



UMDONI LOCAL MUNICIPALITY

TENDER DOCUMENT

TENDER NAME : CONSTRUCTION OF KWAMPONDO SPORTSGROUND

TENDER NO : 07/2023 MN: 68/2022

CIDB CATEGORY : 5CE OR HIGHER

NAME OF TENDERER : _____

TELEPHONE NUMBER/S : _____

E-MAIL : _____

PHYSICAL ADDRESS : _____

TENDER SUM (INCL. VAT) : R _____

TIME FOR COMPLETION : 6 MONTHS

TENDER CLOSING AT 12H00 ON FRIDAY 19 AUGUST 2022



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.

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PART T1: TENDERING PROCEDURES

PART T1-TENDERING PROCEDURES

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T1.1 TENDER NOTICE AND INVITATION TO TENDER



UMDONI LOCAL MUNICIPALITY

CIDB CATEGORY: 5CE OR HIGHER

PROJECT NAME: **CONSTRUCTION OF KWAMPONDO SPORTSGROUND**

CONTRACT No.: **07/2023 MN: 68/2022**

Tenders are hereby invited for the Construction of KWAMPONDO SPORTSGROUND. The minimum specifications are detailed in the Tender Document. Tenderers should be registered and have CIDB contractor grading designation of **5CE 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):

$$P_s = 90 \left(1 - \frac{P_t - P_{min}}{P_{min}} \right)$$

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 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. In addition Tenderers are advised, in their own interest, to obtain their own copies of the following acts,

Clause	Description
	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 F, Standard Conditions of Tender", Board Notice 136 of 2016 of Government Gazette 38960 of 10 July 2016. (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 5CE or Higher of construction work, and who satisfy the following criteria: 1. Availability of resources 2. Availability of skills to manage and perform the contract – including staff which satisfies EPWP requirements (if applicable).

Clause	Description
	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: - every member of the joint venture is registered with the CIDB. - the lead partner has a contractor grading designation in the 5CE or Higher class of construction work: and, - 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 5CE 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 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.

Clause	Description
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, Scottburgh Identification Details : Municipal Manager
	Umdoni Local Municipality Construction of KWAMPONDO SPORTSGROUND Contract No: 07/2023
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
C.2.22	Return of Tender Document Where a Tenderer who received a tender document does not submit a tender, the tender documents

Clause	Description
	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 <i>OR</i> 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 $Nf = W1 \times [1 - (P - P_m) / P_m]$ 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; P_m = the value of the comparative offer of the most favourable tender; P = the value of the comparative offer under consideration

Clause	Description																												
	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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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> * To be scored by Referees		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
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	C.3.11.9.1 <u>Criteria:</u> Experience applicable to past 8 years only: Maximum Score = 15 <table><tr><th></th><th>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)</th><th>Points</th><th>Score</th><th>Verification Method</th></tr><tr><th></th><th>Number of contracts of similar nature of work provided</th><th></th><th></th><th></th></tr><tr><td>1.1</td><td>5 or more projects of similar nature of work provided</td><td>15</td><td></td><td rowspan="8"><i>Bidder is to provide Certified copies of their appointment letters, Completion Certificates and Reference letters from their clients</i></td></tr><tr><td>1.2</td><td>4 or more projects of similar nature of work provided</td><td>12</td><td></td></tr><tr><td>1.3</td><td>3 or more projects of similar nature of work provided</td><td>8</td><td></td></tr><tr><td>1.4</td><td>2 or more projects of similar nature of work provided</td><td>5</td><td></td></tr><tr><td>1.5</td><td>1 or more projects of similar nature of work provided</td><td>3</td><td></td></tr><tr><td>1.6</td><td>0 or more projects of similar nature of work provided</td><td>0</td><td></td></tr><tr><td>1.7</td><td>Possible Full Points =</td><td>15</td><td></td></tr><tr><td>1.8</td><td>Actual Points Obtained S1 =</td><td></td><td></td></tr></table> <u>Note:</u> * Similar work (or Project) means Sports Fields and sporting facilities <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 <u>Criteria:</u> Financial Resources (Bank Rating): Maximum Score = 16</u> <table><tr><th>2.</th><th>Score one of the ratings listed below as reflected on certified bank rating received – see Form 2F pgT2-12 of the Returnable Schedule</th><th>Points</th><th>Score</th><th>Verification Method</th></tr><tr><td>2.1.</td><td>Bank Rating A – Undoubted for the amount of enquiry</td><td>16</td><td></td><td rowspan="6"><i>Bidder to provide a letter from a recognised Bank Rating indicating the Bank Rating</i></td></tr><tr><td>2.2</td><td>Bank Rating B – Good for the amount of enquiry</td><td>12</td><td></td></tr><tr><td>2.3</td><td>Bank Rating C – Good for the amount quoted if applied strictly in the way of business</td><td>9</td><td></td></tr><tr><td>2.4</td><td>Bank Rating D – Fair trade for the amount of enquiry</td><td>5</td><td></td></tr><tr><td>2.5</td><td>Bank Rating E – Figures considered too high Bank Rating F – Financial Position Unknown Bank Rating G – Dishonour on records Bank Rating H – Frequently Dishonoured</td><td colspan="2">Not eligible to tender</td></tr><tr><td>2.6</td><td>Possible Full Points =</td><td>16</td><td></td></tr><tr><td></td><td>Actual Points Obtained S2 =</td><td></td><td></td><td></td></tr></table> C.3.11.9.3 <u>Criteria:</u> Experience of Key Personnel: Maximum Score = 17 <table><tr><th></th><th>Proposed key Personnel</th><th>Experience</th><th>Points</th><th>Score</th><th>Verification Method</th></tr><tr><td>3.1</td><td>Project Director</td><td>Approved Degree or Diploma in Civil Engineering</td><td>2</td><td></td><td></td></tr></table>		List below 5 highest-value contracts of similar work* undertaken as main contractor within the last 8 years. 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Clause	Description					
		Name:	Years of appropriate experience (score one of the categories)	<5 5 to 10 >10	0 1 2	
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 1 - 2 3 - 4 5 or more	0 1 3 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		Bidders are to provide requested documents listed below
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.																																																		
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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

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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.

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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 withinMunicipality:

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 OHSA 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 OHSA 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 OHSA 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 OHSA 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 OHSA 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 OHSA 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 OHSA 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

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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 : **07/2023**

Contract Name : **CONSTRUCTION OF KWAMPONDO SPORTSGROUND**

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.: 07/2023

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 KWAMPONDO SPORTSGROUND:**

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 Contactor;

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 byin 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 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 a 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 if 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 Aid 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 KWAMPONDO SPORTSGROUND**
- 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.

.....
FOR AND ON BEHALF OF
THE MANDATARY

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

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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 of 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 KWAMPONDO SPORTSGROUND
CONTRACT NUMBER: 07/2023

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 & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
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		
		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.				
1.1.20	PE	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		
Total Carried Forward						

PRELIMINARY & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
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		
<i>Total Carried Forward To Summary</i>						

PRELIMINARY & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
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		
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 & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
1.3	SABS 1200A	SUMS STATED PROVISIONALLY BY ENGINEER				
1.3.1		(a) Control Testing	P Sum			30 000
1.3.2		Contractors mark up on items (a) above	%	30 000		
1.3.3		(b) Community Liaison	P Sum			70 000
1.3.4		Contractors mark up on items (b) above	%	70 000		
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			25 000
1.3.6		Contractors mark up on items (c) above	%	25 000		
1.3.7		(d) Relocation of existing services as instructed by Engineer	P Sum			25 000
1.3.8		Contractors mark up on items (d) above	%	25 000		
1.3.9		(e) Setting up costs for Sub-contractors	P Sum			50 000
1.3.10		Contractors mark up on items (e) above	%	50 000		
1.3.11		(f) Environmental-Audits by environmental control officer, appointed by the Engineer	P Sum			150 000
1.3.12		Contractors mark up on items (f) above	%	150 000		
1.3.13		(g) Health and Safety Assessments, Audits and managing risk assessment by H&S consultant appointed by the Engineer	P.Sum			150 000
1.3.14		Contractors mark up on items (g) above	%	150 000		
1.3.15		(h) Allow Provisional sum for additional topographical survey	P Sum			30 000
1.3.16		Contractors mark up on items (h) above	%	30 000		
1.3.17		(i) Allow Provisional sum for additional geotechnical investigation	P Sum			25 000
1.3.18		Contractors mark up on items (i) above	%	25 000		
1.3.19		(j) Engineering Construction Monitoring for the duration of the contract	P Sum			150 000
1.3.20		Contractors mark up on items (j) above	%	150 000		
1.3.21		(k) Allow Provisional Sum for Borehole and elevated tank	P Sum			300 000
1.3.22		Contractors mark up on items (k) above	%	300 000		
Total Carried Forward To Summary						

PRELIMINARY & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
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			Rate Only
1.4.3		(b) Water Pipes	m ³			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			15 000
1.4.5		Contractors mark up on items (a) above	%	15 000		
1.4.6		(b) Additional Survey required for redesign and relocation of existing services	P Sum			20 000
1.4.7		Contractors mark up on items (b) above	%	20 000		
Total Carried Forward To Summary						

PRELIMINARY & GENERAL

ITEM	CLAUSE	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
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	25.0		
1.5.1.2		Skilled Labourers	hr	35.0		
1.5.1.3		Semi Skilled Labourers	hr	40.0		
1.5.1.4		Unskilled Labourers	hr	55.0		
1.5.2		MATERIALS				
1.5.2.1		Provisional sum for cost of material	P Sum			20 000
1.5.2.2		Contractors mark-up on material	%	20 000.00		
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	300.0		
1.5.3.2		10m³ tipper	hr	35.0		
1.5.3.3		Excavator	hr	40.0		
1.5.3.4		Tractor-Loader-Backhoe (T L B)	hr	30.0		
1.5.3.5		Roller Compactor (Bomag 90 or equivalent)	hr	20.0		
1.5.3.6		Plate Compactor	hr	20.0		
1.5.3.7		Water Tanker	Days	10.0		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
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	
<i>Total Carried Forward To Summary Of Schedules</i>		_____

EARTHWORKS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2.1	SABS 1200C	SITE CLEARANCE				
2.1.1		CLEAR AND GRUB				
2.1.1.1		Clear & strip site from vegetation and trees	m ²	13 350		
		Remove and grub all trees and tree stumps including de-stumping and disposal for girth:				
2.1.1.2		(a) over 1m and up to 2m	No.	5		
2.1.1.3		(b) over 2m	No.	3		
2.1.2		EXISTING FENCES				
2.1.2.1		Take Down Existing Wire mesh Fence	m	300		
2.1.2.2		Transport materials and debris to unspecified sites and dump.	m ³	130		
Total Carried Forward To Summary						

EARTHWORKS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2.2	SABS1200 D	EARTHWORKS				
2.2.1		TOPSOILING				
2.2.1.1	8.3.1.1	Remove topsoil, 150 mm thick, stockpile and maintain	m ²	5 500		
2.2.1.2		Reinstate topsoil 100mm thick	m ²	4 000		
2.2.1.3		Importation and placement of topsoil from commercial sources (provisional) 150mm layer	m ²	5 500		
2.2.2	8.3.2	BULK EXCAVATION				
2.2.2.1	8.3.2 (a)	Excavate in all materials and use for embarkment or dispose as ordered	m ³	14 000		
	8.3.4	Extra over excavations for excavation in:				
2.2.2.2		(i) Intermediate Material	m ³	240		
2.2.2.3		(ii) Hard rock excavation	m ³	200		
2.2.2.4		(iii) Boulder Class A	m ³	15		
2.2.2.5		(vi) Boulder Class B	m ³	10		
2.2.3	8.3.3	RESTRICTED EXCAVATIONS				
	8.3.3 (a)	Excavate for restricted foundations footings and trenches in all materials and use for backfill or embarkment or dispose				
2.2.3.1		(a) 0.0m to 1.0m	m ³	35		
2.2.3.2		(b) Over 1.0m to 2.0m	m ³	25		
2.2.3.3		(c) Over 2.0m	m ³	10		
	8.3.3 (b)	Extra over items (a) to (c) for excavation in				
2.2.3.4		Intermediate Excavation	m ³	25		
2.2.3.5		Hard Rock Excavation	m ³	15		
2.2.4		DEALING WITH WATER				
2.2.4.1		Keep excavations free of water by pumping or bailing	Sum	1		
2.2.5		CARTING AWAY				
		Extra over all excavations for loading, carting and dumping surplus excavated material (no allowance made for increase in bulk)				
2.2.5.1		In spoil heaps where directed on site.	m ³	280		
2.2.5.2		Dispose of surplus material where directed	m ³	1 000		
2.2.6		EARTH FILLING				
		From necessary excavations and compacted to 90% MOD AASHTO:				
2.2.6.1		Filling with selected material from the excavations compacted to a density of at least 93% Mod.	m ³	13 000		
	8.3.4	Importing of material from commercial sources or borrow pits including handling, haulage, etc. Place and compact to specified mod. AASHTO density				
2.2.6.2		G2 material supplied by the Contractor in accordance with SABS 1200 DM, compacted to 98% Mod AASHTO density	m ³	15		
2.2.6.3		G5 material supplied by the Contractor in accordance with SABS 1200 DM, compacted to 95% Mod AASHTO density	m ³	25		
Total Carried Forward						

EARTHWORKS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
2.2.6.4		G7 material supplied by the Contractor in accordance with SABS 1200 DM, compacted to 93% Mod AASHTO density	m ³	100		
2.2.7		STONE PITCHING				
2.2.7.1		Large boulders from commercial sources exceeding 100mm and not exceeding 200mm dia.	m ³	2		
2.2.7.2		Small boulders from commercial sources exceeding 50mm and not exceeding 100mm dia.	m ³	1		
2.2.7.3		19mm stone	m ³	1		
2.2.8		SOIL POISONING				
		Approved brand of anti-termite soil poison applied by a Registered Pest Control company and guaranteed against termite infestation for ten years				
2.2.8.1		Under floors, etc., including forming and poisoning shallow furrows against foundation walls, etc., filling in furrows and ramming, to bottoms and sides of trenches, holes etc.	m ²	300		
<i>Total Carried Forward To Summary</i>						

EARTHWORKS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2.3		LAYERWORKS AND SURFACING				
2.3.1	SABS 1200 DM	EARTHWORKS				
		roads, subgrade				
2.3.1.1	8.3.3	Rip and re-compact insitu material (150mm) to 93% MOD AASHTO	m ²	800		
2.3.2	SABS 1200 MF	BASE				
		Llight pavement structures				
2.3.2.1	8.3.1	Import crusher run (150mm thick G2) from a commercial source, place and compact to 98% MOD AASHTO	m ²	125		
2.3.3	SABS 1200 MG	BITUMINOUS SURFACE TREATMENT				
2.3.3.1	8.4.1	Prime coat: Type MC-30 @ 0.7 l/m ²	m ²	800		
2.3.4	SABS 1200 MH	BASE AND SURFACING				
2.3.4.1	8.5.4	Tenecon all weather surface-Green	m ²	800		
2.3.4.2		Supply and install low profile precast concrete kerbs (Fig. 12) as per Drawing No. 1264/CSd103	m	120		
2.3.4.3		Grade 20/13 Concrete for kerb base and haunching as per Drawing No. 1264/A-103	m ³	4		
Total Carried Forward To Summary						

EARTHWORKS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
2.4	8.3.11 & PG	LAND SCAPING, GRASSING, ETC.				
2.4.1		GRASSING				
2.4.1.1		Supply and spread DAP Fertilizer	kg	200		
2.4.1.2		Supply and spread 101 Fertilizer	kg	200		
2.4.1.3		Cyanodon Grass Sodding	m ²	5 300		
2.4.1.4		"Kikuyu" in rows at 150mm centres on banks	m ²	5 000		
2.4.1.5		Maintenance shall be for twelve months. It will include for keeping the grassed area free of weeds, watering, 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. 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. (To be paid at the end of the contract)	Sum	1		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
2.1	SITE CLEARANCE	
2.2	EARTHWORKS	
2.3	LAYERWORKS AND SURFACING	
2.4	LAND SCAPING, GRASSING, ETC.	
<i>Total Carried Forward To Summary Of Schedules</i>		

CONCRETE, FORMWORK AND REINFORCEMENT

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
3.1	SABS 1200GA	CONCRETE (SMALL WORKS)				
3.1.1	8.4.1	SCHEDULED CONCRETE ITEMS				
		Strength concrete, 15 Mpa 19 mm				
3.1.1.1		Blinding layer (50mm)	m ²	120		
3.1.1.2		Cast insitu concrete under precast concrete channel in 50mm concrete grade 15MPa/19mm	m ³	6		
	8.4.3	Strength concrete, 20 Mpa 19 mm				
3.1.1.3		Goalpost footings, etc	m ³	2		
3.1.1.4		Strip footings	m ³	25		
3.1.1.5		Surface beds	m ³	40		
3.1.1.6		Apron slabs	m ³	10		
	8.4.3	Strength concrete, 25Mpa/19mm				
3.1.1.7		Cast insitu 100mm thick concrete under precast concrete bottom Seating in 100mm concrete grade 25MPa/19mm	m ³	5		
3.1.1.8		Goalposts' footings	m ²	2		
3.1.1.9		Bases	m ³	15		
3.1.1.10		Slabs	m ³	10		
3.1.1.11		Walls	m ³	30		
3.1.1.12		Walkways	m ³	35		
3.1.1.13		Ramps	m ³	15		
3.1.2		UNFORMED SURFACE FINISHES				
3.1.2.1		Steel floated finish	m ²	90		
3.1.2.2		Wood floated finish	m ²	75		
Total Carried Forward To Summary						

