DESCRIPTION OF FINISH	USE IN WORKS
F1	As from loose jointed sawn boards, sheet metal or other approved material which will prevent grout loss.	Surfaces below ground not exposed to view and other surfaces indicated on the drawings.
F2	As from wrought formwork with all joints between formwork panels horizontal or vertical or parallel to supporting members to produce a high quality, smooth finish of uniform texture and colour. Joints shall be tight to prevent loss of grout. Groutex or similar is to be fitted between formwork panels.	All surfaces in contact with water; all surfaces exposed to view and other surfaces indicated on the drawings or as directed by the Engineer.

The making good of imperfections defined for smooth surface finish formwork must include filling blowholes with any dimension exceeding 10mm.

Full payment for formwork will only be made when concrete has been finished to the standard specified.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3.2.2	5.2.2	PREPARATION OF FORMWORK <i>Add to the Sub-clause:</i> All formwork must be treated with a release agent which is compatible with the concrete surface finish specified. Details of the proposed release agent shall be submitted to the Engineer for his approval, prior to its use on site. All exposed external corners shall have 20mm x 20mm chamfers.
3.2.2	5.2.5	REMOVAL OF FORMWORK
3.2.2.1	5.2.5.2	<i>Permissible Time for Removal of Formwork</i> <i>Delete the first two lines and substitute the following:</i> For this purpose and except as allowed in SABS 1200G 5.2.5.3, the formwork shall remain in place, after all the concrete has been placed in the relevant lift, for the appropriate minimum period of time given in Table 2. Formwork shall be removed at the earliest time permitted according to Table 2, taking prevailing weather conditions and temperatures into account, in order to limit temperature rise in the concrete due to heat of hydration.
3.3	5.3	HOLES, CHASES AND FIXING BLOCKS <i>Add to the Sub-Clause:</i> Fixing blocks for the attachment of fixtures may be embedded in concrete provided that the strength or any other desirable feature (such as appearance) is not in the opinion of the Engineer, thereby impaired.
3.4	5.5	CONCRETE
3.4.1	5.5.1	QUALITY
3.4.1.1	5.5.1.2	Consistency Delete (b) and substitute with: by the Engineer in respect of prescribed mix and strength concrete, or
3.4.1.2	5.5.1.5	Durability <i>Add to the Sub-Clause:</i> The exposure conditions at the site of the Works are to be considered as being severe.
3.5	5.5.3	MIXING
3.5.1	5.5.3.1	Mixing at Construction Site <i>Add to the Sub-Clause:</i> Site batching shall be by mass using an approved type of weigh-batching plant.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3.5.2	5.5.3.2	Ready-Mixed Concrete Delete the first sentence and substitute the following: Concrete produced at a central facility, other than at the site of the Works, shall not be accepted for use in the Works except with the prior written approval of the Engineer. When such approval has been given, only concrete cubes prepared on site and crushed by an independent laboratory will be accepted.
3.6	5.5.5	PLACING
3.6.1	5.5.5.5	Dropping of Concrete Delete the Sub-Clause and substitute the following: Dropping concrete freely will only be permitted if the Engineer is satisfied that this is the only practical method of placing.
3.6.2	5.5.5.9	Pumping of Concrete Delete the Sub-Clause and substitute the following: The placing of concrete by pumping will not be permitted without the written approval of the Engineer.
3.6.3	5.5.5.10	<i>Continuous Pours (New Sub-Clause)</i> <i>Add new Sub-clause:</i> In the case of continuous walls, these are to be cast in lifts of such height that each lift can be poured uninterrupted in one continuous operation over the entire perimeter of the wall. No vertical or inclined construction joints of any kind will be permitted in continuous walls unless they have been specifically ordered or authorized by the Engineer. The placing of concrete shall commence at convenient points on the perimeter of the wall and shall proceed both ways simultaneously so that fresh concrete meets fresh concrete. Any rest pauses, such as for meals, shall be avoided as far as possible, and the Contractor may be required by the Engineer to make the operation continuous by working in shifts. A workable arrangement must be made before each concreting operation commences.
3.6.4	5.5.5.11	<i>Blinding Layer (New Sub-Clause)</i> <i>Add new Sub-clause:</i> Beneath all structural grades of concrete, or where shown on drawings or elsewhere if so ordered by the Engineer, the bottom of the excavation is to be covered by a blinding layer (screed) in Grade 15/19 concrete to a depth of 75mm (or 50mm in some instances) to prevent disturbance of the ground and to serve as an even, clean and accurately positioned working floor for setting steel and placing foundation concrete. This blinding layer shall be laid immediately after excavations have been taken out, trimmed to the required depths and have been inspected and approved by the Engineer.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3.7	5.5.7	CONSTRUCTION JOINTS
3.7.1	5.5.7.3	<i>Preparation of Construction Joints</i>
		<i>Delete Sub-Clauses (a), (b), (c) and (d) and substitute:</i>
3.7.1.1	5.5.7.3.1	Surface Preparation of Construction Joints All horizontal and vertical construction joints shall be cleaned of all dirt and loose particles and shall be prepared to the satisfaction of the Engineer. Formed keys shall be provided if shown on the drawings or if instructed by the Engineer. All intersections of construction joints with concrete surfaces which will be exposed to view shall be made straight and level or plumb and shall be constructed to the details shown on the drawings. The Contractor is to provide a compressor with suitable oil traps in the air delivery hoses on site for the whole period during which concreting is in progress, and this must be available for cleaning concrete faces prior to placing fresh concrete or pouring joints. “Blowing off” may generally be carried out on horizontal surfaces but under special circumstances approved by the Engineer it may also be carried out on vertical surfaces. The surface concrete to be prepared shall be between 4 and 8 hours old after completion of placing and shall be blown off using a mixture of air and water under a pressure of at least 500 kPa or by using a high pressure water jet until all dirt, laitance, etc. is removed and particles of clean coarse aggregate are exposed sufficiently to produce a rough surface. Any loose particles of coarse aggregate shall also be removed. The success of this method of preparation depends on selecting the correct time (dependent on the type of cement, atmospheric conditions etc.) so that the concrete has set to just the necessary degree of hardness. The operation may therefore have to be undertaken outside normal working hours and at night. When the surfaces are at least 12hours old any remaining loose fine aggregate particles shall be washed off. “Scabbling”, which refers to removal of all surface laitance plus roughening the concrete surface with (pneumatic) picks in order to expose the coarse aggregate in a uniform pattern, may be carried out on both horizontal and vertical surfaces. The surfaces to be prepared in this manner shall be at least 12 hours old after mixing the concrete. At least 35% of the roughened surface area shall consist of exposed coarse aggregate. All surfaces prepared either by “blowing-off” or by “scabbling” shall be kept continuously wet until the next lift of fresh concrete is to be placed against them; the minimum time being 12 hours. The use of approved wet-to-dry epoxy resin concrete adhesive, strictly in accordance with the manufacturer’s instructions, will be permitted in the formation of concrete joints at surfaces where the concrete is older than 7 days.
3.7.1.2	5.5.7.3.2	Placing Fresh Concrete at Construction Joints Horizontal and vertical construction joint surfaces shall have been “scabbled” or “blown-off”, cleaned and continuously wet as specified above before fresh concrete is placed over them. Immediately before placing the fresh concrete, the damp surface of the set concrete shall be evenly coated (by brushing or brooming) with a layer of cement mortar between 10mm and 15mm thick. The water/cement ratio and the

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)

cement/sand ratio of this mortar shall be the same as that of the fresh concrete to be placed. This mortar shall be produced by leaving the coarse aggregate fraction out of a batch of the fresh concrete. Coating with mortar is to be done in stages immediately before areas of set concrete are covered with fresh concrete, so that no mortar is exposed for longer than one hour after mixing, or less if the mortar has become dry or has started to set before being covered with fresh concrete. Any dried out mortar shall be removed and after cleaning the surface, shall be replaced with fresh mortar.

No fresh concrete shall be placed on the top surface of concrete which is laterally restrained (eg by formwork or by in-situ earth) while the top layer of concrete is between 3 hours and 12 hours old after mixing. No fresh concrete shall be placed on top of the concrete with an unrestrained lateral surface while the top layer of concrete is between 2 hours and 12 hours old after mixing.

3.7.2 5.5.9 ADVERSE WEATHER CONDITIONS

3.7.2.1 5.5.9.2 *Hot Weather Concreting*

Delete the first two sentences and substitute:

When concrete operations are being carried out at ambient temperatures in excess of 32°C, the Contractor shall apply the relevant recommendations for hot weather concreting set out in American Concrete Institute publication ACI 305R-77 "Recommended practice for hot weather concreting".

3.7.2.2 5.5.10 CONCRETE SURFACES

3.7.2.2.1 5.5.10.2 *Unformed Concrete Surfaces*

Add to the Sub-Clause:

The unformed surfaces that require to be wood-floated or steel-floated or which are to receive other special treatment as well as the degree of accuracy, if this is not Degree of Accuracy II, are as indicated on the drawings. Generally, all unformed surfaces are to be steel-floated.

Table 6

Class	Description of Finishes
U3	Finish to horizontal or slightly inclined surfaces of concrete struck with an accurate straight edge to provide an even uniform surface and wood floated to remove screed marks (tolerance $\pm 3\text{mm}$ unless otherwise specified).
U4	As in U3, but using either a steel float or power float.

3.7.2.3 5.5.12 Concrete in Wet Ground

Delete the Sub-Clause and substitute:

The Contractor shall be fully responsible for keeping the excavations free from water whilst the construction work is being carried out. The methods by which he proposes to achieve this shall be approved by the Engineer before being implemented. The cost of dewatering shall be included in the tendered rates for the construction work and no separate payment shall be made for such dewatering throughout the construction period.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3.7.2.4	5.5.13	GROUTING <i>Add to the Sub-Clause:</i> Grouting shall be done to the instruction of the Engineer using materials of suitable consistency as follows. Unless otherwise directed, grouting mixtures shall consist of 1 part cement to 2 parts concrete sand by volume, well mixed and with sufficient water added to obtain the required consistency. Where recesses to be filled are of appreciable dimensions, the Engineer may direct the Contractor to replace a proportion of sand with fine stone to reduce shrinkage. The Engineer may also require the Contractor to use non-shrink or other additives in grouting mixtures.
3.7.2.4.1	5.5.13.1	<i>Grouting of Pipes/Specials through Wall (New Sub-Clause)</i> <i>Add new Sub-clause:</i> Where entry holes for pipes/specials have been provided in the walls, the Contractor shall be responsible for the grouting in of such pipes/specials regardless of whether or not these have been supplied by himself. Before commencing the positioning in holes of any pipes/specials the Contractor shall: • Remove all shuttering and boxing remaining in the holes • Make any alterations required to the position and shape of the holes and reinforcing steel (lacing bars, etc) in the holes • Thoroughly clean and scabble the sides of the holes so as to obtain satisfactory bond surface for the new concrete After accurately positioning the pipes/specials in the respective holes, the Contractor shall fix the pipes/specials in a suitable manner to prevent movement. Immediately prior to grouting being carried out by the placing of mortar and concrete around the pipes, the surface of the existing concrete shall be saturated with water. All surplus water shall be removed and the surface covered with a layer, approximately 12mm thick, of mortar consisting of 3 parts concrete sand and 1 part cement. The concrete ingredients shall be mixed and placed as dry as possible to obtain a dense, waterproof concrete. Where a watertight seal is required, the concrete shall be carefully worked around the puddle flange, if any, and the pipe barrel or body of the special and shall be vibrated in layers so as to obviate any falling away from pipe/special surfaces of the concrete already placed. The hole shall when set, form a dense, homogeneous and waterproof mass. A spare vibrator with an independent power source shall be kept as a standby measure to ensure continuity of placing in the event of the breakdown of the duty vibrator. Smooth formwork that has been suitably strengthened for use with a vibrator shall be provided for facing the concrete around each pipe/special.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
3.7.2.4.2	5.5.13.2	<i>Dry-Packed Grout (New Sub-Clause)</i> <i>Add new Sub-clause:</i> When dry-packed grout is specified under base plates etc., only sufficient water shall be added to make the mixture ball when squeezed in the hand. Before any grouting is done with dry caulking, the surfaces between which the caulking is to be placed shall first be thoroughly cleaned and flushed with water. All surplus visible water shall be wiped or blown away and the dry caulking shall be forcefully rammed or hammered into place using suitable tools. Exposed surfaces shall be finished off neatly with a trowel and extensive exposed areas shall be covered with wet sacking and kept damp for at least 24 hours. Where additives are required for grouting operations, these shall be brought on to site in the manufacturer's unopened containers and used strictly in accordance with the manufacturer's instructions. The Contractor shall undertake preliminary tests to check the behaviour of proprietary additives under the conditions pertaining to the site.
3.7.2.4.3	5.5.13.3	<i>Epoxy Grout (Epoxy mortar type only) (New Sub-Clause)</i> <i>Add new Sub-clause:</i> The manufacturer's instructions shall be observed when an epoxy grout is used.
3.7.2.4.4	5.5.14	DEFECTS <i>Add to Sub-Clause:</i> Any defects in the concrete or surface finishes must be inspected by the Engineer immediately after stripping of formwork. Remedial works to defects, where authorised by the Engineer, shall be carried out strictly in accordance with his directives and shall be at the Contractor's expense. Localised minor imperfections (e.g. blow holes, small recesses etc.) shall be made good by rubbing in a stiff 1:2 cement mortar immediately after stripping of formwork. Curing compound shall not be applied to these areas. Once the repair work has set, curing compound and curing membrane shall be applied to the area within 24 hours of stripping formwork. All other remedial work shall be carried out in dry conditions after the concrete is fully cured. Defective material shall be cut out and contact surfaces to which new concrete shall be bonded shall be cleaned by sandblasting. Repairs shall be made with an epoxy mortar with an appropriate 2 part epoxy primer on concrete or a wet to dry epoxy adhesive, depending on the extent of the defect. All epoxy resin compounds used in repair work must be approved by the Engineer and applied strictly in accordance with the manufacturer's specification. The Contractor shall match the colour of repair work with existing concrete where repair work is permanently exposed.
3.7.2.4.5	5.5.16	CEMENT MORTAR (NEW SUB-CLAUSE) <i>Add new Sub-clause:</i> Where cement mortar is specified for filling around pipes etc, water shall be added to obtain a firm paste which can be worked with a trowel but is

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
		not fluid. Surfaces to receive mortar shall be well wetted and excess water allowed to drain or be removed. The mortar shall be worked into place with a trowel or tamping rod, exposed surfaces floated off and covered with wet hessian for 24 hours and allowed to harden without disturbance.
3.7.2.4.6	5.5.17	MANHOLE COVERS AND FRAMES (NEW SUB-CLAUSE) <i>Add new Sub-clause:</i> The rates are to include for setting the covers into concrete with the upper edge 10mm above the concrete level to prevent the entry of rainwater where installed in positions exposed to rain and set into concrete so as to be flush with the concrete surface. The work is also to include for the thorough cleaning and painting of all exposed portions with two coats of epoxy tar paint, to comply with SABS 801, after setting into concrete work, in particular the exposed underside of the cover and the frame.
4	6	TOLERANCES
4.1	6.2	PERMISSIBLE DEVIATIONS
4.1.1	6.2.3	SPECIFIED PERMISSIBLE DEVIATIONS <i>Add to the Sub-Clause:</i> Except for the special smooth finish described in PSG 5 above, where applicable, the Contractor shall work within the limits of the permissible deviations laid down for Degree of Accuracy II with the following modifications: • Foundations (Sub-Clause 6.2.3(c)) • Position on plan ± 20mm • Surface level ±20mm • Above Foundations (Sub-Clause 6.2.3(d)) • Position on plan ± 10mm • Surface level ± 5mm
5	7	TESTS
5.1	7.2	TESTING
5.1.1	7.2.3	LABORATORY TESTING <i>Add to the Sub-Clause:</i> All test cubes shall be made, cured and tested in accordance with the requirements of SABS Standard Method 863 and 864. Test cubes shall be cured on site in an approved curing tank. After curing, the cubes are to be tested by an independent laboratory approved by the Engineer. Delivery of cubes for testing shall take place not less than 24 hours in advance of the specified time for testing.

PS G REF.	SABS 1200G	CONCRETE (As Applicable to SABS 1200 G)
		The Contractor shall keep accurate records of the exact position in the structure where the concrete batch represented by the cube tests was placed. All costs connected with sampling and testing of concrete, as described in this section of the project specification, shall be included in the relevant strength concrete rates.
5.1.2	7.2.5	TESTING GROUTING PROCEDURE (NEW SUB-CLAUSE) <i>Add new Sub-clause:</i> SABS 0120 : Part 2 Section G, page 9, Sub-Clause PSG 9.10 shall be applicable where relevant.
5.2	7.3	ACCEPTANCE CRITERIA FOR STRENGTH CONCRETE <i>Add to the Sub-Clause:</i> The cube results for each grade of strength concrete (tested at the specified age) will be grouped in batches of forty in chronological order as they become available and analysed statistically by the Engineer who will calculate the mean strength and the standard deviation. If the mean strength minus 1.64 times the standard deviation thus calculated is not less than the specified cube strength, the concrete represented by the batch of test results shall be deemed to comply provided always that no single cube result is less than 90% of the specified cube strength. If the average of such test results fails to meet this requirement, the mix design shall be adjusted to ensure compliance with these criteria. In addition, the mean strength of failed concrete work already cast shall be raised to an acceptable level by recommencing curing in a manner to be prescribed for a period determined by the Engineer. Suspended concrete work shall be re-propped and the application of finishes and other superimposed loads may be delayed if the Engineer so orders. After additional curing, the “failed” concrete shall be examined in accordance with Sub-clause 7.3.4 of SABS 1200G. If any single cube result is less than 90% of the specified cube strength, then the section of the concrete represented by the cube in the structure will be subject to rejection at the Engineer’s discretion after examination in terms of clause 7.3.4 of SABS 1200G. The Engineer may approve slight adjustments to the mix if the mean strength of the cube tests minus 1.64 times the standard deviation exceeds the specified cube strength by more than 10% by either reducing the cement content or increasing the water/cement ratio, provided that no detrimental change in the conditions of control exercised during manufacture and delivery of the concrete takes place. In order to comply with the durability requirements of the concrete, increased water/cement ratios for adjusted concrete mixes shall not exceed the maximum values for strength concrete mixes.

PS GA REF.	SABS 1200GA	CONCRETE (Small Works) (As Applicable to SABS 1200 GA)
1	3	MATERIALS
1.1	3.2	CEMENT
1.1.1	3.2.1	Applicable Specifications Tenders shall be based on the use of one of the following cement types, which comply with specification SABS ENV 197-1. (a) CEM 1 32,5 (previously known as OPC) (b) CEM 11/A-S 32,5 or CEM 11/A-V 32,5 or CEM 11/A-W 32,5 (previously known as PC 15) Extenders such as Slag or Fly Ash may only be included in concrete mixes where the cement type used is CEM 1 32,5. Where an extender is included, it shall not be used in quantities exceeding 15% of the cement content.
1.1.2	3.2.2	Storage of Cement Cement shall not be kept in storage for longer than 6 weeks within 10 km of the coast and not longer than 10 weeks inland.
1.2	3.4	AGGREGATES Aggregates from beaches and the like (No reference) Aggregates from beaches, dredged from the sea or river estuaries, or from cretaceous deposits, may not be used.
1.1.1	3.4.2	Use of "Plums" "Plums" will not be permitted.
2	4.0	PLANT
2.1	4.4	FORMWORK
2.1.1	4.4.3	Ties (Clause 4.4.3) Ties may be left in the concrete provided they are cut back to a depth at least equal to the specified cover of the reinforcement and filled as specified below. Holes left by the removal of ties shall be made good with a well rammed sand cement mortar of the same strength and colour when dry as the parent concrete.
3	5	CONSTRUCTION
3.1	5.1	REINFORCEMENT (Clause 5.1)
3.1.1	5.1.2	Fixing (Clause 5.1.2)

PS GA REF.	SABS 1200GA	CONCRETE (Small Works) (As Applicable to SABS 1200 GA)										
		Welding of reinforcement will not be allowed. Concrete used to make cover spacers shall be of the same grade as the parent concrete. Wire ties around reinforcement shall not encroach on the specified cover.										
3.1.2	5.1.3	Cover (Clause 5.1.3) Delete Subclause 5.1.3 and add the following: The cover to reinforcement shall be as follows unless specifically shown otherwise on the drawings. <table><tr><th>SECTION</th><th>COVER mm</th></tr><tr><td>Foundations</td><td>60</td></tr><tr><td>Columns</td><td>50</td></tr><tr><td>Walls and Beams</td><td>40</td></tr><tr><td>Slabs</td><td>30</td></tr></table>	SECTION	COVER mm	Foundations	60	Columns	50	Walls and Beams	40	Slabs	30
SECTION	COVER mm											
Foundations	60											
Columns	50											
Walls and Beams	40											
Slabs	30											
3.2	5.2	FORMWORK (Clause 5.2)										
3.2.1	5.2.1	Classification of Finishes (Clause 5.2.1)										
3.2.1.1		Unless otherwise specified, all formwork shall be "smooth".										
3.2.2	5.2.2	Preparation of Formwork (Clause 5.2.2)										
3.2.2.1		Chamfers (No reference) Exposed edges or corners of smooth formwork shall generally be chamfered 20 x 20 mm.										
3.3	5.4	CONCRETE (Clause 5.4)										
3.3.1	5.4.1	Quality (Clause 5.4.1)										
3.3.1.1		Durability (No reference) The exposure condition for concrete shall be assumed "severe", and the maximum water:cement ratio in all reinforced concrete shall not exceed 0,53.										
3.3.1.2	5.4.1.4	Prescribed mix concrete (Clause 5.4.1.4) Delete Subclause 5.4.1.4 and insert the following:										
3.3.1.2.1		<u>No Fines concrete</u> (No reference) No fines concrete shall be composed of cement and stone in the proportions by volume of 1 part cement to 3 parts 26 mm stone and 3 parts 13 mm stone with sufficient water added for workability.										

PS GA REF.	SABS 1200GA	CONCRETE (Small Works) (As Applicable to SABS 1200 GA)

No fines blinding shall be covered with a thin layer of coarse river sand which shall be lightly broomed into the blinding and kept damp until the concrete is cast on top. The blinding shall be kept clean at all times.

3.3.1.2.2 Granolithic Concrete (No reference)

The coarse aggregate shall be hard durable cubical stone from an approved source and shall pass a 9,53 mm sieve and be retained on a 4,75 mm sieve.

The sand shall pass a 4,75 mm sieve, not more than 20 % shall pass a 0,300 mm sieve, and not more than 5% shall pass a 0,150 mm sieve.

The mix proportions shall be 1 cement : 1 sand : 2 coarse aggregate by mass. The cement:water ratio shall not be more than 0,45.

3.3.1.3 5.4.1.5 Strength Concrete (Clause 5.4.1.5)

3.3.1.3.1 Cement Content and Aggregate Sizes (No reference)

Without relieving the contractor of his responsibilities in terms of Subclause 5.4.1.5 the minimum cement content, for durability, of the various grades of concrete shall be as stated hereunder.

CONCRETE GRADE (MPa)	MINIMUM CEMENT CONTENT (kg/m ³)	NORMAL USE UNLESS OTHERWISE SPECIFIED
15	200	Mass concrete filling and blinding.
20	250	Unreinforced structures.
25	300	Low stressed reinforced structures.
30	325	Normal reinforced structures.

The normal size of coarse aggregate shall generally be 26 mm but in concrete sections less than 100 mm thick the nominal size shall be reduced to 13 mm. In mass concrete work the nominal size may be increased to 38 mm.

3.3.1.3.2 Reduction in Cement Content (No reference)

No consideration will be given to reducing the minimum cement content specified in Subclause 3.3.1.3.1.

3.3.1.4 5.4.1.6 Ready-Mixed Concrete (Clause 5.4.1.6)

The production of concrete off-site will only be allowed when this is done by an approved ready-mixed concrete company.

3.3.2 **5.4.8 Concrete Surfaces** (Clause 5.4.8)

3.3.2.1 5.4.8.2 Wood-Floated Finish (Clause 5.4.8.2)

PS GA REF.	SABS 1200GA	CONCRETE (Small Works) (As Applicable to SABS 1200 GA)
		Wood-floated surfaces shall first be given a finish as specified in Subclause 5.4.8.1 of SABS 1200 GA and, after the concrete has hardened sufficiently, the screeded surface shall be wood-floated, either by hand or machine, only sufficiently to produce a uniform surface free from screed marks.
3.3.2.2	5.4.8.2	Steel-Floated Finish (Clause 5.4.8.2)
		Steel-floated surfaces shall be treated as specified in PSGA.3.3.2.1 except that, when the moisture film has disappeared and the concrete has hardened sufficiently to prevent laitance from being worked to the surface, the screeded surface shall be steel-trowelled under firm pressure to produce a dense, smooth, uniform surface free from trowel marks.
3.3.2.3		Power-Floated Finish (No reference)
		Power-floated surfaces shall be treated as specified in PSGA.3.3.2.1, except that the screeded surface shall be power-floated to produce a high quality dense, smooth, uniform surface free from trowel marks.
4	6.0	TOLERANCES (Clause 6.0)
4.1	6.4	PERMISSIBLE DEVIATIONS (Clause 6.4)
		Unless otherwise specified, all concrete shall be constructed to Degree of Accuracy II.
5	8.0	MEASUREMENT AND PAYMENT (Clause 8.0)
5.1	8.1	MEASUREMENT AND RATES (Clause 8.1)
5.1.1	8.1.3	Concrete (Clause 8.1.3)
5.1.1.1	8.1.3.1	Concrete to Overbreak (Clause 8.1.3.1)
		No allowance will be made for concrete required to make up overbreak in rock material and to make up over excavation in material other than rock. The rate for concrete cast against the ground shall include for any such make up.
5.1.1.2		No-Fines Blinding (No reference)
		The cost of sand broomed into no-fines blinding shall be included in the rates for no-fines blinding.

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)
1.	3	MATERIALS
1.1.	3.1	CULVERT UNITS & PIPES
1.1.1.	3.1(a)	Precast Concrete Pipes Pipes shall be reinforced spun concrete pipes of the class specified. Joints shall be either Spigot and Socket or Ogee. Ogee type joints are not acceptable where spigot and socket joints have been specified in the Schedule of Quantities. Where external rubber collars are specified for Ogee pipe joints the rubber collars shall conform to the following specification: - i.) be approximately 200mm wide and 6mm thick; - ii.) be fabricated from material conforming to SABS 924 and possess a shore hardness of 40°; - iii.) be able to ensure a tension in the rubber collar adequate to preclude the infiltration of liquids and fine materials. Where tape is specified for Ogee pipe joints the tape shall be of low density polyethylene coated with a polyisobutylene pressure sensitive adhesive and conform to the following specification: ▪ Overall width 300mm ▪ Overall thickness 0,3mm ▪ Tensile strength 15MPa (Minimum) ▪ Elongation at break 300% ▪ Adhesion to steel 1,5N/mm of width (minimum) ▪ Adhesion to self 1,0N/mm of width (minimum) ▪ Temperature performance 20°C to 60°C The tape must be applied to a clean concrete surface, free from grease, oil or other contaminants and relatively dry, which has been primed with a suitable, approved, primer evenly applied to the manufacturer's recommended specification. When the primer is dry, but tacky, the tape shall be applied to give a wrinkle free double-wrapped joint. At least 150mm of tape beyond the double-wrap shall be left after the tape has been cut and this is then firmly stuck into position.
1.1.2.	No Ref	Sub-Soil Pipes Sub-soil pipes shall be perforated pitch fibre pipes conforming to SABS 921, or slotted uPVC pipes conforming to SABS 791 or "No Fines" concrete pipes conforming to BSS 1194.

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)
1.2.	3.4	MATERIAL FOR MANHOLES, CATCHPITS AND ACCESSORIES
		Manholes, catchpits, etc. shall be constructed of brick, cast in-situ concrete or precast concrete sections (cylinders). Details of the precast concrete sections are as shown on the Engineer's drawings. The material for jointing precast concrete sections shall be 'bitujoint' or a similar approved jointing compound.
1.2.1.	3.4.1	Bricks
		"Burnt clay masonry units for foul-water and stormwater sewer manholes, stormwater inlets and inspection chambers shall be Non-Facing Extra (NFX) with a nominal compressive strength of 14 MPa to S.A.B.S. 227:1986.
1.2.2.	3.4.3	Covers and Frames
		Catchpits shall be fitted with precast concrete slabs or precast concrete frames and either precast concrete covers or cast iron covers as detailed on the Engineer's drawings.
		Manhole covers and frames in areas not subject to road-traffic loads shall be either precast concrete or medium duty cast iron as detailed on the Engineer's drawings.
2.	5	CONSTRUCTION
2.1.	5.2.	BEDDING, LAYING AND JOINTING
2.2.1.	5.2.2	Pipe Culvert
		Unless otherwise specified concrete stormwater pipes shall be bedded and backfilled to Class 'C' standard and A.C. pipes to Class 'B' standard, as detailed on the Engineer's drawings.
		Pipe laying shall commence in any particular section as soon as possible after the excavation has been completed and the trench bottom has been inspected and approved by the Engineer. The Contractor shall meet all costs of operations ordered by the Engineer to remedy defects in the trench caused by lengthy exposure. Backfilling shall not commence until the Contractor has received the authority of the Engineer.
		Unless otherwise specified, the joint gaps outside and inside the pipes need not be caulked.
		Anchor blocks shall be constructed to details shown on the Engineer's drawings and unless otherwise specified will only be required where the slope of the pipe is 1 in 3 and steeper.

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)

2.2.2. 5.2.3 Concrete Casing of Pipelines

Where concrete encasement is specified, the pipes shall be encased in 20Mpa concrete to the dimensions and details shown on the Engineer's drawings.

2.2. 5.5 CATCHPITS, MANHOLES, INLETS AND OUTLET STRUCTURES

2.3.1. 5.5.1 General

Immediately upon completion of laying a length of drain, the base and a height of each manhole or catchpit, sufficient to protect the pipe and to preclude water or debris from the pipe, shall be constructed.

The Contractor's attention is specifically drawn to the effect of constructing manholes where the pipe on the downstream side has a very steep grade. In such cases, it is necessary to construct a base slab at a lower level in relation to the design invert level than would otherwise be the case and involves also additional concrete to benching or brickwork to chamber walls.

Step irons shall not be required, unless particularly specified on the Engineer's drawings.

2.3.2. 5.5.4 Manhole Covers and Grids

Manhole frames shall be set in a full 13mm thick bed of 1:3 cement:sand mortar and 45° fillets, also of 1:3 mortar, shall be constructed to the edge of the frame.

Unless other specified manhole and grid frames within the road formation shall be tilted to conform exactly to the level and fall of the surrounding formation. In other areas the manhole frames and covers shall normally be set horizontal with the top set 50mm above the highest contiguous ground level.

2.3.3. 5.5.5 Precast Manholes

Precast manholes shall be constructed as detailed on the Engineer's drawings.

Precast sections shall be placed with the male joint upwards and the pipe sections and cover slabs shall be carefully and firmly bedded on a continuous layer of 'bitujoint' or similar approved jointing material so as to ensure a watertight joint of

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)

approximately 5mm all round. (For 1066mm diameter sections approximately 1 joint can be made per litre). Before bedding the precast sections the ends shall be coated with a suitable primer for the type of jointing material to be used. After bedding, the joint shall be neatly finished flush with the inner surfaces.

A number of stormwater manholes with various types of inlet covers have been scheduled on this contract. The manholes are schedule by type and in depth increments of 500 mm.

The unit of measurement shall be number (No.) and the tendered rate for each type shall include for the supply of all labour, plant and materials required to construct the manhole complete in accordance with the Standard Drawings and Specification, and inlet type cover as is specified in the contract drawings.

2.3.4. 5.5.8 Headwalls

The unit of measure for headwalls shall be Number (No.) and shall include for all labour, plant and materials required for the construction of the headwall inclusive of the base and cut-off walls.

The construction of brickwork shall be as specified in Clause LE.8.2.8. Mortar shall conform to mix Class A as defined in the latest edition of the Standard Building Regulations.

3. 8 MEASUREMENT AND PAYMENT

3.1. 8.2 SCHEDULED ITEMS

1. 8.2.1 Supply, Lay and Joint Pipe Culverts

Irrespective of depth to invert, pipes will be measured in individual sizes and classes per horizontal linear metre from centre to centre of manholes or catchpits or to the end of the pipe at the face of headwalls or similar structures. No deduction will be made for manholes. Connections to existing systems will be measured by number and should include for making good. Tendered rates will be deemed to include for all costs to supply, lay and joint the stormwater pipes, for all cutting, damage and waste and to clean and inspect the system upon completion.

Unless otherwise specified, progress payments will be made only for completed runs between structures and only after the run has been completely backfilled and the structures

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)

completed to sufficient extent to adequately protect the pipeline, as determined by the Engineer.

2. 8.2.8 Supply and Install Manholes, Catchpits and the like

The tendered rates for manholes and catchpits shall cover the cost of supplying and installing or laying (as applicable) the units complete as specified under subclause 8.2.8 and as detailed on the Engineer's drawings including for precast concrete frame and cover, and shall also cover the cost of dealing with any excavation (in all materials including disposal of surplus) that is additional to that measured under the item for pipe trench excavation (see subclauses 8.2.2 and 8.2.3 of SABS 1200 DB). Extra over payments will be made for the following items complete:

- i.) Cast iron frame and cover, by number
- ii.) Downstream pipe at grade steeper than 1 in 4, by number.
- iii.) Backdrop manholes, by number and difference in invert levels.

Progress payments will be for completed manholes and catchpits only.

Tenderers are to note that manholes and inlets shall be measured according to type and varying depth only. The rate tendered for the manholes/inlets shall include for the different pipe sizes and benching configurations.

The Contractor shall note that the rate for inlets shall include the cost of the graded channel in front of the inlet and / or splay and the cost of the transition kerb and channel upstream and downstream from each inlet. This will not form part of the payment for kerb and channel.

3. Special Structures (No Reference)

Unless otherwise specifically indicated, special structures will be measured by number and progress payments made only for the completed structure.

Tendered rates will be deemed to include for all costs to construct the completed structure as specified.

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)

SUB-SOIL DRAINS (No Reference)

4.1. Measurement

Where the Engineer directs that sub-soil drains be installed, measurement will be per horizontal linear metre of completed drain to the cross-section specified and the rates tendered will be deemed to include for supplying, laying and jointing the pipe where pipes are specified.

Additional items to be measured unless specified in above will be :

- i.) stone bedding and backfill, m³
- ii.) coarse graded sand backfill, m³
- iii.) excavation, linear metre in various depths
- iv.) Geofabric blanket, linear m of drain
- v.) Connection to manholes or other discharge points by number.

4.2. Stone Drains

Stone drains shall consist of one or more sizes of single-size crushed stone laid in a trench to the cross-section shown on the Engineer's drawing with a uniform slope towards the point of discharge which will normally be a "no-fines" block set in the side wall of a catchpit or manhole.

4.3. Piped Drains

Piped sub-soil drains shall consist of a sub-soil pipe as specified under PSLE 2 laid in a trench and backfilled with 10mm nominal sized crushed stone and coarse graded sand all as detailed on the Engineer's drawings.

The drains shall slope uniformly towards the point of discharge which will normally be a catchpit or manhole and the pipe shall be built into the catchpit or manhole.

4.4. Geofabric Blanket

Where specified the stone drain and piped drain are to be wrapped in a geofabric blanket as specified under Subclause 3.5 and as detailed on the Engineer's drawings.

The rate tendered shall include for wrapping the geofabric around the subsoil pipe, subsoil drain or stone bedding.

4.5. Sub-Soil Pipes

PS LE REF.	SABS 1200GA	STORMWATER DRAINAGE (As Applicable to SABS 1200 LE)

"These shall be "Netlon" plastic subsoil pipes complying with SABS 791 as amended.

Hole Size : 5 ± 1 mm Diameter
Diameter of Pipe : 100 ± 10 mm.
Pipe Invert : 25% of the circumference of the pipe is to be free from slots or holes to form an invert to the pipe."

4.6.

Stone for Sub-Soil Drain Filter

"The stone aggregate used for the subsoil drain filter shall consist of 9,5 mm crushed stone conforming to the following grading :

Sieve size mm	132	95	67	475	236
% Passing	100	85 - 100	0 - 55	0 - 25	0 - 5 "

4.7.

River Sand Backfill for Subsoil Drain Filter

The following clause shall replace Clause PG.3.11.

"River sand for subsoil drain filter shall consist of clean river sand conforming to the following grading:-

Sieve size mm	67	475	150	75
% Passing	100	90 -100	0 - 15	0 - 3

and having a Fineness Modulus of 2,0 - 3,5."

C3.6 PARTICULAR SPECIFICATIONS

In addition to the Standard and Project Specifications the following Particular Specifications shall apply to this contract and are bound in hereafter

TABLE OF CONTENTS

SECTION	DESCRIPTION
PB	BUILDING WORKS
PEL	ELECTRICAL SPECIFICATIONS
PES	ENVIRONMENTAL MANAGEMENT PROGRAMME
PG	GRASSING
PLW	EPWP CONDITIONS AND SPECIFICATIONS
PE	HEALTH AND SAFETY SPECIFICATION (Part 1 & Part 2)

PB BUILDING WORKS

PB 1 SCOPE

This particular specification covers the construction of buildings and chambers.

PB 2 INTERPRETATIONS

PB 2.1 Supporting Specifications

Reference is made to the latest issues of the following standards:

SABS 28	Metal ties for cavity walls
SABS 92	Bituminous roofing felt
SABS 227	Burnt clay masonry units
SABS 248	Bituminous damp-proof courses
SABS 471	Portland cement
SABS 523	Limes for use in building
SABS 589	Hollow clay building blocks
SABS 727	Windows and doors made from rolled
SABS 952	Polyolefin film for damp-proofing and waterproofing in buildings
SABS 1 024	Welded steel fabric for concrete reinforcement
SABS 1 090	Sand for plaster and mortar
SABS 1 215	Concrete masonry units
BS 3 148	Methods of test for water for making concrete.

PB 3. MATERIALS

PB 3.1 Lime

Lime shall be burnt plaster lime complying with the requirements of SABS 523.

PB 3.2 Cement

Cement shall be ordinary Portland Cement complying with the requirements of SABS 471. No cement which is older than 3 months or which contains lumps from absorbed moisture may be used.

PB 3.3 Sand

Sand for mortar and plaster shall comply with the requirements of specification SABS 1090.

PB 3.4 Water

Water shall be clean and free from injurious amounts of acids, alkalis, sugar and other organic substances and shall be in accordance with the requirements of BS 3148.

PB 3.5 Burnt Clay Masonry Units

Bricks, blocks and other masonry units shall be good quality and comply with the requirements of and be classified according to SABS 227.

Unless otherwise specified in the Contract, the following classes of bricks shall be used.

For all external brickwork where specifically called for: Facings.

For all plastered brickwork: General purpose or stock.

For all other brickwork : Engineering.

All types and classes of bricks shall be subject to the approval of the Engineer at all times.

Care shall be taken during loading, transporting, off-loading and handling on the site to prevent damage to bricks. Facings shall in particular be carefully placed in layers separated by straw or other suitable material until installed.

PB 3.6 Wall Ties

Wall ties for cavity walls shall be of the vertical twist type coated with zinc complying with the requirements of SABS 28.

PB 3.7 Quarry Tiles

Quarry tiles shall be of approved quality, well burnt, with sharp arises, uniform thickness and colour and free of warps. Tiles shall also be handled and packed with care as described in clause 2.5 above.

PB 3.8 Lintels

Unless otherwise specified in the Contract lintels shall be of the prestressed hollow clay tile, or prestressed concrete type subject to the approval of the Engineer, and suitably designed for the loads and spans for which they will be required.

PB 3.9 Air Bricks

Air bricks shall be of the terracotta type complete with insect gauze.

PB 3.10 Window and door frames

Unless otherwise specified in the Contract window and door frames shall be steel complying with the requirements of SABS 727.

PB 3.11 Brickwork reinforcement

Reinforcement used between layers of brickwork shall be manufactured from hard-drawn high tensile wire to SABS 1024.

PB 3.12 Dampproof course

Unless otherwise specified in the Contract, dampproof courses shall be constructed using bituminous types GH and FV in accordance with SABS 248, and/or roofing felt type 140 in accordance with SABS 92, and/or polyethylene sheeting to SABS 952 the type to be as indicated on the Drawings.

PB 3.13 Partition Blocks

Hollow clay partition blocks (grille blocks) shall comply to SABS 589.

Concrete blocks: solid hollow and aerated shall comply with SABS 1215.

PB 4 PLANT

Not Applicable.

PB 5 CONSTRUCTION

PB 5.1 Mortar For Brickwork

Mortar for use with facings and general purpose bricks shall be comprised of the following proportions by volume:

PB 5.1.1 Class A

1 Cement: 1/4 Lime: 4 Sand

Minimum compressive strength after 28 days shall be 10,5 Mpa. This shall be used in all external face work and other brickwork exposed to weather and severe humid and damp conditions.

PB 5.1.2 Class B

1 Cement: 1 1/4 Lime: 6 Sand

Minimum compressive strength after 28 days shall be 4,9 Mpa. This shall be used in load bearing walls, piers and columns and in partition panel and free standing walls not subject to continuous dampness.

PB 5.1.6 Class C

1 Cement: 2 Lime: 9 Sand

Minimum compressive strength after 28 days shall be 1,4 Mpa. This shall be used in non load bearing walls not exposed to weather or any damp conditions. It shall not be used in free standing balustrades.

PB 5.2 Brickwork

All bricks shall be thoroughly wetted prior to laying and well bedded in mortar. Only whole bricks except where half bricks are required as closures shall be used.

Joints shall be 6 mm maximum width in the case of exposed brickwork (unless otherwise specified in the Contract) and 10 mm in the case of unexposed brickwork, and brickwork to be plastered.

Unless otherwise specified in the Contract, mortar joints shall be pointed as follows:

Facing: Horizontal joints square, vertical joints flush.

Unexposed brickwork: Flush

Brickwork to be plastered or tiled scraped out 10 mm deep.

Brickwork generally shall be built in English bond, half brick and cavity walls in Stretcher bond unless shown on the Drawings that cavity walls are to be built with

snap headers to match facework or other brickwork in English or Flemish bond. Where directed that walls be built in Garden wall bond this shall consist of three courses of stretchers to one course of header in each course.

All brickwork shall be set out and built to the respective dimensions, thicknesses and lengths shown on the Drawings or directed by the Engineer.

Brick walls shall be constructed such that no portion of a wall is more than one metre higher than any other portion at any time.

All bricks shall be laid on a solid mortar bed well butted on all sides and joints fully grouted. Perpendics shall be truly perpendicular for the whole height of the building.

No brickwork shall be constructed during weather conditions that may adversely affect the appearance or the strength thereof.

Brickwork shall generally be kept clean from mortar and defacing matter and shall be protected and finally cleaned as described below.

PB 5.3 Footing Walls

Wall footings with all joints grouted in solid will extend from the concrete foundation to floor level and in general be 457 mm and 343 mm wide for 280 mm and 230 mm wide walls respectively.

External facing shall extend from the concrete foundation.

PB 5.4 Window Sills

Unless otherwise specified in the Contract, window sills shall be constructed of quarry tiles with 6 mm joints pointed round and externally sloped with a 40 mm overhang, and internally horizontal with a 3 mm overhang over the finished wall surface. Fibre-cement sills shall be in single lengths cut between reveals.

PB 5.5 Building In Of Frames, Pipes, Etc.

Door and window frames shall be truly level and plumb and be firmly held in position with hoop iron fixing straps firmly built into the brickwork as the work proceeds.

Brickwork shall be carefully cut and built up around pipes etc. passing through walls such that courses remain neat and regular and joints match.

Bricks shall butt hard up against frames and pressed steel door frames be grouted up solid with mortar at the back.

PB 5.6 Brickwork In Thicknesses

Walls built in two or three thicknesses shall be tied together with and including metal ties in accordance with SABS 28 of sufficient length to allow not less than 75 mm of each end to be built into brickwork and shall be spaced not more than 1 m apart to every third course and staggered.

PB 5.7 Brickwork Linings

Linings to concrete shall be tied with and including 4 mm diameter galvanised crimped wire ties of necessary length to allow 75 mm to be bedded into concrete

and 75 mm of the other end to be built onto brickwork and evenly spaced 1 m apart to every third course and staggered.

PB 5.8 Half Brick Thick Walls

Half brick thick walls shall be reinforced with 75 mm wide brick reinforcement every eighth course in height, and built 100 mm into main connecting walls. The reinforcement shall be lapped 150 mm at end joints, where these are necessary, and 75 mm at angles.

PB 5.9 Cavity Walls

Cavity walls, unless otherwise specified, shall be built with two half brick thicknesses of brickwork in stretcher bond with 50 mm cavity between, and the two thicknesses tied together with 200 mm long metal wall ties, spaced at not more than 1 m centres alternately to every third course of brickwork. The ties shall comply with the requirements of SABS specification 28.

The cavities shall be carried up from one course below damp course level up to two courses below roof plate level, unless otherwise shown or specified. The brickwork above cavities shall be built solid, and where 270 mm thick shall be cut and well bonded where possible.

The cavities shall be kept free of rubbish, mortar droppings and protrusions and shall be protected against the ingress of rain water. The cavities shall not be ventilated.

At door, window and other openings, the cavities shall be stopped 110 mm back from jambs of openings with the inner thickness of brickwork returned and stopped against the outer thickness and not bonded to same. A 110 mm wide strip of dampproof sheeting shall be built in between the two thicknesses in the joint formed by the return and the outer thickness. The dampproof strip shall be lapped at least 50 mm on to the sheeting between the two thicknesses of sills and between the two thicknesses of lintels.

Sills to window shall be divided into external and internal thicknesses with strips of dampproof sheeting built in line with the dampproof sheeting in jambs and extending 100 mm beyond the jambs of openings.

The lintels shall be provided with dampproof sheeting as described under lintels.

Unless otherwise specified, cavities shall be stopped one course below and one course above and 110 mm from sides of openings for air bricks and the like.

PB 5.10 Hollow Tile Lintels

Hollow tile lintels shall be formed with approved 300 x 220 x 110 mm burnt clay hollow tiles, each having not more than three cavities. The tiles shall be set end to end, and the cavities filled up solid with Class 25/40 concrete. Lintels shall have bearings of not less than 220 mm on walls at ends.

The lintels over the various size openings shall be reinforced as specified in the following table.

CLEAR SPAN, metre REINFORCEMENT

Not exceeding 1M	One 12 mm diameter mild steel rod in upper and lower cavities
Over 1 to 1,5M	One 16 mm diameter mild steel rod in upper and lower cavities

The reinforcing rods shall be placed 12 mm from top and bottom edges of concrete filling to upper and lower cavities respectively.

Lintels over openings not exceeding 1 m wide, in one brick thick walls, shall be on flat, and in all other cases shall be on edge, using two or more lintels in walls one brick thick and over, built side by side, to make up the thicknesses of walls.

Lintels in 270 mm thick cavity walls be in two 110 mm thicknesses with inner face of outer thicknesses covered with sheeting as for damp course, the full length and depth of lintel, and the space between the two thicknesses filled in solid with Class 25/40 concrete. Where cavities continue above lintels the sheeting in lintels shall be taken up and turned on to top of first course of brickwork to inner thickness of wall, above the lintels.

Lintels shall be made not less than 21 days before building in, and shall be cured for at least 14 days by being kept damp in a shaded position.

The lintels shall be hoisted into position and bedded and grouted in solid in cement mortar.

PB 5.11 Reinforced Brick Lintels

Reinforced brick lintels shall be built with sound machine made bricks with all vertical and horizontal joints filled solid with mortar throughout the required number of courses and to a distance of at least 330 mm on either side of the clear opening.

The number of courses in lintels over the various size openings shall be as specified in table hereunder, and reinforcing steel wires or rods shall be built into the first horizontal joint over the bottom course as laid down therein viz.:

CLEAR OR DAYLIGHT SPAN, metres	NUMBER OF COURSES	REINFORCEMENT
Not exceeding 1	4	One row of 75 mm wide brick reinforcement as described below, for each half brick width of soffit
Over 1 to 1,5	6	Ditto
Over 1,5 to 2	7	Three 6,3 mm diameter mild steel rods for each half brick width of soffit

Brick reinforcement shall be of hard drawn mild steel comprising two 3,15 mm diameter cross wires spaced at not exceeding 300 mm apart, welded to main wires.

The reinforcement wires and rods shall be of length at least equal to the width of the clear opening plus 330 mm at each end. The reinforcement shall be evenly spaced in the brick joints, with the outer wires or rods having at least 20 mm cover from face of brickwork.

Brick lintels in 270 mm thick cavity walls shall be built in two half brick thicknesses in strecher bond, with inner face of outer thicknesses, for a depth of three courses above soffit, covered with sheeting as for damp course the full length of lintels, and

space between the two thicknesses for the depth of the sheeting filled in solid with Class 25/40 concrete. Where cavities continue above lintels, the sheeting shall be taken up and turned on to top of first course of brickwork to inner thickness of wall, above the concrete filling in lintels. The sheeting is not required in lintels protected from the weather.

The lintels, except where built over pressed steel door frames and the like, shall be supported on temporary formwork left in position for at least 14 days.

PB 5.12 Beam Filling

Beam filling, unless otherwise specified, shall be half brick thick, built in similar mortar as used in the walls below, cut in between roof timbers and carried hard up to underside of roof covering, and flushed up in mortar.

PB 5.13 Bagged Finish To Brickwork

Bagged finish to brickwork, if done whilst the mortar in joints is still soft, shall be formed by rubbing over the wall surfaces with wet rough sacking until all joints and crevices are filled up and an even surface is obtained. Mortar, as used for building the brickwork, shall be added as may be necessary.

If bagging to walls is done after the mortar in joints has set the wall surface shall be rubbed over with wet rough sacking as above, but cement grout shall be added as necessary to fill up the joints and crevices and to obtain an even surface.

PB 5.14 Raking Out For And Pointing Flashings

Brick joints shall be raked out where required for fixing cover flashings, and flashings shall be pointed to 3:1 cement mortar.

PB 5.15 Mastic Pointing

Where steel door and window frames are specified to be pointed with mastic compound they shall be pointed all round externally with an approved waterproof compound, of such composition that it will not stain surrounding surfaces, and that it will adhere tenaciously, remain plastic without sagging or running, be capable of accommodating any normal movement of the joint sealed, and will receive paint without "bleeding". The pointing material shall be forced into the joints, which shall have been previously prepared to receive same, by means of a pressure gun, or by other suitable method, all in accordance with the manufacturer's instructions.

The flues shall be properly gathered over fireplace openings, and where flues start from top of flue slabs steep flaunching, of Class 25/40 concrete, shall be provided on slab, worked up round flue, to prevent lodgement of soot and the slab.

PB 5.16 Securing Of Roofs

Roof plates shall be fixed to walls with bands of 1,6 mm thick galvanised hoop iron, 32 mm wide, built 750 mm deep into brickwork or embedded 300 mm deep into concrete, at not exceeding 1,5 m centres, and well lapped and spiked to plates and to roof trusses where adjacent, otherwise taken up to and lapped round the nearest purlin and well spiked thereto.

PB 5.17 Cramps To Wood Frames

Wood frames to doors, windows, etc., shall be set up in position for building in as described and built in as the work proceeds with cramps to jambs of 1,6 mm thick galvanised hoop iron, 32 mm wide, with ends turned 50 mm up against stiles of frames and each twice screwed to frame, and built 450 mm into wall with end turned up into brickwork joint.

Cramps shall be built in approximately 0,3 m up from bottom and approximately 0,3 m down from head of frames and intermediately at not exceeding 0,85 m apart. No frame shall have less than two cramps to each jamb irrespective of height.

Cramps to frames in 270 mm thick cavity walls shall be cranked as necessary and built into inner and outer thicknesses of walls alternately.

PB 5.18 Bedding And Pointing

All door, window and similar frames shall be bedded and pointed in 3:1 cement mortar. All plates shall be bedded in 5:1 cement mortar.

Steel door and window frames be carefully pointed all round and made perfectly watertight.

Where steel door and window frames are specified to be pointed with mastic compound they shall be pointed all round externally with an approved waterproof compound, of such composition that it will not stain surrounding surfaces, and that it will adhere tenaciously, remain plastic without sagging or running, be capable of accommodating any normal movement of the joint sealed, and will receive paint without "bleeding". The pointing material shall be forced into the joints, which shall have been previously prepared to receive same, by means of a pressure gun, or by other suitable method, all in accordance with the manufacturers instructions.

PB 5.19 Protect And Clean Down Brickwork

Angles of face brickwork, reveals, steps, etc., liable to damage shall be covered up and protected during the progress of the remaining work, and any damage done shall be made good to the satisfaction of the Engineer.

Face brickwork and brick and tile sills, copings, etc., shall be cleaned down as the work proceeds and surfaces liable to be soiled by mortar or plaster splashes during the progress of the remaining work, shall be covered with paper pasted on, or by other approved means. On completion of the works the coverings shall be removed and the surfaces again cleaned down to the satisfaction of the Engineer.

Any detergent or other materials used in the cleaning of face brickwork, etc., shall be of such nature that will not harm adjoining paint and other finishings in any way.

All tile and other pavings shall be thoroughly cleaned off after laying to remove all traces of mortar and other substances, covered up and protected from damage during the progress of the works, and again cleaned off at completion.

PB 6 TOLERANCES

	BRICK TYPE	WORK SIZE			WARPAGE	EFFLORESCENCE
		(L)	(W)	(H)		
FBA	Individual Units Average Dimensions	± 7	± 4	± 4	NA	Not more than 50% of the samples to display moderate efflorescence
FBS	Individual Units Average Dimensions	± 7	± 4	± 4	No individual unit to exceed 5m warpage	
FBX	Individual Units Average Dimensions	± 5	± 3	± 3	90% of units to have warpage of 3mm or less. Not unit to exceed 5mm warpage	Not more than 15% of the samples to display moderate efflorescence
NFP	Average Dimensions	± 3	± 2	± 2	NA	Not more than 50% of the sample units to display heavy efflorescence
NFX	Average Dimensions	± 3	± 2	± 2	NA	Not more than 25% of the sample units to display heavy efflorescence

Work size for Clay Bricks is 222 x 106 x 73mm.

Where not specified herein, tolerances and method of testing shall be in accordance with SABS 227-1970.

PB 7 TESTS

Control testing shall be undertaken at the discretion of the Engineer.

PB 8 MEASUREMENT AND PAYMENT

PB 8.1 General

Brickwork shall be measured and paid for per square metre of brick wall area for the various types and thickness of brick walls listed in the Schedule of Quantities or per cubic metre in the case of brick piers, columns and supports for pipework, etc. Brick types may be specified according to average compressive strength, water absorption, exposure conditions, etc.

PB 8.2 Scheduled Items

PB 8.2.1 Brickwork

- a) 115 mm wall Unit : m²
- b) 230 mm wall Unit : m²

The rate shall include for the supply of all materials and labour necessary as well as finishing of fillets and corners.

PB 9 Waterproofing

PB 9.1 Waterproofing of Roofs

Waterproofing of roofs, basements, etc, shall be laid under a ten year written guarantee for site workmanship and watertightness. Waterproofing to roofs shall be laid to even falls to outlets etc. with necessary ridges, hips and valets. Descriptions of sheet or membrane waterproofing shall be deemed to include additional labour to turn-ups and turn-downs

PB 10 Roof Coverings

PB 10.1 Fixing

Fixing shall be done in accordance to SANS 1200HB with minimum end laps

PB 11 Carpentry and Joinery

PB 11.1 Fixing

All nailing of timber roof trusses, purlins etc, shall be done with galvanised nails. In coastal areas, copper, aluminium or stainless steel nails should be used. Items described as "nailed" shall be deemed to be fixed with hardened steel nails or shot pinned to the brickwork or concrete. Where items are described as bolted, the bolts have been measured elsewhere

PB 11.2 Pre Treatment of Timber

All permanent timber to be treated against wood destroying agencies in accordance with SANS Code of Practice 05

PB 11.3 Roof Trusses

PB 11.3.1 The pre-fabricated truss system shall comply with SANS 0243, be designed by a Professional Structural Engineer as specified and the contractor shall complete and submit the letters of reference TR1 and TR2

This service falls within the areas defined in Government Gazette No. 2577 of 1978-12-29 containing regulations for Treatment of Timber against insect pest affecting softwood fixed permanently in the building and tenderers are to make allowance for in their rates

All timber roof trusses including nail plated trusses and bolted trusses with lapped members must comply with SABS 0243: THE DESIGN, MANUFACTURE AND ERECTION OF TIMBER TRUSSES TO THE APPROVAL OF THE PRINCIPAL AGENT

Prices for roof trusses are to include for all temporary bracing and supports and for all necessary top and bottom chord bracing, wind bracing and runners where required

PB 12 CEILINGS, PARTITIONS AND ACCESS FLOORING

PB12.1 Brandering

Brandering shall be nailed and in addition be tied with a wire tie at every third junction to the support structure. 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.

PB 13 IRONMONGERY

PB13.1 Finishes to ironmongery:

Where applicable finishes to ironmongery are indicated by suffixes in accordance with the following list: BS Satin bronze lacquered : CP Chromium plated ; CH Chromium plated ; SC Satin chromium plated : SE Silver enameled : GE Grey enameled : AS Anodised silver : AB Anodised bronze : AG Anodised gold : ABL Anodised black : PB Polished brass : PL polished and lacquered : PT Epoxy coated : SD Sanded.

PB13.1 Fixing:

Description of wall mounted, and floor standing ironmongery items shall be deemed to include for fixing in position and all fixing accessories.

Description of proprietary items shall be deemed to include for fixing in position and

PB 14 METALWORK

PB14.1 Descriptions

Descriptions of bolts shall be deemed to include nuts and washers. Descriptions of expansion anchors and bolts and chemical anchors and bolts shall be deemed to include nuts, washers and mortices in brickwork or concrete. Metalwork described as "holed for bolt(s)" shall be deemed to exclude the bolts unless otherwise described

PB14.1 Hot dipped galvanising

The mass of hot dipped galvanised steelwork has been calculated on the mass before galvanising for which allowance must be made in the pricing. Where possible all welds to galvanised steelwork shall be complete before galvanising.

PB 15 ALUMINIUM PREGLAZED WINDOWS & DOORS

The following Preambles shall apply to aluminum windows, doors, etc. in all respects in so far as they are applicable.

Aluminum windows and doors shall be manufactured from extruded L28 aluminum members of 6063-T6, 6261-T6 or 6082-T6 alloy and temper. All corners are to be mechanically cleated.

Windows, doors, etc. shall be of an approved standard system, manufactured by an approved firm experienced in this type of work and registered with the Association of Architectural Aluminum Manufacturers of South Africa (AAAMSA),

and shall meet with or exceed the minimum recommended performance requirements as set out by the AAAMSA in the latest edition of the Selection Guide. Doors shall comply with the AAAMSA PTHA1 performance standard

An (AAAMSA) performance certificate from the manufacturer of the windows and doors shall be provided prior to commencement of any work on site.

The fittings for all opening sashes shall be substantial and, unless otherwise described, shall be of high-quality aluminum alloy finished to match the windows, doors, etc. on which they occur. Samples of all fittings shall be supplied to the Principal Agent for approval.

Top hung opening sashes shall be hung on two concealed heavy duty FS12-1543 grade 304 stainless steel friction stays and fitted with epoxy powder coated window fasteners.

All opening sashes are to be fitted with approved wool pile weather seals.

PB 15.1 Glazing Beads

Where so described, openings and sashes of windows and doors shall be fitted with approved clip-on aluminum glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc. and neatly mitred. Screws where necessary shall be of aluminum or 300 Series stainless steel and have pan or raised heads finished to match the beads.

PB 15.2 Finishes

Windows, doors, etc., described as 'Anodised' shall be treated with Grade 25 coating thickness. Windows, doors, etc., described as 'powder coated' shall have an electrostatically applied oven baked polyester paint coating not less than 60 micrometers thick in accordance with SANS 999/ 1998 and SANS 1796/ 2001.

The contractor shall provide a certificate of conformance with these standards. The approved powder finish applicator shall provide a powder guarantee of not less than 15 years issued by the powder manufacturer

PB 15.3 Glazing

Glazing is to be carried out in strict accordance with the SANS 0137/2000 code of Practice: "The Installation of Glazing in Buildings" and where required, safety glazing materials must conform to SANS 1263. The contractor shall provide a certificate of conformance with these standards. Laminated safety glazing shall be warranted, by the manufacturer, against delamination and colour degradation for not less than 5 years. The contractor shall provide a certificate to this effect. Gasket seals for glazing are to be approved Santoprene seals as recommended by the manufacturer and to suit the glazing thickness.

PB 15.4 General

Aluminum windows, doors, etc. shall include glass as described, fixing in position, sealing around edges externally with approved silicone sealant and protection against damage, deterioration or dis-colouration by taping with removable PVC tape or covering with temporary casings and removing same on completion. The protection is to be removed only when authorised by the Architect.

The contractor is to measure on site prior to manufacture and to allow for deflection, shrinkage, and expansion of the surrounding elements

The contractor shall submit drawings showing details of all sections, etc. he proposes to use, and these drawings are to be approved by the Principal Agent before manufacture is commenced.

The contractor is to allow in his pricing for testing all windows, doors, and ironmongery on completion and for rectifying all faults, as necessary.

Refer to door and window schedule for clarity of specifications. All fixing accessories as specified by the manufacturer

PB 16 TILING

PB 16.1 Fixing

Unless described as 'fixed with adhesive to plaster (plaster elsewhere)' descriptions of tiling on brick or concrete walls, columns, etc. shall be deemed to include 1:4 cement plaster backing and descriptions of tiling on concrete floors etc. shall be deemed to include 1:3 plaster bedding

Ceramic, porcelain, marble, and granite tiles are to be fixed and grouted with suitable adhesives and grouts from the Tal Professional range of products as recommended by the manufacturer of the tiles

PB 17 PAINTWORK

PB 17.1 General

All paintwork in this contract shall, unless otherwise described, be executed using the 'Plascon' range of products

Proprietary items or materials:

Proprietary items or materials where specified are to be of the brand specified - or other approved - by the Principal Agent prior to tender closing.

SANS Specifications

Alkali-resistant plaster primer : SANS 1416

Matt or eggshell decorative paint for interior works : SANS 515

High gloss enamel paint : SANS 630 Grade I Oil gloss enamel paint : SANS 631

Primers for wood for external work : SANS 678 Type I Primers for wood for internal work : SANS 678 Type III Zinc chromate primers for steel : SANS 679 Type I

Undercoats for paints (except emulsion paint) : SANS 681 Type I

Aluminum paint : SANS 682 Grade II

Roof paints : SANS 683 Type B (Oil based) Roof paints : SANS 940 (Emulsion based) Structural steel paint : SANS 684 Type B Wash primer (metal etch) : SANS

723 Varnish for interior use : SANS 887 Type I

Emulsion paints : SANS 1227 (Textured: Internal/External)

Emulsion paints : SANS 1586 (Gloss, Semi-Gloss, Matt: Internal/External)

Calcium plumbate primer : SANS 912 Road marking paint : SANS 5731 Part I

PEL ELECTRICAL SPECIFICATION

GENERAL ELECTRICAL SPECIFICATION

2.1 CONDUIT AND CONDUIT ACCESSORIES

2.1.1 Conduit

Conduit shall be of steel galvanized internally and externally, either solid drawn, or welded and not less than 20mm diameter, with all rough edges removed. All tube ends removed. All tube ends are to be reamed. With screwed conduit one threaded end is to be fitted with a coupling and the other end is to be protected against damage.

UPVC conduit may only be used if permitted by the Head: Works and only in those areas which he may specify. In this case this conduit shall be according to SANS 950.

Conduit accessories, which are secured to the conduit by means of lugs, screws or setscrews, are not acceptable.

General requirements of conduiting to SANS IEC 60614 (1).

Metal conduits shall be fully in accordance with SANS 1065 PART I.

2.1.2 Conduit Accessories

All conduit accessories shall be galvanized both internally and externally and comply with SANS 1065 – PART II.

All screwed conduit fittings shall be of malleable cast iron.

Where fittings are fitted with covers, the covers shall be of galvanized pressed steel secured with brass screws.

2.1.3 Flexible Conduit

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

2.1.4 General

Except where cables are specified for certain circuits, the installation(s) shall be tubed throughout in steel conduit. Split conduit is not permitted. All conduits shall, wherever possible, or unless otherwise specified or agreed, be concealed in the structural work.

Except where agreed or otherwise specified or indicated on the drawings, all conduit to points shall run via the ceiling and floor slabs or roof space. In damp situations and where exposed to the weather, the conduits shall be so installed as to avoid, as far as possible, the condensation of moisture within them. All running joints are to be painted with an approved metal primer.

Mechanical and Electrical continuity must be maintained throughout the installation. Each length of conduit and every conduit fitting must be inspected for defects and all sharp edges or burrs must be removed before it is installed. All joints are to be tightly fitted together.

Running joints with long threads, where used, are to be fitted with a lock nut and the running thread shall not be longer in length than a coupling and lock unit.

In conduits smaller than 32mm elbows and normal bends are not to be used but conduits are to be set to the required angles.

Flexible connections between conduit and appliance or other equipment shall be by means of flexible tubing (see Par 2.1.3).

No wiring shall be drawn into conduits until the conduits have been installed.

Where more than one socket outlet is connected on a circuit, the conduit shall be looped from the one outlet box to the following outlet box.

All switch-boxes, socket outlet boxes and any other purpose made metal box including distribution board trays shall be suitable treated against corrosion before installation with "Rustodian" or other approved metal primer.

All conduits shall be securely fixed into chases, and all flush switch and socket outlet boxes must be firmly embedded in cement mortar.

The Contractor shall make himself familiar with the positions of all fittings, such as blackboards, pinning boards, cupboards, shelving, work-tops, etc, before commencing the conduit installation. The position of switches and socket outlets as indicated on the drawings are approximate only. The Contractor must verify that the final position of these will not be covered by the installation of the fittings referred to above, or come midway between the junction of any dados and upper wall finishes.

No extras will be entertained for moving switches or socket outlets as a result of the Contractor's failure to verify the final positions of the fittings or type of wall finish. In Roof Spaces

The conduit in roof spaces shall be installed parallel or at right angles to the roof truss members and shall be secured at centers not exceeding 1,2m by means of galvanized saddles nailed to the timbers with galvanized clout nails. Crampets will not be allowed.

Crossing of conduits is to be avoided wherever possible. Where unavoidable, one conduit must be neatly set over the other. Where a number of conduits have to run back to the distribution board or switchboard, they shall run parallel to the distribution board or switchboard, and at saddle distance to each other wherever possible.

Conduit runs from distribution boards shall terminate in fabricated sheet steel draw boxes installed in the roof above the distribution boards. Each draw box shall be fabricated from 1,60mm galvanized sheet steel with welded corners and suitably treated against corrosion with "Rustodian" or other approved primer and finished in aluminium paint.

Each draw box is to be fitted with slip-on lid with a 13mm skirt. The box shall be 75mm deep, shall be rectangular in shape and the size of conduits entering or leaving the box. Conduits shall be fixed to the box by means of couplings and brass male bushes or lock nuts and brass bush-nuts.

Conduit droppers shall be neatly cut into timber wall plates and set to face the right direction. All sets must be uniform. Conduits may be set at angles only where droppers or ceiling points are within 230mm of roof members.

No conduits are to be run over the top of gangplanks or trapdoors.

Draw-in boxes with metal covers shall be provided where required and shall be installed near the gangplanks, if any. All inspection conduit fittings in open roof spaces shall face upwards to facilitate wiring and to permit easy inspection. Three-way conduit boxes shall be used for tee-off purposed in open roof spaces. Inspection tees are not to be used except where otherwise agreed or specified.

All conduits extended into a roof space with a roof clearance of more than 900mm shall be set onto the beam and extended into the roof for a distance where there is sufficient clearance. Under flat roofs or where there is less than 900mm clearance, the conduit shall be installed as specified for tubing in concrete slabs, right angle bends should be kept to a minimum and the shortest route taken.

Where false ceilings occur they shall be tubed as called for in the detailed specification. Conduits in restricted spaces and run as for concrete slabs must however, be installed in a neat and orderly manner.

Conduits to ceilings points for all types of fittings must be firmly supported and shall terminate in a back entry conduit box. The conduit box shall be taken through to the face of the ceiling and finish flush. Where the ceiling brandering interferes with the installation of the ceiling point specified, the Contractor must trim the brandering to allow the conduit box to be taken through to the face of the ceiling as specified. Luminaries must be bonded to the conduit box by means of metal threaded screws.

2.1.5 In Concrete Slabs

In order not to delay building operations, the Contractor must ensure that all conduits and conduit fittings, which are to be cast in concrete, are laid in good time. The Contractor shall have a competent Electrical Artisan standing by during casting of concrete, etc, to ensure that the conduit boxes are not damaged during casting of concrete.

Draw boxes, expansion joints boxes and round conduit boxes are to be provided where necessary.

Deep type conduit boxes shall be used for side entering conduits and normal shallow boxes may be used for back entry conduits. No elbows, bends or sharp sets will be allowed in concrete slabs except in cases of conduits of 40mm diameter or when larger sweeping bends will be permitted.

Common drawn and/or inspection boxes shall be used where there is more than one circuit involved. They shall be installed in lavatories, storerooms, or other inconspicuous places. Covers shall be of hardboard neatly finished to match the finished ceiling or wall surface, and shall be fitted parallel to the wall or ceiling.

All boxes, etc. are to be securely fixed to the shuttering to prevent displacement when concrete is cast. All conduits must be laid off the deck, supported and secured at regular intervals and installed as close as possible to the neutral axis of concrete beams and slabs.

Expansion joints shall be shown on layout

included in this General Specification Clause and shall consist of a metal box in which one conduit is fixed and the other capable of movement with the building's expansion and contraction. Earth continuity of these joints shall be maintained by means of stranded copper conductors bonded to the conduits in the box as shown on the drawing.

Earth conductors and clamps buried in concrete are not permitted.

Conduits must be spaced sufficiently apart to allow for proper concreting. All joints shall be painted with an approved metal primer after completion of the tubing installation, prior to the concreting. All exposed parts of the conduit installation shall be suitably, protected against corrosion at the discretion of the Head: Works.

Before any concrete slab is cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

2.1.6 Surface Work

All conduit must be plumbed and leveled and only straight lengths shall be used.

In cases where doorframes are out of plumb, or fittings, beams etc, are out of level, the conduit shall be run parallel with the doorframes, fittings, beams etc.

No threads shall be visible when the conduit installation is complete, except on running couplings.

Running couplings shall only be used where unavoidable and shall be fitted with a sliced coupling as a lock nut.

No inspection or normal bends are to be used on surface work, except with the approval of the Works Inspector and where conduits of 32mm diameter or larger are used. Conduits shall be set uniformly and inspection couplings shall be used where necessary.

Fittings, tees, boxes, couplings, etc, are to be cut into the surface to allow the conduit to fit flush against the surface or alternatively spacer bar saddles may be used. Conduit is to be bedded into any irregularities to avoid gaps between the surface and the conduit.

Double sets, where used, shall be parallel with no twists and shall be as short as possible. All conduits, which terminate at metal trays, boxes, industrial switches and plugs shall do so by means of couplings and male bushes. No couplings will be permitted in droppers of lengths less than 3.6m.

Where crossings of conduits is unavoidable, purpose made metal boxes shall be used. The length of the box is to be 8 times the diameter of the largest conduit, the width one and half times the sum of the diameter of all the conduits, and the depth one and half times the diameter of the largest conduit with a minimum depth of 50mm. The box shall be fitted with a neatly fitting cover and the finish shall be in keeping with the general layout.

Where a number of conduits are to be installed in parallel they shall be evenly spaced and grouped under one purpose made saddle. Conduit spacing shall not exceed 10mm. The purpose made saddle shall be made of 25mm x 2mm galvanized steel strip or other approved material, formed to suit the curvature of the various conduits and shall be drilled and fixed by means of screws between. Saddles shall be spaced at intervals not exceeding 1.8m, except for conduit droppers, which shall be saddled centrally between ceiling and accessory box. All saddles are to be secured to the wall by means of black japan or brass rounded head screws. Distribution boards, draw boxes, industrial switches and plugs, etc, shall be neatly recessed into the surface of plastered walls to avoid double sets or alternatively spacer bar saddles may be used. On face brick walls the conduit shall be tightly set into the switch or plug.

In situations where there are not ceilings, the conduits are to be run along the wall plates and tie beams.

No wiring is to be carried out until the tubing has been inspected and approved.

Where spacer bar saddles are used, these shall be installed at centers of 1m for horizontal and 1.5m for vertical runs.

All conduits shall be painted with an approved enamel paint to match the background colour.

Future Extensions

In roof spaces with a minimum clearance of 900mm, switch and plug drips for future use are to be set 300mm in the correct direction and shall be threaded and fitted with plugged couplings. Where the roof over a slab is to be removed for future expansions, conduits for future use are to terminate 40mm above tie beams and shall be threaded and fitted with plugged couplings.

Where future extensions are to be below slabs, all switch, socket outlet and other conduit droppers are to terminate 130mm below slabs or beams with conduit ends threaded and fitted with plugged couplings.

Where provision is made for future extensions to a concrete slab, all conduits required for future use are to project 130mm from the slab. Conduit projections are to be painted with an approved anti-corrosive paint and must be fitted with plugged couplings.

All switch, plug and other outlet boxes required for future use shall be fitted with approved blank cover plates.

Unused lighting outlet boxes are to be fitted with round hardboard or plastic covers with brass cover screws, which shall fit flat on the finished ceiling.

2.1.7 Fixing of Conduits

Conduits shall be fixed to switch and socket outlet boxes by means of couplings and brass male bushes or lock nuts and brass bush nuts. Couplings and male bushes to be used on all surface work.

2.1.8 Chases and Building Work

Except where otherwise specified conduits, switch boxes, plug boxes and distribution boards are to be built into the brick walls by the Contractor. It will, however, remain the responsibility of the Contractor to ensure that the above-mentioned boxes and distribution boards are correctly built in and are firmly bedded and cemented into the walls, plumb and square.

The Contractor shall, unless otherwise specified, do all necessary chasing and cutting of bricks. All electrical materials (e.g. conduits up to 40mm for UG cables, conduits, conduit boxes, distribution boards etc) must be supplied by the Contractor who must arrange to have these on site, and positioned when required for the building work. A competent Electrical Artisan must be in attendance and ensure that the conduits etc are correctly installed and positioned.

The Contractor is to ensure that tubing installed in chases is securely nailed and covered by a layer of 5:1 mixture of coarse sand and cement, finished flush with brickwork and that switch and plug boxes finish flush with the finished wall surface

The Contractor is to ensure that below distribution boards connected by means of under- ground cables, a 230mm wide by 115mm deep cavity in the wall from the cable pipe to the distribution board is to be provided by the Contractor, or alternatively, cable sleeves as specified.

2.2 PLUGGING OF WALLS

Only approved plastic plugs shall be used to secure conduit or equipment up to 5kg mass. The use of round-headed screws only will be permitted.

Heavier equipment shall be secured by means of approved expansion bolts.

Wood plugs and any plugs in the joints in brick walls are not permitted.

2.3 FIXING TO CONCRETE CEILINGS

Ceilings mounted equipment other than luminaries shall be secured to concrete ceilings by means of expansion bolts, shot bolts or "Robot" tools bolts or as expressly specified for the service.

2.4 WIRING

2.4.1 PVC Insulated Single Core Low Voltage Conductor

The conductor is to be of high conductivity copper wire insulated with Poly Vinyl Chloride. The cable shall be finished in the required colours and shall be in accordance with SANS 1507 and 1574.

Circuit wiring shall be of the Loop-in system and no wiring joints in the conduit or conduit fittings will be permitted. Not more than two conductors of a kind will be allowed at any outlet point. the end strands of cables, whether single or looped which have to be connected to terminals of switched, plugs, lamp-holders, fittings and distribution boards, etc, are to be tightly twisted together. Cutting away of wire strands of any cable will not be allowed. Only one circuit in any one conduit will be permitted unless otherwise specified.

Conductor sizes shall be as follows except where otherwise specified:

Lighting circuits	1,5mm ²	
Bells circuits	1,5mm ²	
Clock circuits	1,5mm ²	
Incinerator circuits	2,5mm ²	
Ironing circuits	2,5mm ²	with 2,5mm ² insulated earth wire
Plug circuits	4,0mm ²	with 2,5mm ² insulated earth wire
Geyser circuits	4mm ²	with 2,5mm ² insulated earth wire
Heater circuits	4mm ²	with 2,5mm ² insulated earth wire
Stove	10mm ²	with 6mm ² insulated earth wire
Motor circuits		
Up to 4kW single phase	4mm ²	with 2,5mm ² insulated earth wire
Up to 11kW three phase	4mm ²	with 2,5mm ² insulated earth wire

To avoid deformation of PVC insulated cables at temperatures in excess of 57 degrees C, they shall not be brought directly on to the terminals of appliances such as electric heaters, or any other electrical appliances or apparatus (including luminaries) which have a temperature in excess of 57 degrees C. They shall terminate in a suitable terminal box as near to the appliance or fittings as possible and connect up from thereon, with heat resistant conductor.

2.5 MOUNTING AND POSITIONING OF LUMINARIES

Luminaries and installation to comply with SANS 1464 Parts 1 to 22 and IEC 598-1 and IEC 60598 as applicable.

The contractor shall, in the case of board and acoustic tile ceilings (i.e. as opposed to concrete slabs), ensure that the luminaries are symmetrically positioned with regard to the ceiling pattern.

The layout of the luminaries as indicated on the drawings shall be adhered to as far as possible. The exact positions must be confirmed on site with the Employer.

Except where otherwise specified, pendant luminaries are to be mounted with the bottom of the fittings 2,5m above finished floor level, mounted on either metal discs or wood blocks.

Under no circumstances shall cover strips be cut to accommodate wood blocks. Wood blocks must be neatly slotted to fit over cover strips and are to be secured by a minimum of two screws, which shall penetrate at least 25mm into solid wood. Ceiling cover strips shall be neatly cut to accommodate fluorescent luminaries.

Where ceilings are raked, all incandescent luminaries are to be mounted on shaped levelling wood blocks securely fixed to the ceiling. Batten holders shall be secured to wood blocks by suitable brass screws. Fluorescent luminaries are to be mounted direct on raked ceiling without levelling blocks.

Fluorescent luminaries to be mounted on concrete ceilings shall be screwed to the outlet boxes and additionally supported by means of 50mm x 6mm expansion bolts. The bolts are to be $\frac{3}{4}$ of the length of luminaries apart.

Where a number of luminaries are installed end to end, outlet points must be provided after every second luminaire unless otherwise indicated on the drawing. The luminaries are to be joined together by means of 20mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaries. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

The luminaries are to be jointed together by means of 20mm conduit nipples, lock nuts and male brass bushes, and the wiring led through the channels of the luminaries. The Contractor shall ensure that all such rows are correctly lined up and that the rows are parallel with the relevant building line.

Incandescent luminaries are to be screwed directly to outlet boxes in concrete slabs and in board ceilings. In board ceilings the conduit box and the conduit shall be secured to the timberwork of the ceiling in such a manner that it shall support any incandescent luminaire, which is designed to be fixed to a normal conduit box

Fluorescent luminaries shall be secured to board ceilings by means of the conduit box and 6mm bolts passing through the boards and bracing.

2.6 BATTEN HOLDERS

B.C. batten holders shall be of brass or moulded plastic reinforced type complete with shade ring. The batten holders shall comply with SANS IEC 60238 and SANS IEC 61184. All lamp holders are to have brass terminals with screw type connection.

2.7 LAMP HOLDERS

Edison screw lampholders	:	SANS IEC 60238
Bayonet lampholders	:	SANS IEC 61184
Lampholders for tubular fluorescent lamps	:	SANS IEC60400

B.C. screwed lampholders shall be of brass 20mm E.T. complete with shade ring and shall comply with SANS IEC 60238 and SANS IEC 61184 with screw type connection terminals.

2.8 SWITCHES AND SOCKET OUTLETS

Switches SANS IEC 60669 as applicable and socket outlets SANS IEC 60884 as applicable shall be of the most modern manufacture and bear the SANS mark.

Flush switch and plug cover plates shall, unless otherwise specified, be of anodized aluminium of thickness not less than 0,9mm, satin or other approved finish as directed and otherwise to be fully in accordance with SANS IEC 1084 for cover plates and SANS 1085 for wall boxes.

2.9 POSITIONS OF SWITCHES AND SOCKET OUTLETS

Except where otherwise specified, lighting switches and socket outlets are to be installed 1,4m above finished floor level.

All mounting heights specified are to be measured from finished floor level to the bottom of the outlet box.

Where the lower portion of the wall consists of face brickwork and the upper portion of plastered finish, switches and socket outlets are to be mounted in the plastered surface, provided that the lower edge of the plasterwork does not exceed a height of 1,5m above finished floor level in which case the switches or socket outlets are to be installed in the face brick dado.

Where socket outlet and switch boxes have been installed with fixing lugs below finished wall surface, only approved distance pieces required to compensate for the recess shall be used. The lengths of distance pieces are not to exceed 15mm.

Unless otherwise approved, light switches adjacent to doors are to be installed at the lock side of the door. Where the lock position is not indicated on the drawings, its position shall be ascertained before the switch box is installed. Switches are to be installed 150mm from the reveal, or centrally if there is a fitting near the door.

All switch and socket outlet boxes shall be installed plumb, and built into the wall with a 1:1 mixture of cement and sand.

Industrial type switches and socket outlets shall be neatly recessed into the surface of plastered walls to avoid sets or alternatively spacer bar saddles may be used.

Deep type boxes may be used where switches or socket outlets are back to back, but where one side only is to be utilized at the time and the other is for future use, the side for future use shall be suitably covered with a metal cover plate

2.10 LOW TENSION SWITCHBOARDS

Low Voltage switchgear and control gear to comply with SANS 1473 and SANS IEC 60947 and SANS 60349.

Where switchboards are to be installed in switch rooms or switch cupboards, the Contractor must ensure that the boards are manufactured to suit the dimensions of the rooms or cupboards.

Low tension switchboards shall be specified in detail for each service, but shall generally conform to the following:

They are to be of strong and rigid construction, with suitable angle, channel or folded steel framework. They are to be flush fronted and totally enclosed with sheet steel panels suitably formed at the edges and reinforced to prevent distortion. Unless otherwise directed, all front panels must be at least 2mm thick and all other panels at least 1.6mm thick. Panels are to be secured to the framework with studs and chromium plated dome nuts (self-tapping and similar screws are not permitted).

Switches, etc, are to be mounted on metal frames within the boards to give flush front panels. Equipment of normally surface mounted types such as energy meters, time switches and contractors, are to be mounted on inner metal trays behind hinged front panels. In the case of supply authority meters the hinged front panels must have transparent inserts.

All metal work of the boards must be thoroughly degreased, primed with PA 10 self etching primer and finished with one coat of undercoat and two coats of electrical orange high gloss enamel, unless otherwise specified.

All accessible current carrying parts, bus-bars, connecting strips, collector bars, etc, are to be adequately insulated in phase colours and suitably braced to withstand projected fault currents.

Connecting strips and collector bars must be of sufficient cross sectional area to carry full rated current of the switches served, irrespective of the fuse or trip rating.

The complete distribution board including bus-bars must be suitably constructed to withstand fault currents specified.

Connections to bus-bars are to be made by means of lugs suitably bolted and locked with high tensile bolts and connections to lugs must be effected by means of a crimping tools.

Incoming and outgoing bus-bar studs, where required, must be suitably insulated where they pass through panels of the board, and firmly supported within the board.

Where applicable, incoming and outgoing collector bars for cables in parallel must so arrange that the multiple cable ends can be connected to the bars with reasonably short tails which do not have to cross.

Cable supports must be placed at suitable heights having regard to the bending radius of the cables concerned and convenience in making off.

Walls-mounting and floor-standing back to wall type boards must be provided with full easy access to all equipment and wiring without any necessity of disconnecting or removing of any of the equipment mounted in the board.

Clear visible indication of all switch positions must be provided and the switches must be clearly labeled as directed by the Employer.

The details of construction proposed, and the Head : Works must approve all equipment of switchboards: Works before manufacture is commenced.

2.11 DISTRIBUTION BOARDS

2.11.1 Approval

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

2.11.2 Flush Mounting Distribution Boards

These shall be generally manufactured in accordance with SANS 1765. The board shall consist of two panels fitted side by side with common bonding tray and attached to a common architrave. One panel shall accommodate all single phase MCB's and the second panel shall accommodate the main isolator, main bus-bars and the triple pole MCB's. Chassis shall be of rigid channel section rust proofed steel with clip-on trays for the single pole MCB's. The main isolator is to be mounted at the bottom of the second panel with the triple pole circuit breakers above.

2.11.3 Surface Mounting Distribution Boards

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

2.11.4 Single Phase Distribution Boards

Single Phase boards shall be generally constructed as three phase boards except they shall have a single panel. Single phase boards shall be mounted with the bottom of the architrave 1,5m above finished floor level unless specifically directed otherwise.

2.11.5 Distribution Board – In Roof Spaces

Where distribution boards are installed below a roof space, a minimum of 2 x 20mm and 1 x 25mm spare conduits are to be run from the distribution board into the roof space.

2.12 METER BOXES

The meter box shall be mounted with the top 1,7m above finished ground level. Surface mounted meter boxes shall be secured by at least 4 x 10mm expansion bolts.

Service cables entering the meter box shall be protected by means of a suitably sized galvanized pipe extended 450mm below the ground surface and securely saddled to the wall and bonded to the meter box.

2.13 CONNECTIONS TO OUTLETS

2.13.1 General

Where connectors are used to connect to the wiring of luminaries and other appliances, the connectors shall comply with SANS 1239.

2.13.2 Connection to Stoves

2.1.1.1 General

The connection to an electric stove, unless otherwise specified shall consist of 2 x 10mm² conductors and a 6mm² insulated earth wire in 25mm conduit. The stove shall be controlled by a 60 Amp micro gap switch of approved make and the connection shall be by means of a 45 Amp 3 pin stove plug of the "Cape Town" type. Cable ends, which are to be connected to the stove, shall be equipped with suitable soldered or crimped lugs. The connection between the stove plug and stove shall be by means of flexible conduit.

Except for high school domestic science unit kitchens (see Clause 2.14.2.2), the conduit shall be chased into the wall and fitted with a switchbox for housing the micro gap switch and a 25mm circular conduit box over which the stove plug will be mounted. The stove plug shall be fitted with an adaptor plate and shall be screwed directly to the conduit box by means of round head metal screws. The plug outlet shall face downward.

The stove plug and switch shall be mounted 430mm and 1,4m respectively above finished floor level unless otherwise specified or indicated on the drawings.

2.1.1.2 Stove Connections in High School Domestic Science Unit Kitchens

Connections to stoves in High School Domestic Science Unit Kitchens, where the stoves are situated in front of a fitting, shall be generally as specified in Clause 2.14.2.1 except that the 25mm diameter conduit shall be run in the floor slab, from the distribution board to a position to the right of the stove. A pedestal, which is complete with a 45 Amp 3 pin "Cape Town" type cooker plug, mounted on the back, shall be fitted over the conduit and securely bolted to the floor by means of expansion bolts. The plug circuit, which passes through the pedestal, is to be on a separate circuit.

2.13.3 Connections to Hot-water Cylinders

The connections to hot-water cylinders not exceeding 3kW loading shall consist of 2 x 4mm² PVC conductors and 1 x 2,5mm² earth wire in a 20mm diameter conduit from the distribution board. The conduits shall be chased in the wall and shall terminate at the side of the cylinder in a box over which is to be mounted a double pole isolator with pilot light.

The final connection between the isolator and cylinder shall be by means of silicon heat resistant conductors in 20mm diameter flexible conduit.

Connections to roof mounted hot-water cylinders shall generally be as specified above with an isolator with pilot light mounted adjacent.

2.13.4 Connections to Power Points

Connections to electric motors and fixed apparatus to vibration shall, unless otherwise specified or indicated on the drawings, have final connections consisting of conduit and flexible tubing or reinforced hose in accordance with Clause 2.1.3 of this specification and PVC cables and earth wire of the required size.

An isolator shall protect all fixed apparatus and where necessary a starter fitted with a no-volt coil and overload protection adjacent to such apparatus.

Power points for connection of fixed apparatus to be installed by others, shall terminate in an approved type wall mounted switch unless otherwise specified.

The minimum conductor size for all power points shall be 4mm² unless otherwise specified.

2.13.5 Underground Service Connection

This clause refers to underground service connections not provided by the Supply Authority.

The service cable and earth wire to be connected at the supply point in accordance with Clause 2.15.8 of this specification, and unless otherwise specified, shall be laid 600mm below ground level throughout and otherwise fully in accordance with Clause 2.15 and all applicable sub-clauses thereof. Cable entries to meter boxes shall be in accordance with Clause 2.13 and other entries shall be by pipe or duct as directed.

2.13.6 Connections to Outbuildings

Connections to outbuildings shall be made by means of underground cable only, laid in accordance with Clause 2.15 and all applicable sub-clauses.

Where the cable is run from the roof space of the main building, it shall be enclosed in suitably sized galvanized pipe built into the wall or run surface as directed. Surface run pipes shall be securely saddled at 1.8m centers. Where the cable connects to the conduit in the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space, a suitable joint box shall be provided or alternatively the cable may be taken through the roof space with fixings at regular intervals, and down to the main board. At the outbuildings, the cable shall be enclosed in a suitably sized galvanized sleeve pipe built into the wall or run surface and terminated in the distribution board tray.

2.13.7 Connection and Mounting of Cable Fed Street/Site Lighting

Street/site lights shall in all cases, except where otherwise specified, be fed by underground cable. Unless otherwise directed, a suitable terminal board shall be provided in the base of the lighting pole for the connection of the incoming and outgoing cables, the feeds from the terminal board to the fitting shall be as specified.

“Surfix” cable and compression glands shall be installed between terminal board and cross arm/bracket mounted luminaries. The terminal board shall also accommodate a miniature circuit-breaker in the phase connection to the fitting. Poles intended for mounting directly in ground are to be provided with a 300 x 300mm base plate.

2.14 UNDERGROUND CABLES

1000 volt PVC SWA and 110 Volt PILCA cable and accessories shall be in accordance with the relevant SANS specifications to SANS 1507.

The storage, transportation, handling and laying of underground cables shall be according to the manufacturers requirements and the Contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operation. All cable pipes and ducts entering buildings are to be sealed against the ingress of vermin, water, etc.

2.14.1 Training

Cables, unless otherwise specifically directed, shall be laid at a depth of 60mm below ground level. Trenches shall not be less than 300mm wide for one to three cables, and the width shall be increased where more than three cables are to be laid together so that the cables may be placed at least 75mm throughout the run.

The Contractor shall take all necessary precautions to prevent trenching work being in any way a hazard to the public and to safeguard all structures, roads, sewer works, or other property from risk of subsidence and damage.

2.14.2 Cable Joints

Joints in underground cable runs will not be permitted unless unavoidable and at the discretion of the Employer. Where cable joints are unavoidable, the cable jointer is to work efficiently and cleanly and so that each end of the cables to be joined may have a minimum of 0,9m of slack disposed in a loop without stress. Back-filling under joints must be firmly tamped to prevent any subsequent settling.

2.14.3 Bedding

In trenches made in intermediate, hard rock, or boulder material, the cables shall be laid on a 75mm thick bed of earth and be covered with a 150mm layer of earth before the trench is filled in. The Contractor to supply all earth required for trench filling.

2.14.4 Laying

Cable shall be removed from the cable drum in such a way that no twisting, tension or mechanical damage is caused, and must be adequately supported at short intervals during the whole operation. Particular care must be exercised where it is necessary to draw cables through pipes and ducts, to avoid abrasion, elongation or distortion of any kind. The ends of such pipes and ducts shall be sealed to approval after the drawing in of the cables.

2.14.5 Back Filling

Back filling after bedding (see Clause 2.15.3) is to be carried out with a proper grading of the material to ensure settling without voids, and the material is to be tamped down after the addition of every 150mm. The surface is to be made good as required.

Back filling of cable trenches must not be commenced until after the cable trenches and laid cable(s) have been inspected by the Employer. Where a Contractor fails to observe this requirement he may, at the discretion of the Employer, be required to re-open such cable trenches for inspection at his own expense.

2.14.6 Protection of Cables

Where so directed by the Employer, concrete or other warning covers shall be placed over cables above the top bedding layer. Cable pipes when directed are to be installed at road and other crossings.

2.14.7 Marking of Cables

Cable marking tape is to be supplied by the Contractor and is to be laid 150mm below ground over a cable run and as may be directed by the Employer to give early indication of underground cable runs.

2.14.8 Joints and Termination of Cables

Joints in underground cables and terminations shall be made by means of "Scotch"Cast" or other approved epoxy-resin pressure type jointing kits. Low tension PVC cables are to be made off with sealing glands and materials designed for this purpose, which must be of approved make.

2.14.9 Sealing of Paper Insulated Cable Ends

Where cables are cut and not immediately made off, the ends must be sealed without delay. If cables are cut and the ends not immediately made off or sealed, the cable may be rejected and the Contractor will be required to replace it at his own expense.

2.14.10 Earth Wires

Except where specifically directed otherwise, earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such earth continuity conductors shall be bare copper wire of a cross sectional area in accordance with the Code of Practice 0142 but shall not be less than 4mm² nor more than 70mm². The earth continuity conductor is to be bonded to the cable armouring, and to the lead sheath if any, at each termination, as well as to the local earth bard. The earth wire must be secured to the cable at 1,8m centers.

2.14.11 Opening Up of Existing Cables

Where it is necessary to expose existing buried cables for any purpose, or to excavate in the vicinity of existing buried cables, pipes, etc, every care is to be exercised and only labourers experienced in such work, and duly warned by the Contractor, shall be employed thereon.

2.15 EARTHING

2.15.1 Main Earthing

The type of main earthing shall be as required by the Supply Authority, if other than the Administration and in any case as directed by the Head : Works who may require additional earthing to meet test standards.

Where required, an earth mat is to be provided, the minimum size, unless otherwise specified, being constructed from copper straps (950 x 25 x 3)mm at 230mm centers and braced at all intersections. Alternatively or additionally earth rods or trench earths may be required, as the Head : Works may direct, and installed according to his instructions.

All earth electrodes and connections thereto must be approved "in-situ" by the Head : Works before back-filling.

The electrical installation shall not be earthed by means of the lightning arrester earth electrode, if such is included in the installation, but may be bonded thereto.

2.15.2 Earthing in Installations

The installation shall be effectively earthed in accordance with the relevant sections of the Code of Practice 0142 and the requirements of the Supply Authority.

All hot and cold water and waste pipes are to be effectively bonded by means of 12 x 1,5mm solid copper tape (perforated tape or wire will not be permitted), clamped by means of brass bolts and nuts. Bonding tapes exceeding 75mm in length must be fixed to the wall by means of No. 6 x 20mm brass screws and plastic plugs not exceeding 150mm centers. Main earth copper tapes where installed less than 2,5m from ground level, must be run in 20mm diameter conduit securely saddled to the wall.

Gutters and downpipes are to be bonded by means of 6mm round headed brass bolts, with nuts and washers. Self-tapping screws are not permitted.

Connections from the earth bar or terminal on the main board must be made to a visible cold water main, the incoming service conductor, if any, and the earth mat or plate (where such is required) by means of either 12 x 1,5mm solid copper tape or bare 25mm² copper wire, or such larger conductor as the Employer may direct. From each distribution board separate earth conductors are to be taken to the main earth bar or

terminal on the main board. Each conductor shall consist to stranded copper conductors drawn into the conduit together with the distribution board feeders. The size of the earth conductors to be in accordance with the requirements of the Code of Practice 0142 or as specified.

Earthing clips shall be made of not less than 0,90mm thick copper strips not less than 12mm wide. They are to be complete with 25 x 7,7mm brass bolts, washers and nuts and must be constructed so that the clips will fit firmly to the conduit without any additional packing.

Adjustable earth clips are not permitted.

2.16 EXISTING BUILDINGS

2.16.1 Occupied Buildings

Where work is to be carried out in occupied buildings the Contractor must arrange to carry out the installation with as little interruption to services and discomfort to the occupants as possible.

2.16.2 Temporary Connections

Temporary connections shall be provided where necessary for continuity of services, and as directed by the Employer. The contractor must ensure that such connections are both electrically safe and free from physical hazard.

2.16.3 Old Materials

Unless otherwise specified all existing materials removed by the Contractor shall remain the property of the Administration and are to be handed to the Administration.

2.16.4 Making Good

Any damage which may be done to the plaster work, floors, ceilings, wood and paint work, furniture and other equipment in the building, etc, during the progress of the electrical installation shall be repaired and made good by the Contractor to the satisfaction of the Head : Works.

2.17 COMPLETION

2.17.1 Balancing of Load

The Contractor is required to balance the load as equally as possible over multi-phase supplies.

2.17.2 Tests

The installation shall be tested by the Contractor as the service progresses or as required by the Employer and upon completion, for earth continuity and insulation. The final test before the taking over of the installation shall be made in the presence of the Head : Works.

The mandatory "Certificate of Compliance" shall be issued by the Contractor to the Supply Authority, with a copy to the Head : Works prior to first delivery being taken.

2.17.3 Labelling

All circuits and apparatus on switchboards shall be suitably correctly labeled by means of engraved plastic labels (white lettering on black), which are to be either bolted or screwed to the equipment panel, or fitted in channeling provided below the switch gear.

Sub-circuits are to be numbered and a legend detailing the circuits is to be framed and fitted to the door of the distribution board.

All other equipment is to be individually labeled to indicate the function.

All switchboards are to be fitted with a label on which the designation of the board is clearly indicated.

A separate engraved label depicting the origin and cable/conductor size shall be fixed below the main switch.

2.17.4 Finishes

Covers for all boxes, expansion boxes, etc, shall be finished to match the paint work of the ceiling or wall surface or as specified.

2.17.5 Site Drawing

On all completed new work or where specifically called for in the Tender Document, the Contractor shall, on completion of the works, submit to the Head : Works, a marked up site plan indicating the exact underground cable reticulation.

2.18 SPEAKER AND MICROPHONE OUTLETS

Speaker and microphone outlets are to conform to the following details:

1. Speaker outlet – To have one flat and one round pin.
2. Microphone outlet – To have one round pin only.

Both female and male parts to be supplied and installed by the Contractor.

2.19 BELLS AND BUZZERS

2.19.1 Bells

Bells for schools and hostels shall be 230 Volt AC or 24 Volt DC as specified for the service. They are to be of robust construction encased in a sturdy cast metal weather-proof case. They are to operate on the frequency of the supply. They shall have an adjustable stabilizing spring, gold-silver contact points and 150mm gongs.

2.19.2 Doorbells, Buzzers and Bell Transformers

These will be as specified for each service.

2.19.3 Bell Pushes

Except where otherwise specified, bell pushes shall be of the flush type suitable for mounting in a standard 100 x 50mm box. They shall be clearly marked as a bell push and shall be fitted with satin finished anodized aluminium cover plates.

2.20 SIGNAL TIMERS

2.20.1 Signal Timers

The timer shall be designed to automatically signal the start and finish of by the switching of a circuit and is to comply with the following specification:

- The mechanism may be synchronous motor or quartz movement driven with a 24 hour dial or digital time read-out suitable for operation on a 230V 50Hz supply and is to be provided with a spring or battery reserve of a least 24 (twenty four) hours.
- The unit is preferably to have minute to minute timing for a 24 (twenty four) hour period although 5 (five) minute intervals are acceptable, and is to be provided with Weekend lockout. Signal periods shall be adjustable from 5 – 45 seconds.
- The unit shall be housed in a metal or plastic case with detachable front cover suitable for wall mounting.
- Timers with punch tape programming are not acceptable.

2.20.2 High Schools and Colleges

Timers for these institutions shall generally be as for Primary Schools but are to have at least 3 (three) separate programmes and be fitted with three push buttons for independent manual operations for testing of each programme, plus an on/off switch for each programme, which does not affect the running of the clock.

2.21 CLOCKS

Electric clocks shall be of the quartz electronic battery operated type, with a dial for 2500mm diameter. The dial shall be white, with distinctive minute markings and chapters shall be black Arabic figures. Time adjustment shall be simple. Where mains operated electronic clocks are specified, these shall be of the synchronous self starting type, suitable for a 200 – 250 V 50 Hz AC supply

2.22 TIME SWITCHES

The time switch shall consist of a single pole switch with silver to silver or other approved contacts operated by a quartz movement with a 24 hour reserve.

A suitable 24 hour, night and day dial, with hour indicator and two adjustable strikers, one OFF and one ON must be provided. The whole mechanism is to be totally enclosed in a dust proof case.

The current rating shall be required and the switch is to be suitable for operation on 230 volt 50 Hertz AC supply. Time switches used for under floor heating are to be fitted with weekend cut- out.

2.23 MOULDED CASE CIRCUIT BREAKERS (INCLUDING MINIATURE)

Circuit breakers shall be of the size and type as directed and specified for the service. They shall comply with SANS Specification 156 and SANS IEC 60947-2.

2.24 SWITCHES: ON-LOAD FAULT MAKING (CIRCUIT BREAKERS TYPE) WITHOUT TRIPS

The switches shall be triple pole, hand operated, panel mounting air break type, having continuous current rating as specified and suitable for operation of 380 – 440 Volt 50 Hz AC system.

The contacts are to be of silver alloy and the switch mechanism shall be of the quick-make, quick-break type.

2.25 SWITCHBOARD EQUIPMENT

Switchboard equipment such as switches, circuit breakers, etc, shall be as directed and specified in the detail specification for the service.

Circuit breaker equipment of SANS IEC 60934.

2.26 FUSE-SWITCH UNITS (WITH HRC FUSES)

The fuse-switch unit is to be of the double pole, or triple pole or triple pole with neutral link type, and of the required current rating, as specified for the service and must be in accordance with BS EN 60947-3.

The fuse links must be fully isolated when the switch is in the open position, and interlocks must be provided to prevent the switch being operated with the cover open.

The fuse links shall comply with SANS Specification 172 and SANS IEC 60269-1 to 4.

2.27 BUS-BAR COPPER

Bus-bar copper must be fully in accordance with Tables A1 and A2 of SANS 1473-2 and SANS IEC 60439-2.

2.28 SPECIFICATION COMPLIANCE

The complete installation shall comply with the requirements of this specification. Should any differences or contradictions exist between this Specification and the detailed requirements for a specific installation, then the detailed requirements shall take precedence.

**ELECTRICAL INSTALLATION
VOLUME 1, SECTION 1
PART A: DETAIL SPECIFICATION
ELECTRICITY SUPPLY, KIOSK, LV BOARDS AND OTHER REQUIREMENTS**

A1. ELECTRICITY SUPPLY	1 General: The Supply Authority is Eskom OR local municipality TBA late stage. 2 Low Voltage Supply: The Low Voltage Supply is 400V, 50Hz, 3-Phase, 4-Wire. It must be assumed that the voltage is + 10% within the nominal. The Contractor shall allow balancing of the loads on all phases. 3 New Supply: The contractor shall liaise with the supply authority to provide an Electrical supply to 200A, three phase, conventional. A provisional sum to be allowed by contractor in tender BOQ. The contractor to note that pay out for the supply connection shall only be certified once original documentation confirming the payment of the supply connection has been received.									
A2. DISTRIBUTION BOARD:	1. General: Distribution boards shall be flush or surface mounted and shall to be located in positions as indicated on drawing. Contractor to allow 30% Spare way on all Distribution Boards. The exterior colour finish of these boards shall be off white. The inside panel shall be painted as follows: <table><tr><td>Non Essential</td><td>-</td><td>Electric Orange</td></tr><tr><td>Essential Section</td><td>-</td><td>Signal Red</td></tr><tr><td>UPS</td><td>-</td><td>Blue</td></tr></table> The Contractor shall provide shop drawings and shall only manufacture the Distribution Boards upon written approval from the Electrical Engineer. In addition to the statutory labels as specified in the General Specification, the Contractor shall allow to supply and install engraved labels onto the board with the following information: (a) Supply db information (eg. db-B fed from db-A) (b) Feeder cable size (eg. 25mm² 4 core cable) (c) Relative cascading circuit breakers (if applicable) (d) Respective db's fault level.	Non Essential	-	Electric Orange	Essential Section	-	Signal Red	UPS	-	Blue
Non Essential	-	Electric Orange								
Essential Section	-	Signal Red								
UPS	-	Blue								
A3. BUS-BARS & SWITCHGEAR	1. General: The onus rests on the Contractor to ensure that the Bus-bars and switchgear shall be adequately rated and suitably supported. Suitable terminals are to be provided for incoming and outgoing cables. Switchgear shall be of the type any manufacture or other approved									
A4 CASCADING:	1. General: Please note that cascading is not to be used.									

**ELECTRICAL INSTALLATION
VOLUME 1, SECTION 1
PART B: DETAIL SPECIFICATION
ELECTRICITY SUPPLY, KIOSK, LV BOARDS AND OTHER REQUIREMENTS**

MAINS CABLES

B1 LV CABLES	1 General: All cables shall be copper cored PVC SWA/ECC PVC in accordance with SANS 1507. The Contractor shall allow to supply and install the following cables fully in accordance with the General Specification and SANS 10142. .2 Schedule of LV Cable: From To Cable Size Non-Essential Supply Authority DB-LV KIOSK 95 mm² 4 Core
B2 LV CABLE TERMINATIONS	.1 The cable terminations shall be in accordance with the Code of Practice for the Wiring of Premises SANS 0142 as amended. The Contractor shall allow to supply and install cable identification tags to both cable ends. Both the source distribution board and feeder distribution board details shall be engraved on the cable tags
B3 CABLE TESTS	All cables shall be tested in accordance with SANS 1507
B4 CABLE ROUTES	All cable routes shall be confirmed with the Engineer on site prior to Installation thereof.
B5 CABLE SLEEVES	All cable sleeves shall be installed by the Contractor as detailed on the drawings. All sleeves shall be left with at least one draw-wire per sleeve. The draw-wires shall be included in the rates for the sleeves as specified in the Bill of Quantities The Contractor shall ensure that the sleeves are installed timeously and in the correct positions as shown on the Site Plan.
B6 CABLE MANHOLES	The Contractor shall allow to build brick manholes for the cables as detailed on the drawings. The metal covers shall be cast iron manufactured covers. The Contractor shall ensure that the manholes are installed timeously and in the correct positions as shown on the Site Plan.
B7 TRENCHING AND BACKFILLING	The Contractor shall allow for trenching and backfilling. He shall allow to dig trenches along the cable routes as shown and to backfill these trenches once the cables are installed. Before backfilling the Contractor shall contact the Engineer for inspection of the cables. The trenching and backfilling shall be in accordance with the General Specification. Included in the rate for trenching and back filling, the Contractor shall allow for cable marker tape along the cable route at a depth of 300mm below ground level.
B8 CABLE MARKERS	Cable Markers shall be provided along LV Cable routes. Cable Markers shall consist of Concrete Blocks in the shape of truncated pyramids, approx 300mm high, 150mm x 150mm at the top and 250mm x 250mm at the bottom. Brass plates shall be cast into the top of the blocks in such a manner that they cannot be prized loose. The wording "ELECTRIC CABLE/ELEKTRIESE KABEL" shall be stamped on the brass plates as well as the direction arrows and the cable voltage rating Cable Markers shall be installed on the surface along all the underground cable routes and shall project 35mm above normal ground level unless the projected Markers could be a hazard to pedestrian or other traffic in which case they shall be installed flush with the surface. Cable Markers shall be installed at the beginning and end of the cable run (eg. Where a cable enters a substation or building), at all changes of direction, above cable pipe entries and exists and at intervals not exceeding 50m along the cable route.

**ELECTRICAL INSTALLATION
VOLUME 1, SECTION 1
PART C: DETAIL SPECIFICATION
LUMINAIRES, SPECIAL ITEMS, MATERIALS, EQUIPMENT, AND INSTALLATION**

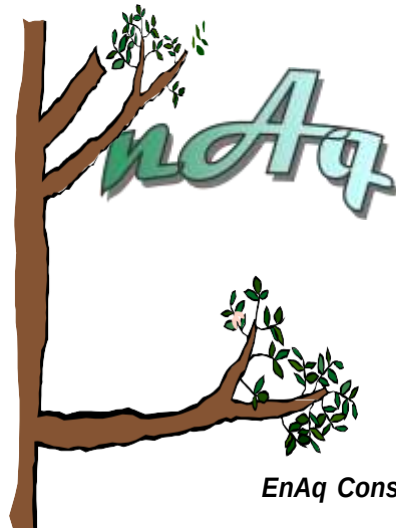
C1. NATURE OF BUILDING CONSTRUCTION:	Community Hall, Ablution Block, Guard house, External
C2. LUMINAIRES :	General: The Contractor is responsible for the purchase, delivery and safe storage of all luminaires required for this project. The Contractor shall confirm with the Electrical Engineer the exact numbers and type for each specific luminaire before placing confirming orders with the Suppliers. All luminaires supplied shall comply with the following SANS Specifications where applicable: Luminaires – Fixed general purpose SANS IEC 60598 – 2 – 1 to 25 Flood Lighting SANS 1279 Interior Discharge Lamps SANS 1278 Interior Fluorescent Lamps SANS 1119 Electrical Safety of Luminaires - SANS 1464 1 - 25 2 Schedule of Luminaires: The Contractor shall supply and install the following luminaires including lamps as per the drawing. 3. Installation of Luminaires & Poles: The installation of the luminaires and poles shall be as described in the General Specification. All lamps shall bear the SABS mark.
C3. CONDUITS	.1 General: All conduit work shall conform with the Code of Practice for Wiring of Premises SANS 10142 as amended and to SABS 950 for uPVC conduit and metal conduits shall comply with SANS IEC 60614-2-1 Part 2 and SANS 1065 Parts 1 and 2. All conduit are to be installed flush and the Contractor shall ensure that all wiring and draw wires are installed timeously, prior to final building finishes being applied. Rectification of any damage caused by building finishes arising out of blocked conduits will be for the Contractor's account Only uPVC conduit shall be used for this installation.
C4. EARTHING OF PREMISES	The Contractor shall allow for the earthing requirements in accordance with the Code of Practice for the Wiring of Premises SANS 10142 and SANS 0292, as amended.
C5. SWITCHES, SOCKETS AND COVERPLATES:	Refer to the General Specification. All switches, sockets and other outlet coverplates shall have their respective distribution boards and circuit numbers engraved on the cover in an approved manner. All switches, sockets and other outlets fed off the Essential supply shall have red toggles and blue toggles for UPS supply. All socket outlets fed from the essential supply are to have round earth pins (white sockets but with red toggles) unless indicated as a dedicated sockets (chamfered earth pin and red toggle). All sockets fed from UPS supply are to have blue socket outlets with blue toggles. All switches and sockets shall be of the Diamond Range as per Crabtree
C6. LABELLING	All circuits, apparatus, switchgears, equipment, etc. shall be suitably and correctly labelled by means of engraved plastic labels (white lettering on black), which are to be either bolted or screwed to the equipment panel. All essential labeling will be red and UPS circuits shall be blue. The labelling is to be submitted, in detail, to the Electrical Engineer for scrutiny and permission to proceed before installation.
C7. COMPLIANCE CERTIFICATE:	The Contractor shall issue a Compliance Certificate for the Installation for each DB as per SANS 10142. The Original Certificate shall be handed to the Engineer on completion of this Contract. It shall be noted that First Delivery will not be taken until a Completion Certificate and "As-Built" documentation has been furnished. new Electrical

C8. MATERIALS:	All materials and fittings used shall be approved and conform to those specified in the schedules of this specification. Any variance from these standards will not be allowed, except with the written consent of the Engineer prior to closing of tender. In all cases, reference shall be made to the relevant S.A.N.S. specifications where such specifications apply and are available for general application The Electrical Contractor shall place orders for specified materials and equipment promptly upon being awarded the contract. No excuse or proposed substitution will be considered for materials and equipment due to unavailability unless proof is submitted that firm orders were placed within 14 days of the contract being awarded. Delay in the works owing to non-delivery of materials will be considered as a cause for delay in completing the contract works. The Electrical Contractor shall, if called upon to do so, submit samples of materials, equipment or individual components for examination or testing to the Engineer and/or other parties as instructed.
C9. GENERAL REQUIREMENTS :	The Contractor shall take note of the following: The complete installation shall be carried out in accordance with the Occupational Health and Safety Act 85/1993 and to the satisfaction of the Municipality. The work shall at all times be carried out under the supervision of a competent accredited representative of the Contractor, who will be able and authorized to receive and carry out instructions on behalf of the Contractor. All apparatus, component parts, fittings and materials employed in the execution of the Contract shall be new and unused and shall be the latest type or pattern of the particular manufacture employed. S.A.N.S. mark bearing items shall be used wherever possible. The complete installation must be guaranteed against defective parts and workmanship for a period of twelve months after the date of issue of the Completion Certificate. The complete installation must be guaranteed against defective parts and workmanship for a period of twelve months after the date of issue of the Completion Certificate.
C10 ENVIRONMENT MANAGEMENT & EIA:	The complete installation shall be carried out in accordance with the National Environmental Management Act (Act 107 of 1998). The Electrical Sub-Contractor shall familiarize himself/herself with the said Act and shall as far as possible take reasonable measures to prevent any negative impacts to the Environment.
C11 VARIATION ORDERS	Under no circumstances will claims for extras be paid for unless the Client approves a Variation Order. The Tenderers are advised to acquaint themselves with the whole document and site conditions as no claims on the grounds of want of knowledge will be entertained.
C12 DOCUMENTATION & AS BUILT DRAWINGS	The Electrical Contractor shall issue the Electrical Engineer Shop Drawings for approval and Operating, Maintenance and Instruction Manuals upon completion of the Contract. The Electrical Contractor shall furthermore issue the Electrical Engineer with As-Built drawings upon completion of the Contract.
C13 PROGRAMME:	Within 7 days of receipt of the Letter of Acceptance, the Contractor shall submit to the Electrical Engineer for his approval, programme showing in such form as may reasonable be required by the Engineer, the order of procedure in which he proposes to carry out the works, including the delivery to site, erection and commissioning thereof. The submission and approval by the Engineer of such program shall not relieve the Contractor of any of his duties or responsibilities under the Contract.
C14 REGISTRATION:	Within 7 days of receipt of the Letter of Acceptance, the Contractor shall submit proof of Professional Registration with their respective Association

PES ENVIRONMENTAL SPECIFICATION

PES1 SCOPE

This particular specification covers the draft environmental specification for the construction of this project.



EnAq Consulting cc - Environmental, Civil, Water
& Earth Consultants

23 Dawn Crescent
Westville, 3629
Tel: +27(0)31262 3171
Fax: +27(0)31 262 2279/086 559 9797
Mobile: 082-875 3710
Email:Urvassi@enaq.co.za

[Our Ref: En20.06.413]

PROPOSED MANDLALATHI COMMUNITY HALL, UMDONI MUNICIPALITY

Environmental Management Programme (EMPR)

COMPILED FOR DARTINGO CONSULTING ENGINEERS ON BEHALF OF

UMDONI MUNICIPALITY

*Prepared By:
EnAq Consulting cc*

*Urvassi Hurburun Pr. Sci. Nat
Registered EAP: 2019/1754
EnAq Consulting cc
November 2020*

1. IMPLEMENTATION OF THE EMPr

1.1. Introduction

Correspondence was received on the 29 June 2020 from Dartingo Consulting Engineers requesting environmental screening for the Proposed Mandlalathi Community Hall. A preliminary screening was undertaken as well as online screening via Department of Economic Development, Tourism and Environmental Affairs (EDTEA) portal. These screening assessments concluded that the proposed project does NOT trigger any of the activities as per the EIA Regulations 2014 (amended 2017).

In terms of Section 28 of the National Environmental Management Act, NEMA, Duty of Care, an Environmental Management Programme Report has been prepared. This (EMPR) will serve as an action plan for the implementation of mitigation measures and will govern the pre-construction, construction and post-construction phases of the ***“PROPOSED ESTABLISHMENT OF MANDLALATHI COMMUNITY HALL UMDONI MUNICIPALITY”***. It will also ensure efficient lines of communication between the Project Manager, Project Engineer, Supervisor, Contractor and Environmental Control Officer. A copy of the EMPr is to be maintained on site at all times.

The key purpose of the EMPr will be to ensure environmental best practice during the life cycle of the said project. ***This EMPr is a legal document.***

1.2. Objectives of the EMPr

The objectives of this EMPr are as below:

Ensure that the pre-construction, construction and post-construction phases of the ***PROPOSED ESTABLISHMENT OF MANDLALATHI COMMUNITY HALL UMDONI MUNICIPALITY”*** occurs within the principles of Integrated Environmental Management (IEM).

- Detail specific actions deemed necessary to mitigate the environmental impact of the project.
- To ensure that identified activities which are undertaken do not have a substantial detrimental effect on the environment.
- To promote sustainable development.
- Assist in ensuring continuing compliance with South African legislation
- Provide a framework for mitigating impacts that may be unforeseen or unidentified until construction is underway;
- Provide a framework for compliance auditing and inspection programs.

1.3. Reporting Procedures and Compliance

This EMPr will regulate the Contractor's conduct on site or method of working. Non-compliance with the conditions set out in this document constitutes a failure in compliance.

Cognisance must be taken of National Environmental Management Act, Act No. 107 of 1998 (S.28). In terms of this act those responsible for environmental damage must pay the repair costs, both to the environment and human health, and the preventative measures, to reduce or prevent further pollution and or environmental damage. Compliance with all other applicable legislation is required.

A listing of those issues that qualify as environmental *non-compliance* issues have been outlined in Section 5.3.1 to inform the Contractor, Project Manager, Supervisor and Project Engineer on environmental issues of environmental significance for the project site.

1.4. Penalty for non-compliance with EMPr

The Contractor is regarded as NOT to have complied with the EMPr if:

- Environmental damage ensues due to negligence
- The contractor fails to respond timeously to complaints from the public.

The Applicant, the Contractor and subcontractor are responsible for all environmental and anthropogenic

damage that may ensue during the instatement of this project, i.e. will have to comply with the provisions for Duty of Care and Remediation of Damage, as per section 28 of NEMA No.107.

Incidents of non-compliance include the following listed below:

- Sourcing of water other than from a municipal supply
- Failure to provide mobile ablution at working area
- Rivers/streams being used for waste disposal
- Failure to provide adequate waste disposal facilities and services
- Failure to minimise the effects of erosion.
- Failure to reinstate and rehabilitate disturbed areas.
- Any other contravention of general environmental specification as identified by the Environmental Control Officer.

1.5. Contract Conditions-Responsibilities and tasks

The most pertinent tasks and responsibilities have been outlined below.

1.5.1 Project Manager

- Responsible for the overall co-ordination between the Project Engineer, Supervisor, Environmental Control Officer (ECO) and Contractor.
- Monitor progress and environmental issues
- Ensure that damages to property/land are addressed adequately and compensation is paid where appropriate.
- Ensures protection of water bodies
- Ensures that chances for erosion are minimised, and remedies possible erosion timeously.
- Ensures that alien vegetation/weeds that have established during post-construction are removed completely.
- Has to ensure that all disturbed areas are rehabilitated to mimic their original state.
- Ensures that all waste material is removed and disposed of in a landfill.
- Ensures that all impacted areas are rehabilitated, and that all general waste/litter is removed.
- Ensures that all complaints by residents are dealt with promptly.
- Ensures that polluted/eroded areas are mitigated and rehabilitated
- Is responsible for any contravention/s by construction staff of any non-compliance with the EMPR

1.5.2 Project Engineers (Civil, Structural & Electrical)

- Ensures Contractor complies with the EMPR.
- Liaises with the ECO.

1.5.3 Environmental Consultant/ECO

- Provides advice to the Project Engineer/Supervisor/Contractor when requested
- Will be responsible environmental management plan.
- Discuss content of EMPR with Supervisor and Contractor

1.5.4. Independent Environmental Auditor

- Client must appoint an independent Environmental Professional to conduct environmental audits on site.
- Independent Environmental Professional must have the following criteria:
 - post graduate degree in environmental studies
 - minimum of five years relevant experience to act as the independent environmental auditor for the site.
 -

1.5.5 Supervisor

- Ensures Contractor complies with the EMPR.
- Provides advice to the Contractor when deemed necessary.

- Ensures adherence to safety standards and procedures.
- Liaise with ECO on compliance and completion of rehabilitation tasks

1.5.6 Construction Contractor

- Complies with the stipulations of the EMPR
- Reports to Project Manager
- Ensures that construction staff is made aware of the need to conduct activities in an environmentally responsible manner.
- Ensure staff don't work outside demarcated site areas.
- Ensures protection of water bodies.
- Ensures that chances for erosion are minimized, and remedies possible erosion timeously.
- Ensures that alien vegetation/weeds that have established during post-construction are removed completely.
- Has to ensure that all disturbed areas are rehabilitated to mimic their original state.
- Ensures that all waste material is removed and disposed of in a landfill.
- Ensures that all impacted areas are rehabilitated, and that all general waste/litter is removed.
- Ensures that all complaints by residents are dealt with promptly.
- Ensures that polluted/eroded areas are mitigated and rehabilitated
- Is responsible for any contravention/s by construction staff of any non-compliance with the EMPR

1.6. Environmental Awareness and Compliance

In line with the National Environmental Management Act (No. 107 of 1998), the development must be socially, economically and environmentally sustainable with the implications that:

- Surface and groundwater pollution is avoided
- Pollution and degradation of the environment are avoided
- Waste is avoided/minimised and re-used or re-cycled where possible

In this regard, monitoring measures stipulated in this document pertain to, but are not restricted to:

- Waste management
- Pollution control
- Storm water management
- Erosion protection

1.7. Responsibility for Environmental Management

The Proponent and the contractor will be responsible for environmental control on site during the construction and post-construction phases of the project.

1.8. Mitigation Measures

The environmental management programme report (EMPR) will guide the planning, construction and post-construction phases of the development.

Potential impacts, frequency, responsible person/s and management measures are specified. These measures must be adhered to.

2.2. Project Description

The proposed development area is located in southern Kwa-Zulu Natal in the Ugu District Municipality, and within the Umdoni local municipality. The site is located in the town of eMandlalathi. The proposed building site is situated approximately 119m from an existing building, Amandlalathi Primary School which is surrounded by some dispersed rural settlements along main routes as well as largely untransformed areas.

This area is accessible via gravel roads via the P197-3 off the R102.

The project entails the establishment of a 350-400 seater community hall.

The scope of work which currently identified includes but may not be limited to the following:

- External toilets/change-room – septic tank/soakaway
- Parking area/ facility
- Guard house
- JoJo tanks for rainwater harvesting
- Stormwater drainage



Township	eMandalathi	
District Municipality	Ugu District Municipality (DC21)	
Local Municipality	Umdoni Local Municipality (KZN212)	
Site Co-ordinates	Latitude	Longitude
Proposed location	30°7'15.1"S	30°29'27.03"E

2.3. Need/Desirability and other Factors

The objectives of the project are:

- ◆ To ensure the provision of a fully accessible community hall/ meeting place to acceptable standards for vehicles and pedestrians.
- ◆ Upliftment of the youth by providing possible area for extracurricular activities.
- ◆ To improve the quality of life for the local residents.
- ◆ Creating a secure area for religious, recreational, social needs of the local community.
- ◆ Empowerment of the local community through cultural development.
- ◆ Creation of opportunities for local and BBBEE companies through municipal supply chainmanagement policy.

- ◆ Growth potential of the community and existing primary school activities as a result of infrastructure improvement.

3. ENVIRONMENTAL FILE

The environmental file is a hardcover file that remains on site throughout the project. This file should not be removed from site and it is the ECO's and contractors responsibility to ensure that this file is always in order. This file is subject to auditing by the necessary authorities and if found non-compliant the project may be stopped or the contractor fined by the relevant authority. This file must consist of the following documents:

5.1. Environmental Audit Reports

The appointed, independent Environmental Consultant will conduct Environmental Audits subject to the discretion of the Project Manager. An Environmental Audit Report will be compiled by the said auditor, a copy of this report will be sent to the Project Engineer and contractor to file as a record, in the environmental file. The Site Manager and Environmental Control Officer (ECO) must be aware of the non-compliance listed in each report, the non-compliance must be seen as a site instruction to be resolve issues immediately

5.2. Complaints Register

The Contractor must record any complaints received from the residents within the affected areas. The complaint/s must be communicated to the Site Manager and Environmental Control Officer (ECO) who will respond accordingly. Information as below must be noted:

- Time, date and nature of complaint
- Name of Complainant
- Response and investigation undertaken by whom and date

5.3. Incident Register

All environmental incidents (non-compliance with EMPR) must be recorded: Information as below:

- Time, date, location and nature of incident
- Actions taken , by whom and date
- Incidents to be reported to Foreman, Project Manager and ECO.

5.4. Disposal Slips

Disposal slips are records of all disposals of construction material, or waste production from construction activity (ie. Oil spills). These slips must be obtained from the owner of the site in which the waste is being disposed of: Information recorded on slips is as below:

- Time, date, location and nature of waste
- Disposed of by whom (Name, date, signature)
- Received by whom (Name of site, name of person, address, date, and signature)

5.5. Environmental Management Programme (EMPr)

The Environmental Management programme (EMPr) is a legal and binding document. It records the environmental summary of the project and the surrounding area, and provides recommendations on environmental management and the required monitoring programme essential for the commencement of the project, throughout the different phases of the project, as per the environmental requirements interms of the National Environmental Management Act (NEMA), 1998 (Act no. 107, 1998). All audits will be conducted against the EMPr, therefore it is imperative that the Contractor becomes familiar with this document, to avoid any occurrence of non-compliance. The EMPr issued at the start of the project must be filed in the environmental file and should NOT leave the site camp, under any circumstances, until project completion.

A Generic EMPr has been done for the Proposed Project (see Table 1).

6. METHOD STATEMENT

A written submission by the Contractor to the Engineer and ECO in response to the Specifications or a request by the Engineer, setting out the plant, materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the Engineer when requesting the Method Statement, in such detail that the Engineer is enabled to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications.

The Method Statement shall cover applicable details with regard to:

- construction procedures;
- transport of materials and plant to and from site;
- how the plant/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the Specifications; and
- any other information deemed necessary by the Engineer.

8. Compliance and Penalties

The Contractor shall put in place procedures to motivate staff members to comply with the EMPr and to deal with acts of non - compliance, or malicious damage to the environment. Penalties for non - compliance needs to be discussed with the Contractor at the earliest stage (during the Pre - construction Meeting). The Contractor and Sub- contractors are believed not to have complied with the EMPr if:

- ❖ *within the boundaries of the site, there is evidence of contravention of the EMP specifications.*
- ❖ *if environmental damage ensues due to negligence;*
- ❖ *the contractor fails to comply with corrective or other instructions issued by the Project manager or Engineer within a specified time,*
- ❖ *the Contractor fails to respond adequately to complaints from the public.*

9. ENVIRONMENTAL MANAGEMENT SPECIFICATIONS: Generic EMP Table 1:

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
Grievance Procedure		6.1 The client will develop and implement a Grievance Procedure whereby stakeholders can lodge objections regarding the Project and be responded to.	Comply with any prescribed environmental management standards and practices	Grievance Procedure	Client	Prior to construction	Pre- construction induction
Site Establishment	⇒ Planning	7.1 Disturbance and interference with natural assets must be avoided at all. 7.2 Natural features must be taken into consideration during design and retained. 7.3 Ensure that materials to be used during construction are legally sourced, and that water or sand is not extracted from streams or rivers; should this be a requirement then the necessary permits and approvals have to be obtained from authorities before construction is to commence. 7.4 Fence the construction camp site if feasible.	Comply with any prescribed environmental management standards and practices		Project Engineer/ Contractor/ ECO	Site Establishment	Pre- construction induction
	⇒ Site Survey	8.1 Marking of survey points must be done with the Engineer's approval.	Comply with any prescribed environmental management standards and practices		Project Engineer/ Contractor/ ECO	Site Establishment	Pre- construction induction

C3.115

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
		10.7 Roads or trails that are cut to provide temporary access for survey work must be minimised. 10.8 Marking of survey points must be done with the Engineer's approval. 10.9 Vegetation clearing must be kept to a minimum during survey points.			ECO	investigations.	
Construction camp	☐ Layout	11.1 Choice of site for the Contractor's camp requires the Engineer's permission and must take into account location of businesses. A site plan must be submitted to the Engineer for approval. 11.2 If the Contractor chooses to locate the campsite on land close to, but not on the site, he must get prior permission from Engineer. 11.3 Cut and fill must be avoided where possible during the setup of the construction camp. 11.4 The size of the construction camp should be minimized (especially where natural vegetation or grassland has had to be cleared for its construction.	Comply with any prescribed environmental management standards and practices		Project Engineer/ Contractor/ ECO	Site Establishment	Pre-construction induction
					Contractor	During Site Establishment and Preliminary Investigations.	
						During site set up.	
						On a weekly basis	
Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*		RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan

C3.117

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
Recycling of Waste	Manage Litter	12.1 Materials used or generated by construction and operation will be recycled or reused. 12.2 Containers for glass, paper and metals must be provided separate to general waste bins particularly in office and camp areas during construction. 12.3 Where possible and practical, waste should be sorted for recycling (eg, at stores and offices). Recycling protocols will sort materials into the following categories: Paper / cardboard; - Any packaging materials suitable for re-use; - Plastics; - Aluminium; - Metals (other than aluminium); - Wood; - Organic waste; - Glass; and - Clean Building Rubble.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Maintenance record	Contractor	Throughout project	Pre- construction induction

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
Storage areas	Reduce the risk of a hazardous substances	demarcated and fenced if necessary. - Fire prevention facilities must be present at all storage facilities. Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by children / animals etc. 13.3 Hazardous Substances and Materials - Hazardous materials must be bundled with an impermeable liner to protect groundwater quality. - Storage areas containing hazardous substances/materials must be clearly demarcated with signs. - It is very important that the proximity of houses, etc. is accounted for when deciding on the storage areas for hazardous substances. - Residents living adjacent to the construction site must be notified of the presence of the hazardous storage area - Staff handling with hazardous materials / substances or even equipment must be made aware of the potential impacts and follow appropriate safety measures. - Contractors shall submit a method statement and plans for the storage of hazardous materials and	Comply with any prescribed environmental management standards and practices	Visual inspection Maintenance records Audit reports	Contractor	Prior to construction	Pre-construction induction

		demarcated and fenced if necessary. - Fire prevention facilities must be present at all storage facilities. Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by children / animals etc. 13.3 Hazardous Substances and Materials - Hazardous materials must be bundled with an impermeable liner to protect groundwater quality. - Storage areas containing hazardous substances/materials must be clearly demarcated with signs. - It is very important that the proximity of houses, etc. is accounted for when deciding on the storage areas for hazardous substances. - Residents living adjacent to the construction site must be notified of the presence of the hazardous storage area - Staff handling with hazardous materials / substances or even equipment must be made aware of the potential impacts and follow appropriate safety measures. - Contractors shall submit a method statement and plans for the storage of hazardous materials and					

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
		emergency procedures.					
Maintenance of Site	Storm water	14.1 Temporary cut off drains and berms may be required to capture storm water and promote infiltration. 14.2 During site establishment, storm water culverts and drains are to be located and covered with metal grids to prevent blockages. 14.3 Road drainage must prevent any significant ponding, as this would pose a safety risk and be likely to 14.4 cause damage to the road surface 14.5 Points of discharge need to be within areas of dense grass cover, and away from other developments.	Comply with any prescribed environmental management standards and practices	Visual Inspection Maintenance records	Project Engineer /Contractor	Site Establishment	Pre-construction induction
Storage Areas	General Substances and Materials	15.1 Choice of location of storage areas must take into account prevailing winds, distance to water bodies and general on-site topography. 15.2 Storage areas must be designated, demarcated and fenced and secured if necessary. 15.3 Fire prevention facilities must be present at all storage facilities. 15.4 Storage areas should be secure so as to minimize the risk of crime/injury	Comply with any prescribed environmental management standards and practices	Visual Inspection Audit Reports and Induction	Project Engineer/ ECO/Contractor	During site set up. Ongoing. During site set up.	Pre-construction induction

C3.122

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
		asphalt, clay liners etc), and submit these to the Engineer for approval prior to commencement of any work. 17.2 Where possible, a signed document from the supplier of natural materials should be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation.					
Dust	Air pollution	18.1 Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. 18.2 Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust.	Comply with any prescribed environmental management standards and practices	Visual inspection	Project Engineer/ ECO/Contractor	Ongoing. More frequently during dry and windy conditions	Pre-construction induction
Soil erosion	Soil erosion due to excavation and construction vehicles	19.1 Wind screening and storm water control should be undertaken to prevent soil loss from the site. 19.2 Procedures that are in place to conserve top soil during the construction phase of the project are to be applied to the set up phase i.e. top soil is to be conserved while providing access to the site and setting up the camp.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Audit reports Visual inspection	Project Engineer/ ECO/Contractor	Throughout the duration of the project.	Pre-construction induction
Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING	RESPONSIBILITY	FREQUENCY & TIMING and by when to be	Env. Awareness plan

				and method & program for monitoring		implemented	
Water Quality	Run – Off	20.1 Storage areas that contain hazardous substances must be bunded with an approved impermeable liner. 20.2 Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity. 20.3 A designated bunded area is to be set aside for vehicle washing and maintenance. Materials caught in this bunded area must be disposed of to a suitable waste site or as directed by the engineer. 20.4 Provision should be made during set up for all polluted runoff to be treated to the Engineer's approval before being discharged into the stormwater system.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual inspection	Project Engineer/ ECO/Contractor	During site set up During site setup and to be monitored weekly.	Pre-construction induction
Set up of Waste Management Procedures	Waste Management	21.1 The excavation and use of rubbish pits on site is forbidden. 21.2 Burning of waste is prohibited. A fenced area must be allocated for waste sorting and disposal.	Comply with any prescribed environmental management standards and practices	Visual inspection	ECO	Ongoing.	Pre-construction induction
Noise and Visual Impacts	Noise Impacts ☐ Visual Impacts	22.1 Equipment that is fitted with noise reduction facilities will be used as per operating instructions and maintained properly during site operations. 22.2 Storage facilities, elevated tanks and other temporary structures on site should be located such that they have as little visual impact on local residents and businesses. 22.3 Special attention should be given to the screening of highly reflective materials on site.	Comply with any prescribed environmental management standards and practices	Visual inspection	ECO Project Engineer/ ECO/Contractor	Ongoing. During site surveys and preliminary investigations and site set up.	Pre-construction induction
Cultural Environment	Archaeological and Historical objects	23.1 Prior to the commencement of construction, all staff need to know what possible archaeological or historical objects of value may look like, and to notify the Engineer/Contractor should such an item be uncovered.	Comply with any prescribed environmental management standards and practices		Project Engineer/ Contractor/ ECO	During site surveys and preliminary investigations and site set up.	Pre-construction induction

C3.125

Environ aspects: Impact Mgt Objective & statement	Impacts & risks to be avoided/ managed/ mitigated	Impact Management outcome	Proposed Management actions*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
	Site Demarcation	27.1 Erect and maintain permanent and/or temporary fences of the type and in the locations specified by the Engineer. 27.2 Such fences shall, if so specified, be erected before undertaking designated activities. The temporary staging areas, material stores and lay-down areas should be screened. Barrier net fencing is to be used to fence the areas around open trenches; danger tape is no longer acceptable	Comply with any prescribed environmental management standards and practices	Visual Inspection Auditing	Contractor	Construction phase	Audit Reports and Induction
	Site Clearance	28.1 Soil shall be stored in areas demarcated by the ECO and Engineer and in piles not higher than 2 m. 28.2 The stockpiles shall not be compacted or disturbed, and shall be domed at the top to promote runoff. 28.3 The period between the stockpiling of soil and its utilization shall be as short as possible, and ideally the topsoil should be transferred to its intended site of use immediately following site clearance and stockpiling. This would also avoid double handling. Stockpiles that are to be stored should be covered with shade-cloth or geotextile fabrics or similarly suitable material to prevent erosion.	Comply with any applicable provisions of the Act regarding financial provisions for rehabilitation, where applicable	Visual inspection Auditing	ECO & Engineer	Construction phase	Audit Reports and Induction

*(i) avoid, modify, remedy, or stop any action, activity or process which causes pollution or environmental degradation. (ii) Comply with any prescribed environmental management standards or practise. (iii) comply with any applicable provisions of the Act regarding closure and (iv) comply with any provisions of the act regarding financial provisions for rehabilitation

ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANAGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS	PARAMETERS FOR MONITORING and method &program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
<u>CONSTRUCTION PHASE</u> Compliance with EMPr	Confirm Contractors commitment to EMPr and Contractor Compliance Standards	1.1 Ensure that the EMPr is available at the site throughout construction and implemented by the contractor.	Comply with any prescribed environmental management standards and practices	Copy of signed EMPr with Contractor	Contractor / Engineer	Prior to construction	Induction
	Auditing of compliance with EMPr	1.2 Audit frequency to be as per agreement with Project Engineer	Comply with any prescribed environmental management standards and practices	Audit report	ECO	Auditing of compliance with EMPr	Induction
Access to site	Maintenance of Access	2.1 Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and storm water damage as soon as these develop. 2.2 Construction vehicles must be restricted to demarcated access, haulage routes and turning areas.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ Contractor/ECO	Weekly and after heavy rains.	Induction
Health and Safety	Ensure the health and safety of subcontractors and site users	3.1 A Health and Safety Plan must be established prior to the commencement of construction to identify and avoid work related accidents. 3.2 This plan must be followed to by the appointed construction contractors and meet Occupational Health and Safety Act (No 85 of 1993), requirements. Appropriate Personal Protective Equipment (PPE) must be worn by all construction personnel. This shall include the use of ear protection in areas where the 8-hour ambient noise levels exceed 75dBA.	Comply with any prescribed environmental management standards and practices	Signed Health and Safety Plan Signed Health and Safety Plan	Contractor	Health and Safety Plan developed prior to construction	Induction

Maintenance of site	Workers conduct on site	<u>Eating areas</u> 4.1 Eating areas should be regularly serviced, and cleaned to ensure the highest possible hygiene and cleanliness. 4.2 All litter throughout the site should be picked up and placed in bins provided. <u>Housekeeping</u> 4.3 The contractor shall ensure that his camp and working areas are kept clean and tidy at all times. 4.4 A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules: No alcohol/drugs to be present on site. transporting staff to/from site (unless used by security personnel) excessive noise. facilities provided for them, as opposed to alternatives. 3.3 Other than pre-approved security staff, no workers shall be permitted to live on site.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ Contractor/ ECO Project Engineer/ Contractor/ ECO Project Engineer/ Contractor/ ECO	Ongoing as necessary followed by monitoring. Ongoing as necessary followed by monitoring. Ongoing as necessary followed by monitoring	Staff induction Staff induction Staff induction.

	Haulage Roads	5.1 Contractors shall construct formal drainage on all temporary haulage roads in the form of side drains and mitre drains to prevent erosion and point source discharge of run-off. 5.2 Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and storm water damage as soon as these develop. 5.3 Vehicles travelling to and from construction	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ Contractor/ECO	Construction Phase	Induction

		site must adhere to speed limits. 5.4 Access and other cleared surfaces must be dampened whenever possible and especially in dry/windy conditions. <u>Surfaces</u> 5.5 The Contractor must monitor and manage drainage of the campsite to avoid standing water and soil erosion. 5.6 Run-off from the campsite must not discharge into neighbors' properties & business properties. <u>Ablutions</u> 5.7 Chemical toilets are to be maintained in a clean state and should be moved to ensure that they adequately service the work area. 5.8 The Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility or washing purposes. <u>Camp Waste disposal</u> 5.9 If chemical toilets are used then the waste should be disposed of regularly. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas. 5.10 A registered chemical waste company is to be used to remove waste from chemical toilets. 5.11 Bins and/or skips should be emptied regularly and waste should be disposed of at a registered landfill site.			Project Engineer/ Contractor/ ECO ECO ECO	Ongoing Weekly Inspection. Ongoing	

	Waste Water Management	6.1 A designated, bunded area is to be set aside for vehicle washing and maintenance. 6.2 Provision should be made during set up for all polluted run-off to be treated to the Engineer's approval before being discharged into the storm water system. 6.3 No form of secondary pollution should arise from the disposal of sewage and refuse. If any problems should arise, the Developer should address these immediately.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ECO Contractor	As directed by the Engineer. As surface becomes exposed.	Induction
	Storm Water	7.1 All storm water to be carried off site. 7.2 Discharge points should be small and numerous. 7.3 Stormwater to be collected and suitably discharged into the nearest municipal stream. 7.4 Ensure that no stormwater is allowed to enter any drainage installation for the purpose of sewage. 7.5 Water may only be discharged into a stormwater system with the permission of the local authority. 7.6 Do not allow surface water or stormwater to be concentrated, or to flow down cut or fill slopes or along pipeline routes without erosion protection measures being in place. 7.7 Temporary cut off drains and berms may be required to capture stormwater and promote infiltration. 6.4 Earth, stone and rubble is to be properly disposed of so as not to obstruct natural water pathways over the site. i.e. These materials must not be placed in stormwater channels, drainage lines or rivers	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ Contractor/ ECO Project Engineer/ECO Contractor	Ongoing-more frequently during dry and windy conditions. Throughout the duration of the project. After creation of embankment As directed by Engineer	Induction

	□ Waste Management	7.9 No temporary works, stockpiles or other circumstances may exist that impede natural water movements or act to concentrate run-off. 7.10 There should be periodic checking of the site's drainage system to ensure that the waterflow is unobstructed. 7.11 The use of high velocity stormwater pipelines should be avoided in favour of open, high friction, semi-permeable channels wherever feasible. 7.12 Stormwater outfalls should be designed to reduce flow velocity in order to reduce and avoid soil erosion. 7.13 Refuse must be placed in designated skips. These should remain in demarcated areas. 7.14 Littering on site is forbidden and the site should be cleared of all litter at the end of each working day. 8.1 Collect waste paper, glass and metal waste separately and arrange for collection by recycling contractors. 8.2 Litter bins must be equipped with a closing mechanism to prevent their contents from blowing out. 8.3 Litter bins should be emptied on a weekly basis. 8.4 All waste must be removed from the site and transported to a Registered, permitted landfill site. 8.5 Ensure that solid waste disposal is transported properly in order to avoid waste spills en-route.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ECO/ Contractor	Regular monitoring Throughout the duration of the project.	Induction

	☐ Surface water	8.6 Where solid waste disposal is to take place on site, ensure that only non-toxic materials which have no risk of polluting the groundwater, are designated approved areas at acceptable depths below ground level. (The necessary approvals and permits are to be in place before any such disposal takes place) 8.7 Construction rubble shall be disposed off in a pre-agreed demarcated spoil dumps that have been approved by the Engineer. 8.8 A sump (earth or other) must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to a tip site as approved by the local solid waste company that is in charge of that particular area. 8.9 No form of secondary pollution should arise from the disposal of sewage and refuse. If any problems should arise, the Developer should address these immediately. 8.10 In the case of rubble and waste rock, subject to the approval by the Project Engineer, certain borrow pits and / or quarries may be utilised for the disposal of waste rock and inert building rubble. No solid waste may be burned on site. 8.11 The excavation and use of rubbish pits on site is forbidden. 9.1 Care must be taken to ensure that run-off from vehicle or plant washing does not enter the stream. 9.2 Strict drainage control must be carried out both during and after development of the area, to ensure storm-water runoff onto the roads in the area and to prevent ponding of storm-water.			Project Engineer/ECO/ Contractor	Throughout the duration of the project	

Storage Areas		9.3 Temporary cut-off drains and berms may be required to capture stormwater and promote infiltration. - The most important factor in stable development of the site is the control and removal of both surface and groundwater from the site.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Contractor Project Engineer/ECO/ Contractor	Throughout the duration of the project. Construction phase	Induction
	☐ Dust / Air Pollution	10.1 Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. 10.2 Camp construction / haulage road construction areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. 10.3 Ash disposal areas are to be promptly rehabilitated to minimize potential for dust pollution.					
	☐ General substances and materials	11.1 Choice of location for storage areas must take into account prevailing winds, distance to water bodies and general on-site topography. 11.2 Storage areas must be designated, demarcated and fenced. 11.3 Fire prevention facilities must be present at all storage areas. 11.4 Where materials are borrowed (mined) proof must be provided of authorisation to utilise these materials from the landowner and the Dept. of Mineral Resources.					
	☐ Hazardous storage areas	12.1 Hazardous storage areas must be banded with an impermeable liner to protect groundwater quality. 12.2 Storage areas containing hazardous substances/materials must be clearly signed.					
	☐ Accidental Spills and Leaks	13.1 Material Safety Data Sheets (MSDSs)		Audit report Maintenance records			

C3.135

		Treat soil contaminated by oil or fuel using one of the following approved methods, as per instruction of the RE or Project Engineer: Remove the soil to the depth of the contamination and dispose of it at a registered Hazardous Waste Disposal Site. Remove the soil to the depth of the contamination, and regenerate it by using approved bio-remediation methods. Report all major oil or fuel spills to the provincial Department of Water Affairs, as well as to the relevant Local Authority.			ECO		
Visual aspects	Lighting on site	15. Lighting is to be set out to provide maximum security, without creating a visual nuisance to surrounding residents.	Comply with any prescribed environmental management standards and practices	Visual inspection	Project Engineer/ Contractor	Construction phase	Induction
Vegetation	Conservation of natural environment	16.1 Care to be taken not to introduce alien plant species to site 16.2 Do not remove any large indigenous tree without the permission of the Project Engineer/ECO. 16.3 No open fires are permitted under any tree. 16.4 No vegetative matter may be removed for firewood. 16.5 No material storage or lay down is permitted under trees. 16.6 No heavy equipment, machinery and vehicles may be parked under any tree unless authorised by the Project Engineer. Utilise the method of mechanical de-bushing	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection	RE/Contractor	Ongoing monitoring As the work front progresses.	Induction

	rather than chemical. 16.8 Wherever possible, store removed indigenous vegetation in a nursery for replanting during rehabilitation. 17.1 Control exotics and invasive plants to be eradicated. Control involves killing the plants present, killing the seedlings which emerge, and establishing and managing an alternative plant cover to limit re-growth and re-invasion. 17.2 All sites disturbed by construction activities must be monitored for colonisation of exotics or invasive plants and control these as they emerge. 17.3 Follow manufacturer's instructions when using chemical methods, especially in terms of quantities, time of application etc. 17.4 Ensure that only properly trained people handle and make use of chemicals. 17.5 Dispose of the eradicated plant material at an approved solid waste disposal site. 17.6 Immediate re-vegetation of stripped areas and the removal of alien plant species by regular weeding must take place. This significantly reduces the amount of time and money that must be spent on alien plant management during rehabilitation. 17.7 Care must be taken to avoid the introduction of alien plant species onto the site and surrounding areas. Particular attention must be paid to imported material. 17.8 Topsoil that is suspected to be contaminated with the seed of alien vegetation should not be used. Alternatively, the soil is to be sprayed with specified herbicides	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection	ECO Project Engineer/ Contractor	Ongoing monitoring Ongoing monitoring	Induction

Soil Erosion and Excavations	☐ Soil Erosion due to excavation and construction vehicles	18.1 The time that's stripped areas are left open to exposure should be minimized wherever possible. Care should be taken to ensure that these times are not excessive. 18.2 Soil erosion on site must be prevented during all phases of the development. 18.3 Wind screening and stormwater control should be undertaken to prevent soil loss from the site. Stormwater control and wind screening should be undertaken to prevent soil loss from the site. 18.4 All embankments shall be protected by a cut-off drain to prevent water from cascading down the face and causing soil erosion. 18.5 Monitor access roads and the site for signs of erosion and remedy this as soon as possible. 18.6 Areas with potential of soil erosion must be rehabilitated with indigenous vegetation to minimize future impacts of soil erosion and other human activities.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation.	Audit report Visual inspection Maintenance records ECO records	Project Engineer/ECO/ Contractor	Construction phase	Induction
	☐ Erosion Control	18.7 Topsoil removed must be placed carefully aside and must be used for rehabilitation purposes. Surface Water Management: 19.1 Ensure that water abstraction points (i.e. from rivers etc.) do not degrade or erode as a result of leaking pipes, spills, muddy conditions or wash-aways. These problems should be rectified as soon as they arise. 19.2 Repair identified leaks and address issues of water wastage as soon as these are identified.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation.	Audit report Visual inspection Maintenance records ECO records	Project Engineer/ECO Contractor	Construction phase	Induction

	☐ Erosion Protection	19.3 Avoid over-wetting, saturation and unnecessary runoff during dust control activities and irrigation. 19.4 Do not allow surface water or stormwater to be concentrated, or to flow down cut or fill slopes or along pipeline routes without erosion protection measures being in place. 19.5 Line overflow and scour channels with stone pitching along their length and at their points of discharge to prevent soil erosion. The point of discharge must be at a point where there is dense natural grass cover. 19.6 Ensure that channels do not discharge straight down the contours. These must be aligned at such an angle to the contours that they have the least possible gradient. 19.7 Ensure that overland discharge occurs over areas that have a minimum cover of 90% grass cover at a minimum height of 150mm. This applies to areas down slope of the discharge point as well. 19.8 Stormwater control and wind screening should be undertaken to prevent soil loss from the site. 20.1 Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction camp and Work Areas. 20.2 All natural trees, shrubbery and grass species should be retained wherever possible. 20.3 Do not permit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the Works Area. 20.4 Utilise only light equipment for access and deliveries into areas of unstable soils and in areas where erosion is evident.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation.	Audit report Visual inspection Maintenance records ECO records	Project Engineer/ ECO/ Contractor	Construction phase	Induction

	□ Excavations	20.5 Do not allow erosion to develop on a large scale before effecting repairs. When in doubt. 20.6 Repair all erosion damage as soon as possible and in any case not later than six months before the termination of the Maintenance Period to allow for sufficient rehabilitation growth. 21.1 Excavations should be undertaken carefully incorporating appropriate drainage. 21.2 For significant trees trenching must be 3m away from the stem. 21.3 Excavate and backfill trenches on a progressive basis. 21.4 Ensure that no trench longer than 1000m is exposed at any one time. 21.5 As far as possible, excavations should not be allowed to stand for longer than 2 days where at all possible. 21.6 Programme excavations to take place once the required materials are on site. This facilitates the immediate laying of services and / or construction of subsurface infrastructure and minimises open trench time. 21.7 Excavation activities must be limited to areas of immediate work to prevent soil erosion.	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection Maintenance records ECO records	Project Engineer/ Contractor/ ECO	Construction phase	Induction

Dust and emissions	Limit fugitive dust and exhaust emissions	22.1 Vehicles and machinery such as generators will be operated as per original manufacturer's specification and undergo regular checks and preventive maintenance regimes to ensure efficient fuel combustion. Original emissions control equipment is to be maintained. 22.2 Dust suppression techniques will be implemented where necessary to minimize dust impacts. These will include techniques such as: - Clearing vegetation at the latest possible stage before the immediate area is required for construction. - Applying water to reduce emissions from temporary dust sources, and wetting tires of vehicles before and after travel along fashioned access roads. - All vehicles to not exceed the mandated speed limits of 30km/h. - Stockpiles of soil or sedimentary material to be covered by wind-impervious fabric. 22.3 No fires will be lit on site, and no toxic materials will be burned 22.4 Audit reports will be produced to ensure regular checks and maintenance are carried out for vehicles and machinery. 22.5 Where possible and available, low-sulphur diesel (0.1 % sulphur) will be used for vehicles to minimize emissions. 22.6 Construction activities to be undertaken in accordance with the National Dust Control Regulations R. 827 dated 01 November 2013 promulgated in terms of the National Environmental Management: Air Quality Act, 2004.	Comply with any prescribed environmental management standards and practices	Vehicle, machinery and equipment Maintenance records ECO records ECO records	Contractor	Throughout Construction Monthly Upon finding of non-compliance	Audit Reports and Induction

Air Quality Noise & Dust	Slight increase in noise/dust during construction.	23.1 Construction hours to be limited to normal working hours. 23.2 Should dust pollution become a problem during the construction phase, dust amelioration measures (periodic wetting of exposed surfaces) will have to be put in place. 23.3 Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust. 23.4 Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection ECO records	Project Engineer/ECO/ Contractor	Ongoing Monitoring	Induction
Safety and Security	Construction camp	24.1 The site should be secured (fenced) or protected by security personnel in order to reduce criminal activity 24.2 Potentially hazardous areas such as trenches are to be demarcated and clearly marked with danger tape. 24.3 Material stockpiles or stacks (pipes) must be stable and secured to prevent collapse 24.4 Obstruction to drivers' line of sight due to stockpiles and stacked materials must be avoided, especially at intersections and sharp corners. 24.5 No materials are to be stored in unstable or high-risk areas (steep slopes). 24.6 All I&AP's should be notified in advance of any potential risks associated with the construction site and the activities. 24.7 Campsites to be fenced where feasible. 23.5 Burning at campsite area to be prohibited	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection ECO records	Project Engineer/Contractor/ECO	Ongoing 24 hours prior to the activity in question	Induction

		24.9 Proper mobile toilet facilities to be provided 24.10 No firearms to be allowed on camp site areas No hunting or poaching to be allowed at any time					
Social Impacts	Disruption of Infrastructure/Services	25.1 Contractor's activities and movement of staff to be restricted to designated construction areas. 25.2 The Engineer and Contractor are responsible for ongoing communication with those people that are interested in/affected by the project. A complaints register should be housed at the site office. I&AP's need to be made aware of the existence of the complaints book.	Comply with any prescribed environmental management standards and practices	Code of conduct	Project Engineer/ Contractor/ECO	During Construction	Induction
Soils and Water	Avoid contamination of the soils	26.1 All fuel storage equipment (e.g. tanks) should meet appropriate standards for structural design and integrity. 26.2 All fuel storage tanks should be fitted with leak detection technology. 26.3 Install shutdown valves (e.g. automatic pressure-activated valves, to shut down or isolate ruptured tanks and pipes). 26.4 Ensure impermeable bunds are always used. 26.5 Ensure that staff is adequately trained in spill prevention, containment and response. 26.6 Ensure all stormwater management precautions are in place. 26.7 A suitable area for the temporary waste storage areas and secure waste skips must be selected, away from drainage lines. 26.8 Waste Management for the Project will be developed. This will follow the principles of waste minimization at source, segregation for reuse, recycling, treatment or disposal.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	ECO visual inspection	Contractor/ Engineer	During Construction	Audit Reports and Induction

Soils and Water	Avoid contamination of the soils	26.9 All fuel storage equipment (e.g. tanks) should meet appropriate standards for structural design and integrity. 26.10 All fuel storage tanks should be fitted with leak detection technology. 26.11 Install shutdown valves (e.g. automatic pressure-activated valves, to shut down or isolate ruptured tanks and pipes). 26.12 Ensure impermeable bunds are always used. 26.13 Ensure that staff is adequately trained in spill prevention, containment and response. 26.14 Ensure all stormwater management precautions are in place. 26.15 A suitable area for the temporary waste storage areas and secure waste skips must be selected, away from drainage lines. 26.16 Waste Management for the Project will be developed. This will follow the principles of waste minimization at source, segregation for reuse, recycling, treatment or disposal.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	ECO visual inspection	Contractor/Engineer	During Construction	Audit Reports and Induction

		26.9 Construction waste management will be governed by an EMPr and will incorporate reduction, recycling and re-use principles. 26.10 All wastes produced from Project activities on site will be transferred to designated temporary storage areas and where possible into secure containers. 26.11 Solid wastes will be segregated to facilitate reuse and recycling of specific materials. 26.12 All wastes that cannot be reused or recycled will be collected by approved waste contractors or the responsible contractor, and transferred to an appropriately licensed waste management facility for treatment and disposal. 26.13 Effluent from the washing-down of concrete mixing and handling equipment will be contained within a bunded area of 110 percent capacity of the stored material. This effluent will then be treated as hazardous waste and disposed of by a licensed contractor, appropriately. 26.14 Proof of all disposals must be provided, in complete disposal slips, which should be filed in the environmental file. Failure to comply will result in a financial penalty. 26.15 All hazardous and liquid waste materials e.g. fuel for generators, including any contaminated soils will be stored in a bunded area of 110 percent of the stored material's capacity and disposed of by a licensed contractor, must be disposed of within a month of incident occurrence. 26.16 Fuels on site in drums will be stored in a locked container within a fenced and secure temporary staging area.					

		26.17 Trucks and construction vehicles will be serviced off-site. 26.18 Effluent and stormwater run-off will be discharged away from any identified drainagelines. 26.19 All concrete mixing be undertaken on impermeable plastic lining or bunded shutter boards, to prevent contamination of the soils and surrounding areas. 26.20 All construction debris will be placed in appropriate on-site storage containers and periodically disposed of by a licensed waste contractor in accordance with applicable South African regulations. 26.21 The construction contractor will remove refuse collected from the designated waste storage areas at the site at least once a week. 26.22 All rubble generated during the construction phase will be removed from the site regularly to a licensed landfill site					

Traffic Impact	Mitigate traffic impacts	27.1 A Driver Code of Conduct will be applied instructing and governing safe driving behavior, which will include no use of cell phones whilst driving 27.2 All vehicles to not exceed the mandated speed limits 27.4 If required, alternative arrangements and routes for abnormal loads will be agreed in advance with the relevant authorities and the appropriate permits will be obtained for the use of public roads	Comply with any prescribed environmental management standards and practices	Driver Code of Conduct Visual inspection Traffic Management Plan Relevant permits	Contractor/Engineer	Prior to construction During construction Prior to and throughout construction	Audit Reports and Induction.
Noise	Minimize noise impacts	28.1 Contractor(s) will consider using acoustic screening if unacceptable noise impacts are predicted to shield receptors. 28.2 Contractor(s) will ensure that the noise level of audible warning devices will be kept to the minimum necessary for the health and safety of employees. 28.3 Contractor(s) will ensure that all on-site workers will have appropriate ear plugs as standard personal protection equipment (PPE). 28.4 Contractor(s) will ensure mobile machinery/equipment (e.g. compressors, generators) and other noisy construction machinery/equipment are located as far from the nearest potential sensitive receptors as possible. 27.3 Contractor(s) will ensure equipment and vehicles are regularly maintained in accordance with manufacturers specifications.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual inspection and ECO records	Contractor/Engineer	Throughout construction	Audit Reports and Induction.

Impact on Expenditure	Maximize the positive economic impacts from Project expenditure	29.1 Use of local contractors and sub-contractors where possible. 29.2 Setting of targets (in tender documents, for example) for how much local labour should be used during construction and operations. 29.3 Provision of training opportunities where possible	Comply with any provisions of Act regarding financial provisions rehabilitation, where applicable;	ECO records Employment records Training records	Contractor/ Engineer	Throughout construction	n/a
Social Disturbance Factors	Minimize social disturbance impacts	30.1 Contractors to inform workers on Code of Conduct, aspects addressed include: - respect for local residents/commercial enterprises; - respect for surrounding infrastructure and commercial activities; - zero tolerance of illegal activities by construction workers including: theft; unlicensed prostitution;	Comply with any prescribed environmental management standards and practices	Code of Conduct	Contractor/ Engineer	Prior to construction	Audit Reports and Induction.
		illegal sale or purchase of alcohol; sale, purchase or consumption of drugs; illegal gambling or fighting; - Compliance with all road regulations; and description of disciplinary measures for infringement of the Code of Conduct and company rules. 30.2 Contractor to inform ECO on new appointment of labour, to allow ECO to conduct the necessary environmental inductions. The induction register will be copied to the Contractors, for filing purposes in the Environmental File. 30.3 If workers are found to be in contravention of the Code of Conduct, which they will be required to sign at the commencement of their contract, they will face disciplinary procedures that could result in dismissal. Theft should be noted as a dismissible offence. 30.4 Contractors must have a site register available on site, as a means of monitoring access to the site, prohibiting unauthorized access to the site and ensuring that all visitors report to the site office.		Disciplinary procedure			
				Site access procedure			

		30.5 Responsibility of site registers must be assigned to one individual, who will be accountable should any incidents occur. No employment will take place at the entrance to the site. Only formal channels for employment will be used.					
On-site	Access Routes/ Haul Roads	31.1 Control the movement of all vehicles including that of suppliers so that they remain on designated routes, which are distributed so as not to cause an undue concentration of traffic and that all relevant laws are complied with. 31.2 In addition, such vehicles shall be so routed and operated as to minimize disruption to regular users of the routes not on the site. 31.4 During construction, arrangements and routes for abnormal loads (if required) must be approved in advance with the relevant authorities and the appropriate permit must be obtained for the use of public roads. All new access roads must follow the route of least environmental destruction.	Comply with any prescribed environmental management standards and practices	Visual Inspection	The Contractor	Throughout project	Audit Reports and Induction

	Materials Handling, Use and Storage	32.1 Ensure that any delivery drivers are informed of all procedures and restrictions (including "no go" areas) required to comply with the Specifications. 32.2 The Contractor shall ensure that these delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the Specifications. 32.3 Materials shall be appropriately secured to ensure safe passage between destinations. 32.4 Loads including, but not limited to, sand, stone chips, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials. 32.5 All manufactured and/ or imported material shall be stored within the Contractor's temporary 32.6 All lay down areas outside of the temporary staging areas shall be subject to the Engineer's approval. All building materials should be removed after construction.	Comply with any prescribed environmental management standards and practices	Visual Inspection	The Contractor	Throughout project	Audit Reports and Induction

	Fuel (Petrol and Diesel) and Oil	33.1 All fuel is to be stored within a demarcated area in the Contractor's temporary staging area. 33.2 No refueling of vehicles or machinery is to take place outside of this demarcated area unless authorized by the Engineer. 33.3 The Engineer shall be advised of the area that the Contractor intends using for the storage of fuel. 33.4 All liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut. Only empty and externally clean tanks may be stored on the bare ground. All empty and externally dirty tanks shall be sealed and stored in an area where the ground has been protected. 33.5 Tanks containing fuels shall be set on a smooth impermeable surface (plastic or concrete) base with a bund (if plastic, it must have sand on top to prevent perishing) to contain any possible spills and prevent infiltration of fuel into the ground. 33.6 The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall make up 110 percent of the total capacity of all the storage tanks. 33.7 The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel to be removed. 33.8 Bulk fuel storage and bunded areas shall	Comply with any prescribed environmental management standards and practices Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Auditing	Contractor, ECO, Engineer	Throughout project	Audit Reports and Induction

		have overhead cover to prevent rain from entering the bunded area. 33.9 The Contractor shall keep fuel under lock and key at all times. 33.10 If fuel is dispensed from 200 litre drums, the proper dispensing equipment shall be used, and the drum shall not be tipped in order to dispense fuel. The dispensing mechanism used to dispense fuel from the drums shall be stored in a waterproof container when not in use. 33.11 During fuel tanker delivery, the tanker driver must be present at all times during offloading of product. 33.12 An emergency cut-off switch must be installed to immediately stop fuel delivery should an accident occur. An anti-flash nozzle must be installed at the end of the vent pipe with a fuel dispenser equipped with an automatic cut-off switch to prevent fuel tank overfills. 33.13 No smoking shall be allowed in the vicinity of the stores. Symbolic safety signs depicting "No Smoking", "No Naked Lights" and "Danger" are to be provided, and are to conform to the requirement of SABS 1186. 33.14 The volume capacity of the tank shall be displayed. 33.15 The product contained within the tank shall be clearly identified using the emergency information system detailed in SABS 0232 part 1. 33.16 Any electrical or petrol-driven pump shall be equipped and positioned, so as not to cause any danger of ignition of the product.					
		17 Areas for storage of fuels and other					

		flammable materials shall comply with standard fire safety regulations and may require the approval of the Municipal Fire Prevention Officer. 18 19 The Contractor shall ensure that there is adequate fire-fighting equipment at the fuel stores. 20 21 Where reasonably practical, vehicles and equipment shall be refueled at a designated re- fueling area, as applicable. 22 23 If it is not reasonably practical then the surface under the temporary refueling area shall be protected against pollution and drip trays used to the reasonable satisfaction of the Engineer prior to any refueling activities. 24 25 All vehicles must be well maintained to avoid malfunction or leakage from fuel/oil pipes resulting in contamination 26 27 For the purposes of these Environmental Specifications, solid waste includes all debris and waste (e.g. litter, food waste, hardware discards, vegetation, building rubble, etc.), including hazardous waste (e.g. oils) resulting from any construction activities on site. 28 29 Establish a waste control system that is acceptable to the Engineer and ECO, and a method statement is required in this regard. 30 31 The Contractor shall keep detailed records of all waste removed from site, together with proof of recycling or legal disposal at a registered landfill site					

		(disposal slips). No refuse or waste material will be disposed of by burying on site.					