CONCRETE, FORMWORK AND REINFORCEMENT

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
3.2	SABS 1200GA	FORMWORK				
	8.2	Formwork Formwork to sides of bases, pile caps, ground beams, etc will only be measured where it is prescribed by the engineer for design reasons. Formwork necessitated by irregularity or collapse of excavated faces will not be measured and the cost thereof shall be for the contractor's account Smooth formwork to:				
3.2.1		Soffits of slabs	m ²	50		
3.2.2		Narrow widths up to 300mm high	m ²	25		
3.2.3		Box out Holes/Form voids	No.	15		
3.2.4		Walls	m ²	100		
	8.2.1	Rough formwork to:				
3.2.5		Strip footings (foundations, goal post footings, etc.)	m ²	18		
Total Carried Forward To Summary						

CONCRETE, FORMWORK AND REINFORCEMENT

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
3.3	SABS 1200GA	REINFORCEMENT				
	8.3	Scheduled Reinforcement Items				
3.3.1	8.3.1	STEEL BARS				
3.3.1.1		High Tensile steel in Various diameter bars	kg	3 480		
3.3.1.2		Mild steel in Various diameter bars	kg	1 105		
3.3.2		REINFORCEMENT FABRIC MESH				
3.3.2.1	8.3.2	High-Tensile Welded Mesh (Ref 193)	m ²	575		
3.3.2.2		High-Tensile Welded Mesh (Ref 245)	m ²	60		
3.3.2.3	8.3.2	High-Tensile Welded Mesh (Ref 395)	m ²	200		
3.3.3		SUNDRIES				
3.3.3.1		Tubular mild steel mentis hand rails 1m high to suppliers detail for wheelchair access ramp	m	120		
3.3.3.2		SABS 558 Type 9D, 600 x 450 mm manhole covers and frame light duty	No.	7		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
3.1	CONCRETE	
3.2	FORMWORK	
3.3	REINFORCEMENT	
<i>Total Carried Forward To Summary Of Schedules</i>		

ANCILLARY ITEMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
4.1		SPORTSFIELD				
4.1.1		Supply and install score board for Main Sportsfield as per detail on Drawing No. 1264/CSd106	No.	1		
4.1.2		Supply and erect soccer goal posts and nets as per detail on Drawing No. 1264/CSd106	No.	2		
4.1.3		Marking of sportsfield boundary and internal line works as per Drawing No. 1264/A-102 (inclusive of paint)	Sum	1		
4.1.4		Supply and install corner flags	No.	4		
Total Carried Forward To Summary						

ANCILLARY ITEMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
4.2		COMBI-COURT				
4.2.1	SABS 1200 MM	ANCILLARY ROADWORKS (LINE MARKINGS)				
	8.4.1	Non-reflectorized paint applied at nominal rate of 0.42 l/m² as detailed on Drawing No. 1264/A-103				
4.2.1.1		a) White lines (unbroken) - 50mm wide	m	150		
4.2.1.2		b) Yellow lines (unbroken) - 50mm wide	m	175		
4.2.1.3		c) Red lines (unbroken) - 50mm wide	m	85		
4.2.1.4		d) Green lines (unbroken) - 50mm wide	m	170		
4.2.2		GOALPOSTS AND NETS				
4.2.2.1		Supply and install basketball/netball combi-swivel pole as per detail on Drawing No. 1264/C-103	No.	2		
4.2.2.2		Supply and install volleyball poles and net as per detail on Drawing No. 1264/CSd103	No.	2		
4.2.2.3		Supply and install tennis poles and net as per detail on Drawing No. 1264/CSd103	No.	2		
4.2.2.4		Supply and install scoreboard as per detail on Drawing No. 1264/CSd106	No.	1		
4.2.3		FENCING				
4.2.3.1		Supply and install wire fencing complete as per detail DWG 1264/CSd107	m	120		
4.2.3.2		Supply and install pedestrian gate as to match fence per detail 1264/CSd107	No	1		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
4.1	SPORTSFIELD	
4.2	COMBI-COURT	
<i>Total Carried Forward To Summary Of Schedules</i>		

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5.1		BUILDING WORKS				
5.1.1		MASONRY				
		Superstructure				
		Face Brickwork of Country Classic - Travertine class FBX bricks in class II mortar				
5.1.1.1		Half brick walls (Outer Skin)	m ²	90		
		Brickwork of NFP "Coro Maxi" bricks in class II mortar				
5.1.1.2		Half brick walls (Inner Skin)	m ²	90		
		Substructure				
		Brick of NFX class in class II mortar for substructure				
5.1.1.3		Half brick walls	m ²	80		
5.1.1.4		One brick walls	m ²	320		
		Brickwork Reinforcement:				
5.1.1.5		75mm wide brickforce	m	450		
5.1.1.6		150mm wide brickforce	m	550		
5.1.2		WATERPROOFING				
		One layer of 250 micron"consol Plastics Gunplas USB Green" or similar approved waterproof sheeting sealed at laps with"Gunplas Pressure Sensitive Tape"				
5.1.2.1		Under surface beds	m ²	200		
5.1.3		ROOF				
5.1.3.1		Supply and install timber roof truss and sheeting complete, including all accessories apex flashing connecting bolts; nuts, washers screws etc. trust to be designed by a roof specialist. Rate to include roofing certificates	Sum	1		
5.1.4		FASCIA BOARDS				
5.1.4.1		Supply and install 6mm thick 150mm wide fibre cement fascia board	m	80		
5.1.5		CEILINGS				
		Nailed Up Ceilings				
5.1.5.1		6.4mm thick gypsum plaster ceiling (to comply with SABS 266-1982) installed with longer lengths to suit room configuration, fixed on 38 x 38mm branderling at 400mm centres and half rounds strips over joints	m ²	200		
5.1.6		TRAP DOORS				
5.1.6.1		Extra over ceilings 600 x 600mm trap door of 38 x 50mm wrought hardwood rebated framing and 38 x 114mm sawn softwood kerb spiked to rafters, etc and filling in the pressed metal sheeting	No.	2		
5.1.7		CORNICES				
		"Rhino" or similar approved gypsum plasterboard cornices				
5.1.7.1		75mm covered cornices	m	80		
5.1.8		PAINTWORK				
		On Fibre-Cement and Barge Board				
Total Carried Forward						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
5.1.8.1		One coat plascon polvin thineed 20% and two coats plascon polvin super acrylic paint On ceilings and cornices	m ²	200		
5.1.8.2		On fascias and barge boards Paint On Metal	m ²	80		
5.1.8.3		One coat universal primer and two coats plascon eggshell enamel paint on steel and door frames On door frames	m ²	9		
5.1.8.4		On windows with burglar bars Paint On Wood	m ²	4		
5.1.8.5		One coat wood primer, one undercoat and two coats matte and enamel paint on wood surfaces Internal doors	m ²	25		
5.1.8.6		Prestressed fabricated lintels: 110 x 75mm Lintels in lengths not exceeding 3m.	m	4		
5.1.9		PLASTER AND PAINT Plaster internal walls to specification				
5.1.9.1		One coat merit primer (UCS56) and two coats plascon cashmere Plaster Primer	m ²	400		
5.1.9.2		Plascon Wall and All Interior	m ²	400		
5.1.10		FLOORING				
5.1.10.1		Flowseal EPW epoxy coating to ablution floors	m ²	30		
5.1.11		TILING				
5.1.11.1		Ablution & Changeroom Floor 330 x 330mm Tile Africa AG705 ceramic tiles on screed On Floors	m ²	130		
5.1.11.2		Showers Showers floors to be graded to falls and finished with approved 50 x 50mm encaustic mosaic tiles On Floors	m ²	8		
5.1.11.3		On Walls	m ²	15		
5.1.12		SKIRTING				
5.1.12.1		300 x 100mm high x 8.5mm thick ceramic tile skirting with cover base and curved top and complete with A4 and S4 corner trims, manufactured to SANS 1449 and laid using approved adhesive and grout in strict accordance with manufacturers specification	m	60		
<i>Total Carried Forward To Summary</i>						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5.2		DOORS, WINDOWS, GATES, ETC. 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. Refer to Door and Window schedule				
5.2.1		DOORS				
5.2.1.1		Exterior Aluminium Solid Slats door - Open in; 890mm x 2090mm; complete with door frame	No	8		
5.2.1.2		Interior Hardboard Door- Open in; 890 x 2090mm, complete wth door frame Semi-solid flush doors with 3,2mm standard hardboard able bodied toilet doors	No	2		
5.2.1.3		40mm Door 813 x 1882mm high Semi-solid flush doors with 3,2mm standard hardboard disabled toilet doors	No	7		
5.2.1.4		40mm Door 813 x 1882mm high	No	2		
5.2.2		WINDOWS All window frames to be hot dipped galvanised with burglar guards included. All glazing to be in accordance with NRB 0400. Glazing to bathroom, changing room & first aid room to be obscure glass, and glazing to other rooms to be 6mm clear glass				
5.2.2.1		Window Steel Top Hung NE1 F7 (standard profile) - w508 x h629mm	No.	11		
5.2.2.2		Window Steel Top Hung NE2 Left Hand Opening F7 (standard profile) - w997 x h629mm	No.	7		
5.2.2.3		200 x 10mm fibre cement window sill	m	14		
5.2.3		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.				
5.2.3.1		Single gate for door opening 890 x 2090mm	No	8		
5.2.4		SUNDRIES				
5.2.4.1		Small plain galvanised tuck shop roller shutter	No	1		
Total Carried Forward To Summary						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5.3		IRONMONGERY, FURNITURE, ETC.				
5.3.1		HINGES, BOLTS, ETC				
5.3.1.1		100mm brass hinge with nylon washers	No.	30		
5.3.1.2		Satin Chrome Bathroom indicator bolts	No.	11		
5.3.2		LOCKS				
5.3.2.1		Union three lever lock set or similar approved	No.	6		
5.3.2.2		Rebate conversion set	No.	6		
5.3.3		DOOR CLOSERS				
5.3.3.1		Overhead door closer	No.	8		
5.3.4		KICK PLATES				
5.3.4.1		Stainless steel kick plate 250 x 800 x 1.2 mm	No.	16		
		Letters, Nameplates, etc				
5.3.4.2		GA22 - SABS Wheel Chair Sign	No.	2		
5.3.4.3		GA10 - SABS Ladies Toilet Sign	No.	1		
5.3.4.4		GA11 - SABS Gents Toilet Sign	No.	1		
5.3.4.5		FB3 - SABS Fire Hose Safety Sign	No.	2		
5.3.4.6		Heavy duty chromium plated toilet roll holder lockable; Kimberley Clark or similar approved	No.	9		
5.3.5		SUNDRIES				
		"Vaal" or similar approved:				
5.3.5.1		Paper towel dispenser plugged	No.	4		
5.3.5.2		Liquid soap dispenser unit plugged	No.	7		
5.3.5.3		Satin chrome plated door stop with rubber buffer	No.	8		
		8mm Square anodised aluminium (bronze) bars at 150 C/CRS fixed to frame with stainless steel, tamper proof, self rapping screws or similar approved				
5.3.5.4		w508 x h629mm	No	8		
5.3.5.5		w997 x h629mm	No	11		
5.3.6		FIRE APPLIANCES ETC				
5.3.6.1		i) Supply and install 9kg Dry chemical powder fire extinguisher. Rate all inclusive	No	4		
5.3.6.2		ii) 190 x 190mm ABS plastic symbolic safety sign type FB2 pugged and screwed to wall. Rate all inclusive	No	8		
5.3.7		BENCHES				
5.3.7.1		2,0mm quality sheet steel, folded, reinforced and epoxy powder coated in Light grey RAL 7035, fitted with Meranti timber slats protected with 2 x coats of clear lacquer.	m	30		
Total Carried Forward To Summary						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5.4		WATER AND SANITARYWARE				
		Water and Sanitary Fittings				
5.4.1		WATER				
		uPVC heavy duty pressure pipping to SABS 791 with solvent welded joints (Diameters given are outside diameter):				
5.4.1.1		50mm diameter high impact uPVC Class 16 pipe in outlet from buildings including laying in ground to falls including excavation 300mm wide & not exceeding 400mm deep and backfilling to 93% modified AASHTO density in 150mm layers, including carting away surplus excavated material, risk of collapse, dewatering of trenches, cutting pipe to shape, etc	m	75		
		Extra on uPVC pipes for				
5.4.1.2		50mm End cap	No	2		
5.4.1.3		50mm x 90 Degree bend	No	3		
5.4.1.4		50mm x 50mm Tee	No	3		
		Connections:				
5.4.1.5		Allow the sum for connection to the Municipal water and water meter, to be executed by the Municipal Authority.	P Sum			30 000
5.4.1.6		Contractors mark up on item above	%	30 000		
		Sanitary				
5.4.2		WASTE UNIONS ETC				
5.4.2.1		32mm Basin wast union	No	14		
5.4.2.2		50mm shower waste union	No	6		
5.4.3		TRAPS ETC				
		uPVC				
5.4.3.1		32 x 300mm Deep seal "P" or "S" trap	No	13		
5.4.3.2		40 x 300mm Sink combination for double bowl with deepseal "P" trap	No	1		
		Brass				
5.4.3.3		40mm "Cobra Watertech No. 373" or similar approved shallow seal shower P-Trap	No	6		
		Chromium plated				
5.4.3.4		38mm "Cobra Watertech No. 360/75" or similar approved CP bottle trap	No	13		
5.4.4		TAPS, VALVES, ETC				
		Brass				
5.4.4.1		15mm "Ball-o-stop" valve	No	35		
5.4.4.2		15mm Fullway gate valve	No	35		
5.4.4.3		22mm Fullway gate valve	No	8		
5.4.4.4		28mm Fullway gate valve	No	4		
5.4.5		SANITARY PLUMBING				
		uPVC Pipes - shower				
5.4.5.1		50mm Pipes - toilets	m	40		
Total Carried Forward						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
5.4.5.2		110mm Pipes	m	50		
5.4.5.3		50mm Pipes cored-length frombasins	m	30		
		Extra over uPVC pipes for fittings				
5.4.5.4		50 x 50mm BSP adaptor	No	6		
5.4.5.5		50mm Bend	No	10		
5.4.5.6		110mm Bend	No	9		
5.4.5.7		50mm Junction	No	9		
5.4.5.8		110mm Junction	No	9		
5.4.5.9		110mm Reducing junction	No	9		
5.4.5.10		110mm Pan connector	No	9		
5.4.5.11		Bent pan connector	No	2		
5.4.5.12		50mm Access bend	No	5		
5.4.5.13		110mm Access bend	No	9		
5.4.5.14		50mm Access junction	No	2		
5.4.5.15		110mm Access junction	No	9		
5.4.5.16		110mm x 50mm Access reducing junction	No	20		
5.4.5.17		110mm Access double junction	No	9		
5.4.5.18		50mm "GI Two-way" vent valve	No	14		
5.4.5.19		110mm "GI Two-way" vent valve	No	9		
5.4.6		WATER SUPPLIES				
		"Polycop" class 16 polypropylene pipes with brass compression fittings				
5.4.6.1		25mm Pipes laid in and including trenches	m	210		
5.4.6.2		Ditto, but 40mm	m	40		
		Class 16 Polypropylene pipes				
5.4.6.3		15mm Pipes	m	12		
5.4.6.4		22mm Pipes	m	5		
5.4.6.5		28mm Pipes	m	10		
5.4.6.6		32mm Pipes	m	10		
		Class 16 Polypropylene pipes				
5.4.6.7		15mm Pipes chased into brick walls	m	35		
5.4.6.8		22mm Pipes chased into brick walls	m	50		
5.4.6.9		28mm Pipes chased into brick walls	m	10		
5.4.6.10		32mm Pipes chased into brick walls	m	10		
		Class 16 polypropylene pipes laid in and including trenches				
5.4.6.11		22mm Pipes laid in and including trenches	m	500		
5.4.6.12		22mm Pipes	m	500		
		Extra over "Ploycop" ploypropylene pipes for compression fittings				
5.4.6.13		25mm Fittings	No	20		
5.4.6.14		40mm Elbow	No	5		
<i>Total Carried Forward</i>						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
5.4.6.15		40mm Reducing tee	No	5		
5.4.6.16		32mm Reducing tee	No	5		
		Extra over polypropylene pipes for compression fittings				
5.4.6.17		15mm Fittings	No	60		
5.4.6.18		22mm Fittings	No	80		
5.4.6.19		28mm Fittings	No	37		
5.4.6.20		15mm Elbow	No	80		
5.4.6.21		15mm Tee	No	28		
5.4.6.22		22mm Reducer	No	20		
5.4.6.23		22mm Elbow	No	8		
5.4.6.24		22mm Tee	No	20		
5.4.6.25		22mm Reducing Tee	No	40		
		polypropylene overflow and service pipes				
5.4.6.26		15mm Fittings	No	20		
5.4.7		SUNDRIES				
5.4.7.1		1400 x 950mm Two compartment meter or valve box including brick chamber below exceeding 750mm deep internally	No	1		
5.4.7.2		600 x 900 x 93kg Single seal manhole cover and frame	No	1		
5.4.8		TESTING				
5.4.8.1		Testing water pipesystems	Sum	1		
5.4.9		ELECTRIC WATER HEATERS				
5.4.9.1		150Litre "Megaflo" floor/wall mounted electric water heater. Kwikot or similar approved	No	2		
5.4.10		DRIP TRAYS				
5.4.10.1		0,6mm Galvanised sheet steel drip tray for 150lt water heater with 100mm high upstand all round with top edge bent over and with 50mm threaded outlet union	No	2		
5.4.11		SANITARYWARE				
		Supply and install all sanitary fittings("Franke Stainless Steel" or equal approved)				
5.4.11.1		i) Double bowl sink with taps. Rate all inclusive	No	1		
5.4.11.2		ii) Hibiscus basin (code 7023) with two tap holes bolted to wall. Rate all inclusive. (Vaal Vitreous China or similar approved)	No	13		
5.4.11.3		iii) matAquasave low level suite (code 750151) complete with matching cisterns, lid, fitments and flush pipe. Rate all inclusive	No	7		
5.4.11.4		iv) Protea paraplegic (code 750246) low level suite and matching 9lt cisterns (code 710631) complete with lid, fitments and purpose made C.P side flush lever mounted on wall adjacent cistern. Bottom inlet water supply must be on same side as flush lever. Toilet to be fitted with fresh flow system.	No	2		
<i>Total Carried Forward</i>						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
5.4.11.5		v) Lavatera wall hung bowl urinal with top inlet code 705426 size 600 x 385 x 380mm complete with domical grating CP,spreader, top inlet code 7054Z1 waste union and spreader two hanger brackets code 8127ZO and "Walker Crosweiler Walcro"or equal approved code 150 BUR urinal flushing valve	No	6		
5.4.11.6		vi) Cobra or similar approved shower sets code 3328ST026-065 including 2 x stella stoptaps complete, flanged shower arm, shower head. Outlet to fit cobra waste, traps, overflows: 373SQ including shower P-trap with shallow seal. Chrome plated square grating with female outlet rough brass (shower floor elsewhere allowed for)	No	6		
5.4.11.7		vii) "Cobra Watertech" or equal approved 32mm 301 CP basin waste union complete with plug and chain,stay, flange and slotted shank	No	13		
5.4.12		MIRRORS 6mm Silvered float glass copper backed mirrors with polished edge holed for and fixed with chromium plated dome capped mirror screws with rubber buffers to plugs in brickwork or concrete				
5.4.12.1		Mirror 450 x 600mm high with four screws	No.	12		
<i>Total Carried Forward To Summary</i>						