	Solid Waste Management	34.1 No refuse or waste material will be disposed of by burying on site.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Auditing Method Statement	Contractor	Prior to construction	Waste management plan Audit reports

C3.156

		The Contractor shall ensure that waste and surplus food, food packaging and organic waste are not deposited by employees anywhere on the site except in refuse bins/bin packets. • Any refuse not being recycled must be disposed of at a registered waste disposal facility and a completed disposal slip must be obtained.					
	Empty Cement Bags	36. Empty cement bags must be collected from the construction area by the end of every day and before rain events and shall be stored in bins that are either placed under cover or fitted with lids. This prevents the bags getting wet and the cement powder leaching into the environment.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Auditing	Contractor	Construction phase	Audit Reports and Induction
	Hazardous Waste	Petroleum, chemicals, and other harmful and hazardous wastes are to be stored in enclosed and bunded areas. 37.1 The location of these sites is to be approved by the Engineer and the ECO. 37.2 These wastes shall be disposed of at a registered hazardous waste disposal site. The Contractor shall submit copies of receipts from such waste disposal sites to the Engineer and ECO as proof of proper disposal. 37.3 The storage, handling and disposal of hazardous waste are also controlled through other relevant legislation which must be complied with, e.g. the Occupational Health and Safety Act.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Auditing	Contractor & ECO	Throughout project	Audit Reports and Induction
	Builders Rubble	The Contractor shall provide staff to clean up the Contractor's staging areas and working areas of rubble generated in the course of construction work, at least once a week. 38.1 Rubble shall be temporarily stockpiled in a waste skip or a central stockpile. Any rubble not being recycled (e.g. sent for crushing) or reused shall be	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual inspection Auditing	Contractor	Weekly Construction phase	Audit Reports and Induction

		removed from the site to an approved landfill site as soon as it constitutes a practical load for removal and before temporary closure of the site (e.g. over builders holidays). A disposal slip/certificate must be obtained for this. 38.2 No plastics, shrink wrap, paint buckets or any other debris that does not constitute clean building rubble, shall be stored at such stockpile sites					
	Ablution Facilities	Washing, whether of the person or of personal effects, and acts of excretion and urination are strictly prohibited other than at the facilities provided. 39.1 Latrine and ablution facilities and first-aid services shall comply with the regulations of the local authority concerned and shall be maintained in a clean and sanitary condition to the satisfaction of the Engineer (at least once a week is recommended), and disposal slips from the company servicing these facilities must be filed in the environmental file. 39.2 The Contractor shall provide suitable sanitary arrangements at the Contractor's temporary staging area and approved points around the designated work area to allow easy access for all employees on the site. Project staff is not permitted to commence with work on the site without suitable toilet facilities being available for them. 39.3 Sanitary facilities shall be located within 100 m from any point of work, but not closer than 50 m to any water body. One chemical toilet is to be provided on site for every 30 contract personnel at each working area. One toilet must be provided for females and a separate toilet must be provided for male contract personnel at each working area. These toilets must have doors and locks and shall	Comply with any prescribed environmental management standards and practices	Visual Inspection Auditing	Contractor	During construction Prior to and throughout construction	Audit Reports and Induction

		be secured to prevent them blowing over. Toilet paper shall be provided. The Contractor shall ensure that suitable sanitation facilities are provided for or by all his sub-contractors on the site. 39.4 Toilets are to be emptied prior to builders' holidays. The Contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the site. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited. The Contractor shall keep the toilets in a clean, neat and hygienic condition. If the Contractor fails to provide and/or maintain all site sanitation facilities in a clean and hygienic condition, the Engineer may order the Contractor to suspend any or all work on the site until these requirements are met.					

	Eating Areas	40. Designate eating areas to the approval of the Engineer, which shall be clearly demarcated. Sufficient bins. Any cooking on site shall be done on well-maintained gas cookers with fire extinguishers present.	Comply with any prescribed environmental management standards and practices	Visual Inspection Auditing	Contractor	Construction phase	Audit Reports and Induction
	Drinking Water	41 The Contractor shall ensure that fresh drinking water is available for all staff on the site. Especially close to working areas. If no potable water source is available, then the Contractor shall import drinking water to the site.	Comply with any prescribed environmental management standards and practices	Visual Inspection Complaints Register record Auditing	Contractor	Construction phase	Audit Reports and Induction
	Contaminated Water	Potential pollutants of any kind and in any form shall be kept, stored, and used in such a manner that any escape can be contained and the water table not endangered. 42.1 Water containing such pollutants as cements, concrete, lime, chemicals, fuels and hydrocarbons	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Method Statement Visual Inspection Auditing Disposal Slip	Contractor	Construction phase	Audit Reports and Induction
		shall be contained and discharged into an impermeable storage facility for removal from the site or for recycling. 42.2 This particularly applies to water emanating from concrete batching plants and concrete swills, and to runoff from fuel depots, workshops and truck washing areas. 42.3 Wash down areas shall be placed and constructed in such a manner so as to ensure that the surrounding areas are not polluted. The Contractor shall notify the Engineer immediately of any pollution incidents on the site. 42.4 If construction areas are to be dewatered (e.g. after rains), this water must first be pumped into a settlement area, and not directly into a natural ecosystem. A Method Statement shall be required for all wash areas where hydrocarbon and hazardous materials or other pollutants are expected to be used. This includes, but is not limited to, vehicle washing,					

		workshop wash bays and paint equipment cleaning. Wash areas for domestic use shall ensure that the disposal of contaminated "grey" water is sanctioned by the Engineer.					
	Hazardous Substances	43.1 Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances) used during construction shall be stored in secondary containers. 43.2 The relevant Material Safety Data Sheets (MSDS) shall be available on the site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation. If potentially hazardous substances are to be stored on the site, the Contractor shall provide a Method Statement detailing the substances/ materials to be used,	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Method Statement Visual Inspection Auditing Disposal Slip	Contractor	Construction phase	Audit Reports and Induction
		together with the storage, handling and disposal procedures of the materials. 43.3 No paint products and chemical additives and cleaners such as thinners and turpentine, may be disposed of on the site. Brush / roller washing facilities shall be established to the satisfaction of the Engineer. A Method Statement, approved by the Engineer, is required for such washing 43.3 activities.					
	Site Structures	44 The Contractor shall supply and maintain adequate and suitable sheds for the storage of materials. Sheds for the storage of materials that may deteriorate or corrode if exposed to the weather shall be weatherproof, adequately ventilated and provided with raised floors.	Comply with any prescribed environmental management standards and practices	Visual Inspection	Contractor	Construction phase	Audit Reports and Induction

	Workshop, Equipment Maintenance and Storage	45.1 Where practical, all maintenance of equipment on the site shall be performed in the workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the Engineer prior to commencing activities. 45.2 The Contractor shall ensure that in his workshop and other maintenance facilities, including those areas where, after obtaining the Engineer's approval, the Contractor carries out emergency maintenance, there is no contamination of the soil. The workshop shall have a smooth impermeable floor either constructed of concrete or thick plastic covered with sufficient sand to protect the plastic from damage. If constructed of concrete the floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil). A Method Statement detailing the design and construction of the workshop must be submitted. 45.3 When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual Inspection Auditing	Contractor	Construction phase	Audit Reports and Induction
		areas for stationary plant (such as compressors) and for "parked" equipment (such as scrapers, loaders, vehicles). All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking equipment shall be repaired immediately or be removed from the site. 45.4 The washing of equipment shall be restricted to preventative maintenance requirements only. All washing shall be undertaken in the workshop or maintenance areas, and these areas must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing and low sudsing-type detergents.					

	Environmental Awareness Training/ Inductions Training for management and foremen Training course for site staff and labour	46.1 Environmental awareness training sessions shall be run for all personnel on the site. 46.2 Two types of course shall be run, one for the Contractor's and Subcontractor's management and one for all site staff and labourers. 47.1 Courses shall be run during normal working hours at a suitable venue provided by the Contractor. 47.2 All attendees shall remain for the duration of the course and sign an attendance register on completion that clearly indicates participant's names, a copy of which shall be handed to the Contractor and a copy must be kept in the Environmental File 47.3 All staff is to attend an initial presentation of approximately 45 minutes, and approximately half an hour a month thereafter for the duration of the contract shall be allowed for employees to attend any follow-up lectures, should such follow-up lectures be deemed necessary by the ECO. In addition, all new staff and sub-contractors as well	Comply with any prescribed environmental management standards and practices	Recorded Attendance Registers	Environmental Consultant & Contractor	Monthly Employment of new staff	Audit Reports and Induction
		3 as employees that spend more than one day a week or four days in a month, to attend the environmental education session within one week of commencement of work on site. 4 5 Contractor shall supply the ECO with a monthly report indicating the number of employees that will be present on site during the following month and any changes in this number that may occur during the month. No more than 30 people shall attend each course and the cost, venue and logistics for this/ these course/s shall be for the Developer's responsibility. The ECO shall keep a register of all personnel attending the Environmental awareness training sessions. 6 Notwithstanding the specific provisions of this clause, it is incumbent upon the Contractor to convey					

		the sentiments of the EMP to all personnel involved with the works. 7 47.6 The environmental awareness training session for management shall include all management and foremen. The session, which will be presented by the ECO. The initial session shall be undertaken not less than seven days prior to commencement of work on the site. Subsequent sessions shall be held as and when required. 47.7 The environmental awareness training session for the site staff and labour shall be presented by the ECO. The course shall be run not more than seven days after commencement of work on site with sufficient sessions to accommodate all available personnel. Subsequent sessions shall be held as and when required.					
	"No go" Areas	8 48. There may be areas on the site demarcated as "no go" areas. The Contractor shall ensure that, insofar as he has the authority, no person, machinery, equipment or material enters the "no	Comply with any prescribed environmental management	Visual inspection	Contractor	Throughout project	Audit Reports and Induction
		go" areas at any time.	standards and practices				

	Fire Control	49.1 No fires may be lit on the site. 49.2 Any fires which occur shall be reported to the Engineer immediately. 49.3 Smoking shall not be permitted in those areas where it is a fire hazard. Such areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to make viable the rapid spread of an initial flame. 49.4 In terms of the Atmospheric Pollution Prevention Act, burning is not permitted as a disposal method. The Contractor shall appoint a Fire Officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedure to be followed. 49.5 The Contractor shall ensure that there is basic fire-fighting equipment available on site at all times.	Comply with any prescribed environmental management standards and practices	Documents of respective person	Contractor & ECO	Construction phase -Upon finding of non-compliance	Audit Reports and Induction
	Safety	50.1 The Contractor shall at all times observe proper and adequate safety precautions on the site. Telephone numbers of emergency services, including the local fire-fighting service, shall be posted conspicuously in the Contractor's office near the telephone. 50.2 No unauthorized firearms are permitted on the site. The Occupational Health and Safety Act (No 85 of 1993) and in particular the requirements of the Construction Regulations issued in July 2003, must be complied with.	Comply with any prescribed environmental management standards and practices	Auditing Visual Inspection	Contractor	Prior to construction During construction Prior to and throughout construction	Audit Reports and Induction
	Security	51. With the possible exception of any security staff who may be required to be present overnight at the site, no personnel will be permitted to live on	Comply with any prescribed environmental	Auditing Visual Inspection	Security & Contractor	Construction Phase	Audit Reports and Induction
		the site. Security staff must be provided with heating and cooking facilities (in order that they do not need to light fires), and access to toilet facilities and communication equipment.	management standards and practices				

	Community Relations	52.1 The Contractor shall erect and maintain information boards at the site. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the Engineer. 52.2 The Contractor shall keep a "Complaints Register" at the site. The Register shall contain all contact details of the person who made the complaint, and information regarding the complaint itself.	Comply with any prescribed environmental management standards and practices	Visual Inspection Auditing	Contractor	Prior to construction During construction Prior to and throughout construction	Audit Reports and Induction
	Working Hours	53.1 Working hours in terms of the planning approval shall be adhered to. 53.2 If works are to take place outside of normal working hours, the ECO and the Engineer are to be notified. The Engineer will, where required, in turn notify the Local Authority of work done outside of normal working hours	Comply with any prescribed environmental management standards and practices	Auditing	ECO & Engineer	Construction Phase	Audit Reports and Induction
	Temporary Site Closure	54.1 If the site is closed for a period exceeding one week, a checklist procedure shall be carried out by the Contractor in consultation with the ECO. 54.2 Contractor's Safety Officers (in terms of the Occupational Health and Safety Act) are to check the site and report to the Engineer regarding the following: 54.3 Fuels / flammables / hazardous materials stores: • Ensure fuel stores are as low in volume as possible; • No leaks; • Outlet secure / locked; • Bund empty; • Fire extinguisher serviced and accessible; 53.3 Secure area from accidental damage, e.g. vehicle collision;	Comply with any applicable provisions of the Act, regarding closure, where applicable	Auditing Recorded Checklist and Comments	Contractor & ECO	Construction Phase	Audit Reports and Induction

	Temporary Site Closure	54.4 If the site is closed for a period exceeding one week, a checklist procedure shall be carried out by the Contractor in consultation with the ECO. 54.5 Contractor's Safety Officers (in terms of the Occupational Health and Safety Act) are to check the site and report to the Engineer regarding the following: 54.6 Fuels / flammables / hazardous materials stores: • Ensure fuel stores are as low in volume as possible; • No leaks; • Outlet secure / locked; • Bund empty; • Fire extinguisher serviced and accessible; • Secure area from accidental damage, e.g. vehicle collision;	Comply with any applicable provisions of the Act, regarding closure, where applicable	Auditing Recorded Checklist and Comments	Contractor & ECO	Construction Phase	Audit Reports and Induction
		• Emergency and Management telephone numbers to be available and displayed; and • Adequate ventilation. 54.4 Other: • All trenches and manholes secured; • Fencing and barriers in place per the Occupational Health and Safety Act (No 85 of 1993); • Notice boards applicable and secured; • Security persons briefed and have facility for contact; • Night hazards checked, e.g. reflectors, lighting, traffic signage; • Fire hazards identified – local authority notified of any potential threats, e.g. large brush stockpiles, fuels etc.; • Pipe stockpile wedged / secured; • Scaffolds secure; and • Inspection schedule and log by security or contracts staff. 54.5 The ECO is to check and report to the Engineer regarding the following issues: • Wind and dust mitigation in place, e.g. straw, irrigation; • Slopes and stockpiles at stable angle; • Watering supply secured; • Fuels/hazardous substances stores secure; • Cement and materials stores secured;					

		• Toilets empty and secured; • Refuse bins empty and lids secured; • Bunding clean and treated, e.g. Spill Sorb or Enretech #1 powder; • Drip trays empty and secure; and • Structures vulnerable to high winds secure. The Contractor is to ensure that all temporary closure requirements are met before leaving the site					

*(i) avoid, modify, remedy, or stop any action, activity or process which causes pollution or environmental degradation. (ii) Comply with any prescribed environmental management standards or practise.(iii) comply with any applicable provisions of the Act regarding closure and (iv) comply with any provisions of the act regarding financial provisions for rehabilitation.

ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANAGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
<u>OPERATIONAL PHASE</u> Dust and emissions	Prevention of excessive dust generation	1.1 Vehicles and machinery such as generators will be operated as per original manufacturer's specification and undergo regular checks and preventive maintenance systems to ensure efficient fuel combustion. Original emissions control equipment is to be maintained. 1.2 No fires will be lit on site, and no toxic materials will be burned. 1.3 Audit reports will be produced to ensure regular checks and	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	ECO records Audit reports ECO records ECO records	Client	Throughout operational phase	Induction
		maintenance is carried out for vehicles and machinery. 1.4 Where possible and available, low-sulphur diesel (0.1percent sulphur) will be used for vehicles to minimise emissions. Compliance with listed activities and associated Minimum Emission Standards identified in terms of Government Notice 893 dated 22 November 2013.					
Soil Erosion	Erosion control	2.1 Ensure that water abstraction points do not degrade or erode as a result of leaking pipes, spills, muddy conditions or wash aways. Rectify problems as soon as they arise. 2.2 Repair identified leaks and address issues of water wastage as soon as these are identified. 2.3 Do not allow surface water or storm water to be concentrated or to flow down cut or fill slopes or along pipeline routes without erosion protection measures being in place. Do not allow erosion to develop on a large scale before effecting repairs. When in doubt, seek advice from the Project Engineer.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Visual inspection and ECO records	Project Engineer	Operational phase	Audit reports

ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANAGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
Site Maintenance	☐ Site Camp	3.1 Removal of structures and infrastructure Clear and completely remove from site all construction plant, equipment, storage containers, temporary fencing, temporary services, fixtures and any other temporary works. Materials that will not be used again must either be sold if possible or rehabilitated to blend in with the surrounding landscape. All access roads that were utilised during the deconstruction phase (which are not earmarked for closure	Comply with any prescribed environmental management standards and practices	Visual inspection and ECO records	Project Engineer/ECO	Project Completion	Audit reports
		and rehabilitation) should be returned to a usable state and / or a state no worse than prior to the initial construction. 3.2 Inert waste and rubble The site should be cleared of all inert rubble, including surplus rock, foundations and batching plant aggregates. All excess spoil and inert rubble should be loaded and hauled to fill in borrow pits / dongas or to dump sites indicated / approved by the Engineer. All domestic waste must be removed from the site and disposed of in an approved manner at a registered waste disposal site. 3.3 Hazardous waste and pollution control – All pollution containment structures must be removed from the site. Materials that will not be used again must be disposed off as hazardous waste. – All temporary sanitary infrastructure and waste water disposal systems must be removed from the site. Care should be taken to avoid leaks, overflows and spills. The disposal of any waste should be conducted in an approved manner. – All hazardous waste material shall be removed immediately to an approved hazardous waste disposal site. Bunded areas must be cleared to a suitable waste site or municipal sewer and be removed from site.					

		3.4 Final shaping – All trenches and test pits must be backfilled with in-situ material. All dangerous excavations should be made safe by					
Rehabilitation	Site Rehabilitation ☐ Topsoil replacement and Soil amelioration	backfilling, and grading. – Where possible, programme the backfill of excavations so that the subsoil is deposited first, followed by the topsoil. The layers should be compacted for best results. – A deficiency of backfill may not be made up by excavating haphazardly within the Work Site. Additional fill may only be imported from approved borrow areas as indicated by the Project Engineer. – Backfill areas must be monitored for subsidence (as backfill settles) and fill the depressions using available material. – All disturbed areas should be shaped in order to fit in with the surrounding environment. No excavated material or stockpiles should be left on site after construction has been completed. All materials remaining after the backfill should be smoothed over the site to blend in with the surrounding landscape. 4.1 Rehabilitation must commence as soon as possible 4.2 Execute top soiling activity prior to the rainy season or any expected wet weather conditions. 4.3 Topsoil placement should be executed concurrently with deconstruction where possible, or as soon as deconstruction in	Comply with any prescribed environmental management standards and practices	Visual inspection and ECO records	Project Engineer/ECO	Project Completion	Audit reports
ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan

		4.1 an area has ceased. 4.2 Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the substation site, including temporary access routes and roads. Topsoil should be replaced to original depth (i.e. as much as was removed prior to the commencement of the deconstruction activities). 4.4 Place topsoil in the same area where it was stripped. If there is insufficient topsoil available from a particular soil zone to					
Rehabilitation	Site Rehabilitation ☐ Topsoil replacement and Soil amelioration	backfilling, and grading. - Where possible, programme the backfill of excavations so that the subsoil is deposited first, followed by the topsoil. The layers should be compacted for best results. - A deficiency of backfill may not be made up by excavating haphazardly within the Work Site. Additional fill may only be imported from approved borrow areas as indicated by the Project Engineer. - Backfill areas must be monitored for subsidence (as backfill settles) and fill the depressions using available material. - All disturbed areas should be shaped in order to fit in with the surrounding environment. No excavated material or stockpiles should be left on site after construction has been completed. All materials remaining after the backfill should be smoothed over the site to blend in with the surrounding landscape. 4.3 Rehabilitation must commence as soon as possible 4.4 Execute topsoiling activity prior to the rainy season or any expected wet weather conditions. 4.5 Topsoil placement should be executed concurrently with deconstruction where possible, or as soon as deconstruction in an area has ceased. 4.6 Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the substation site, including temporary access routes and roads. Topsoil should be replaced to original depth (i.e. as much as was removed prior to the commencement of the deconstruction activities). 4.7 4.4 Place topsoil in the same area where it was stripped. If there is insufficient topsoil available from a particular soil zone	Comply with any prescribed environmental management standards and practices	Visual inspection and ECO records	Project Engineer/ECO	Project Completion	Audit reports

		to					
	□ Ripping and scarifying Vegetation Revegetation	produce the minimum specified depth, topsoil of a similar quality may be brought from other areas of similar quality. 4.5 Topsoil that is suspected to be contaminated with the seed of alien vegetation should not be used. Alternatively, the soil is to be sprayed with specified herbicides. 4.6 After topsoil placement has been completed, available stripped vegetation should be spread randomly by hand over the topsoiled area. 5.1 Rip and / or scarify areas following the application of topsoil to facilitate mixing of the upper most layers 5.2 All disturbed and hardened surfaces of the construction site, including temporary access routes and roads, compacted during the execution of the Works, must be ripped and / or scarified. 5.3 Rip and / or scarify along the contours to prevent the creation of down-slope channels. Do not rip and / or scarify areas under wet conditions, as the soil will not break up. 6.1 All areas that have been disturbed by deconstruction activities must be cleared of alien vegetation. Disturbed areas must be rehabilitated and re-vegetated with locally indigenous vegetation as soon as deconstruction is complete	Comply with any prescribed environmental management standards and practices Comply with any prescribed environmental management standards and	Visual inspection and ECO records Visual inspection and ECO records practices Avoid, modify, remedy, control	Project Engineer/ECO Project Engineer/ECO	Project Completion Project Completion	Audit reports Audit reports

	□ Ripping and scarifying Vegetation – Revegetation	produce the minimum specified depth, topsoil of a similar quality may be brought from other areas of similar quality. 4.7 Topsoil that is suspected to be contaminated with the seed of alien vegetation should not be used. Alternatively, the soil is to be sprayed with specified herbicides. 4.8 After topsoil placement has been completed, available stripped vegetation should be spread randomly by hand over the topsoiled area. 5.4 Rip and / or scarify areas following the application of topsoil to facilitate mixing of the upper most layers 5.5 All disturbed and hardened surfaces of the construction site, including temporary access routes and roads, compacted during the execution of the Works, must be ripped and / or scarified. 5.6 Rip and / or scarify along the contours to prevent the creation of down-slope channels. Do not rip and / or scarify areas under wet conditions, as the soil will not break up. 6.2 All areas that have been disturbed by deconstruction activities must be cleared of alien vegetation. 6.3 Disturbed areas must be rehabilitated and re-vegetated with locally indigenous vegetation as soon as deconstruction is complete	Comply with any prescribed environmental management standards and practices Comply with any prescribed environmental management standards and practices Avoid, modify, remedy, control	Visual inspection and ECO records Visual inspection and ECO records	Project Engineer/ECO Project Engineer/ECO	Project Completion Project Completion	Audit reports Audit reports

ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan

	Soil Erosion – Erosion control	7.1 All cleared land surfaces must be prepared, top soiled and revegetated. 7.2 All spoil material must be removed from site. 7.3 All areas that show signs of erosion during construction must be remediated. 8.1 Temporary roads must be closed and access across these blocked. 8.2 All areas where temporary services were installed are to be rehabilitated to the satisfaction of the Project Engineer. A meeting is to be held on site between the Engineer and Contractor to approve all remediation activities and to ensure that the site has been restored to a condition approved by the Engineer.	or stop any action, activity or process which causes pollution or environmental degradation	Visual inspection and ECO records Project	Project Engineer/ECO	Completion	Audit reports
Noise	Minimize noise impacts	9.1 Client and its Contractor(s) will ensure equipment and vehicles are regularly maintained in accordance with manufacturers specifications. 9.2 Client and its Contractor(s) will consider using acoustic screening if unacceptable noise impacts are predicted to shield receptors.	Comply with any prescribed environmental management standards and practices	Maintenance records Visual inspection and ECO records	Client	Operational Phase	n/a

ENVIRON ASPECTS: IMPACT MGT OBJECTIVE & STATEMENT	IMPACTS & RISK TO BE AVOIDED/ MANAGED/ MITIGATED	IMPACT MANAGEMENT OUTCOME	PROPOSED MANAGEMENT ACTIONS*	PARAMETERS FOR MONITORING and method & program for monitoring	RESPONSIBILITY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
Vegetation / Watercourses	Clearance of any construction material	10.1 Clearance and rehabilitate where necessary, re-grass where necessary, to improve environment and avoid remaining/cumulative effects as identified by ECO. 10.2 Save removal of ablution facilities, clean up spills or contamination.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	ECO	Contractor and ECO	Before closure of site	Audit reports
	Emergency Procedures	11.1 An appropriate and timely response to emergency situations will ensure that the environmental consequences of such situations are managed and reduced. 11.2 Client shall ensure that the fire control system is maintained according to the relevant SANS requirements. 11.3 Client shall ensure that all measures to avoid the risk of fire according to Environmental Regulations for Workplaces promulgated by Government Notice No. R2281 of 16 October 1987, as amended, is adhered to. 11.4 Firefighting equipment is to be visible Emergency Procedure to be drawn up by Contractor Emergency Contact Details 11.5 A list of emergency services contact numbers shall be displayed on the site. As a minimum, the following emergency services shall be included on the list:	Comply with any prescribed environmental management standards and practices		Client	Throughout operations	Induction

		10.3 Fire Department: 10111 • • Ambulance Services: 10177 South African Police Services: 10111					

*(i) avoid, modify, remedy, or stop any action, activity or process which causes pollution or environmental degradation. (ii) Comply with any prescribed environmental management standards or practise.(iii) comply with any applicable provisions of the Act regarding closure and (iv) comply with any provisions of the act regarding financial provisions for rehabilitation.

11. APPLICABLE LEGISLATION

The regulations promulgated in terms of the National Environmental Management Act 107 of 1998, require that the planning and development of facilities be conducted within the framework of the Integrated Environmental Management (IEM) Environmental Guidelines promulgated under the said Act. It is therefore essential to accommodate this set of requirements into the critical path of development applications in an efficient manner to detect whether or not the proposed development will result in significant environmental impacts and to suggest ways of mitigating these impacts. The National Environmental Management Act 107 of 1998 encourages that land development practices and processes be socially, economically and environmentally sustainable.

Legislative Framework

The requirements of this EMP do not release the Developer from the requirements of any other legislation that may be applicable to this Project.

PG : GRASSING

PG.1 GRASSING

The area where grassing is to be carried out and the type of grassing to be used will be decided by the Engineer on site.

Generally areas will be hydroseeded, sprig planting and sodding will be used in particular areas where it is necessary to ensure the early establishment of grass cover as a protection against erosion by wind and/or water.

As soon as practicable, all landscaped areas, banks and road verges shall be grassed.

Tenderers shall allow under the relevant items in the Schedule of Quantities, for grassing by planting rooted grass stringers or for hydroseeding of grass sodding as specified.

Provisional items have also been included in the Schedule of Quantities to cover the cost of protecting grassed surfaces by the spraying of a plastic soil consolidating agent and by the application of a suitable fabric sheeting as specified in later Clauses.

PG.2 GRASS PLANTING

The area to be grassed, which will be decided on site, shall be planted with rooted grass stringers of "Cynodon, Berea and Buffalo", a sample of which is to be submitted to the Engineer for approval before use.

The grass shall be planted at a distance of no more than 150 mm apart in both directions.

Before planting any grass, agricultural lime shall be spread over the whole area to be grassed at a rate of 30 gm per m² and this shall be lightly raked into the soil. Under no circumstances will the Contractor be allowed to drive any wheeled or tracked vehicles over the surface once it has been prepared for planting.

After planting, the surface of the soil shall be made smooth and free of humps or depressions, either by careful raking or by adding topsoil, or both. The Contractor shall allow in his prices for maintenance, weeding and watering so that the grass becomes established to the satisfaction of the Engineer.

PG.3 SODDING

PG.3.1 Sodds shall be well rooted with not more than 30% of other grasses. The thickness of sod shall be 30 mm or more when measured between boards and the area shall be not less than 0,15 square metres. Sodds should not break or crumble during handling and placing.

PG.3.2 A blinding layer of 40 mm good loamy topsoil from the site stockpiles shall be spread first.

PG.3.3 Fertilize with an approved 3.2.1 (22) fertilizer spread at the rate of 25 gms per square metre mixed with topsoil.

PG.3.4 The sods shall be neatly laid in horizontal rows, each row breaking joint with the previous row and the interstices filled with topsoil.

PG.3.5 Six weeks thereafter, fertilize again at the same rate.

PG.4 HYDROSEEDING

PG.4.1 GENERAL

The work shall include the hydroseeding of cut and fill slopes and landscaped areas and initial maintenance of the seeded areas. No hydroseeding shall take place between the 1st April and 31st August.

PG.4.2 MATERIALS

PG.4.2.1 Seed

The seed type and composition shall be as follows:

Substitutes will not be accepted except where adequate proof is given as to unavailability of the type specified.

The composition of seed types for a 5000 litre hydroseeding mixture (sufficient to cover 1000 m²) shall be as follows:

Cynodon Dactylon	500 g
Cynodon NK37 Giant	1000 g
Axonopus Compressis	500 g

All seed supplied shall be labelled in accordance with the Government Seed Act No. 20 of 1961 and the Contractor shall produce such certification as the Engineer may require to verify compliance with the Act.

The seed type and composition may be varied by the Engineer.

PG.4.2.2 Fertilizer

Fertilizer shall be 3.2.1 granular (22) which is to be included in each tank load (5000 litres) at the rate of 20 kg per tank added and mixed.

PG.4.2.3 Compost

The Contractor shall incorporate in each 5000 litres tank load, 0,5 m³ of relatively fresh chicken manure. The manure shall not contain more than 10% other materials such as wood shavings, soil, feathers, etc.

PG.4.2.4 Mulch

The mulching agent shall consist of either wood cellulose fibre mulch or fresh threshed hay or straw and shall be free of contaminants. The mulch shall be

suitably prepared, so that when mixed it will become uniformly suspended and form a homogenous slurry.

The mulching agent shall be applied at a rate of 120 kg per 5000 litre tank.

PG.4.3 EQUIPMENT

The seed mixture shall be applied by a "Hydroseeder" type distributor approved by the Engineer.

The distributor shall incorporate a built in agitator system and be capable of even and regulated distribution with a spray range of 25 metres.

PG.4.4 PREPARATION OF UNDISTURBED SOIL:

Undisturbed soil shall be prepared by thoroughly loosening to a minimum depth of 75 mm by hand picking or rotovating and where future maintenance will be required, all loose stone larger than 75 mm removed from the surface.

PG.4.5 PREPARATION OF CRUSTY TOPSOIL:

Where a crust has formed on topsoil, it shall be thoroughly loosened before hydroseeding.

PG.4.6 APPLICATION OF HYDROSEEDING MIXTURE:

The seed, fertilizer, compost and mulch shall be added and mixed before application. The mixture shall be applied at a rate of 5000 litre/1000 m² uniformly over the area to be hydroseeded.

PG.4.7 WATERING:

The Contractor shall apply water as specified for grassing. Water shall be uniformly applied with a fine spray which will not disturb growth or cause erosion.

PG.5 ADDITIONAL PROTECTIVE MEASURES

PG.5.1 DESCRIPTION:

In addition to hydroseeding or grassing the Engineer may order the following additional protective measures:

- a) The spraying of a plastic soil consolidating agent on cut slopes subject to erosion after hydroseeding or grassing.
- b) The application of a suitable fabric sheeting over the hydroseeded or grassed area.

PG.5.2 MATERIALS:

a) Plastic Soil Consolidation Agent

The soil consolidation agent shall consist mainly of a dispersion of plastic materials such as "Surfasol" or similar approved. The grade of

consolidation agent to be used for the soil encountered shall be to the approval of the Engineer.

b)Protective Fibre Sheeting

Fibre sheeting shall be "Bemnet" or similar approved. The grade of the sheeting shall be to the approval of the Engineer.

PG.5.3

APPLICATION:

a) Plastic Soil Consolidation

The agent shall be mixed and uniformly sprayed at the rate recommended by the manufacturers by a "Hydroseeder" type machine immediately after hydroseeding or grassing is completed.

b) Protective Fibre Sheeting

Immediately after grassing or hydroseeding, the mat shall be laid unstretched, loosely, and evenly in contact with the soil.

All vertical and horizontal joints shall have a nominal overlap in the line of flow and be temporarily secured by wooden pegs.

The whole area shall then be permitted along the invert of drains.

PG.6

MAINTENANCE OF GRASSED AREAS

On completion of the planting, sodding, or hydroseeding, the treated areas shall be well watered.

For optimum growth:

The grass must be watered daily for the first two weeks. Thereafter watering must be every second day for the next 2 weeks and then twice weekly from then onwards. Grass must be watered deeply so that the soil is saturated. A 3:2:1 slow release fertiliser can be applied after 6 weeks which must be well watered in.

Grass should only be cut once established.

Grass should be cut every third to fifth day to ensure proper root and shoot growth. No more than one third must be removed at any one time. Grass should preferably be cut using a rotary or cylinder type mower. Blades must always be sharp to avoid tearing or ripping of the leaf blades as this induces disease.

Thereafter the Contractor shall ensure that the treated areas are not permitted to dry out. Any grass which fails to grow shall be replaced by the Contractor, at his own expense, with fresh grass or seed until full cover is attained.

When, in the opinion of the Engineer, full grass cover has been obtained on any stage of the work, the Engineer shall issue a certificate to that effect and the Contractor's maintenance period on that stage of the grassing shall cease.

Maintenance shall include for keeping the grassed area free of weeds, for weekly mowing of the grass once it has grown sufficiently, and for making good any erosion or settlement of the surface by application of approved topsoil and replanting with stringers, sodding or hydroseeding as the case may be.

PG.7 METHOD OF PAYMENT

PG.7.1 Grassing shall be measured in square metres, separate items being provided for grassing slopes steeper than 1 in 4 or flatter than 1 in 4.

PG.7.2 In the case of grassing of planting rooted stringers, the rates shall include for supplying and planting the grass and maintaining it as specified. Extra-over rates will be paid for adding agricultural lime and fertilizer at the specified rates where directed.

PG.7.3 The rate for grassing with sods shall include for:

- a) Loading from stockpile, carting and spreading, the topsoil;
- b) The two applications of fertilizer as specified;
- c) Supplying and planting the sods; and
- d) The maintenance of the grassing as specified.

PG.7.4 The rate for hydroseeding shall include for the preparation of the ground prior to spraying, the provision of all spraying equipment, the supplying and applying of the hydroseed mixture, including seed, fertilizer, compost and mulch, and the maintenance of the hydroseeded area as specified.

PG.7.5 The protection of the grass areas by means of plastic soil consolidation and by the application of protective fibre sheeting shall be measured per square metre and shall include for the supply of all plant, labour and materials as specified.

PLW	EPWP CONDITIONS AND SPECIFICATIONS

PLW 1	Employment Targets

The contractor needs to provide a realistic estimate on the number of jobs that the project has the potential to create throughout the project duration as the project will be implemented using Labour Intensive Construction methods on elements where it is economical and feasible for this construction method.

PLW 2	Employment requirements

Tenderers are advised that this contract will be subject to the Expanded Public Works Program (EPWP) aimed at alleviating and reducing unemployment.

Tenderers must allow for any costs for the following employment requirements of the EPWP

1. 55% of unskilled labour to be women
2. 40% of unskilled labour to be youth aged between 18 and 35 years
3. 5% of unskilled labour to be people living with disability

100% unskilled labour utilised must reside within the boundaries of the Municipality ward where this contract is executed, with preference to the local community closest or at the walking distance to the contract site. Wherever possible local skilled tradesmen are to be employed on this contract with the view to maximize utilization of local resources.

PLW 3	Labour rate and payment intervals

The contractor should ensure that labour rate paid to unskilled local labour is commensurate to the daily task. When determining the rate, consideration should be given to that EPWP beneficiaries are mostly bread winners in their families, as the program intends alleviating poverty. There should also be consideration that the labour rate promotes creation of expanded number of jobs created and person days of work.

Contractors should make endeavours to ensure that labourers, particularly unskilled are remunerated on fortnight basis and prior notification be made should there be a shortfall on their wages.

The labour rate for local unskilled shall also be determined in consideration of the location of the project, i.e. for projects implemented in urbanized municipalities will not be the same as that for rural municipalities, but the rates to be used must be gazetted as per the Department of Labour.

PLW 4	Labour Intensive Construction (LIC) method

On site there must a person(s) having competency in managing and implementing LIC methods.

*Foreman @ NQF Level 4 the Unit Standard on Implementing LIC methods on site.

*Site Agent/ Managers @ NQF level 5 the Unit Standard on Manage Labour-Intensive Skills Programme both must be CETA accredited

PLW 5 Labour Intensive Construction Method

Those parts of the contract to be constructed using Labour Intensive methods will be marked in the BoQ with letter LI (indicating Labour Intensive) against every item so designated. Such works will only be constructed using method so indicated. Reference to be made to Guidelines for the implementation of Labour Intensive Infrastructure projects under EPWP.

"Scope of Work in Respect of Work Relating to the Expanded Public Works Programme (EPWP)"

PLW 6 Record Keeping

Every employer must keep in the project site office the following minutes of site progress minutes; contractors' monthly site progress reports; accurately recorded attendance register; proof of payment as means to verify authenticity of data in the EPWP Beneficiary form submitted with payment certificates. Copies of submitted EPWP beneficiary data forms should also be kept in the site office.

The employer must keep this record for a period of at least three (3) years after the completion of the project in his/her office as the project site office would have been relocated.

This should be safely kept for job creation data verifications and periodical audits on projects conducted by National and uMgungundlovu District Municipality after one (1) or two (2) quarters of submitting captured EPWP Data to the National EPWP coordinating Department.

PLW 7 EPWP Reporting as per EPWP data form

At the end of each month as part of site progress report and to be attached to every contractors' progress payment certificate; the contractor shall provide the principal agent with a written records, as per EPWP data form; which will be reflecting, beneficiaries full name & surname; ID No and job description of labour employed by main contractor and sub-contractors on site

PLW 8 EPWP Promotion/Signboards

EPWP Program at the project level shall always be promoted through having the projects signage board that embrace EPWP logo at the bottom, correct measurement for this signage board will be provided by the project leader during the site handing over meeting.....Item

PLW 9 Branding of labour apparel

Contractor & Sub-contractors' labourers shall be provided with EPWP branded Personal Protective Equipment (PPE), reflector vest with EPWP wording at the back is an ideal and cost effective means of promoting program on site.....Item

The contractor is then advised to price for both item above

PLW 10 Utilisation of a Community Liaison Officer (CLO)

The Contractor will be required to employ a full time CLO from the local community for the duration of the contract.

The project Institutional and Social Development (ISD) Facilitator will appoint a CLO for the project.

The Contractor shall allow for and pay any and all costs necessary for the engagement of the services of a Community Liaison Officer (CLO) for the full duration of this contract.

The Contractor will be required to enter a written contract with the CLO that specifies: The primary role of the CLO will be liaison and facilitation of communication which shall include inter alia:

- The hours of work and the wage rate of the CLO (a provisional sum has been allocated for this in the bill of quantities)
- The duration of the appointment.

A CLO will be identified by the local structures of the ward areas and appointed following fair and transparent interviewing process, to be conducted in the presence of local structures and the contractor representative, in order to assist the Contractor in the procurement of any local labour, etc. required for this project. The Contractor is to liaise with the CLO and afford him any assistance needed in ensuring sound working relations with the local community.

Key Responsibilities of the CLO are envisaged to include and not necessary be limited to:

1. Assisting local leadership in conducting skills and resources audit which facilitates sourcing labour from within the ward or targeted areas for employment, as required by contractor
2. Assisting in sourcing labour-only domestic sub-contractors and the procurement of materials from local resources, as required by the contractor.
3. Assisting the contractor by identifying areas of potential conflict and or threats to the project or to stakeholders in the project and recommend appropriate action to the contractor.
4. Assisting contractor and stakeholders in the project in the resolution of any conflict which may arise.
5. Establishing and ensuring that sufficient and open communication channels between the contractor and the work force are maintained.
6. Establish and ensuring that efficient and open communication channels between the contractor and the community are maintained
7. Identifying and reporting to the Contractor regarding issues where communication between stakeholders is necessary, recommend courses of action and facilitate such communications
8. Assisting the Contractor and the work force in the establishment of grievance procedures and necessary recommendation to the Contractor regarding the grievances and solution thereto.
9. Attending to site meetings and project implementation meetings as required by the Contractor and prepare periodic reports as may be required by the Contractor from time to time.

10. Attending to such other duties which are consistent with the functions of a CLO, as may be required by the Contractor from time to time.
11. Keeping the Contractor advised on community issues and issues pertaining to local security.
12. Assisting in setting up meetings or negotiations with affected parties (e.g. for moving of fences, crops and labour issues).
13. Act as a source of information for the community and the Ward Councillors on issues related to the Contract
14. Liaise with a Project Committee, as anticipated in the EMP, for community representation
15. Keep a site diary and record details of labour/community issues that may arise
16. Monitor and report on general Health and Safety issues on site
17. Assist in HIV/AIDS awareness programmes
18. Attend contract site meetings and report on labour/community issues
19. Any other duties that may be required by the Contractor.

Responsibility for the identification of a pool of suitable unskilled local labour for temporary tasks shall rest with the CLO. The Contractor shall have the right to choose from that pool. The Contractor shall have the right to determine the total number of local labourers required at any one time and this may vary during the contract. This does not include the Contractor's permanent staff.

The Contractor shall have the right to replace labour that is not performing adequately. Should such an occasion arise, it must be done in conjunction with the CLO.

The CLO shall have no authority to issues any instructions to the Contractor. The CLO shall be neutral to all parties and endeavour to remain impartial should any conflict arise. Responsibility for identifying a pool of suitable labour shall rest with the CLO, although the Contractor shall have the right to choose from the pool. The Contractor (and subcontractors) shall have the right to determine the total number of labourers required at any one time, which may vary throughout the contract.

The Contractor shall have the right to replace labour that is not performing adequately, and the replacement of any labourer shall be done in conjunction with the CLO. Local labour employed on the contract shall be paid in accordance with the Civil Engineering Industry minimum wage rate and all statutory conditions of employment shall be met.

Tenderers are to price twice the rate of unskilled local labour rate against this item for any and all costs arising out of compliance with the foregoing and in the event of a Tenderer failing to price against this item or making inadequate financial provision against this item for compliance as aforesaid, then no claim for costs or additional cost incurred will be entertained by the Head.

PLW 11 Skills development on site

Contractor in conforming to the object of EPWP that its beneficiaries need to be capacitated with skills that will render them employable in the future. It is then the responsibility of the contractor that mandatory life skills are provided to 100% of workforce on site and on the job training to labourers from whom the potential for further development has been identified. The latter is not mandatory to all as it covers technical skills.

Contractor should also make provision for the possibility that there might be local youth that will need to be placed on the project with an intention to be provided support towards improving their level of competency and productivity.

Contractor shall also provide all necessary on-the-job training to targeted labour to enable such labour to master and advance on techniques required to undertake the work in accordance with requirements of the contract in a manner that does not compromise workers health and safety.

PLW 12 Labour Only Sub-Contracting for local emerging enterprises

Tenderers are advised that this contract is subject to the Expanded Public Works Programme (EPWP) and the following criteria will apply:

African Equity Ownership

- a) The Tenderer is to allow for 5% of the total value of works to be undertaken by a Priority Population Group. This percentage excludes the costs of employing local unskilled labour. The allocation of this percentage from the Project, the screening of people, the selection of skills, will be for the Contractor to adjudicate.
- b) The Priority Population Group consists of women, youth and disabled people.
- c) The Contractor is to give first option for prospective PPG's from the surrounding areas of the Project. Should there be insufficient suitable people fitting the criteria of PPG's, the Contractor may hire people from further afield. This is to be done only after consultation with the ISD EPWP Co-ordinator and the Community Liaison Officer (CLO),
- d) A Mentor with health and safety skills is to be employed by the Contractor, in consultation with the ISD for the purposes of quality control and liaison between the Contractor and the selected PPG's on site. The mentor will be responsible for ensuring an acceptable level of quality workmanship and that such work carried out by the PPG's is executed within the time frames stipulated.

In so far as possible, the Contractor is encouraged to expand the PPG's skills, knowledge and performance levels.

PLW 13 Tenderer's to note Conditions

- a) The contract to be entered into between the Contractor and the PPG's will be a LABOUR ONLY sub-contract.
- b) The Contractor will be responsible for ensuring that all materials for use by the PPG's in the works are to be on site timeously. The Contractor shall

- liaise with the Mentor and PPG to determine the nature and extent of materials required and the lead time necessary.
- c) The Contractor shall be responsible for the overall programming of the Works and he is to allow for monitoring the PPG's programme and progress.
 - d) In conjunction with the Mentor, he is to allow for the supervision and mentoring (where necessary) of the PPG to ensure quality and adherence to standard building practice
 - e) The Contractor is to allow for extra storage facilities on site for the PPG's tools and equipment.
 - f) Basic tools shall be provided by the PPG's and where these are not available; the Contractor will supply him/her with the necessary tools and equipment and deduct the costs thereof from the interim claims made by the PPG.
 - g) Work requiring specialized tools, tools will be provided free of charge by the Contractor with the provision that these be returned upon completion of the Work.

PLW 14 Co-Ordination

The Contractor is to co-ordinate the work of all the PPG's, Sub-Contractors and Nominated Sub- Contractors appointed direct by the Employer in such a manner and at all times as will suit the building programme and he is to allow adequate access, for the PPG's, where required, to carry out their work in an efficient manner as no claims for extras in this connection will be entertained.

PLW 15 Attendance

The Contractor may allow for attendance upon the PPG's concerned to execute the work. The Contractor is to allow the PPG's the use of any scaffolding belonging to him while it remains so erected on the site.

Where scaffolding is necessary for the use by any PPG and the Contractor has not erected any for his own use or has removed same after his own use, the Contractor shall supply sufficient scaffolding to the PPG to be erected and dismantled by the PPG and returned to the Contractor.

This attendance upon PPG's to execute the work is to include for the scaffolding provisions as aforesaid and, in addition, is to include for co-operating to the fullest extent with all the parties, attending on off-loading materials, providing suitable storage for tools and materials used by the PPG's, use of general facilities such as latrines, etc., supply and cost of power, lighting, water and the like.

PLW 16 EPWP contract for labour

It is compulsory that shortly after the contractor and or sub-contractor has appointed local labour, the employment contract should be signed by both parties, prior to commencement with works on site. The employment contract forms part of the Ministerial Determination or from the regional EPWP officials.

PLW 17 EPWP Scope of Work

Note:

Contractors are to price any item on the Bill of Quantities having below, bearing in mind that they are regarded as main sources of job creation, whether sub contracted or undertaken by the main contractor.

Elements on the scope of work where application of Labour Intensive Construction methods as will indicated with letters (LI) are regarded feasible are as follows:

- i) Excavating trenches for foundations and any other civil works with the depth not more than 1.5 m
- ii) All masonry works which include concrete mixing on site; brickwork; plastering; screed works; jointing; etc.
- iii) Painting, Plumbing, Ironmongery; roof cladding; glazing; tiling; carpentry; flooring; waterproofing; etc.
- iv) External works such as landscaping; cleaning; paving; fencing; tarmac; etc.

Note

It is a general requirement of this contract that persons normally reside in the ward of the works (local labour) is given preference for employment on the contract. Provided, however, that should adequate and appropriate labour not be available within the ward, others may be employed subject to satisfactory proof being provided that every reasonable endeavour has been made to employ local labour (Local Sub-contractor(s); Skilled; Semi-Skilled and Unskilled).

The contractor shall in consultation with the local community leaders with the purpose of negotiating with them regarding the utilization of local resources in the construction process. In this regard, the contractor shall furthermore give preference, wherever possible to the employment of single heads of households, women and youth as well as families declared as most indigent by War on Poverty/ Sukuma Sakhe program profiling process. The contractor should aim, in general, to maximise the involvement of the local community, however workers from other communities should not exceed 20% of all persons working on the project, where local employees possess skills at level of competency that meet contractors requirements.

PE PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION

TABLE OF CONTENTS

1. Introduction and Background

- 1.1 Background to the Pre-construction Health and Safety Specification
- 1.2 Purpose of the Pre-construction Health and Safety Specification
- 1.3 Implementation of the Pre-construction Health and Safety Specification

2. Pre-construction Health and Safety Specification

- 2.1 Scope
- 2.2 Interpretation
 - 2.2.1 Application
 - 2.2.2 Definitions
- 2.3 Minimum Administrative Requirements
 - 2.3.1 Notification of Intention to Commence Construction Work
 - 2.3.2 Assignment of Contractor's Responsible Person to Supervise Health and Safety on Site
 - 2.3.3 Competency for Contractor's Responsible Persons
 - 2.3.4 Compensation of Occupational injuries and Diseases Act (COIDA) Act 130 of 1993
 - 2.3.5 Occupational Health and Safety Policy
 - 2.3.6 Health and Safety Organogram
 - 2.3.7 Preliminary Hazard Identification and Risk Assessment and Progress Hazard Identification and Risk Assessment
 - 2.3.8 Health and Safety Representative(s)
 - 2.3.9 Health and Safety Committee(s)
 - 2.3.10 Health and Safety Training
 - 2.3.10.1 Induction
 - 2.3.10.2 Awareness
 - 2.3.10.3 Competency
 - 2.3.11 General Record Keeping
 - 2.3.12 Health & Safety Audits, Monitoring and Reporting
 - 2.3.13 Emergency Procedures
 - 2.3.14 First Aid Box and First Aid Equipment
 - 2.3.15 Accident / Incident Reporting and Investigation
 - 2.3.16 Hazards and Potential Situations
 - 2.3.17 Personal Protection Equipment and Clothing
 - 2.3.18 Occupational Health and Safety Signage
 - 2.3.19 Permits
 - 2.3.20 Sub-contractors
 - 2.3.21 Incentives and Penalties
- 2.4 Physical Requirements
 - 2.4.1 Physical, Ergonomical, Behavioural and Task Orientated Risk
 - 2.4.2 Excavations, Shoring, Dewatering or Drainage
 - 2.4.3 Edge Protection and Penetrations
 - 2.4.4 Explosives and Blasting
 - 2.4.5 Piling
 - 2.4.6 Stacking of Materials
 - 2.4.7 Speed Restrictions and Protection

2.4.8 Hazardous Chemical Substances (HCS)

2.5 Plant and Machinery

- 2.5.1 Construction Plant
- 2.5.2 Fire Extinguishers and Fire Fighting Equipment
- 2.5.3 Hired Plant and Machinery
- 2.5.4 Formwork for Structures
- 2.5.5 Lifting Machine and Tackle
- 2.5.6 Ladders and Ladder work
- 2.5.7 General Machinery
- 2.5.8 Portable Electrical Tools / Explosive Power Tools
- 2.5.9 High Voltage Electrical Equipment
- 2.5.10 Public Health and Safety
- 2.5.11 Transport of Workers

2.6 Occupational Health

- 2.6.1 Occupational Hygiene
- 2.6.2 Welfare Facilities
- 2.6.3 Alcohol and Other Drugs

2.7 General

3. Annexure A

Task Completion Form

4. Annexure B

Principal Contractor's Responsible Persons

5. Annexure C

Other Requirements

6. Annexure D

Proposed Initial Hazard Identification and Risk Assessment Format

7. Annexure E

Acknowledgement of Receipt of Document

1. INTRODUCTION AND BACKGROUND

1.1 Background to the Pre-construction Health and Safety Specification

The Construction Regulations 2014 place the onus on the Client to prepare a pre-construction health & safety specification, highlighting all risks not successfully eliminated during design.

1.2 Purpose of the Pre-construction Health and Safety Specification

To assist in achieving compliance with the Occupational Health & Safety Act 85/1993 and the now promulgated Construction Regulations 2014 in order to reduce incidents and injuries. This pre-construction specification shall act as the basis for the drafting of the construction phase health & safety plan.

The pre-construction specification sets out the requirements to be followed by the Principal Contractor and other Contractors so that the health & safety of all persons potentially at risk may receive the same priority as other facets of the project e.g. cost, programme, environment, etc.

1.3 Implementation of the Pre-construction Health and Safety Specification

This specification forms an integral part of the contract, and the Contractor is required to use it at pre-tender phase when drawing up its project-specific construction phase health & safety plan. The Principal Contractor shall forward a copy of this specification to all Contractors at their bidding stage so that they can in turn prepare health & safety plans relating to their operations.

2. PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION

2.1 Scope

This Specification covers the requirements for eliminating and mitigating incidents and injuries on the particular project

The scope also addresses legal compliance, hazard identification and risk assessment, risk control, and promoting a health and safety culture amongst those working on the project. The specification also makes provision for the protection of those persons other than employees.

2.2 Interpretations

2.2.1 Application

This specification is a compliance document drawn up in terms of South African legislation and is therefore binding. It must be read in conjunction with relevant legislation as noted previously.

2.2.2 Definitions

The definitions as listed in the Occupational Health & Safety Act 85/1993 and Construction Regulations 2014 shall apply.

2.3 Minimum Administrative Requirements

2.3.1 Notification of Intention to Commence Construction Work

The Contractor shall notify the Provincial Director of the Department of Labour in writing before construction work commences. A copy of this notification must be forwarded to the Client on appointment.

2.3.2 Assignment of Contractor's Responsible Persons to Supervise Health and Safety on Site

The Contractor shall submit supervisory appointments as well as any relevant appointments in writing (as stipulated by the OHSA and Construction Regulations), prior to commencement of work. Proof of competency must be included. See annexure B.

2.3.3 Competency for Contractor's Appointed Competent Persons

Contractors' competent persons for the various risk management portfolios shall fulfil the criteria as stipulated under the definition of Competent in accordance with the Construction Regulations (2014). Proof of competence for the various appointments must be included.

2.3.4 Compensation of Occupational Injuries and Diseases Act 130 of 1993 (COIDA)

The Principal Contractor shall submit a letter of good standing with its Compensation Insurer to the Client as proof of registration. Contractors shall submit proof of registration to the Principal Contractor before they commence work on site.

2.3.5 Occupational Health and Safety Policy

The Principal Contractor and all Contractors shall submit a Health and Safety Policy signed by their Chief Executive Officer. The Policy must outline objectives and how they will be achieved and implemented by the Company / Contractor.

2.3.6 Health and Safety Organogram

The Principal Contractor and all Contractors shall submit an organogram, outlining the Health and Safety Site Management Structure including the relevant appointments/competent persons. In cases where appointments have not been made, the organogram shall reflect the intended positions. The organogram shall be updated when there are any changes in the Site Management Structure.

2.3.7 Preliminary Hazard Identification and Risk Assessment and Progress Hazard Identification and Risk Assessment

The Contractor shall cause a hazard identification to be performed by a competent person before commencement of construction work, and the assessed risks shall form part of the construction phase health and safety plan submitted for approval by the Client. The risk assessment must include;

- a) A list of hazards identified as well as potentially hazardous tasks;
- b) A documented risk assessment based on the list of hazards and tasks;
- c) A set of safe working procedures (method statements) to eliminate, reduce and/or control the risks assessed;
- d) A monitoring and review procedure of the risks assessment as the risks change.
- e) No Generic Risk Assessment will be accepted.

The Principal Contractor shall ensure that all Contractors are informed, instructed and trained by a competent person regarding any hazards, risks and related safe work procedures before any work commences and thereafter at regular intervals as the risks change and as new risks develop.

The Principal Contractor shall be responsible for ensuring that all persons who could be negatively affected by its operations are informed and trained according to the hazards and risks and are conversant with the safe work procedures, control measures and other related rules (tool box talk strategy to be implemented).

2.3.8 Health and Safety Representative(s)

The Principal Contractor and all Contractors shall ensure that Health and Safety Representative(s) are appointed under consultation and trained to carry out their functions. The appointment must be in writing. The Health and Safety Representative shall carry out regular inspections, keep records and report all findings to the Responsible Person forthwith and at health & safety meetings.

2.3.9 Health and Safety Committees

The Principal Contractor shall ensure that project health and safety meetings are held monthly and minutes are kept on record. Meetings must be organised and chaired by the Principal Contractor's Responsible Person. All Contractors' Responsible Persons and Health & Safety Representatives shall attend the monthly health & safety meetings. Contractors shall also have their own internal health & safety committees in accordance with the OHS Act 85/1993 and minutes of their meetings shall be forwarded to the Principal Contractor on a monthly basis.

2.3.10 Health and Safety Training

2.3.10.1 Induction

The Principal Contractor shall ensure that all site personnel undergo a risk-specific health & safety induction training session before starting work. A record of attendance shall be kept in the health & safety file. **A suitable venue must be supplied to house this training.**

2.3.10.2 Awareness

The Principal Contractor shall ensure that, on site, periodic toolbox talks take place at least once per week. These talks should deal with risks relevant to the construction work at hand. A record of attendance shall be kept in the health & safety file. All Contractors have to comply with this minimum requirement.

2.3.10.3 Competency

All competent persons shall have the knowledge, experience, training, and qualifications specific to the work they have been appointed to supervise, control, carry out. This will have to be assessed on a regular basis e.g. periodic audits by the Client, progress meetings, etc. The Principal Contractor is responsible to ensure that competent Contractors are appointed to carry out construction work.

2.3.11 General Record Keeping

The Principal Contractor and all Contractors shall keep and maintain Health and Safety records to demonstrate compliance with this Specification, with the OHS Act 85/1993; and with the Construction Regulations (2014). The Principal Contractor shall ensure that all records of incidents/accidents, training, inspections, audits, etc. are kept in a health & safety file held in the site office. The Principal Contractor must ensure that every Contractor opens its own health & safety file, maintains the file and makes it available on request.

2.3.12 Health & Safety Audits, Monitoring and Reporting

The Client shall conduct monthly health & safety audits of the work operations including a full audit of physical site activities as well as an audit of the administration of health & safety. The Principal Contractor is obligated to conduct similar audits on all Contractors appointed by it. Detailed reports of the audit findings and results shall be reported on at all levels of project management meetings/forums. Copies of the Client audit reports shall be kept in the Primary Project Health &

Safety File while the Principal Contractor audit reports shall be kept in their file, a copy being forwarded to the Client. Contractors have to audit their sub-contractors and keep records of these audits in their health & safety files, available on request.

2.3.13 Emergency Procedures

The Principal Contractor shall submit a detailed Emergency Procedure for approval by the Client prior to commencement on site. The procedure shall detail the response plan including the following key elements:

- List of key competent personnel;
- Details of emergency services;
- Actions or steps to be taken in the event of the specific types of emergencies;
- Information on hazardous material/situations.

Emergency procedure(s) shall include, but shall not be limited to, fire, spills, accidents to employees, use of hazardous substances, bomb threats, major incidents/accidents, etc. The Principal Contractor shall advise the Client in writing forthwith, of any emergencies, together with a record of action taken. A contact list of all service providers (Fire Department, Ambulance, Police, Medical and Hospital, etc) must be maintained and available to site personnel.

2.3.14 First Aid Boxes and First Aid Equipment

The Principal Contractor and all Contractors shall appoint in writing First Aider(s). The appointed First Aider(s) are to be sent for accredited first aid training. Valid certificates are to be kept on site. The Principal Contractor shall provide an on-site First Aid Station with first aid facilities, including first aid boxes adequately stocked at all times. All Contractors shall supply their own first aid box and have a trained, certified first aider on site at all times.

2.3.15 Accident / Incident Reporting and Investigation

Injuries are to be categorised into first aid; medical; disabling; and fatal. The Principal Contractor must stipulate in its construction phase health & safety plan how it will handle each of these categories. When reporting injuries to the Client, these categories shall be used. All injuries shall be investigated by the Principal Contractor, with a report being forwarded to the Client forthwith. All Contractors have to report on the 4 categories of injuries to the Principal Contractor at least monthly. The Principal Contractor must report all injuries to the Client in the form of a detailed injury report at least monthly.

2.3.16 Hazards and Potential Situations

The Principal Contractor shall immediately notify other Contractors as well as the Client of any hazardous or potentially hazardous situations that may arise during performance of construction activities.

2.3.17 Personal Protective Equipment (PPE) and Clothing

The Principal Contractor shall ensure that all workers are issued and wear hard hats, safe footwear and overalls. The Principal Contractor and all Contractors shall make provision and keep adequate quantities of SABS approved PPE on site at all times. The Principal Contractor shall clearly outline procedures to be taken when PPE or Clothing is:

- Lost or stolen;
- Worn out or damaged.

The above procedure applies to Contractors and their Sub-contractors, as they are all Employers in their own right.

2.3.18 Occupational Health and Safety Signage

The Contractor shall provide adequate on-site OHS signage. Including but not limited to: 'no unauthorised entry', 'report to site office', 'site office', 'beware of overhead work', 'hard hat area'. Signage shall be posted up at all entrances to site as well as on site in strategic locations e.g. access routes, stairways, entrances to structures and buildings, scaffolding, and other potential risk areas/operations.

2.3.19 Permits

Permits may include the following:

- Use of cradles
- Confined space
- Blasting

2.3.20 Contractors and Sub-contractors

The Principal Contractor shall ensure that all Contractors under its control comply with this Specification, the OHS Act 85/1993, Construction Regulations (2014), and all other relevant legislation that may relate to the activities directly or indirectly. The Contractor, when appointing other Contractors as 'Sub-contractors', shall mutatis mutandis ensure compliance.

2.3.21 Incentives and Penalties

Certain incentives will be provided for ongoing compliance to the provisions of the construction phase health & safety plan submitted by the Principal Contractor.

Penalties will be implemented for ongoing non-compliance to the provisions of the construction-phase health & safety plan as submitted by the Principal Contractor.

2.4 Physical Requirements

2.4.1 Physical, Ergonomical, Behavioural and Task Orientated Risk

Due to the intensive labour methods utilized on this project the Principal contractor must ensure that all employees performing manual labour are adequately informed, instructed, trained and supervised as it relates to the Physical, Ergonomical, Behavioural and Task Orientated risk likely to be encountered during construction .

2.4 2 Excavations, Shoring, Dewatering or Drainage

The Principal Contractor and any relevant Contractors shall make provision in their tender for shoring, dewatering or drainage of any excavation as per this specification and shall be cognisant of the following construction regulation:

- (1) A contractor shall ensure that all excavation work is carried out under the supervision of a competent person who has been appointed in writing.
- (2) A contractor shall evaluate, as far as is reasonably practicable, the stability of the ground before excavation work begins.
- (3) Every contractor who performs excavation work shall –
 - (a) Take suitable and sufficient steps in order to prevent, as far as is reasonably practicable, any person from being buried or trapped by a fall or dislodgement of material in an excavation;
 - (b) Not require or permit any person to work in an excavation which has not been adequately shored or braced: Provided that shoring and bracing may not be necessary where -

- (i) The sides of the excavation are sloped to at least the maximum angle of repose measured relative to the horizontal plane; or
- (ii) Such an excavation is in stable material: Provided that -
 - (a) permission being given in writing by the appointed competent person contemplated in sub regulation (1) upon evaluation by him or her of the site conditions; and
 - (b) where any uncertainty pertaining to the stability of the soil still exists, the decision from a professional engineer or a professional technologist competent in excavations shall be decisive and such a decision shall be noted in writing and signed by both the competent person contemplated in sub regulation (1) and the professional engineer or technologist, as the case may be;
 - (c) take steps to ensure that the shoring or bracing contemplated in paragraph (b) is designed and constructed in such a manner rendering it strong enough to support the sides of the excavation in question;
 - (d) ensure that no load, material, plant or equipment is placed or moved near the edge of any excavation where it is likely to cause its collapse and thereby endangering the safety of, any person, unless precautions such as the provision of sufficient and suitable shoring or bracing are taken to prevent the sides from collapsing;
 - (e) Ensure that where the stability of an adjoining building, structure or road is likely to be affected by the making of an excavation, the steps are taken that may be necessary to ensure the stability of such building, structure or road and the safety of persons;
 - (f) cause convenient and safe means of access to be provided to every excavation in which persons are required to work and such access shall not be further than 6m from the point where any worker within the excavation is working;
 - (g) ascertain as far as is reasonably practicable the location and nature of electricity, water, gas or other similar services which may in any way be affected by the work to be performed, and shall before the commencement of excavation work that may affect any such service, take the steps that may be necessary to render the circumstances safe for all persons involved;
 - (h) Cause every excavation, including all bracing and shoring, to be inspected -
 - (i) Daily, prior to each shift;
 - (ii) After every blasting operation;
 - (iii) After an unexpected fall of ground;
 - (iv) After substantial damage to supports; and
 - (v) After rain,by the competent person contemplated in sub regulation (1), in order to pronounce the safety of the excavation to ensure the safety of persons, and those results are to be recorded in a register kept on site and made available to an inspector, client, client's agent, contractor or employee upon request;
 - (i) Cause every excavation which is accessible to the public or which is adjacent to public roads or thoroughfares, or whereby the safety of persons may be endangered, to be -
 - (i) Adequately protected by a barrier or fence of at least one meter in height and as close to the excavation as is practicable; and
 - (ii) Provided with warning illuminants or any other clearly visible boundary indicators at night or when visibility is poor;
 - (j) Ensure that all precautionary measures as stipulated for confined spaces as determined in the General Safety Regulations promulgated by Government Notice No. R.1031 of 30 May 1986, as amended, are complied with when entering any excavation;

- (k) ensure that, where the excavation work involves the use of explosives, a method statement is developed in accordance with the applicable explosives legislation, by an appointed person who is competent in the use of explosives for excavation work and that the procedures therein are followed; and
- (l) Cause warning signs to be positioned next to an excavation within which persons are working or carrying out inspections or tests.

2.4.3 Edge Protection and Penetrations

The Principal Contractor must ensure that all exposed edges and openings are guarded and demarcated at all times until permanent protection has been erected. The Principal Contractor's risk assessment must include these items. E.g. protection of decking edges, finished floor slab edges, stairways, floor penetrations, lift shafts, and all other openings and areas where a person may fall.

2.4.4 Explosives and Blasting

The Principal Contractor shall ensure that the use of explosives and blasting (where required) be undertaken by a competent Contractor. No blasting shall take place within 10m of any structure or service. A Safe Work Procedure (SWP) must be submitted to the Client for approval before commencement of blasting work. The Client will issue a permit to authorise the operation.

2.4.5 Piling

The Contractor shall ensure that piling is undertaken by a competent Contractor. A SWP shall be submitted to the Client for approval before commencement of this work.

2.4.6 Stacking of Materials

The Principal Contractor and other relevant Contractors shall ensure that there is an appointed staking supervisor and all materials, formwork and all equipment is stacked and stored safely.

2.4.7 Speed Restrictions and Protection

The Principal Contractor shall ensure that all persons in its employ, all Contractors, and all those that are visiting the site are aware and comply with the site speed restriction(s). Separate vehicle and pedestrian access routes shall be provided, maintained, controlled, and enforced. The Principal Contractor shall ensure that the appropriate prohibitive, mandatory, warning and informative notices & signs are displayed.

2.4.8 Hazardous Chemical Substances (HCS)

The Principal Contractor and other relevant Contractors shall provide the necessary training and information regarding the use, transport, and storage of HCS. The Principal Contractor shall ensure that the use, transport, and storage of HCS is carried out as prescribed by the HCS Regulations. The Contractor shall ensure that all hazardous chemicals on site have a Material Safety Data Sheet (MSDS) on site and the users are made aware of the hazards and precautions that need to be taken when using the chemicals. The First Aiders must be made aware of the MSDS and how to treat HCS incidents appropriately.

2.5 Plant and Machinery

2.5.1 Construction Plant

"Construction Plant" includes all types of plant including but not limited to, cranes, piling rigs, excavators, road vehicles, and all lifting equipment.

The Principal Contractor shall ensure that all such plant complies with the requirements of the OHS Act 85/1993 and Construction Regulations (July 2014). The Principal Contractor and all relevant Contractors shall inspect and keep records of inspections of the construction plant used on site. Only authorised/competent persons are to use machinery under proper supervision. Appropriate PPE and clothing must be provided and maintained in good condition at all times. Proof of medical test as required by the Construction regulations should be available for inspection by the Client. All employees performing work in the vicinity of the Construction Plant must be made aware of the dangers posed to them and this must be done on a continuous basis through the safety talks.

2.5.2 Fire Extinguishers and Fire Fighting Equipment

The Principal Contractor and relevant Contractors shall provide adequate, regularly serviced firefighting equipment located at the allocated flammable liquid store. The appropriate notices and signs must be posted up as required.

2.5.3 Hired Plant and Machinery

The Principal Contractor shall ensure that any hired plant and machinery used on site is safe for use. The necessary requirements as stipulated by the OHS Act 85/1993 and Construction Regulations 2014 shall apply. The Principal Contractor shall ensure that operators hired with machinery are competent and that certificates are kept on site in the health & safety file. All relevant Contractors must ensure the same.

2.5.4 Formwork and Support work for Structures

The Principal Contractor shall ensure that the provisions of section 10 of the Construction Regulations 2014 are adhered to. These provisions must include but not be limited to ensuring that all equipment used is examined for suitability before use; that all formwork and support work is inspected by a competent person immediately before, during and after placement of concrete or any other imposed load and thereafter on a daily basis until the formwork and support work has been removed. Records of all inspections must be kept in a register on site.

2.5.5 Lifting Machines and Tackle

The Principal Contractor and all Contractors shall ensure that lifting machinery and tackle is inspected before use and thereafter in accordance with the Driven Machinery Regulations and the Construction Regulations (section 20). There must be competent lifting machinery and tackle inspector who must inspect the equipment daily or before use, taking into account that:

- All lifting machinery and tackle has a safe working load clearly indicated;
- Regular inspection and servicing is carried out;
- Records are kept of inspections and of service certificates;
- There is proper supervision in terms of guiding the loads that includes a trained banksman to direct lifting operations and check lifting tackle;
- The tower crane bases have been approved by an engineer;
- The operators are competent as well as physically and psychologically fit to work and in possession of a medical certificate of fitness to be available on site.

2.5.6 Ladders and Ladder Work

The Principal Contractor shall ensure that all ladders are inspected monthly, are in good safe working order, are the correct height for the task, extend at least 1m above the landing, fastened

and secured, and at a safe angle. Records of inspections must be kept in a register on site. Contractors using their own ladders must ensure the same.

2.5.7 General Machinery

The Principal Contractor and relevant Contractors shall ensure compliance with the Driven Machinery Regulations, which include inspecting machinery regularly, appointing a competent person to inspect and ensure maintenance, issuing PPE or clothing, and training those who use machinery

2.5.8 Portable Electrical Tools and Explosive Powered Tools

The Principal Contractor shall ensure that use and storage of all explosive powered tools and portable electrical tools are in compliance with relevant legislation. The Principal Contractor shall ensure that all electrical tools, electrical distribution boards, extension leads, and plugs are kept in safe working order. Regular inspections and toolbox talks must be conducted to make workers aware of the dangers and control measures to be implemented e.g. personal protection equipment, guards, etc.

The Principal Contractor shall consider the following:

- A competent person undertakes routine inspections and records are kept;
- Only authorised trained persons use the tools;
- The safe working procedures apply;
- Awareness training is carried out and compliance is enforced at all times; and
- PPE and clothing is provided and maintained.
- A register indicating the issue and return of all explosive round;
- Ensure that cartridges and explosive tools are locked up separately
- Signs to be posted up in the areas where explosive powered tools are being used.
(WARNING - EXPLOSIVE POWERED TOOL IN USE - KEEP CLEAR).

2.5.9 High Voltage Electrical Equipment

The Principal Contractor must ensure that no high voltage electrical equipment is present on, under or above the construction area. All employees and visitors on site must be made aware of the dangers of underground electrical cables and the position thereof.

2.5.10 Public and Site Visitor Health & Safety

The Principal Contractor shall ensure that every person working on or visiting the site, as well as the public in general, shall be made aware of the dangers likely to arise from site activities, including the precautions to be taken to avoid or minimise those dangers. Appropriate health and safety notices and signs shall be posted up, but shall not be the only measure taken.

Both the Client and the Principal Contractor have a duty in terms of the OHS Act 85/1993 to do all that is reasonably practicable to prevent members of the public and site visitors from being affected by the construction activities.

Site visitors must be briefed on the hazards and risks they may be exposed to and what measures are in place or should be taken to control these hazards and risks. A record of these 'inductions' must be kept on site in accordance with the Construction Regulations.

2.5.11 Transport of Workers

The Principal Contractor and other Contractors shall not:

- Transport persons together with goods or tools unless there is an appropriate area or section to store them;
- Transport persons in a non-enclosed vehicle, e.g. truck; there must be a proper canopy (properly covering the back and top) with suitable sitting area. Workers shall not be permitted to stand or sit at the edge of the transporting vehicle.
- Transport workers in bakkies unless they are closed/covered and have the correct number of seats for the passengers.

2.6 Occupational Health

2.6.1 Occupational Hygiene

Exposure of workers to occupational health hazards and risks is very common in any work environment, especially in construction. Occupational exposure is a major problem and all Contractors must ensure that proper health and hygiene measures are put in place to prevent exposure to these hazards. Prevent inhalation, ingestion, absorption, and noise induction. Site-specific health risks such as cement dust, wet cement, wood-dust, noise, etc. should be considered.

2.6.2 Welfare Facilities

The Principal Contractor must supply the following:

- Sufficient toilets (1 toilet per 30 workers),
- showers (1 for every 15 workers),
- potable water,
- changing facilities,
- soap & hand washing facilities,
- toilet paper,
- hand drying material
- Waste bins must be strategically placed and emptied regularly.
- Safe, clean storage areas must be provided for workers to store personal belongings and personal protective equipment.
- Workers should not be exposed to hazardous materials/substances while eating and must be provided with sheltered eating areas and adequate seating arrangements.
- No food preparation shall be permitted on site

2.6.3 Alcohol and other Drugs

No alcohol and other drugs will be allowed on site. No person may be under the influence of alcohol or any other drugs while on the construction site. Any person on prescription drugs must inform his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suffering from any illness/condition that may have a negative effect on his/her safety performance must report this to his/her superior, who shall in turn report this to the Principal Contractor forthwith. Any person suspected of being under the influence of alcohol or other drugs must be sent home immediately, to report back the next day for a preliminary inquiry. A full disciplinary procedure must be followed by the Contractor concerned and a copy of the disciplinary action must be forwarded to the Principal Contractor for his records.

2.7 General

This Health and Safety Specification forms an integral part of the Contract and the Principal Contractor is required to use it during the tender phase for pricing the preparation of a project specific Health and Safety Plan prior to commencing any work and for pricing the costs of ensuring

compliance thereto during construction. The Principal Contractor must ensure that a copy of this Specification is forwarded to all Sub-contractors that may be submitting prices to the Principal Contractor during the tender stage to enable them to include the cost of preparing their own Health and Safety Plan, relevant to their particular operation, and for compliance with the Health and Safety requirements during construction. Payment for compliance with the 'Occupational Health and Safety Act' and with this Specification needs to be included with the rates for the work items. No separate pay item has been allowed for.

Project name: _____
Date: _____

PRE-CONSTRUCTION HEALTH AND SAFETY SPECIFICATION (HSS)

Project: _____

ANNEXURE A

The Principal Contractor and Contractors must submit proof of compliance with Annexure A with the construction phase H&S plan where applicable.

HSS Item No.	Requirement	OHS Act Requirement	Submission Date
2.3.1	Notification of Intention to Commence Construction / Building Work	Complete Schedule 1 (Construction Regulations)	Before commencement on site
2.3.2	Assignment of Responsible Person to Supervise Construction Work	All relevant appointments, as per OHS Act and Construction Regs.	Before commencement on site
2.3.3	Competence of Responsible Persons	Client Requirement & OHS Act	Together with H&S plan
2.3.4	Compensation of Occupational Injuries and Diseases Act (COIDA) 130 of 1993	COIDA Requirement	Together with H&S plan
2.3.5	Occupational Health and Safety Policy	OHS Act	Together with H&S plan
2.3.6	Health and Safety Organogram	Client Requirement	Together with H&S plan
2.3.7	Initial Hazard Identification and Risk Assessment based on the Client's assessment	Construction Regs.	Together with H&S plan
2.3.8	Health and Safety Representative	OHS Act	Submit as soon as there are more than 20 employees on site
	Other		

ASSIGNMENT OF PRINCIPAL CONTRACTOR'S RESPONSIBLE PERSONS

Project: _____

ANNEXURE B

The Principal Contractor shall make the following appointments according to the initial risk assessment: (further appointments could become necessary as project progresses)

Appointment	OHS Reference	Requirement
CEO Assignee	Section 16(2)	A competent person to assist with the on-site H&S overall responsibility – Contractor's Responsible Person
Construction Work Supervisor	CR 6.1	A competent person to supervise and be responsible of Health & Safety related issues on site. The person is appointed to assist the CEO with his/ her overall duties.
Subordinate Construction Work Supervisors	CR 6.2	A competent person to assist with daily supervision of construction / building work. The person assists the Construction Work Supervisor.
Health & Safety Representative(s)	Section 17	A competent person(s) to inspect H&S in reference to plant, machinery and Health & Safety of persons in the workplace.
Health & Safety Committee Member(s)	Section 19	A competent person(s) representing the employer to assist with the on site Health & Safety matters.
Incident Investigator	GAR 9	A competent person to investigate incidents / accidents on site and could be: • The employer • H&S Representative • Designated person • Member of the H&S Committee
Risk assessment co-ordinator	CR 7	A competent person to co-ordinate all risk assessments on behalf of the Principal Contractor. The same applies to Contractors.
Fall protection plan co-ordinator	CR 8	A competent person to prepare & amend the fall protection plan.
First Aiders	GSR 3	A qualified person to address all on site first aid cases.
Machinery Inspector	Section 8(2)	A competent person to supervise machinery.
Lifting machine & equipment inspector	DMR 18	A competent person to inspect lifting machines, equipment & tackle.

Appointment	OHS Reference	Requirement
Scaffolding Inspector	SABS 085/ CR 14	A competent person to inspect scaffolding before use and every time after bad weather, etc.
Scaffolding erector	SABS 085/CR 14	A competent person to erect scaffolding.
Scaffolding supervisor	SABS 085/CR 14	A competent person to supervise scaffolding.
Formwork & support work inspector	CR 10	A competent person to inspect formwork & support work.
Excavation Inspector	CR 11	A competent person to inspect excavation work and ensure that approved safe working procedures are followed at all times.
Ladder Inspector	GSR 13A	A competent person to inspect ladders daily and ensure they are safe for use, keeping monthly record.
Stacking Supervisor	CR 26	A competent person to supervise all stacking and storage operations.
Explosive powered tools inspector/supervisor	CR 19	A competent person to inspect & clean the tool daily and controlling all operations thereof.
Temporary electrical installations supervisor	CR 22	A competent person to control all temporary electrical installations.
Fire-fighting equipment inspector	CR 27	A competent person to inspect fire-fighting equipment.

OTHER REQUIREMENTS

Project: _____

ANNEXURE C

The Principal Contractor shall comply but not be limited to the following requirements report on these to the Client at progress meetings or at least monthly whichever is sooner.

What	When	Output	Accepted by Client & date
Induction training	Every worker before he/she starts work.	Attendance registers	
Awareness Training (Tool Box Talks)	At least weekly	Attendance registers	
Health & Safety Reports	Monthly	Report covering: - Incidents / accidents and investigations - Non conformances by employees & contractors - Internal & External H&S audit reports	
Emergency procedures	Ongoing evaluation of procedure	Table procedure in writing as well as tel. numbers	
Risk assessment	Updated and signed off at least monthly	Documented risk assessment	
Safe work procedures	Drawn up before workers are exposed to new risks	Documented set of safe work procedures (method statements), updated and signed off.	
General Inspections	Weekly & daily	Report OHS Act compliance: - Excavations - Formwork & support work - Explosive tools	
General Inspections	Monthly	- Fire fighting equipment - Portable electrical equipment - Ladders - Lifting equipment/slings	
List of contractors	List to be updated weekly	Table list, number of workers and Company tel. numbers	
Workman's Compensation	Ongoing	Table a list of Contractors' workman's compensation proof of good standing.	
Construction site rules & Section 37.2 Mandatary Agreement	Ongoing	Table a report of all signed up Mandataries.	

ANNEXURE D Risk Assessment

PROJECT: _____

DATE: _____

TASK ORIENTATED RISK

Rating	Task / Situation	Personal Protective Equipment	Risk to Safety	Risk to Health	Risk to Environment	Preventative Action

EQUIPMENT RISKS

Rating	Activity / Situation	Personal Protective Equipment	Risk to Safety	Risk to Health	Risk to Environment	Preventative Action

PHYSICAL RISKS

Rating	Situation	Personal Protective Equipment	Risk to Safety	Risk to Health	Risk to Environment	Preventative Action

ERGONOMICAL RISKS

Rating	Situation	Personal Protective Equipment	Risk to Safety	Risk to Health	Risk to Environment	Preventative Action

BEHAVIOURAL RISKS

Rating	Situation	Personal Protective Equipment	Risk to Safety	Risk to Health	Risk to Environment	Preventative Action

ANNEXURE E

Acknowledgement of receipt:

I, _____ representing

_____ Principal Contractor /

Contractor / Employer have satisfied myself with the content of the Pre-construction Health and Safety Specification and shall ensure that the Principal Contractor / Contractor and its personnel comply with all obligations / requirements in respect thereof.

Signature of Principal Contractor / Contractor

Date

Signature of Client / Client's Agent

Date

Comments:

UMDONI LOCAL MUNICIPALITY

CONSTRUCTION OF MANDLALATHI COMMUNITY HALL - WARD 2

OCCUPATIONAL HEALTH AND SAFETY (OHS)

SPECIFICATION

EnAq Consulting cc has been appointed as the Occupational Health and Safety agent for this project. This report details the implementation of the Occupational Health and Safety Management at the Umdoni local Municipality – Ward 2. An assessment of the status of the project safety management system is hereby summarised. Recommendations for future OHS management will be dealt with in stages.

The principle objectives are to:

- *Identify key safety risks.*
- *Check progress made with any previous audit non-conformances where applicable*
- *Provide the client with a listing of the current state of safety during the construction phase.*
- *Provide a listing of the safety non-conformances identified, so that this can be managed and rectified.*
- *To ensure that the site specifics and the health and safety specifics are met*
- *Carry out monthly audits and any other inspections required from time to time.*

1. SPECIFICATION CONTROL SHEET

PROJECT NAME: CONSTRUCTION OF MANDLALATHI COMMUNITY HALL – WARD 2

2. APPLICATIONS AND INTERPRETATION

- This document is to be read and understood in conjunction with the following, inter- alia:
- Occupational Health and Safety Act 85 of 1993 (OHS Act).
- All regulations published in terms of the OHS Act.
- Construction Regulations, 2014
- SABS codes referred to by the OHS Act.
- Contract Documents
- Basic Conditions of Employment Act (Act 75 of 1997)
- National Environmental Management Act 107 of 1998 and all Regulation
- Compensation for Occupational Injuries and Diseases (COID) Act No. 130 of 1993

ABBREVIATIONS

OHS: Occupational Health and Safety

CEO: Chief Executive Officer

CR: Construction Regulations

HCS: Hazardous Chemical Substances

MSDS: Material Safety Data Sheet

AIA: Approved Inspection Authority

HBA: Hazardous Biological Agents

OEL: Occupational Exposure Limit

H&SS: Health and Safety Specification

HS&EP: Health, Safety and Environmental Plan

HS&EF: Health, Safety and Environmental File

CHSO: Construction Health and Safety Officer

3. DEFINITIONS

The following definitions from the Occupational Health and Safety Act are listed as follows:

Chief Executive Officer

In relation to a body corporate or an enterprise conducted by the State, means the person who is responsible for the overall management and control of the business of such body corporate or enterprise.

Danger

Means anything that may cause injury or damage to persons or property.

Employee

Means, subject to the provisions of Subsection (2), any person who is employed by or works for any employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

Employer

Means, subject to the provisions of Subsection (2), any person who employs or provides work for any person or remunerates that person or expressly or tacitly undertakes to remunerate him, but excludes a labour broker as defined in Section 1(1) of the Labour Relations Act, 1953 (Act No. 28 of 1956).

Healthy

Means free from illness or injury attributable to occupational causes.

Machinery

Means any article or combination of articles assembled, arranged or connected and which is used or intended to be used for converting any form of energy to performing work, or which is used or intended to be used, whether incidental thereto or not, for developing, receiving, storing, containing, confining, transforming, transmitting, transferring or controlling any form of energy.

Medical Surveillance

Means a planned programme of periodic examination (which may include clinical examinations, biological monitoring or medical tests) of employees by an occupational health practitioner or, in prescribed cases, by an occupational medicine practitioner.

Plant

Includes fixtures, fittings, implements, equipment, tools and appliances, and anything which is used for any purpose in connection with such plant.

Properly Used

Means used with reasonable care, and with due regard to any information, instruction or advice supplied by the designer, manufacturer, importer, seller or supplier.

User

In relation to plant or machinery, means the person who uses plant or machinery for his own benefit or who has the right of control over the use of plant or machinery, but does not include a lessor of, or any person employed in connection with, the plant or machinery.

Risk

Means the probability that injury or damage will occur.

Reasonably Practicable

Means practicable having regards to:

- a)** the severity and scope of the hazard or risk concerned,
- b)** The state of knowledge reasonably available concerning that hazard or risk and of any means to remove or mitigate that hazard or risk.
- c)** the availability and suitability of means to remove or mitigate that hazard or risk; and
- d)** The cost of removing or mitigating that hazard or risk in relation to the benefits deriving there from.

Safe

Means free from any hazard.

Standard

Means any provision occurring:

- a)** in a specification, compulsory specification, code of practice or standard method as defined in Section 1 of the Standards Act, 1993 (Act No. 29 of 1993); OR
- b)** In any specification, code or any other directive having standardization as its aim and issued by an institution or organization inside or outside the Republic which, whether generally or with respect to any particular article or matter and whether internationally or in any particular country or territory, seeks to promote standardization.

The following definitions from the Construction Regulations are listed as follows:

Agent

Means any competent person who acts as a representative for a client.

Competent Person

Means any person having the knowledge, training, experience and qualifications specific to the work or task being performed: Provided that where appropriate qualifications and training are registered in terms of the provisions of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995), these qualifications and training shall be deemed to be the required qualifications and training.

Construction work

Means any work in connection with:

- a)** The construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure;
- b)** the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system or any similar civil engineering structure; or the moving of earth, clearing of land, the making of an excavation, piling or any similar civil engineering structure or type of work.

Construction work permit means a document issued in terms of regulation 3;

Contractor

Means an employer who performs construction work.

Hazard Identification

Means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed.

Health and Safety File

Means a file, or other record containing the information required in these regulations.

Health and Safety Plan

Means a site, activity or project specific documented plan in accordance with the client's health and safety specification;

Health and Safety Specification

Means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work;

Method Statement

Means a document detailing the key activities to be performed in order to reduce as reasonably as practicable the hazards identified in any risk assessment.

Principal Contractor

Means an employer appointed by the client to perform construction work;

Risk Assessment

Means a program to determine any risk associated with any hazard or aspect at a construction site, in order to identify the steps to be taken to remove, reduce or control such hazard.

4. DESCRIPTION OF WORK

- Establishment of Mandlalathi Community Hall with the capacity to seat 350-400 people.
- External toilets/changeroom area, parking area and a guardhouse.
- Stormwater drainage system and a separate soakaway/septic tank is required.
- Area to house the JoJo tanks that will be used for rainwater harvesting.

5. DESCRIPTION OF THE SITE

The Construction work -: Rural Area Ward 2

6. APPLICATION OF THE CONSTRUCTION REGULATIONS 2014

The intended construction work falls within the scope of "construction work" as defined in the Construction Regulations, 2014 made under the Occupational Health and Safety Act 1993, as amended ("OHS Act")

7. PERMIT TO WORK

Where the construction works;

- (i) Exceeds 180 days;
- (ii) Involves more than 1800-person days of construction work; or
- (iii) The works contract is equal to or exceeds R13 Million or Construction Industry Development Board grading level 6. The client must at least 30 days prior to construction work; apply to the DOL For a construction work permit in the form of CR Annexure 1.

8. NOTIFICATION OF CONSTRUCTION WORK

The principal Contractor shall notify the local relevant Provincial Director of the Department of Labour, before commencing with construction work, of the intended work in the form of Annexure 2 of the Construction Regulations.

A copy of the completed Annexure 2 of the Construction Regulations, as well as proof of notification shall be included in the Health and Safety Plan. (Proof of fax or proof of hand delivery)

A copy of the completed Annexure 2 is to be kept on site by the Principal Contractor.

9. LEGAL DOCUMENTATION/APPOINTMENTS

- The following documents must be provided in the Health and Safety Plan (H&SP): Health and Safety Policy signed by CEO or statement of commitment to SHE
- Letter of good standing with the Compensation Commissioner, Federated Employers or similar insure
- HSE Organogram (or table), outlining the HSE Team, as well as the appointment(s) they have under the Act and Regulations (reference to specific section/regulation applicable to appointment)
- The competency of each member of the HSE Team must be provided and should include knowledge, training, experience & qualifications specific to the appointment.

Signed copies of the following legal appointments must be provided in the Health, Safety and Environmental Plan:

APPOINTMENT	OHS-ACT / REGULATION REFERENCE
Section 16.2 appointment	Section 16.2
HSE Representative (if necessary)	Section 17(1)
Incident Investigator	GAR 9(2)
First Aiders	GSR 3(4)
Fire Fighters	ER 9 & CR 29
Risk Assessor	HCS Reg (Incl. Asbestos & Lead); CR 9

The following information must be provided in the H&SP:

- Indicate the estimated number of employees to be working on site.
- Indicate the expected number of sub-contractors to be appointed by the Principal Contractor.

The following competent persons, **where applicable**, shall be appointed in writing by the Principal Contractor, prior to any work being carried out, and shall adhere to the requirements of the specific sub-regulations.

The competency of each of these appointed competent persons must be provided and should include knowledge, training, experience & qualifications specific to the appointment.

The table below indicates the applicability of the appointments, but contractors should by no means be limited to these indications.

APPOINTMENT	OHS-ACT / REGULATION REFERENCE
Construction Manager	CR 8 (1)
Assistant Construction Manager	CR 8 (2)
Construction H&S Officer where applicable	CR 8 (5)
Construction Supervisor	CR 8 (7)
Construction Assistant Supervisor	CR 8(8)
Risk assessor	CR 9(1)
Fall Protection Competent Person	CR 10 (1)
Temporary works competent person	CR12 (2)
Excavation Work Supervisor	CR 13 (1)(a)
Demolition Work Competent Person	CR 14 (1)
Competent Person (Use of Explosives for Demolition Work)	CR14(11)
Scaffolding Erector/ Team Leader/ Inspector	CR 16 (1)
Suspended platform Competent Person	CR 17(1)
Rope Access Work Competent Person	CR 18 (1) (a)
Material Hoist Competent Person	CR 19(8)(a)
Bulk Mixing Plant Competent Person	CR 20 (1)
Explosive Powered Tools Competent Person	CR 21(2)(b)
Construction Vehicle and Mobile Plant Competent Person	CR23 (1)(d)
Electrical Machinery Competent Person	CR 24 (c)
Stacking and Storage Supervisor	CR 28 (a)
Fire Equipment Inspector	CR 29(h)

- **Indicate in the H&SP, which of these listed appointments are applicable to the construction work in question.**
- No work involving any of the listed appointments may be performed without the knowledge and approval of an appointed competent person.

10. GENERAL DUTIES OF PRINCIPAL CONTRACTOR

- The principal contractor will be responsible for co-operation between all contractors to ensure compliance to the OHS –Act and Regulations on site.
- To ensure the above, the Principal Contractor must carry out the following and provide proof of such in his H&SP:
- Proof that Contractors H&SP has been approved, implemented and maintained.
- Proof that Contractors are registered with the Compensation Commissioner or similar insurer.
- A comprehensive & updated list of all contractors on site, also indicating the type of work being done.

11. DESIGNER GENERAL DUTIES

The designer of a structure must comply with CR 6 and in particular ensure that cognizance is taken of ergonomic design principles in order to minimize ergonomic related hazards in all phases of the life cycle of the structure such as maintenance and cleaning after completion and commissioning of the structure.

12. POTENTIAL SOURCES OF RISK

The following potential sources of risk to the health and safety of persons on site have been identified, as per the risk assessment which accompanies this health and safety specification, and must, as a minimum, be appropriately addressed by the Principal Contractor's H&SP. In addition, the Principal Contractor must perform its own risk assessments to enable it to take precautions to protect the health and safety of persons on site, to comply with the Principal Contractor's obligations under the Act and all Regulations made there under, including the Construction Regulations. All such precautionary measures and procedures must be included in the Principal Contractor's H&SP, which must be submitted to the Client for review and approval and where applicable should include:

- Noise

- Potential presence of asbestos that forms part of the structure (cement fibre)
- Dust
- Working at height (fall protection)
- Drilling (Breaking of walls)
- Formwork and support work
- Scaffolding
- Construction vehicles and mobile equipment
- Electrical installations and electrical machinery
- Housekeeping
- Stacking and storage practices
- Fire risks and fire precautions
- Use of jackhammers
- Hot work (steel cutting and welding)
- Portable electrical tools
- Intoxicated persons on site
- Use of ladders
- Impact of construction work upon occupants of buildings not evacuated for the duration of the work

The risk assessment to be included in the H&SP must clearly indicate:

- The methodology used to do the risk assessments.
- Breakdown of processes and activities covered.
- Subsequent hazards identified
- Risk calculations (considering consequence, frequency and likelihood)

All risk assessments are to be conducted by a competent person as appointed under paragraph 9 of this document. The plan must include a declaration in this regard or the risk assessment must contain the signature(s) of this appointed persons.

Risk assessments are **to cover safety as well as health hazards and shall include environmental risks.**

The contractor must be provided with available information about site services and their location, e.g. underground services by the client. The client must further provide any information about ground conditions and underground structures or water courses, such as culverts, where this might affect the safe use of plants such as cranes or the safety of groundwork e.g. in the construction of trenches.

13. SAFE WORK PROCEDURES

13.1 Health and Safety

The following Safe Work Procedures are to form part of the HSE Plan and **must be compiled for all the above-identified activities, and that is:**

- 13.1. Removals / demolitions
- 13.2. Building/Wet trades
- 13.3. Floor repairs and construction
- 13.4. External walling
- 13.5. Internal Divisions
- 13.6. Internal Wall finishing's,
- 13.7. Painting
- 13.8. Ceilings

13.9. Electrical Installations

13.10. Fire Services

13.11. Air-conditioning

13.12. Waste management

13.13. Glass and Aluminium works

The safe work procedures must address the following elements:

- The work method to be followed to conduct work safely
- Control measures implemented to mitigation & reduce the risks
- Responsibilities of competent persons
- Required personal protective equipment
- Correct equipment/tools/machinery to be used
- Completed Risk Registers
- Completed Risk Assessments

13.2 Environment

13.2.1 Pollution

Any impacts on the environment must be minimized, environmental pollution prevented, efficient use of natural resources and conserving biodiversity during the duration of the contract.

13.2.2 Resource use

Consideration must also be taken for the following;

- Waste minimization
- Energy and water efficiency
- Prevention of water and soil contamination
- Managing air emissions

14. SAFETY OF PEDESTRIANS

Access to the construction site must be cordoned off as much as possible in all work areas.

All excavations are to be fenced / barricaded to prevent access by public / pedestrians.

Work must be planned in such a manner as to ensure that the minimum amount of trenches are left open after hours or during weekends.

No trenches in which water has accumulated may be left open.

15. REGISTERS

Examples of the registers listed below must be provided in the H&SP.

All registers must be available at the site offices at all times for inspection.

The list of registers to be kept is by no means exhaustive and the H&SP should list all the registers that are applicable and at what frequency they are going to be maintained.

ACTIVITY	FREQUENCY	FORMAT
Form work / Support work	Daily, prior to any shift	

ACTIVITY	FREQUENCY	FORMAT
Excavation work	Daily, prior to any shift, after rain or blasting or after unexpected fall of ground	
Scaffolding	Daily, prior to any shift, after Rain or blasting.	
Material hoist	Daily	
Construction vehicles and mobile plant	Daily	
Temporary electrical installation	Weekly	
Stacking	Weekly	
Ablution facilities	Weekly	
Ladders	Weekly	
Incident register in terms of GAR 9	As Required	Annexure 1 WCL 2
Fall protection equipment	Daily	
Portable electrical tools	Weekly	
Suspended platforms	Daily	
Accommodation of traffic	Daily	
Firefighting equipment	Weekly	
Hand tools	Weekly	
Visitor induction	Daily	
Proof of medical surveillance for every construction worker has been done	As Required	Annexure 3 of CR

16. TRAINING

Each H&SP shall indicate the following regarding training:

A copy of the content to be used for Induction training.

Attendance registers must be included as proof of training provided for:

- Induction training
- Safe work procedure training
- Risk assessment outcome training

Method of informing visitors and other persons entering the site of hazards prevalent on site.

Method of providing personal protective equipment to visitors and non-employees.

Methodology to be used in the issuing and communication of written instructions/safe work procedures.

17. HEALTH AND SAFETY AUDITS AND INSTRUCTION REGISTER

- Health and safety audits will be conducted monthly by an appointed H&S officer. All Health and Safety instructions will be given via the Safety Office in writing within 7 days of audits.
- The Principal Contractor shall be required to sign the instruction to acknowledge any instructions issued and rectify the deviations.

18. GENERAL REQUIREMENTS

18.1. Personal Protective Equipment

The procedures for issuing and control over PPE shall be indicated in the H&SP, as well as the enforcement for the wearing thereof.

18.2. Hired Plant

The responsibility for the safe condition and use of all hired plant shall be that of the contractor.

18.3. Transport of Employees

Transport of employees shall be carried out in terms of the National Road ordinances. The H&SP shall detail the arrangements and methods of the transportation of workers.

18.4. Signs

The Principal Contractor shall indicate in his H&SP the arrangements regarding the posting of danger signs.

18.5. Certificates of fitness

The Principal Contractor and the subcontractors shall include in their Health and Safety files all copies of the worker's medical certificates of fitness conducted by an Occupational Health Medical/Nursing Practitioner.

18.6. Site Visitors

A site visitor's register is to be kept on site and steps are to be taken to ensure that all visitors sign the visitors' register before entering the site. An induction must be given to all visitors entering the site and proof thereof must be kept in the health and safety file. Visitor's PPE must be made available and at the cost of the contractor. A sign should also be provided directing all visitors to report to the site office.

18.7 Housekeeping

CR 27 and CR 28 shall be complied with regarding sustained provision of good housekeeping, stacking and storage practices. Chutes shall be used for waste and debris removal from high places. The site shall be suitably cordoned off and access controlled. Catch platforms or nets shall be used where necessary.

18.8 Welfare Facilities

The Contractor will ensure that adequate ablution and changing facilities are made available to the workers. The Contractor will also provide appropriate hygienic eating facilities for the workers.

19. HAZARDOUS CHEMICAL SUBSTANCES

In addition to the requirements in the HCS Regulations, the principal contractor must provide proof in the H&SP that:

Material Safety Data Sheets (MSDS's) of the relevant materials/hazardous chemical substances are available prior to use by the contractor. Mention should be made how the principal contractor is going to act according to special/unique requirements made in the relevant MSDS's. All MSDS's shall be available for inspection by the client at all times.

Risk assessments must be done for this construction project.

Exposure monitoring where required shall be undertaken by an AIA and that the medical surveillance programme is based on the outcomes of the exposure monitoring.

How records are going to be kept safe for the stipulated period of 30 years.

How the relevant HCS's are being/going to be controlled by referring to:

- Limiting the amount of HCS
- Limiting the number of employees
- Limiting the period of exposure
- Substituting the HCS
- Using engineering controls
- Using appropriate written work procedures

The correct PPE is being used.

HCS are stored and transported according to SABS 072 and 0228.

Training with regards to these regulations was given.

The H&SP should make reference to the disposal of hazardous waste on classified sites and the location thereof (where applicable).

20. ASBESTOS

Where refurbishment is going to occur, it must be established through sampling whether asbestos forms part of the structure or not before proceeding with any building work.

If asbestos is present, the following must be included in the H&SP.

- Notification to the Provincial Director in writing, prior to commencement of asbestos work.
- Proof of a structured medical surveillance programme, drawn up by an occupational medicine practitioner.
- Proof that an occupational health practitioner carried out an initial health evaluation within 14 days after commencement of work.
- Copies of the results of all assessments, exposure monitoring and the written inventory of the location of the asbestos at the workplace.
- Only proof that medical surveillance has been conducted and not the actual medical records as these are of a confidential nature.
- How records are going to be kept safe for the stipulated period of 40 years.
- Proof that asbestos demolition (if applicable) is going to be done by a registered asbestos contractor and provide proof that a plan of work for such demolition is submitted to an Approved Asbestos Inspection Authority 30 days prior to commencement of the demolition.
- Provide proof that the plan of work was approved by the asbestos AIA and submitted to the provincial director 14 days prior to commencement of demolition work together with the approved standardised procedures for demolition work.

21. NOISE INDUCED HEARING LOSS

Where noise is identified as a hazard the requirements of the NIHL regulations must be complied with and the following must be included/ referred to in the HSE Plan:

- Proof of training with regards to these regulations.
- Risk assessment done within 1 month of commencement of work.
- That monitoring carried out by an AIA and done according to SANS 083.
- Medical surveillance programme established and maintained for the necessary employees.

Control of noise by referring to:

- Engineering methods considered
- Admin control (number of employees exposed) considered
- Personal protective equipment considered/decided

22. LIGHTING

Where poor or lack of illumination is identified as a hazard the lighting regulations must be complied with and the following must be included in the H&SP:

- How lighting will be ensured/ provided where daylight is not sufficient and /or after hours are worked.
- Planned maintenance programme for replacing luminaries.
- Proof of illumination levels of artificial illumination equipment.

23. FALL PROTECTION

In addition to the requirements of this regulation the following shall apply:

- The fall protection plan **for all roof work** is to be prepared by a competent person. This competent person must sign the fall protection plan.
- Contents of the fall protection plan must cover all the requirements as stated in the sub-regulation.
- The level of supervision is to be stated in the fall protection plan.
- Medical certificates, work near edges, presence of dew, dangerous walking areas etc. should be addressed in the fall protection plan. Inclement weather conditions must be provided for in the fall protection plan.

24. HEALTH AND SAFETY PHILOSOPHY

The client is required to ensure a working environment which, as far as reasonably practicable, is safe and without risk to the health persons on the site.

23.1 Contractor health and safety management system

The Principal Contractor will ensure and demonstrate to the Client that he, and all contractors to be appointed on this construction project, has adequately allowed for the cost of health and safety measures which may be required during the construction work.

23.2 Client's Health and Safety Department

The Client's Safety Department will visit the site regularly to monitor and audit the execution of the contractor's H&SPs on behalf of the Client, without thereby limiting the contractor's own responsibility for health and safety, or attracting any vicarious responsibility or liability for the contractor's acts or omissions.

23.3 Occupational Health and Safety Act Section 37(2) agreements

The Principal Contractor as well as all contractors must sign the Client's Section 37(2) agreement before commencement of their particular work.

23.4 Contractor Health and Safety Plans

Each contractor and sub-contractor working on the site must prepare a H&SP to address and manage all applicable sources of risk as per items under Section 11 of this specification as well as any other sources of risk which are identified during the contractor's own risk assessment. The Principal Contractor shall incorporate these into a single H&SP for the execution of the entire contract works. Should any further risks be identified in the course of the construction work, such risks must be assessed and addressed in amended H&SP which must then be submitted to the Client for approval.

23.4.1 The H&SP must also address the following matters:

- Procedures for compliance with all requirements of the OHS Act and in particular Sections 8 and 9 of the Act.
- Undertaking and procedure to stop any work which endangers the safety or health of any person.
- Systems for recording and reporting of incidents both internal and external to the Department of Labour.
- Copy of the Act and its Regulations to be kept on the site and to be readily available to employees.
- Incident registers to be kept on the site.
- Employment and appointment of any people who are competent and have the necessary knowledge, training, qualifications and experience to perform the required construction work safely and effectively.
- Procedures and arrangements for first aid facilities on the site.
- Procedures and arrangements for prompt reporting of injuries and other losses/incidents.
- Emergency plans to deal effectively with potential site emergencies.
- Use of effective processes for the identification and close out of root causes of incidents and accidents.
- Attendance by all contractors of monthly site health and safety meetings.

- Demonstration by all contractors of their health and safety monitoring and auditing system to ensure compliance with their H&SP, as part of their H&SP.
- If construction work is going to be undertaken while the building is still occupied, methods of limiting the impact upon occupants with noise, dust and other nuisance factors.
- Occupational Health and Safety Protocol.

23.5 General

- Nothing contained in or omitted from this Health and Safety Specification, or the H&SP based on this specification, shall relieve the Principal Contractor of any of its obligations or liabilities.
- The client shall not be liable for any civil claim because of anything contained in or omitted from this Health and Safety Specification.

NB: Upon completion of the construction work and must, a principal contractor, hand over to the Safety Department, a health and safety file including a record of all drawings, designs, materials used and other similar information concerning the completed structure, in accordance to Construction Regulations 7(1) (e).

PART C4: SITE INFORMATION

PART C4: INFORMATION

TABLE OF CONTENTS PAGE

C4.1. LOCALITY PLAN 2

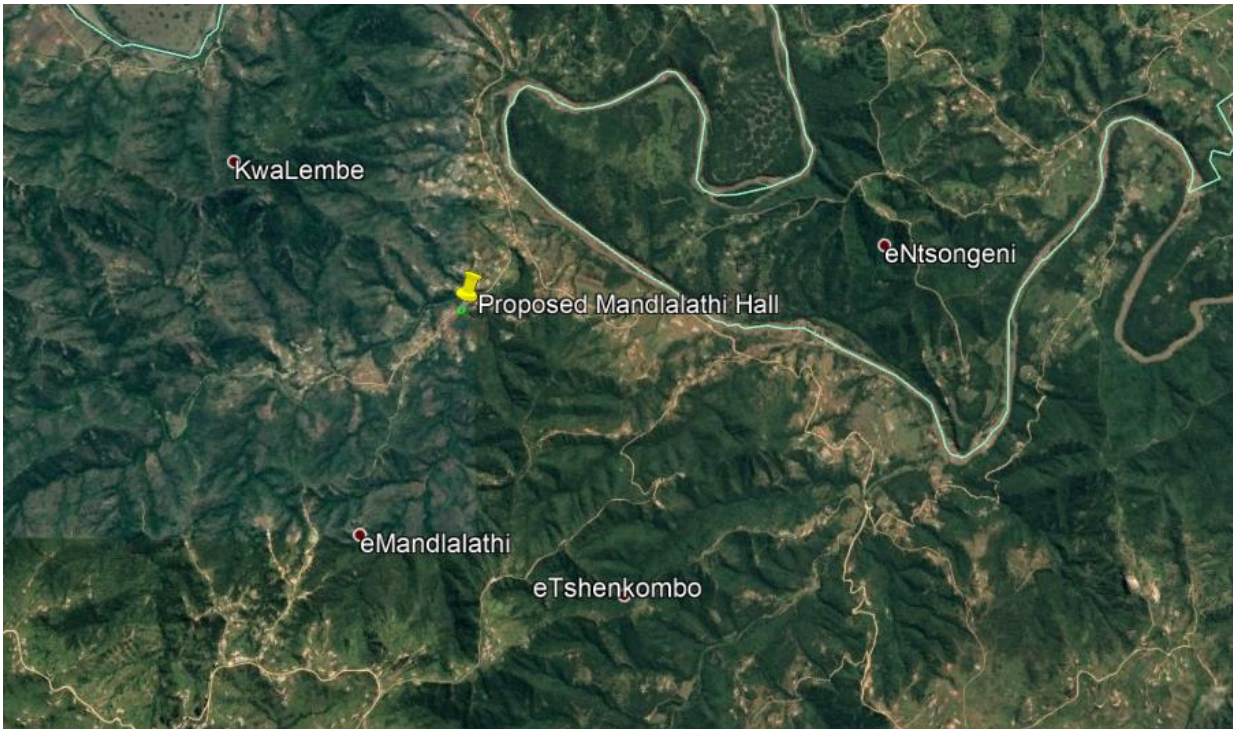
C4.2. GEOTECHNICAL REPORT 3

C4.3. TENDER DRAWINGS 4

C4.1. LOCALITY PLAN

The project is located in the southern Kwa-Zulu Natal, within the township of Mandlalathi which is approximately 12.3 km Northwest of Dududu. The jurisdiction of the site is within the Umdoni Local Municipality. The site is opposite the Mandlalathi Primary school, which is accessible via an unnamed gravel road.

Township	Mandlalathi	
District Municipality	Ugu District Municipality (DC21)	
Local Municipality	Umdoni Local Municipality (KZN212)	
Ward	2	
Site Co-ordinates	Latitude	Longitude
Mandlalathi Hall	30° 8'0.30"S	30°31'49.40"E



C4.2. GEOTECHNICAL REPORT

NATURE OF GROUND AND SUBSOIL CONDITIONS

The detailed geotechnical investigation report shall be made available for viewing at the offices of the Consulting Engineer. It shall be the responsibility of the Contractor to have inspected the site and have satisfied himself as to the nature of the ground and subsoil conditions.

The information given only serves as a guide and an indication to the contractor as to the conditions that may be expected and shall not be taken as representative of the subsoil conditions of the entire site. No claims for additional payment or an extension of time shall be considered on account of the existing site conditions and nature of the ground and subsoil.

C4.3. TENDER DRAWINGS

The drawings issued to tenders as part of the tender documents must be regarded as provisional and preliminary for the tenderer's benefit to generally assess the scope of work.

The work shall be carried out in accordance with the latest available revision of the drawings approved for construction (AFC)

At commencement of the contract, the Engineer shall deliver to the Contractor copies of the AFC drawings and any instructions required for the commencement of the works. From time to time thereafter during the progress of the works, the Engineer may issue further drawings for construction purposes as may be necessary for adequate construction, completion and defects correction of the works.

All drawings and specifications and copies thereof remain the property of the Employer, and the Contractor shall return all drawings and copies thereof to the Employer at the completion of the contract.

TENDER DRAWINGS

Tender Drawing List	
Drawing No	Drawing Description
	GENERAL NOTES
1265/G-101	General Notes
	ARCHITECTURAL DRAWINGS
1265/G-101	General Notes
1265/A-100	Architectural: Site Locality Plan
1265/A-101	Architectural: Site Plan
1265/A-102	Architectural: Site Setting Out
1265/A-201	Architectural: Hall Auditorium Floor Plan Layout
1265/A-202	Architectural: Hall Auditorium North West & South East Elevations
1265/A-203	Architectural: Hall Auditorium North East & South West Elevations
1265/A-204	Architectural: Hall Auditorium Sections
1265/A-301	Architectural: Ablutions Layout Plan & Elevations
1265/A-302	Architectural: Ablutions Roof Layout, Truss, And Disabled Toilet Layout
1265/A-401	Architectural: Guard House Layout Plan, Elevations, Sections & Roof Layout
1265/A-501	Architectural: Schedules Building Finishes
1265/A-502	Architectural: Schedules Doors
1265/A-503	Architectural: Schedules Windows
	CIVIL DRAWINGS
1265/CE101	Civil: Bulk Earthworks Platform
1265/CE102	Civil: Bulk Earthworks Sections A & B
1265/CE103	Civil: Bulk Earthworks Sections C & D
	STORMWATER DRAWINGS
1265/Csw101	Civil: Stormwater Layout
1265/Csw102	Civil: Stormwater Head Wall Details
1265/Csw103	Civil: Stormwater Typical Details
1265/Csw104	Civil: Stormwater Long Section

Tender Drawing List	
Drawing No	Drawing Description
	STRUCTURAL DRAWINGS
1265/SC201	Structural: Hall Auditorium Hall Foundation Layout
1265/SC202	Structural: Hall Auditorium Ground Slab Layout
1265/SC203	Structural: Hall Auditorium Ring Beam Layout
1265/SC204	Structural: Hall Auditorium Typical Details
1265/SC301	Structural: Ablutions Structural Layouts and Sections
1265/SC401	Structural: Guard House Layout of Foundations & Reinforcement
1265/SR201	Structural: Hall Auditorium: Hall Auditorium Reinforcement Foundations
1265/SR202	Structural: Hall Auditorium: Hall Auditorium Reinforcement Foundation Reinforcement Details, Columns, Bases, & Schedules
1265/SR203	Structural: Hall Auditorium: Hall Auditorium Reinforcement Ring Beams
1265/SR301	Structural: Ablutions: Ablutions Reinforcement Pit Foundations
1265/SRr302	Structural: Ablutions: Ablutions Reinforcement Ablution Foundations
1265/SR303	Structural: Ablutions: Ablutions Reinforcement Pit Slab
1265/SR201	Structural: Hall Auditorium Hall Foundation Layout
	ELECTRICAL DRAWINGS
1265/E-101	Electrical: Hall Lighting Layout
1265/E-102	Electrical: Hall Site Lighting Layout
1265/E-103	Electrical: Guard House and Ablutions Lighting Layout
1265/E-104	Electrical: Hall Distribution Board Layout



UMDONI LOCAL MUNICIPALITY

CONSTRUCTION OF MANDLALATHI HALL

08/2023 MN: 69/2022

TENDER DRAWINGS



COMPILED BY:

Dartingo Consulting Engineers (Pty) Ltd
64 Underwood Road
Pinetown
3610

Tel: (031) 266 0903/4
Fax: (031) 266 0906



ON BEHALF OF:

Umdoni Local Municipality
Cnr Bram Fischer & Williamson Streets,
Scottburgh
4180

Tel :039 976 1202 / 039 978 4313
Fax :039 976 2194/2020

THE FOLLOWING DOCUMENTATION IS TO BE READ IN CONJUNCTION WITH THE DARTINGO SPECIFICATIONS FOR:

1. PLAIN AND REINFORCED CONCRETE.
2. SMOOTH SURFACE AND EXPOSED AGGREGATE SURFACE FINISHES.
3. CONCRETE SCREED.
4. CONCRETE FOR AQUEOUS LIQUID-RETAINING STRUCTURES.

GENERAL:

G1. THESE NOTES MUST BE READ IN CONJUNCTION WITH THE SPECIFICATIONS IN THE BILL OF QUANTITIES. WHERE DISCREPANCIES ARISE, SUCH DISCREPANCIES MUST BE DRAWN TO THE ATTENTION OF THE ENGINEER, IMMEDIATELY, IN WRITING.

G2. ANY DISCREPANCIES IN DIMENSIONS AND SETTING OUT MUST BE REPORTED TO THE ENGINEER IMMEDIATELY, IN WRITING BEFORE CONSTRUCTION COMMENCES.

G3. ALL DRAWINGS TO BE READ IN CONJUNCTION WITH THE ARCHITECT'S DRAWINGS.

G4. ALL WATER-PROOFING TO BE TO ARCHITECT'S DETAIL

G5. ALL WORK TO BE IN ACCORDANCE WITH THE NATIONAL BUILDING REGULATIONS.

G6. PLEASE NOTIFY ENGINEER FOR INSPECTION 24HOURS BEFORE POURING OF CONCRETE.

G7. MAXIMUM DESIGN FOUNDATION BEARING PRESSURE:
G7.1. 250 KPa

G8. FOUNDING:
FOUNDATIONS ARE SUBJECT TO ALTERATIONS AS EXCAVATIONS PROCEED.

G8.1. NO FOUNDATIONS ARE TO BE CAST OR REINFORCEMENT FIXED UNTIL EXCAVATIONS HAVE BEEN APPROVED BY THE ENGINEER.

G8.2. DESIGN SOIL PRESSURE IS 75 KPA.

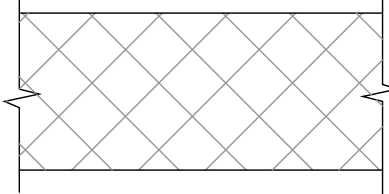
G8.3. DESIGN LOADING:
MAXIMUM ALLOWABLE LIVE LOAD ON ROOF SLAB = 2kPa

G9. THE FOLLOWING DESIGN CODES ARE APPLICABLE:
G9.1 WATER RETAINING STRUCTURES - BS 8007
G9.2 REINFORCED CONCRETE - BS 8110
G9.3 LOADINGS - SANS 10160

G10. ALL BASES AND COLUMNS ARE SYMMETRICAL ON GRID LINES UNLESS OTHERWISE INDICATED.

G11. DIMENSIONS OF BEAMS ARE SHOWN AS WIDTH X DEPTH.

G12. CONTINUOUS LOAD BEARING SLIDING SUPPORTS ARE INDICATED AS FOLLOWS:



KILCHER BEARINGS (TEFLON OR LIMITGLISS) OR APPROVED EQUIVALENT IS TO BE USED (WIDTH AND LOAD BEARING CAPACITY IS INDICATED ON DRAWINGS).

G13. NO BASES ON BACKFILL - USE MASS CONCRETE BELOW BASES UNLESS OTHERWISE SPECIFIED.

G14. ALL BEAMS AND STRUCTURAL SLABS MUST BE PROVIDED WITH AN UPWARD CAMBER AS SHOWN BELOW UNLESS INDICATED OTHERWISE:
CANTILEVERS: SPAN DIVIDED BY 200
ALL OTHER SPANS: SPAN DIVIDED BY 500

G15. JOINTS, INDICATED IN SURFACE BEDS, SLABS AND BEAMS, ARE ALSO TO BE CONSTRUCTED IN BRICK WALLS, SCREEDS AND FINISHES.

G16. THE CONTRACTOR MUST ENSURE THAT ALL EMBEDDED ITEMS FOR SERVICES HAVE BEEN PROVIDED FOR, AND POSITIONED, ACCORDING TO THE LATEST DRAWINGS OF ALL DISCIPLINES BEFORE CASTING CONCRETE.

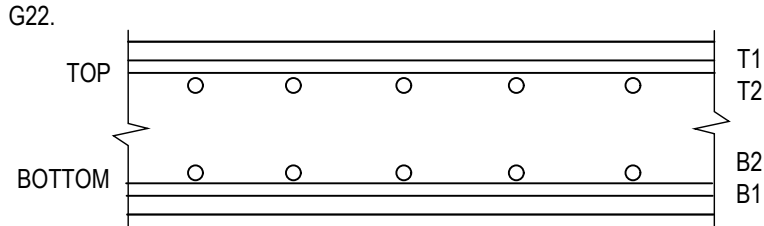
G17. ALL FINISHES TO COMPLY WITH CONCRETE SPECIFICATION FOR CONCRETE FINISHING DETAILS REFER TO FINISHING SCHEDULE

G18. PROVISIONS FOR PROPS UNDER SLABS AND BEAMS: THE CONTRACTOR MUST ENSURE THAT BEAMS AND/OR SLABS HAVE SUFFICIENT STRENGTH AND/OR ARE ADEQUATELY PROPPED TO CARRY CONSTRUCTION LOADS FROM ABOVE. DISCUSS WITH ENGINEER.

G19. ENGINEER TO CONFIRM EXCAVATION LEVELS ON SITE. EXTRA EXCAVATION DOWN TO ACCEPTABLE MATERIAL SHALL BE BACKFILLED WITH MASS CONCRETE, UNLESS OTHERWISE SPECIFIED.

G20. UNLESS OTHERWISE SHOWN ALL SMOOTH SURFACE CONCRETE CORNERS ARE TO BE PROVIDED WITH 25mm x 25mm CHAMFERS.

G21. STORAGE OF CEMENT: CEMENT SHALL NOT BE STORED FOR LONGER PERIODS THAN 6 WEEKS, WITHOUT THE APPROVAL OF THE ENGINEER.



G23. DRAWINGS SHALL BE READ IN CONJUNCTION WITH PIPEWORK DRAWINGS AND ANY DISCREPANCIES MUST BE REPORTED IMMEDIATELY.

G24. ACCORDING TO THE COPYRIGHT ACT, 1978 (ACT No. 98 OF 1978) NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WHATSOEVER INCLUDING MECHANICAL, ELECTRONIC, PHOTOCOPYING, MICROFILMING OR ANY OTHER SYSTEM OF INFORMATION STORAGE WITHOUT WRITTEN PERMISSION.

CONCRETE:

C1. EXCEPT WHERE MENTIONED OTHERWISE ON DRAWING NOTES THE CONCRETE WORK MUST CONFORM WITH THE CONDITIONS SET OUT IN SANS 10100 PART 2 AND SANS 1200 SECTION G

C2. MATERIALS AND MIX PROPORTIONS:
C1.1 THE GRADES FOR CONCRETE, UNLESS OTHERWISE INDICATED SHALL BE AS FOLLOWS:
COLUMNS CLASS 35/19mm
RESERVOIR WALLS CLASS 35/19mm
SUSPENDED SLABS CLASS 30/19mm
SURFACE BED CLASS 30/19mm
MASS CONCRETE CLASS 15/19mm
BLINDING LAYERS CLASS 15/19mm

C3. A SET OF THREE TEST CUBES MUST BE MADE OF EVERY 50M³ (OR PORTION THEREOF) OF EVERY GRADE OF CONCRETE POURED ON ANY SPECIFIC DAY CURED IN ACCORDANCE WITH THE METHODS SET OUT IN THE NBR AND TESTED BY LABORATORIES APPROVED BY THE ENGINEER

C4. CONCRETE COVER TO THE REINFORCEMENT MUST BE AT LEAST THE DIMENSIONS OF THE DIAMETER OF THE MAIN REINFORCING OR ELSE AS SET OUT BELOW (UON):

STRUCTURAL ELEMENT	MIN. COVER (mm)
RAFT FOUNDATIONS	50
STRIP FOOTINGS	50
COLUMNS	30
BEAMS	25
SLABS	25
WALLS	30
RET. WALLS, RET. FACES	50
TOP STEEL IN SLABS	25

C4.1. SPACER BLOCKS, APPROVED BY THE ENGINEER, ARE TO BE USED TO MAINTAIN THE NECESSARY CONCRETE COVER TO THE REINFORCEMENT

C4.2. NO CONCRETE IS TO BE POURED BEFORE THE ENGINEER HAS INSPECTED AND APPROVED THE FIXING OF THE REINFORCEMENT

C4.3. BREAKS IN CONCRETE AND CONSTRUCTION JOINTS ARE TO BE MADE ONLY WITH THE APPROVAL OF THE ENGINEER.

C4.4. SHOULD THERE BE A BREAK OF MORE THAN 45 MINUTES AT ANY TIME IN THE POURING OF CONCRETE, THIS FACT MUST BE DRAWN TO THE ATTENTION OF THE ENGINEER

C5. CASTING OF CONCRETE IN EXCESS OF 3.5m HIGH IS NOT PERMITTED WITHOUT PRIOR APPROVAL OF THE ENGINEER.

C5.1. SHUTTERING AND PROPPING MAY BE STRUCK ONLY AFTER THE LAPSE OF THE FOLLOWING TIMES, UNLESS OTHERWISE AUTHORISED:

POSITION OF SHUTTERING/PROPS	STRIKING TIMES(DAYS)
BEAM SIDES, WALLS AND UNLOADED COLS.	2
SLAB SOFFITS WITHOUT REMOVAL OF SLAB PROPS	4
BEAM SOFFITS WITHOUT REMOVAL OF BEAM PROPS	7
PROPS - UNLOADED SLABS	10
PROPS - UNLOADED BEAMS	14

C6. LEGEND

D/S	- DOWN STAND
RWP	- RAINWATER PIPE
UON	- UNLESS OTHERWISE NOTED
	- ARE COLUMN UNDER ONLY
	- ARE COLUMN OVER ONLY
	- ARE COLUMN UNDER AND OVER
LEVEL	
	DESCRIPTION - LEVEL IN ELEVATION
LEVEL	
	DESCRIPTION - LEVEL IN PLAN
STEP HEIGHT	- STEP

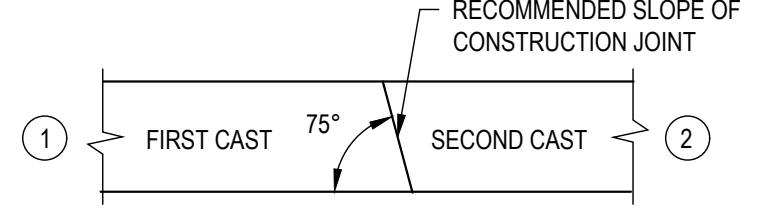
C7. REINFORCEMENT SHALL BE INSPECTED BY THE ENGINEER ONLY AFTER IT HAS BEEN COMPLETELY FIXED IN POSITION, FORMWORK IS CLEAN, SPACERS ARE PLACED IN POSITION, AND AFTER THE CONTRACTOR HAS INSPECTED IT HIMSELF.

LEGEND:	T	-Top
	T1	- Highest of Top Layers
	T2	- 2nd Highest of Top Layers etc.
	B	- Bottom
	B1	- Lowest of Bottom Layers
	B2	- 2nd Lowest of Bottom Layers etc.
	NF	- Near Face
	FF	- Far Face
	EF	- Each Face
	SF	- Side Face
	EW	- Each Way
	ALT	- Alternate
	ABR	- Alternate Bar Reversed
	STG	- Staggered
	TOG	- Together
	VERT	- Vertical
	HORIZ	- Horizontal
	PRS	- in Pairs

C8. WELDING OF REINFORCEMENT IS NOT ALLOWED UNLESS IT HAS BEEN APPROVED BY THE ENGINEER IN WRITING.

CONCRETE (cont.):

C9. CONSTRUCTION JOINTS IN SLABS/ BEAMS: BEFORE COMMENCING TO CONSTRUCT NEW CONCRETE (AS INDICATED BY 2) THE SURFACE OF THE OLD CONCRETE (INDICATED BY 1) SHALL BE CLEANED AND CHIPPED TO EXPOSE THE AGGREGATE AND SHALL BE KEPT WET FOR 2 HOURS BEFORE CASTING. THE OLD CONCRETE MUST BE SLUSHED WITH CEMENT BEFORE CASTING. DISCUSS DETAIL AND POSITION OF CONSTRUCTION JOINTS WITH ENGINEER.



C10. NO FINES CONCRETE - USE CLASS NF-19(NO FINES CONCRETE WITH 19mm NOMINAL SIZE AGGREGATE) THE VOLUME OF AGGREGATE FOR EACH 50kg OF CEMENT IS 0.3 METERS CUBED AND THE MIX SHALL NOT CONTAIN MORE THAN 20 LITRES OF WATER PER 50kg OF CEMENT.

C11. 75mm BLINDING LAYER (CLASS 15/19 CONCRETE IS TO BE PROVIDED UNDER ALL BASES UNLESS INDICATED OTHERWISE.

C12. SHRINKAGE STRIPS IN CONCRETE FLOORS SHALL NOT BE CAST WITHIN 21 DAYS OF CASTING THE LAST SURROUNDING SLAB. NOTE THAT THE BAY CONTAINING THE SHRINKAGE STRIP MUST REMAIN PROPPED UNTIL ALL CONCRETE HAS REACHED THE REQUIRED AGE.

C13. CONSTRUCTION JOINTS:
C12.1. NO HORIZONTAL JOINTS SHALL BE ALLOWED IN FOUNDATIONS OR OTHER DEEP ELEMENTS.
C12.2. CONSTRUCTION JOINTS ARE TO BE FORMED ACCORDING TO SPECIFICATION.
C12.3. ALL PIPES THROUGH JOINTS, SHALL BE PROVIDED WITH AN EXPANSION JOINT OR FLEXIBLE COUPLING - THIS INCLUDES ALL CABLE SLEEVES, CONDUITS AND PIPES.
C12.4. NO VERTICAL CONSTRUCTION JOINTS SHALL BE MADE IN ELEMENTS DIRECTLY EXPOSED TO THE WEATHER EXCEPT WHERE INDICATED OTHERWISE.

STRUCTURAL STEEL:

S1. DRAWINGS INDICATE THE GENERAL ARRANGEMENTS. SHOP DRAWINGS ARE TO BE PRODUCED BY THE MANUFACTURER AND SUBMITTED TO THE ENG. FOR APPROVAL PRIOR TO COMMENCEMENT OF MANUFACTURE. CONNECTIONS ARE TO BE DESIGNED BY THE CONTRACTOR TO CARRY THE FORCES AND/OR MOMENTS INDICATED ON THE DRAWINGS UNLESS NOTED OTHERWISE.

S2. ALL DIMENSIONS MUST BE CHECKED ON SITE BEFORE THE PRODUCTION OF WORKSHOP DRAWINGS COMMENCES. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

S3. WORKSHOP DRAWINGS MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE FABRICATION COMMENCES.

S4. STEELWORK MATERIALS, MANUFACTURE AND ERECTION TO BE IN ACCORDANCE WITH THE STANDARDIZED SPECIFICATIONS FOR CIVIL ENG. CONSTRUCTION SABS 1200H STRUCTURAL STEELWORK, AND SABS 0162

S5. WELDS SHALL BE CONTINUOUS 6mm FILLET WELDS UNLESS OTHERWISE NOTED. BUTT WELDS TO BE FULL STRENGTH.(SABS0162-1984)

S6. ALL ROOF AND SIDE CLADDING TO BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS

S7. ALL STEEL TO BE SABS 1431 GRADE 300W EXCEPT FOR COLD ROLLED SECTIONS WHERE COMMERCIAL QUALITY STEEL CAN BE USED. A CERTIFICATE FROM THE STEEL MANUFACTURER IN WHICH THE GRADE IS VERIFIED SHALL BE HANDED TO THE ENGINEER.

S8. ALL COLD FORMED SECTIONS TO HAVE A MINIMUM YIELD STRENGTH OF $f_y=250 \text{ N/mm}^2$

S9. ALL WELDING TO BE RESTRICTED TO THE FACTORY ONLY. EXCEPT WHERE OTHERWISE NOTED, WELDING IS TO BE DONE STRICTLY ACCORDING TO SABS 0167-1984 & SABS 044, AND WILL BE 6mm C.F.W. OR BUTT WELD (min.) TO THE FULL STRENGTH OF THE MATERIAL JOINED. WELD ALL ROUND TO THE MAXIMUM LENGTH POSSIBLE (UON)

S10. ALL BOLTS MUST BE 16mm Ø. BLACK BEARING BOLTS GRADE 4.6 UNLESS SPECIFIED AND MUST COMPLY WITH SABS 136-1972. ALL HOLES TO BE DRILLED 2mm LARGER THAN THE BOLT DIAMETER.

S11. ENDS OF ALL MEMBERS TO BE CAPPED WITH 3mm PLATES.

S12. ALL STRUCTURAL STEEL TO BE THOROUGHLY CHIPPED, SCRAPED, AND WIRE BRUSHED TO REMOVE ALL LOOSE MILL SCALE, GREASE, DIRT, RUST, AND OTHER DELETERIOUS MATERIALS.

S13. HOLDING DOWN BOLTS SHALL BE PROVIDED BY THE STEELWORK CONTRACTOR FOR BUILDING IN BY THE CONTRACTOR RESPONSIBLE FOR THE FUNDS.

S14. ALL PLATES SHALL BE GRADE S355JR NEW MATERIAL AND COMPLY WITH SANS 10162 (UON).

SURFACE BED:

SB1. 28 DAY CONCRETE STRENGTHS:
ALL SURFACE BEDS 30/19mm STONE

SB2. SAWN JOINTS TO BE PROVIDED WITHIN 24 HOURS AFTER CASTING OF CONCRETE.

SB3. SAWN JOINTS ARE TO BE CUT AT RIGHT ANGLES TO CONSTRUCTION JOINTS IN ALL CASES.

SB4. NO SAWN JOINTS SHALL BE CUT IN TWO PERPENDICULAR DIRECTIONS. (UON)

SB5. BACKFILL AROUND COLUMNS AND WALLS TO COMMENCE EVENLY.

SB6. ALL PIPED SERVICES AND CABLES MUST BE LAID DURING OR SOON AFTER THE CONSTRUCTION OF COLUMNS AND SHAFT BASES.

SB7. UNLESS OTHERWISE SPECIFIED, ALL FILL UNDER SURFACE BEDS SHALL BE 15MPa/19mm MASS CONCRETE.

SB8. MINIMUM LAP LENGTH OF MESH REINFORCEMENT IS 300mm

SB9. SURFACE BED TO BE WOOD FLOATED.

SB10. ALL DOWEL BARS ARE TO BE 100% STRAIGHT, LEVEL AND AT RIGHT ANGLES TO THE JOINT DIRECTION.

STEEL REINFORCEMENT:

R1. LAP LENGTHS:
Y25 = 1750mm
Y20 = 1400mm
Y16 = 1120mm
Y12 = 840mm
Y10 = 700mm

R2. LAP LENGTHS FOR HORIZONTAL STEEL IN WALLS AND SLAB SHALL BE ROTATED CLOCKWISE BY 1m FOR EACH CONSECUTIVE LAYER

R3. STEEL SHALL BE PLAIN ROUND HOT - ROLLED MILD STEEL BARS OR HIGH-YIELD BOND BARS COMPLYING WITH SABS 920
MILD STEEL STRESS = 250MPa
HIGH TENSILE STEEL YIELD STRESS = 450MPa

STRUCTURAL TIMBER:

T1. PREFABRICATED TIMBER ROOF TRUSSES AND PURLINS ARE TO BE DESIGNED ACCORDING TO THE SPECIFICATION, AND SUPPLIED BY A MINTEK OR SIMILAR APPROVED SUPPLIER.

T2. TIMBER ROOF TRUSSES ARE TO BE DESIGNED IN ACCORDANCE WITH SABS 0163 PART 1 - 1980 (CODE OF PRACTICE FOR TIMBER STRUCTURES). LOADS ARE TO COMPLY WITH SABS 0160 - 1989 (CODE OF PRACTICE FOR GENERAL PROCEDURES AND LOADING FOR THE DESIGN OF BUILDINGS).

T3. WORKSHOP DETAIL DRAWINGS SHALL BE CHECKED BY DARTINGO BEFORE COMMENCING WITH MANUFACTURING OF TIMBER ROOF TRUSSES.

T5. LOADS ON TIMBER ROOF STRUCTURE:
ROOF CLADDING: 50 kg/m
CEILINGS: 20 kg/m
DUCTS AND CABLES: 20 kg/m
WIND LOADING: 50 YEAR RETURN PERIOD
TERRAIN CATEGORY: CATEGORY 2
BUILDING CLASS: CLASS B

T6. ALL TRUSSES TO BE FABRICATED IN A FACTORY AND ERECTED BY A TIMBER TRUSS FABRICATOR WHO HAS BEEN AWARDED A "CERTIFICATE OF COMPETENCE" BY THE INSTITUTE FOR TIMBER CONSTRUCTION.

MASONRY:

B1. ALL BRICKWORK TO BE OF SOLID HARD BURNED CLAY BRICKS (UON) WITH A COMPRESSIVE STRENGTH OF NOT LESS THAN 14MPa LAID ON A CLASS 2 MORTAR WITH A 28 DAYS COMPRESSIVE STRENGTH OF 7MPa AS SPECIFIED IN SABS 0164 PART 1 - 1987 (CODE OF PRACTICE FOR MASONRY). REFER TO DRAWINGS FOR DETAILS OF LOAD BEARING WALLS.

B2. ALL BRICKWORK TO BE ACCORDANCE WITH NHBC REGULATIONS

B3. BRICKFORCE:
ALL BRICKFORCE TO BE GALVANISED
MINIMUM DIAMETER OF BRICKFORCE = 2.8mm
YIELD STRENGTH = 485MPa
LAP LENGTH = 400mm MIN

B4. BRICK FORCE EVERY SECOND COURSE TO UNDERSIDE SURFACE BED, THEREAFTER EVERY 3RD COURSE EXCEPT EVERY COURSE FOR 3 COURSES BELOW INTERMEDIATE SLAB AND WALL PLATE LEVEL AND ABOVE WINDOW AND DOOR LEVEL.

B5. ALL DIMENSIONS AND DETAILS OF BRICKWORK ARE AS PER THE ARCHITECT'S LAYOUTS.

B6. PLACE 10mm SOFTBOARD OR OTHERWISE APPROVE MATERIAL ON TOP OF ALL NON-LOAD BEARING WALLS.

B7. TWO SHEETS 250µm DPC SHEETING TO BE PLACED ON TOP OF ALL LOAD BEARING BRICKWORK.

B8. TROWEL SMOOTH AND LEVEL AND LAY 2 LAYERS OF MALTHOID STRIP TO ALL LOAD BEARING BRICK SURFACES PRIOR TO CASTING CONCRETE

B9. "V" JOINTS ARE TO BE FORMED IN PLASTER TO EXPRESS THE INTERFACE BETWEEN CONCRETE AND BRICKWORK ON FLUSH EXPOSED PLASTERED SURFACES

B10. BRICKWORK IS NOT TO BE CONSTRUCTED OFF NEWLY CAST SUSPENDED SLABS (UNLESS DIRECTLY ABOVE LOAD BEARING WALLS) UNTIL THE SLABS HAVE BEEN PROPERLY CURED AND DE-PROPPED.

B11. ALL OPENINGS TO HAVE BRICK BEAMS OVER IN ACCORDANCE WITH NHBC REGULATIONS AND TO MATCH SURROUNDING BRICKWORK UNLESS NOTED OTHERWISE

0	50	100mm
ORIGINAL SCALE		
NOTE: 1. ALL DIMENSIONS, SETTING OUT & LEVELS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR FABRICATION. 2. ANY DISCREPANCIES WITH DIMENSIONS, SETTING OUT & LEVELS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.		

FOR TENDER			

B	28/07/2022	NGIH	28/07/2022
A	FOR INFORMATION ONLY	NGIH	17/08/2020
REV	DESCRIPTION	BY	DATE

UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180 TEL. 039 976 1802 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	

APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 08/2023

CONTACT US



DARTINGO CONSULTING ENGINEERS (Pty) Ltd.

CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT

DRAWING TITLE

DESIGNED : SK

DRAWN : NGIH

CHECKED : KJ

SCALE : N/A

DRAWING No : 1265/G-101

DATE : 27/01/2022

SHEET : 01

ORIGINAL SHEET SIZE: A1

REV : B

GENERAL NOTES

MANDLALATHI COMMUNITY HALL

DESIGNED : SK

DRAWN : NGIH

CHECKED : KJ

SCALE : N/A

DRAWING No : 1265/G-101

DATE : 27/01/2022

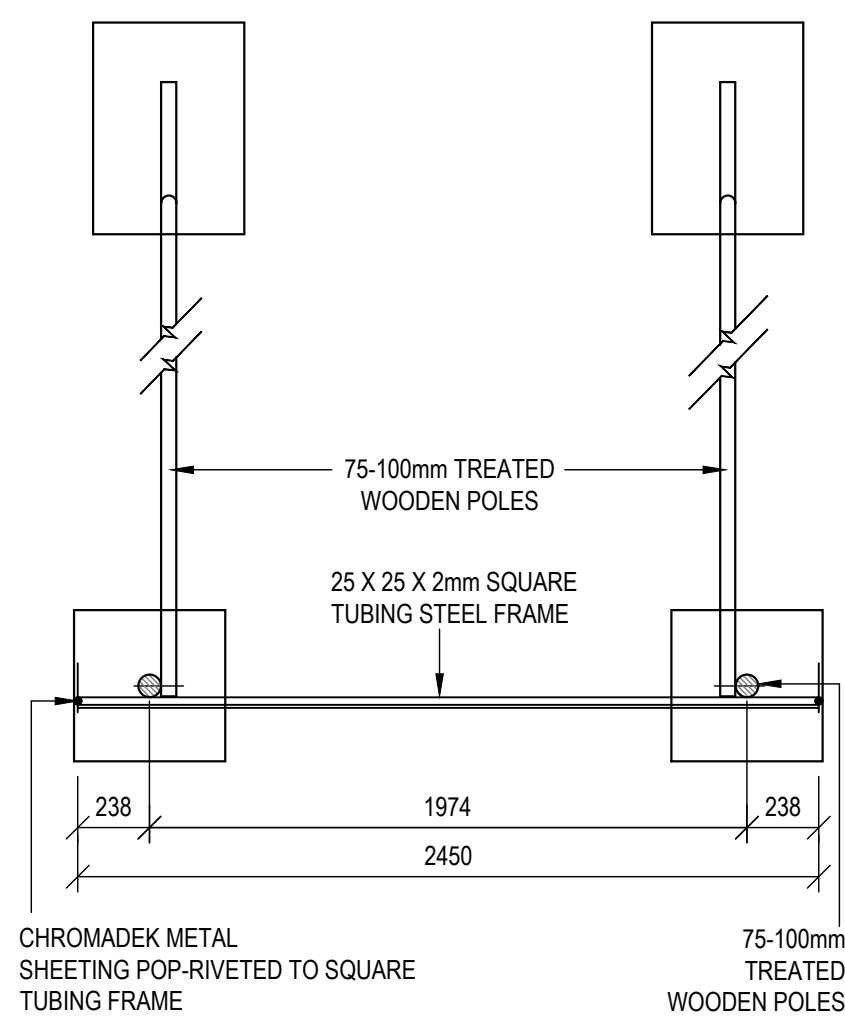
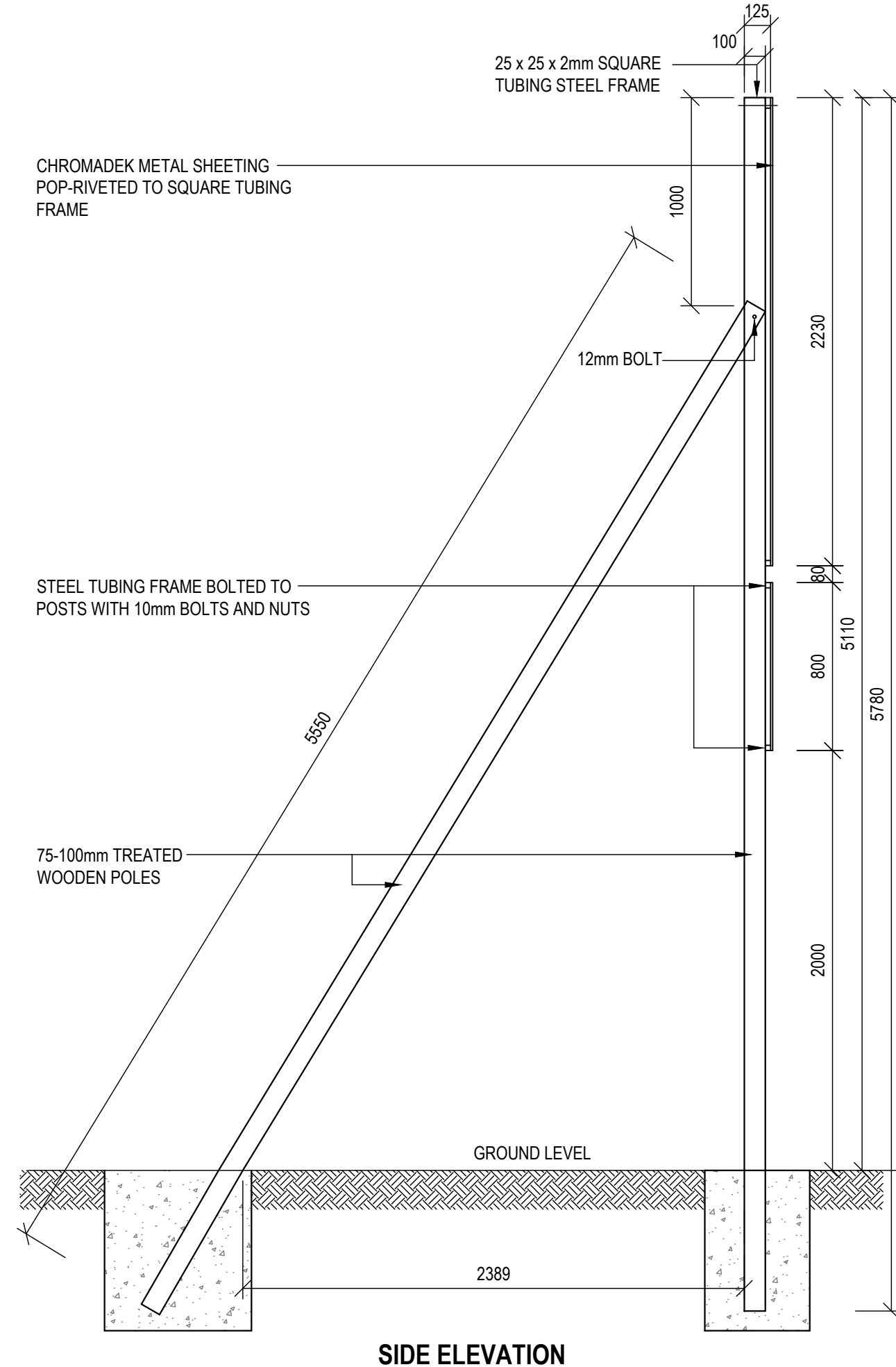
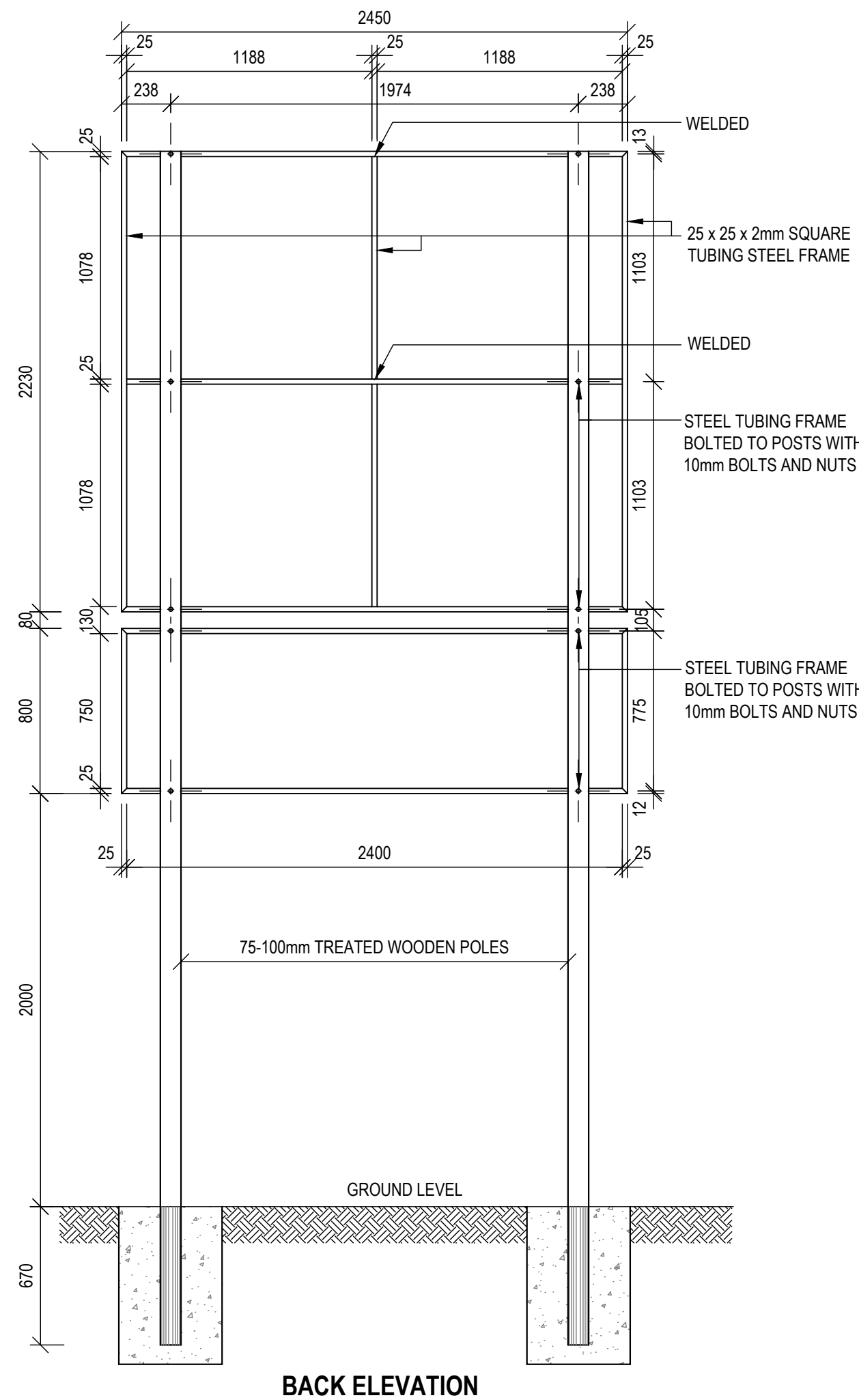
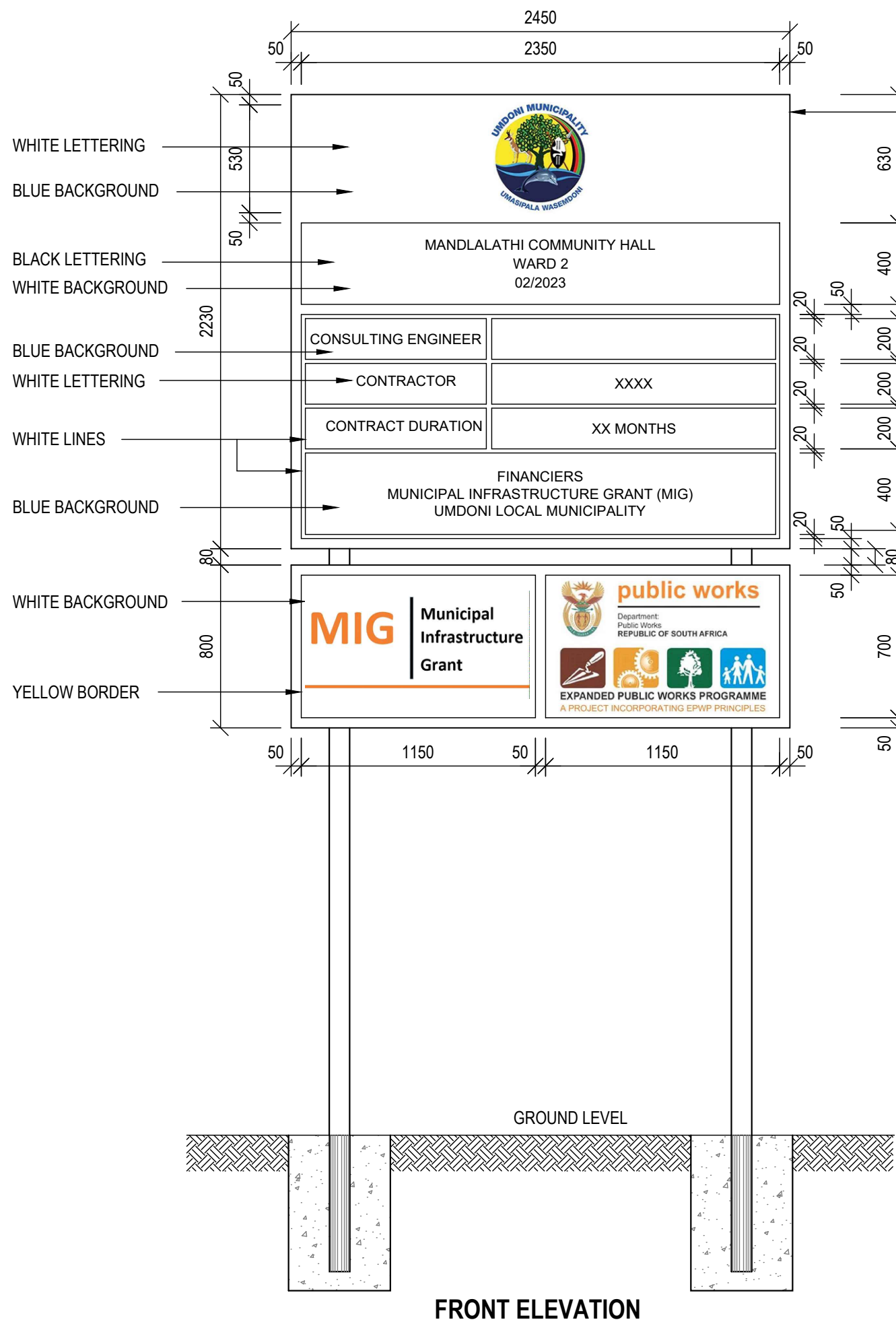
SHEET : 01

ORIGINAL SHEET SIZE: A1

REV : B

GENERAL NOTES

MANDLALATHI COMMUNITY HALL

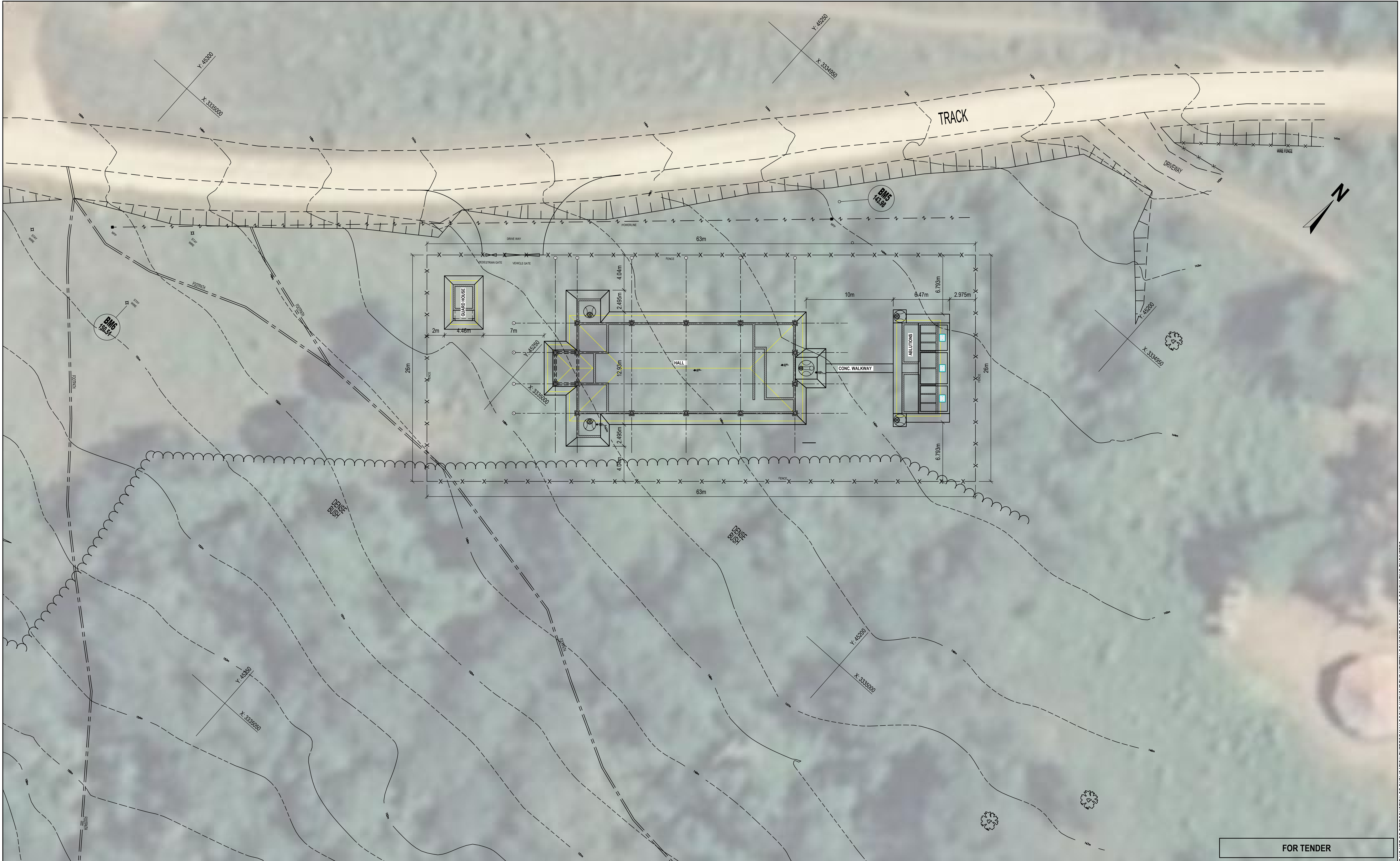


NOTES:

- CHROMADEK METAL SHEETING (RUST RESISTANT METAL)
- SPRAY PAINTED TO CUSTOMER'S SPECIFICATIONS WITH AUTOMOTIVE QUALITY DUCO PAINT
- WORDING
 - HIGH PERFORMANCE 5 TO 7 YEAR OUTDOOR QUALITY VINYL
- LOGOS
 - UV RESISTANT FULL COLOUR THERMAL PRINT ONTO A HIGH PERFORMANCE OUTDOOR GRADE VINYL SUBSTRATE OR
 - HIGH PERFORMANCE 5 TO 7 YEAR OUTDOOR QUALITY VINYL APPLIED DIRECTLY TO THE PREPARED CHROMADEK (IF LOGO CONSISTS OF FLAT COLOURS)
- THE BOARD MUST BE ERECTED AT THE ENTRANCE TO THE TOWN / VILLAGE
- THE BOARD MUST REMAIN UNTIL THE END OF THE RETENTION PERIOD AND REMOVED THEREAFTER

SIGNBOARD DETAILS
SCALE: 1:25

050100mm	
ORIGINAL SCALE	
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B ISSUED FOR TENDER NGIH 28/07/2022	
A FOR INFORMATION NH 09/10/2020	
REV	DESCRIPTION BY DATE
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180 TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	
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CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No : 08/2023	
DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610 P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za	
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY : DIRECTOR	
DATE : 28 July 2022	
Pr No : 200570114	
PROJECT	
MANDLALATHI COMMUNITY HALL	
DRAWING TITLE	
PROJECT SIGNBOARD DETAILS	
DESIGNED : SK	DATE : 01/10/2020
DRAWN : NGIH	SHEET : 01
CHECKED : SK	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No : 1265/G-101	



B	ISSUED FOR TENDER	NGIH	20/01/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
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UMDONI LOCAL MUNICIPALITY

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CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

SITE
LOCALITY PLAN

FOR TENDER

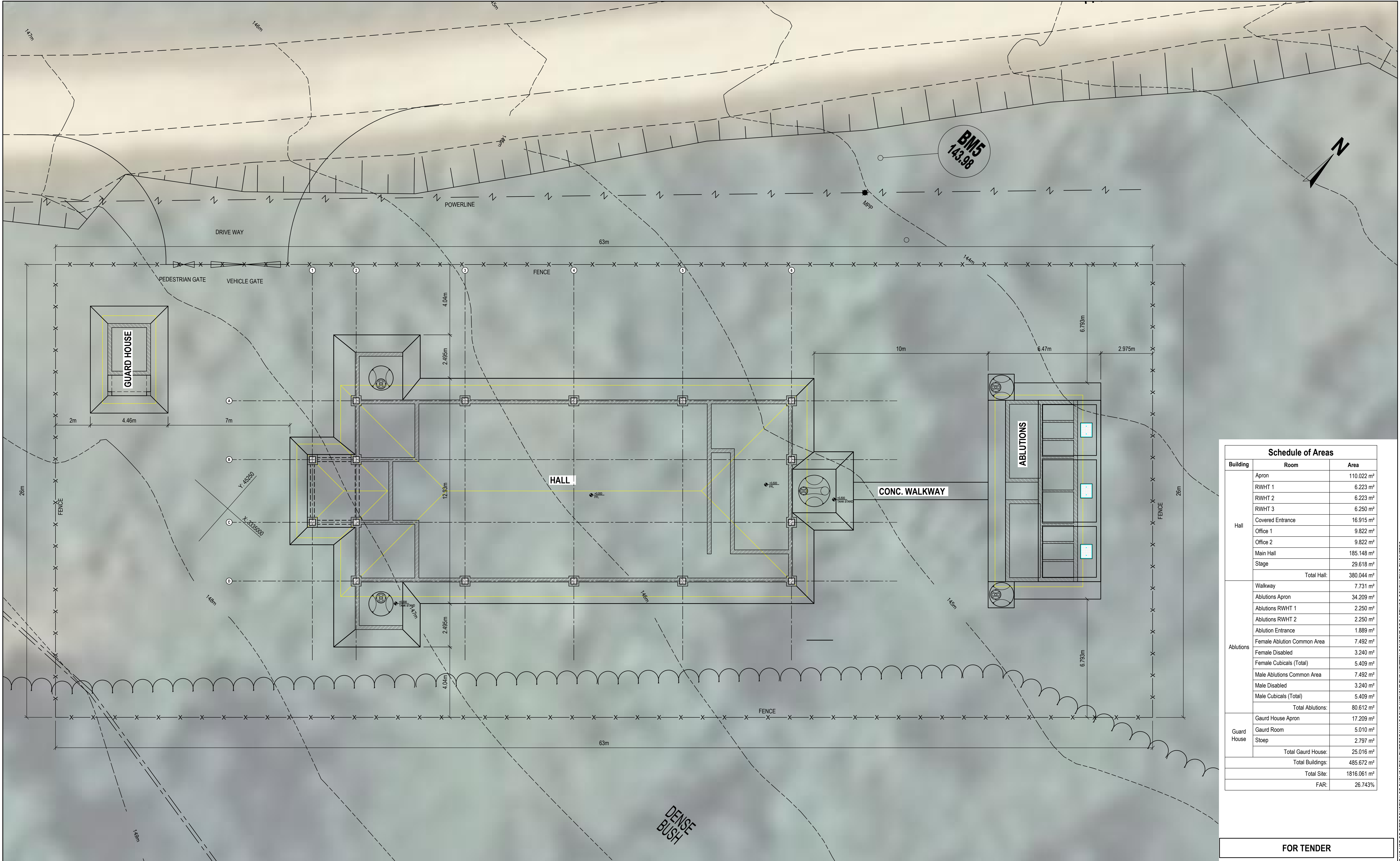
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ORIGINAL SHEET SIZE : A1

DESIGNED : SK
SHEET : 01

DRAWN : NGIH
DATE : 05/10/2020

CHECKED : SK
REV : B

DRAWING No : 1265/A-100



Schedule of Areas		
Building	Room	Area
Hall	Apron	110.022 m²
	RWHT 1	6.223 m²
	RWHT 2	6.223 m²
	RWHT 3	6.250 m²
	Covered Entrance	16.915 m²
	Office 1	9.822 m²
	Office 2	9.822 m²
	Main Hall	185.148 m²
	Stage	29.618 m²
Total Hall:		380.044 m²
Ablutions	Walkway	7.731 m²
	Ablutions Apron	34.209 m²
	Ablutions RWHT 1	2.250 m²
	Ablutions RWHT 2	2.250 m²
	Ablution Entrance	1.889 m²
	Female Ablution Common Area	7.492 m²
	Female Disabled	3.240 m²
	Female Cubicals (Total)	5.409 m²
	Male Ablutions Common Area	7.492 m²
	Male Disabled	3.240 m²
	Male Cubicals (Total)	5.409 m²
Total Ablutions:		80.612 m²
Guard House	Guard House Apron	17.209 m²
	Guard Room	5.010 m²
	Sleep	2.797 m²
Total Gaurd House:		25.016 m²
Total Buildings:		485.672 m²
Total Site:		1816.061 m²
FAR:		26.743%

B	ISSUED FOR TENDER	NGIH	28/07/2022	
A	FOR INFORMATION	SK	09/10/2020	
△	REVISIONS	BY	DATE	
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CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

SITE PLAN

FOR TENDER

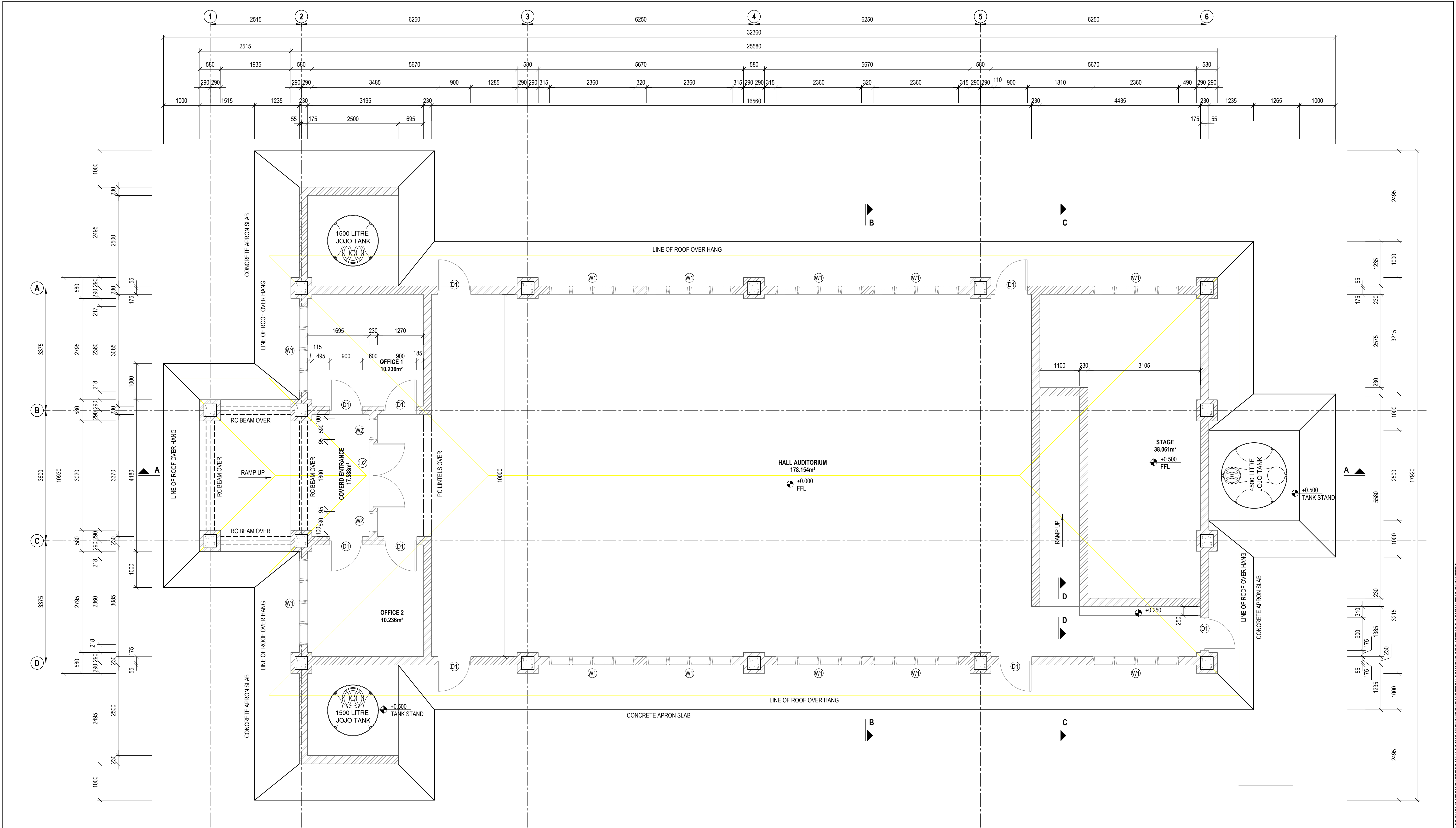
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DESIGNED : SK SHEET : 01