ABLUTION AND CHANGE ROOMS

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
5.5		RAIN WATER DISPOSAL				
5.5.1		GUTTERS				
		Galvanised iron gutters and rainwater pipes fixed to steelwork complete with baked finish fixed to suppliers specification, complete with outlets, stopped ends and all necessary fixing screws, lugs, etc and seal joints with silicon sealer.				
5.5.1.1		i) 300 x 150mm roof gutters	m	80		
5.5.1.2		ii) Hopper box at head of downpipe	No	2		
5.5.1.3		iii) Extra over gutter for stopped end	m	5		
5.5.1.4		iv) Extra over gutter for outlet for 100 x 75mm pipe	m	5		
5.5.2		DOWNPIPES				
		Seamless aluminium OGEE downpipes complete with baked finish fixed to suppliers specifications with shoes swanneck joints, wire grating bends, downpipes and all necessary fixings screws, brackets, etc.				
5.5.2.1		i) 100 x 75mm rainwater pipes	m	12		
5.5.2.2		ii) Extra over downpipe for offset	m	4		
5.5.2.3		iii) Extra over downpipe for shoe	No	4		
5.5.3		SUNDRIES				
5.5.3.1		5kL Jojo Tank used for storage of harvested rainwater	No.	2		
5.5.3.2		Fire Hose Reel-Fixed type (Nylon Nozzle), mounted	No	1		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
5.1	BUILDING WORKS	
5.2	DOORS, WINDOWS, GATES, ETC.	
5.3	IRONMONGERY, FURNITURE, ETC.	
5.4	WATER AND SANITARYWARE	
5.5	RAIN WATER DISPOSAL	
<i>Total Carried Forward To Summary Of Schedules</i>		

EXTERNAL WORKS, SITE SERVICES AND SUNDRIES

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
6.1		FENCING, RETAINING WALLS, ETC				
6.1.1		FENCING				
6.1.1.1		Supply and install Clear Vu fencing or Similar approved by engineer. Aperture - 12mm x 76mm; 2.1m high; galvanised and PVC coated (4mm after coating); including spikes	m	450		
6.1.1.2		Supply and install pedestrian gate to suit fencing including spikes	No	2		
6.1.1.3		Supply and install vehicular access gate to suit fencing including spikes	No	1		
6.1.2		SUBSOIL DRAINAGE				
		Supply and lay uPVC slotted pipes for subsoil drain				
6.1.2.1		a) 110mm dia.	m	75		
6.1.2.2		b) 160mm dia.	m			
6.1.2.3		Supply and install filter fabric in subsoil drain (Bidim U24 or similar approved) (Provisional)	m ²	200		
6.1.2.4		Supply and install nominal 19mm stone backfill in trench	m ³	5		
6.1.2.5		Supply and install river sand backfill in trench	m ³	32		
6.1.2.6		Rodding Eyes	No.	7		
6.1.2.7		Subsoil drain outlet (Headwalls)	No.	1		
6.1.3		DRY WALL STACKING (PROVISIONAL)				
6.1.3.1		Construction of interlocking block retaining walls complete including excavation for foundation, geofabric and L300 Loffelstein or similar approved (Refer to dwg no.1264/CSd104)	m ²	100		
Total Carried Forward To Summary						

EXTERNAL WORKS, SITE SERVICES AND SUNDRIES

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
6.2		EMBANKMENT SEATING, ETC				
6.2.1		PRECAST CONCRETE				
		Stormwater Channel				
6.2.1.1		Supply and erect 300mm 1/3 round precast channel and precast concrete dog bone cover along sportsfield & sportsfield embankment seatings as detailed on Drawing No. 1264/C-102	m	220		
6.2.1.2		Supply and erect 300mm 1/3 round precast channel and precast concrete dog bone cover along combicourt embankment seating and ablution block as detailed on Drawing No. 1264/C-102	m	90		
6.2.2		PRECAST SEATING				
6.2.2.1		Supply and erect 300x715mm precast concrete embankment seating 600mm long and grout with an epoxy based resin at interlocking connections (Refer to Drawing No.1264/C-101) include for excavation, fill and compact behind seat with approved material	No.	490		
6.2.2.2		Supply and erect precast concrete embankment seating top slab 600mm long and grout with an epoxy based resin at interlocking connections(Refer to Dwg No.1264/C-101) include for excavation, fill and compact behind seat with approved material	No.	110		
6.2.3		SUNDRIES				
6.2.3.1		Tubular mild steel hand rails 1m high to suppliers detail for wheelchair access ramp	m	55		
6.2.4		EMBARKMENT SEATING AWNING				
		Cantilevered shadeport in waterproof charcoal shade cloth with HDE frame for:				
6.2.4.1		(a) 42x6m	Sum	1		
6.2.4.2		(b) 22x5m	Sum	1		
6.2.5		WATERPROOFING				
6.2.5.1		Polyurethane Sealant Sikaflex-Pro2HP or equivalent	ℓ	20		
Total Carried Forward To Summary						

EXTERNAL WORKS, SITE SERVICES AND SUNDRIES

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
6.3		SEPTIC TANK AND SOAK AWAY				
6.3.1		SEPTIC TANK CHAMBER				
		ALL BRICKS TO BE "NFX" TYPE (14MPa)				
6.3.1.1		Construction of septic tank chamber using 14 Mpa NFX brick. Brick to be plastered internally and waterproofed with bituminous rubber sealant.	m ²	40		
6.3.2		TESTING				
6.3.2.1		Test Septic Tank for water tightness in accordance with Specification PW	Sum	1		
6.3.2.2		50mm dia uPVC perforated pipe laid in trenches up to 600mm deep	m	35		
6.3.3		MANHOLE				
		Precast concrete manholes. Complete, inclusive of excavation, concrete base, benching and HAC rendering, shaft section with internal diameter 1000mm and light duty precast concrete manhole cover slab, lid, step irons, channels, bends, junctions, PG3 primer and LDP tape to joints and all other accessories as per detail drawing				
6.3.3.1		Depth of Manhole: Up to 4m deep	No	3		
6.3.4		SEWER PIPE				
6.3.4.1		Supply, Deliver, Lay, joint, bed (Flexible pipe bedding) and test uPVC (Class 34 heavy duty) pipe 160 mm dia.	m	20		
6.3.5		SUNDRIES				
6.3.5.1		Kaytec infiltration soak away chambers as per detail drawing DWG CSD108	Sum	1		
6.3.5.2		50mm x 45deg Junctions	No.	12		
6.3.5.3		110mm dia uPVC laid in trenches up to 600mm deep	m	50		
6.3.5.4		Type 2, 450 x 600mm locking double seal manhole cover and frame	No	2		
Total Carried Forward To Summary						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
6.1	FENCING, RETAINING WALLS, ETC	
6.2	EMBANKMENT SEATING, ETC	
6.3	SEPTIC TANK AND SOAK AWAY	
<i>Total Carried Forward To Summary Of Schedules</i>		

ELECTRICAL

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
7.1		ELECTRICAL				
7.1.1		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.				
7.1.2		GUARANTEE AND MAINTENANCE				
7.1.2.1		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.	Sum	1		
7.1.3		TESTING				
7.1.3.1		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.	Sum	1		
7.1.4		AS-BUILT DRAWINGS				
7.1.4.1		Provision for the drawings showing all site cable routes, conduit routes, draw boxes and positions of outlets, etc.	Sum	1		
7.1.5		CERTIFICATE OF COMPLIANCE				
7.1.5.1		Provision for the Certificate of Compliance to be issued on completion of the project.	Sum	1		
7.1.6		EARTHING AND BONDING AND LIGHTNING PROTECTION				
7.1.6.1		Allow for earthing and bonding and lightning protection as required by the applicable regulations and the Engineers requirements	Sum	1		
7.1.7		LABELLING AND MARKING				
7.1.7.1		Allow for marking and labelling of all equipment, cables, plugs, light switches etc.	Sum	1		
7.1.8		GENERAL ATTENDANCE				
7.1.8.1		Allow for attendance on the lightning protection sub-contractors	Sum	1		
7.1.9		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)				
		DB-A(As per schematic drawing)				
7.1.9.1		a) Supply	No	1		
7.1.9.2		b) Install	No	1		
		BB-LV Kiosk (as per schematic)				
7.1.9.3		a) Supply	No	1		
7.1.9.4		b) Install	No	1		
7.1.10		CABLES				
Total Carried Forward						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
		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				
7.1.10.1		a) Supply	m	50		
7.1.10.2		b) Install	m	50		
		25 mm ² 4 core PVC/SWA/PVC ECC Cable				
7.1.10.3		a) Supply	m	175		
7.1.10.4		b) Install	m	175		
		16 mm ² 4 core PVC/SWA/PVC ECC Cable				
7.1.10.5		a) Supply	m	250		
7.1.10.6		b) Install	m	250		
7.1.11		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				
7.1.11.1		a) Supply	No	2		
7.1.11.2		b) Install	No	2		
		25 mm ² 4 core PVC/SWA/PVC ECC Cable				
7.1.11.3		a) Supply	m	2		
7.1.11.4		b) Install	m	2		
		16 mm ² 4 core PVC/SWA/PVC ECC Cable				
7.1.11.5		a) Supply	m	26		
7.1.11.6		b) Install	m	26		
7.1.12		CABLE SLEEVES				
		Supply and Installation of Cable Sleeves as specified, in trenches or cast in concrete, excluding trenching or backfilling.				
		110mm Ø Rigid Cable Sleeve				
7.1.12.1		a) Supply	m	850		
7.1.12.2		b) Install	m	850		
		110mm Diameter long radius bend				
7.1.12.3		a) Supply	No	10		
7.1.12.4		b) Install	No	10		
		50mm Ø Rigid Cable Sleeve				
7.1.12.5		a) Supply	m	200		
7.1.12.6		b) Install	m	200		
		50mm Diameter long radius bend				
7.1.12.7		a) Supply	No	5		
<i>Total Carried Forward</i>						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
7.1.12.8		b) Install	No	5		
7.1.13		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				
7.1.13.1		In trenches for cables and sleeves	m ³	150		
7.1.13.2		Extra over "soft excavation" for excavation in intermediate excavations	m ³	10		
7.1.13.3		Extra over "soft excavation" for excavation in hard rock excavations	m ³	10		
7.1.13.4		Backfilling of trenches	m ³	150		
		Risk of collapse of excavations other than bulk				
7.1.13.5		Sides of trenches and hole excavations not exceeding 1.5m deep	m ³	50		
7.1.14		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				
7.1.14.1		a) Supply	m	850		
7.1.14.2		b) Install	m	850		
		25mm Conduit				
7.1.14.3		a) Supply	m	300		
7.1.14.4		b) Install	m	300		
		P8000 Trunking				
7.1.14.5		a) Supply	m	50		
7.1.14.6		b) Install	m	50		
		25mm Bosal Conduit				
7.1.14.7		a) Supply	m	100		
7.1.14.8		b) Install	m	100		
7.1.15		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				
7.1.15.1		a) Supply	No	50		
7.1.15.2		b) Install	No	50		
		25mm Conduit				
7.1.15.3		a) Supply	No	50		
7.1.15.4		b) Install	No	50		
<i>Total Carried Forward</i>						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
7.1.16		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				
7.1.16.1		a) Supply	No	10		
7.1.16.2		b) Install	No	10		
		25mm uPVC Conduit				
7.1.16.3		a) Supply	No	10		
7.1.16.4		b) Install	No	10		
7.1.17		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 mm ² PVC Conductors				
7.1.17.1		a) Supply	m	2 400		
7.1.17.2		b) Install	m	2 400		
		2.5 mm ² PVC Conductors				
7.1.17.3		a) Supply	m	500		
7.1.17.4		b) Install	m	500		
		4 mm ² PVC Conductors				
7.1.17.5		a) Supply	m	200		
7.1.17.6		b) Install	m	200		
7.1.18		EARTH CONDUCTORS Supply and drawing into conduit PVC insulated earth conductors, excluding any connections				
		1.5mm ² Conductors				
7.1.18.1		a) Supply	m	500		
7.1.18.2		b) Install	m	500		
		2.5mm ² Conductors				
7.1.18.3		a) Supply	m	200		
7.1.18.4		b) Install	m	200		
7.1.19		LIGHT SWITCHES Supply and Installation of the following luminaires, complete with lamps as specified				
		16A 1 Lever				
7.1.19.1		a) Supply	No	12		
7.1.19.2		b) Install	No	12		
		16A 2 Lever				
7.1.19.3		a) Supply	No	5		
7.1.19.4		b) Install	No	5		
<i>Total Carried Forward</i>						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
7.1.20		LUMINAIRES & STEEL POLES Supply and Installation of the following luminaires, complete with lamps as specified 1 x PL 13W Recessed CFL Down Lighter				
7.1.20.1		a) Supply	No	60		
7.1.20.2		b) Install	No	60		
		2 x 18W Wall Mounted Bulkhead				
7.1.20.3		a) Supply	No	10		
7.1.20.4		b) Install	No	10		
		1200mm x600mm 36W recessed LED fitting				
7.1.20.5		a) Supply	No	3		
7.1.20.6		b) Install	No	3		
		2 x 58W Prismatic fluorescent fitting				
7.1.20.7		a) Supply	No	8		
7.1.20.8		b) Install	No	8		
		990W Led fitting				
7.1.20.9		a) Supply	No	24		
7.1.20.10		b) Install	No	24		
		490W LED fitting				
7.1.20.11		a) Supply	No	8		
7.1.20.12		b) Install	No	8		
		37W LED fitting				
7.1.20.13		a) Supply	No	11		
7.1.20.14		b) Install	No	11		
		50W LED fitting				
7.1.20.15		a) Supply	No	3		
7.1.20.16		b) Install	No	3		
		15 Meter steel poles				
7.1.20.17		a) Supply	No	4		
7.1.20.18		b) Install	No	4		
		10 Meter steel poles				
7.1.20.19		a) Supply	No	2		
7.1.20.20		b) Install	No	2		
		8 Meter steel poles				
7.1.20.21		a) Supply	No	3		
7.1.20.22		b) Install	No	3		
		5 Meter steel poles				
7.1.20.23		a) Supply	No	7		
7.1.20.24		b) Install	No	7		
7.1.21		DAYLIGHT SWITCHES / PHOTO-CELLS Supply and installation of approved daylight switch.				
<i>Total Carried Forward</i>						