DRAWN : NGIH DATE : 05/10/2020

CHECKED : SK REV : B

DRAWING No : 1265/A-101



GROUND FLOOR LAYOUT
SCALE: 1:50

B	ISSUED FOR TENDER		NGIH	28/07/2022
A	FOR INFORMATION		SK	09/10/2020
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PO BOX 19, SCOTTBURGH, 4180

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FAX 039 976 2194/2020
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64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

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CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

**HALL AUDITORIUM
FLOOR PLAN LAYOUT**

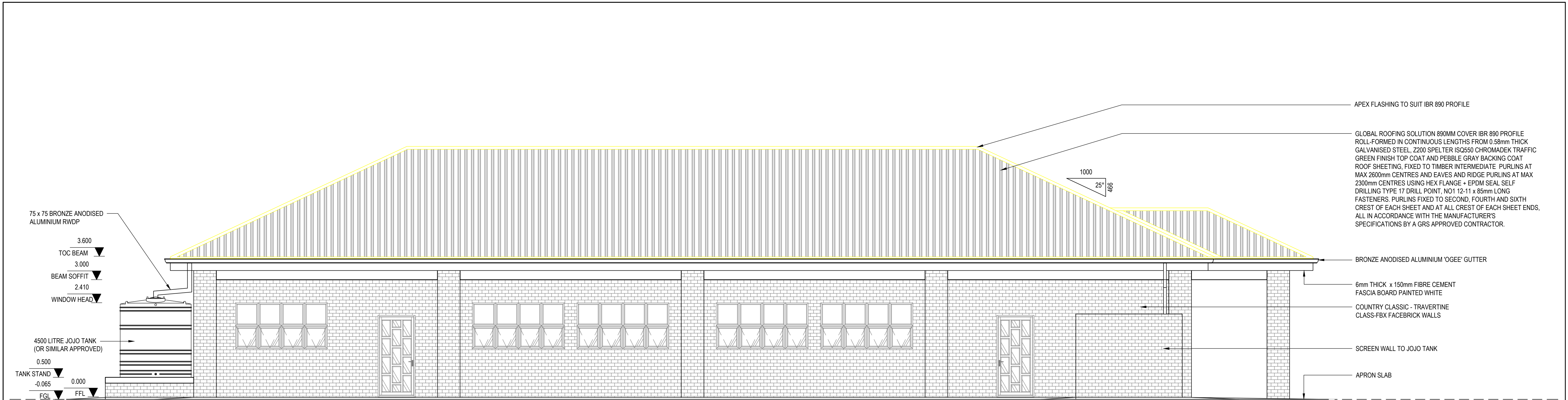
FOR TENDER

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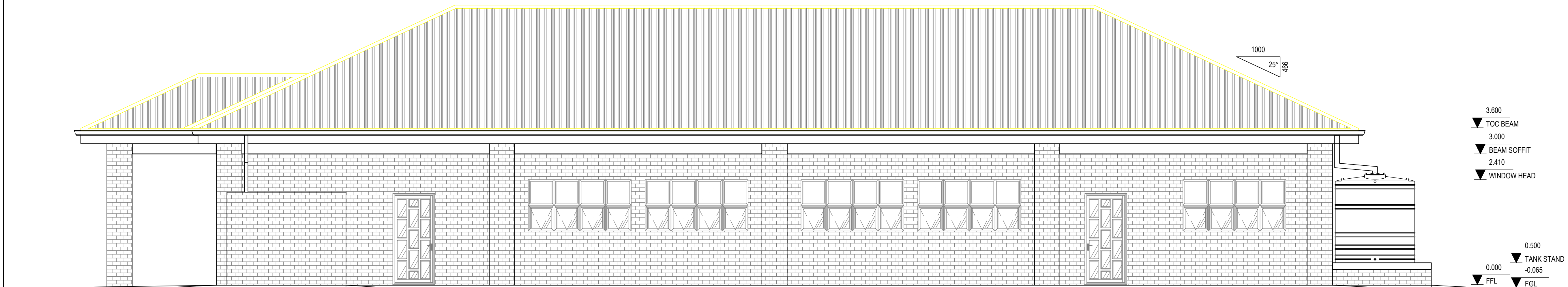
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0 50 100mm

DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : SK	REV : B
DRAWING No : 1265/A-201	



NORTH WEST ELEVATION
SCALE: 1:50



SOUTH EAST ELEVATION
SCALE: 1:50

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

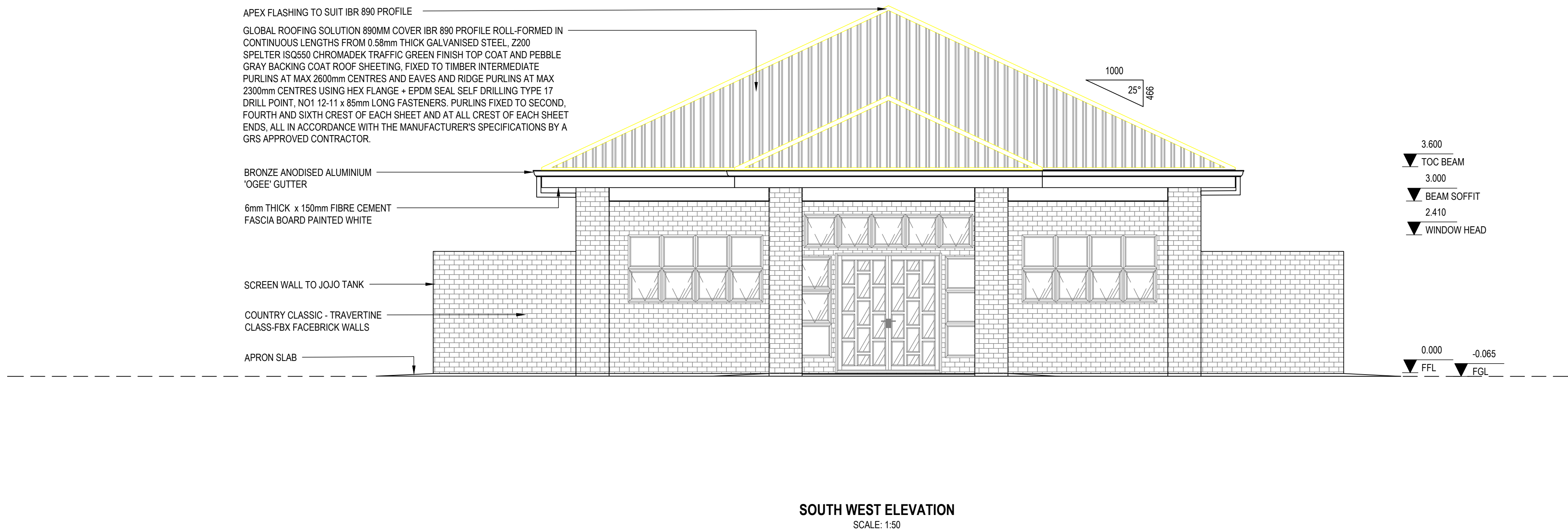
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

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CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	HALL AUDITORIUM NORTH WEST & SOUTH EAST ELEVATIONS

FOR TENDER	
ORIGINAL SCALE : 0 50 100mm	AS SHOWN ORIGINAL SHEET SIZE : A1
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : NGIH	REV : B
DRAWING No :	1265/A-202



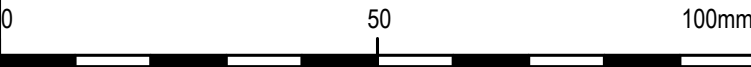
B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

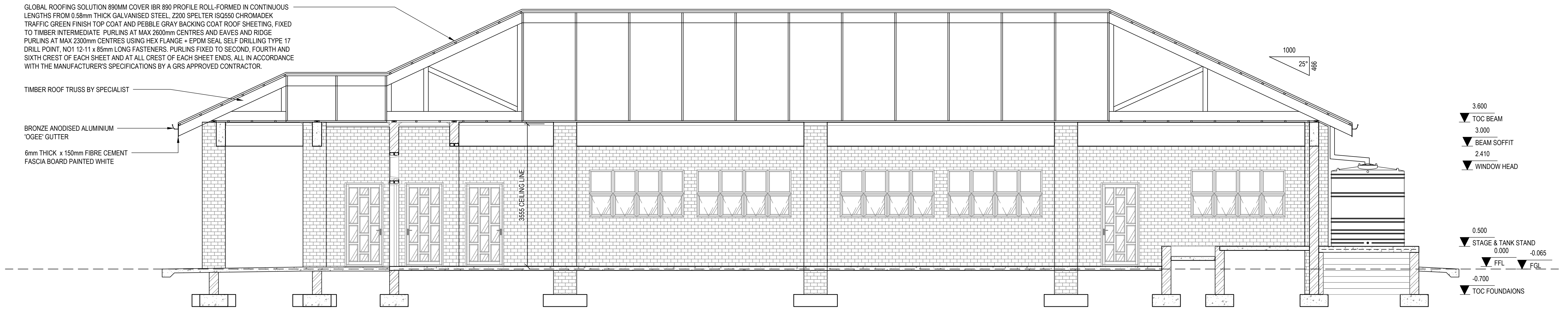
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

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64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

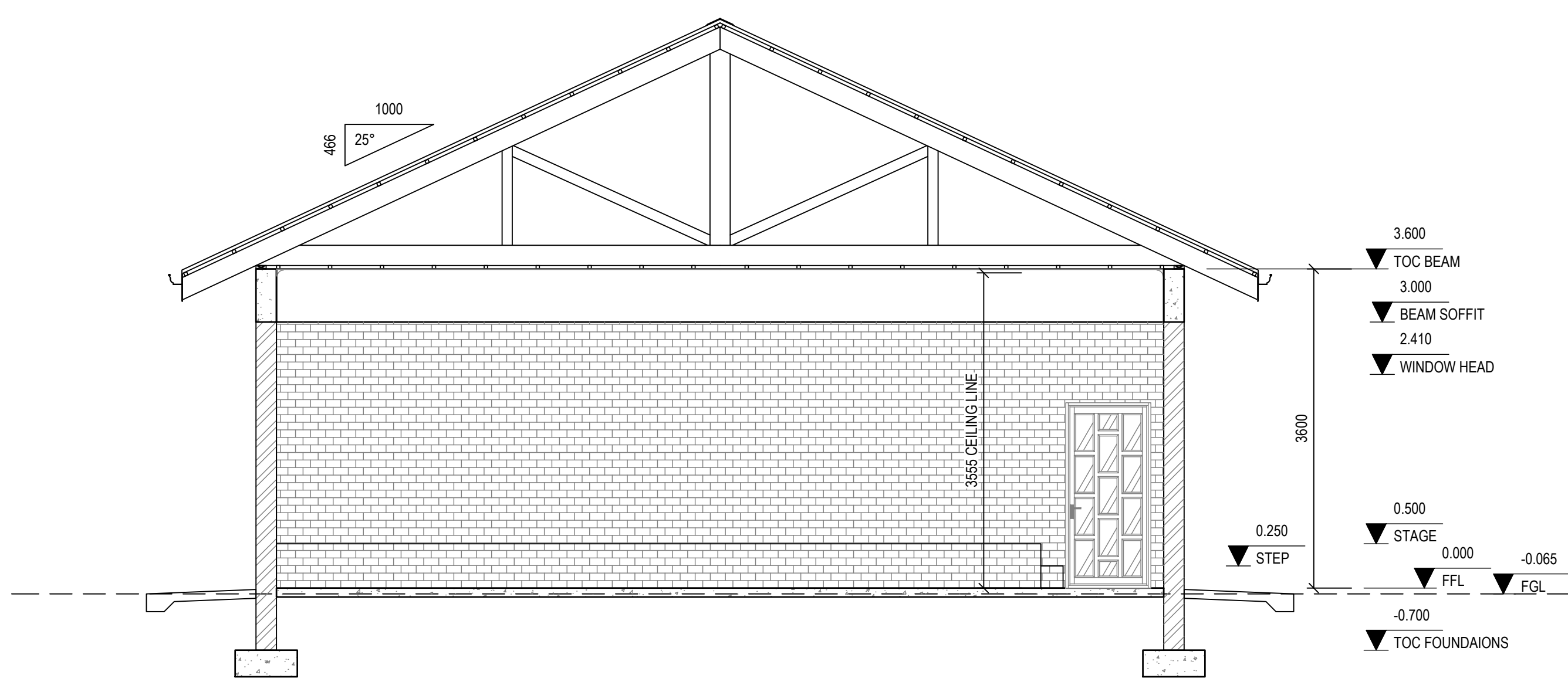
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:
MANDLALATHI COMMUNITY HALL
DRAWING TITLE:
HALL AUDITORIUM NORTH EAST & SOUTH WEST ELEVATIONS

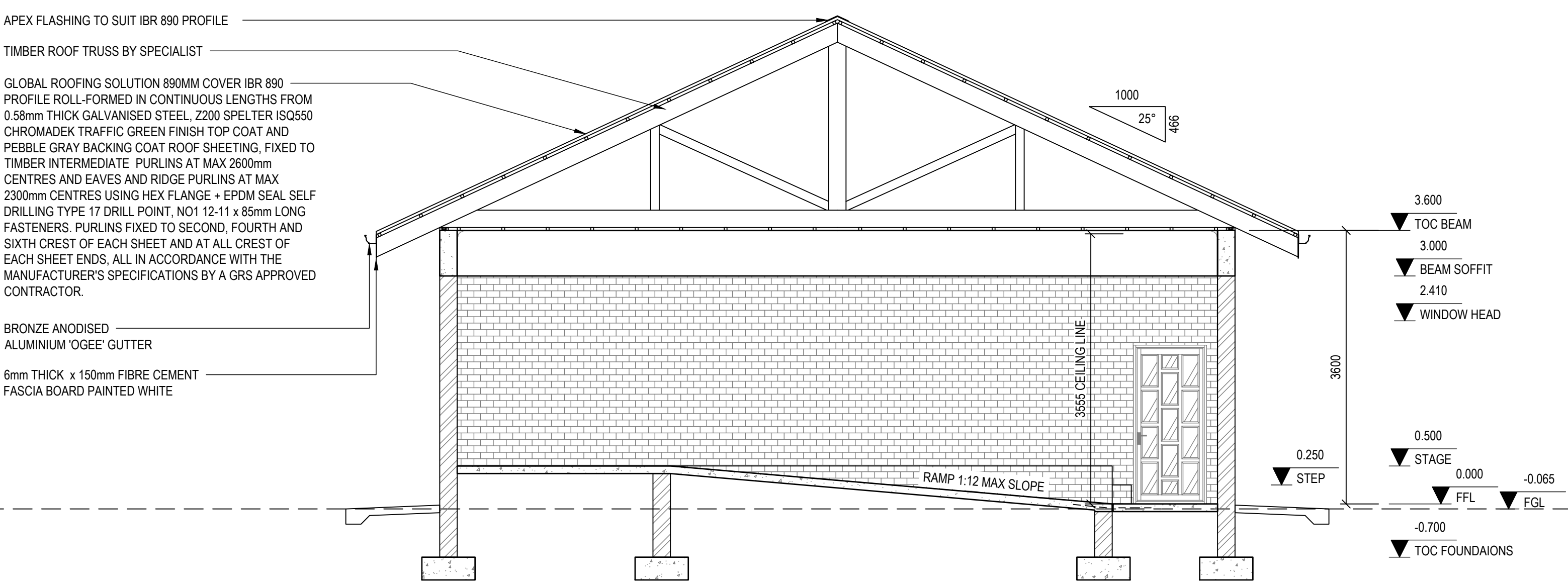
FOR TENDER	
ORIGINAL SCALE : AS SHOWN	ORIGINAL SHEET SIZE : A1
	
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : NGIH	REV : B
DRAWING No :	1265 / A-203



SECTION A-A
SCALE: 1:50



SECTION B-B
SCALE: 1:50



SECTION C-C
SCALE: 1:50

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY

CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180

TEL 039 976 1202 / 039 978 4313
FAX 039 976 2194/2020
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APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No :



DARTINGO CONSULTING ENGINEERS (Pty) Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road Pinetown 3610

P O Box 65596 Reservoir Hills 4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

HALL AUDITORIUM SECTIONS

FOR TENDER

ORIGINAL SCALE : **AS SHOWN**

ORIGINAL SHEET SIZE : A1

0 50 100mm

DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : NGIH	REV : B
DRAWING No :	1265/A-204



UMDONI LOCAL MUNICIPALITY	
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	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

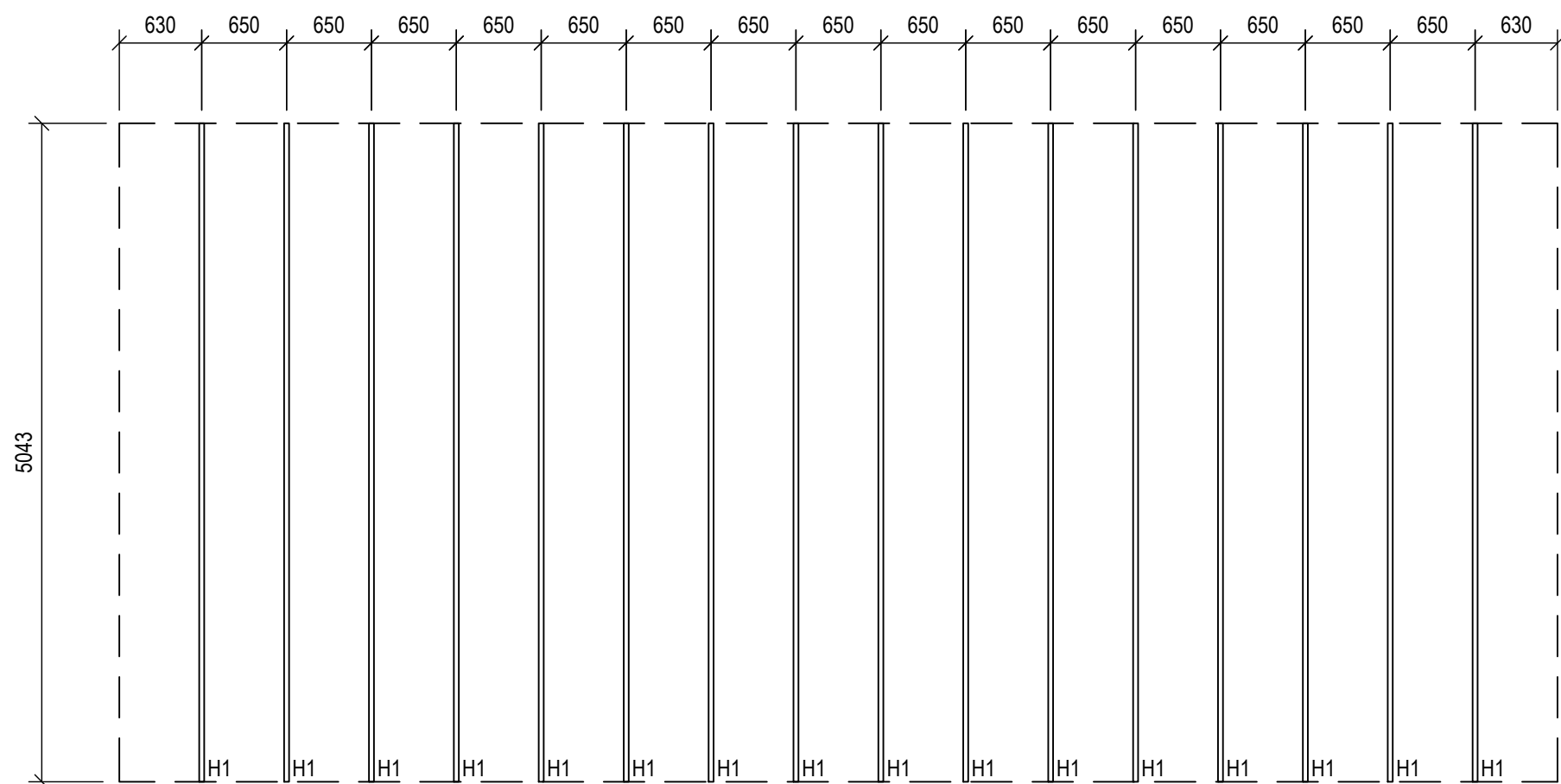
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

FOR TENDER	
ORIGINAL SCALE :	AS SHOWN
0	50
	
	ORIGINAL SHEET SIZE : A1 100mm

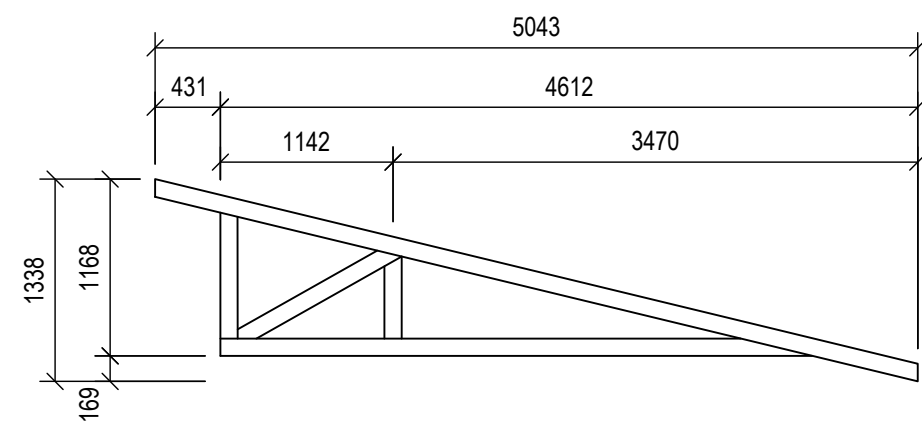
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 21/01/2022
CHECKED : KJ	REV : B

DRAWING No :

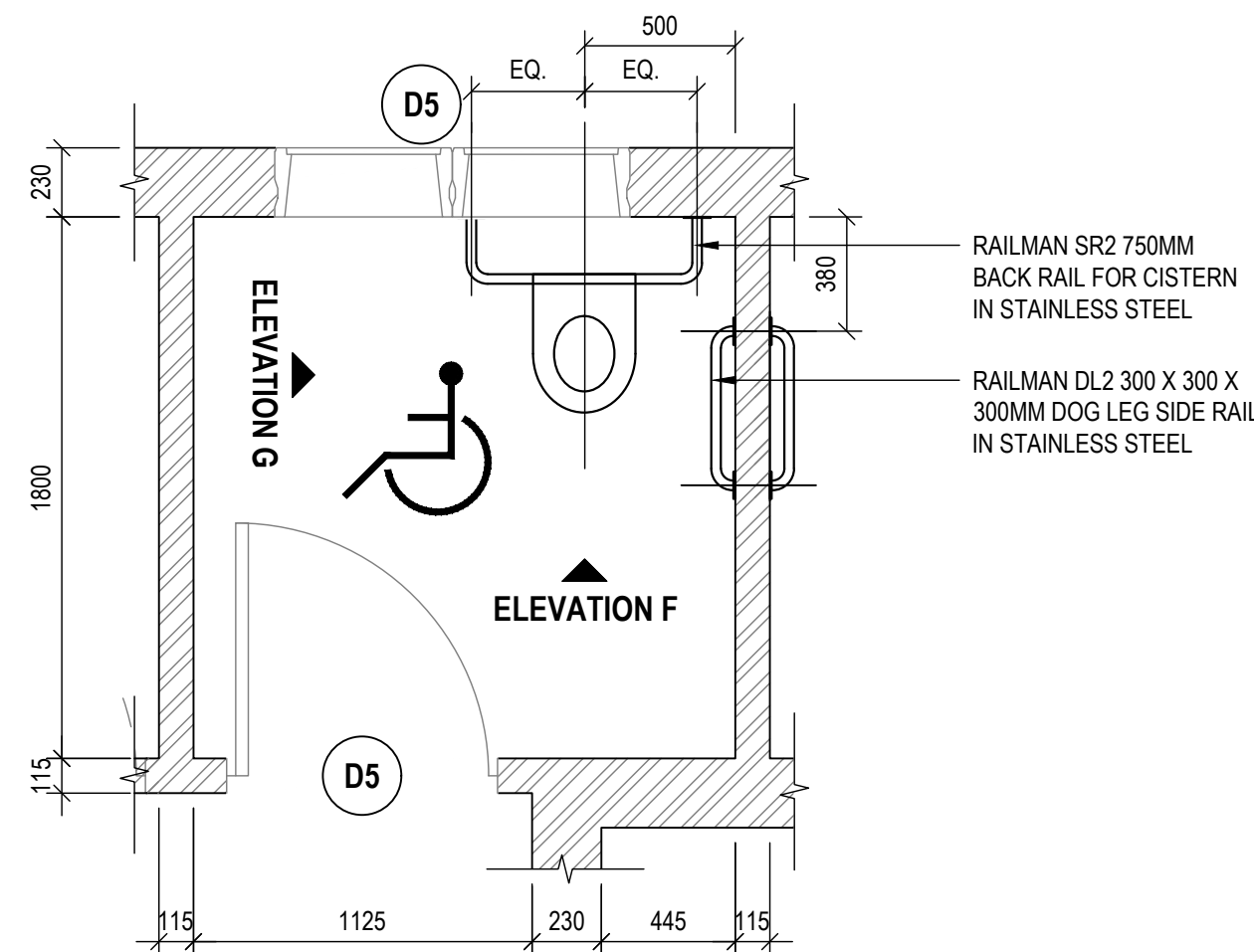
1265/A-301



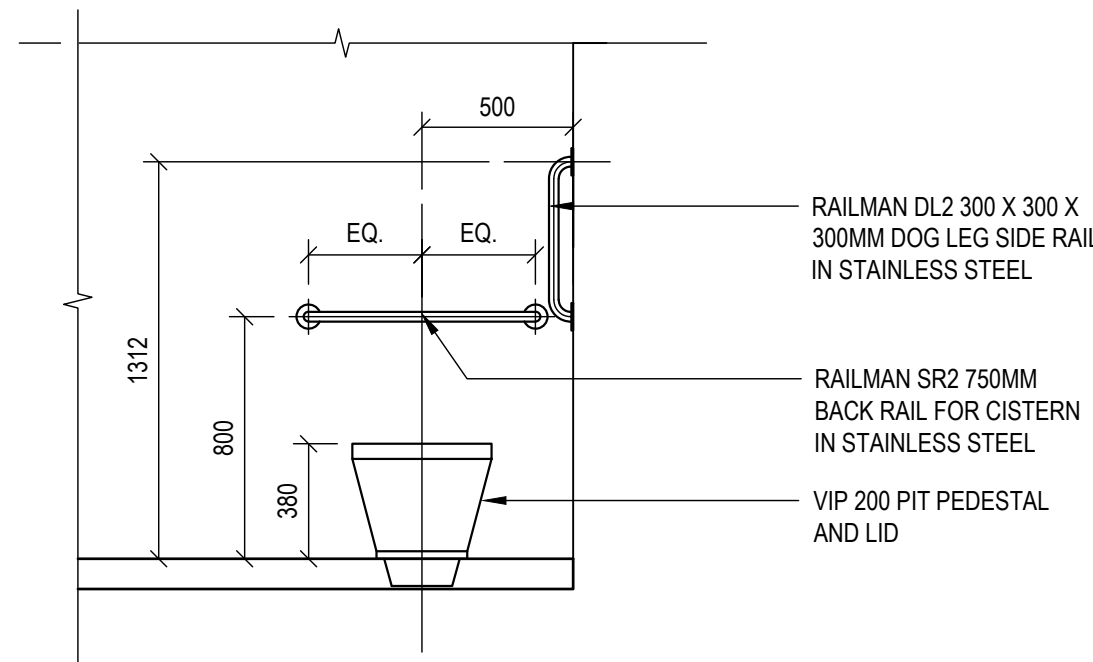
ROOF PLAN
SCALE: 1:50



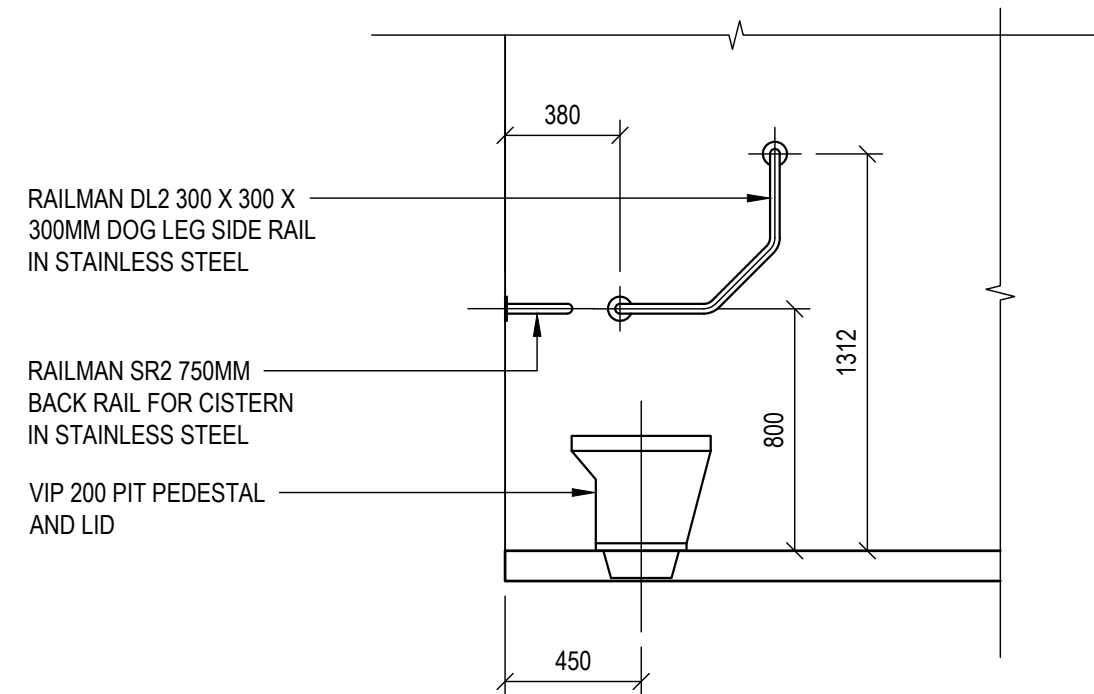
ROOF TRUSS TYPE H1
SCALE: 1:50



DETAIL LAYOUT OF MALE DISABLED ABLUTIONS
(DISABLED FEMALE TO OPIST HAND)
SCALE: 1:25



MALE DISABLED ABLUTIONS ELEVATION F
(DISABLED FEMALE TO OPIST HAND)
SCALE: 1:25



MALE DISABLED ABLUTIONS ELEVATION G
(DISABLED FEMALE TO OPIST HAND)
SCALE: 1:25

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

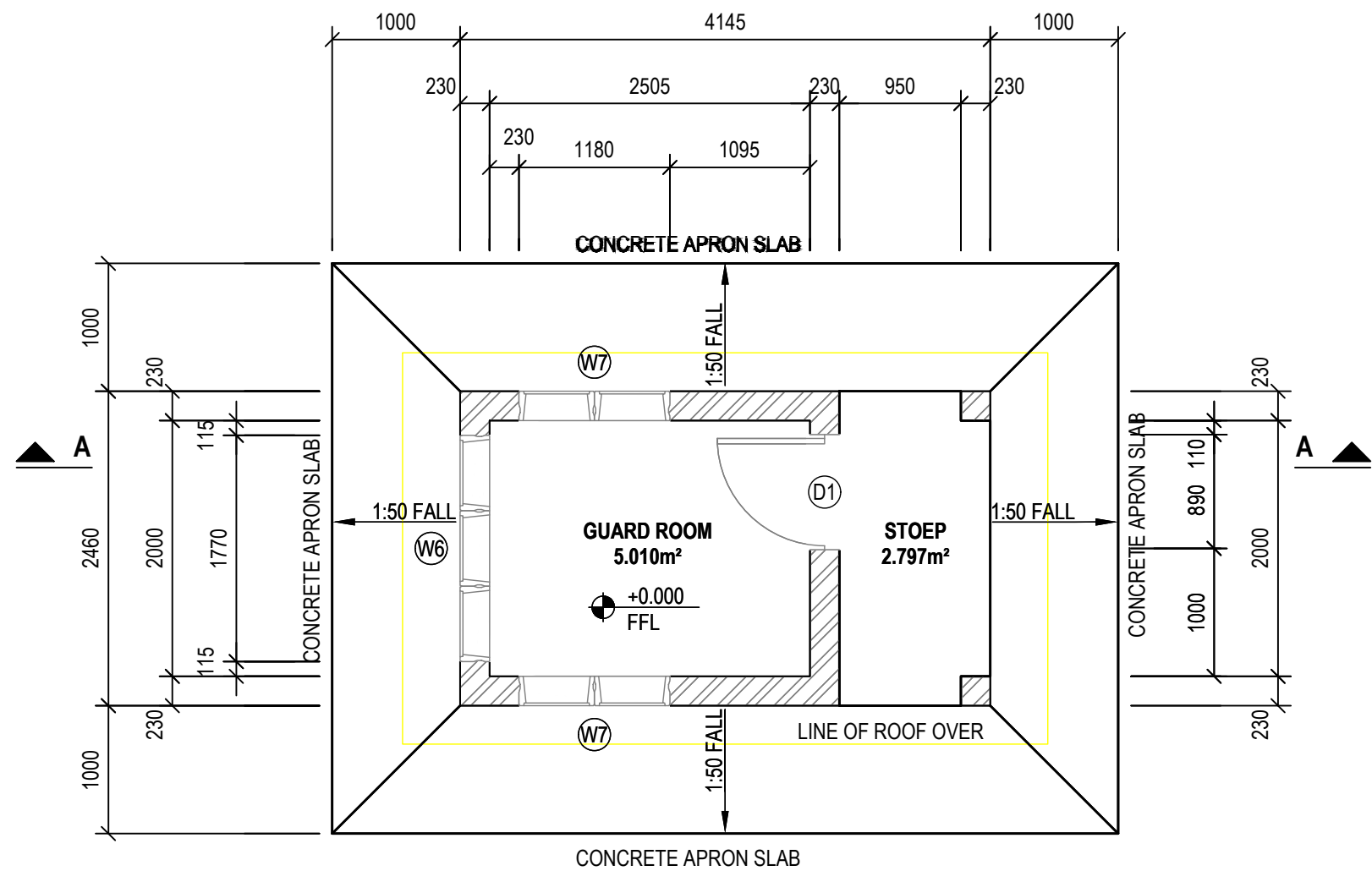
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	

 DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090
Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za	

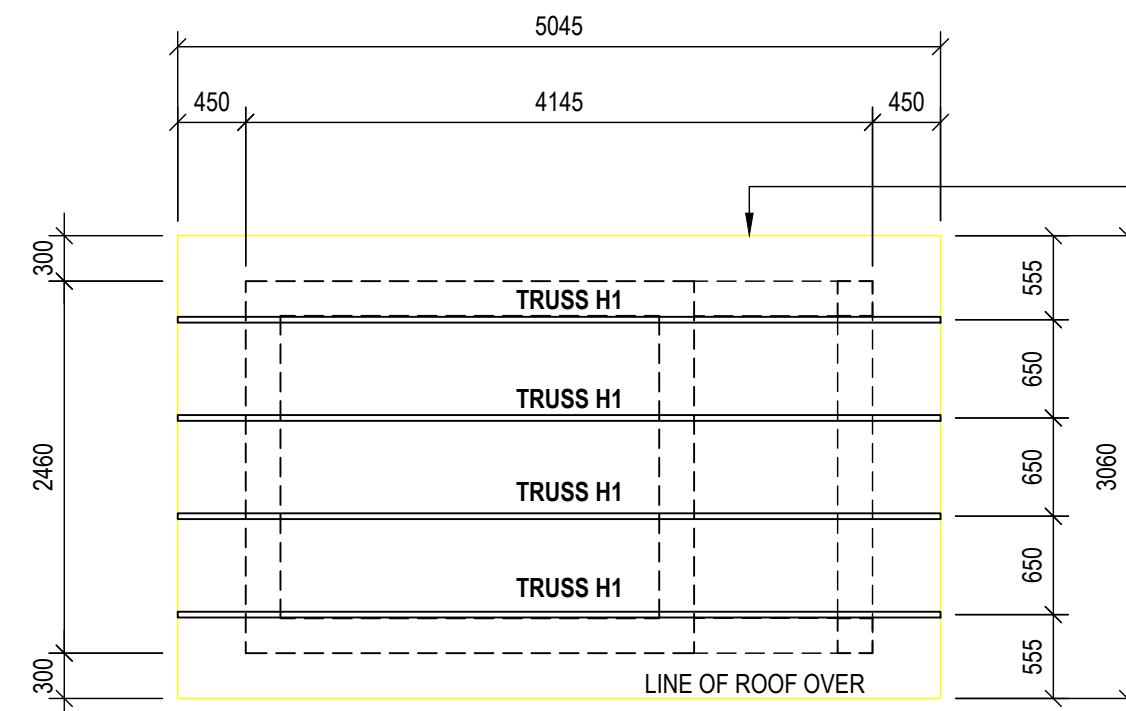
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY : DIRECTOR	
DATE : 28/07/2022	
Pr No : 200570114	

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ABLUTIONS ROOF LAYOUT, TRUSS, AND DISABLED TOILET LAYOUT

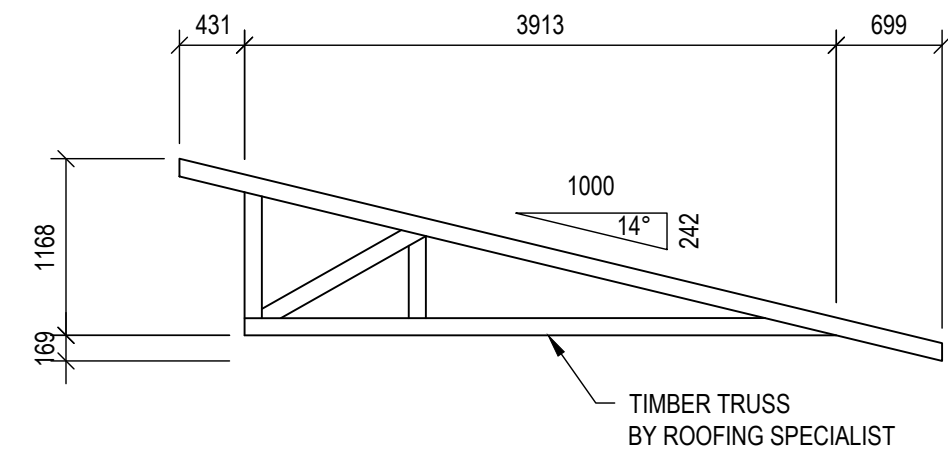
FOR TENDER	
ORIGINAL SCALE : AS SHOWN	ORIGINAL SHEET SIZE : A1
	
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 21/01/2022
CHECKED : KJ	REV : B
DRAWING No :	1265 / A-302



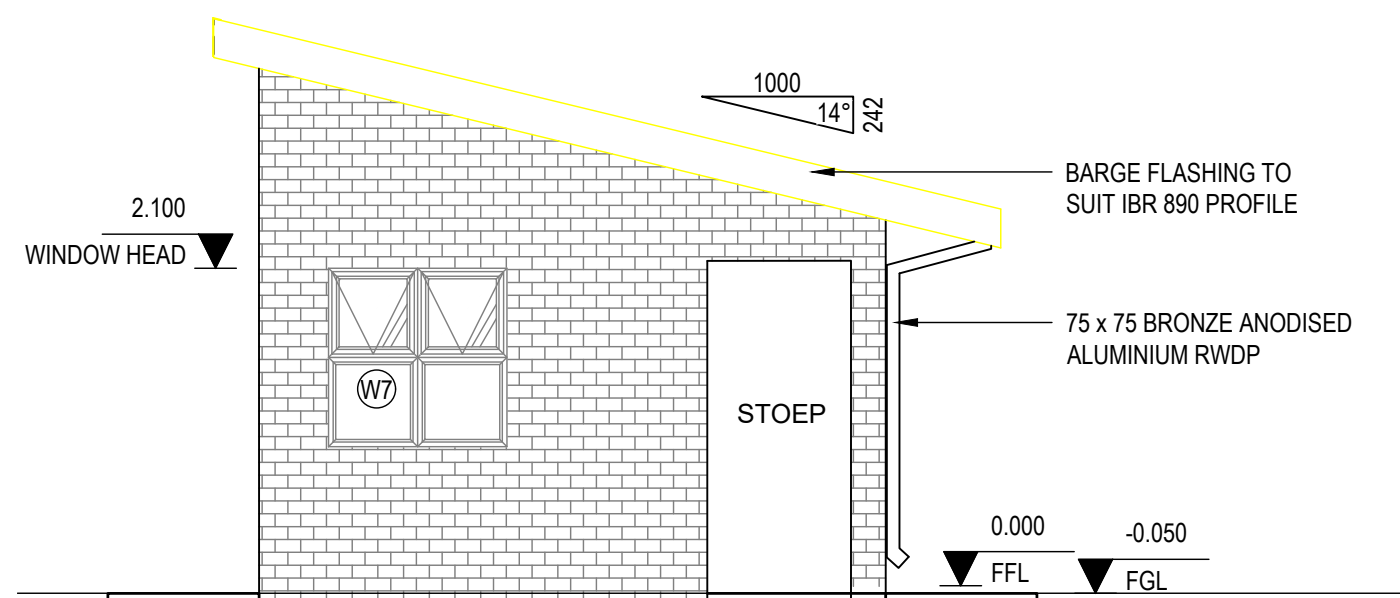
PLAN ON GUARD HOUSE
SCALE: 1:50



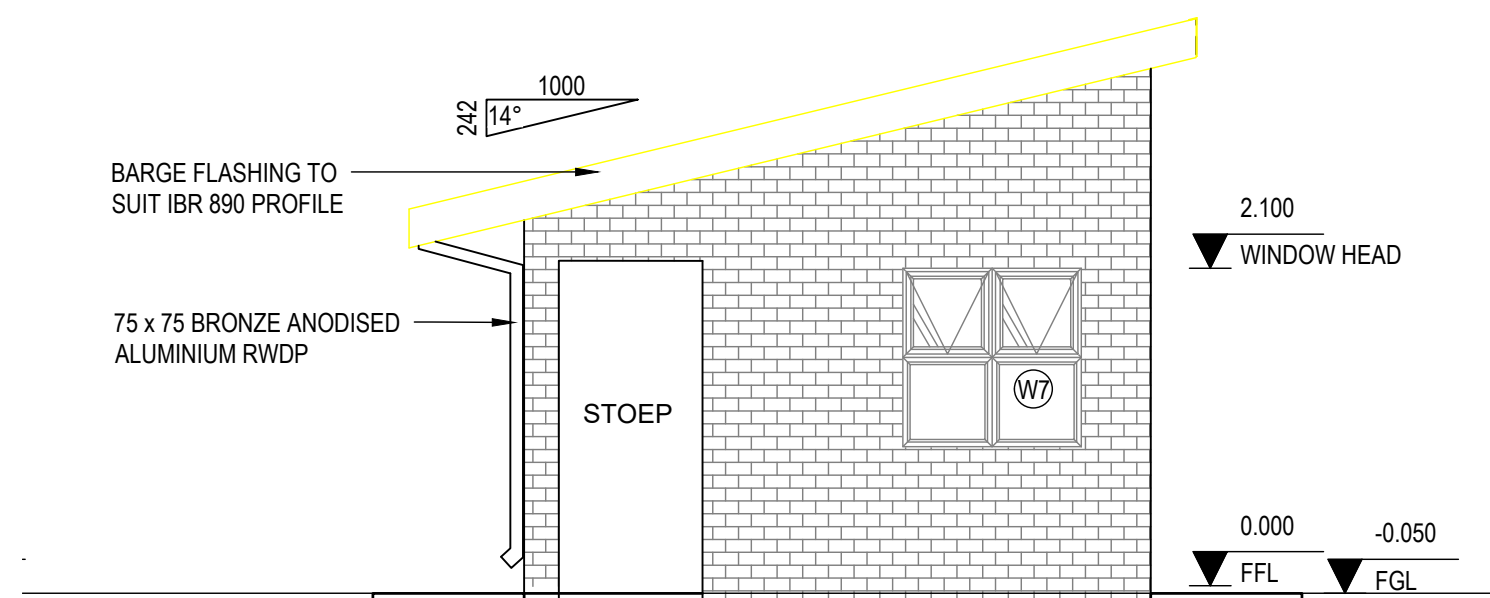
PLAN ON GUARD HOUSE ROOF
SCALE: 1:50



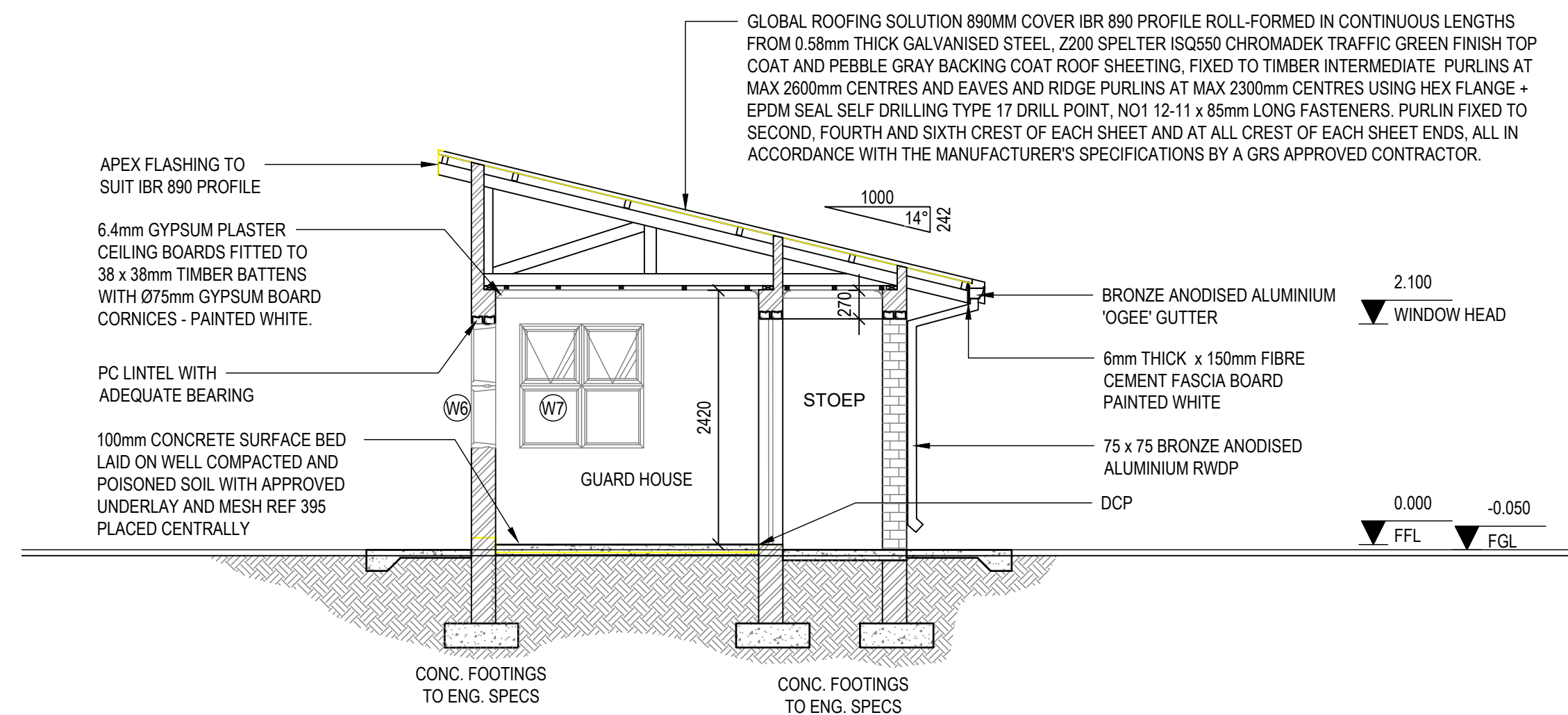
ELEVATION OF GUARD HOUSE ROOF TRUSS H1
SCALE: 1:50



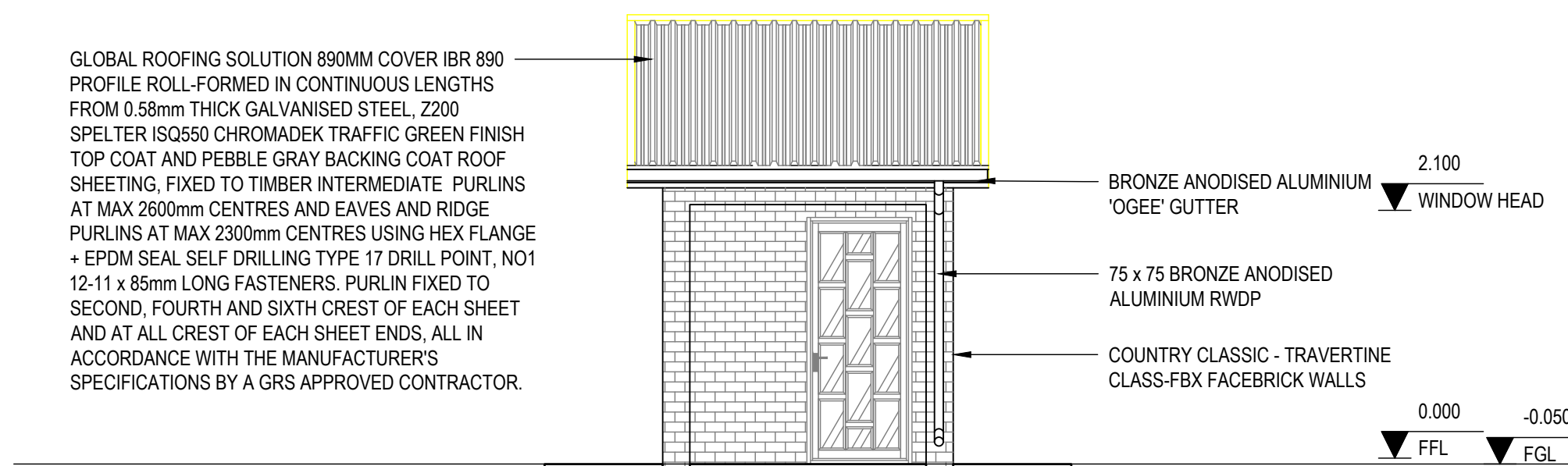
SOUTH EAST ELEVATION
SCALE: 1:50



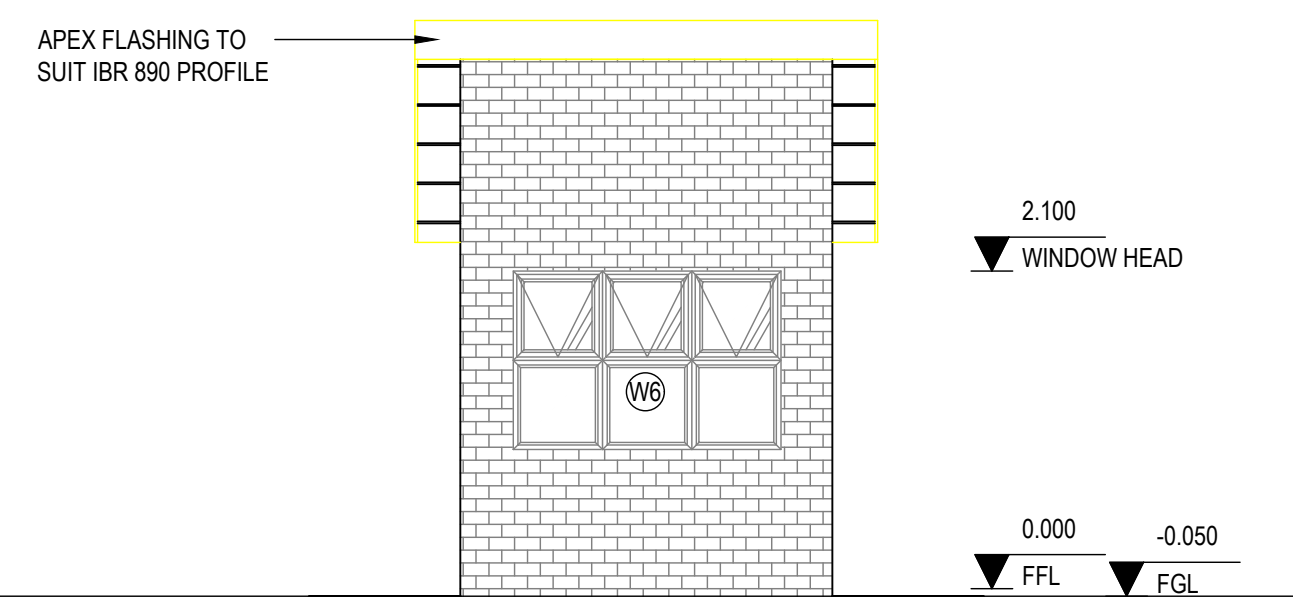
NORTH WEST ELEVATION
SCALE: 1:50



SECTION A-A
SECTION THROUGH GUARD HOUSE
SCALE: 1:50



NORTH EAST ELEVATION
SCALE: 1:50



SOUTH WEST ELEVATION
SCALE: 1:50

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
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UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	

 DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610	P O Box 65996 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:
MANDLALATHI COMMUNITY HALL
DRAWING TITLE:
GUARD HOUSE LAYOUT PLAN, ELEVATIONS, SECTIONS & ROOF LAYOUT

FOR TENDER	
ORIGINAL SCALE :	AS SHOWN
ORIGINAL SHEET SIZE :	A1
0	50 100mm
DESIGNED :	SK
SHEET :	01
DRAWN :	NGIH
DATE :	09/09/2020
CHECKED :	SK
REV :	B
DRAWING No :	1265/A-401

FINISHING SCHEDULE					
ROOM NAME:	FLOOR FINISH:	SKIRTING:	WALL FINISH:	CEILING:	CORNICE:
MALE TOILET BLOCK. FEMALE TOILET BLOCK.	GRANOLITHIC - LAY (2:4:1 - 2 PARTS CEMENT : 4 PARTS 10MM STONE : 1 PART SAND). FINISH TO BE LAID IN PANELS AND TO ALLOW FOR EXPANSION JOINTS AS PER ENGINEERS SPECIFICATION. ALL EXPANSION JOINTS TO BE SEALED WITH SILICONE SEALANT IN COLOUR SIMILAR TO FINISH. GRANOLITHIC TO BE 30MM THICK ON 1:1 CEMENT SAND SLURRY APPLIED OVER BEDDING SURFACE. LAY IN PANELS NOT EXCEEDING 10SQM WITH FULL DEPTH CUT AND V-JOINT BETWEEN PANELS.	GRANOLITHIC - EXTEND GRANOLITHIC FLOOR FINISH 75MM VERTICALLY ABOVE JUNCTION BETWEEN WALL AND FLOOR WITH A 50MM RADIUS COVE.	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	SUPPLY AND INSTALL 38MM X 38MM TIMBER BATTENS @ 400MM C/C WITH CLOUT NAILS TO U/S OF TRUSS TIE-BEAMS. FIT 9 MM JUMBO PLASTERBOARD @ 90° TO DIRECTION OF BATTEN WITH TAPERED EDGE OF BOARD FACING DOWN USING 25MM DRYWALL SCREWS AT 150MM CENTRES. APPLY 50MM JUMBO TAPE TO ALL JOINTS AND FINISH THE ENTIRE CEILING WITH 3-5MM JUMBO SKIMMING PLASTER. APPLY 'PLASCON PROFESSIONAL GYPSUM & PLASTER PRIMER (PP700). APPLY 2 CTS 'PLASCON HYGIENE LOW SHEEN (PH1/THL) - WHITE.	TRADITIONAL GYPSUM BOARD COVERED CORNICE.
AUDITORIUM.	REMOVE ALL DIRT, IMPURITIES AND UNEVENNESS. ADD SELF-LEVELLING SCREED TO CREATE LEVEL SURFACE THEN INSTALL NEW FINISH AS DESCRIBED BELOW. LGZ1921 600 X 600 X 9MM THICK RECTIFIED CREAM GLAZED PORCELAIN TILE WITH A MATT R9 FINISH AND 4 PEI RATING - AS SUPPLIED BY LIME GREEN SOURCING SOLUTIONS KZN. TILES FIXED WITH TAL GOLDSTAR 6HR ADHESIVE. JOINTING OF TILES TO BE EPOXY GROUTED AND LAID ON 40MM SCREED. MOVEMENT JOINTS TO BE FORMED IN TILING LAYOUT, TAKEN THROUGH FULL DEPTH OF BEDDING COAT & OVER BACKGROUND MOVEMENT JOINTS NOT EXCEEDING 5M ON RC SLABS AND SURFACE BEDS. THIS MUST ALSO BE CARRIED OUT AT JUNCTION WITH WALL AND FLOOR AND WHERE TILING IS CONTINUOUS OVER DIFFERENT BACKGROUNDS. ALUMINIUM 110MM WIDE RETRO-FIT RAMP M-TRIM TO BE USED AT JUNCTION BETWEEN PORCELAIN & LVT JUNCTIONS (CODE - ARWR100) AS SUPPLIED BY KIRK MARKETING. ALL TILES MUST BE GIVEN AN INITIAL ONCE-OFF PURGE POST INSTALLATION TO REMOVE CEMENTITIOUS RESIDUE.	N/A	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	SUPPLY AND INSTALL 38MM X 38MM TIMBER BATTENS @ 400MM C/C WITH CLOUT NAILS TO U/S OF TRUSS TIE-BEAMS. FIT 9 MM JUMBO PLASTERBOARD @ 90° TO DIRECTION OF BATTEN WITH TAPERED EDGE OF BOARD FACING DOWN USING 25MM DRYWALL SCREWS AT 150MM CENTRES. APPLY 50MM JUMBO TAPE TO ALL JOINTS AND FINISH THE ENTIRE CEILING WITH 3-5MM JUMBO SKIMMING PLASTER. APPLY 'PLASCON PROFESSIONAL GYPSUM & PLASTER PRIMER (PP700). APPLY 2 CTS 'PLASCON HYGIENE LOW SHEEN (PH1/THL) - WHITE.	TRADITIONAL GYPSUM BOARD COVERED CORNICE.
STAGE. OFFICE.	REMOVE ALL DIRT, IMPURITIES AND UNEVENNESS. ADD SELF-LEVELLING SCREED TO CREATE LEVEL SURFACE THEN INSTALL NEW FINISH AS DESCRIBED BELOW. LGZ1921 600 X 600 X 9MM THICK RECTIFIED CREAM GLAZED PORCELAIN TILE WITH A MATT R9 FINISH AND 4 PEI RATING - AS SUPPLIED BY LIME GREEN SOURCING SOLUTIONS KZN. TILES FIXED WITH TAL GOLDSTAR 6HR ADHESIVE. JOINTING OF TILES TO BE EPOXY GROUTED AND LAID ON 40MM SCREED. MOVEMENT JOINTS TO BE FORMED IN TILING LAYOUT, TAKEN THROUGH FULL DEPTH OF BEDDING COAT & OVER BACKGROUND MOVEMENT JOINTS NOT EXCEEDING 5M ON RC SLABS AND SURFACE BEDS. THIS MUST ALSO BE CARRIED OUT AT JUNCTION WITH WALL AND FLOOR AND WHERE TILING IS CONTINUOUS OVER DIFFERENT BACKGROUNDS. ALUMINIUM 110MM WIDE RETRO-FIT RAMP M-TRIM TO BE USED AT JUNCTION BETWEEN PORCELAIN & LVT JUNCTIONS (CODE - ARWR100) AS SUPPLIED BY KIRK MARKETING. ALL TILES MUST BE GIVEN AN INITIAL ONCE-OFF PURGE POST INSTALLATION TO REMOVE CEMENTITIOUS RESIDUE.	N/A	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	SUPPLY AND INSTALL 38MM X 38MM TIMBER BATTENS @ 400MM C/C WITH CLOUT NAILS TO U/S OF TRUSS TIE-BEAMS. FIT 9 MM JUMBO PLASTERBOARD @ 90° TO DIRECTION OF BATTEN WITH TAPERED EDGE OF BOARD FACING DOWN USING 25MM DRYWALL SCREWS AT 150MM CENTRES. APPLY 50MM JUMBO TAPE TO ALL JOINTS AND FINISH THE ENTIRE CEILING WITH 3-5MM JUMBO SKIMMING PLASTER. APPLY 'PLASCON PROFESSIONAL GYPSUM & PLASTER PRIMER (PP700). APPLY 2 CTS 'PLASCON HYGIENE LOW SHEEN (PH1/THL) - WHITE.	TRADITIONAL GYPSUM BOARD COVERED CORNICE.
VERANDAH	REMOVE ALL DIRT, IMPURITIES AND UNEVENNESS. ADD SELF-LEVELLING SCREED TO CREATE LEVEL SURFACE THEN INSTALL NEW FINISH AS DESCRIBED BELOW. LGZ1921 600 X 600 X 9MM THICK RECTIFIED CREAM GLAZED PORCELAIN TILE WITH A MATT R9 FINISH AND 4 PEI RATING - AS SUPPLIED BY LIME GREEN SOURCING SOLUTIONS KZN. TILES FIXED WITH TAL GOLDSTAR 6HR ADHESIVE. JOINTING OF TILES TO BE EPOXY GROUTED AND LAID ON 40MM SCREED. MOVEMENT JOINTS TO BE FORMED IN TILING LAYOUT, TAKEN THROUGH FULL DEPTH OF BEDDING COAT & OVER BACKGROUND MOVEMENT JOINTS NOT EXCEEDING 5M ON RC SLABS AND SURFACE BEDS. THIS MUST ALSO BE CARRIED OUT AT JUNCTION WITH WALL AND FLOOR AND WHERE TILING IS CONTINUOUS OVER DIFFERENT BACKGROUNDS. ALUMINIUM 110MM WIDE RETRO-FIT RAMP M-TRIM TO BE USED AT JUNCTION BETWEEN PORCELAIN & LVT JUNCTIONS (CODE - ARWR100) AS SUPPLIED BY KIRK MARKETING. ALL TILES MUST BE GIVEN AN INITIAL ONCE-OFF PURGE POST INSTALLATION TO REMOVE CEMENTITIOUS RESIDUE.	N/A	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	SUPPLY AND INSTALL 38MM X 38MM TIMBER BATTENS @ 400MM C/C WITH CLOUT NAILS TO U/S OF TRUSS TIE-BEAMS. FIT 9 MM JUMBO PLASTERBOARD @ 90° TO DIRECTION OF BATTEN WITH TAPERED EDGE OF BOARD FACING DOWN USING 25MM DRYWALL SCREWS AT 150MM CENTRES. APPLY 50MM JUMBO TAPE TO ALL JOINTS AND FINISH THE ENTIRE CEILING WITH 3-5MM JUMBO SKIMMING PLASTER. APPLY 'PLASCON PROFESSIONAL GYPSUM & PLASTER PRIMER (PP700). APPLY 2 CTS 'PLASCON HYGIENE LOW SHEEN (PH1/THL) - WHITE.	TRADITIONAL GYPSUM BOARD COVERED CORNICE.
EXTERNAL WALLS.	CONCRETE APRON TO ENGINEER'S DETAIL WITH WOOD FLOATED FINISH.	N/A	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	N/A	N/A
GUARDHOUSE.	REMOVE ALL DIRT, IMPURITIES AND UNEVENNESS. ADD SELF-LEVELLING SCREED TO CREATE LEVEL SURFACE THEN INSTALL NEW FINISH AS DESCRIBED BELOW. LGZ1921 600 X 600 X 9MM THICK RECTIFIED CREAM GLAZED PORCELAIN TILE WITH A MATT R9 FINISH AND 4 PEI RATING - AS SUPPLIED BY LIME GREEN SOURCING SOLUTIONS KZN. TILES FIXED WITH TAL GOLDSTAR 6HR ADHESIVE. JOINTING OF TILES TO BE EPOXY GROUTED AND LAID ON 40MM SCREED. MOVEMENT JOINTS TO BE FORMED IN TILING LAYOUT, TAKEN THROUGH FULL DEPTH OF BEDDING COAT & OVER BACKGROUND MOVEMENT JOINTS NOT EXCEEDING 5M ON RC SLABS AND SURFACE BEDS. THIS MUST ALSO BE CARRIED OUT AT JUNCTION WITH WALL AND FLOOR AND WHERE TILING IS CONTINUOUS OVER DIFFERENT BACKGROUNDS. ALUMINIUM 110MM WIDE RETRO-FIT RAMP M-TRIM TO BE USED AT JUNCTION BETWEEN PORCELAIN & LVT JUNCTIONS (CODE - ARWR100) AS SUPPLIED BY KIRK MARKETING. ALL TILES MUST BE GIVEN AN INITIAL ONCE-OFF PURGE POST INSTALLATION TO REMOVE CEMENTITIOUS RESIDUE.	N/A	FACE BRICK FINISH ALL WALLS TO BE CLEANED AND WASHED UPON COMPLETION	SUPPLY AND INSTALL 38MM X 38MM TIMBER BATTENS @ 400MM C/C WITH CLOUT NAILS TO U/S OF TRUSS TIE-BEAMS. FIT 9 MM JUMBO PLASTERBOARD @ 90° TO DIRECTION OF BATTEN WITH TAPERED EDGE OF BOARD FACING DOWN USING 25MM DRYWALL SCREWS AT 150MM CENTRES. APPLY 50MM JUMBO TAPE TO ALL JOINTS AND FINISH THE ENTIRE CEILING WITH 3-5MM JUMBO SKIMMING PLASTER. APPLY 'PLASCON PROFESSIONAL GYPSUM & PLASTER PRIMER (PP700). APPLY 2 CTS 'PLASCON HYGIENE LOW SHEEN (PH1/THL) - WHITE.	TRADITIONAL GYPSUM BOARD COVERED CORNICE.

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/09/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY

CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH
PO BOX 19, SCOTTBURGH, 4180

TEL 039 976 1202 / 039 978 4313
FAX 039 976 2194/2020
WEB WWW.UMDONI.GOV.ZA



APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No :

**DARTINGO CONSULTING ENGINEERS (Pty) Ltd.**
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

**SCHEDULES
BUILDING FINISHES**

FOR TENDER

ORIGINAL SCALE : **1:100**
0 50 100mm
ORIGINAL SHEET SIZE : **A1**

DESIGNED : **SK** SHEET : **01**
DRAWN : **SK** DATE : **09/09/2020**
CHECKED : **NGIH** REV : **B**

DRAWING No : **1265/A-501**

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/09/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY

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PO BOX 19, SCOTTSBURGH, 4180

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WEB WWW.UMDONI.GOV.ZA



APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:
DATE :
DM DRAWING No.
CONTRACT No :

**DARTINGO CONSULTING ENGINEERS (Pty) Ltd.**
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2669003
Fax: 031 - 2669006
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

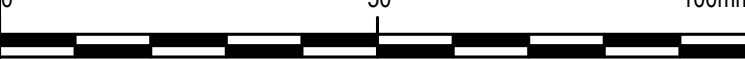
MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

**SCHEDULES
DOORS**

FOR TENDER

ORIGINAL SCALE : **1:100** ORIGINAL SHEET SIZE : **A1**

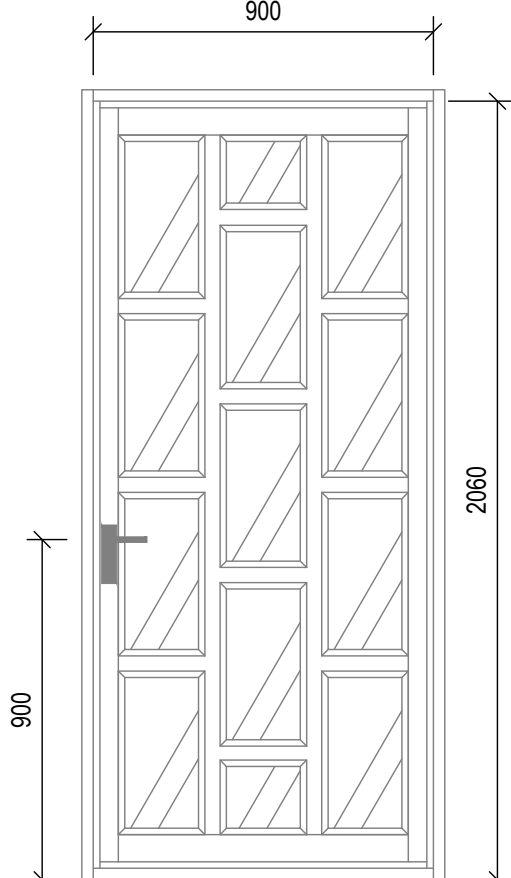
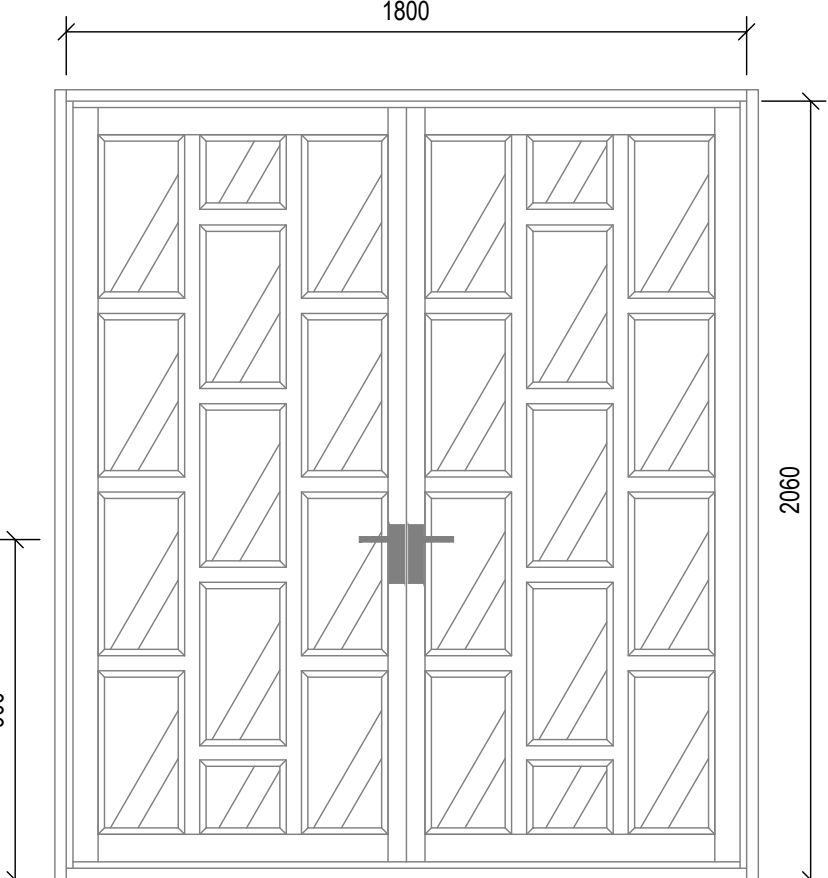
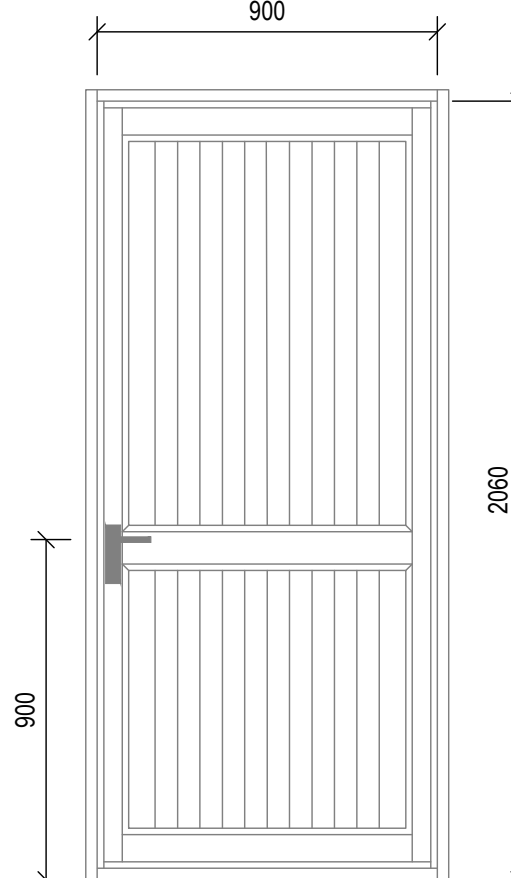
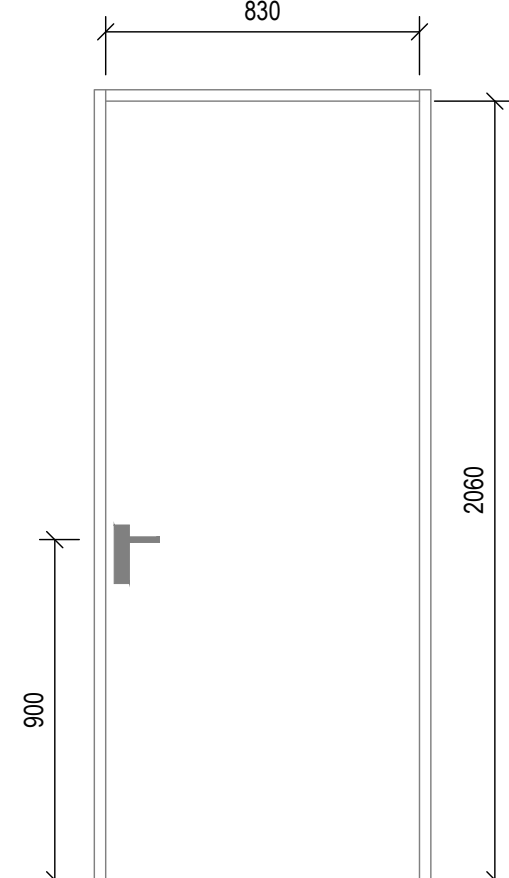
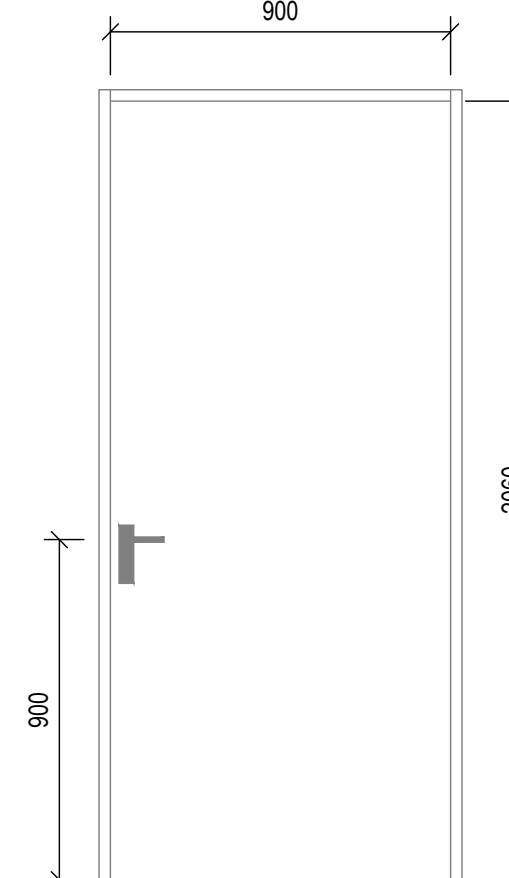