ITEM	PAYMENT	DESCRIPTION	UNIT	QTY	RATE	AMOUNT R
<i>Brought Forward</i>						
		Royce-Thompson Daylight Switch				
7.1.21.1		a) Supply	No	2		
7.1.21.2		b) Install	No	2		
7.1.22		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				
7.1.22.1		a) Supply	No	10		
7.1.22.2		b) Install	No	10		
		16A Double SSO c/w coverplate				
7.1.22.3		a) Supply	No	6		
7.1.22.4		b) Install	No	6		
		600mm x 600mm x500mm Junction boxes				
7.1.22.5		a) Supply	No	4		
7.1.22.6		b) Install	No	4		
7.1.23		CABLE MARKERS				
		Allow to supply marking take and cable markers				
		PVC warning marking tape				
7.1.23.1		a) Supply	m	500		
7.1.23.2		b) Install	m	500		
7.1.24		PROVISIONAL SUMS				
7.1.24.1		Allow for a main power supply connection and liaison with the power Supply Authority	P Sum			350 000
7.1.24.2		Contractors Mark-up on item above	%	350 000		
7.1.24.3		Lightning Protection system	P Sum			50 000
7.1.24.4		Contractors Mark-up on item above	%	50 000		
<i>Total Carried Forward To Summary</i>						

SUMMARY OF SECTIONS

SECTION	DESCRIPTION	AMOUNT (RAND)
7.1	ELECTRICAL	
<i>Total Carried Forward To Summary Of Schedules</i>		_____

SUMMARY OF SCHEDULES

SCHEDULE	DESCRIPTION	AMOUNT (RAND)
1	PRELIMINARIES AND GENERAL	
2	EARTHWORKS	
3	CONCRETE, FORMWORK AND REINFORCEMENT	
4	ANCILLARY ITEMS	
5	ABLUTION AND CHANGE ROOMS	
6	EXTERNAL WORKS, SITE SERVICES AND SUNDRIES	
7	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	
	SUB-TOTAL "B"	
.	VALUE ADDED TAX	
	Add: 15% Value Added Tax of the above Sub total "B"	
<i>Total</i>		

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.....	4
C3.3.	PROCUREMENT.....	5
C3.4.	CONSTRUCTION AND MANAGEMENT REQUIREMENTS	6
C3.5.	STANDARD SPECIFICATIONS	22
C3.6.	PROJECT SPECIFICATIONS	24
C3.7	PARTICULAR SPECIFICATION	80

C3.1. DESCRIPTION OF THE WORKS

C3.1.1. EMPLOYER'S OBJECTIVES

This project entails the construction of a sports facility, to be named KwaMpondo Sportsground, within the Ntabesikopo area in Ward 1 of Umdoni Municipality.

The total population that will benefit from this project is 591 from approximately 140 households (Census 2011). The sportsground will be able to cater for approximately 200 people and will have facilities for five sports namely, Soccer, basketball, netball, volleyball and tennis.

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.

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:

- Clearing and grubbing
- Earthworks (minor earthworks)
- Layer work construction including loading, hauling and spreading material.
Note: All compaction should be done using conventional compaction equipment and where necessary the use of heavy machinery may be employed to loosen material for excavation by hand.
- Laying of kerbs and edging
- Excavation of trenches
- Masonary walls
- Unlimited of haul
- Finishing and Tidying

C3.1.2. OVERVIEW AND EXTENT OF WORKS

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

- Bulk earthworks
- Stormwater management
- Construction of a sports field
- Construction of a combi-court
- Construction of an ablution/changeroom/storeroom building
- Construction of covered embankment seating
- Construction of concrete ramps and walkways
- Gravel parking area
- Septic tank and soakaway
- 2.1m high ClearVu fencing

C3.1.3. LOCATION OF THE WORKS

The site is located approximately 1.7 km north east of Site 1 within the Ntabesikopo area. Ntabesikopo is approximately 32 km north east of Scottburgh and falls within the jurisdiction of Ugu District Municipality and Umdoni Local Municipality. The locality of both sites is shown in Table below

DISTRICT MUNICIPALITY	LOCAL MUNICIPALITY	DESCRIPTION	CO-ORDINATES OF APPROXIMATE PROJECT SITE	
			LATITUDE	LONGITUDE
Ugu District Municipality	Umdoni Local Municipality	KwaMpondo Sports Ground	30° 7' 47.60"S	30° 28' 24.40"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.

Description of Works	Total (approximate)
Area of earthworks, levelling and grading	7400m ²
Sportsfield	5225 m ²
Combi Court	775m ²
Ablution Block	270m m ²

C3.2. ENGINEERING

C3.2.1. EMPLOYER'S DESIGN

KwaMpondo Sportsground 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 of T1.2.3.11 of 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 5% 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

Clause	Specification data associated with SANS 1921- 1
	work. The document shall cover all workmanship and materials. The document must 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.
	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 due 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

Clause	Specification data associated with SANS 1921- 1
	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. <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 (2)
Y	=	Y - Co-ordinate
X	=	X - Co-ordinate

A CAD drawing or "Stick" diagram indicating 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

In terms of Clause 5.12.2 of the General Conditions of Contract, extension of time will be considered for **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 hereafter. 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

Month	Expected number of working days lost as result of normal rainfall
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 OHSA 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.

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 HA	Structural Steelwork (Sundry Items)
SANS 1200 LB	Bedding (Pipes)
SANS 1200 LD	Sewers
SANS 1200 LE	Stormwater Drainage
SANS 1200 MK	Kerbing And Channelling

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 of 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 in</u> 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 Cables
		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 (additional subclause)
		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 stormwater. 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.						

PSA REF.	SABS 1200A	GENERAL (As applicable to SABS 1200A)
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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 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 provide a cellular phone for the use of the Engineer or his representative. A cellular phone, Nokia 6020 or similar approved. The contractor will be required to pay the connection charges, service fees, rental, insurance, operation and maintenance costs, including all consumption and call charges with regard to the above, with the provision that the total cellular phone call charges shall be R125.00 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: 1. Two desks with at least one lockable drawer each and with one swivel chair per desk 2. One lockable four drawer steel filing cabinet 3. One drawing filing rack for AO and smaller sized drawings 4. One 12000 BTU air conditioner unit capable of heating and cooling 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

PSAB REF.	SABS 1200AB	ENGINEERS OFFICE (As Applicable to SABS 1200 AB)
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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 as 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.
4.	8	MEASUREMENT AND PAYMENT
4.1	8.2.1	Clear and Grub The payment width for trenches shall be the minimum base widths as stipulated in clause PSDB 3.2 The payment area for structures shall be the nett concrete plan foundation as per clause PSDB 3.3.

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

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
		exceeding 6 and that is free from vegetation and from lumps and stones of diameter exceeding 30 mm.
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 150 mm prior to compaction. Each layer shall be

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
		compacted to a density of 95% MOD AASHTO. This requirement is applicable to backfilling in restricted areas and also backfilling against structures.
3.2.3	5.2.4	<u>Finishing</u> All banks shall have a slope not greater than 1:2.
3.2.4	5.2.6.1	Freehaul <i>Delete the wording of Sub-Clause 5.26.1 and replace with the following:</i> All haul will be regarded as freehaul. No overhaul will be paid under this contract.
3.2.5	5.5.6.2	Overhaul <i>Delete the Sub-Clause: 5.5.6.2</i>
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

PSD REF.	SABS 1200D	EARTHWORKS (As Applicable to SABS 1200D)
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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

Backfill Against Structures

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

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		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 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:

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		"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: (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
3.10	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 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):

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
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	5.5.6.2	Overhaul Delete the Sub-Clause: 5.5.6.2
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. <i>a) 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. <i>b) Fill material in place</i> One density and moisture content per 100m³ of compacted fill <i>c) Compacted subgrade or finished level</i> 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.

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
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: "-Excavation, 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, 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 m³ 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)

PS DA REF.	SABS 1200DA	EARTHWORKS (Small Works) (As Applicable to SABS 1200 DA)
		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 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 DB REF.	SABS 1200DB	EARTHWORKS (Pipe Trenches) (As Applicable to SABS 1200 DB)
1.	1.	SCOPE Add the following:- “Excavation for manholes, headwalls and associated pipe works are also covered by this section.
2.		MATERIALS
2.1	3.1	Classes of Excavation The provision of PSD 2.1 shall apply.
2.2	3.5	Backfill Materials Add the following: “c) The Contractor shall take positive steps to avoid burying or contaminating material which would be suitable for use as backfill as described in a) and b)”.
2.3	3.6	Materials for Reinstatement of Roads and Paved Areas Delete the Sub-Clause and substitute: Material used in the reinstatement of roadways shall fall into the following relevant categories: (a) Foundation material recovered from the excavation of trenches across existing roadways, which, if so instructed by the Engineer, shall be set aside and re-used as sub-base material. (b) New material, which shall conform to the requirements of: (i) Clause 3.2.1 of SABS 1200 ME for the Subbase (ii) Clauses 3.2 and 3.3 of SABS 1200 MF for the basecourse (iii) Clause 3.2.2 of SABS 1200 ME for the Gravel Wearing Course (iv) Clause 3 of SABS 1200 MH for the asphalt surfacing
3		CONSTRUCTION
3.1	5.1.2.3	Sloping Ground Delete the Sub-Clause and substitute: The Contractor shall be responsible throughout the duration of the Contract, inclusive of the Defects Liability Period, for the provision of all soil erosion preventative measures necessary to protect the trenches, pipeline(s) and land utilised by the Contractor during the Contract from any adverse effects of soil erosion, settlement, scour, etc., resulting from the construction of the Works. Cross embankments, generally extending across the full width of the working strip, consisting of low earth mounds shaped to rounded form and so oriented as to have a fall of 1% along their length, shall be constructed with compacted material having a minimum density of 90% modified AASHTO density and minimum dimensions and maximum spacings dependent on the slope of the ground along the length of the pipeline, as indicated in the following table:

PS DB	SABS	EARTHWORKS (Pipe Trenches)
REF.	1200DB	(As Applicable to SABS 1200 DB)

Slope of Ground	Minimum Height	Minimum Base Width	Maximum Spacing
0%-2%	No cross-embankments required		
2% - 5%	300 mm	1,2 m	55m
5% - 10%	300 mm	1,2 m	40 m
10%-15%	375 mm	1,5 m	30m
Greater than 15%	450 mm	1,7m	20 m

The height of the cross-embankments for a distance of 1metre on either side of the trench centreline shall be raised 150 mm above the remainder of the cross-embankment to allow for settlement. In order to form a satisfactory drainage channel upstream of each cross-embankment (at a slope of 1%) the crown over the backfilled trench shall be removed for a distance of 0,5 m upstream of the cross-embankment.

Cross-embankments shall be constructed to the same minimum standards and dimensions indicated above wherever artificial slopes have been formed on the working strip or other areas used during construction and, with the approval of the Engineer, are permitted to be so left.

Payment will be made for the construction of cross-embankments in accordance with Sub-Clause 4.2.3, provided construction thereof has been either ordered or approved by the Engineer prior to the commencement of such construction.

3.2 5.1.2.4 Cross-Walls in Trenches (New Sub-Clause)

Where ordered by the Engineer, the Contractor shall place sacks of earth as sack breakers or cross walls around and above the pipe up to ground level, prior to backfilling, as a soil erosion measure. Such sacks shall be filled with selected material free of stones in excess of 50 mm maximum dimension. One sack breaker shall consist of these sacks packed tightly against the trench bottom, pipe and actual trench sides, and against each other to form a solid cross wall at least 0,5 m thick from the bottom of the trench to the surface.

An item has been included in the Bill of Quantities to cover the cost of the supply, installation and maintenance of sack breakers.

3.3 5.1.4 Existing Services

Services constructed under this contract or that which shall become redundant as a result of this contract will not be considered as existing services for payment.

The contractor must allow for all necessary liaisons with the relevant Authorities and any delays that may be incurred due to work resulting there from is deemed to be included in rates tendered.

Only partial payment will be made if backfill is not complete and trimmed to finished levels.

PS DB REF.	SABS 1200DB	EARTHWORKS (Pipe Trenches) (As Applicable to SABS 1200 DB)
3.4	5.4	Excavations Add the following: - “Excavations for manholes and chambers shall be taken out simultaneously with the trench excavations to the net plan dimensions of the structure. The Contractor shall excavate pipe trenches progressively and will not be permitted to pass over hard sections of the excavation to proceed with soft excavation at further points along the trench. In no case shall the Contractor excavate more than 300m ahead of the pipe laying gang. The requirements of this clause may be relaxed as far as any road crossing are concerned, at the discretion of the Engineer...”
3.5	5.5	Trench Bottom Delete the following: “.... in the manner directed” and insert “.... in areas to be arranged by the Contractor acceptable to the Engineer”. Add the following:- “When the trench bottom is unsuitable due to waterlogged conditions, at the instruction of the Engineer, the Contractor shall excavate for and lay a crushed stone mat, the stone having a maximum particle size of 19mm. Completion of Backfilling After the pipes have been laid, no backfilling shall be undertaken until the pipes have been inspected and approved by the Engineer. The Contractor may use his discretion as to whether to backfill around joints before the pipeline is hydraulically tested and should he decide to backfill the joints he will be responsible for the locating of any leaks and no extra payment will be made for any re-excavation and subsequent reinstatement.
3.6	5.6	Backfilling
3.6.1	5.6.2	<u>Materials for Backfilling</u> Add the following:- “The Contractor is to indicate to the Engineer if unsuitable material for backfilling is encountered. Imported material for backfilling shall be obtained from designated areas or commercial sources and paid for as specified in SABS 1200 DB Clause 8.3.3.1 on written instruction from the Engineer.”
3.6.2	5.6.8	<u>Transport for earthworks</u> Replace with: “Unless otherwise specified for earthworks for trenches, the requirements of sub-clause 3.13 of PSDA or sub-clause 3.14 of PSDA of this document, as applicable shall apply.

PS DB REF.	SABS 1200DB	EARTHWORKS (Pipe Trenches) (As Applicable to SABS 1200 DB)
4	7	TESTING
4.1	7.1	Tests to the Contractors Account The Contractor shall arrange 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. <i>a) 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. <i>b) Fill material in place</i> One density and moisture content per 100m³ of compacted fill <i>c) Compacted subgrade or finished level</i> 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.
4.2	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.
4.3	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.
5	8	MEASUREMENT AND PAYMENT
5.1	8.1	add the following: "The bottom of excavations for manholes and headwalls in soft ground shall be thoroughly rammed and consolidated and compacted to 95% Mod AASHTO at the Contractor's expense before any concrete is placed".

PS DB REF.	SABS 1200DB	EARTHWORKS (Pipe Trenches) (As Applicable to SABS 1200 DB)
5.2	8.3.4	PARTICULAR ITEMS
5.2.1	8.3.4 (a)	Shoring Where trenches are excavated in close proximity to structures, these lengths of trench must be adequately supported on both faces of the trench to prevent any damage to the structures. The Contractor will be held responsible for any damage to the structures resulting from subsidence of foundations or related causes which may be attributed to his negligence. It must also be noted that sites with poorly consolidated embankments will require shoring in the trenches.
5.2.2	8.3.4 (b)	Control Water Inflow Rates tendered under this item shall include for all cost for control of water to trench excavations of site. Separate items will not be detailed for different section of the work. Excavations are to be kept sufficiently dry to permit construction work to be carried out without detriment to the quality of the finished work.
5.2.3	8.3.4(c) Cross Embankments (New Sub-Clause)	Payment for cross embankments will be by volume of embankment constructed in accordance with the specification. Cross Embankments.....Unit: m³
5.3	8.3.7	ACCOMMODATION OF TRAFFIC The minimum requirement for physical barriers, watching and barricading as set out in this clause must be met and shall be paid for under the relevant item of the schedule of quantities.
5.4	8.3.8	Sack Breakers (New Sub-Clause) Sack breakers shall be installed from the bottom of the bedding to 300 mm below finished ground level Sack Breakers.....Unit: No
5.5	8.3.9	Saw Cutting (New Sub-Clause) The length measured shall be the total length along the centre line of the trench within the asphalt/premix roadway. The rate shall cover the total length along the centre line to include both sides of the trench, the cost of cutting, waste of material and disposal of waste. Saw cutting shall be done. Saw cutting of road shall occur: 1. prior to excavation- cut clean to edge of trench 2. prior to prime application and surfacing; cut 300mm away from edge of trench Payment shall be made once, measured along the centreline of the trench and to include for cutting on both edges of trench. Saw Cutting though Asphalt on both edge of trench.....Unit: m

PS DM REF.	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE) (As Applicable to SANS 1200 DM)
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1. 3. MATERIALS

1.1. 3.1. CLASSIFICATION OF MATERIALS FOR EXCAVATION PURPOSES

With reference to subclause 3.1 of SABS 1200D and subclause 3.1 of SABS 1200DA the following definitions shall apply to the wording 'efficiently removed' and 'efficiently loaded'.

a) Soft Excavation

- i) For soft excavation 'efficiently removed' without prior ripping by a bulldozer of mass (including mass of ripper if fitted) of approximately 22t and flywheel power of approximately 145kW shall mean the removal of more than 150m³ of insitu material per hour.
- ii) For soft excavation 'efficiently removed' without prior ripping by a bulldozer of mass (including mass of ripper if fitted) of approximately 35t and a flywheel power of approximately 220kW shall mean the removal to stockpile of more than 250m³ of insitu material per hour.
- iii) For soft excavation 'efficiently loaded' without prior ripping or stockpiling by rubber tyred front-end loader of approximately 15t mass and a flywheel power of approximately 100kW shall mean a loading rate of not less than 40m³ of insitu material per hour.
- iv) For soft excavation, in restricted excavation or for small works, 'efficiently removed' by a back-acting excavator of flywheel power approximately 0,10kW per millimetre of tined-bucket width without the assistance of pneumatic tools such as paving breakers shall mean the removal of more than 0,035m³ per millimetre of tined-bucket width per hour of continuous, unrestricted operation.

b) Intermediate Excavation

- i) For intermediate excavation, 'efficiently removed' by a bulldozer as specified in a) 1.ii) above, shall mean the ripping only (stockpiling not included) of more than 250m³ of insitu material per hour.
- ii) For intermediate excavation, in restricted excavation or for small works, 'efficiently removed' by a back-acting excavator as specified in a)2. above, shall mean the removal of more than 0,007m³, but less than 0,035m³, per millimetre of tined-bucket width per hour of continuous, unrestricted operation.
- iii) Excavation in material that, in the opinion of the Engineer, requires a back-acting excavator of flywheel power exceeding 0,10kW per millimetre of tined-bucket width or

PS DM REF.	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE) (As Applicable to SANS 1200 DM)
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the assistance of pneumatic tools prior to removal in order to achieve a removal rate of at least 0,035m³ per millimetre of tined-bucket width per hour of continuous, unrestricted operation will also be classified as intermediate excavation.

c) Hard Rock Excavation

- i) Hard rock excavation, other than in restricted excavation, shall be excavation (excluding boulder excavation) in material that does not meet the ripping rate specified in b)1 above.
- ii) Hard rock excavation, in restricted excavation or for small works, shall be excavation (excluding boulder excavation) in material that does not meet the removal rate of 0,007m³ specified in b)2 above without blasting or without wedging and splitting prior to removal.

With regard to plant specified in subclause 3.1.2 of SABS 1200D, but not referred to above, and other plant, the Engineer will decide on site as to the classification of material based on its removability as described in subclause 3.1.1 of SABS 1200D.

1.2. 3.3 & 8. SELECTION

The Contractor will receive no additional payment for the selection of material.

2. 5. CONSTRUCTION

2.1. 5.1 PRECAUTIONS

2.1.1. Precautions Relating to Explosives (Add New Sub-Clause)

With reference to subclause 5.1.1.3 of SABS 1200D or subclause 5.1.1.3 of SABS 1200DA, the Engineer shall be notified at least 24 hours beforehand of the Contractor's intention to use explosives on site.

It shall be incumbent on the Contractor to make himself aware of restrictions to blasting imposed by oil pipeline, electric transmission and other similar authorities. Where the presence and location of the oil pipeline or electric transmission lines etc. are known or are shown on the Engineer's drawings at tender stage the Contractor must make allowance in his rates and programmes for restrictions and delays which may result from restrictions imposed by the authorities.

2.2. 5.2. METHODS AND PROCEDURES

4.2.1 Crossing By Services (Add New Sub-Clause)

Construction of the selected layer and road hardening operations shall not commence until all underground services within the road hardening area have been completed and approved.

PS DM REF.	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE) (As Applicable to SANS 1200 DM)
4.2.2	5.2.1.	<u>Stripping of the Site</u> After site preparation, i.e. before placing any fill material, the Engineer's approval of the suitability of the insitu material shall be obtained.
4.2.3	5.2.2.3c	<u>Cut to Fill</u> For roads such as township roads where road verges are generally higher than the road hardening, the Contractor shall carefully select the exact finished earthworks level such that the material from the box cut will provide the quantity needed to complete the verges. No additional payment will be made to remove excess material or to import additional material should an imbalance be found when finishing roadworks to the specified cross-sections and gradients.
4.2.4	5.2.2.3d	<u>Borrow Pits</u> Notwithstanding subclause 5.2.2.3d, the Contractor shall make his own arrangements for the importation of material of a specified quality from borrow pits outside the Contract Site (see clause PSDM 12).
4.2.5	5.2.3.3a	<u>Preparation and Compaction of Road-bed</u> Notwithstanding subclause 5.2.3.3a the Engineer will inspect the road-bed (subgrade) upon completion of earthworks and if the road-bed is indicated by the soil survey or deemed by the Engineer to be unsuitable or unstable, soil shall be removed to a depth determined by the Engineer and replaced with approved material.
4.2.6	5.2.4.1	<u>Preparation for Fills</u> All fills exceeding 5 metres in height and fills of lesser height where excessive seepage occurs shall be provided with a blanket of approved granular material under the toe of the fill. The depth and extent of the blanket will be determined on site by the Engineer.
4.2.7	5.2.4.2f	<u>Compaction</u> For material other than sand and rockfill the upper 600mm of all road fills shall be compacted to a minimum of 93% MAASHTO density.
4.2.8	5.2.4.3e	<u>Topsoiling</u> Irrespective of the height of an embankment topsoiling of the side slopes shall take place immediately after, but not before, construction of the embankment has been completed.
3.	7.	<u>TESTING</u>
3.1.	7.2 & 8.3	PROCESS CONTROL
3.1.1.		Tests to the Contractor's Account The Contractor shall make arrangements with a soils testing laboratory to undertake the following tests and to pass the test results to the

PS DM REF.	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE) (As Applicable to SANS 1200 DM)
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Engineer. The costs of such tests shall be included in the rates tendered for the appropriate item in the Schedule of Quantities.

- a.) Material imported from outside the Contract Site as a working surface, for subgrade improvement or for fill material.

One CBR and indicator test per 500m³ of compacted material brought on site. (Beach or 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.) Fill material in place

One density and moisture content per 200m³ of compacted fill.

- c.) Compacted Road-bed (Subgrade)

One density and moisture content per 500m² of compacted surface area.

- d.) Compacted selected layer or gravel surface layer

One density and moisture content per 500m² of each compacted selected layer and/or gravel surface area, whichever is applicable.

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.

3.1.2.

Tests to the Employer's Account

If required and upon completion of rough earthworks, but before trimming and compaction of the road-bed (subgrade), the Contractor shall make arrangements with a soils testing laboratory to take soil samples from along the centre-line of the roads where directed by the Engineer, but nominally at intervals of 200 metres and at obvious changes of soil type. The soil samples shall be taken from a depth not exceeding 1 metre below the finished road level and CBR and indicator test values from each soil sample shall be reported to the Engineer.

Where soil types and CBR test results vary significantly within the job site, bottled samples of each type listing the CBR, optimum moisture and maximum dry density shall be made available on site to assist in visual identification of the various soil types.

Results of the soil survey will be used to determine the final road hardening specification and should there be delay in receipt of the results by the Engineer, no compensation for delays to the Contractor will be considered.

Additional tests may also be required by the Engineer on borrow pits or on excavated material to assist in the design.

PS DM REF.	SANS 1200DM	EARTHWORKS (ROADS, SUBGRADE) (As Applicable to SANS 1200 DM)
		The costs of the CBR and Indicator Tests referred to above will be met by the Employer and payment for such tests will be per sample tested and reported to the Engineer.
3.2.	7.3	ROUTINE INSPECTIONS AND TESTING
		The Engineer shall have free access to the site and will undertake inspections of the work in progress to ascertain compliance with the specifications. The Contractor shall be prepared at any time to demonstrate such compliance and will be required to establish conformity to line, level, cross-section and tolerance by the use of straight-edge, tape, level, etc.
		Notwithstanding subclause 7.3.1 the Engineer may require additional tests to those specified in clause PSDM 12 above. Where such additional tests prove compliance with the specification, the costs will be met by the Employer. Where such tests fail, the costs to remedy the failure and the costs of the tests shall be met by the Contractor.
		The permissible deviation from specified MAASHTO densities when materials are tested at OMC shall be -0% with no top limit.
4.	8.	<u>MEASUREMENT AND PAYMENT</u>
4.1.	8.2.	COMPUTATION BY QUANTITIES
4.1.1.	8.2.1	<u>Volume Only Measured Once</u>
		Earthworks will be measured by volume once only as EXCAVATION from cut or borrow to fill, stockpile or waste, whichever is applicable.
4.2.	8.3.	SCHEDULED ITEMS
4.2.1	8.3.6	<u>Extra-over for Intermediate Excavation</u>
		Where Intermediate Excavation is not scheduled as an extra-over item the Contractor shall allow in his unit rate for excavation to excavate in material classified as Soft and/or Intermediate Excavation.

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)
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3 5 CONSTRUCTION

3.1 5.1 REINFORCEMENT

3.1.1 5.1.2 FIXING

Delete from the eighth and ninth lines the following:

“Or, if permitted by the Engineer, by welding”.

3.1.2 5.1.3 COVER

Add to the Sub-Clause:

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	Continuous Pours (New Sub-Clause) <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	Blinding Layer (New Sub-Clause) <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)
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3.7 5.5.7 CONSTRUCTION JOINTS

3.7.1 5.5.7.3 Preparation of Construction Joints

Delete Sub-Clauses (a), (b), (c) and (d) and substitute:

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 12 hours 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

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mortar between 10mm and 15mm thick. The water/cement ratio and the 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 (e.g. 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 $\pm$ 3mm 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

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separate payment shall be made for such dewatering throughout the construction period.

3.7.2.4 5.5.13 GROUTING

Add to the Sub-Clause:

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 Grouting of Pipes/Specials through Wall (New Sub-Clause)

Add new Sub-clause:

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.

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Smooth formwork that has been suitably strengthened for use with a vibrator shall be provided for facing the concrete around each pipe/special.

3.7.2.4.2 5.5.13.2 *Dry-Packed Grout (New Sub-Clause)*

Add new Sub-clause:

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 *Epoxy Grout (Epoxy mortar type only) (New Sub-Clause)*

Add new Sub-clause:

The manufacturer's instructions shall be observed when an epoxy grout is used.

3.7.2.4.4 5.5.14 **DEFECTS**

Add to Sub-Clause:

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.

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3.7.2.4.5 5.5.16 CEMENT MORTAR (NEW SUB-CLAUSE)

Add new Sub-clause:

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 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)

Add new Sub-clause:

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

Add to the Sub-Clause:

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

7.2 TESTING

5.1.1 7.2.3 LABORATORY TESTING

Add to the Sub-Clause:

All test cubes shall be made, cured and tested in accordance with the requirements of SABS Standard Method 863 and 864.

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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.

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)

Add new Sub-clause:

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

Add to the Sub-Clause:

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 HA REF.	SABS 1200HA	STRUCTURAL STEEL WORK (As Applicable to SABS 1200 HA)
1	3	MATERIALS
1.1	3.1	Structural Steel Delete the Sub-Clause and substitute: Except where scheduled to the contrary or shown on the drawings, the grade of steel to be used in the manufacture of the following shall be that grade normally supplied by reputable manufacturers approved by the Engineer: All structural steelwork which shall include ladders, safety cages and platforms, shall be manufactured from 300W grade steel in conformity with SABS 1431, except where shown to the contrary on the drawings or in the schedule of quantities. All stainless steel shall be grade 304, except where shown to the contrary on the drawings or in the schedule of quantities. Grade 3Cr12 steel shall be used where scheduled or shown on the drawings and shall be fully pickled and passivated prior to installation.
2	5	CONSTRUCTION
2.1	5.1.2	Contractor to Provide Shop Details Add to the Sub-Clause: The Contractor shall prepare his own shop details based on the dimensions and details given on the drawings and will be required to submit his shop details to the Engineer at least 3 weeks prior to fabrication. Written consent must be obtained from the Engineer, prior to commencing fabrication. The Contractor is still responsible for ensuring that the shop details are dimensionally correct.
2.2	5.2.6	Handrails Add to the Sub-Clause: Handrailing shall be of tubular construction in grade 304 stainless steel of an approved proprietary make. Hand and knee rails shall be not less than 32 mm O.D. (wall thickness not less than 1,6 mm) and the height of the handrails (centre) shall be 1 000 mm above walk-way level, with knee rails located approximately midway between. Stanchions shall be not less than 44 mm O.D. (wall thickness not less than 1,6mm) and shall have ball type or spun and flared connectors to suit horizontal or angled handrailing as required. The base plates shall not be less than 8mm thick. In general all bends in the hand and knee railing shall be 140 mm radius. Handrails shall be either side or top mounted and shall be fastened with stainless steel nuts, bolts and washers. Spacing between stanchions shall be determined by site conditions but in no case shall it exceed 1 800 mm c/c. At bends, stanchions shall be provided on either side at a distance of 300 mm from mid-bend. Finished handrailing shall be true to line and level and connections shall be securely fixed by means of 2 No. stainless steel pins, finished flush on each side of the joints (to the approval of the Engineer). All ends shall have closures joining the hand and knee railing. The rate quoted per metre is to include for the supply and installation of the handrail, knee rail, portion of a stanchion, footing, holding down bolts and nuts and is to be inclusive of all cutting, mitring, welding, grinding and waste.

PS HA REF.	SABS 1200HA	STRUCTURAL STEEL WORK (As Applicable to SABS 1200 HA)
2.3	5.2.7	Ladders Add to the Sub-Clause: Stairs and ladders are to be provided in accordance with the details shown on the drawings.
2.4	5.2.8	Open Grid Floors Add to the Sub-Clause: Open grid steel flooring is to be cut and framed to the required panel shapes and sizes all in accordance with the details shown on the drawings.
2.5	5.2.10	Protective Treatment Add to the Sub-Clause: All mild steel shall be hot-dip galvanised except where shown to the contrary on the drawings or in the schedule of quantities. Hot-dip galvanising shall conform to SABS 121;2000 for heavy duty coatings or equivalent. Screwed and socketed tubing shall be galvanised in compliance with BS 1387. Galvanised malleable cast iron fittings shall comply with SABS 509.
2.6	5.2.11	Pipe Clamps and Brackets and/or Supports (New Sub-Clause) Clamps and brackets around pipes and supports under pipes and valves are to be constructed to the details shown on the drawings and are to be provided with all necessary bolts for fixing to concrete. Where pipes and valves are supported inside concrete chambers on fabricated steel pipe supports, a layer of 6 mm thick GP rubber sheet (Shore hardness 65) shall be attached to the top surface of the steel support by contact adhesive prior to receiving the pipe or valve to be supported. The rubber is to extend 20mm beyond the edges of the plate.
2.7	5.3.6	Grouting Add to the Sub-Clause: The Contractor will be fully responsible for all grouting work under this Contract.
3	6	TOLERANCES
3.1	6.1.3	Accuracy of Erection Add to the Sub-Clause: The accuracy of erection shall be the degree of accuracy II as tabulated but amended as follows: In items d)1) and d)2) of the table the Degree of Accuracy given as "+ 5" shall be read as "+ 3".
4	7	TESTING
4.1	7.1	Test Certificates Delete the part sentence "in terms of the project specification" from the wording of the Sub-Clause and add the words "when so requested by the former" at the end of the sentence.
5	8	MEASUREMENT AND PAYMENT
5.1	8.3	Scheduled Items Add the following introduction to the subsequent Sub-Clauses: The tendered rates shall cover the cost of preparing shop details (where applicable), the supply of all materials, fabrication, process control, loading, transporting to Site, off-loading, erection (unless separately included), setting into concrete or brickwork and grouting

PS HA REF.	SABS 1200HA	STRUCTURAL STEEL WORK (As Applicable to SABS 1200 HA)
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in. They shall also include for the supply of all nuts, bolts, holding down bolts, washers, rivets, cutting to waste, all temporary bracing, templates and shuttering necessary for installing, transporting and erecting. Where the scheduled items for steelwork include corrosion protection, then the price stated shall also include for such protection as specified in SABS 1200 HC as amended by PSHC. Similarly the materials and corrosion protection for nuts, bolts, washers etc shall match the steelwork ordered. Where the requirements of the above introduction conflict with the requirements of Sub-Clauses 8.3.1 to 8.3.6 inclusive the requirements of the introduction shall take precedence.

PS LB REF.	SANS 1200 LB	BEDDING (As Applicable to SANS 1200 LB)
1.	1	SCOPE This specification covers the supply and laying of bedding for buried pipes carrying fluids flowing under pressure gravity.
2.	2.3	DEFINITIONS <u>Stone Bedding</u> In wet subsurface conditions, the Engineer may specify the use of 19mm crushed stone as specified is SABS 1083.
3.	3	MATERIALS
3.1.	3.1	Selected Granular Material The material specified in Subclause 3.1 is designated selected Granular Material I. An alternative material, Selected Granular Material II, shall be selected soil of a granular nature that has a PI not exceeding 6 and that is free from vegetation and from lumps and stones of diameter exceeding 15mm, and has a compactibility factor not exceeding 0,5.
3.2.	3.2	Selected Fill Material The material specified in Subclause 3.2 is designated Selected Fill material I. An alternative material, Selected Fill Material II, shall be material that has a PI not exceeding 18 in the case of ferricretes or 14 for other material that is free from vegetation and from lumps and stones of diameter exceeding 30mm.
3.3.		Bedding and Selected Granular Fill for Subsoil Drains Bedding For Subsoil Drains Bedding for subsoil drains shall be 19mm single sized crushed for concrete complying with the requirements for SABS 1083. <i>It shall be placed 100mm thick under the pipes and to provide a cover of 200mm to the subsoil pipe, and shall be fully wrapped in a geofabric blanket Grade C, with a minimum lap of 150mm.</i> The width of trench for subsoil drains shall conform to the requirements of subclause of SABS 1200 DB for construction, measurement and payment. <u>Selected Material Fill for Subsoil Drains</u> Selected fill for Subsoil Drains shall be a singularly graded river sand with a permeability of not less than 1×10^{-3} cm/second measured under constant head on the material compacted to visual optimum density. The contract shall provide the result of permeability tests to the Engineer at the rate of one test for every 100m³ of material placed.