DESIGNED : **SK** SHEET : **01**

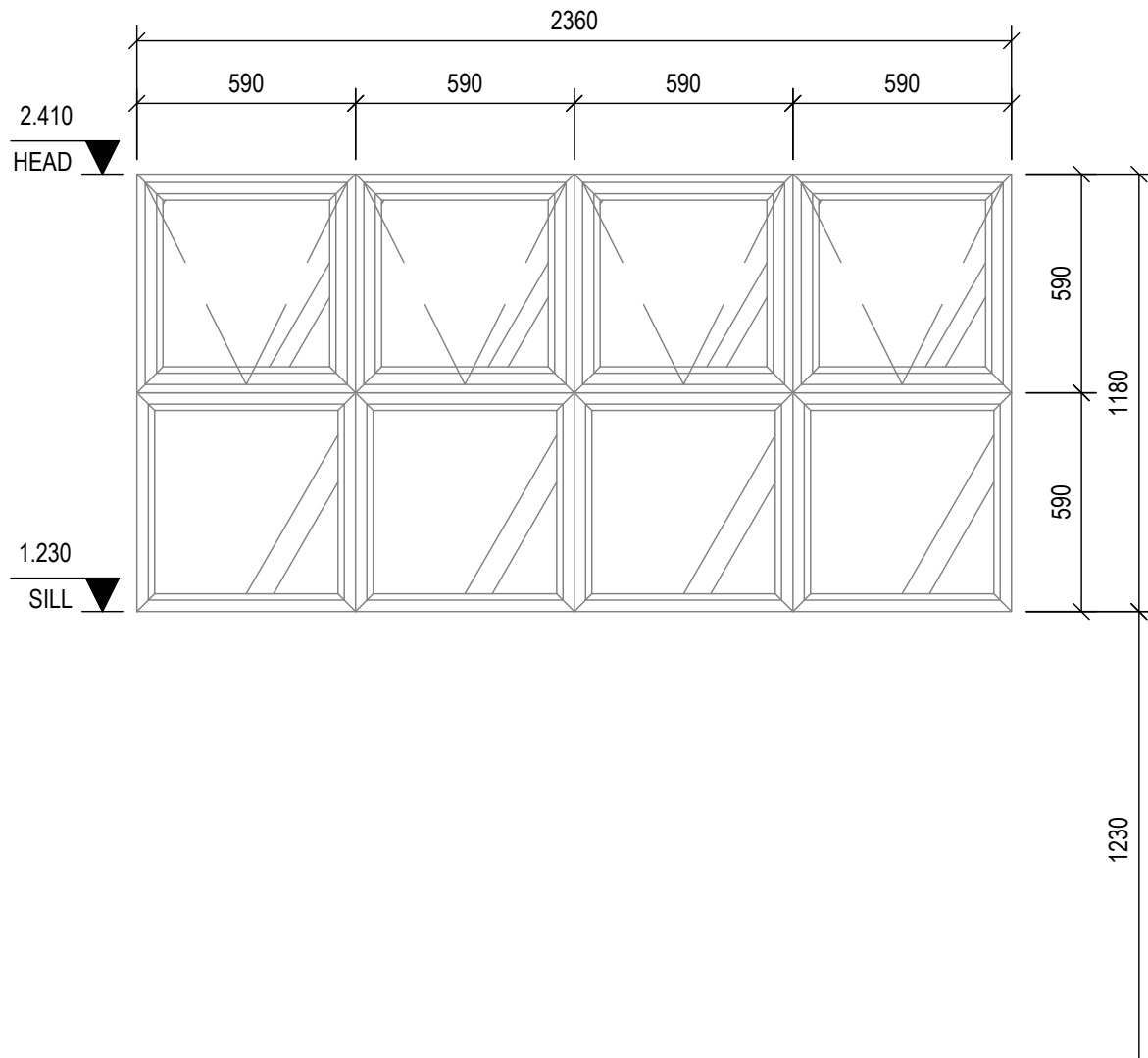
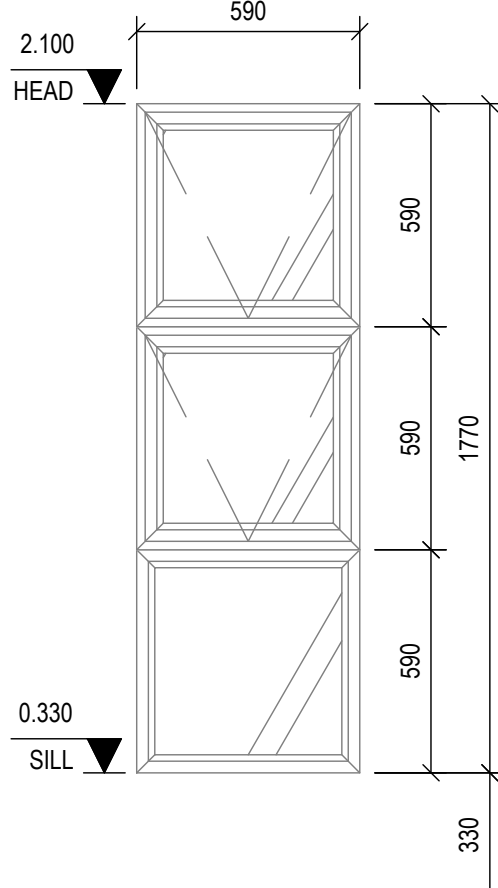
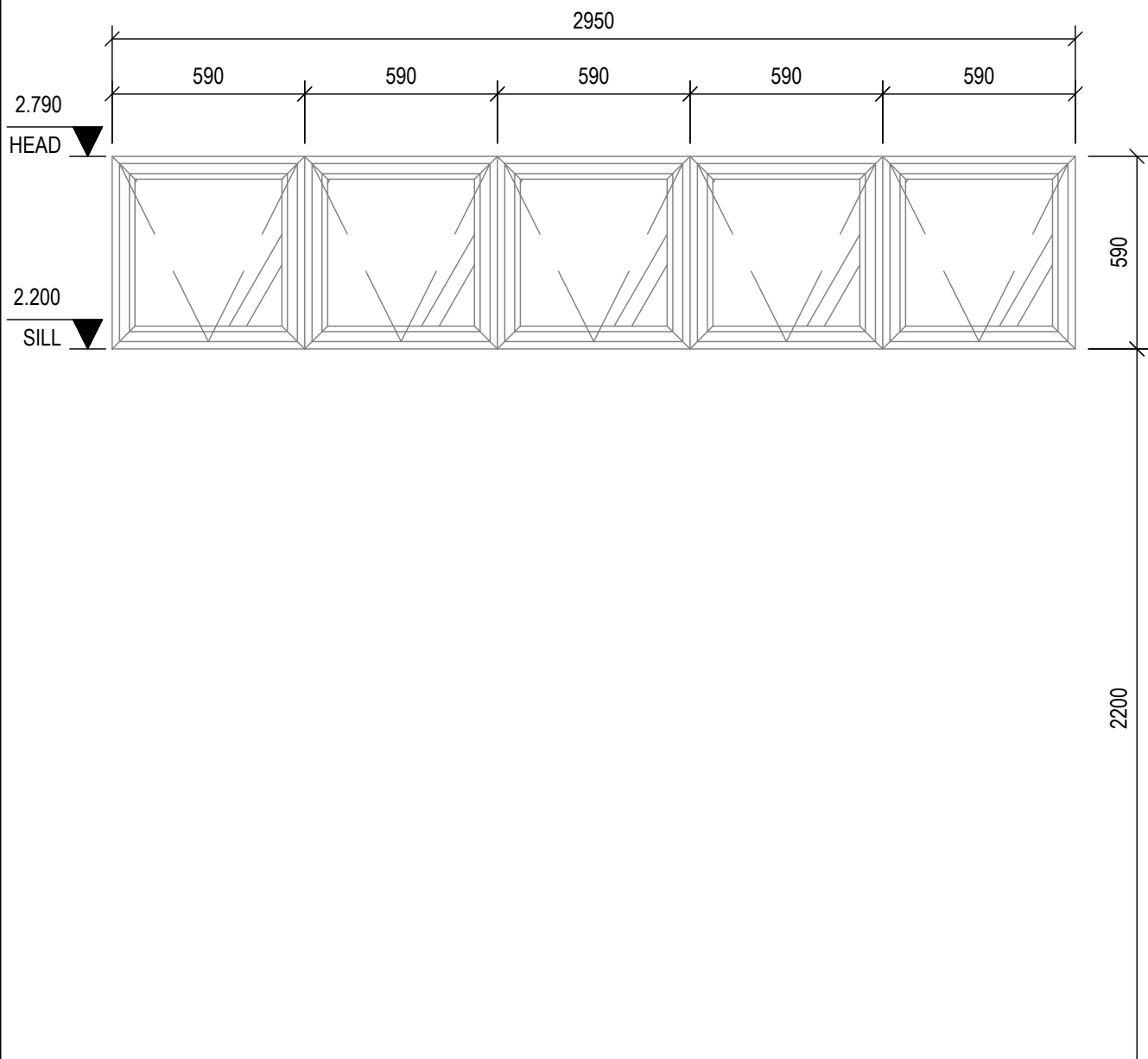
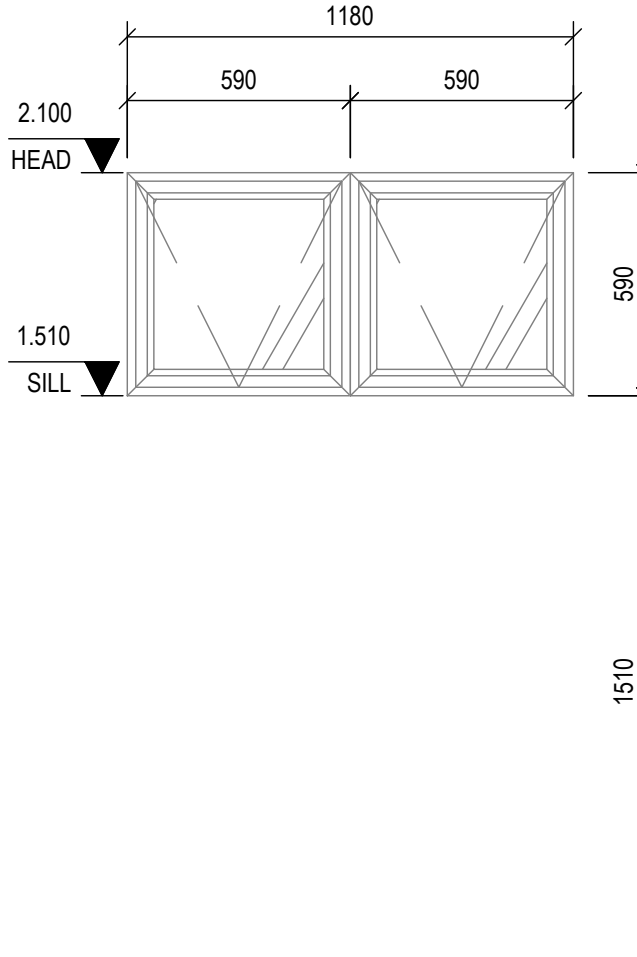
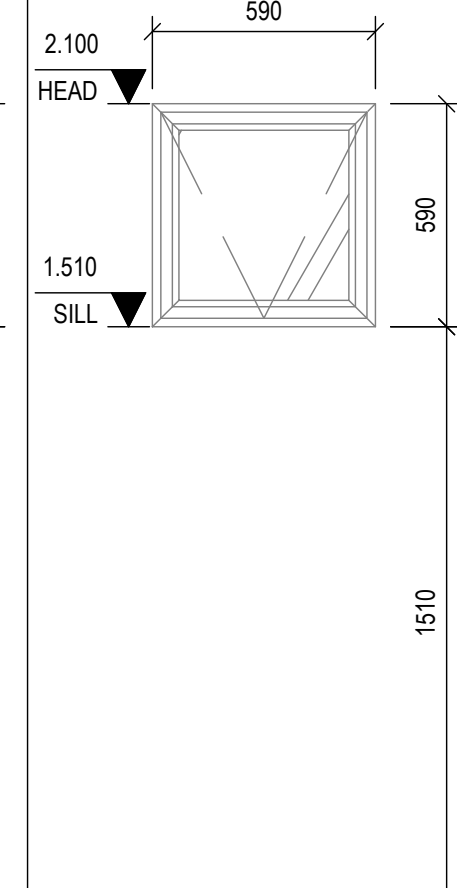
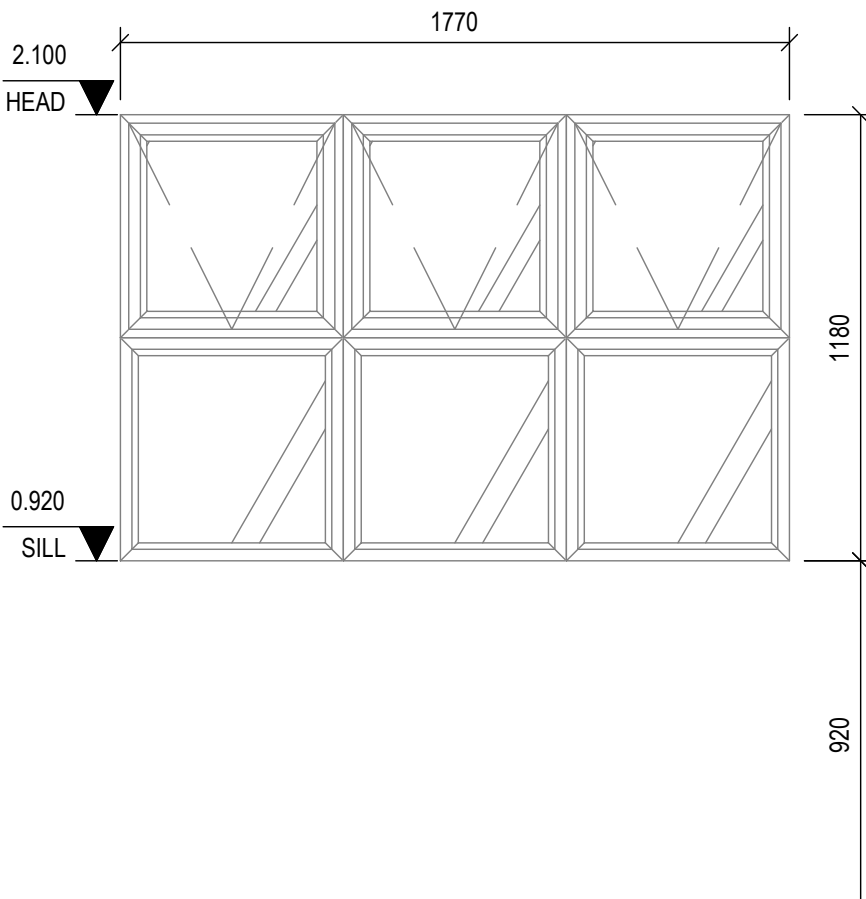
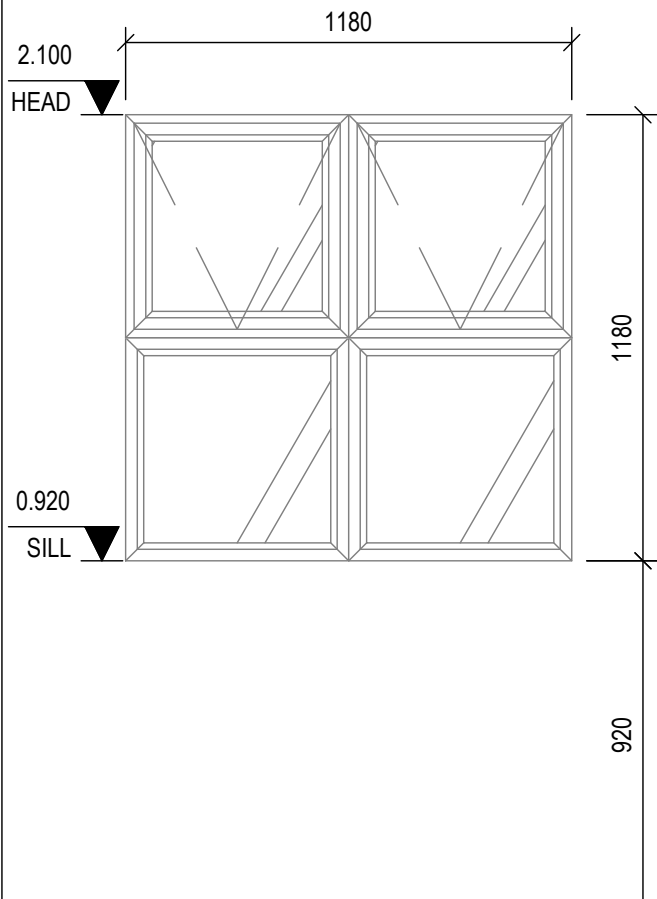
DRAWN : **NGIH** DATE : **09/09/2020**

CHECKED : **NGIH** REV : **B**

DRAWING No : **1265 / A-502**

DOOR SCHEDULE					
DOOR TYPE	D1	D2	D3	D4	D5
DESCRIPTION	OFFICE AND SIDE SIDE DOORS	MAIN ENTRANCE DOOR	MAIN ABLUTIONS DOOR	ABLUTION ABLE-BODIED CUBICAL DOOR	ABLUTION DISABLED CUBICAL DOOR
LOCATION	MAIN HALL, OFFICES, GUARD HOUSE	MAIN HALL	ABLUTIONS	ABLUTIONS	ABLUTIONS
NUMBER OF	10	1	2	6	2
ELEVATION					
DOOR	EXPOSURE CLASS	DRY INTERIOR	CLASS 1 EXTERIOR	WET INTERIOR	WET INTERIOR
	PERFORMANCE CLASS	HEAVY DUTY (SABS 545)	HEAVY DUTY (SABS 545)	HEAVY DUTY (SABS 545)	HEAVY DUTY (SABS 545)
	DOOR MATERIAL	ALUMINIUM	ALUMINIUM	SEMI SOLID TIMBER WITH MASONITE VENEERS	SEMI SOLID TIMBER WITH MASONITE VENEERS
	DOOR APPEARANCE	GLAZED STAGGERED COTTAGE PANE	GLAZED STAGGERED COTTAGE PANE	FLUSH PANELLED	FLUSH PANELLED
	LEAF	SINGLE LEAF	DOUBLE LEAF	SINGLE LEAF	SINGLE LEAF
	ACTION	SINGLE ACTION	SINGLE ACTION	SINGLE ACTION	SINGLE ACTION
	EDGING	FACE OVER EDGE	FACE OVER EDGE	FACE OVER EDGE	FACE OVER EDGE
DOOR FINISH	GLAZING	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS	N/A	N/A
	TYPE	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE	TIMBER AND MASONITE	TIMBER AND MASONITE
	PAINT PRIMER	N/A	N/A	PLASCON WOODCARE KNOT SEAL (PK 2) TO ALL KNOTS & RESINOUS AREAS	PLASCON WOODCARE KNOT SEAL (PK 2) TO ALL KNOTS & RESINOUS AREAS
	PAINT UNDERCOAT	N/A	N/A	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)
	PAINT FINISH	N/A	N/A	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)
	PAINT PRODUCT	N/A	N/A	PLASCON VELVEGLO WATER-BASED SATIN FINISH NON-DRIP ENAMEL	PLASCON VELVEGLO WATER-BASED SATIN FINISH NON-DRIP ENAMEL
	MATERIAL	ALUMINIUM	ALUMINIUM	1.2MM HOT DIPPED GALV STEEL	1.2MM HOT DIPPED GALV STEEL
FRAME	PROFILE	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED
	WALL	230 MASONRY	230 MASONRY	110 MASONRY	110 MASONRY
	PREPARATION	N/A	N/A	FOR PAINTING	FOR PAINTING
	PAINT PRIMER	N/A	N/A	1 CT PLASCON METALCARE WB PRIMER	1 CT PLASCON METALCARE WB PRIMER
	PAINT UNDERCOAT	N/A	N/A	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)
	PAINT FINISH	N/A	N/A	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)	1 CT PLASCON VELVEGLO WATER-BASED - WHISPERING BIRCH (Y1-D1-1)
	PAINT PRODUCT	N/A	N/A	PLASCON VELVEGLO WATER-BASED SATIN FINISH NON-DRIP ENAMEL	PLASCON VELVEGLO WATER-BASED SATIN FINISH NON-DRIP ENAMEL
SECURITY GATE	TRELLIDOR T800 ALUMINIUM RETRACTABLE SECURITY GATE WITH SLAMLOCK OR SIMILAR APPROVED BY ENGINEERS - MATT BRONZE. SUPPLIED AND INSTALLED TO MANUFACTURES SPECIFICATION	TRELLIDOR T800 ALUMINIUM RETRACTABLE SECURITY GATE WITH SLAMLOCK OR SIMILAR APPROVED BY ENGINEERS - MATT BRONZE. SUPPLIED AND INSTALLED TO MANUFACTURES SPECIFICATION	TRELLIDOR T800 ALUMINIUM RETRACTABLE SECURITY GATE WITH SLAMLOCK OR SIMILAR APPROVED BY ENGINEERS - MATT BRONZE. SUPPLIED AND INSTALLED TO MANUFACTURES SPECIFICATION	NONE	NONE
IRONMONGERY	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER. FLUSH BOLTS TO BE INSTALLED ON MEETING STYLE EDGE OF SINGLE LEAF (TOP & BOTTOM) WITH METAL KEEPS TO DRILLED HOLES ON FLOOR & WALL. PROVIDE CABIN HOOKS TO BOTH LEAFS.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER. FLUSH BOLTS TO BE INSTALLED ON MEETING STYLE EDGE OF SINGLE LEAF (TOP & BOTTOM) WITH METAL KEEPS TO DRILLED HOLES ON FLOOR & WALL. PROVIDE CABIN HOOKS TO BOTH LEAFS.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER. FLUSH BOLTS TO BE INSTALLED ON MEETING STYLE EDGE OF SINGLE LEAF (TOP & BOTTOM) WITH METAL KEEPS TO DRILLED HOLES ON FLOOR & WALL. PROVIDE CABIN HOOKS TO BOTH LEAFS.	X-SS194FSL-3-SS - S/S FALLING BUTT HINGE. 21314-76/8SS - UNION 8MM WC DEADLOCK. PHD-BT-150-22SS - UNION S/S 150MM BOLT THROUGH PULL HANDLE Ø22MM. SS76X228-06SS - PUSH PLATE 76MM X 228MM S/S BLANK, 304SS. SS5004-73SS - ESCUTCHEON ON ROSE BATHROOM SS8025SS - HAT & COAT HOOK WITH BUFFER SS5066-06SSE10/11 - MALE/ FEMALE TOILET SIGN.	DC 300DA - R & P CLOSER EN3-6 DA SIL. DCA154-EV1 - PARALLEL ARM BRACKET. PHD-CF 300-22SS - UNION S/S 300MM PULL HANDLE FLANGE FIXED Ø22MM. 37651AS - UNION FACILITY INDICATOR BOLT. SS8025SS - HAT & COAT HOOK WITH BUFFER. SS5066-06SSE14 - PARAPLEGIC TOILET SIGN.
NOTES	INSTALL 87001SS SATIN SS FLOOR MOUNTED DOOR STOP AS SUPPLIED BY ASSA ABLOY AT SUITABLE POSITION TO PREVENT CLASH WITH WALL.	INSTALL 87001SS SATIN SS FLOOR MOUNTED DOOR STOP AS SUPPLIED BY ASSA ABLOY AT SUITABLE POSITION TO PREVENT CLASH WITH WALL. EXTRUDED ALUMINIUM AS ABOVE SKETCH WITH CORNERS TO FORM CLOSE JOINTS, FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS. ALL ALUMINIUM JOINTS TO BE FULLY SEALED WITH SILICONE. WHOLE UNIT TO BE SEALED WITH SILICONE AFTER INSTALLATION TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME. 150MM SILL RAIL TO ALL SHOP FRONT DOORS AND WINDOWS.	INSTALL 87001SS SATIN SS FLOOR MOUNTED DOOR STOP AS SUPPLIED BY ASSA ABLOY AT SUITABLE POSITION TO PREVENT CLASH WITH WALL.		

NOTE:
1. ALL DOORS, WINDOWS AND GATES TO BE MEASURED UP ON SITE AND APPROVED BY ENGINEER PRIOR TO MANUFACTURE
2. ALL OPENINGS TO HAVE BRICK BEAMS OVER IN ACCORDANCE WITH NHBC REGULATIONS AND TO MATCH SURROUNDING BRICKWORK

WINDOW SCHEDULE							
DOOR TYPE	W1	W2	W3	W4	W5	W6	W7
DESCRIPTION	4 x 2 WITH TOP SASH TOP HUNG	1 x 3 WITH UPPER 2 SASH TOP HUNG	4 x 1 WITH TOP HUNG SASH	1 x 2 WITH TOP HUNG SASH	1 x 1 WITH TOP HUNG SASH	3 x 2 WITH TOP SASH TOP HUNG	2 x 2 WITH TOP SASH TOP HUNG
LOCATION	MAIN HALL, AND OFFICES	ENTRANCE	ENTRANCE	ABLUTIONS	ABLUTIONS	GUARD HOUSE	GUARD HOUSE
NUMBER OF	12	2	1	4	6	1	2
ELEVATION							
AREA	2.785m²	1.044m²	1.741m²	0.696m²	0.348m²	2.089m²	1.392m²
FRAME	MATERIAL	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM	ALUMINIUM
	PROFILE	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED	SINGLE REBATED
	CONSTRUCTION	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS	EXTRUDED ALUMINIUM WITH MITRED CORNERS TO FORM CLOSE JOINTS
	FINISH	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE	ANODISED ALUMINIUM - BRONZE
	GLAZING	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS	5mm CLEAR FLOAT GLASS
	WALL	230 MASONRY	230 MASONRY	230 MASONRY	230 MASONRY	230 MASONRY	230 MASONRY
SECURITY	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED	8mm SQUARE ANODISED ALUMINIUM (BRONZE) BARS AT 150 C/CRS FIXED TO FRAME WITH STAINLESS STEEL, TAMPER PROOF, SELF TAPPING SCREWS OR SIMILAR APPROVED
IRONMONGERY	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.	ALL HANDLES, HINGES & LOCKS AS SUPPLIED BY MANUFACTURER.
NOTES	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.	FIXED WITH STAINLESS STEEL SELF TAPPING SCREWS TO AAMSA STANDARDS & FULLY SEALED WITH SILICONE TO FORM WATER TIGHT JOINT BETWEEN BRICKWORK AND FRAME.

NOTE:
1. ALL DOORS, WINDOWS AND GATES TO BE MEASURED UP ON SITE AND APPROVED BY ENGINEER PRIOR TO MANUFACTURE
2. ALL OPENINGS TO HAVE BRICK BEAMS OVER IN ACCORDANCE WITH NHBC REGULATIONS AND TO MATCH SURROUNDING BRICKWORK

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/09/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

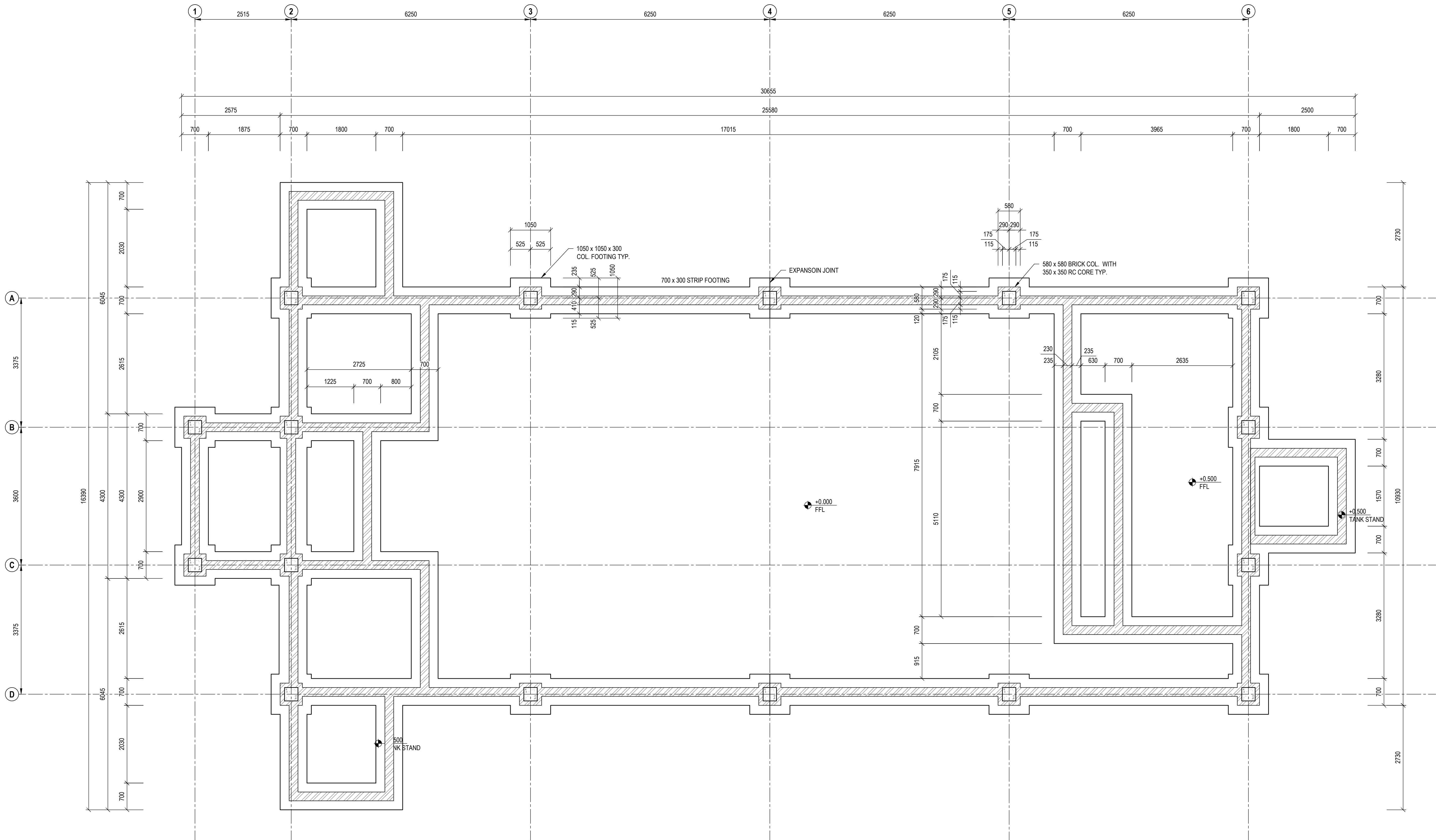
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	SCHEDULES WINDOWS

FOR TENDER	
ORIGINAL SCALE :	1:100
ORIGINAL SHEET SIZE :	A1
DESIGNED :	SK
SHEET :	01
DRAWN :	NGIH
DATE :	09/09/2020
CHECKED :	NGIH
REV :	B
DRAWING No :	1265 / A-503



PLAN ON FOUNDATIONS
SCALE: 1:50

A	ISSUED FOR TENDER		NGIH	28/07/2022	
△	REVISIONS		BY	DATE	
ONLY REVISIONS MARKED THUS △ ARE VALID					

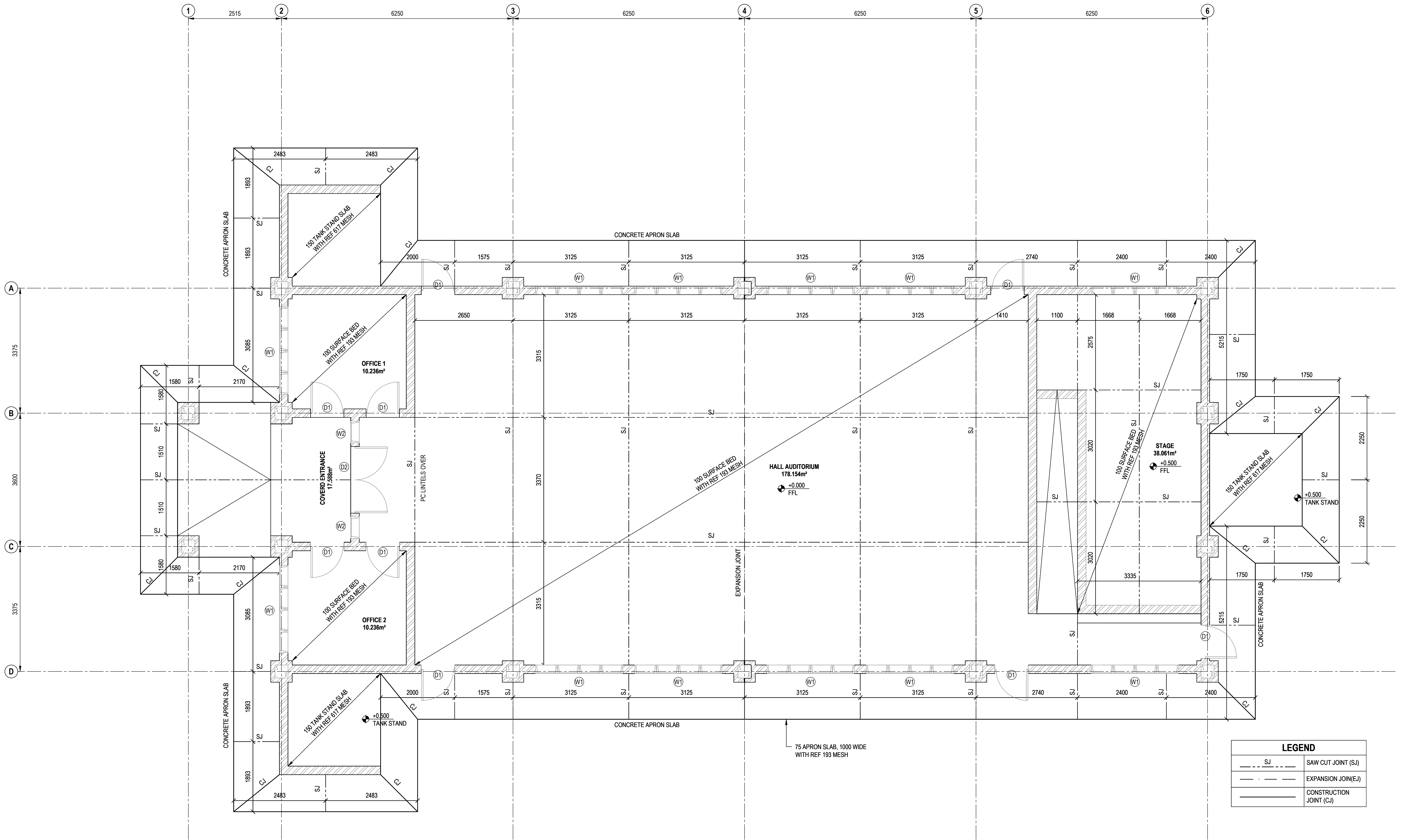
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE:
	DM DRAWING No.
	CONTRACT No:

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64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY: DIRECTOR	
DATE: 28/07/2022	
Pr No: 200570114	

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	HALL FOUNDATION LAYOUT

FOR TENDER	
ORIGINAL SCALE: AS SHOWN	ORIGINAL SHEET SIZE: A1
0 50 100mm	
DESIGNED: KJ	SHEET: 01
DRAWN: NGIH	DATE: 20/01/2022
CHECKED: KJ	REV: A
DRAWING No:	1265/SC201



PLAN GROUND SLAB
SCALE: 1:50

LEGEND	
	SAW CUT JOINT (SJ)
	EXPANSION JOINT (EJ)
	CONSTRUCTION JOINT (CJ)

ISSUED FOR TENDER		NGIH	28/07/2022
REVISIONS		BY	DATE
ONLY REVISIONS MARKED THUS ARE VALID			

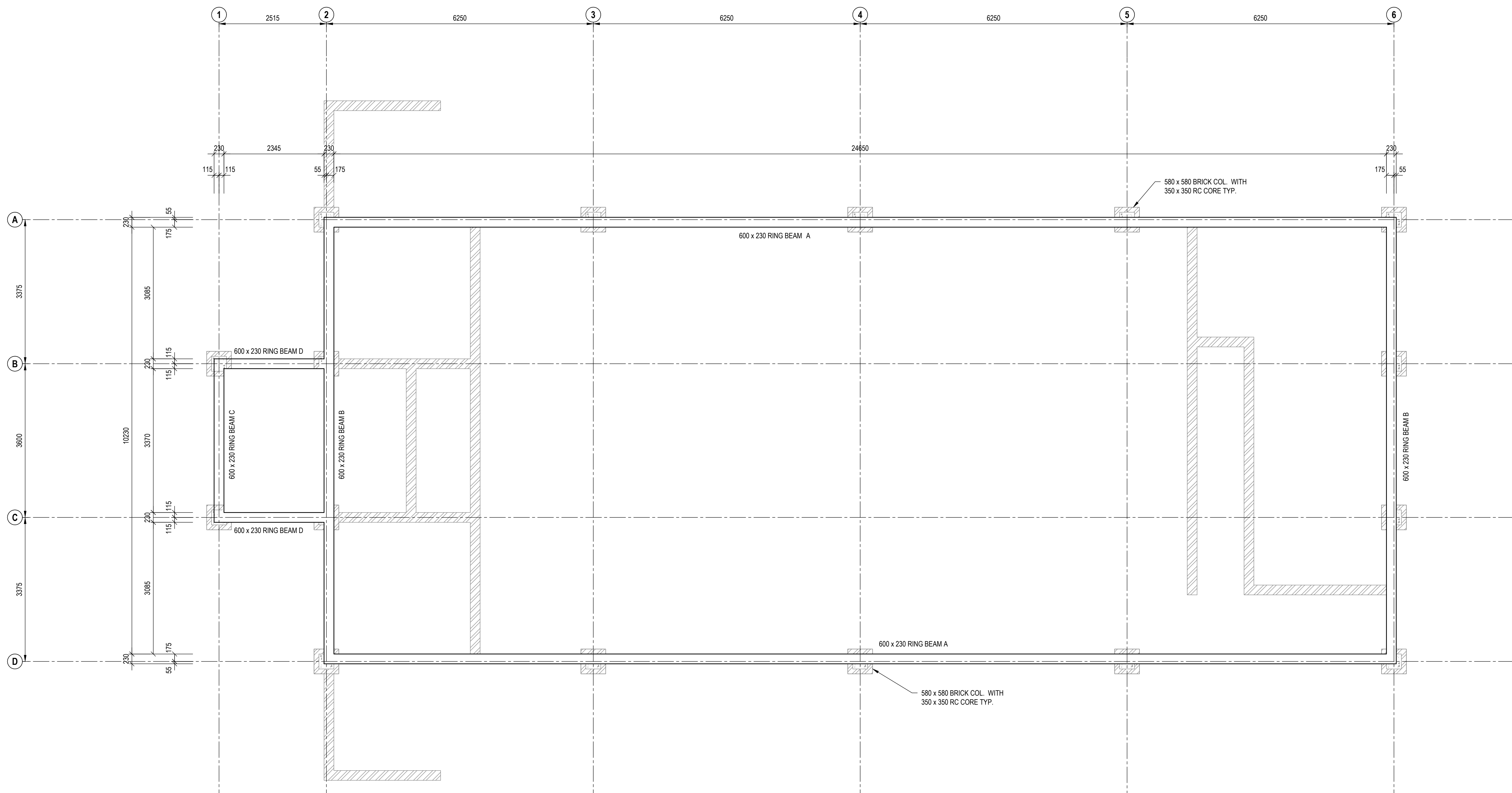
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE:	
DM DRAWING No.	
CONTRACT No:	

64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090
Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za	

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY: DIRECTOR	
DATE: 28/07/2022	
Pr No: 200570114	

PROJECT:	
MANDLALATHI COMMUNITY HALL	
DRAWING TITLE:	
GROUND SLAB LAYOUT	

FOR TENDER	
ORIGINAL SCALE: AS SHOWN	ORIGINAL SHEET SIZE: A1
DESIGNED: KJ	SHEET: 01
DRAWN: NGIH	DATE: 15/10/2021
CHECKED: KJ	REV: A
DRAWING No: 1265/SC202	



PLAN ON RING BEAM
SCALE: 1:50

A	ISSUED FOR TENDER	NGIH	28/07/2022
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

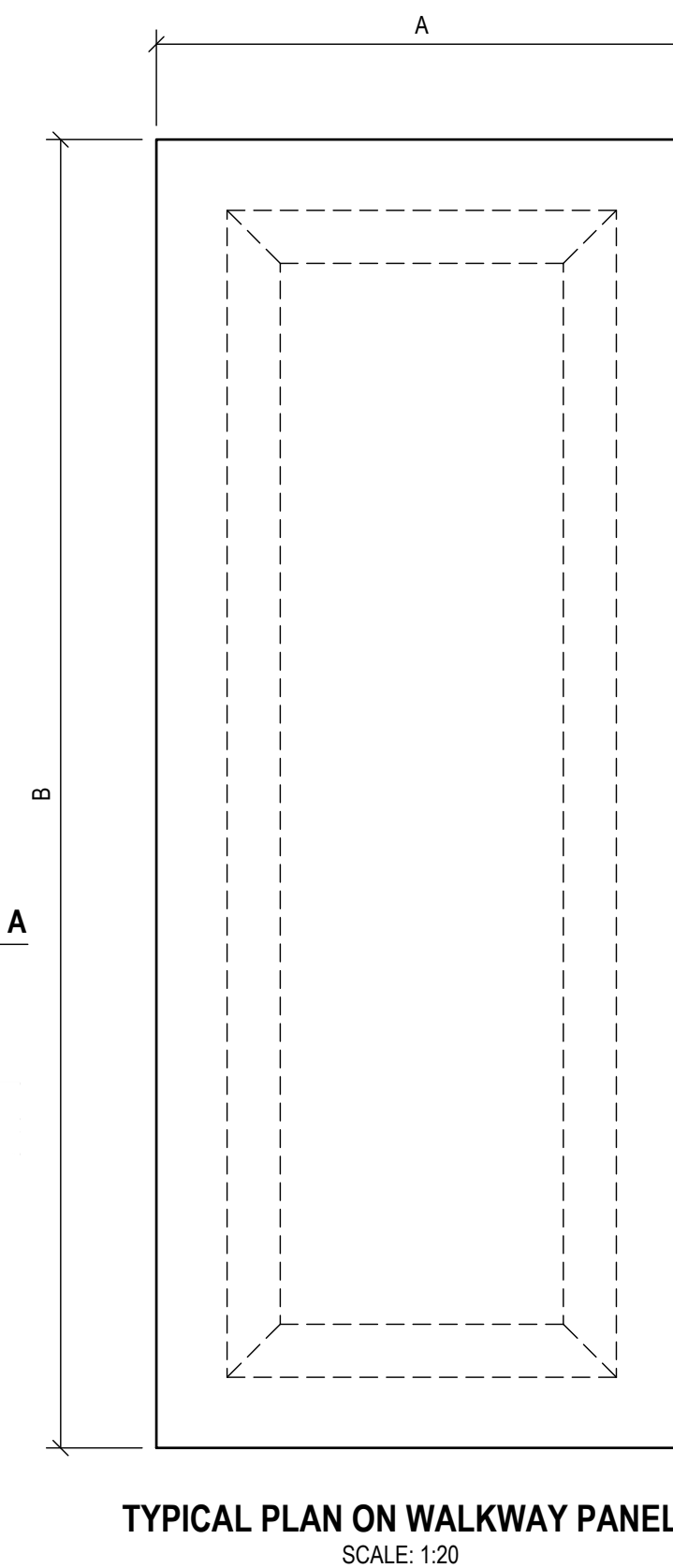
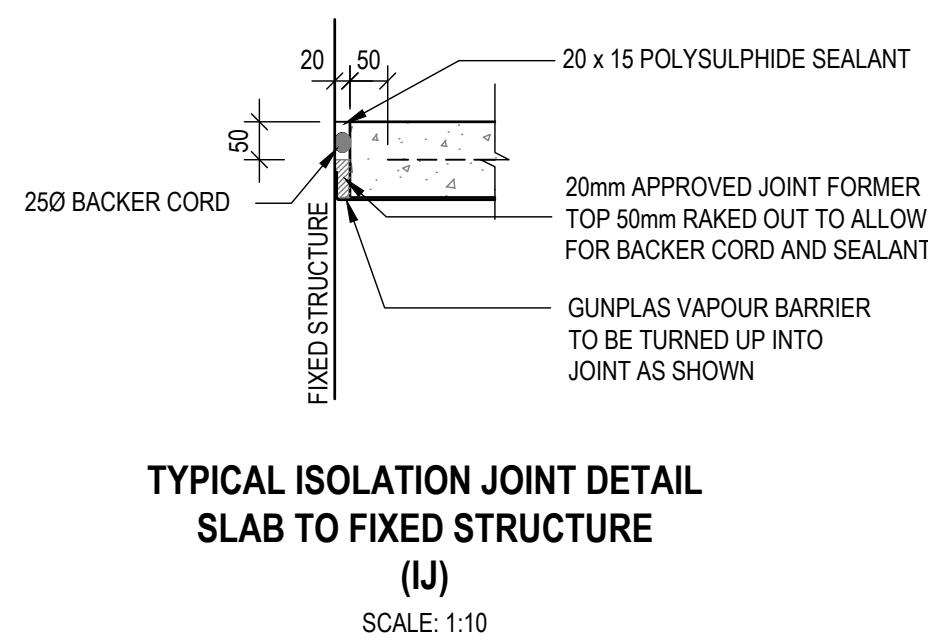
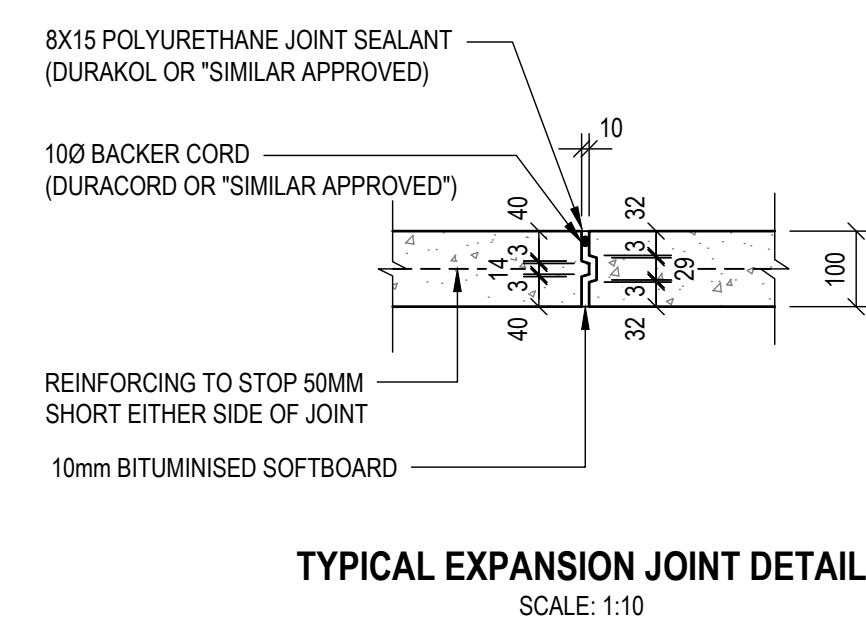
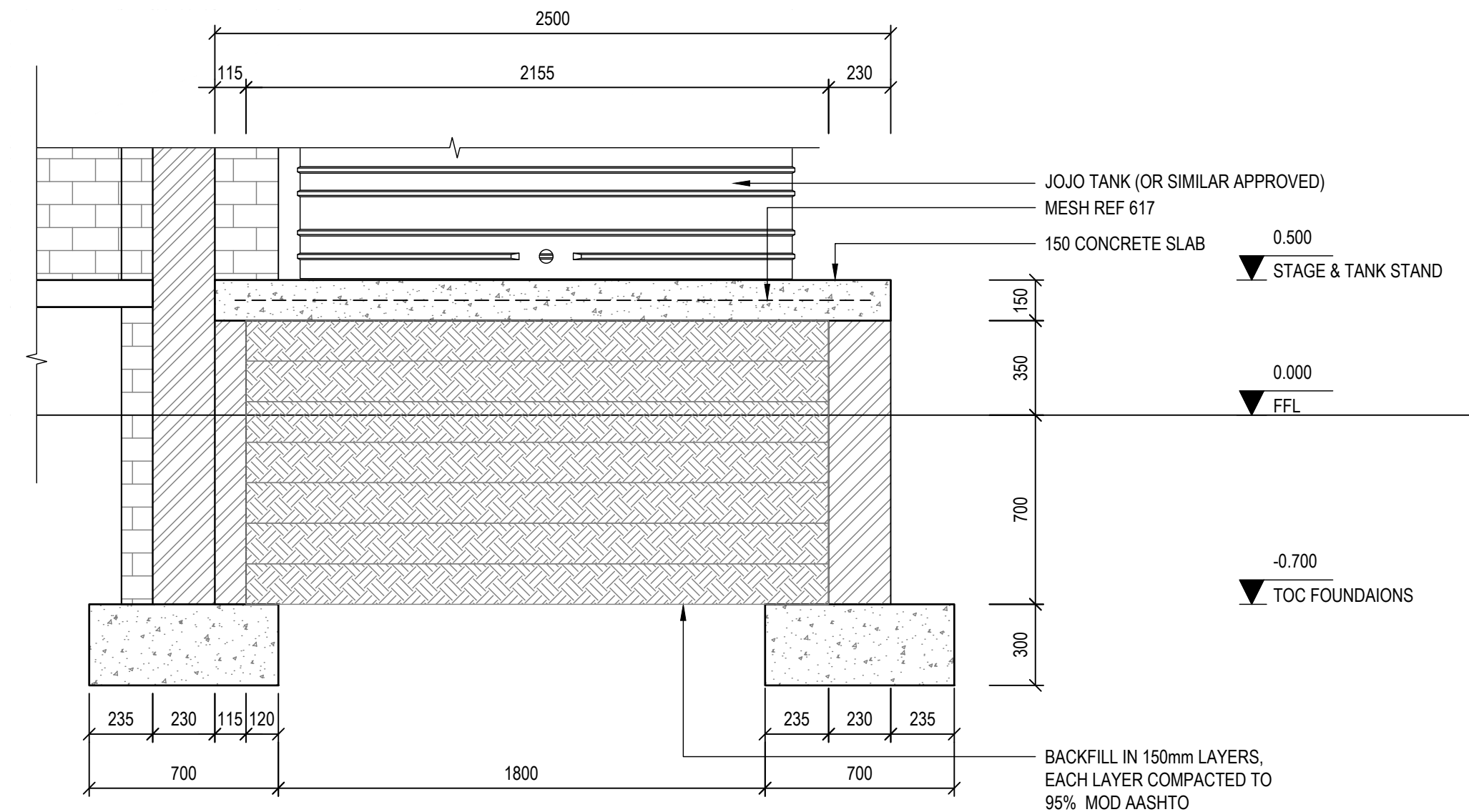
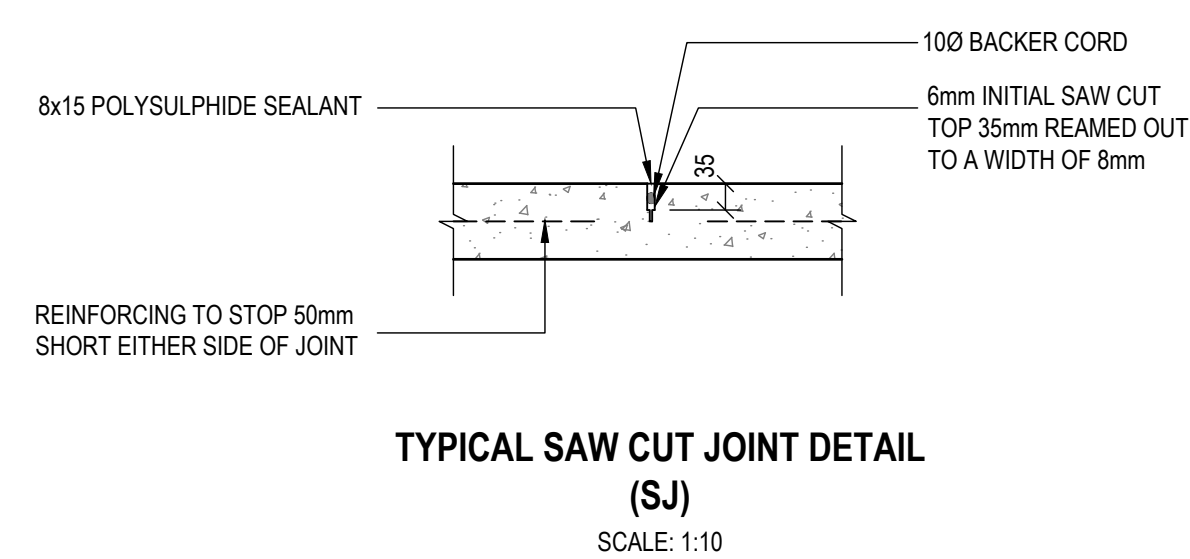
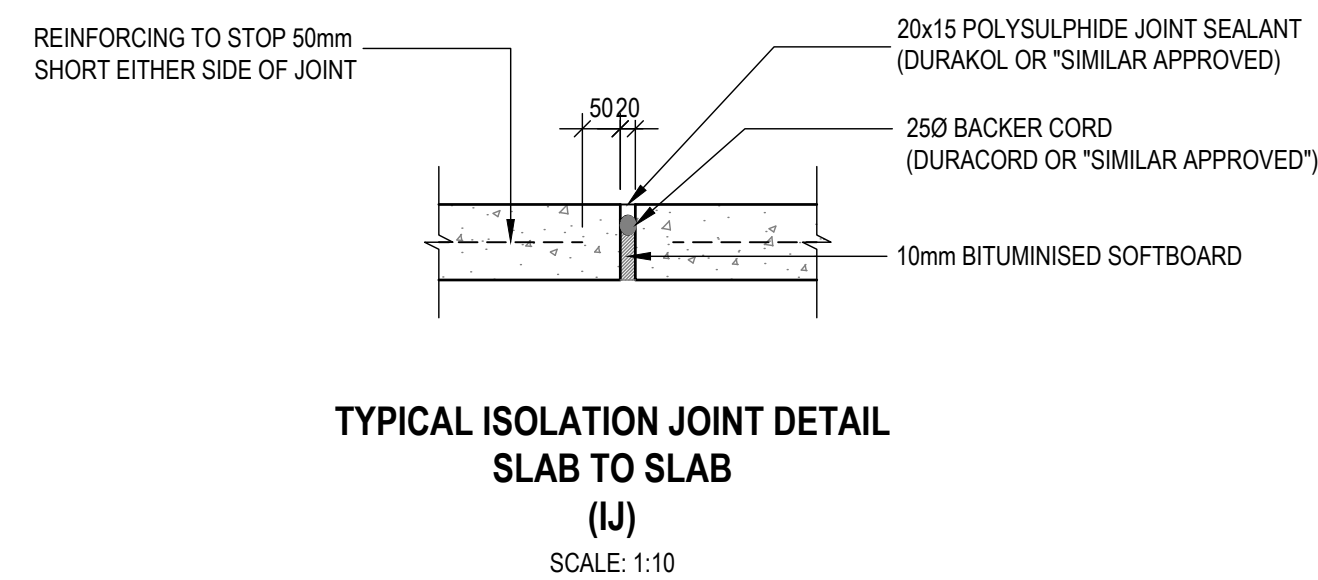
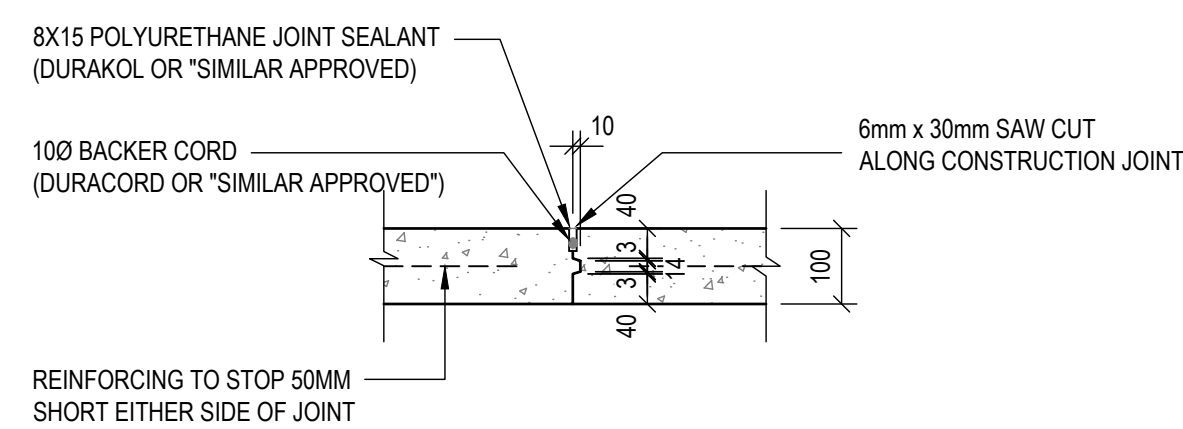
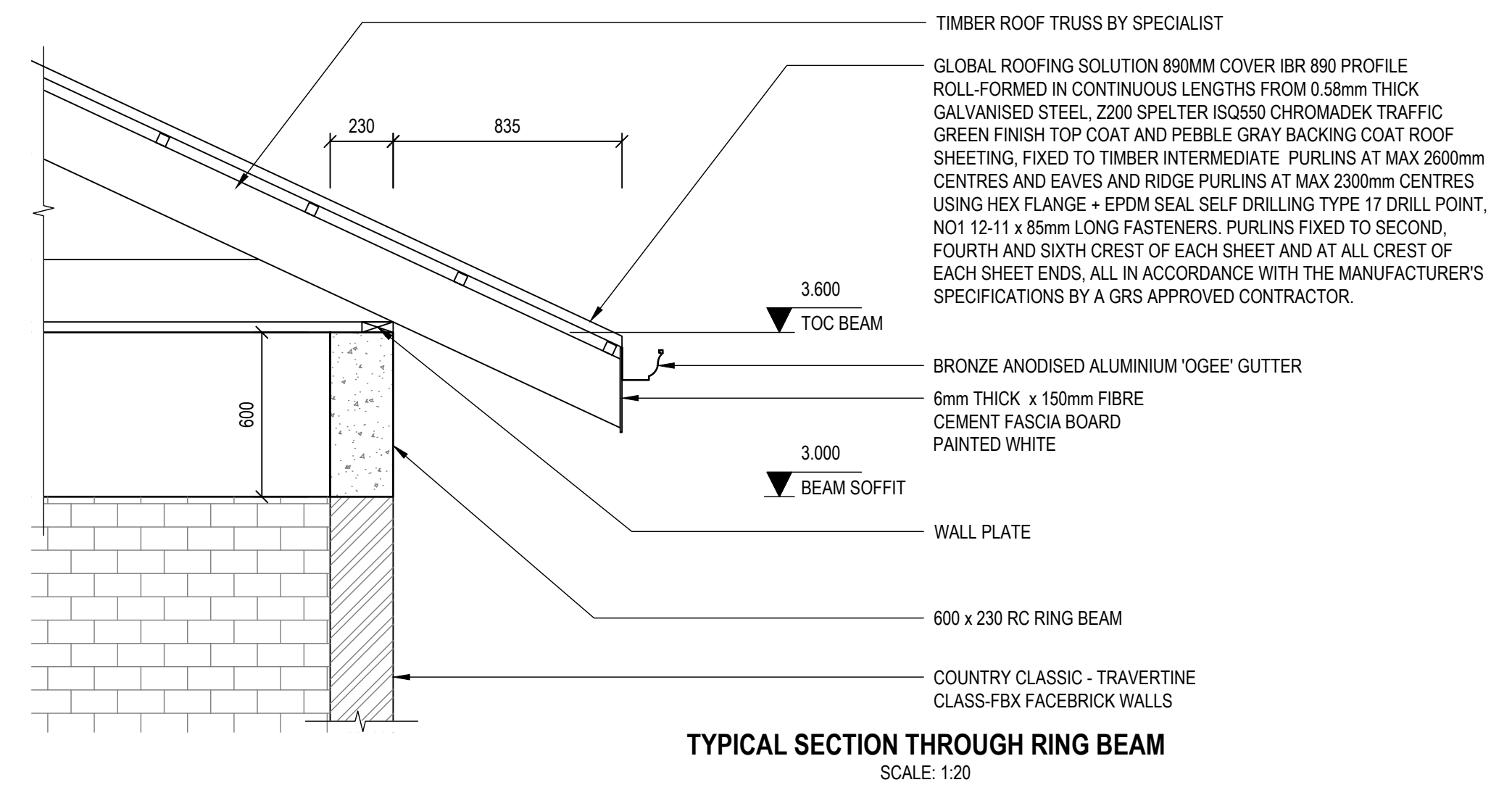
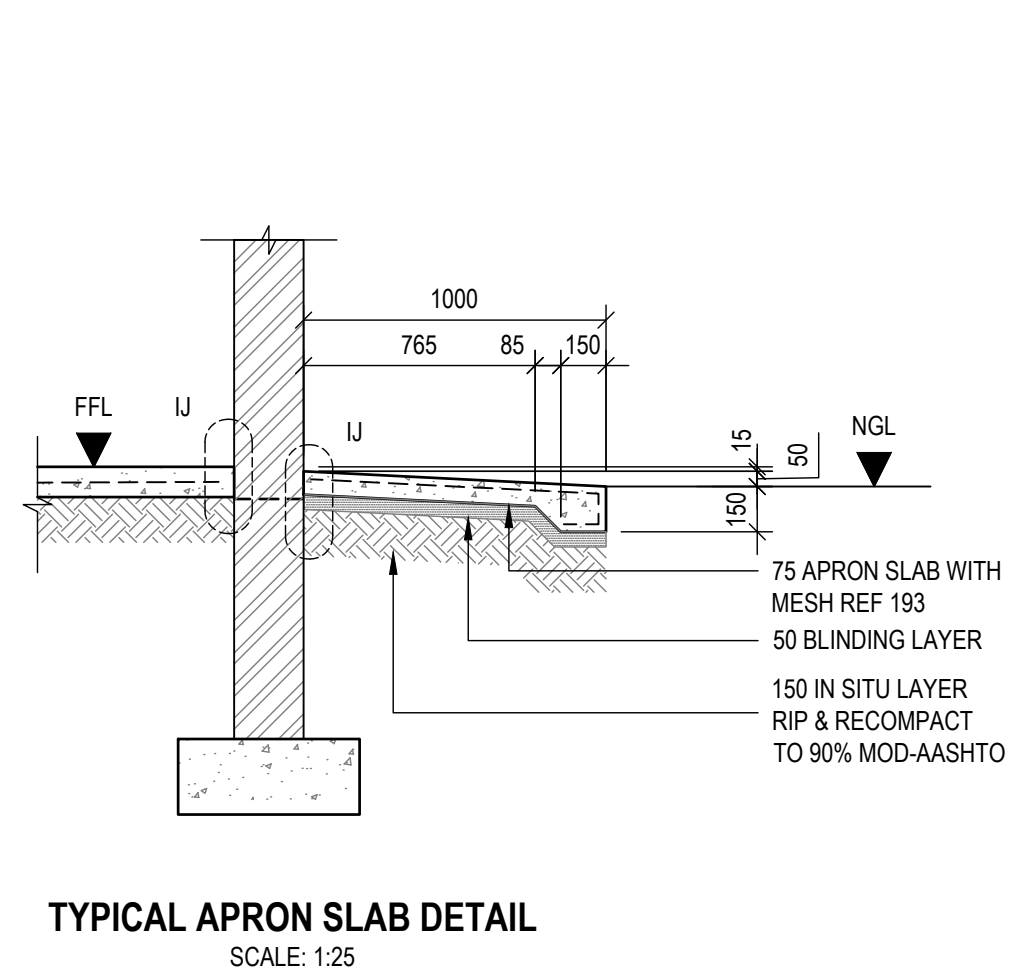
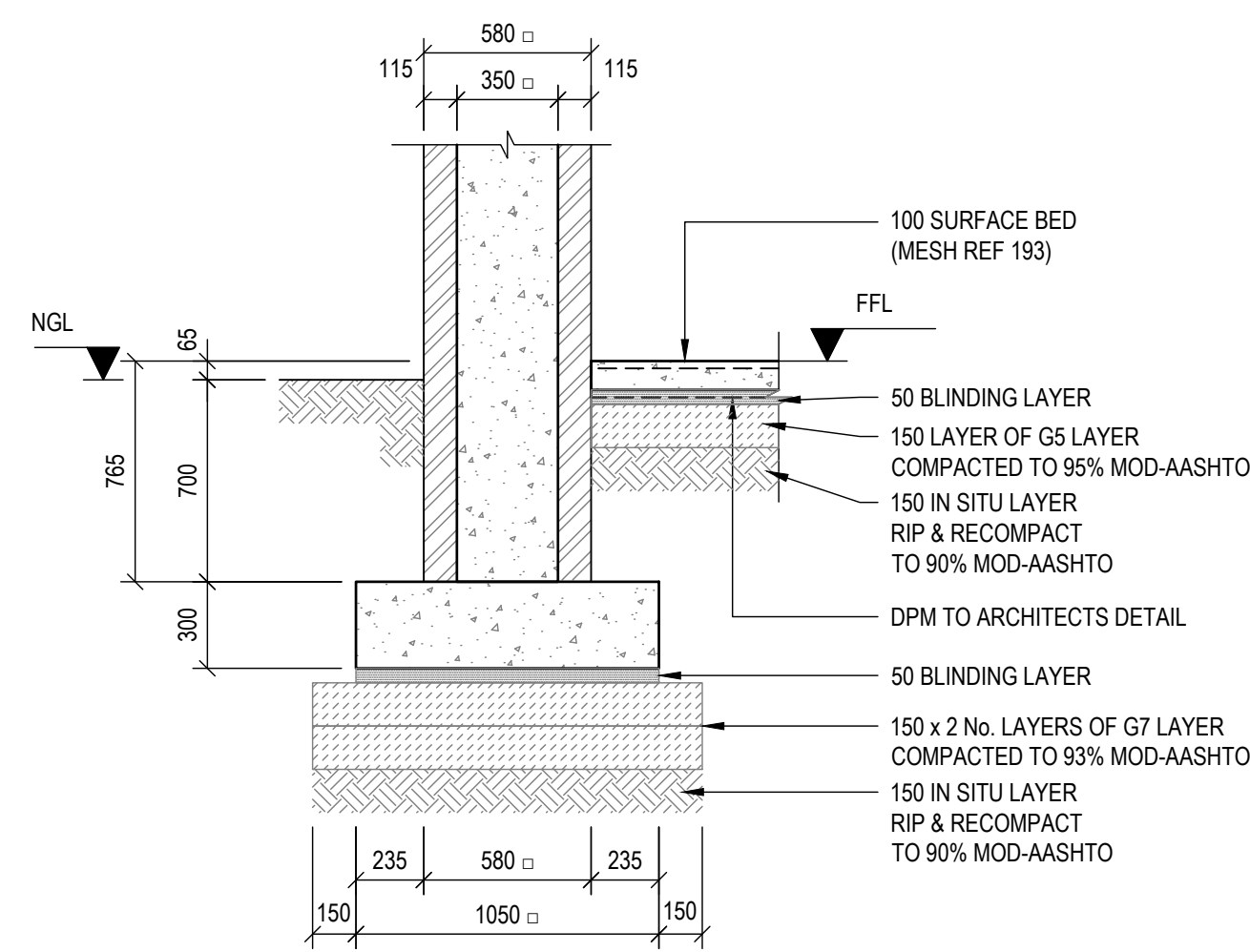
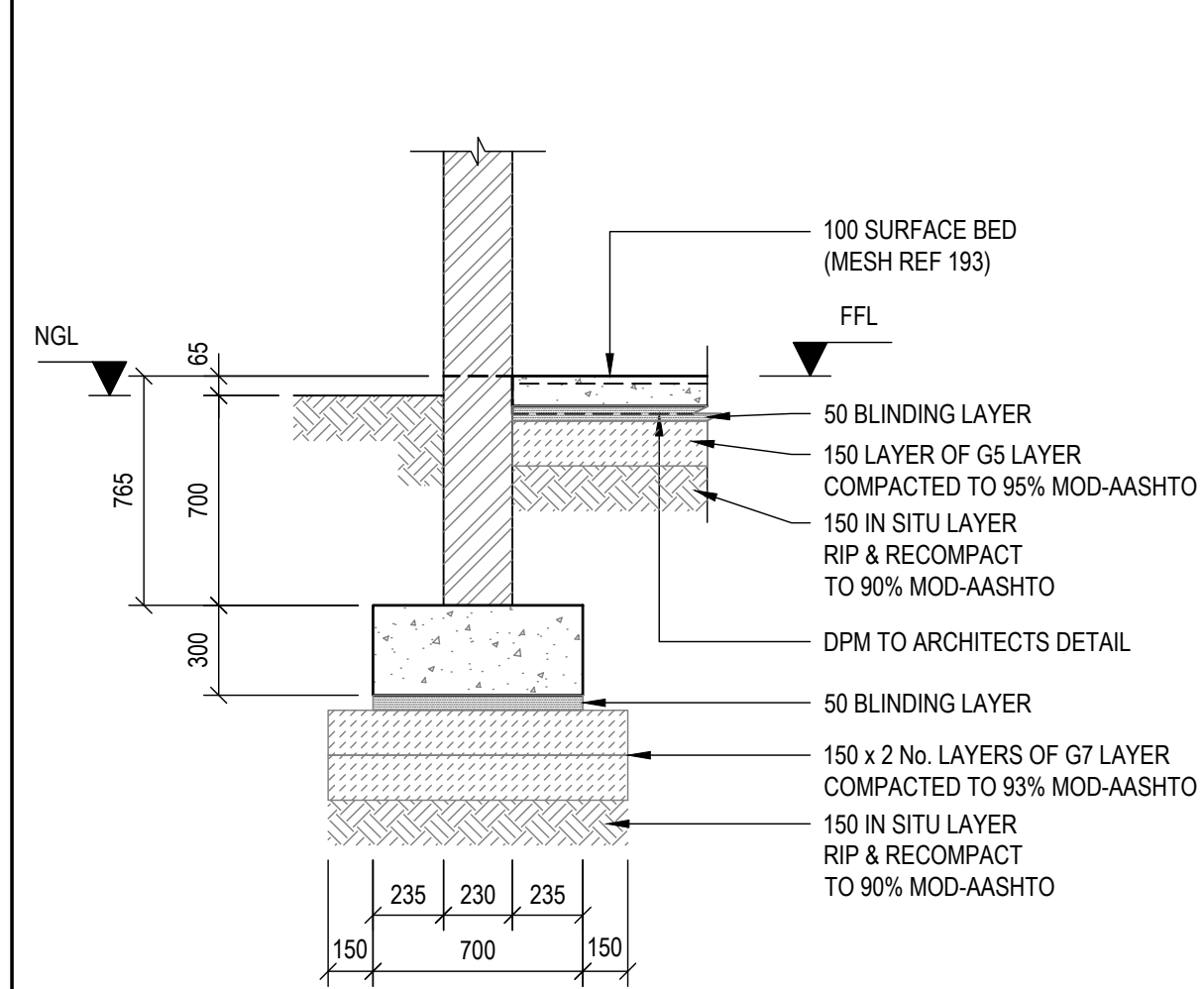
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE:
	DM DRAWING No.
	CONTRACT No:

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090	Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

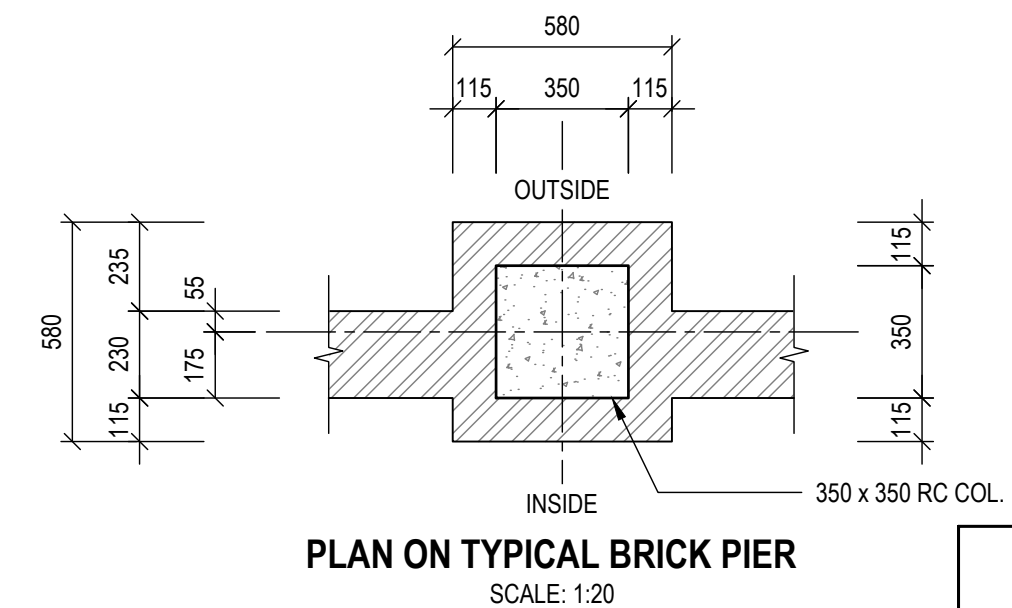
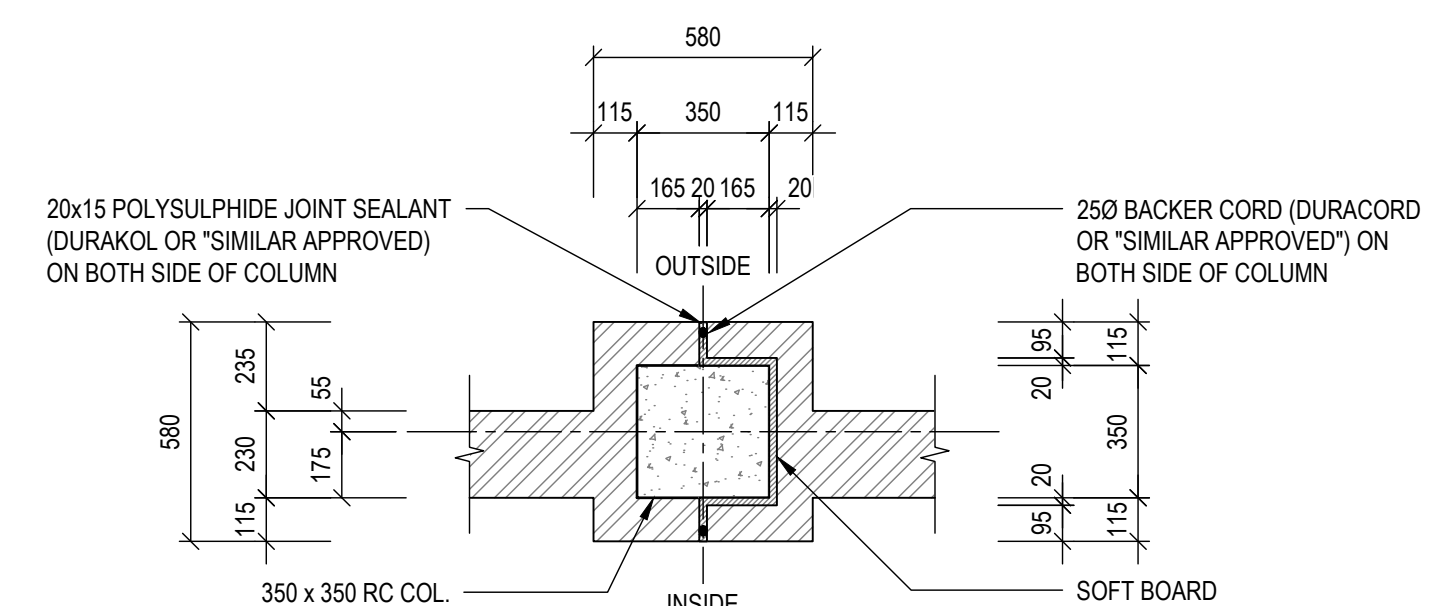
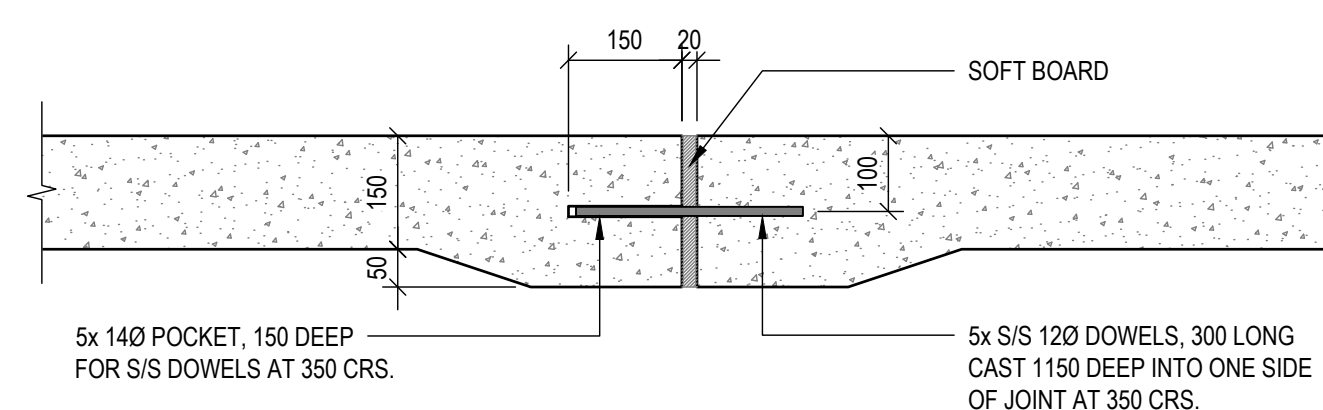
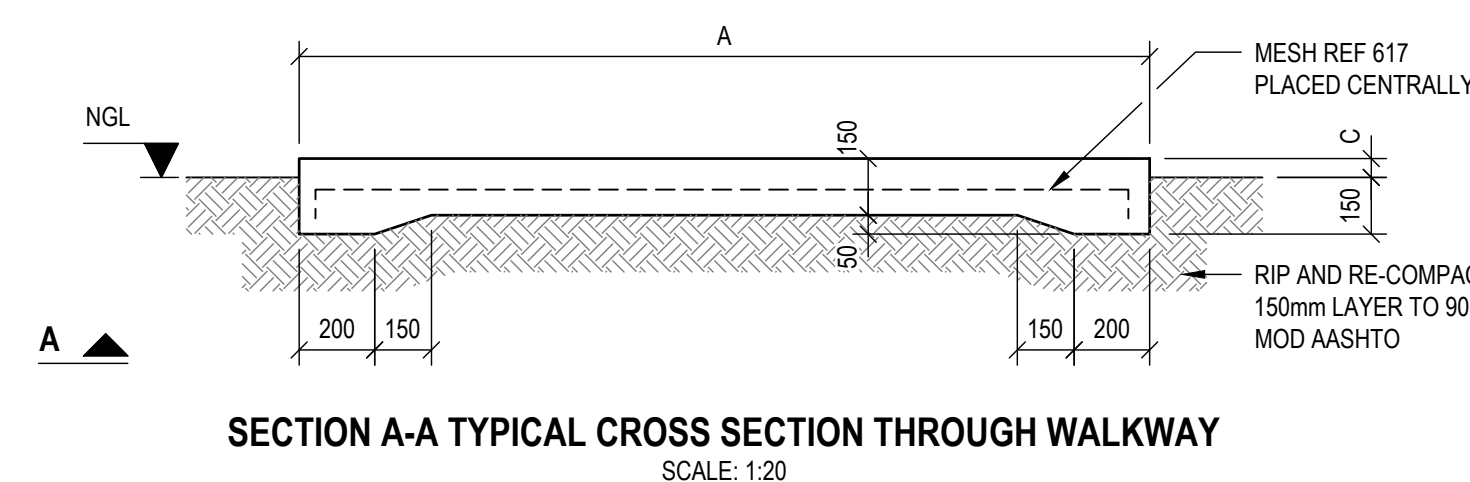
PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	RING BEAM LAYOUT

FOR TENDER	
ORIGINAL SCALE : 0 50 100mm	AS SHOWN ORIGINAL SHEET SIZE : A1
DESIGNED : KJ	SHEET : 01
DRAWN : NGIH	DATE : 15/10/2021
CHECKED : KJ	REV : A
DRAWING No :	1265/SC203



WALKWAY PANEL DIMENTIONS			
PANEL	A	B	C
4m x 1.0m	1000mm	4000mm	50mm

- NOTES:**
1. CONCRETE STRENGTH TO BE MIN. 25MPa
 2. COVER TO REINFORCING TO BE MIN. 50mm
 3. ALL MESH LAPS TO BE MIN. 500mm
 4. ALL EXPOSED CORNERS TO HAVE 25mm CHAMFERS



- BRICK PIER NOTES:**
1. CONCRETE COLUMN. TO BE 35MPa CONCRETE
 2. THE INSIDE OF BRICKWORK IS TO BE CLEANED FOR INSPECTION AND APPROVAL BY DARTINGO CONSULTING ENGINEERS PRIOR TO POURING CONCRETE
 3. COLUMN CONCRETE TO CAST IN ONE CONTINUOUS POUR

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/09/2022
△	REVISIONS	BY	DATE

ONLY REVISIONS MARKED THUS △ ARE VALID

UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180 TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
CONTRACT No :	

 **DARTINGO CONSULTING ENGINEERS (Pty) Ltd**
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

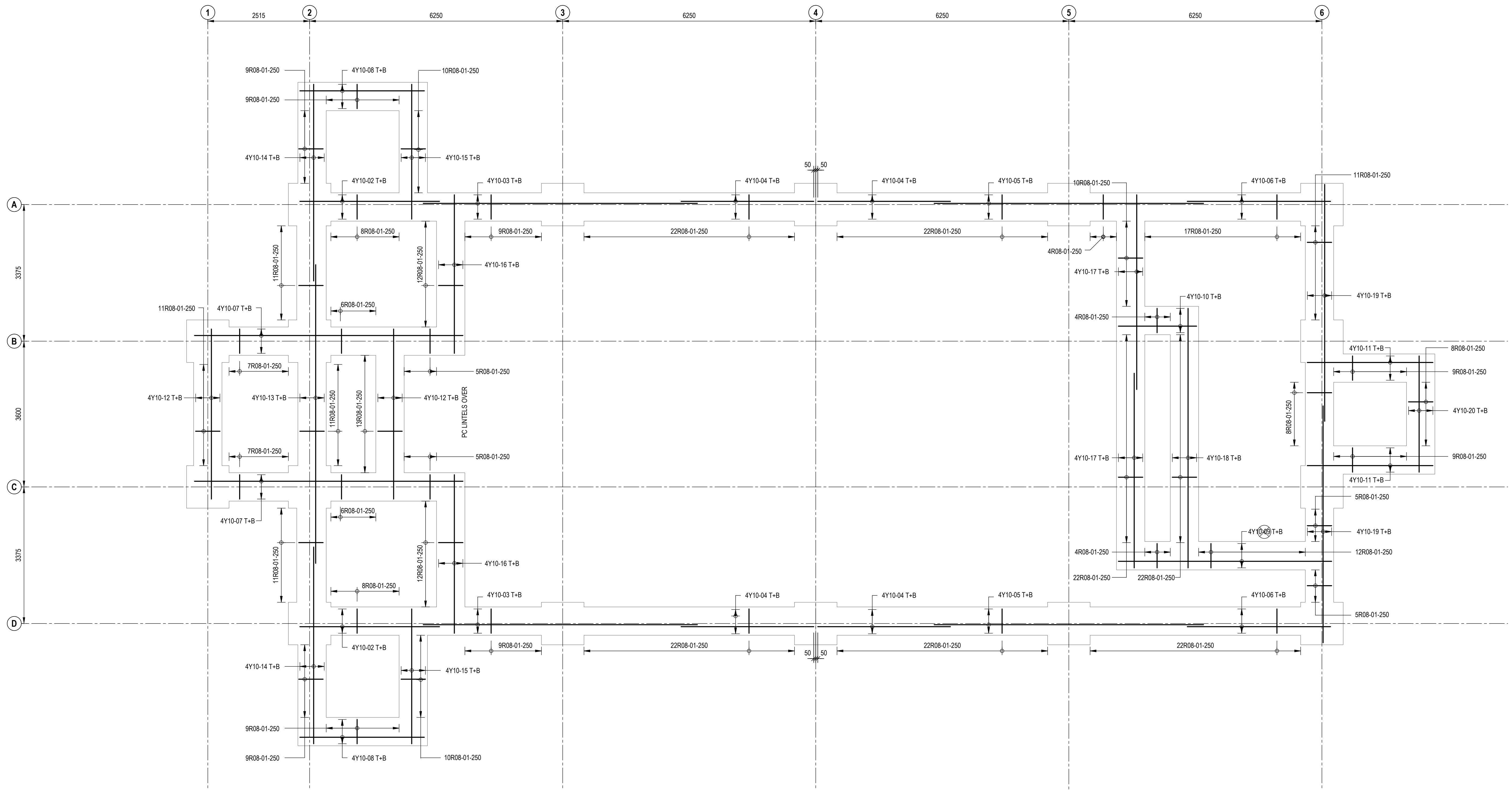
P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	HALL AUDITORIUM TYPICAL DETAILS

FOR TENDER	
ORIGINAL SCALE :	AS SHOWN
0	50
ORIGINAL SHEET SIZE : A1	
100mm	
	
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : NGIH	REV : B
DRAWING No : 1265/SC204	



PLAN ON FOUNDATION REINFORCING(2)

SCALE: 1:50

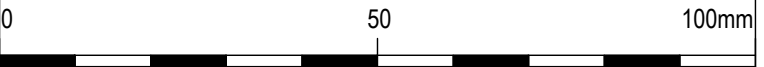
A	ISSUED FOR TENDER		NGIH	28/07/2022	
△	REVISIONS		BY	DATE	
ONLY REVISIONS MARKED THUS △ ARE VALID					

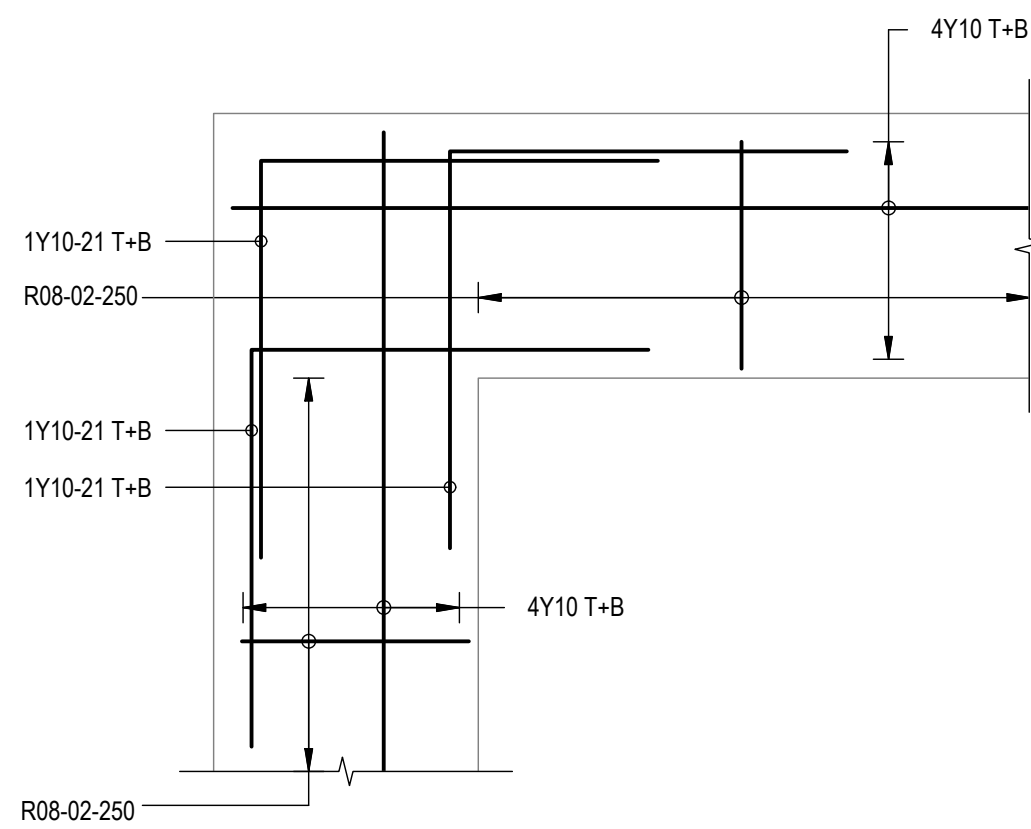
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

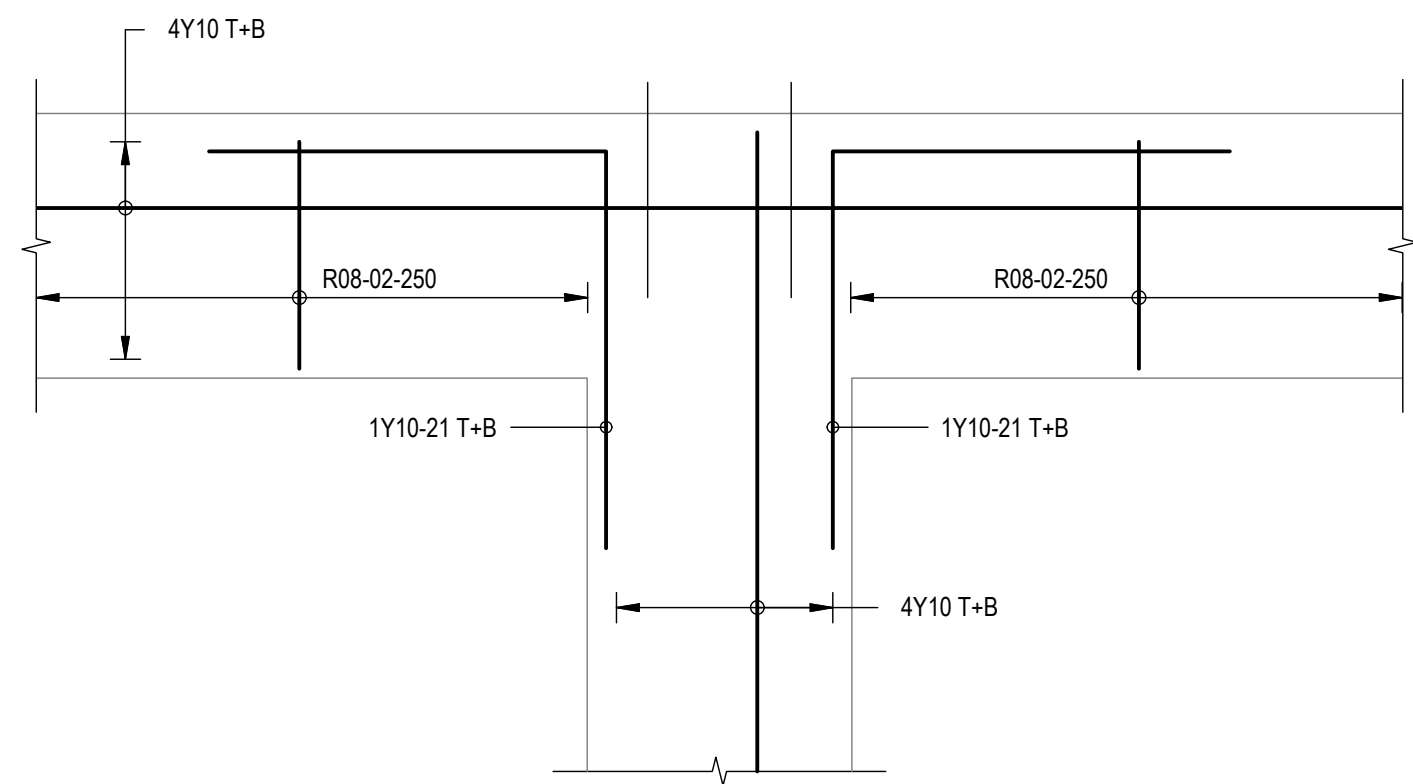
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY : DIRECTOR	
DATE : 28/07/2022	
Pr No : 200570114	