PS LB REF.	SANS 1200 LB	BEDDING (As Applicable to SANS 1200 LB)
		Selected fill material shall be placed in a layer 150mm thick or selected fill material shall be placed in a layer as detailed on the drawings.
3.4.		Bedding uPVC and HDPE pipes shall be considered as flexible and bedded as per Drawing LB-2 (SABS 1200). All other pipes shall be considered rigid, and Class C bedding as per drawing LB-1(c) (SABS 1200) provided, except where the pipes are concrete encased. The following classes of bedding are to be used under the conditions specified. <u>Class C</u> • In servitudes where cover to pipes exceeds 600mm • Within street reserves where cover exceeds 800mm • Under street carriageways where cover exceeds 1000mm <u>Class B</u> • Within street reserves where cover is greater than 500mm but less than 800mm • Steep gradient where instructed. <u>Concrete Encasing</u> • Where cover is less than 500mm • River or stream crossings • Steep gradients where instructed.
3.5.		Bedding for HDPE Pipes The minimum thickness of selected granular material above the crown of HDPE pipes shall be 150mm and no selected fill blanket is required.
4.	5.	CONSTRUCTION
4.1.	5.1.1.2	<u>Trench Bottom</u> The trench bottom shall be prepared in accordance with the requirements of subclause 5.5 of SABS 1200DB as amended by clause PSDB 5 of Project Specification PSDB: Earthworks (Pipe Trenches).
4.2.	5.1.4	<u>Compaction</u> Selected Granular Material and Selected Fill Material shall be compacted to 95% and 93% MAASHTO density, respectively, in maximum 150mm layers.

PS LB REF.	SANS 1200 LB	BEDDING (As Applicable to SANS 1200 LB)						
4.3.	5.2	Placing and Compacting of Rigid Pipes Completion of the bedding cradle and placing of the selected fill blanket, and the main fill, shall commence as soon as possible after pipelaying has been completed. The Contractor shall meet all costs of operations ordered by the Engineer to remedy defects in the trench caused by lengthy exposure.						
4.4.	5.4	Concrete Casing to Pipes Where concrete encasement is specified, the Contractor shall place the encasement in accordance with details shown on the Engineer's drawings.						
5.	6	TOLERANCES						
5.1.	6.1	Moisture Content and Density The degree of accuracy shall be II.						
6.	7	TESTING						
6.1.	7.2 & 8	Density Measurement and payment for density tests on the bedding cradle and fill blanket, where ordered by the Engineer, will be by number per successful density tests reported to the Engineer.						
7.	8	MEASUREMENT AND PAYMENT						
7.1.	8.1.5	Disposal of Displaced Material In developed areas all displaced material shall be removed to designated sites and evenly spread to the Engineer's satisfaction.						
7.2.	8.1.6	Freehaul All haul of material for bedding cradle and selected fill obtained from excavations on site shall be regarded as freehaul.						
8.	8.2	SCHEDULES ITEMS						
8.1.	8.2.1	Provision of bedding from Trench Excavation Refer to PS LB5.1.						
8.2.		Selected Granular Material for Subsoil Drains <table border="1"> <thead> <tr> <th>Payment Refer</th><th>Description</th><th>Unit</th></tr> </thead> <tbody> <tr> <td>"PSLB 6.2</td><td>Supply 19mm crushed stone</td><td>m³</td></tr> </tbody> </table>	Payment Refer	Description	Unit	"PSLB 6.2	Supply 19mm crushed stone	m ³
Payment Refer	Description	Unit						
"PSLB 6.2	Supply 19mm crushed stone	m ³						
		The rate shall cover all items sub clause 8.2.2.3. The rate for subsoil shall include for placing of filter material.						

PS LD REF.	SABS 1200 LD	SEWERS (As Applicable to SABS 1200 LD)
1	1.1	SCOPE This specification covers the general construction requirements for sewerage systems and also includes connect sewers and construction of manholes.
2	3	MATERIALS
2.1	3.1	PIPES, FITTINGS AND PIPE JOINTS Sewer pipe material shall be Class 34 uPVC or 'Mainlite' structural wall sewer pipe or F.C. Class 'B' or equivalent and approved.
2.2	3.5	MANHOLES, CHAMBERS, ETC. <u>High Alumina Cement</u> High alumina cement shall comply with the requirements of BS 915 and its use shall be in accordance with the manufacturer's instructions for rendering only.
3	5	CONSTRUCTION
3.1	5.2	LAYING AND BEDDING
3.1.1	5.2.3	<u>Method</u> Add; Laying of pipes shall be in accordance with the manufacturer's instructions for the type of pipe used.
3.2	5.6	MANHOLES, INSPECTION CHAMBERS ETC.
3.2.1	5.6.2	<u>Precast Concrete Manholes Benching</u>
3.2.2	5.6.5	<u>Precast Concrete Manholes</u>
3.2.3	5.6.6	<u>Laying & Jointing of Channels in Manholes</u> Delete Clauses 3.2.1, 3.2.2 and 3.2.3 and replace with the following: Precast concrete manholes shall be constructed to the following specification and as detailed on the standard details. Precast concrete manholes shall be constructed of approved reinforced concrete pipe sections and reinforced precast concrete cover slabs spacer pieces, etc. The minimum thickness of the pipe walls shall be 55 mm and 65 mm in the case of 750 dia., and 1000 dia., manholes respectively. Additional concrete pipe sections shall be applied as specified to bring the manhole up to the required height, prior to the placing of cover slabs, spacer pieces as necessary and cast iron cover and frame units as shown on the drawings. In building concrete pipe manholes the Contractor shall check the accuracy of mating of sections before any jointing material is applied. All mating surfaces shall be examined for irregularities and all roughness, projections, etc, shall be removed by rubbing with carborundum blocks if necessary. The surfaces shall then be

PS LD REF.	SABS 1200 LD	SEWERS (As Applicable to SABS 1200 LD)
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cleaned and primed before the jointing material is applied.

Jointing materials shall be "Bitujoint" or similar approved shall be used in strict accordance with the manufacturer's recommendations and in sufficient quantity to ensure that the joint is completely filled. All surplus jointing material squeezed out on the inside of the manhole shall be carefully removed to leave the joint in a neat and tidy condition.

All mortar joints between precast sections shall be finished off perfectly even and smooth on the inside face, with a steel trowel.

Laying and Jointing of Channels in Floor

Sewers shall be continued through manholes using semicircular stone ware or asbestos cement channels wherever possible. These channels shall be carefully positioned, cut to suit if necessary and firmly set on a minimum amount of 3:1 concrete sand/cement mortar on top of the floor slab, the contact surface having been previously treated with cement grout.

Care and attention to this aspect of the work is particularly important in wet ground to ensure that external water pressures do not tend to lift the channels. The fall of grade across the manholes shall conform to the sewer grade unless otherwise specified.

Forming Channel in Floors

In certain instances junctions and changes in direction occur at manholes, such that no usual channels are suitable. In such cases channels shall be formed in the floor concrete by means of a properly shaped template and the surface rendered while still green with 20 mm rendering, well trowelled to a glass smooth finish. Payment for this work will be as if standard channel sections of the various types had been used.

Benching to Manholes

Two basic types of benching are included in this Contract, viz: Type A for normal conditions of grade and small angles of deviations and Type B to be used in all cases where there is an approach grade into the manhole of 1 in 15 or steeper associated with a change of direction in the manhole or 30 degree or more.

Type A benching shall be brought up vertically on each side of the channel to a height of one pipe diameter and Type B to a height of two pipe diameters above the invert before being sloped back towards the manhole wall at a grade 1:5 all as shown on the drawings. All benching shall be constructed using Grade 25 concrete.

After the floor slab has been cast, the channel and sections shall be firmly and accurately set to line and level on a minimum quantity of 3:1 sand/cement mortar. The bottom concrete ring (which shall be set to the required level on suitably positioned temporary supports such that the clearance between the underside of the ring and the highest sewer pipe is at least 25 mm.

Suitable timber or masonite formers shall be set on each side of the channels to form the vertical faces of the benching and shall be firmly

PS LD REF.	SABS 1200 LD	SEWERS (As Applicable to SABS 1200 LD)
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fixed to ensure that they do not move during the placing of the concrete.

The entire benching concrete shall then be poured in one operation ensuring that the concrete extends a minimum height of 75 mm above the underside of the ring around its entire external periphery, all as shown on the standard drawings. The temporary supports used for setting the ring shall under no circumstances be left in the concrete but shall be removed as the concreting proceeds.

Great care shall be exercised to ensure that all base slabs and benching concrete is well puddled and worked into position in order to achieve complete water-tightness. In this connection and where necessary, the Contractor shall use a suitable outside shutter to retain the benching concrete.

After placing of the benching concrete and within 24 hours, the entire surface shall be rendered with 20 mm 2:1 high alumina cement mortar finished off glass smooth with a steel trowel.

Rendering to Manhole Benching

Rendering to manhole benching shall consist of 1:2 cement/sand mortar thoroughly mixed and applied to concrete surfaces, while the latter is still green and in no case more than 24 hours after the placing of the benching concrete. The thickness of rendering shall not be less than 12 mm and the surface shall be steel trowelled to a glass-smooth uniform finish, neat cement being dusted on during the process. The top of the channel shall be rounded off to a radius of 25 mm. Particular care shall be taken in curing the high alumina cement rendering and the manufacturer's instructions shall be adhered to.

4 7 TESTING

4.1 7.2 TESTS AND ACCEPTANCE/REJECTION CRITERIA

4.1.1 7.2.6 Watertightness of Manholes

Add the following:

"A watertightness test shall be conducted on manholes randomly selected by the engineer as set out below.

1. Internal Water Test

The inlet and outlet pipes to each manhole shall be plugged using an approved expandable plug. The manhole shall then be filled with clean water to the cover level, and left for a period of 24 hours to allow the concrete to become saturated.

After this period the manhole shall be topped up to the cover level and the drop in water level over a period of 24 hours shall be noted. If the drop in level is more than 10 mm per metre of water depth, then the manhole shall be deemed to have failed the test and the Contractor will be required to carry out, at his own expense, whatever repairs may be necessary to seal the manhole and render it capable of passing the test as specified.

2. External Test

PS LD REF.	SABS 1200 LD	SEWERS (As Applicable to SABS 1200 LD)
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After backfilling around the manholes and after sufficient time has been allowed for the ground water level to return to normal the manholes shall be inspected and there shall be no evidence of water entering the manholes, through the manhole walls.

3. Routine Inspection and Testing during Maintenance Period

During the maintenance period the Engineer will conduct routine inspections. Should there be signs of excessive infiltration, the Contractor will be called upon to conduct water tests on the sewers. Any faults or damage highlighted by these tests are to be immediately repaired by the Contractor.

5 8 **MEASUREMENT AND PAYMENT**

5.1 8.2 Scheduled Items 5.1.1 8.2.3 Manholes

Add the following;

Manholes shall be measured according to depth complete, allowing for precast concrete manhole covers and lids as specified.

All specials to be built into the invert of the manhole as detailed will not be measured separately but will be deemed to be included in the unit cost for a manhole. Allow for testing as specified in Clause PSLD.4.1.1.

5.2 8.2.4 Extra Over Item 8.2.3 for Backdrops, etc.

Add the following:

The rate shall cover the additional cost of constructing Type "B" benching in accordance with the requirements of PSLD 3.2

PS LE REF.	SABS 1200LE	MANHOLES AND APPURTENANT DRAINAGE WORKS (As Applicable to SABS 1200 DA)
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PS.LE.1 MANHOLES AND INLETS

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.

PS.LE.2 MANHOLES AND APPURTENANT WORKS: REVISED DRAWING NUMBERS

Details of the precast concrete components of standard manholes are shown on standard drawings listed above.

PS.LE.3 BRICKS

Clause LE. 8.2.9 first paragraph shall be replaced by the following:

"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.

PS.LE.4 INLET AND OUTLET HEADWALLS

Drawing number SD 0406, SD 0601 and SD 0602 shows details of outlet headwalls. The unit of measure for these 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.

PS.LE.5 MANHOLES

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.

PS.LE.6 SUBSOIL PIPES

"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."

PS.LE.7 STONE FOR SUBSOIL DRAIN FILTER

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

PS LE REF.	SABS 1200LE	MANHOLES AND APPURTENANT DRAINAGE WORKS (As Applicable to SABS 1200 DA)			
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Sieve size mm	132	95	67	475	236
% Passing	100	85 - 100	0 - 55	0 - 25	0 - 5

PS.LE.8 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."

PS.LE.9 GEOFABRIC BLANKET

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

C3.7 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
PA	SUBSOIL DRAINAGE
PB	BUILDING WORKS
PEL	ELECTRICAL SPECIFICATION
PES	ENVIRONMENTAL MANAGEMENT PROGRAMME
PG	GRASSING
PLW	EPWP CONDITIONS AND SPECIFICATIONS
PE	HEALTH AND SAFETY SPECIFICATION (Part 1 and Part 2)

PA SUBSOIL DRAINAGE

PA 1 SCOPE

This specification covers the construction of subsoil drainage systems.

PA 2 INTERPRETATION

Not applicable.

PA 3 MATERIALS

PA 3.1 Classes of Excavation

Material shall be classified in accordance with SABS 1200 DB.

PA 3.2 Pipes

Pipes for subsurface drains shall have a specified internal diameter, which shall not be less than 100mm, and shall be one of the following types:

- a) Perforated pitch fibre pipes complying with SABS 921;
- b) Perforated or slotted unplasticised PVC pipes complying with SABS 791.

The size of perforations in perforated pipes shall in all cases be 8 mm diameter $\pm$ 1,5mm and the number of perforations per metre shall not be less than 26 for 100mm pipe and 52 for 150mm pipe. Perforations shall be spaced in two rows for 100mm pipes and four rows for 150mm pipes.

Slotted pipes shall have a slot width of 8mm with a tolerance of 1,5 mm in width. The arrangement of slots shall be to the Engineer's approval but the total slot areas shall not be less than specified for perforations.

Pipes without slots or perforations that are required for transporting subsoil water from the subsoil drain proper to the point of discharge, shall be unperforated pitch fibre, PVC or concrete pipes complying with SABS 677 Class A.

PA 3.3 Filter Materials

Permeable filter materials for subsurface drains shall consist of sand and/or crushed stone of suitable grading. Use may also be made of synthetic fibre filter fabrics.

All aggregates shall comply with SABS 1083.

PA 4 PLANT

Not applicable.

PA 5 CONSTRUCTION

PA 5.1 Trench Bottom

The requirements of SABS 1200 LE shall apply.

PA 5.2 Bedding and Laying

PA 5.2.1 General

Trenches for pipe drains shall be excavated to the dimensions and gradients shown on the Drawings or directed by the Engineer.

A layer of permeable material of the class and thickness as shown on the drawings shall be placed on the bottom of the trench and lightly tamped and finished to the required gradient.

Pipes of the type and size required shall then be firmly bedded on the permeable material true to level and grade, coupled where required and the trench backfilled with further permeable material to such height above the pipes as shown on the drawings or directed by the Engineer. The permeable material shall be lightly compacted and finished to the required level. Further layers of finer permeable material shall then be placed, lightly compacted and finished to an even surface as directed by the Engineer. The remainder, if any, of the trench shall be backfilled with approved impermeable material as required by the Engineer, in layers not exceeding 100mm and compacted to at least the same density as the surround material. The trench must be specially protected against the ingress of water before completing the impermeable layer.

Permeable material must be placed in layers of not more than 300 mm at a time and lightly compacted. The total thickness of each type of permeable material must be carefully controlled, and when placing the thinner layers, suitable spacers must be used for this purpose. When placing successive layers and lower layer must not be walked on or disturbed more than can be avoided. Care shall be taken to prevent the contamination of the subsoil drains during construction and all permeable material contaminated by soil or silt shall be removed and replaced by the Contractor at his own expense.

Where spigot and socket pipes are used, the socket end shall be laid upgrade with the spigot fully entered into the adjacent socket. Where plain butt joint pipes are used they shall be laid firmly together to prevent infiltration of backfill material. Perforated and slotted pipes shall be joined by couplers. Perforated pipes shall be laid with the perforations on top or in the bottom as instructed.

The higher end of subsoil pipe drains shall be sealed off with a loose concrete cap of Class 20/19 concrete as shown on the drawings and at the lower end the pipe drain shall be built into a concrete head wall providing a positive outlet or connected to stormwater pipes or culverts.