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	HALL AUDITORIUM REINFORCEMENT FOUNDATIONS

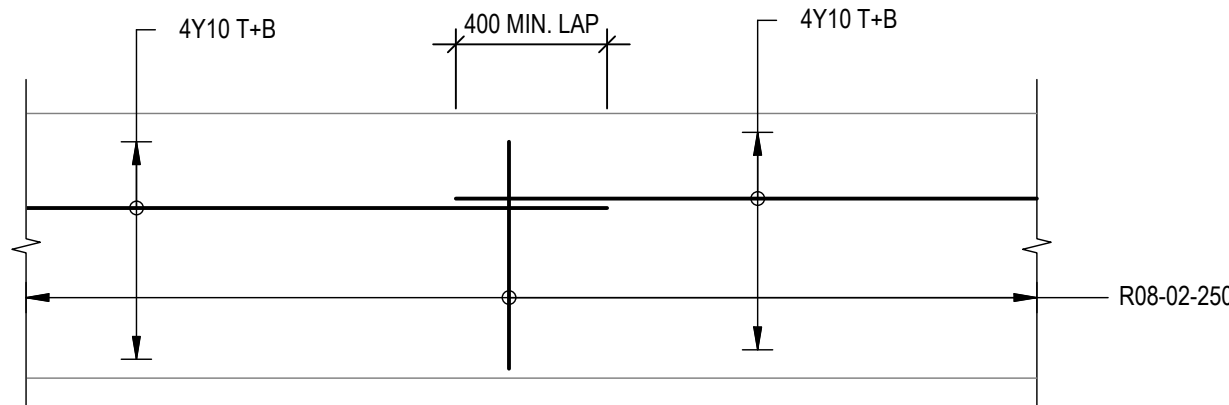
FOR TENDER	
ORIGINAL SCALE : AS SHOWN	ORIGINAL SHEET SIZE : A1
	
DESIGNED : NGIH	SHEET : 01
DRAWN : NGIH	DATE : 28/07/2022
CHECKED : KJ	REV : A
DRAWING No :	1265/SR201



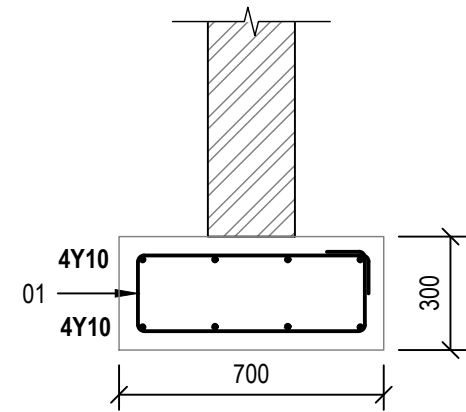
TYPICAL PLAN ON FOUNDATION CORNER
SCALE: 1:20



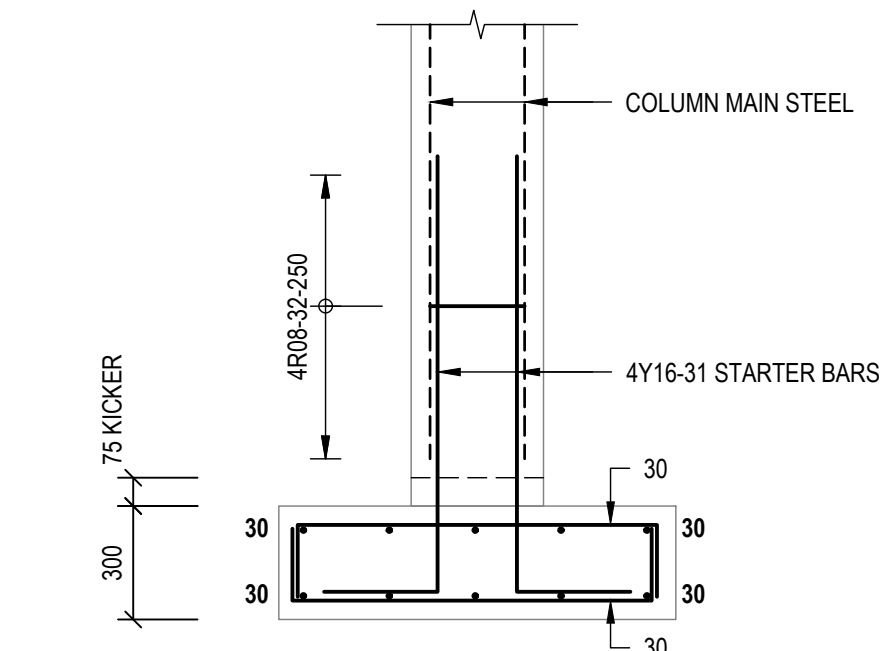
TYPICAL PLAN ON FOUNDATION INTERSECTION
SCALE: 1:20



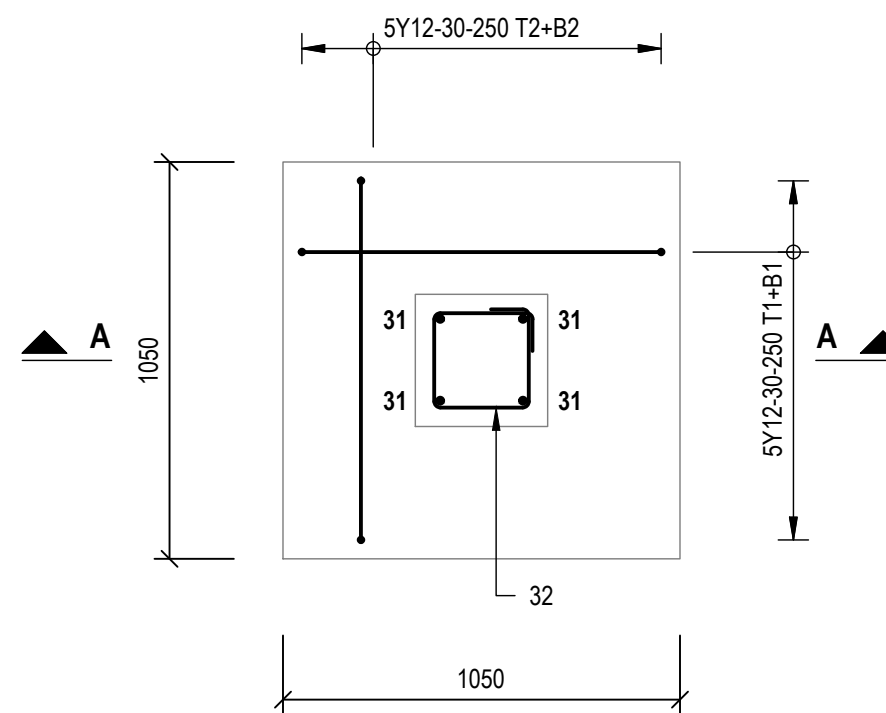
TYPICAL PLAN ON FOUNDATION BAR LAP
SCALE: 1:20



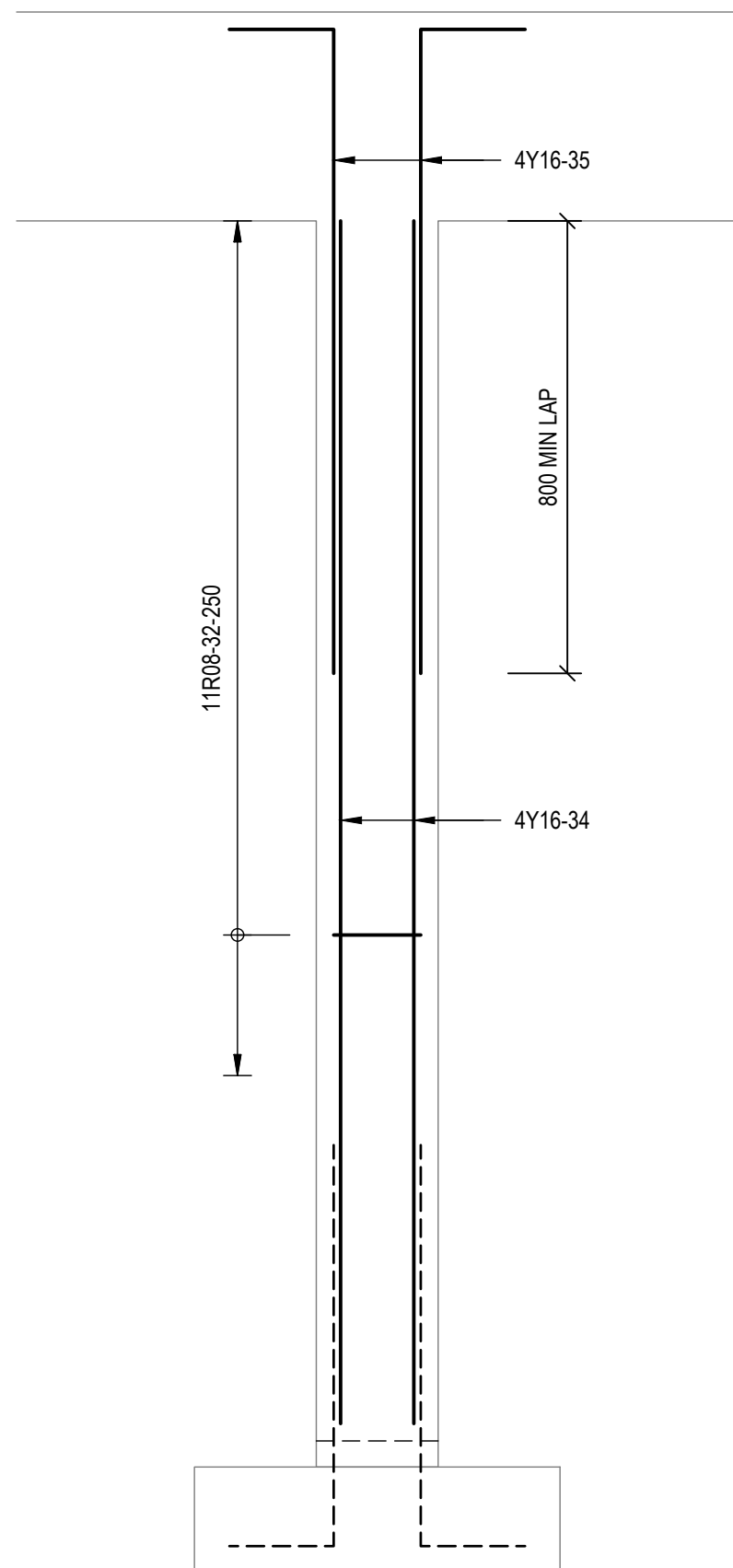
TYPICAL SECTION THROUGH FOUNDATION
SCALE: 1:20



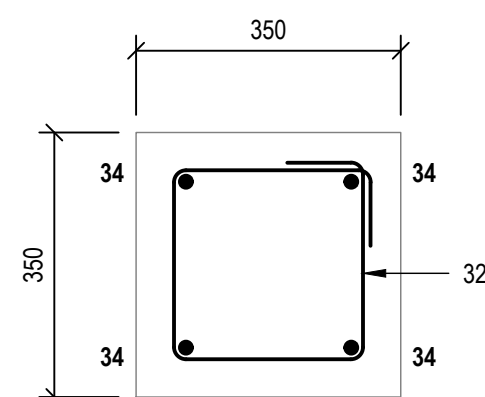
SECTION A-A
SCALE: 1:20



PLAN ON COLUMN BASE REINFORCEMENT
SCALE: 1:20



COLUMN ELEVATION
SCALE: 1:20



COLUMN SECTION
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)													
MEMBER	REINFORCEMENT						BENDING						
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)	
Column Base	16	Y12	30	20	320	1270	38	190	950	190			
		Y16	31	4	64	1420	37	1155	300				
		R08	32	4	64	1160	60	250	250				

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		74.240								74.240
	Y				406.400	90.880					497.280
Weight (ton)	R		0.03								0.03
	Y				0.36	0.14					0.50
Total Weight (ton):											0.53

BENDING SCHEDULE (SANS 282:2011)													
MEMBER	REINFORCEMENT						BENDING						
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)	
Column	16	R08	32	11	176	1160	60	250	250				
		Y16	34	4	64	3460	20	3455					
		Y16	35	4	64	2110	37	1850	300				

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		204.160								204.160
	Y					356.480					356.480
Weight (ton)	R		0.08								0.08
	Y					0.56					0.56
Total Weight (ton):											0.64

BENDING SCHEDULE (SANS 282:2011)													
MEMBER	REINFORCEMENT						BENDING						
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)	
HALL FOUNDATIONS	1	R08	01	467	467	1760	60	600	200				
		Y10	02	16	16	3450	20	3445					
		Y10	03	16	16	6770	20	6770					
		Y10	04	32	32	3280	20	3275					
		Y10	05	16	16	6650	20	6650					
		Y10	06	16	16	3540	20	3540					
		Y10	07	16	16	6630	20	6630					
		Y10	08	16	16	3070	20	3070					
		Y10	09	8	8	5270	20	5265					
		Y10	10	8	8	1930	20	1930					
		Y10	11	16	16	3100	20	3100					
		Y10	12	16	16	4200	20	4200					
		Y10	13	8	8	7380	20	7375					
		Y10	14	16	16	4860	20	4860					
		Y10	15	16	16	3330	20	3330					
		Y10	16	16	16	3920	20	3915					
		Y10	17	16	16	4810	20	4810					
		Y10	18	8	8	6410	20	6410					
		Y10	19	16	16	5850	20	5850					
		Y10	20	8	8	2870	20	2870					
		Y10	21	108	108	2980	37	1050	1050				

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		821.920								821.920
	Y			1483.360							1483.360
Weight (ton)	R		0.32								0.32
	Y			0.92							0.92
Total Weight (ton):											1.24

NOTE:
MINIMUM COVER (MM):
STRIP FOOTINGS 30
COLUMN BASES 30
COLUMNS 30
BEAMS 25
SLABS 25

A	ISSUED FOR TENDER		NGIH	28/07/2022	
△	REVISIONS		BY	DATE	
ONLY REVISIONS MARKED THUS △ ARE VALID					

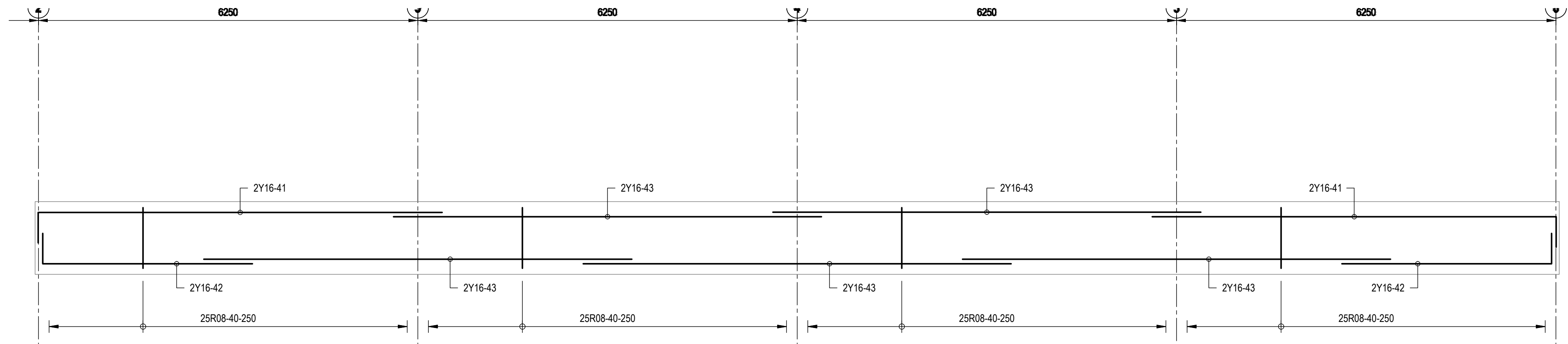
UMDONI LOCAL MUNICIPALITY		
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180		APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
CAPACITY:		
DATE:		
DM DRAWING No.		
CONTRACT No:		
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA		

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090	Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

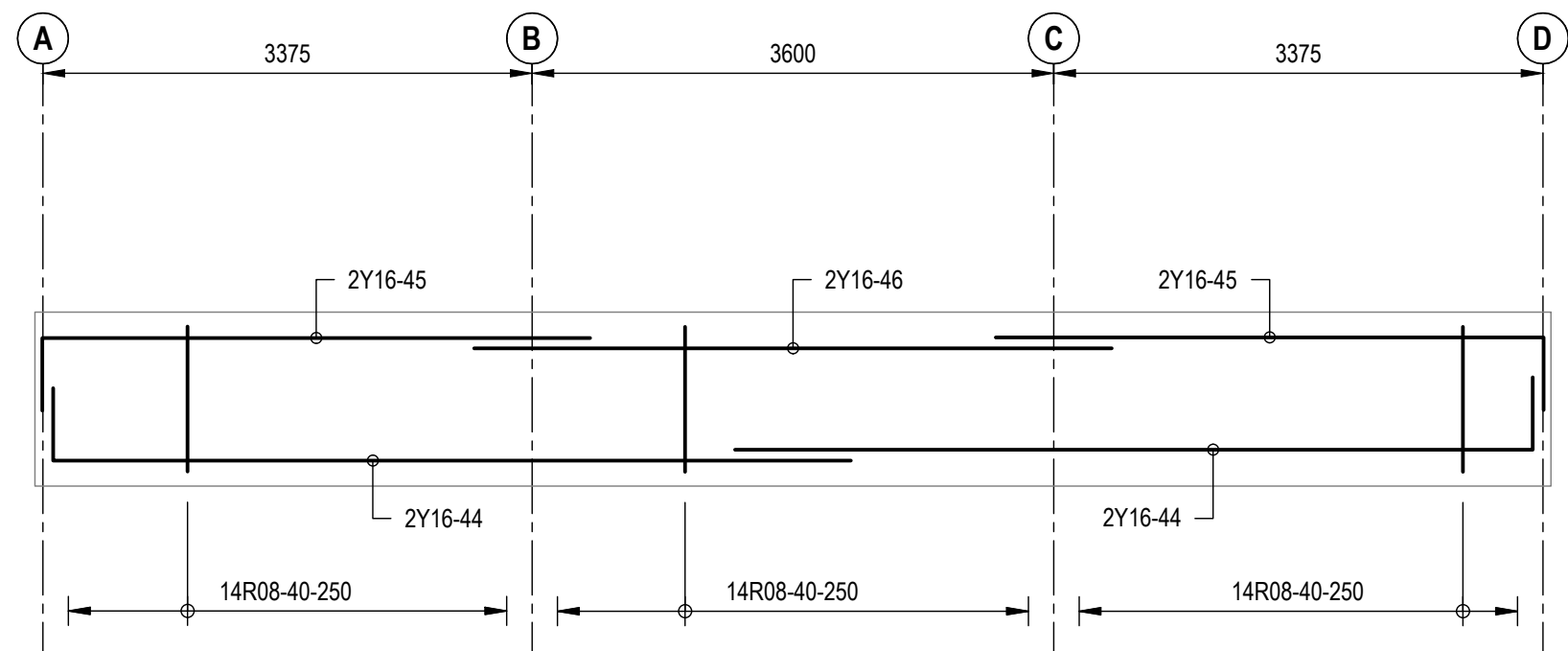
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY: DIRECTOR	
DATE: 28/07/2022	
Pr No: 200570114	

PROJECT:	
MANDLALATHI COMMUNITY HALL	
DRAWING TITLE:	
HALL AUDITORIUM REINFORCEMENT FOUNDATION REINFORCEMENT DETAILS, COLUMNS, BASES, AND SCHEDULES	

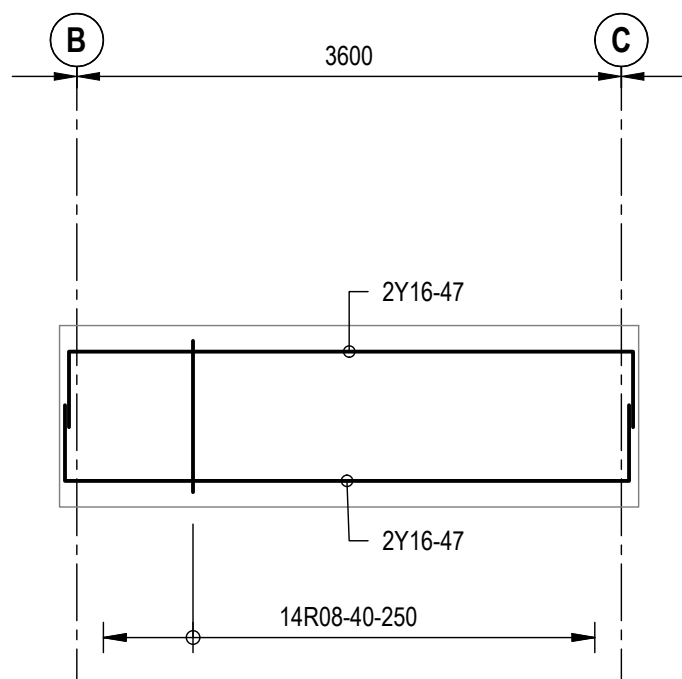
FOR TENDER	
ORIGINAL SCALE: AS SHOWN	ORIGINAL SHEET SIZE: A1
0 50 100mm	
DESIGNED: NGIH	SHEET: 01
DRAWN: NGIH	DATE: 28/07/2022
CHECKED: KJ	REV: A
DRAWING No:	1265/SR202



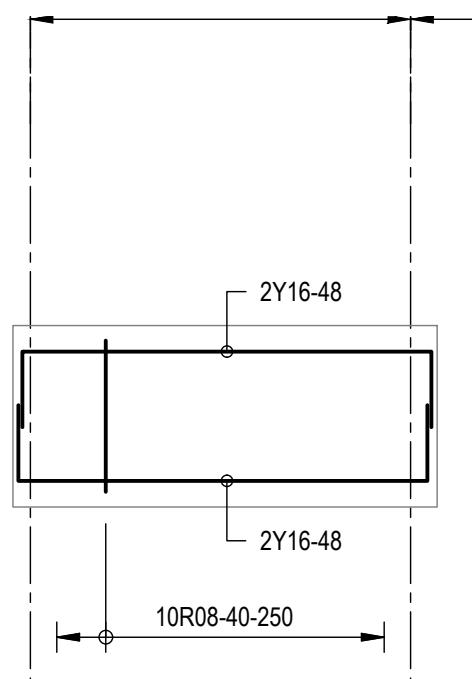
ELEVATION ON RING BEAM A
SCALE: 1:50



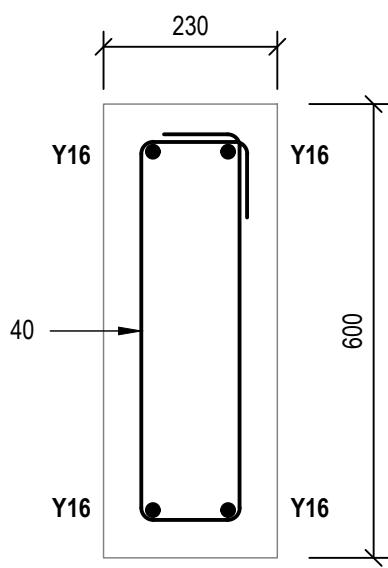
ELEVATION ON RING BEAM B
SCALE: 1:50



ELEVATION ON RING BEAM C
SCALE: 1:50



ELEVATION ON RING BEAM D
SCALE: 1:50



TYPICAL SECTION THROUGH RING BEAM
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)											
MEMBER		REINFORCEMENT					BENDING				
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)
RingBeam A	2	R08	40	100	200	1420	60	500	130		
		Y16	41	4	8	7120	37	500	6655		
		Y16	42	4	8	3920	37	500	3455		
		Y16	43	10	20	7050	20	7050			
RingBeam B	2	R08	40	42	84	1420	60	500	130		
		Y16	44	4	8	6040	37	500	5575		
		Y16	45	4	8	4240	37	500	3780		
		Y16	46	2	4	4400	20	4400			
RingBeam C	1	R08	40	14	14	1420	60	500	130		
		Y16	47	4	4	4650	38	500	3730	500	
RingBeam D	2	R08	40	10	20	1420	60	500	130		
		Y16	48	4	8	3230	38	500	2705	100	

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		451.560								451.560
	Y					373.600					373.600
Weight (ton)	R		0.18								0.18
	Y					0.59					0.59
Total Weight (ton):											0.77

NOTE:
MINIMUM COVER (MM):
STRIP FOOTINGS 30
COLUMN BASES 30
COLUMNS 30
BEAMS 25
SLABS 25

A	ISSUED FOR TENDER	NGIH	28/07/2022
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

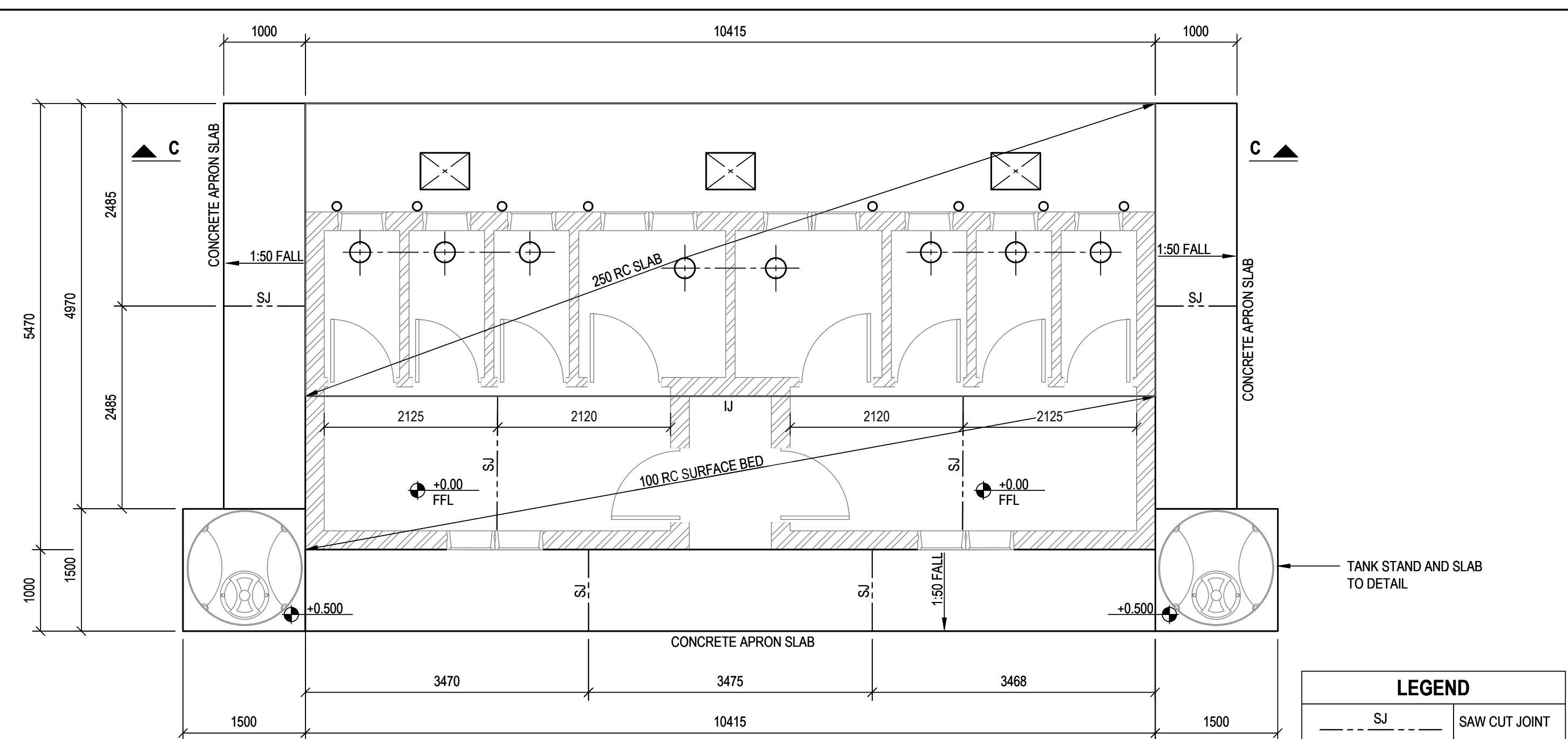
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE:
	DM DRAWING No.
	CONTRACT No:

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY: DIRECTOR
DATE: 28/07/2022
Pr No: 200570114

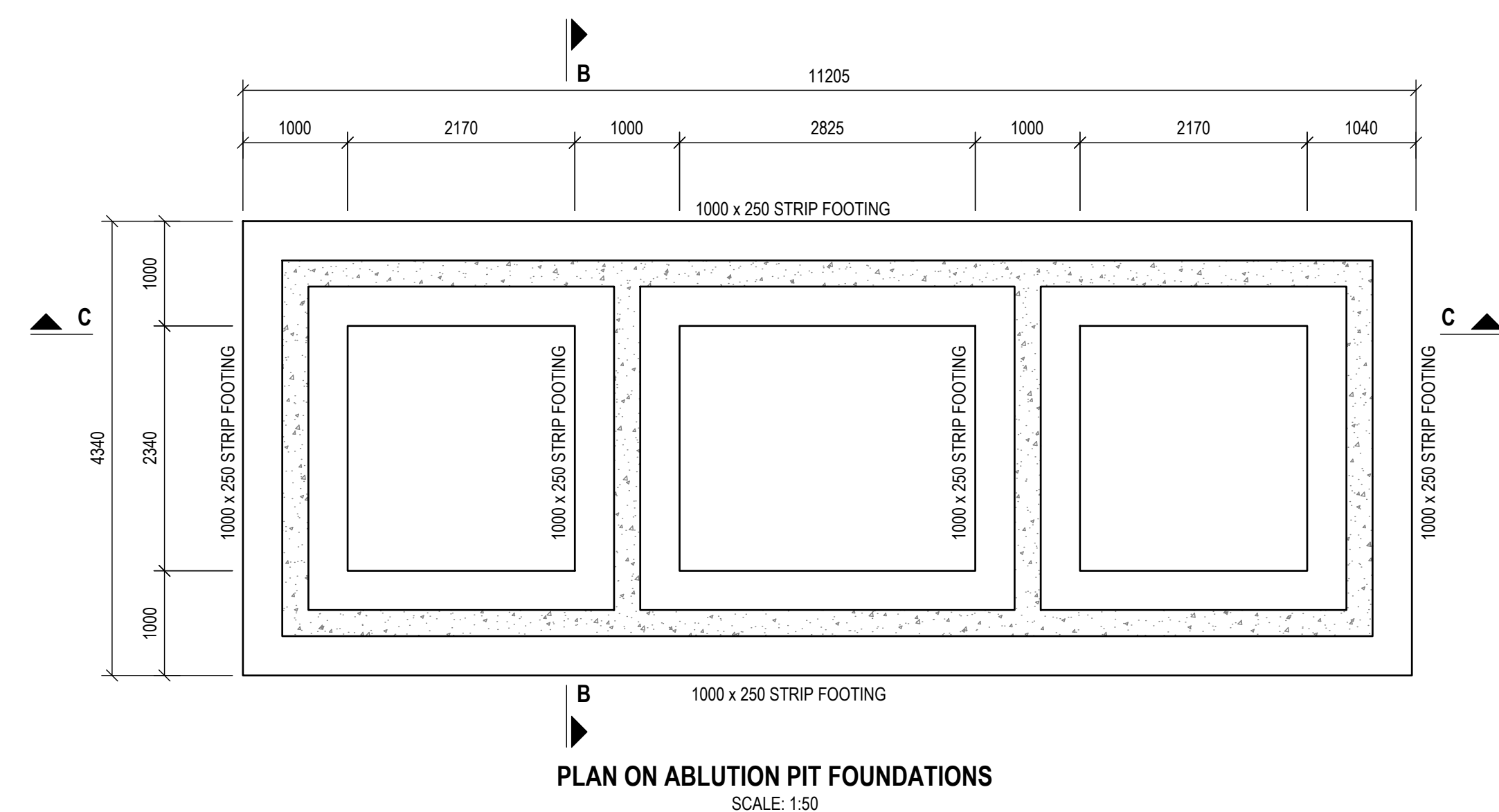
PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	RING BEAMS

FOR TENDER	
ORIGINAL SCALE: AS SHOWN	ORIGINAL SHEET SIZE: A1
0 50 100mm	
DESIGNED: NGIH	SHEET: 01
DRAWN: NGIH	DATE: 28/07/2022
CHECKED: KJ	REV: A
DRAWING No:	1265/SR203



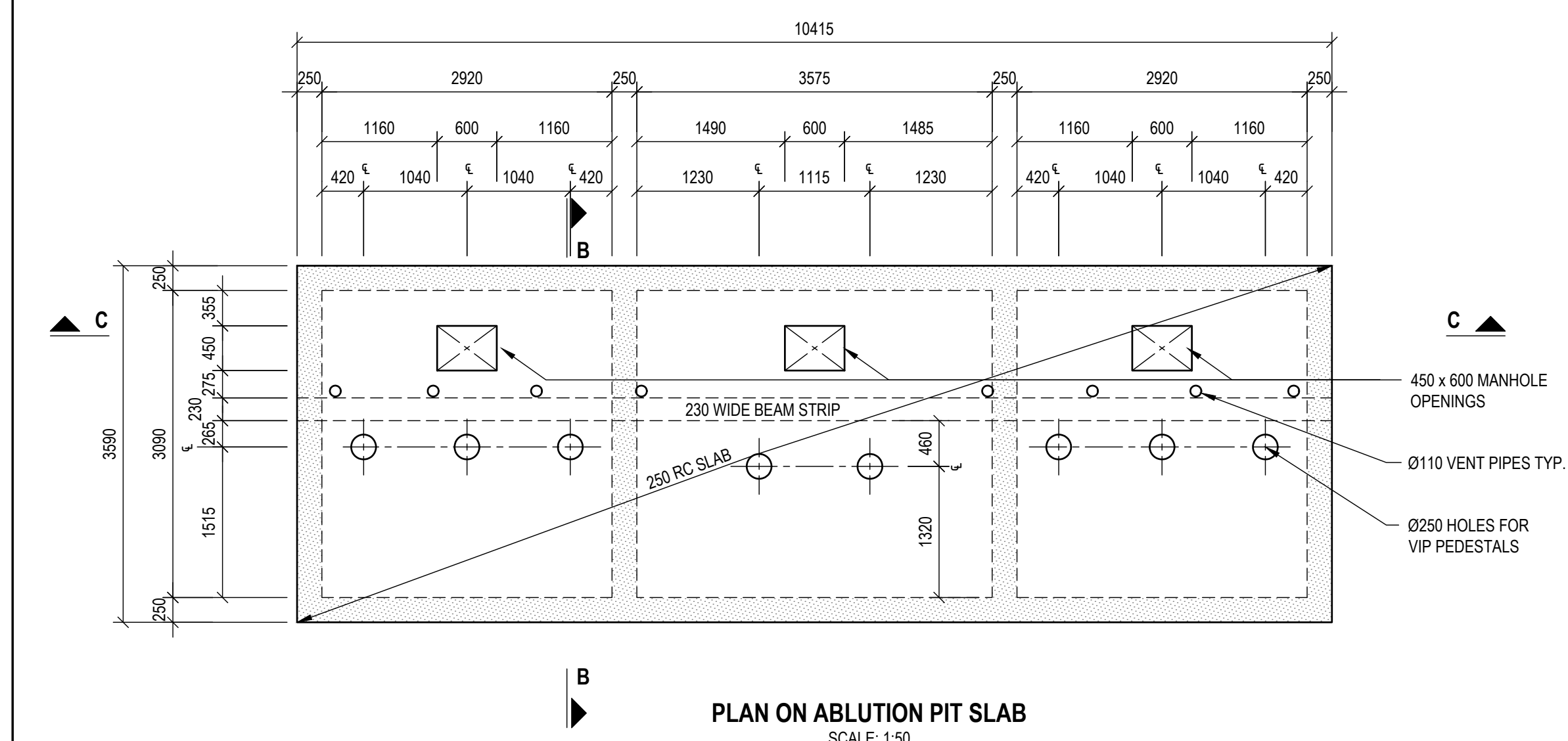
PLAN ON ABLUTIONS FOUNDATIONS
SCALE: 1:50

SURFACE BED LAYOUT
SCALE: 1:50

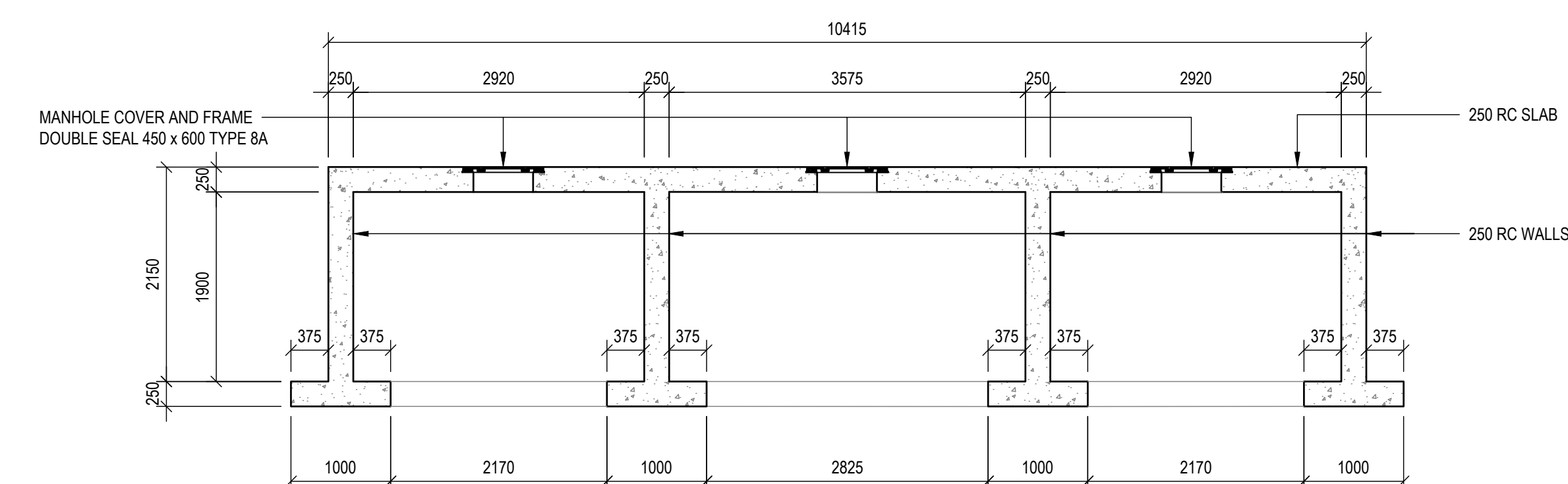


PLAN ON ABLUTION PIT WALLS
SCALE: 1:50

PLAN ON ABLUTION PIT FOUNDATIONS
SCALE: 1:50



PLAN ON ABLUTION PIT SLAB
SCALE: 1:50



SECTION C-C
SCALE: 1:50

B	ISSUED FOR TENDER	NGIH	28/07/2024
A	FOR INFORMATION	SK	09/10/2024
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	

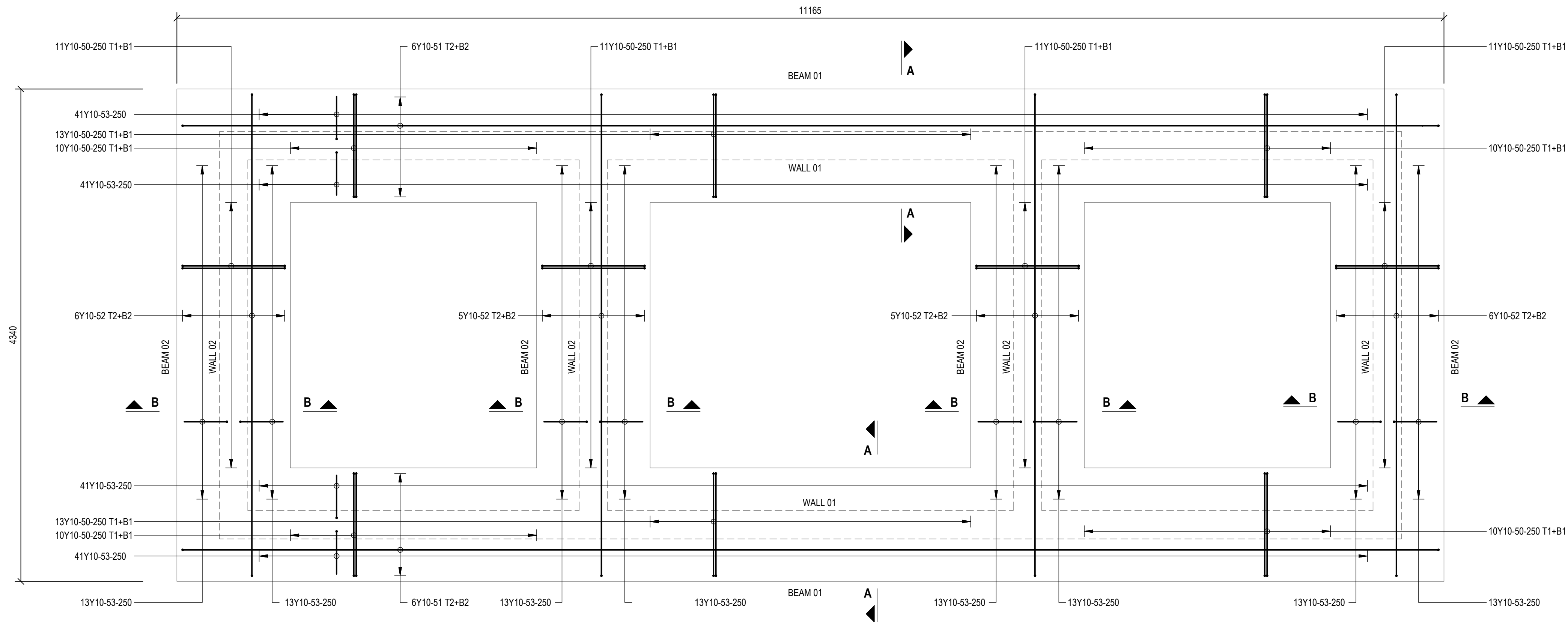
 **DARTING CONSULTING ENGINEERS (Pty) Ltd**
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road P O Box 65596 Tel: 031 - 2660903
Pinetown Reservoir Hills Fax: 031 - 2660906
3610 4090 Email: admin@dartingo.co.za

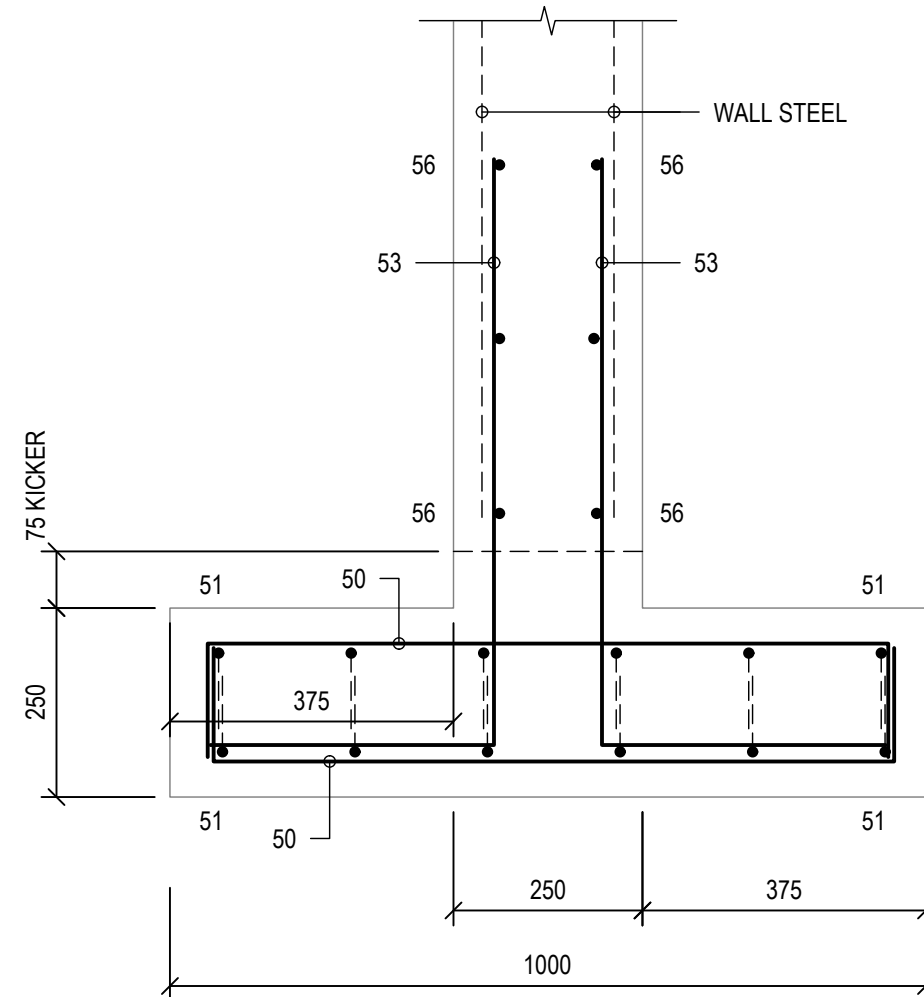
1.	APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
	CAPACITY : DIRECTOR
	DATE : 28/07/2022
	Pr No : 200570114

	PROJECT:	MANDLALATHI COMMUNITY HALL
	DRAWING TITLE:	ABLUTIONS STRUCTURAL LAYOUTS AND SECTIONS

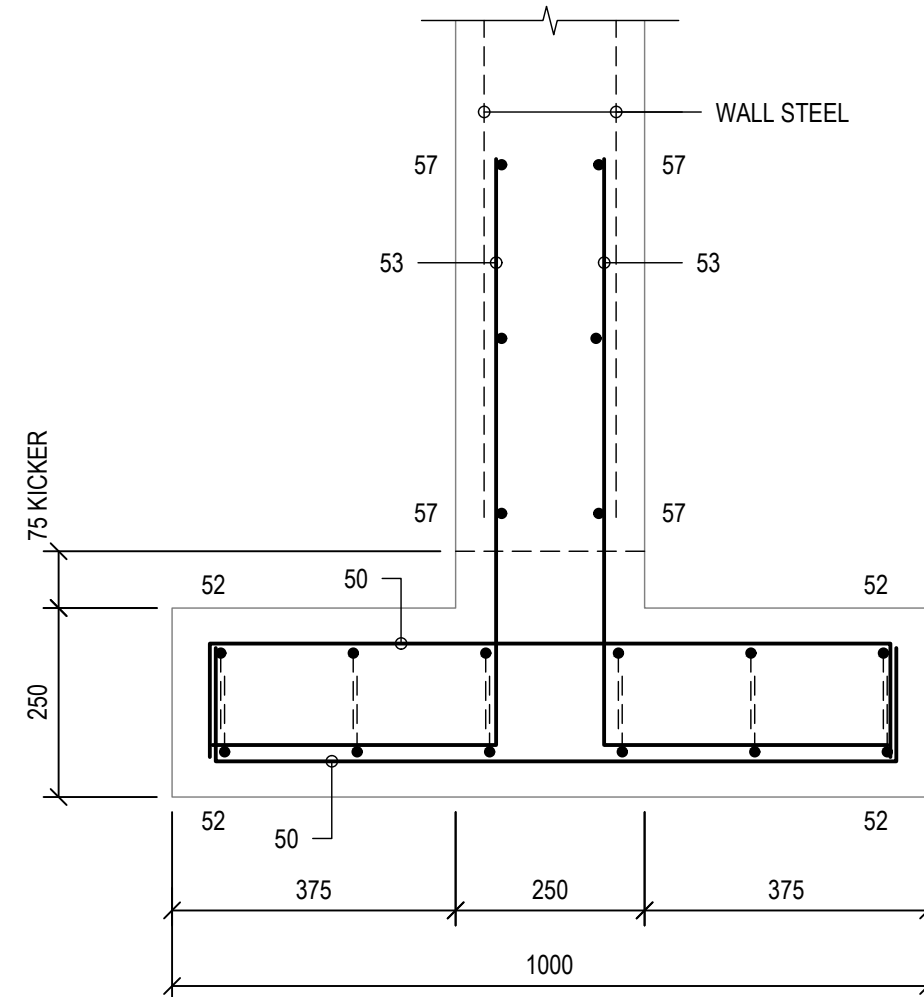
FOR TENDER	
ORIGINAL SCALE :	AS SHOWN
0	50
ORIGINAL SHEET SIZE : A1	
100mm	
	
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 28/07/2022
CHECKED : KJ	REV : B
DRAWING No : 1265/SC301	



PLAN ON PIT FOUNDATION REINFORCEMENT
SCALE: 1:25



SECTION A-A
SECTION THROUGH FOUNDATION BEAM 01
SCALE: 1:10



SECTION B-B
SECTION THROUGH FOUNDATION BEAM 02
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)												
MEMBER		REINFORCEMENT					BENDING					
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)
BEAM 01	2	Y10	50	66	132	1150	38	150	900	150		
		Y10	51	12	24	11320	38	150	11065	150		
		Y10	53	82	164	1130	37	775	375			
		Y10	56	6	12	10570	38	150	10315	150		
BEAM 02	4	Y10	50	22	88	1150	38	150	900	150		
		Y10	52	12	48	4490	38	150	4240	150		
		Y10	53	26	104	1130	37	775	375			
		Y10	57	6	24	3740	38	150	3490	150		
			06	08	10	12	16	20	25	32	40	Totals
Length (m)		R										0.000
		Y			1169.880							1169.880
Weight (ton)		R										0.00
		Y			0.72							0.72
Total Weight (ton):												0.72

MIN. REINFORCING COVER:
TOP: 50mm
SIDES: 50mm
BOTTOM: 50mm

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

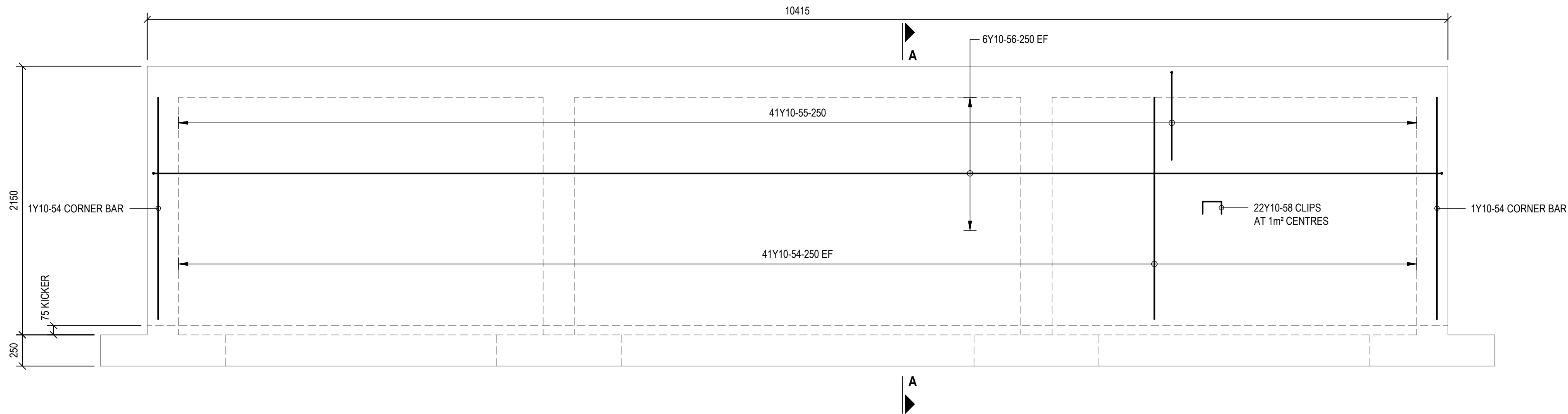
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTSBURGH PO BOX 19, SCOTTSBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE:
	DM DRAWING No.
	CONTRACT No:

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

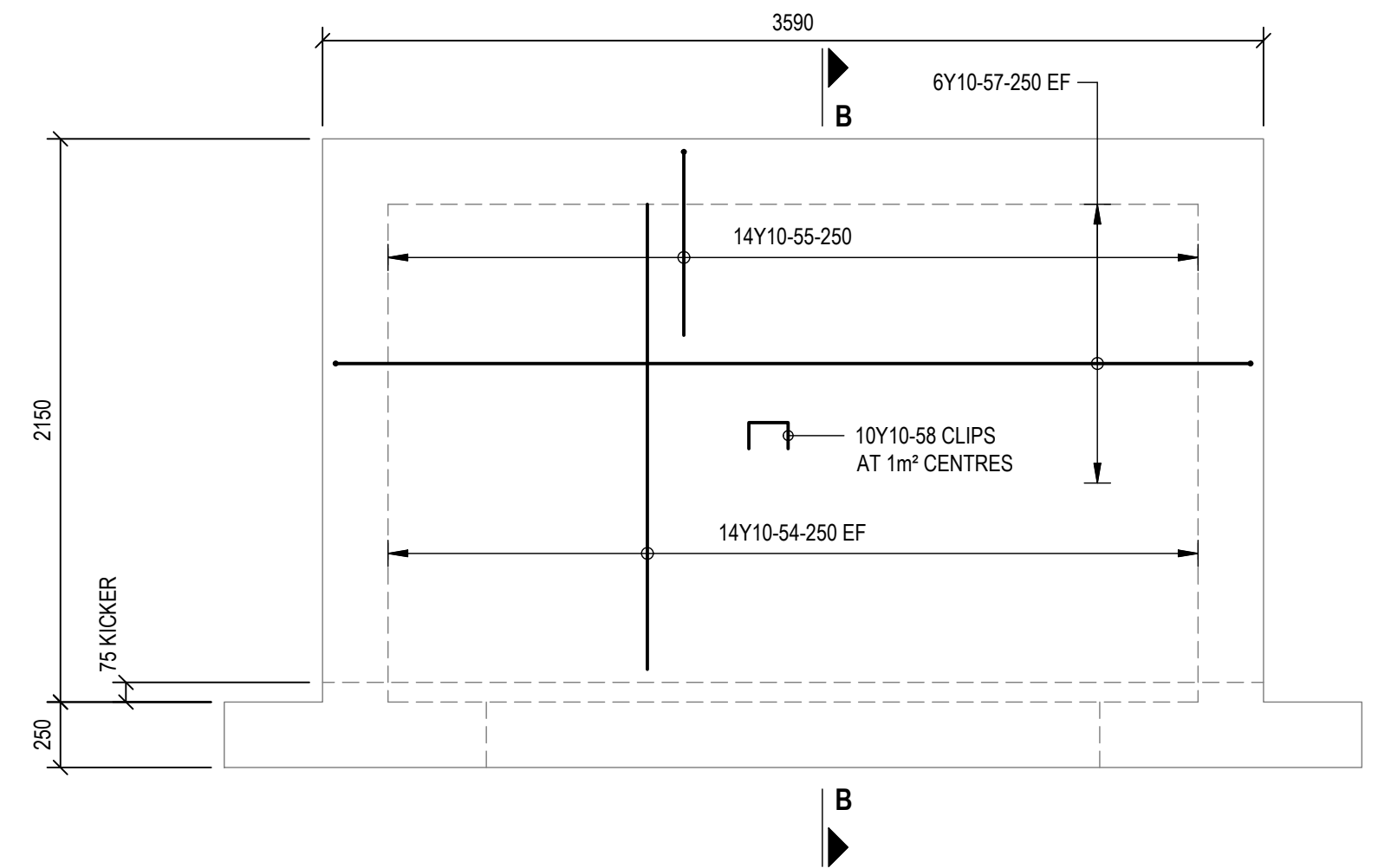
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY: DIRECTOR
DATE: 28/07/2022
Pr No: 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ABLUTIONS REINFORCEMENT PIT FOUNDATIONS

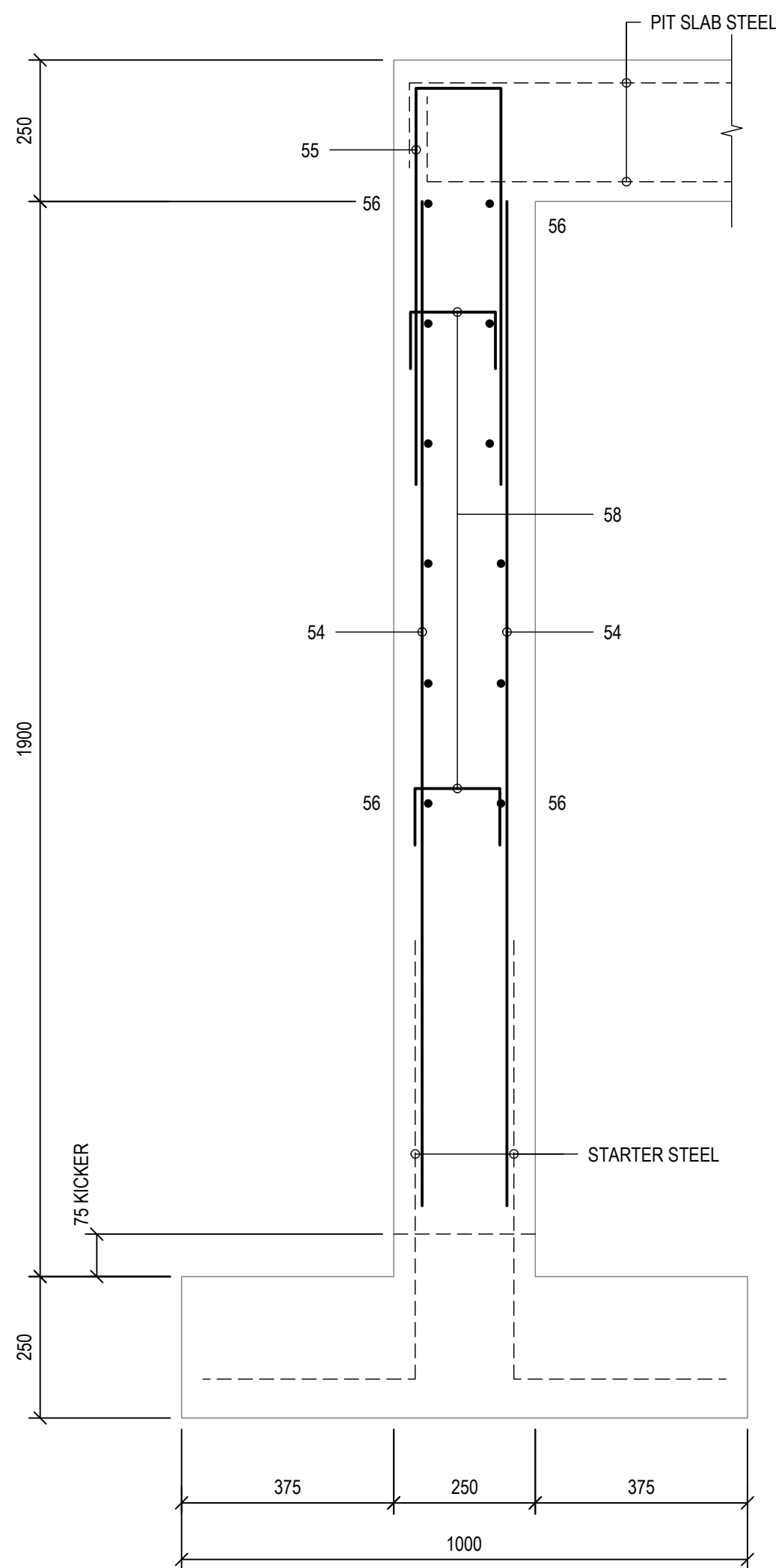
FOR TENDER	
ORIGINAL SCALE: AS SHOWN	ORIGINAL SHEET SIZE: A1
DESIGNED: SK	SHEET: 01
DRAWN: NGIH	DATE: 28/07/2022
CHECKED: KJ	REV: B
DRAWING No:	1265/SR301



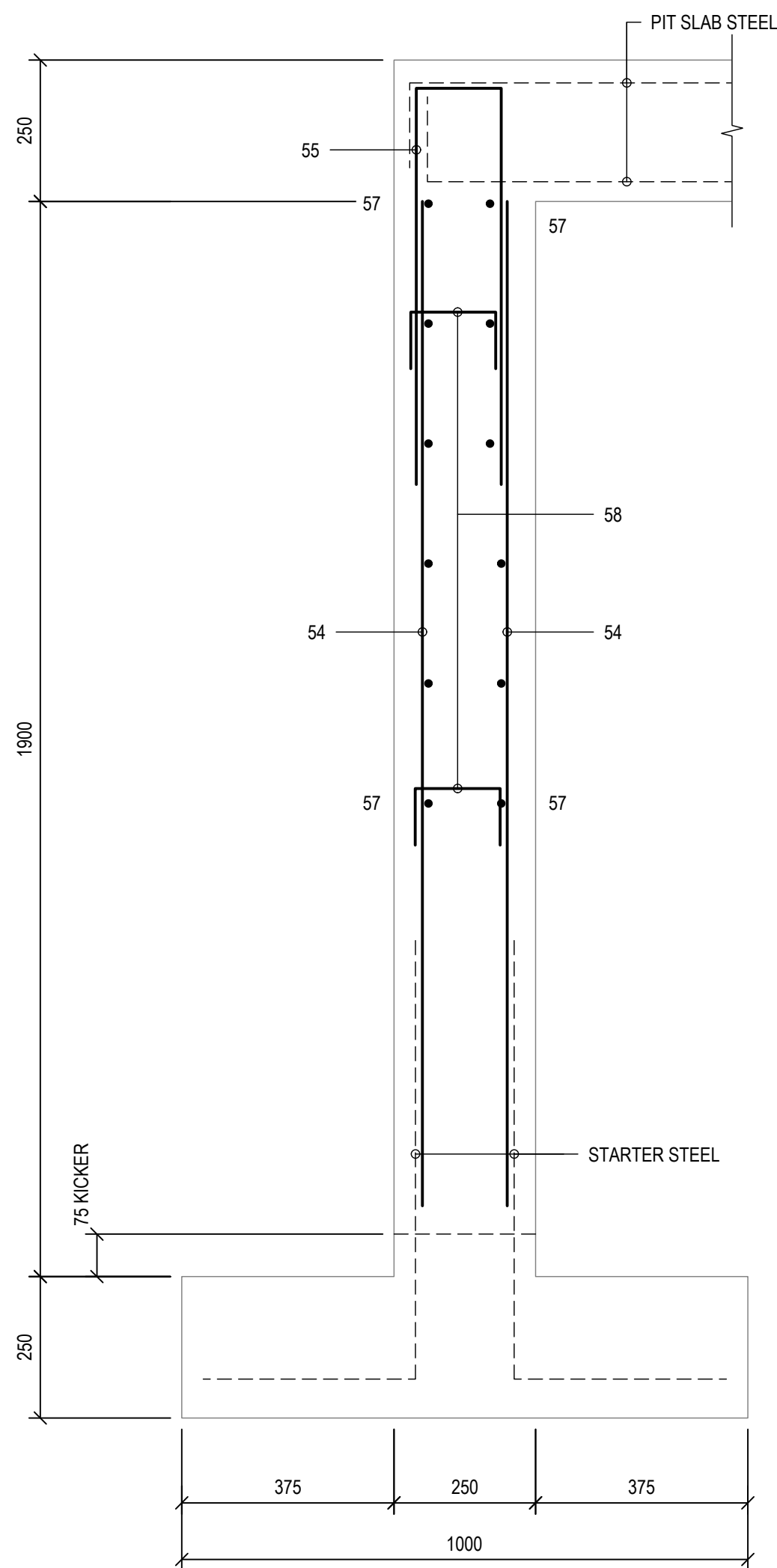
ELEVATION ON WALL 01 REINFORCEMENT
SCALE: 1:25



ELEVATION ON WALL 02 REINFORCEMENT
SCALE: 1:25



SECTION A-A
SECTION THROUGH PIT WALL 01
SCALE: 1:10



SECTION B-B
SECTION THROUGH PIT WALL 02
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)													
MEMBER		REINFORCEMENT						BENDING					
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)	
PIT WALL 01	2	Y10	54	84	168	1780	20	1775					
		Y10	55	41	82	1500	38	700	150	700			
		Y10	56	12	24	10570	38	150	10315	150			
		Y10	58	22	44	300	38	100	150	100			
PIT WALL 02	4	Y10	54	28	112	1780	20	1775					
		Y10	55	14	56	1500	38	700	150	700			
		Y10	57	12	48	3740	38	150	3490	150			
		Y10	58	10	40	300	38	100	150	100			
			06	08	10	12	16	20	25	32	40	Totals	
Length (m)		R											0.000
		Y			1151.800								1151.800
Weight (bn)		R											0.00
		Y			0.71								0.71
Total Weight (ton):													0.71

MIN. REINFORCING COVER:
TOP: 50mm
SIDES: 50mm
BOTTOM: 50mm

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

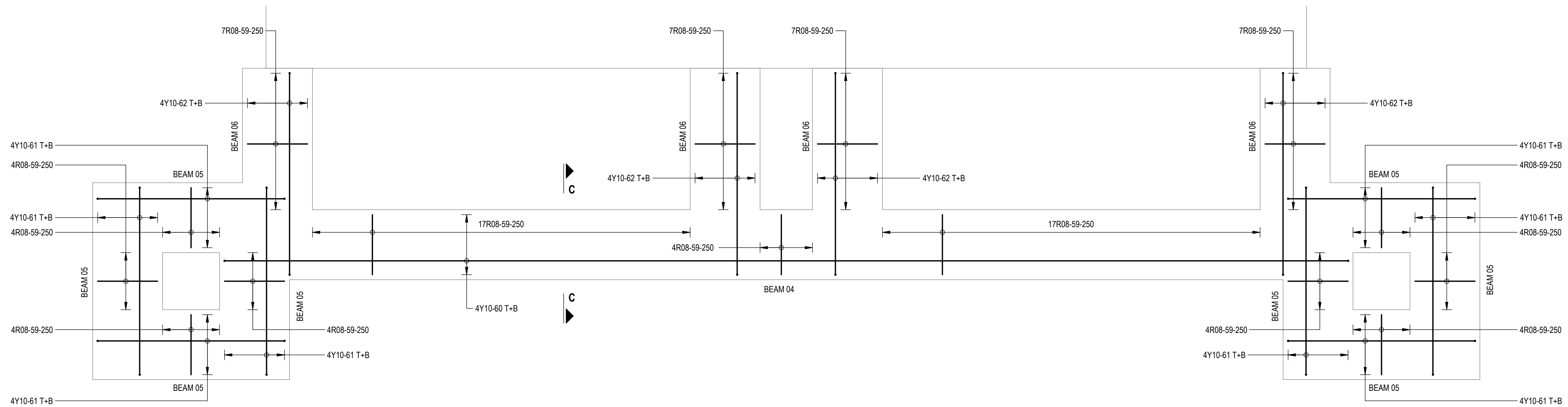
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

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64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

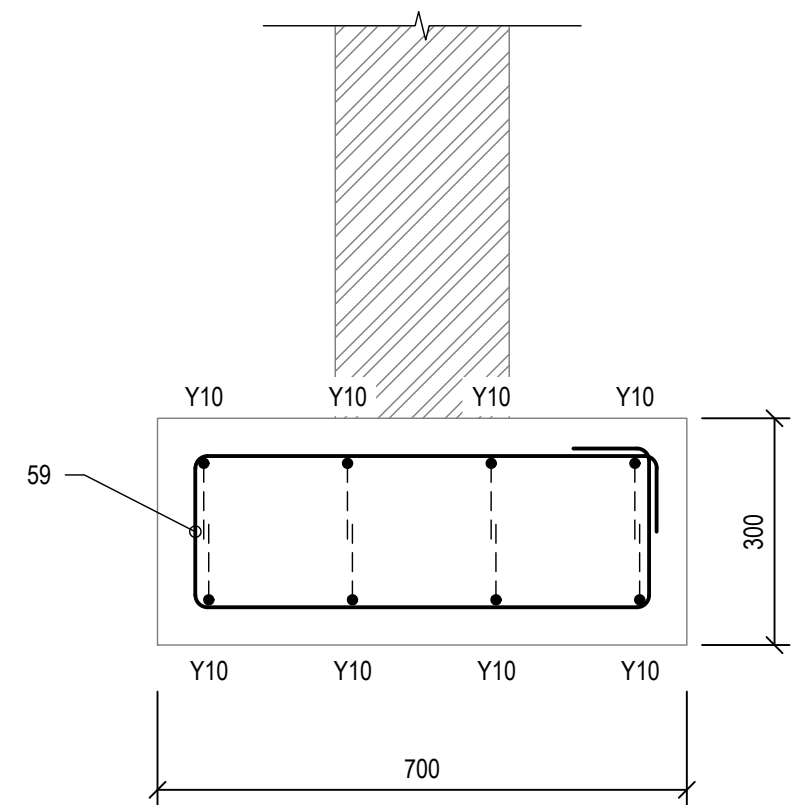
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ABLUTIONS REINFORCEMENT CONCRETE PIT WALLS

FOR TENDER	
ORIGINAL SCALE : 0 50 100mm	AS SHOWN ORIGINAL SHEET SIZE : A1
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 28/07/2022
CHECKED : KJ	REV : B
DRAWING No :	1265/SR302



PLAN ON ABLUTIONS FOUNDATION REINFORCEMENT
SCALE: 1:25



TYPICAL SECTION C-C
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)												
MEMBER		REINFORCEMENT					BENDING					
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)
BEAM 04	1	R08	59	38	38	1760	60	200	600			
		Y10	60	8	8	11600	38	100	11445	100		
BEAM 05	8	R08	59	4	32	1760	60	200	600			
		Y10	61	8	64	2020	38	100	1870	100		
BEAM 06	4	R08	59	7	28	1760	60	200	600			
		Y10	62	8	32	2170	38	100	2015	100		

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		172.480								172.480
	Y			291.520							291.520
Weight (ton)	R		0.07								0.07
	Y			0.18							0.18
Total Weight (ton):											0.25

MIN. REINFORCING COVER:
TOP: 50mm
SIDES: 50mm
BOTTOM: 50mm

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

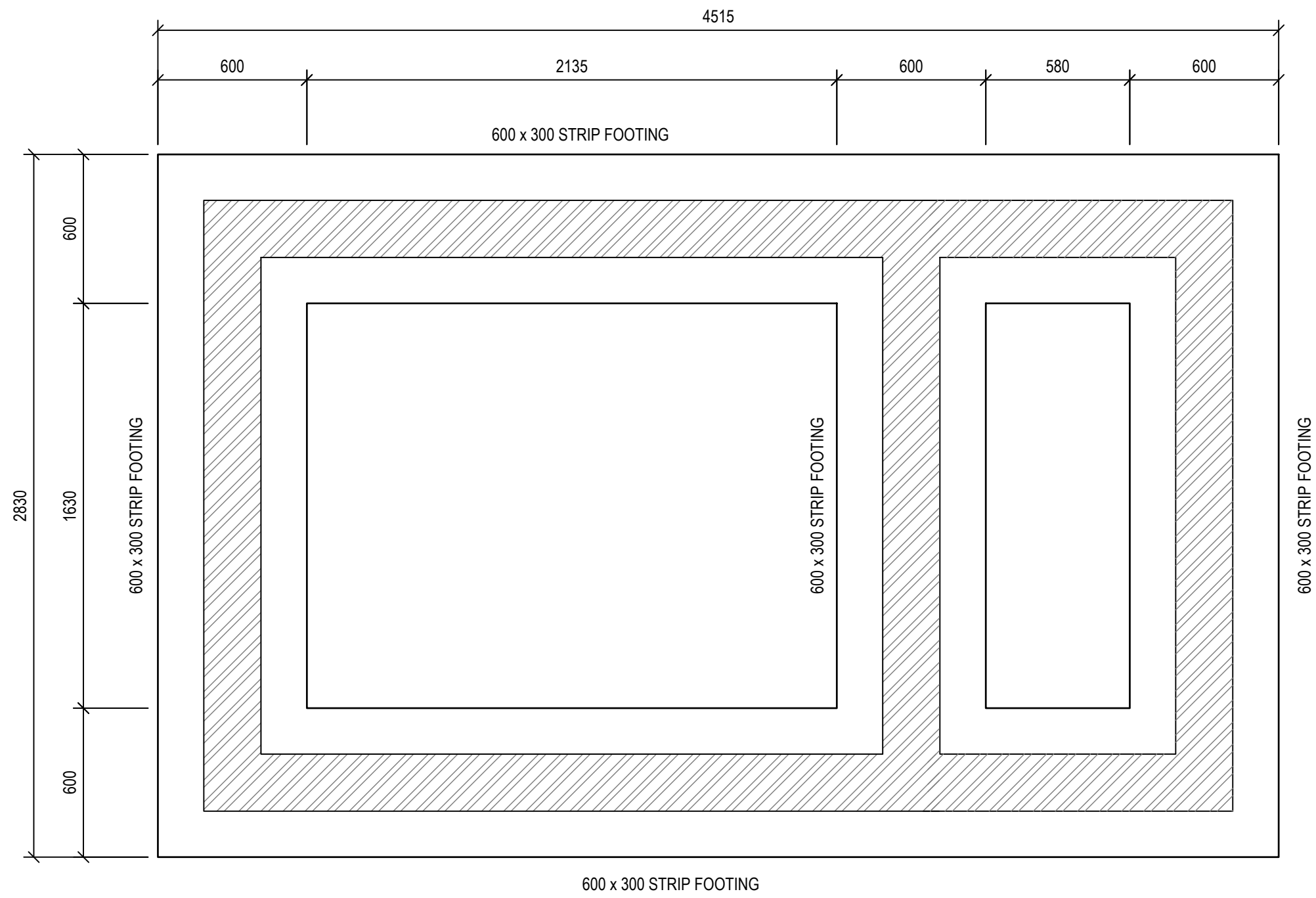
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

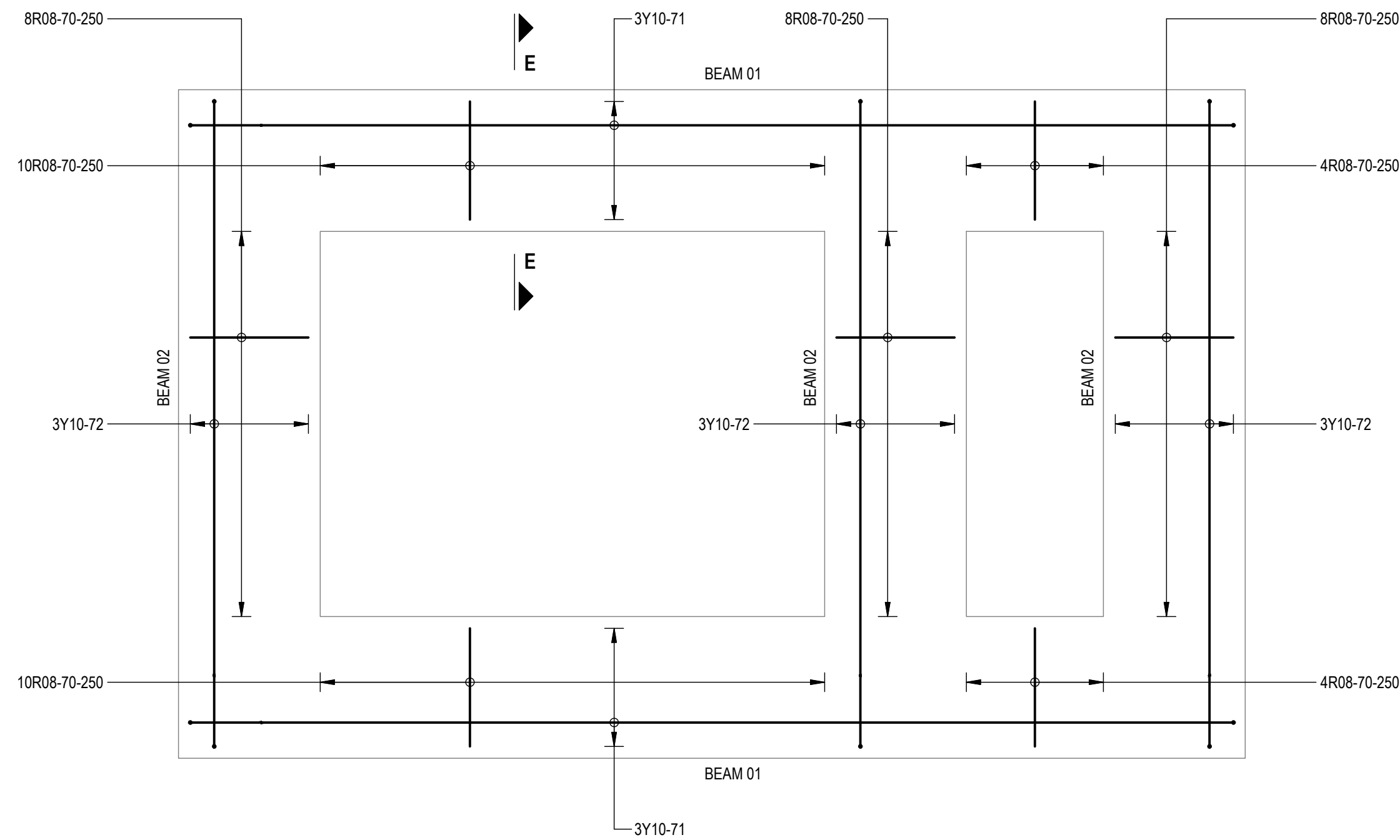
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ABLUTIONS REINFORCEMENT ABLUTION FOUNDATIONS

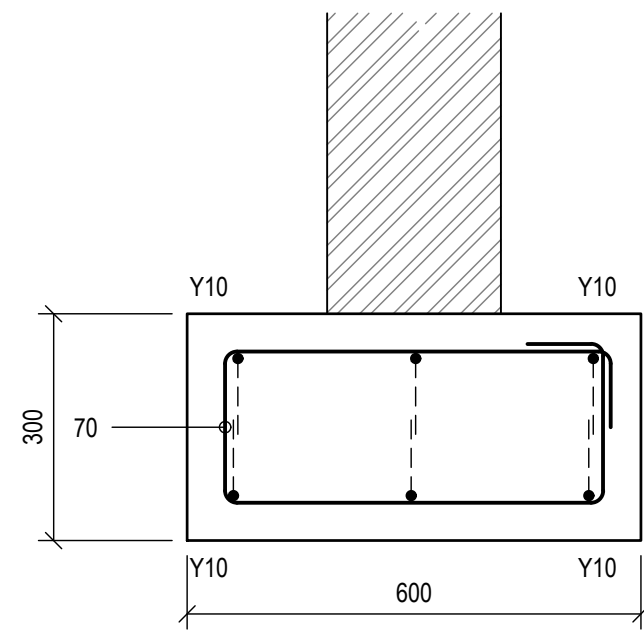
FOR TENDER	
ORIGINAL SCALE : 0 50 100mm	AS SHOWN ORIGINAL SHEET SIZE : A1
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 28/07/2022
CHECKED : KJ	REV : B
DRAWING No :	1265/SR303



PLAN ON GAURD HOUSE FOUNDATIONS
SCALE: 1:20



PLAN ON GUARD HOUSE FOUNDATION REINFORCEMENT
SCALE: 1:20



SECTION E-E
SECTION THROUGH GUARD HOUSE
FOUNDATION REINFORCEMENT
SCALE: 1:10

BENDING SCHEDULE (SANS 282:2011)												
MEMBER		REINFORCEMENT					BENDING					
UNIT	No.	Type/ Dia	Mark	Unit	Total	Length (mm)	Shape Code	A (mm)	B (mm)	C (mm)	D (mm)	E/r (mm)
BEAM 01	2	R08	70	14	28	1560	60	200	500			
		Y10	71	6	12	4570	38	100	4415	100		
BEAM 02	3	R08	70	8	24	1560	60	200	500			
		Y10	72	6	18	2880	38	100	2730	100		

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		81.120								81.120
	Y			106.680							106.680
Weight (tn)	R		0.03								0.03
	Y			0.07							0.07
Total Weight (ton):											0.10

MIN. REINFORCING COVER:
TOP: 50mm
SIDES: 50mm
BOTTOM: 50mm

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

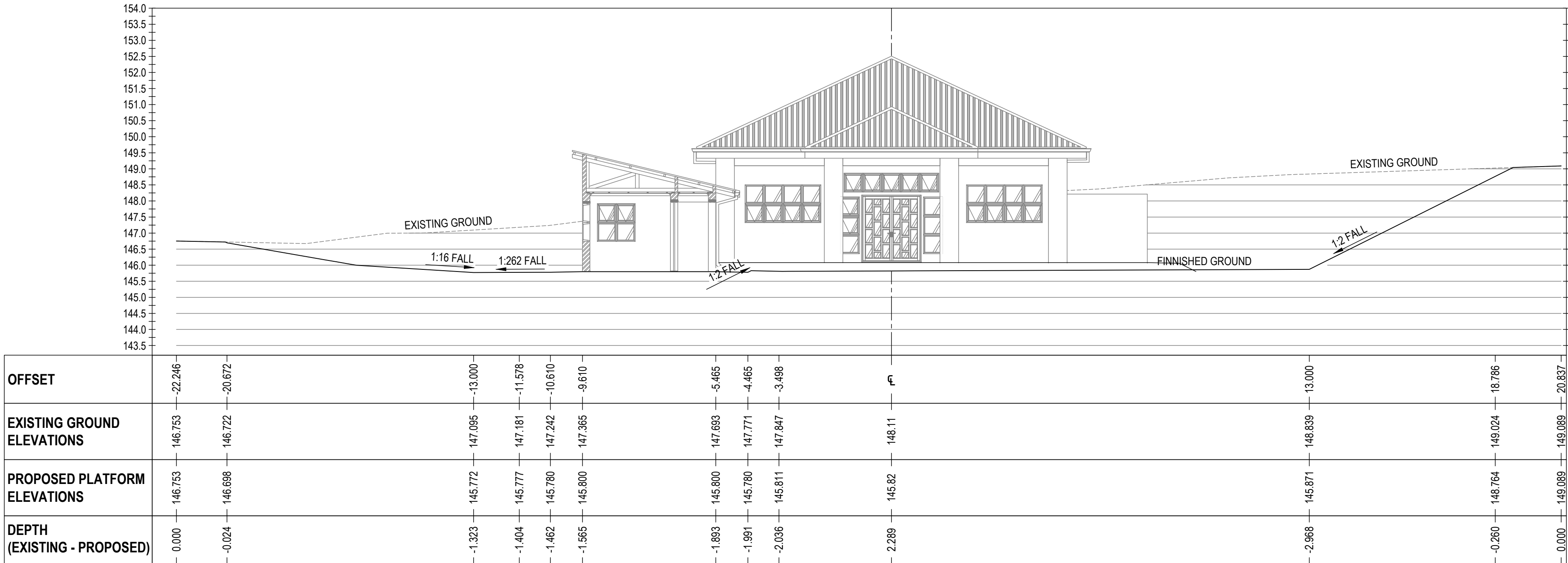
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
64 Underwood Road Pinetown 3610	P O Box 6596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