Any section of a subsoil drain constructed from pipes without perforations or slots shall be backfilled with impermeable backfill material as described above. Where suitable, the excavated material may be used for backfilling.

PA 5.2.2 **Polyethylene Sheeting**

Where shown on the drawings or directed by the Engineer, trenches for subsurface pipe drains shall be lined with approved polyethylene sheeting 0,15 mm thick. The polyethylene sheet shall cover the bottom of the trench and shall extend upward on both sides for a distance as directed by the Engineer in each particular case, to form a waterproof channel. Joints in the polyethylene sheeting shall be heat welded together or lapped for 200mm minimum.

PA 5.2.3 **Synthetic Filter Fabrics**

Where specified for use of subsoil drains, filter blankets and other applications, synthetic fibre filter fabrics shall be procured, furnished and installed as specified and shown on the Drawings. Filter fabric shall not be exposed to direct sunlight for prolonged periods and protected from mechanical damage during installation and construction.

PA 6 **TOLERANCES**

The requirements of SABS 1200 LE shall apply.

PA 7 TESTING

Where rodding eyes are constructed the Contractor shall prove to the satisfaction of the Engineer that the pipes can be rodded.

PA 8 MEASUREMENT AND PAYMENT

PA 8.1 Scheduled Items

PA 8.1.1	a)	Excavation in all materials for trenches	Unit: m ³
		Items will be provided for various pipe diameters and dept increments of 1,0m measured to the bottom of the bedding layer.	
		The tendered rate shall include full compensation for the excavation of the material to the required lines, levels and grades, all temporary shoring and strutting and the disposal of the material as directed, within the freehaul distance.	
	b)	Extra-over item a) above for:-	
		1) Intermediate excavation.	Unit: m ³
		2) Non perforated	Unit: m ³
	b)	Excavate unsuitable material from trench bottom and disposed of it.	Unit: m ³
PA 8.1.2		Supply and lay pitch fibre or PVC pipes for subsoil drains including couplings	
	a)	Perforated	Unit: m ³
	b)	Non Perforated	Unit: m ³
PA 8.1.3		Supply and install filter fabric in subsoil drain	Unit: m ³
PA 8.1.4		Supply and install stone backfill to trench	Unit: m ³
PA 8.1.5		Supply and install river sand backfill to trench	Unit: m ³
PA 8.1.6		Supply and install Polyethylene sheeting	Unit: m ³
PA 8.1.7		Rodding eyes	Unit: No
		The tendered rate shall include full compensation for installation of the rodding eye and connection into the subsoil pipes including any additional cost of fittings measured extra over scheduled item 8.1.2.	
PA 8.1.8		Subsoil drain outlet	Unit: No.
		The tendered rate shall include full compensation for the construction of the outlet headwall but excluding the stone pitching which is measured elsewhere.	
PA 8.1.9		Fittings (Type specified)	Unit: No.

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. Perpendes 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	± 3	± 2	± 2	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 Gazete 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

Branderling 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 aluminium windows, doors, etc. in all respects in so far as they are applicable.

Aluminium windows and doors shall be manufactured from extruded L28 aluminium 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 Aluminium 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 aluminium alloy finished to match the windows, doors, etc. on which they occur. Samples of all fittings shall be supplied to the Principal Agent for approval.

Top 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 aluminium glazing beads sufficient in size and profile to suit the method of glazing employed, finished to match the windows, doors, etc. and neatly mitred. Screws where necessary shall be of aluminium or 300 Series stainless steel and have pan or raised heads finished to match the beads.

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

Aluminium 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

Aluminium 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

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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.

2.2 INSTALLATION OF CONDUIT

2.2.1 General

Except where cables are specified for certain circuits, the installation(s) shall be tubed throughout in steel conduit. Split conduit is not permitted. All conduits shall, wherever possible, or unless otherwise specified or agreed, be concealed in the structural work.

Except where agreed or otherwise specified or indicated on the drawings, all conduit to points shall run via the ceiling and floor slabs or roof space. In damp situations and where exposed to the weather, the conduits shall be so installed as to avoid, as far as possible, the condensation of moisture within them. All running joints are to be painted with an approved metal primer.

Mechanical and Electrical continuity must be maintained throughout the installation. Each length of conduit and every conduit fitting must be inspected for defects and all sharp edges or burrs must be removed before it is installed. All joints are to be tightly fitted together.

Running joints with long threads, where used, are to be fitted with a lock nut and the running thread shall not be longer in length than a coupling and lock unit.

In conduits smaller than 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.

2.2.2 **In Roof Spaces**

The conduit in roof spaces shall be installed parallel or at right angles to the roof truss members and shall be secured at centers not exceeding 1,2m 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 brander interferes with the installation of the ceiling point specified, the Contractor must trim the brander 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.

2.2.3 **In Concrete Slabs**

In order not to delay building operations, the Contractor must ensure that all conduits and conduit fittings, which are to be cast in concrete, are laid in good time. The Contractor shall have a competent Electrical Artisan standing by during casting of concrete, etc., to ensure that the conduit boxes are not damaged during casting of concrete.

Draw boxes, expansion joints boxes and round conduit boxes are to be provided where necessary.

Deep type conduit boxes shall be used for side entering conduits and normal shallow boxes may be used for back entry conduits. No elbows, bends or sharp sets will be allowed in concrete slabs except in cases of conduits of 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 Drawing No. _____ 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.

2.2.4 **Surface Work**

All conduit must be plumbed and levelled 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.

2.2.5 **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.

2.2.6 **Fixing of Conduits**

Conduits shall be fixed to switch and socket outlet boxes by means of couplings and brass male bushes or lock nuts and brass bush nuts. Couplings and male bushes to be used on all surface work.

2.2.7 **Chases and Building Work**

Except where otherwise specified conduits, switch boxes, plug boxes and distribution boards are to be built into the brick walls by the Contractor. It will, however, remain the responsibility of the Contractor to ensure that the above-mentioned boxes and distribution boards are correctly built in and are firmly bedded and cemented into the walls, plumb and square.

The Contractor shall, unless otherwise specified, do all necessary chasing and cutting of bricks. All electrical materials (e.g. conduits up to 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.

2.3 **PLUGGING OF WALLS**

Only approved plastic plugs shall be used to secure conduit or equipment up to 5kg mass. The use of round-headed screws only will be permitted.

Heavier equipment shall be secured by means of approved expansion bolts.

Wood plugs and any plugs in the joints in brick walls are not permitted.

2.4 **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.

2.5 **WIRING**

2.5.1 **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
<u>Motor circuits</u>	
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.

2.6 **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 brading.

2.7 **BATTEN HOLDERS**

B.C. batten holders shall be of brass or moulded plastic reinforced type complete with shade ring. The batten holders shall comply with SANS IEC 60238 and SANS IEC 61184. All lamp holders are to have brass terminals with screw type connection.

2.8 **LAMP HOLDERS**

Edison screw lamp holders : SANS IEC 60238

Bayonet lamp holders : SANS IEC 61184

Lamp holders for tubular fluorescent lamps : SANS IEC 60400

B.C. screwed lamp holders 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.

2.9 **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.

2.10 **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.

2.11 **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 labelled 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.

2.12 **DISTRIBUTION BOARDS**

2.12.1 **Approval**

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

2.12.2 **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.

2.12.3 **Surface Mounting Distribution Boards**

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

2.12.4 **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.

2.12.5 **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.

2.13 **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.

2.14 **CONNECTIONS TO OUTLETS**

2.14.1 **General**

Where connectors are used to connect to the wiring of luminaries and other appliances, the connectors shall comply with SANS 1239.

2.14.2 **Connection to Stoves**

2.14.2.1 **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.

2.14.2.2 **Stove Connections in High School Domestic Science Unit Kitchens**

Connections to stoves in High School Domestic Science Unit Kitchens, where the stoves are situated in front of a fitting, shall be generally as specified in Clause 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.

2.14.3 **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.

2.14.4 **Connections to Power Points**

Connections to electric motors and fixed apparatus to vibration shall, unless otherwise specified or indicated on the drawings, have final connections consisting of conduit and flexible tubing or reinforced hose in accordance with Clause 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.

2.14.5 **Underground Service Connection**

This clause refers to underground service connections not provided by the Supply Authority.

The service cable and earth wire to be connected at the supply point in accordance with Clause 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.

2.14.6 **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.

2.14.7 Connection and Mounting of Cable Fed Street/Site Lighting

Street/site lights shall in all cases, except where otherwise specified, be fed by underground cable. Unless otherwise directed, a suitable terminal board shall be provided in the base of the lighting pole for the connection of the incoming and outgoing cables, the feeds from the terminal board to the fitting shall be as specified.

“Surfix” cable and compression glands shall be installed between terminal board and cross arm/bracket mounted 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.

2.15 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 manufacturer's requirements and the Contractor shall have adequate and suitable equipment and labour to ensure that no damage is done to cables during such operation. All cable pipes and ducts entering buildings are to be sealed against the ingress of vermin, water, etc.

2.15.1 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.

2.15.2 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.

2.15.3 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.

2.15.4 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.

2.15.5 **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.

2.15.6 **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.

2.15.7 **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.

2.15.8 **Joints and Termination of Cables**

Joints in underground cables and terminations shall be made by means of "Scotch"Cast" or other approved epoxy-resin pressure type jointing kits. Low tension PVC cables are to be made off with sealing glands and materials designed for this purpose, which must be of approved make.

2.15.9 **Sealing of Paper Insulated Cable Ends**

Where cables are cut and not immediately made off, the ends must be sealed without delay. If cables are cut and the ends not immediately made off or sealed, the cable may be rejected and the Contractor will be required to replace it at his own expense.

2.15.10 **Earth Wires**

Except where specifically directed otherwise, earth continuity conductors are to be run with all underground cables constituting part of a low tension distribution system. Such earth continuity conductors shall be bare copper wire of a cross sectional area in accordance with the Code of Practice 0142 but shall not be less than 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 bar. The earth wire must be secured to the cable at 1,8m centers.

2.15.11 **Opening Up of Existing Cables**

Where it is necessary to expose existing buried cables for any purpose, or to excavate in the vicinity of existing buried cables, pipes, etc., every care is to be exercised and only labourers experienced in such work, and duly warned by the Contractor, shall be employed thereon.

2.16 **EARTHING**

2.16.1 **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.

2.16.2 **Earthing in Installations**

The installation shall be effectively earthed in accordance with the relevant sections of the Code of Practice 0142 and the requirements of the Supply Authority.

All hot and cold water and waste pipes are to be effectively bonded by means of 12 x 1,5mm 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 of 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.

2.17 **EXISTING BUILDINGS**

2.17.1 **Occupied Buildings**

Where work is to be carried out in occupied buildings the Contractor must arrange to carry out the installation with as little interruption to services and discomfort to the occupants as possible.

2.17.2 **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.

2.17.3 **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.

2.17.4 **Making Good**

Any damage which may be done to the plaster work, floors, ceilings, wood and paint work, furniture and other equipment in the building, etc., during the progress of the electrical installation shall be repaired and made good by the Contractor to the satisfaction of the Head: Works.

2.18 COMPLETION

2.18.1 Balancing of Load

The Contractor is required to balance the load as equally as possible over multi-phase supplies.

2.18.2 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.

2.18.3 Labelling

All circuits and apparatus on switchboards shall be suitably correctly labelled 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 channelling 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 labelled 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.

2.18.4 Finishes

Covers for all boxes, expansion boxes, etc., shall be finished to match the paint work of the ceiling or wall surface or as specified.

2.18.5 Site Drawing

On all completed new work or where specifically called for in the Tender Document, the Contractor shall, on completion of the works, submit to the Head : Works, a marked up site plan indicating the exact underground cable reticulation.

2.19 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.

2.20 BELLS AND BUZZERS

2.20.1 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.

2.20.2 Doorbells, Buzzers and Bell Transformers

These will be as specified for each service.

2.20.3 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.

2.21 SIGNAL TIMERS

2.21.1 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:

1. The mechanism may be synchronous motor or quartz movement driven with a 24 hour dial or digital time read-out suitable for operation on a 230V 50Hz supply and is to be provided with a spring or battery reserve of a least 24 (twenty four) hours.
2. The unit is preferably to have minute to minute timing for a 24 (twenty four) hour period although 5 (five) minute intervals are acceptable, and is to be provided with Weekend lockout. Signal periods shall be adjustable from 5 – 45 seconds.
3. The unit shall be housed in a metal or plastic case with detachable front cover suitable for wall mounting.
4. Timers with punch tape programming are not acceptable.

2.22 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.

2.23 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.

2.24 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.

2.25 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.

2.26 **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.

2.27 **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

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A2.	Distribution board	A1
A3.	Bus-Bars & Switchgear	A2
A4.	Cascading	A2

A1. ELECTRICITY SUPPLY	1 <u>General:</u> The Supply Authority is Eskom OR local municipality TBA late stage. 2 <u>Low Voltage Supply:</u> 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 <u>New Supply:</u> 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. <u>General:</u> 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 (e.g. db-B fed from db-A) (b) Feeder cable size (e.g. 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. <u>General:</u> 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. <u>General:</u> 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

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B6.	Cable Manholes	B2
B7.	Trenching and Backfilling	B2
B8.	Cable Markers	B3

B1. <u>LV CABLES</u>	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: <table><tr><td>From</td><td>To</td><td>Cable Size</td></tr><tr><td>Supply Authority</td><td>DB-LV KIOSK</td><td>95 mm² 4 Core</td></tr></table> Non-Essential	From	To	Cable Size	Supply Authority	DB-LV KIOSK	95 mm² 4 Core
From	To	Cable Size					
Supply Authority	DB-LV KIOSK	95 mm² 4 Core					
B2. <u>LV CABLE TERMINATIONS</u>	.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. <u>CABLE TESTS</u>	All cables shall be tested in accordance with SANS 1507						
B4. <u>CABLE ROUTES</u>	All cable routes shall be confirmed with the Engineer on site prior to Installation thereof.						
B5. <u>CABLE SLEEVES</u>	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. <u>CABLE MANHOLES</u>	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. <u>TRENCHING AND BACKFILLING</u>	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. <u>CABLE MARKERS</u>	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 (e.g. 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

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C1. <u>NATURE OF BUILDING CONSTRUCTION :</u>	The sports field consists of ablution block, soccer field and combi courts.
C2. <u>LUMINAIRES :</u>	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. <u>CONDUITS</u>	.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. <u>EARTHING OF PREMISES</u>	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. <u>SWITCHES, SOCKETS AND COVERPLATES :</u>	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. <u>LABELLING</u>	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 labelling 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. <u>COMPLIANCE CERTIFICATE :</u>	The Contractor shall issue a Compliance Certificate for the Installation for each DB as per SANS 10142. The Original

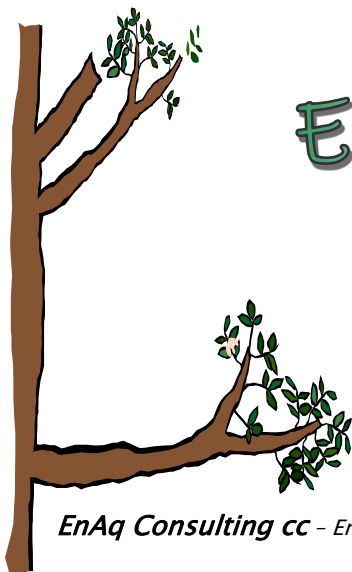
	Certificate shall be handed to the Engineer on completion of this Contract. It shall be noted that First Delivery will not be taken until a Completion Certificate and "As-Built" documentation has been furnished. New Electrical
C8. MATERIALS:	All materials and fittings used shall be approved and conform 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. <u>GENERAL REQUIREMENTS</u> :	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. <u>ENVIRONMENT MANAGEMENT & EIA</u> :	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. <u>DOCUMENTATION & AS BUILT DRAWINGS</u>	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. <u>PROGRAMME:</u>	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. <u>REGISTRATION:</u>	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 Durban 4091

Tel: +27(0)31262 3171

Fax: +27(0)31 262 2279/086 559 9797

Mobile: 082-875 3710

Email: Urvassi@enaq.co.za

PROPOSED CONSTRUCTION OF KWAMPONDO SPORTSGROUND, UMDONI LOCAL MUNICIPALITY

Environmental Management Programme (EMPr)

**COMPILED FOR DARTINGO CONSULTING ENGINEERS ON BEHALF
OF UMDONI LOCAL MUNICIPALITY**

EIA REFERENCE NUMBER: DC21/0019/2021

NEAS REFERENCE NUMBER: KZN/EIA/0001606/2021

**Compiled by: Urvassi Hurburun Pr.Sci.Nat Reg EAP: 2019/1754(EAPASA)
EnAq Consulting cc
August 2021**

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Table 1: Generic EMPr

Table 2: Site specific EMPr

1. IMPLEMENTATION OF THE EMPR

1.1. Introduction

This Environmental Management Programme Report (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 CONSTRUCTION OF KWAMPONDO SPORTSGROUND, UMDONI LOCAL MUNICIPALITY"** 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 CONSTRUCTION OF KWAMPONDO SPORTSGROUND, UMDONI LOCAL 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 mechanism for ensuring that measures identified in the EIR designed to mitigate potentially adverse impacts, are implemented;
- Provide a framework for mitigating impacts that may be unforeseen or unidentified until construction is underway;
- Provide assurance to regulators and stakeholders that their requirements with respect to environmental and socio-economic performance will be met; and
- 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

1.5.