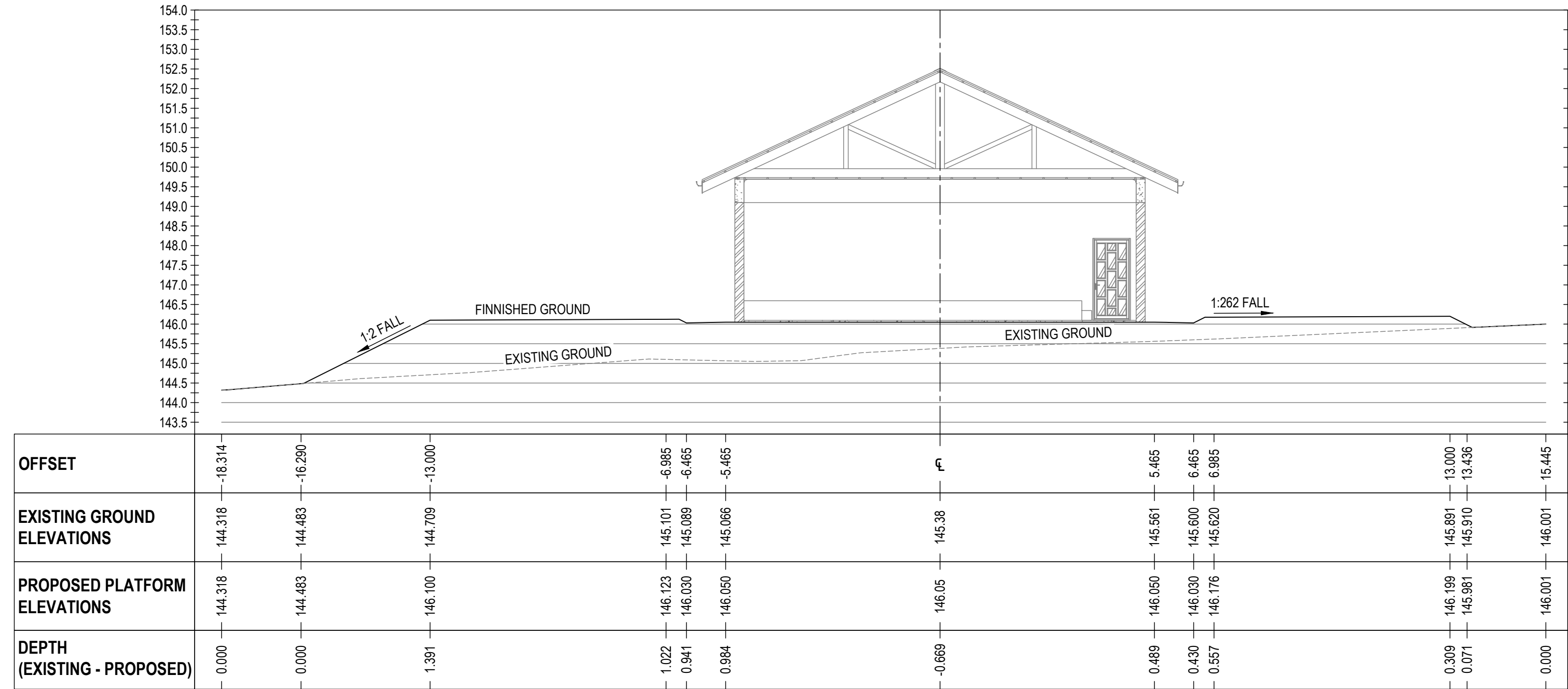
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	GUARD HOUSE LAYOUT OF FOUNDATIONS AND REINFORCEMENT

FOR TENDER	
ORIGINAL SCALE : 0 50 100mm	AS SHOWN ORIGINAL SHEET SIZE : A1
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 09/09/2020
CHECKED : SK	REV : B
DRAWING No :	1265/SC401



MAIN. PLATFORM
SECTION A-A
VERTICAL SCALE: 1:100
HORIZONTAL SCALE:1:100



MAIN. PLATFORM
SECTION B-B
VERTICAL SCALE: 1:100
HORIZONTAL SCALE:1:100

A	ISSUED FOR TENDER	NGIH	28/07/2022
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY

CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180

TEL 039 976 1202 / 039 978 4313
FAX 039 976 2194/2020
WEB WWW.UMDONI.GOV.ZA

APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No :

DARTINGO CONSULTING ENGINEERS (Pty) Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65996
Reservoir Hills
4090

Tel: 031 - 2660903
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Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

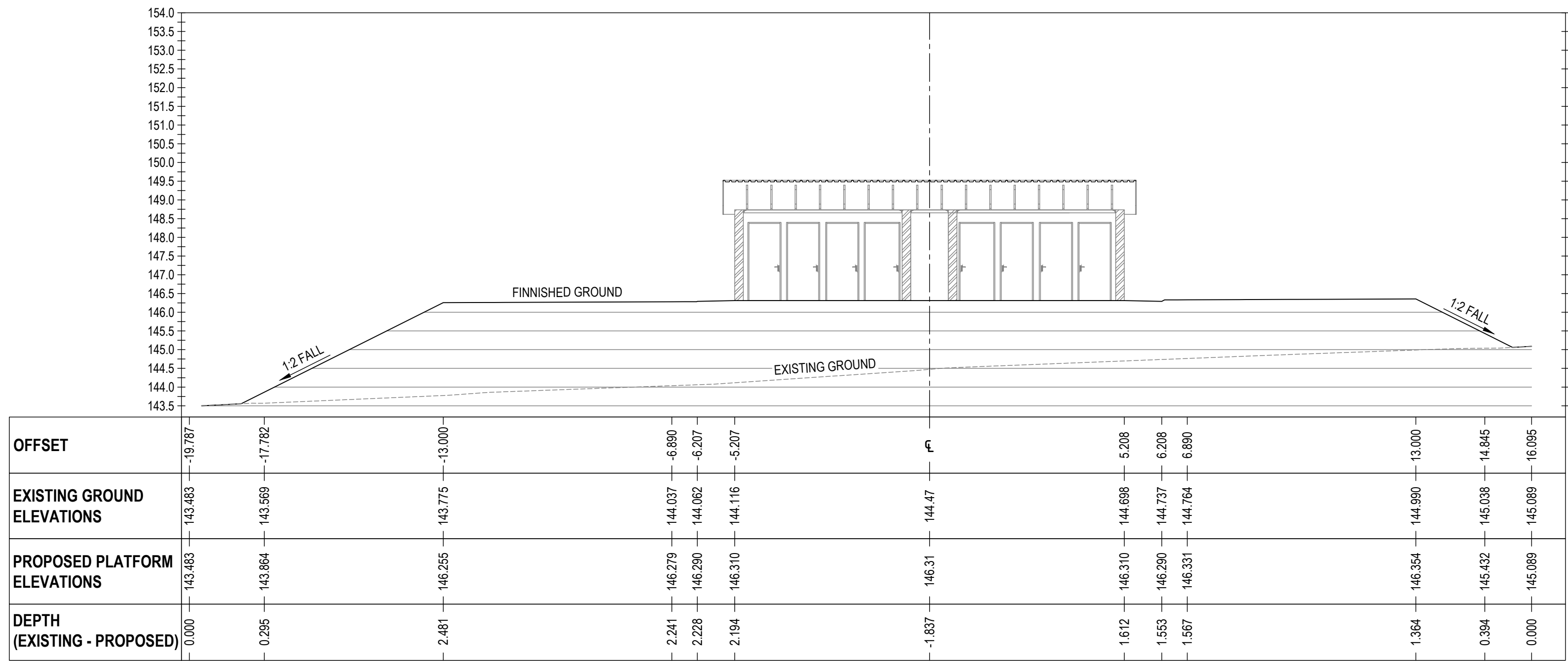
DRAWING TITLE:

BULK EARTHWORKS
SECTIONS A & B

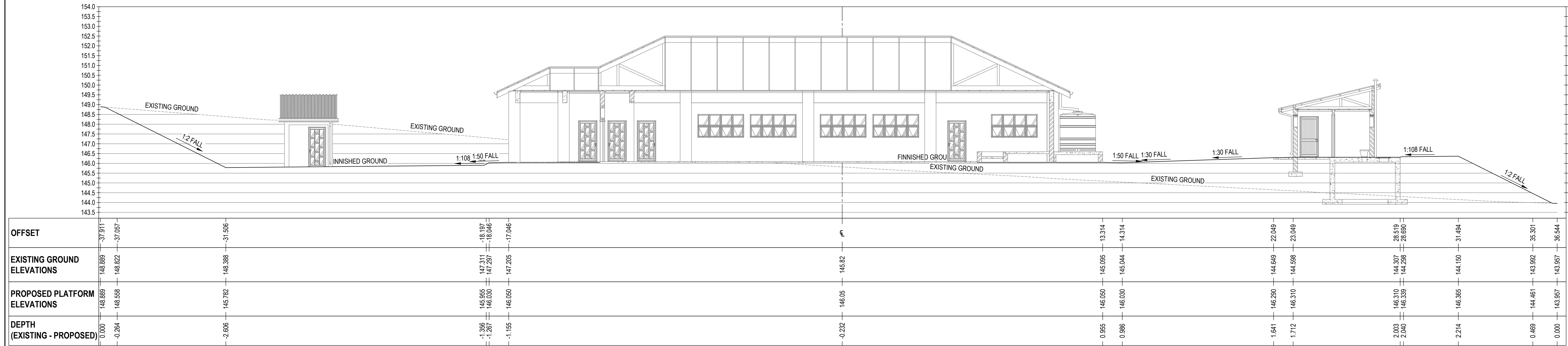
FOR TENDER

ORIGINAL SCALE : AS SHOWN
ORIGINAL SHEET SIZE : A1
0 50 100mm

DESIGNED : NGIH	SHEET : 01
DRAWN : NGIH	DATE : 05/07/2022
CHECKED : SK	REV : A
DRAWING No :	1265/CE102



MAIN PLATFORM
SECTION C-C
VERTICAL SCALE: 1:100
HORIZONTAL SCALE:1:100



MAIN PLATFORM
SECTION D-D
VERTICAL SCALE: 1:100
HORIZONTAL SCALE:1:100

A	ISSUED FOR TENDER	NGIH	28/07/2022
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY

CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180



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TEL 039 976 1202 / 039 978 4313
FAX 039 976 2194/2020
WEB WWW.UMDONI.GOV.ZA

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No :

 DARTINGO CONSULTING ENGINEERS (Pty) Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

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Reservoir Hills
4090

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APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28/07/2022

Pr No : 200570114

PROJECT:

MANDLALATHI COMMUNITY HALL

DRAWING TITLE:

BULK EARTHWORKS
SECTIONS C & D

FOR TENDER

ORIGINAL SCALE : AS SHOWN ORIGINAL SHEET SIZE : A1

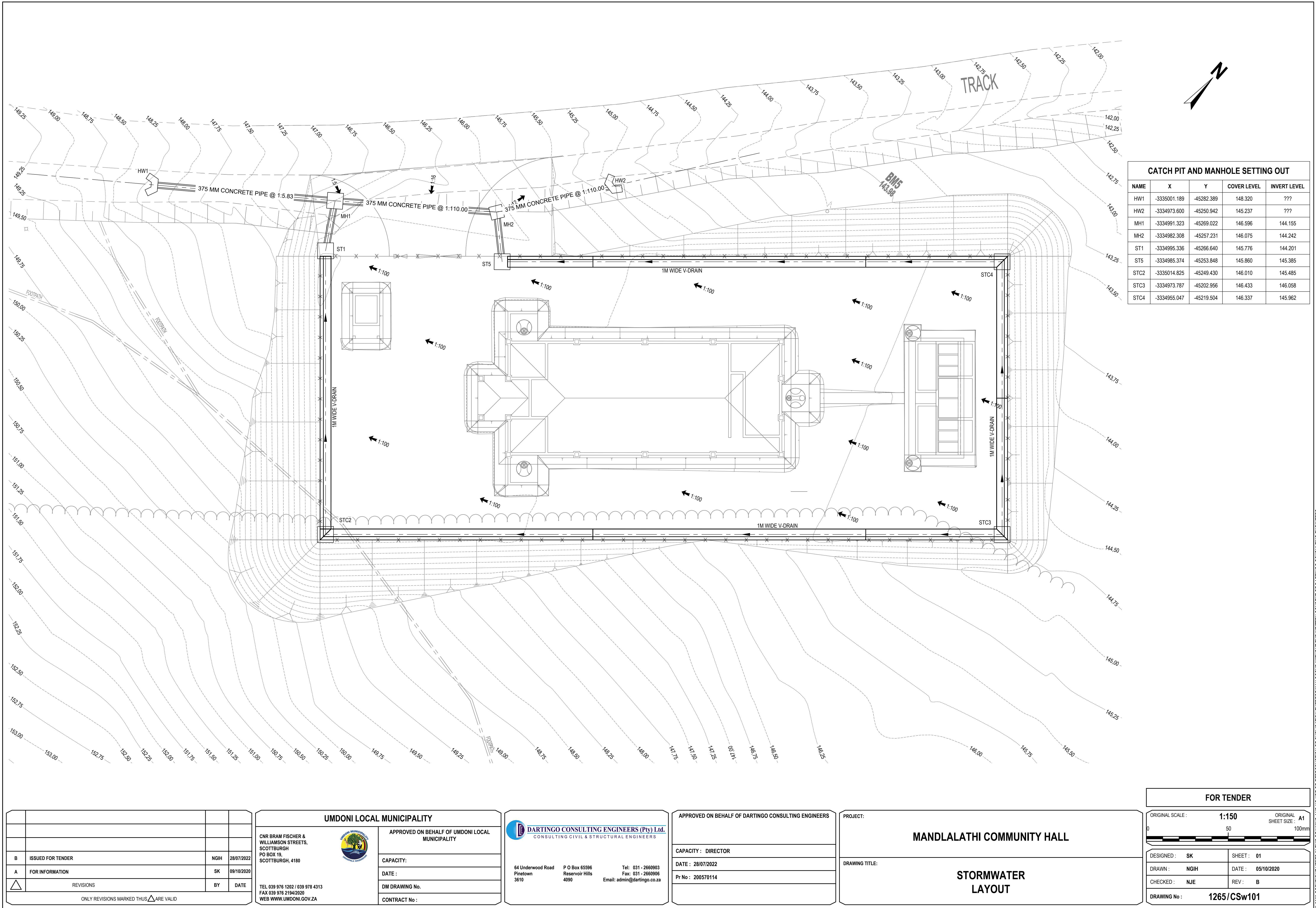
0 50 100mm

DESIGNED : NGIH SHEET : 01

DRAWN : NGIH DATE : 05/07/2022

CHECKED : SK REV : A

DRAWING No : 1265/CE103



CATCH PIT AND MANHOLE SETTING OUT				
NAME	X	Y	COVER LEVEL	INVERT LEVEL
HW1	-3335001.189	-45282.389	148.320	???
HW2	-3334973.600	-45250.942	145.237	???
MH1	-3334991.323	-45269.022	146.596	144.155
MH2	-3334982.308	-45257.231	146.075	144.242
ST1	-3334995.336	-45266.640	145.776	144.201
ST5	-3334985.374	-45253.848	145.860	145.385
STC2	-3335014.825	-45249.430	146.010	145.485
STC3	-3334973.787	-45202.956	146.433	146.058
STC4	-3334955.047	-45219.504	146.337	145.962

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
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TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	

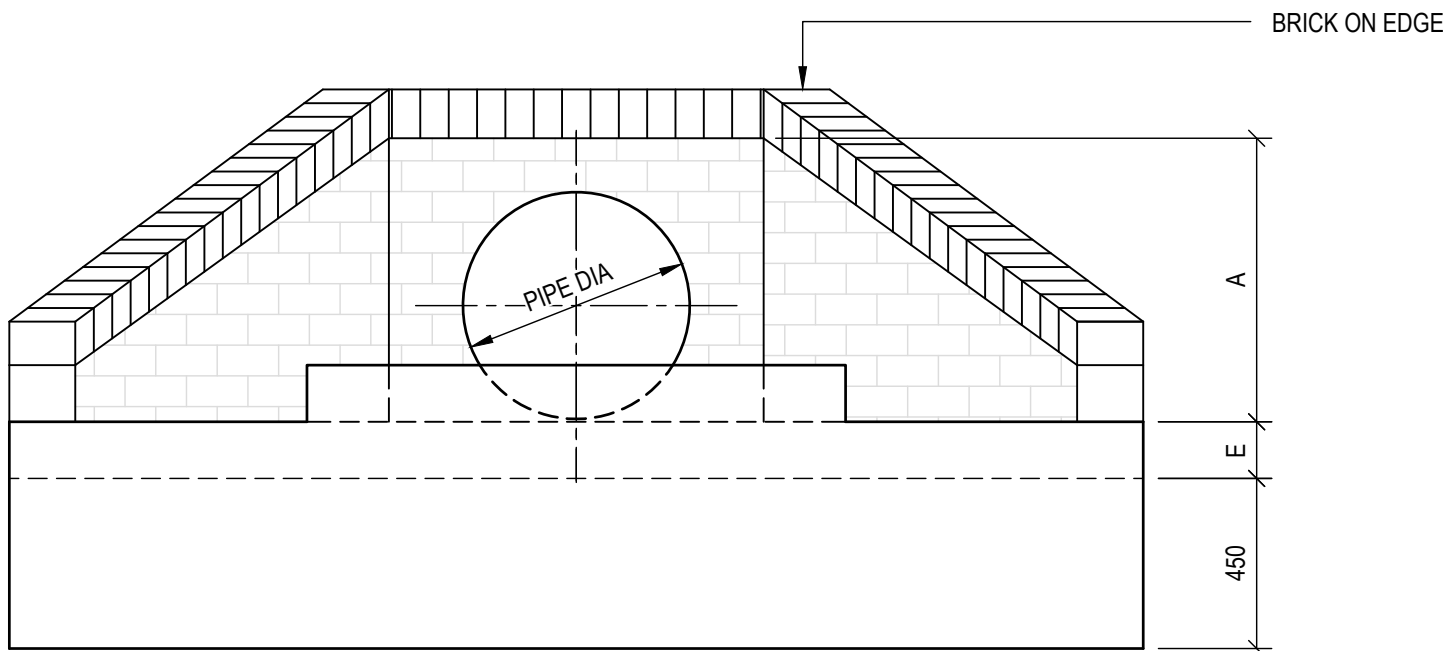
	DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS
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APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

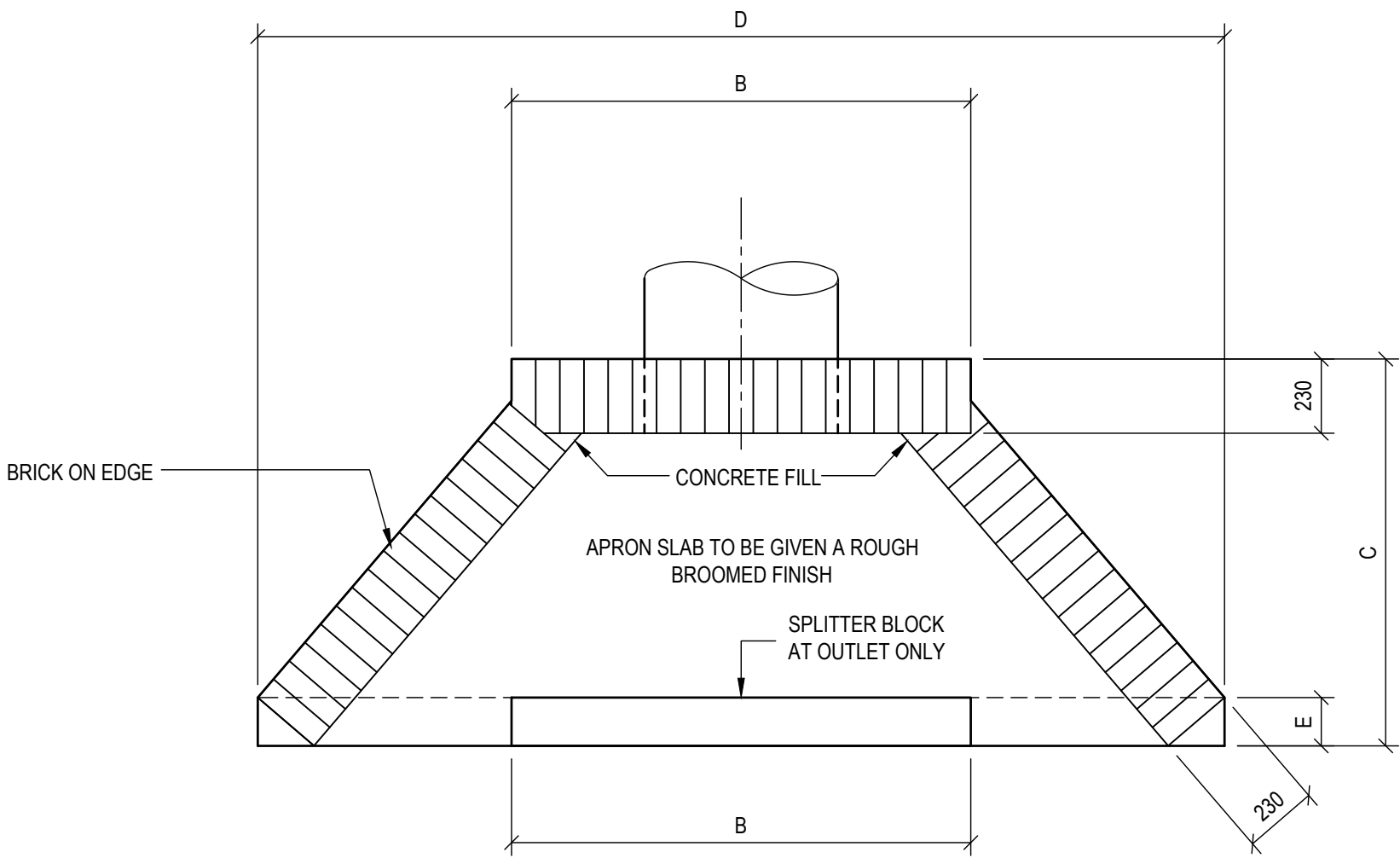
PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	STORMWATER LAYOUT

FOR TENDER	
ORIGINAL SCALE :	1:150
ORIGINAL SHEET SIZE :	A1
DESIGNED :	SK
SHEET :	01
DRAWN :	NGIH
DATE :	05/10/2020
CHECKED :	NJE
REV :	B
DRAWING No :	1265/CSw101

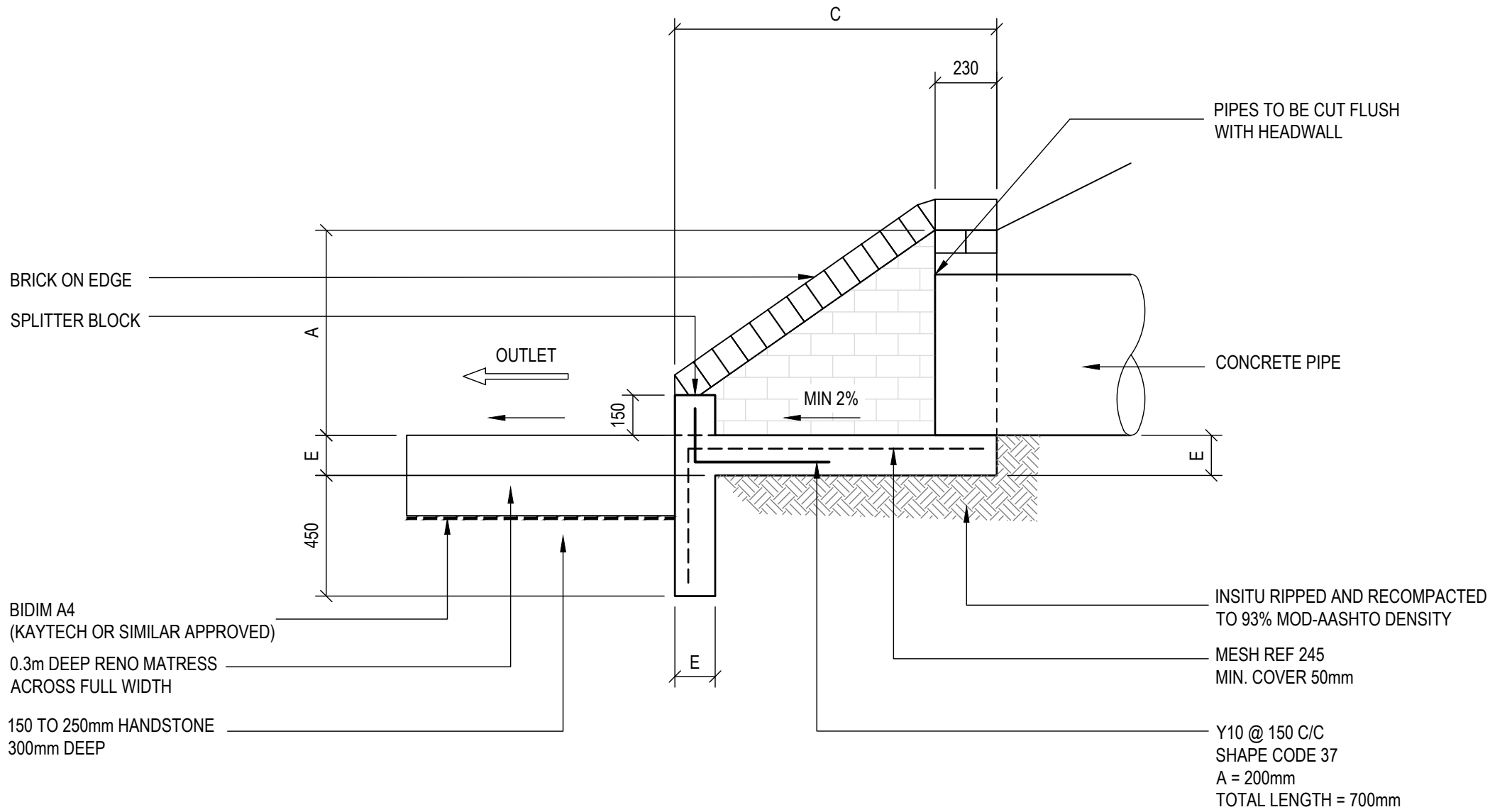
CULVERT DIMENSIONS (mm)					
PIPE DIA	A	B	C	D	E
350	520	810	600	1800	150
375	545	950	750	2100	150
400	570	1090	900	2400	150
450	595	1150	1050	2700	150
600	765	1380	1200	3000	150
750	935	1610	1350	3300	150
900	1105	1840	1500	3600	230
1050	1275	2070	1750	3900	230
1200	1445	2300	1900	4200	230



FRONT ELEVATION ON OUTLET HEADWALL
SCALE: 1:20



PLAN ON OUTLET HEADWALL
SCALE: 1:20



TYPICAL SECTION AT OUTLET
SCALE: 1:20

- HEADWALL NOTES:
- ALL WING WALLS TO BE 230mm "NFX" BRICKWORK.
 - BRICKFORCE TO BE PROVIDED ON EVERY 3rd COURSE.
 - APRON SLAB AND CUT OF WALLS TO BE 25MPa CONCRETE.
 - ALL EXPOSED CORNERS TO HAVE 20 x20 CHAMFERS.
 - ALL CONCRETE TO BE REINFORCED WITH MESH REF 245.
 - CUT OFF WALLS REQUIRED FOR BOTH INLET AND OUTLET STRUCTURES.

TYPICAL HEAD WALL DETAILS(2)
SCALE: 1:20

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

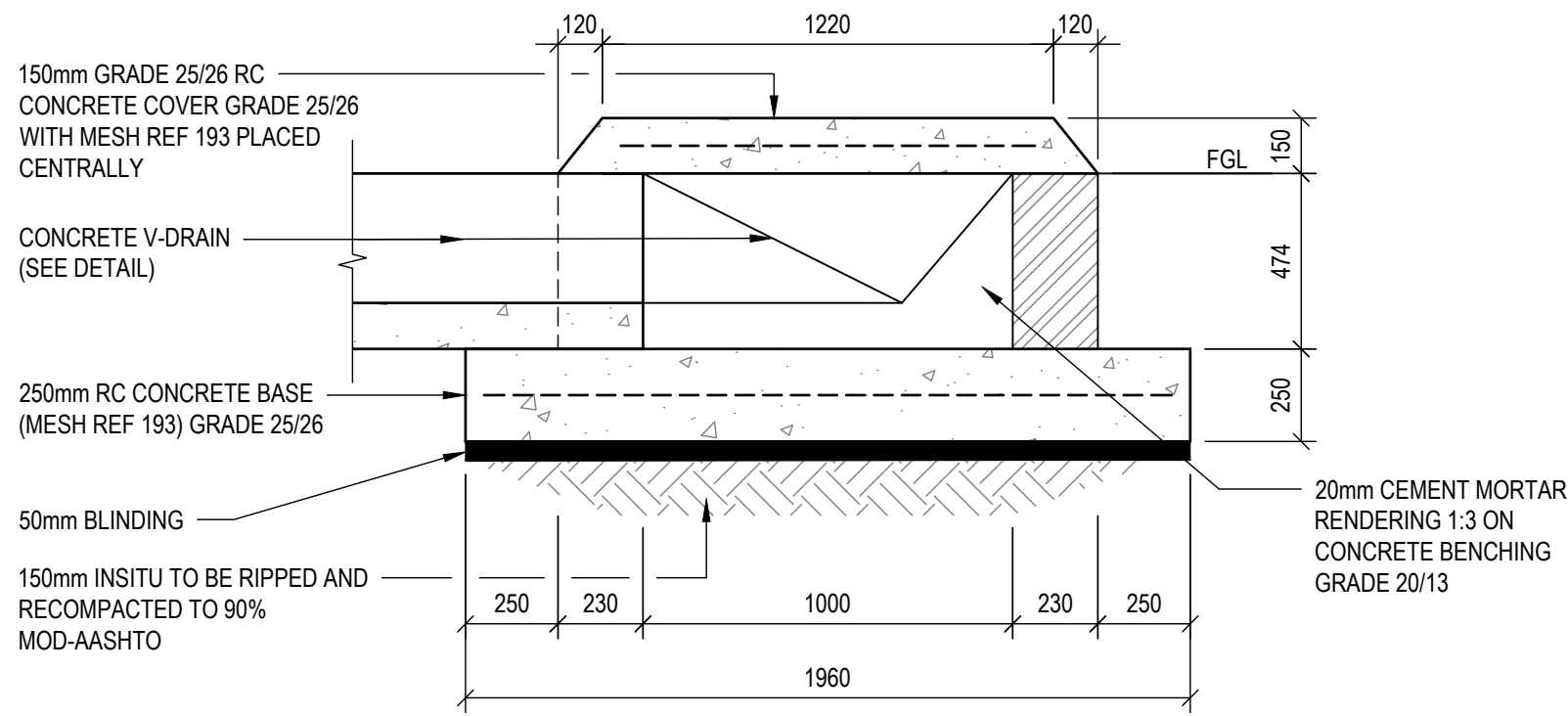
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180 TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	

 DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS	64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090	Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

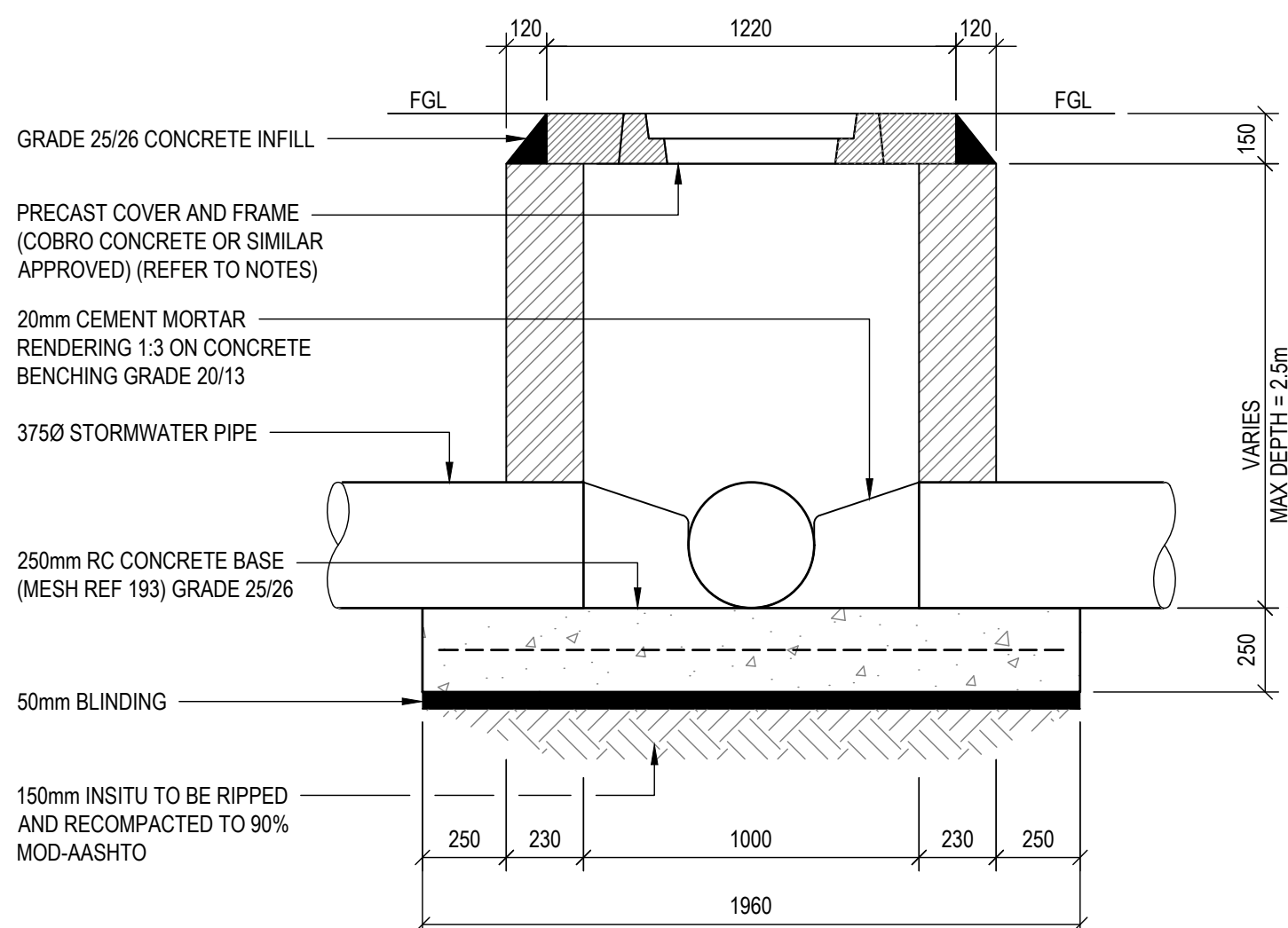
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	STORMWATER HEAD WALL DETAILS

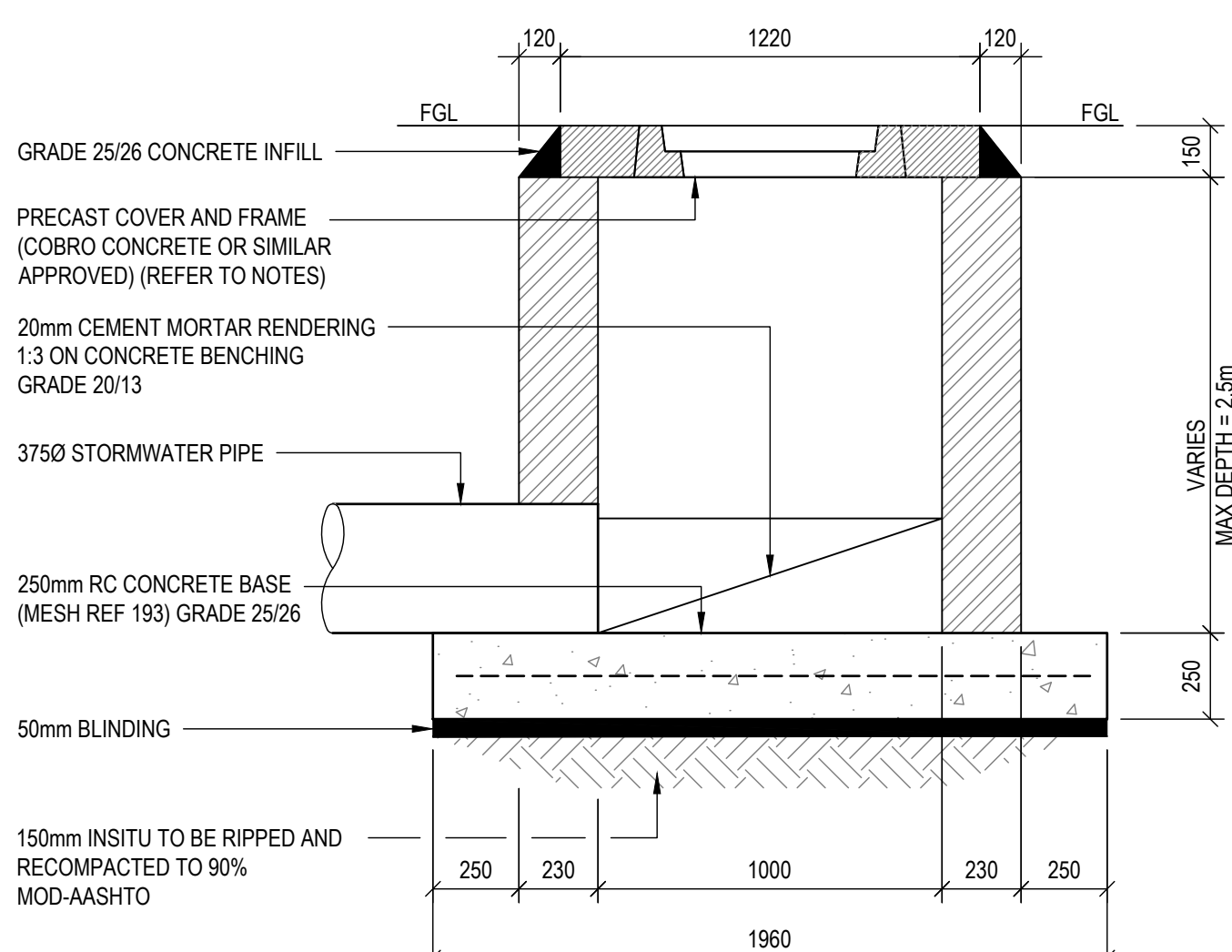
FOR TENDER	
ORIGINAL SCALE :	AS SHOWN
ORIGINAL SHEET SIZE :	A1
DESIGNED :	SK
SHEET :	01
DRAWN :	NGIH
DATE :	05/10/2020
CHECKED :	SK
REV :	B
DRAWING No :	1265/CSw102



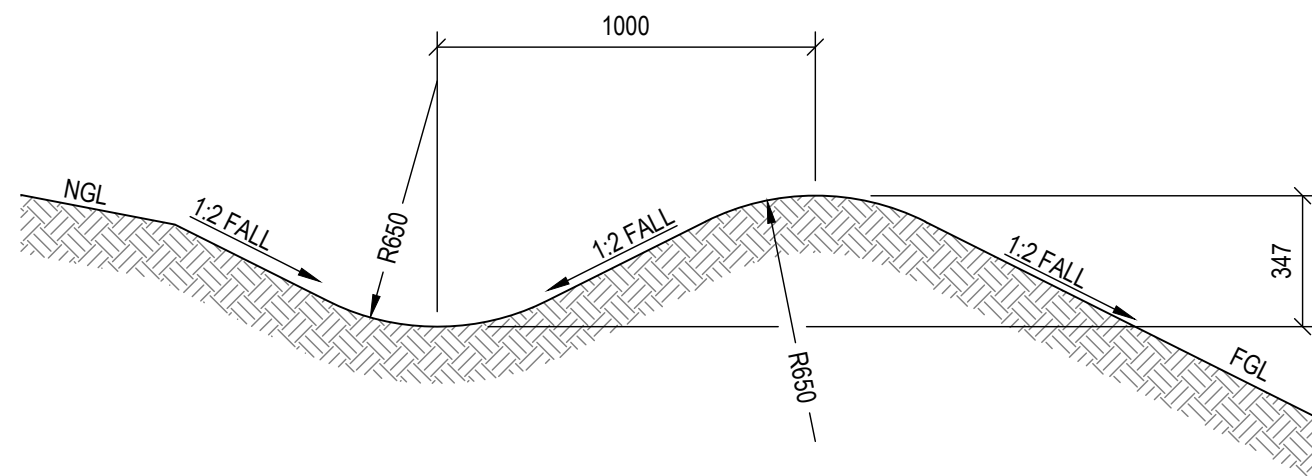
TYPICAL SECTION THOUGH V-DRAIN CORNERS
SCALE: 1:20



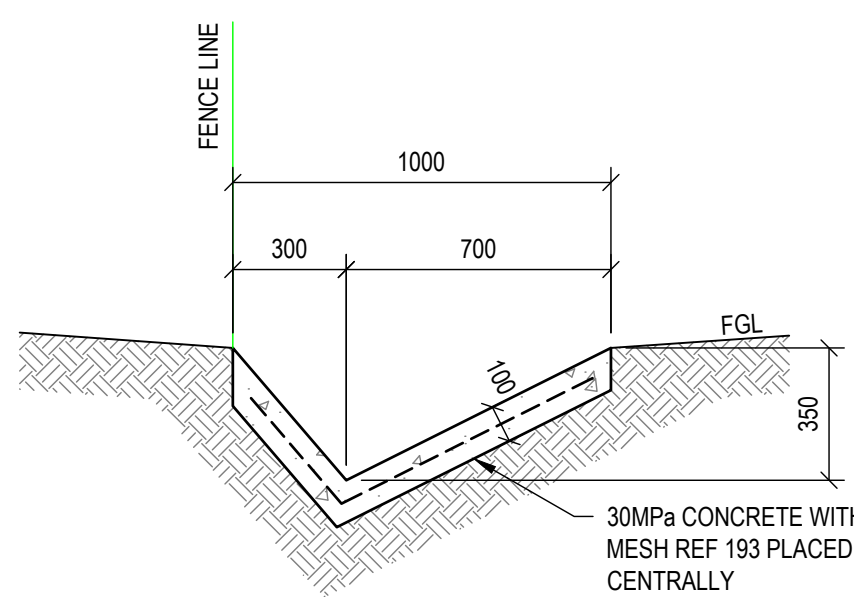
TYPICAL SECTION THROUGH STORMWATER MANHOLES
SCALE: 1:20



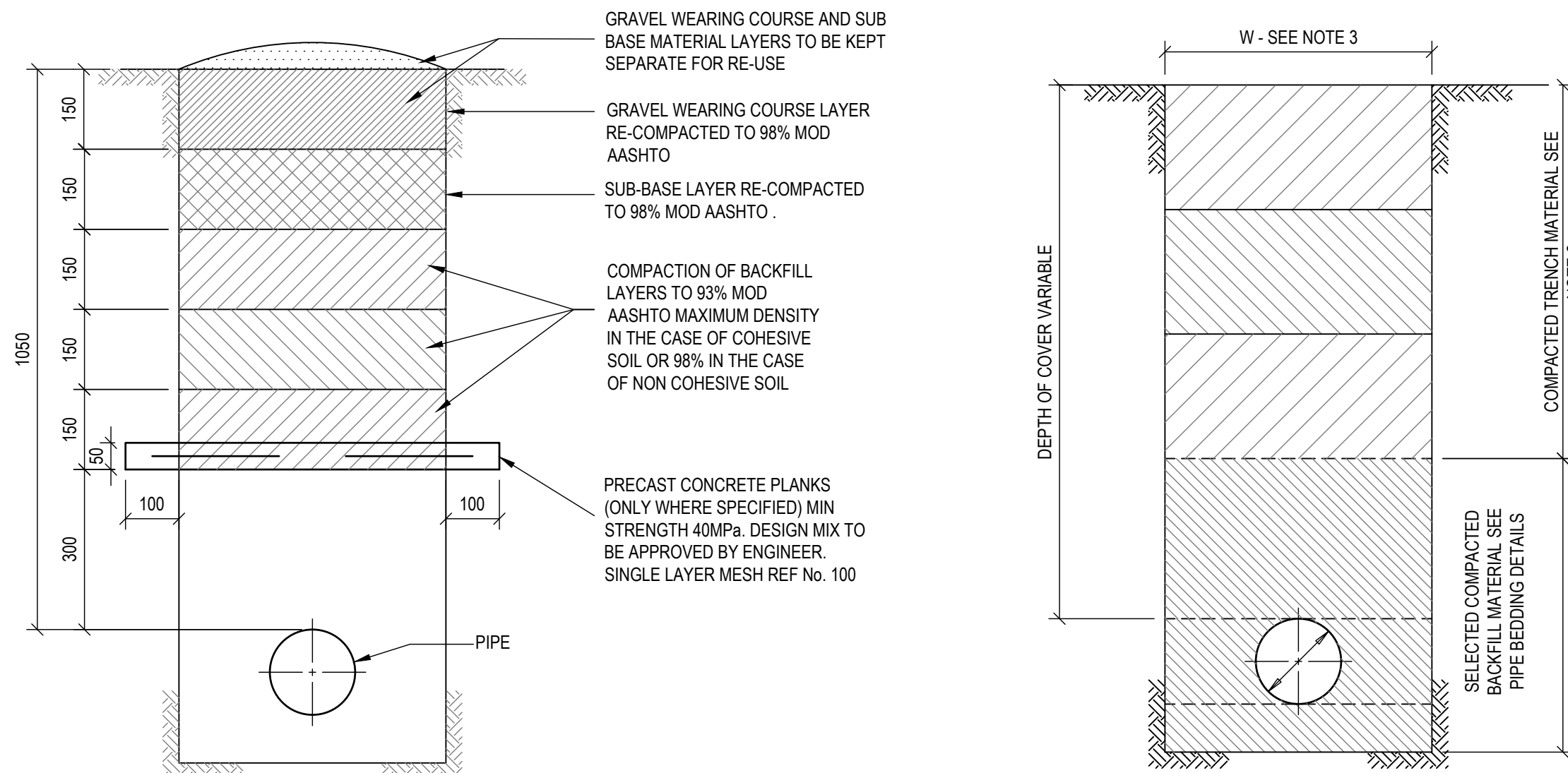
TYPICAL SECTION THROUGH V-DRAIN CATCH PITS
SCALE: 1:20



SECTION THROUGH TYPICAL TOP OF CUT EMBANKMENT
SCALE: 1:20



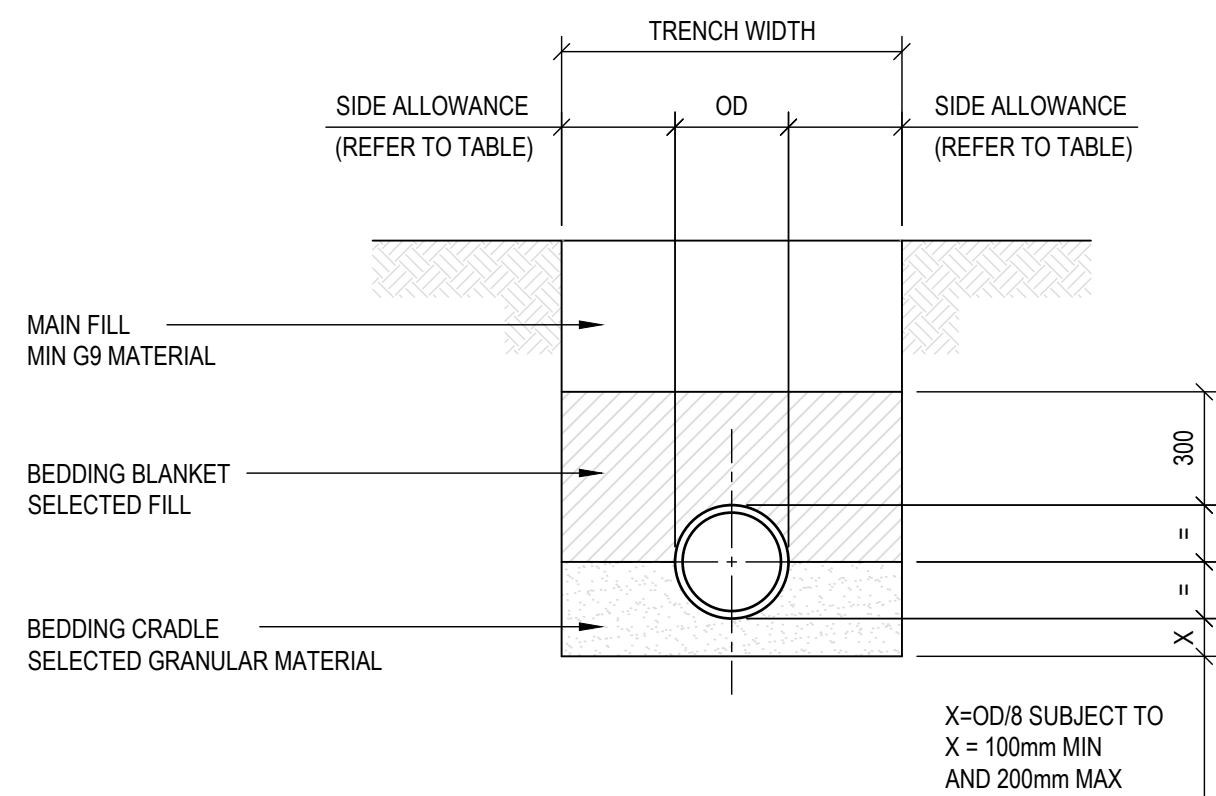
TYPICAL SECTION THROUGH CONCRETE V-DRAIN
SCALE: 1:20



REINSTATEMENT OF GRAVEL ROAD
SCALE: 1:10

- PIPE BEDDING NOTES:**
- TRENCH WIDTH TO CONFORM TO STANDARDIZED SPECIFICATION- SABS 1200 DB: EARTHWORKS (PIPE TRENCHES).
 - SELECTED GRANULAR MATERIAL TO BE COMPACTED TO 90% MOD-AASHTO DENSITY IN MAXIMUM 150mm LAYERS
 - SELECTED FILL MATERIAL TO BE COMPACTED TO 90% MOD-AASHTO DENSITY IN MAXIMUM 150mm LAYERS.
 - MAIN FILL :
 - UNDER ROAD LAYERWORKS TO BE COMPACTED TO 93 % MOD-AASHTO DENSITY IN LAYERS NOT EXCEEDING 300mm, UNLESS OTHERWISE SPECIFIED.
 - UNDER ALL OTHER AREAS TO BE COMPACTED TO 90 % MOD-AASHTO DENSITY IN LAYERS NOT EXCEEDING 300mm, UNLESS OTHERWISE SPECIFIED.

EXTERNAL PIPE DIAMETER (OD)		SIDE ALLOWANCE
FROM	TO	
0	700	300
700	1000	400
1000	2000	500
2000		600



CLASS B PIPE BEDDING DETAILS
SCALE: 1:20

NOTES:

1. MINIMUM DEPTH OF COVER WILL BE AS SHOWN ON THE SECTION DRAWING OR

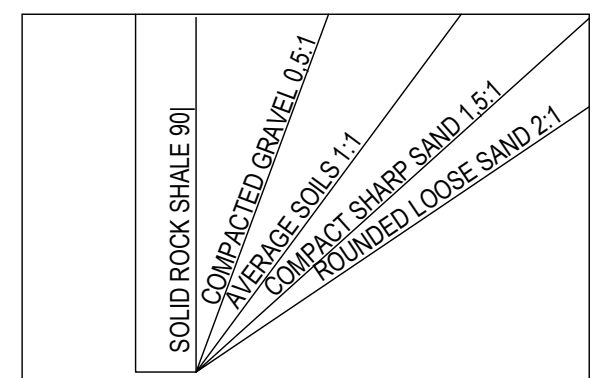
	AREAS SUBJECT TO TRAFFIC LOAD	AREAS NOT SUBJECT TO TRAFFIC LOAD
PRESSURE PIPES; AC,uPVC or HDPE	1000mm	600mm
PRESSURE PIPES; STEEL	600mm	600mm

- a) AREAS SUBJECT TO TRAFFIC LOADS:
REFER TO REINSTATEMENT DETAILS (BITUMEN) OR (SEGMENTED PAVING)
- b) AREAS NOT SUBJECT TO TRAFFIC LOADS:
300mm LAYERS COMPACTED TO SAME DENSITY AS THAT OF UNDISTURBED SURROUNDING GROUND OR 90% OF MOD AASHTO MAXIMUM DENSITY, WHICHEVER IS THE GREATER
- c) SEGMENTED PAVING:
ALL AREAS UNDER SEGMENTED PAVING TO BE TREATED AS AREAS SUBJECT TO TRAFFIC LOAD, AND DEALT WITH AS PER ROAD REINSTATEMENT (SEGMENTED PAVING).

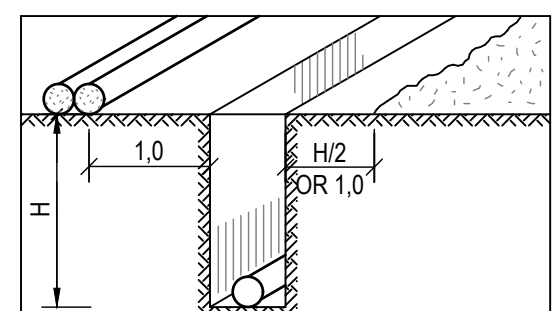
NOMINAL DIAMETER (mm)		MINIMUM BASE WIDTH W (mm)
OVER	UP TO	OD=OUTSIDE DIAMETER
-	125 (DEPTH NOT EXCEEDING 1,5m)	600
-	125 (DEPTH NOT EXCEEDING 1,5m)	OD + 600
125	700	OD + 600
700	1000	OD + 800
1000	2000	OD + 1000
2000		OD + 1200

4. NO SIDE SLOPING PERMITTED WITHIN 300mm OF TOP OF PIPE SOFFIT

PIPE TRENCH AND BACKFILL DETAILS
SCALE: 1:10



APPROXIMATE ANGLES OF REPOSE



MINIMUM DIMENSIONS FOR EARTH AND PIPE PLACEMENT

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
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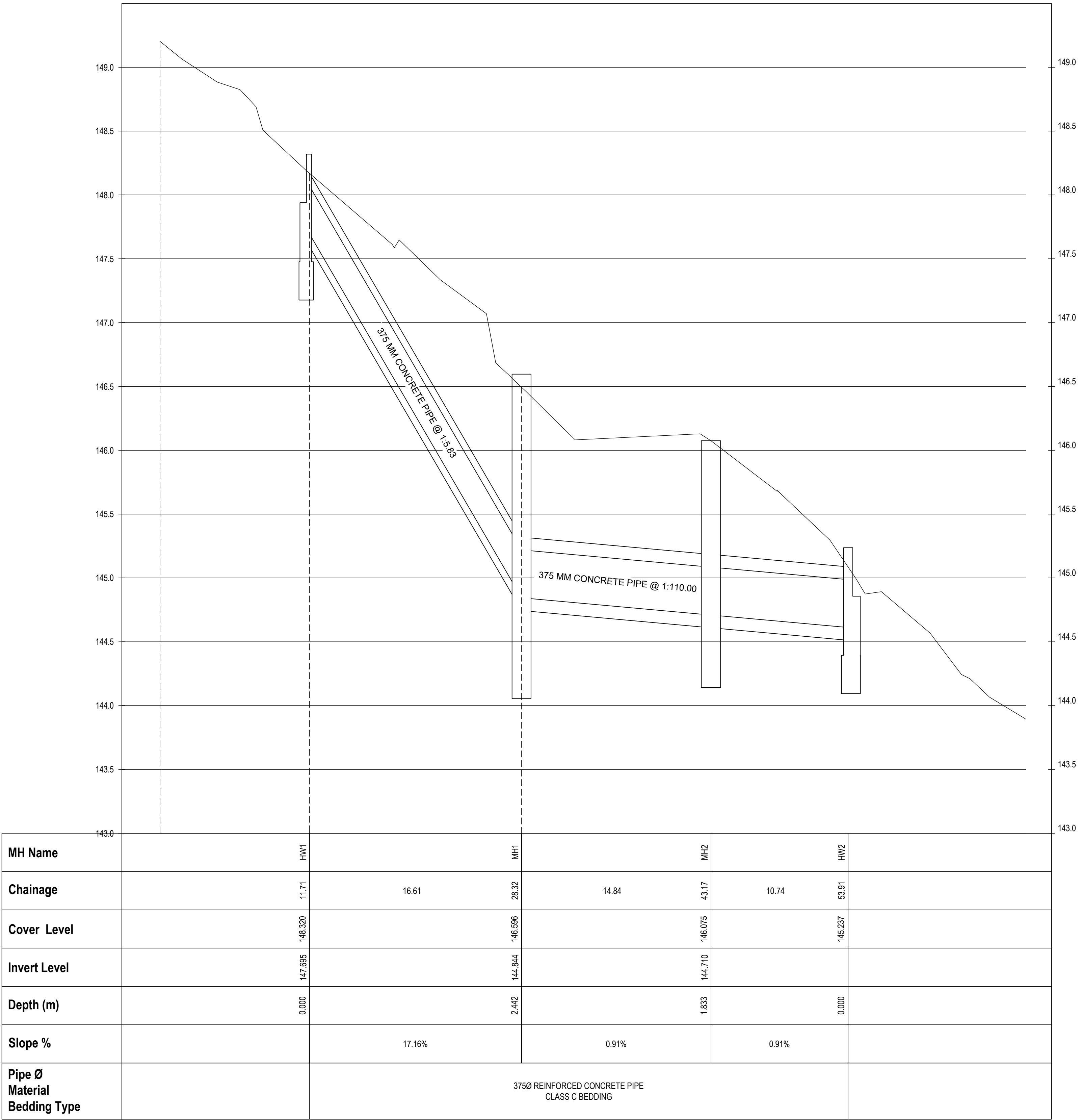
UMDONI LOCAL MUNICIPALITY	
CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

DARTINGO CONSULTING ENGINEERS (Pty) Ltd.	
CONSULTING CIVIL & STRUCTURAL ENGINEERS	
64 Underwood Road Pinetown 3610	P O Box 65596 Reservoir Hills 4090
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APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY : DIRECTOR	
DATE : 28/07/2022	
Pr No : 200570114	

PROJECT:	
MANDLALATHI COMMUNITY HALL	
DRAWING TITLE:	
STORMWATER TYPICAL DETAILS	

FOR TENDER	
ORIGINAL SCALE : AS SHOWN	ORIGINAL SHEET SIZE : A1
DESIGNED : SK	SHEET : 01
DRAWN : NGIH	DATE : 05/10/2020
CHECKED : SK	REV : B
DRAWING No :	1265/CSw103



CULVERT LONG SECTION
HORIZONTAL SCALE 1:200
VERTICAL SCALE 1:20

B	ISSUED FOR TENDER	NGIH	28/07/2022
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PO BOX 19, SCOTTBURGH, 4180

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CAPACITY : DIRECTOR
DATE : 28/07/2022
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PROJECT:

MANDLALATHI COMMUNITY HALL

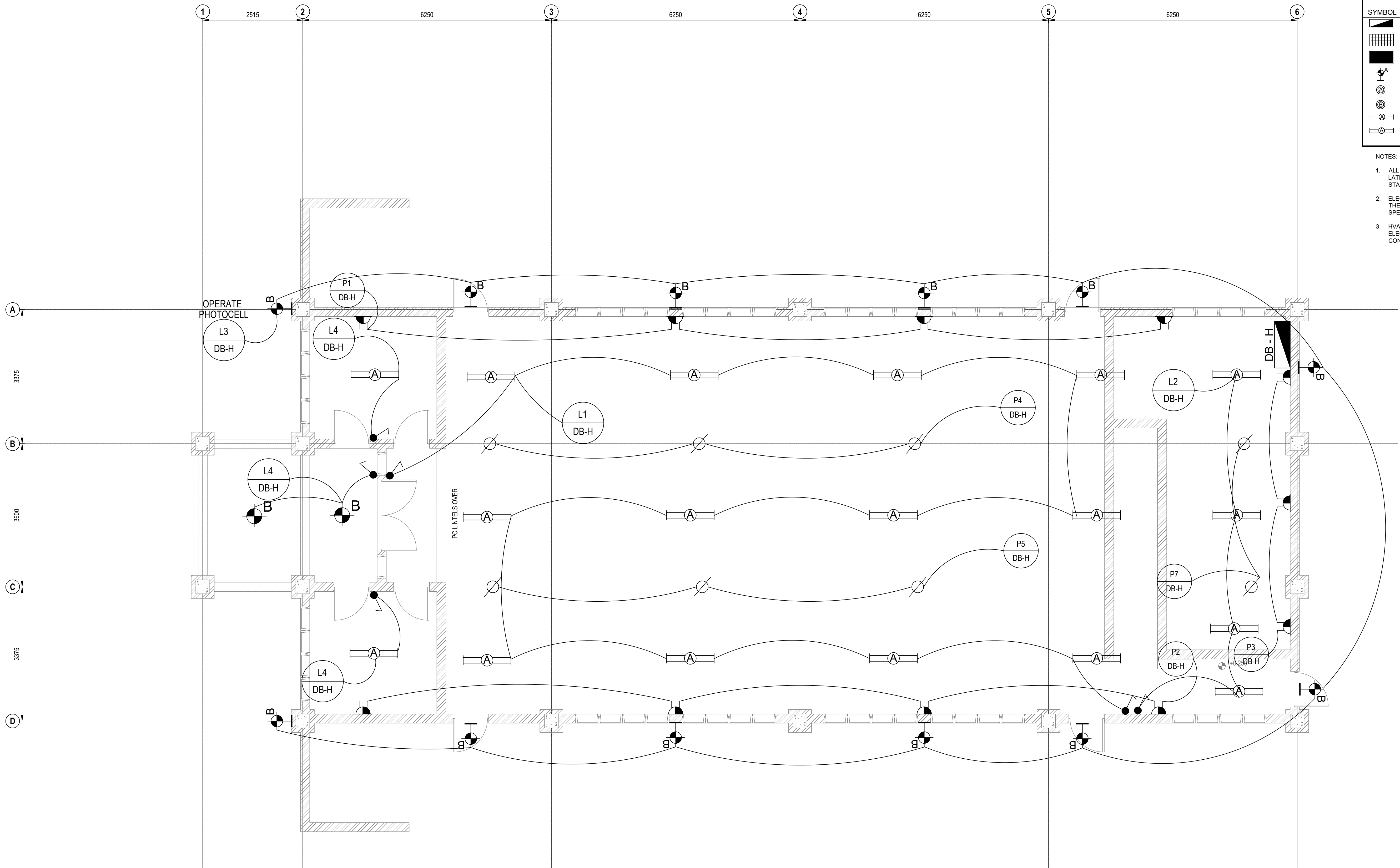
DRAWING TITLE:

**STORMWATER
LONG SECTION**

FOR TENDER

ORIGINAL SCALE : **1:200_1_XREF** ORIGINAL SHEET SIZE : A1
0 50 100mm

DESIGNED : **SK** SHEET : **01**
DRAWN : **NGIH** DATE : **05/10/2020**
CHECKED : **NJE** REV : **B**
DRAWING No : **1265/CSw104**



SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	1200x600 RECESSED FLUORESCENT LBR 3xL38W
	1200x600 RECESSED FLUORESCENT PRISMATIC 3xL38W
	COMMERCIAL WALL-MOUNTED LUMINAIRE
	2xPL13W RECESSED CFL DOWNLIGHTER
	1xPL13W RECESSED CFL DOWNLIGHTER
	1xL58W, OPEN-CHANNEL FLUORESCENT
	2xL58W, PRISMATIC DIFFUSED FLUORESCENT

NOTES:

- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH LATEST ARCHITECTURAL DRAWINGS & ELECTRICAL STANDARD SPECIFICATIONS
- ELECTRICAL INSTALLATION TO COMPLY IN FULL TO THE LATEST SAN S10142 STANDARDS AND SPECIFICATIONS.
- HVAC DRAWINGS TO BE CO-ORDINATED BY ELECTRICAL CONTRACTOR FOR THE PROVISION OF CONDUITS FOR MECHANICAL EQUIPMENT.

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
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TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY	
CAPACITY:	
DATE :	
DM DRAWING No.	
CONTRACT No :	

2nd Floor, MB House, 641, Peter Mokaba Ridge Road, Overport, Durban, 4091 Phone: 0768620431	

64 Underwood Road Pinetown 3610	
P O Box 65596 Reservoir Hills 4090	
Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za	

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS	
CAPACITY : DIRECTOR	
DATE : 28/07/2022	
Pr No : 200570114	

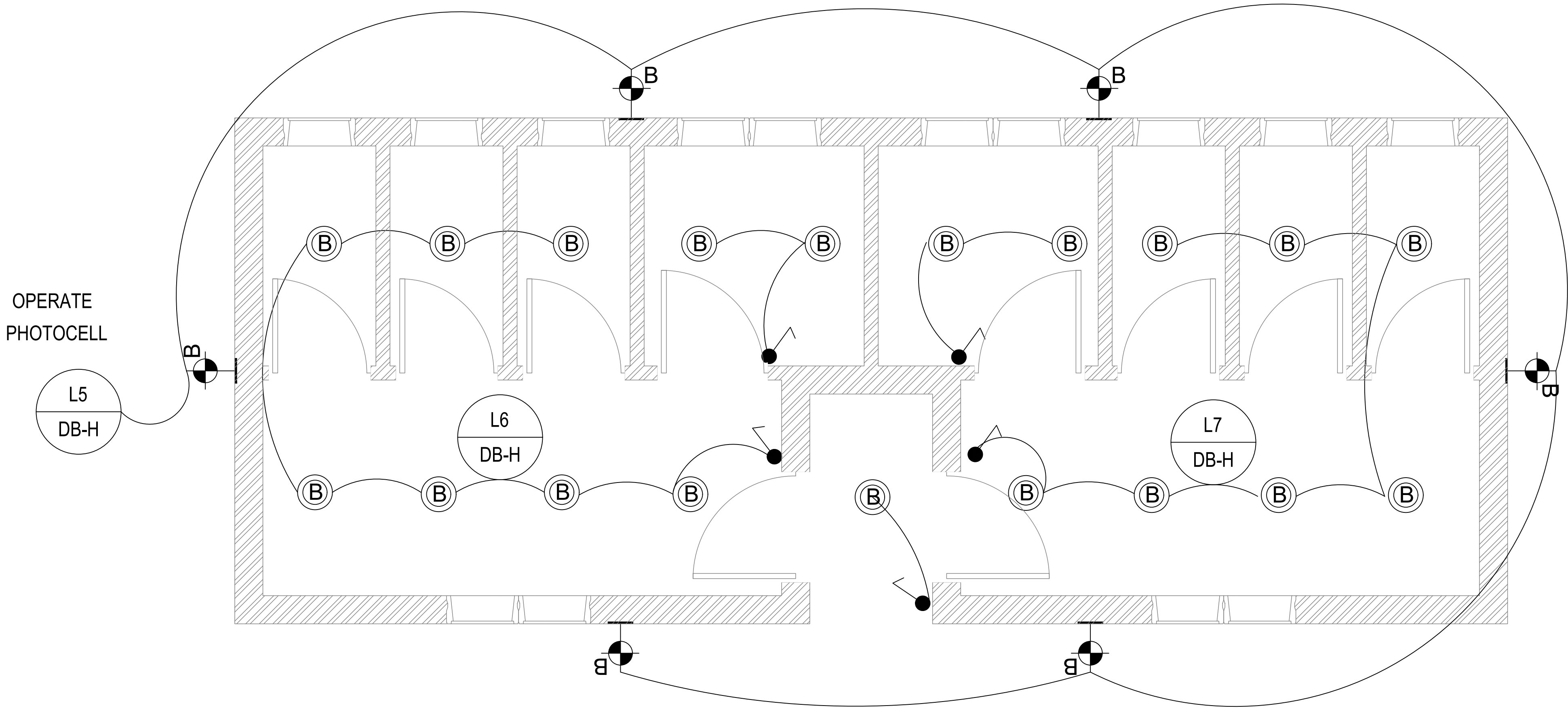
PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ELECTRICAL HALL LIGHTING LAYOUT

FOR TENDER	
ORIGINAL SCALE :	1:50
ORIGINAL SHEET SIZE :	A1
DESIGNED :	RB
SHEET :	01
DRAWN :	RB
DATE :	25/01/2022
CHECKED :	RB
REV :	B
DRAWING No :	1265/E-101

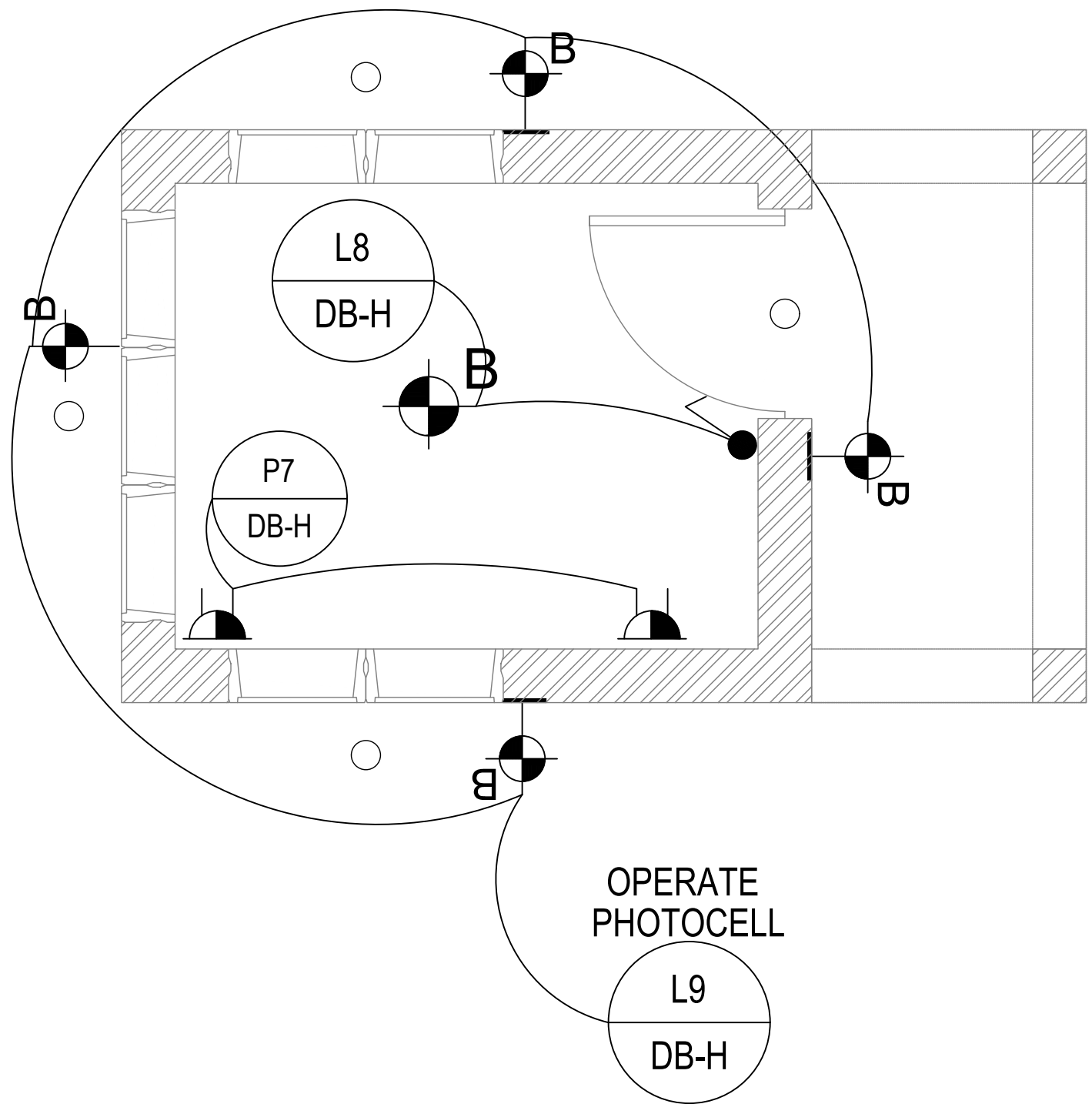
SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	1200x600 RECESSED FLUORESCENT LBR 3xL36W
	1200x600 RECESSED FLUORESCENT PRISMATIC 3xL36W
	COMMERCIAL WALL-MOUNTED LUMINAIRE
	2xPL13W RECESSED CFL DOWNLIGHTER
	1xPL13W RECESSED CFL DOWNLIGHTER
	1xL58W, OPEN-CHANNEL FLUORESCENT
	2xL58W, PRISMATIC DIFFUSED FLUORESCENT

NOTES:

- ALL DRAWINGS TO BE READ IN CONJUNCTION WITH LATEST ARCHITECTURAL DRAWINGS & ELECTRICAL STANDARD SPECIFICATIONS
- ELECTRICAL INSTALLATION TO COMPLY IN FULL TO THE LATEST SAN S10142 STANDARDS AND SPECIFICATIONS.
- HVAC DRAWINGS TO BE CO-ORDINATED BY ELECTRICAL CONTRACTOR FOR THE PROVISION OF CONDUITS FOR MECHANICAL EQUIPMENT.



ABLUTIONS ELECTRICAL LAYOUT
SCALE: 1:25



GAURD HOUSE ELECTRICAL LAYOUT
SCALE: 1:25

B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	SK	09/10/2020
△	REVISIONS	BY	DATE
ONLY REVISIONS MARKED THUS △ ARE VALID			

UMDONI LOCAL MUNICIPALITY	
 CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH PO BOX 19, SCOTTBURGH, 4180 TEL 039 976 1202 / 039 978 4313 FAX 039 976 2194/2020 WEB WWW.UMDONI.GOV.ZA	APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY
	CAPACITY:
	DATE :
	DM DRAWING No.
	CONTRACT No :

 GATI CONSULTING ENGINEERS 2nd Floor, MB House, 641, Peter Mokaba Ridge Road, Overport, Durban, 4091 Phone: 0768620431

 DARTINGO CONSULTING ENGINEERS (Pty) Ltd. CONSULTING CIVIL & STRUCTURAL ENGINEERS 64 Underwood Road Pinetown 3610 P O Box 65596 Reservoir Hills 4090 Tel: 031 - 2660903 Fax: 031 - 2660906 Email: admin@dartingo.co.za

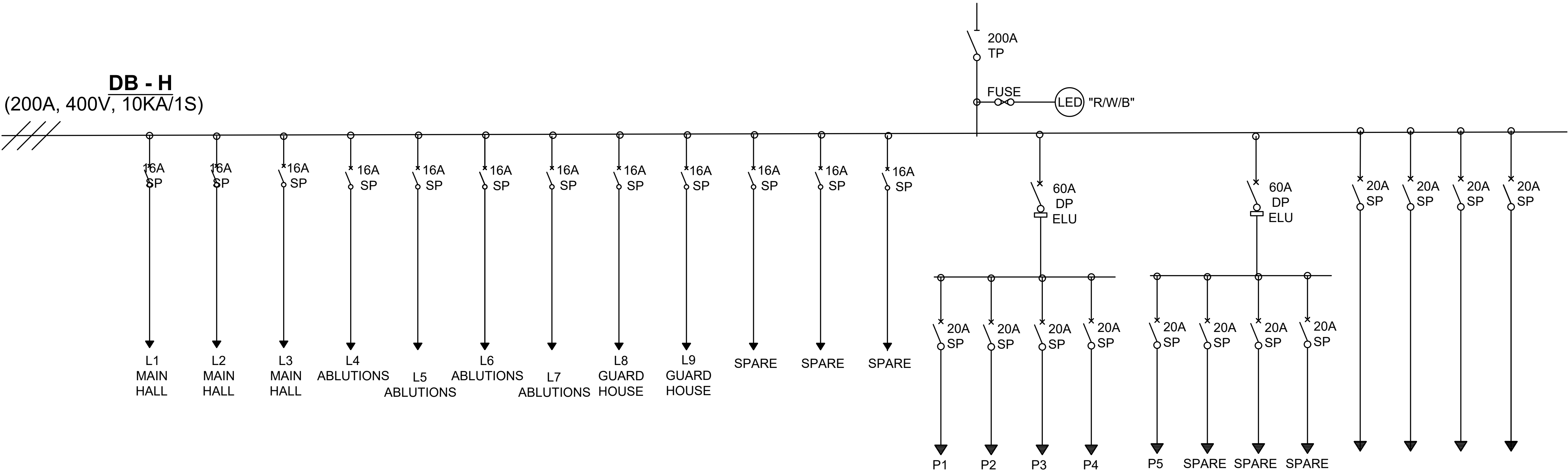
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS
CAPACITY : DIRECTOR
DATE : 28/07/2022
Pr No : 200570114

PROJECT:	MANDLALATHI COMMUNITY HALL
DRAWING TITLE:	ELECTRICAL GAURD HOUSE AND ABLUTIONS LIGHTING LAYOUT

FOR TENDER	
ORIGINAL SCALE :	1:25
ORIGINAL SHEET SIZE :	A1
DESIGNED :	RB
SHEET :	01
DRAWN :	RB
DATE :	25/01/2022
CHECKED :	RB
REV :	B
DRAWING No :	1265/E-102

DB - H
(200A, 400V, 10KA/1S)

FED FROM MAIN ESKOM SUPPLY



SCHEDULE		SCHEDULE		GENERAL NOTES: 1. ALLOW 30% SPARE CAPACITY FOR FUTURE CIRCUITS. 2. INSTALLATIONS TO COMPLY IN FULL TO LATEST SANS 10142 AND ALL APPLICABLE STANDARDS & SPECIFICATIONS 3. CONTRACTOR TO BALANCE LOAD EQUALLY OVER MULTI-PHASE SUPPLY.	GENERAL NOTES: 4. EMERGENCY, NORMAL & UPS SECTIONS TO BE ELECTRICALLY & MECHANICALLY SEPERATED BY MEANS OF A FIXED DIVIDING PANELS. 5. TO BE OF FORM 2B CONSTRUCTION.
ITEM	DESCRIPTION	ITEM	DESCRIPTION		
	SWITCH DISCONNECTOR		BYPASS SWITCH		
	CIRCUIT BREAKER		KWh-METER		
	EARTH LEAKAGE UNIT (NO OVERLOAD PROTECTION)		FIREMAN SWITCH		
	EARTH LEAKAGE UNIT (WITH OVERLOAD PROTECTION)		REMOTE STOP/START SWITCH CONTROL		
	CONTACTOR		TIME SWITCH (BATTERY BACK-UP)		

SWITCHBOARD SPECIFICATION

CONSTRUCTION	
Floor standing (free)	
Floor standing (over trench)	
Surface mounted	
Semi-recessed	
Fully recessed	
On concrete plinth	
MATERIAL	
Galvanised steel (1.6mm)	
Galvanised steel (2.0mm)	
Galvanised steel (3.0mm)	
3CR12 steel (1.6mm)	
3CR12 steel (2.0mm)	
Fibreglass	
FRONT PANEL	
Wooden panel (25mm thick)	
Steel escutcheon panel	
Panel to be removable	
Hinged inner panel	
Locating pins	
Chromed handles	
Chromed dome nuts	
Dzuz turncatches	
Square key catches	
DOORS	
Door required	
Standard hinges	
Heavy duty brass hinges	
Heavy duty hasp & staple	
Pushbutton catch (Union lock)	
Turnlever catch (padlock)	
Square key catch	
EXPOSURE	
Indoor	
Outdoor	
Waterproof	
Weatherproof	
FINISHES / COLOUR	
Hot dip galvanised	
Electro galvanised	
Expoxy paint:	
Base	
Inside	
Outside (normal power)	
Outside (emergency power)	
Outside (ups power)	

SWITCHBOARD SPECIFICATION

MAXIMUM DIMENSIONS	
Width (mm)	
Height (mm)	
Depth (mm)	
COPPER BUSBARS	
Minimum current capacity (A)	
Short circuit capacity (kA)	
Tinning	
Painted phase identification	
Shrunken sleeve phase identifi	
Full length shrunken sleeves	
Full rating neutral bar	
Earth bar	
OUTSIDE LABELING	
Painted	
Engraved Ivorine	
Engraved aluminium	
Installed at front	
Installed at back	
INSIDE LABELING	
Engraved Ivorine (description)	
Engraved Ivorine (numbers)	
Typed legend cards	
Card holder on front panel	
Card holder inside door	
Card holder supply separately	
ACCESS	
From the front	
From the back	
CABLE ENTRY	
Top / Bottom / Rear	TOP
Gland plate	-
CABLE EXIT / WIRING EXIT	
Top / Bottom / Rear	TOP
Gland plate	-
MAIN SWITCH POSITION	
Top / Bottom	-
Left / Centre / Right	-

050100mmORIGINAL SCALE

NOTE:
1. ALL DIMENSIONS, SETTING OUT & LEVELS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR FABRICATION.
2. ANY DISCREPANCIES WITH DIMENSIONS, SETTING OUT & LEVELS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.

FOR TENDER

B

ISSUED FOR TENDER

NGIH

28/07/2022

A

FOR INFORMATION ONLY

NGIH

17/08/2020

REV

DESCRIPTION

BY

DATE

UMDONI LOCAL MUNICIPALITY

CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
TEL 039 976 1202 / 039 978 4313
FAX 039 976 2194/2020
WEB WWW.UMDONI.GOV.ZA

APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 08/2023

2nd Floor, MB House,
641, Peter Mokaba Ridge Road, Overport,Durban,4091
Phone: 0768620431

DARTINGO CONSULTING ENGINEERS (Pty) Ltd.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
Fax: 031 - 2660906
Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE :

Pr No : 200570114

PROJECT

MANDLALATHI COMMUNITY HALL

DRAWING TITLE

HALL DISTRIBUTION BOARD LAYOUT

DESIGNED : RB

DATE : 25/01/2022

DRAWN : RB

SHEET : 01

CHECKED : RB

ORIGINAL SHEET SIZE: A1

SCALE : NTS

REV : B

DRAWING No :

1265/E-103

M:\1265_Mandlalathi Hall\01-DESIGN STAGE\Drawings\04-Tender Drawings\1265 Electrical.dwg 28/07/22

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