The Contractor is regarded as NOT to have complied with the EMPR if:

- Environmental damage ensues due to negligence
- The Contractor fails to comply with corrective actions or other instructions issued by the Dept. of Agriculture Environmental Affairs and Rural Development, Project Manager or Environmental Control Officer within a specified time.
- 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 minimize 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. KEY ROLE PLAYERS

2.1 EAP

Trading name (if any):	Enaq Consulting		
Contact person:	Urvassi Hurburun, Reg EAP; Pr.Sci.Nat		
Physical address:	23 Dawn Crescent, Westville, 3629		
Postal address:	23 Dawn Crescent, Westville		
Postal code:	3629	Cell:	082 875 3710
Telephone:	031 262 3171	Fax:	
E-mail:	urvassi@enaq.co.za		

2.2. SPECIALIST DETAILS

Trading name (if any):	SDP Ecological and Environmental Services		
Contact person:	Simon C. Bundy		
Physical address:			
Postal address:	P O Box 1016, Ballito		
Postal code:	4420	Cell:	
Telephone:	032-9460685	Fax:	
E-mail:	simon@ecocoast.co.za		

2.3. PROJECT PROPONENT

Trading name (if any):	Umdoni Local Municipality		
Contact person:	Mr Sandile Xulu		
Physical address:	-		
Postal address:	Private Box 19, Scottburgh, 4180		
Postal code:	4180	Cell:	-
Telephone:	039 976 1202	Fax:	039 976 2194
E-mail:	sandilex@umdoni.gov.za		

2.4. PROJECT ENGINEER

Trading name (if any):	Dartingo Consulting Engineers		
Contact person:	Premesh Jagganath		
Physical address:			
Postal address:	P O Box 65596		
Postal code:	4090	Cell:	083-7823711
Telephone:	031 266 0903	Fax:	+27(0)31 266 0906
E-mail:	premesh@dartingo.co.za		

3. BACKGROUND TO PROJECT

3.1. Site Co-Ordinates

Project Locality

Local Municipality	Ward	Catchments	Description	Co-ordinates (approximate centre of project areas)	
				Longitude	Latitude
UMDONI LOCAL MUNICIPALITY (KZN 212)	1	Mvoti- Mzimkhulu Water Management Area Mkomazi River Catchment	Site 1 (Alt)	30°27'28.90"E	30°8'11.90"S
			Site 2 (Preferred)	30°28'24.40"E	30°7'47.60"S

3.2. Project Description

The project is located within the Ntabesikopo area. Ntabesikopo is approximately 32km north east of Scottburgh and falls within the jurisdiction of Ugu District Municipality and Umdoni Local Municipality. The co-ordinates are as follows:

- ❖ Site 2 (Preferred Site)- 30° 7' 47.60"S; 30° 28' 24.40"E

The Umdoni Local Municipality is located within Ugu District Municipality about 50km from the city of Durban and 65km from Port Shepstone along the South Coast. Umdoni Municipality is strategically located along major route N2, R612 and R102. It serves as the gateway of Ugu District Municipality from the North. The Umdoni Local Municipality is a Category B (which refers to a local municipality that shares municipal executive and legislative authority in its area with a Category C municipality within whose area it falls in i.e. Ugu District Municipality). It is the smallest of four municipalities in the district, accounting for just under a quarter of its geographical area.

The scope of works may include, but not be limited to the following:

- ❖ Bulk earthworks
- ❖ Storm water management
- ❖ Construction of a sports field
- ❖ Construction of a combi-court
- ❖ Construction of an ablution/change rooms/storeroom building
- ❖ Construction of a covered embankment seating
- ❖ Construction of concrete ramps and walkaways
- ❖ Gravel parking area
- ❖ Septic tank and soakaway
- ❖ 2.1m high ClearVu fencing

The following are the civil design requirements:

❖ **Water**

The water demand for the site is based on the site size. The requirements are as follows:

- Proposed Site Area- 14ha
- Water Demand- 15kl/day

The connection and internal pipework will sized accordingly

❖ **Sanitation**

With access to water on this site, a septic tank and soakaway system has been opted for to deal with effluent from the ablution facility. The ablutions will be situated on the east of the site. The septic tank will be situated below the ablutions and the effluent will be conveyed to the northern most part of the site where it will discharge into a soakaway. Based on the sportsground capacity of 200 people, approximately 1200L/day of effluent could discharge into the soakaway. The Soil Surface Area (excluding the base) of the soakaway required to allow for sufficient infiltration is approximately $31m^2$.

A soakaway with the following dimensions will suffice:

$$\text{Vol} = l \times w \times h$$

$$= 5 \times 3 \times 2$$

$$= 30m^3$$

$$\text{Surface Area} = (2 \times l \times h) + (2 \times w \times h)$$

$$= (2 \times 5 \times 2) + (2 \times 3 \times 2)$$

$$= 32m^3$$

❖ **Storm Water Management**

Storm water drainage in the form of precast storm water channels will be installed along each of the seating areas, ramps and walkaways. The storm water will discharge into a soakaway separate to that of the soakaway dealing with the effluent from the ablutions. In addition, subsoil drainage will be installed beneath the surface of the sports field which will discharge into the soakaway.

Alternatives:

Location: an alternative location for the sportsground (site 1) was considered at 30° 8' 11.90"S; 30° 27' 28.90"E. It could NOT be opted for due to the ffg constraints: - Access to the site is restricted. - There is no space for parking. - Only a sports field could fit – no space for a combi-court and changerooms (these are required). - The drainage path was quite evident upon our site visit and this intersected the existing field and the most suitable area for embankment seating.

3.3. Need/Desirability and other Factors

A significant need for the Proposed KwaMpondo Sportsground (Site 2) Project is evident from the following:

- ❖ The community requires a sportsground to assist with the youth abstaining from drugs, alcohol, etc. There is presently no such facility in the area.
- ❖ Quality of life will be enhanced by providing this project as a means of recreation.
- ❖ Creating a formal sports field uplifts the communities and encourages people to become part of the community.

The objectives of the project are:

- ❖ To uplift and encourage people to become part of the community.
- ❖ To assist with the youth abstaining from drugs, alcohol, etc. by providing a means of recreation.
- ❖ To create local employment during the construction of the works.

Benefits include:

- ❖ The total population that will benefit from this project is 591 from approximately 140 households. The sportsground will be able to cater for approximately 200 people and will have facilities for five sports namely, soccer, basketball, netball, volleyball and tennis.
- ❖ The proposed development will result in the provision of local employment opportunities.
- ❖ Being a new venture, new jobs will be created directly and many more indirectly particularly in the construction industry.
- ❖ Improvement of the quality of life for youth in the area.

3.4 Directions to Site

From: Scottburgh, 4180

To: Ntabesikopo

1 hr 15 min (48.6km) via P197-3 (Fastest Route)

Scottburgh

- Head west on Airth St toward Willamson St
- Continue to Mkhumbani
 - Turn right onto R102
 - Turn left onto Dududu Rd
 - Continue onto Mill Rd
 - Turn left onto P197-3
 - Turn right
- Drive to your destination in Ntabesikopo
 - Slight right
 - Continue straight
 - Keep right
 - Turn right

Ntabesikopo

3.5. Site Description

The proposed development area is located in the Ugu District Municipality, and within the Umdoni Local Municipality. The site is located in the town of Ntabesikopo/ KwaMpondo.

The site is gently sloping and has grassland type vegetation throughout. There is existing access to the site via gravel roads. The Umdoni Local Municipality is strategically located along major route N2, R612 and R102 and it serves as the gateway of the Ugu District Municipality from the North. The current land use in the proposed site consists primarily of open space with surrounding rural dwellings. The project site is approximately 12 031m² which consists of mainly grassland vegetation.

3.5.1. Current Land use

The proposed site consists primarily of open space and is surrounded by rural dwellings.

The Umdoni Local Municipality is located within Ugu District Municipality about 50km from the city of Durban and 65km from Port Shepstone along the South Coast. Umdoni Municipality is strategically located along major route N2, R612 and R102. It serves as the gateway of Ugu District Municipality from the North. The Umdoni Local Municipality is Category B (which refers to a Local Municipality that shares municipal executive and legislative authority in its area with a category C Municipality within whose area it falls in i.e. Ugu District Municipality). It is the smallest of four municipalities in the district, accounting for just under a quarter of its geographical area.

It is divided into three major land use zones, that is, commercial agriculture dominated by sugar cane fields, the traditional authority areas located to the north of the municipal area and the coastal urban nodes forming part of the ribbon development stretching from Amanzimtoti down the South Coast.

The land cover in rural areas of Umdoni comprises predominantly sugar cane, bananas and commercial forestry. The majority of the remaining area is under formal and informal urban development. These are limited areas of indigenous vegetation interspersed in the commercial crop lands. The majority of the rural areas of Umdoni Local Municipality appear to be under sugar cane production. There are relatively small areas of commercial forestry or plantation, particularly in the south of the municipality. Banana production also occupies a relatively small area of the municipality.

The project is located within the Ntabesikopo area. Ntabesikopo is approximately 32km north east of Scottburgh and falls within the jurisdiction of Ugu District Municipality and Umdoni Local Municipality. The co-ordinates are as follows:

- Site 2 (Preferred Site): 30°7'47.60"S ; 30°28'24.40"E

Currently the selected site is vacant and adjacent to a primary school (which does not have a sportsfield). A small levelled portion of the existing site is currently being used by children in the community to play soccer.

Implications/Impacts

- The location of all underground servitudes must be identified and confirmed.
- Choice of access routes must consider local residents.
- Construction vehicles are to adhere to speed limits and avoid haulage activity during times of peak traffic.
- Construction camps to be located away from any existing properties.

3.5.2. Topography

The majority of the landscape is typified by gentle slopes, while the project area is comprised of slopes gently undulating to the southwest and northeast.

Implications/Impacts

- Implementation of an adequate storm water management plan.

3.5.3. Water Courses

Umdoni falls with the mvoti-mzimkhulu water management area.

This catchment is further subdivided into the following 5 catchment areas which are located within the municipality:

- ❖ Ifafa and Mvuzi
- ❖ Mpambanyoni
- ❖ Mtwalume
- ❖ Mzimayi, Umzinto, Mkumbane, Sezela and Mdesingane and
- ❖ Amahlongwa

There are approximately 5 major rivers that traverse the municipality namely:

- ❖ Amahlongwa river
- ❖ Ifafa river
- ❖ Mpambanyoni river
- ❖ Mtwalume river
- ❖ Umzinto river

The municipality also consists of numerous dams and wetlands. There are 225 wetlands covering 210.6ha (0.9%) of the municipality.

No wetland or aquatic systems are evident within the study area, or within 500m of the site

3.5.4. Geology and Soils

According to regional geological map sheet "3030 Port Shepstone" to scale 1:250 000 by Council for Geoscience, the site geology comprises Namibian-age gneissose granite of the Margate Suite, Natal Structural and Metamorphic Province. The shallow soil condition derived from the underlying geology is inferred to comprise clayey gravelly SAND and silty gravelly CLAY.

Implications/Impacts

- To prevent soil erosion, surface run-off must be controlled to prevent soil loss from the site during the site establishment / construction phases.
- Clearing of ground cover only as it becomes necessary for work front to proceed.

3.5.5. Flora & Fauna

FLORA

Umdoni Municipality falls under the MaputalandPondoland-Albany Hotspot Region an area described by Conservation International as "Biodiversity Hotspot". The hotspot's vegetation is comprised mainly of forests, thickets, bush-veld and grasslands. Within the terrestrial environment, two broad biomes are represented in the Umdoni Local Municipality, namely the Indian Ocean Coastal Belt and Forest.

The vegetation types found within Umdoni Municipality are as follows:

- ❖ KwaZulu-Natal Coastal Belt: 23301.1ha (97.86% of Municipality)
- ❖ Northern Coastal Forest: 196ha (0.82% of Municipality)

- ❖ Subtropical Coastal Lagoons: 79ha (0.33% of Municipality)
- ❖ Subtropical Seashore Vegetation: 224.6ha (0.94% of Municipality)

According to the KZN Terrestrial Systematic Conservation Plan 2011, 4591ha (19.3%) of the municipality remains natural, while 19100.5ha (80.2%) of the municipality has been transformed. The significant areas of natural vegetation are the Coastal Strip, river valleys and their tributaries. Indian Ocean Coastal Belt is the only biome type found within the Municipality. The dominant vegetation type within the municipality is KwaZulu-Natal Coastal Belt.

There are two critically endangered ecosystems covering 4587.3ha (19.3%) of the municipality, namely:

- ❖ Interior South Coast Grasslands (3175.1ha)
- ❖ Southern Coastal Grasslands (1412.2ha)

There are no endangered ecosystems within Umdoni Municipality. However, there is one vulnerable ecosystem namely KwaZulu-Natal Coastal Belt covering 0.2ha. Within the biomes, there are 12 vegetation types found within the Municipality. The predominant vegetation type is Income Sandy Grassland, which covers 48.61% of the municipality. It is important to note that most vegetation has been disturbed due to random fires, forest clearing, trampling, overgrazing, agriculture (sugar cane) and township development.

FAUNA

Of the mammals occurring in the Ugu District Municipality, only the Rough-haired golden mole (*Chrysospalax villosus dobsoni*) is considered Critically Endangered. Oribi (*Ourebia ourebi*) is an endangered species and an additional four species are considered Vulnerable.

Bird species within the municipality include the Critically Endangered Blue Swallow (*Hirundo atrocaerulea*) and Wattled Crane (*Bucconas carunculatus*). Two additional species, the Cape Parrot (*Poicephalus robustus*) and Spotted Ground-thrush (*Zoothera guttata*) are considered Endangered, while an additional 17 species considered Vulnerable also occur in the municipality.

There are at least 3 noteworthy species of frogs occurring in Ugu District Municipality. The Mistbelt Moss Frog (*Anhydrophryne ngongoniensis*) is classified as Critically Endangered in South Africa. Two additional species, the Kloof frog (*Natalobatrachus bonebergi*) and Long-toed frog (*Leptopelis xenodactylus*) are Endangered.

While a wide range of reptile species occur within the Ugu District Municipality, the Southern African Rock Python (*Python sebae natalensis*) is the only known threatened species (classified as Vulnerable).

Three rare butterfly species including the bicoloured skipper, Pondo Charaxes and Whitish Amakosa Rocksitter have been recorded in the Ugu District Municipality. The Trumpetmouthed hunter snail (*Gulella salpinx*) also occurs here and is considered Critically Endangered. Other important invertebrate species include the Keyhole hunter snail (*Gulella claustralis*) and Strong black millipede (*Doratogonus infragilis*), both classified Endangered species.

As per terrestrial biodiversity assessment:

The site is highly transformed and does not exhibit primary grassland habitats

Given the relatively dense settlement around the site, as well as the presence of a school and related structures, it is understood that this site has been highly transformed and shows little ecological components of importance

Implications/Impacts:

- The vegetation types are not of critical biodiversity importance and the area to be impacted on is considered small.
- Continuous monitoring and removal of invasive species
- No unnecessary removal of vegetation to be removed.
- No fires to be allowed on private property
- No poaching or destruction of any vegetation to be allowed while on site.

- No littering to be allowed anywhere on the camp-site area.
- Proper solid waste collection and disposal to be undertaken
- Proper weed control to be undertaken
- No vehicle access to be allowed through any drainage channel.

3.5.6. Air Quality, Noise and Dust Control

The main commercial activity in the Umdoni Local Municipality is agriculture, which is dominated by sugarcane. The practice of burning sugarcane prior to harvesting is common in the area, and this occurs predominantly in the late winter and early summer months. Sugar cane fires can affect ambient air quality over an extensive area, depending on the prevailing meteorology and the size of the fire or fires. However, sugarcane burning in the Umdoni Local Municipality is well controlled following the formulations of a burning policy to alleviate the various problems associated with sugarcane burning that was developed with input from key stakeholder groups.

Controlled and uncontrolled burning of grasslands are sources of smoke and particulates throughout the Umdoni Local Municipality, especially during the drier winter months. The only major industrial source of air pollution in the Umdoni Local Municipality is the sugar mill at Sezela, where approximately 2 million tons of cane is crushed annually (SASA, 2010). Sugar milling is typically associated with emissions of particulates, some sulphur dioxide and odour. The Sezela Sugar Mill uses mostly bagasse for steam generation and the installed emission abatement equipment ensures that the emission concentrations comply with the requirements of the NEM: Air Quality Act (Act No.39 of 2004) (Pers. Comm. Conrad Klusener, Illovo Sugar, Sezela).

Sappi Saiccor on the northern border of the Umdoni Local Municipality is a relatively significant source of SO₂ and particulate matter. There are a number of industrial and mining activities in the Port Shepstone area to the south of the Umdoni local municipality, including the Marburg industrial area, NPC Cimpor's Simuma cement mill and quarry, and the mining at Idwala Carbonates.

A large proportion of homes in the Umdoni Local Municipality are electrified, but paraffin and wood are used in a large number of homes for cooking. Paraffin is a relatively clean fuel when used in efficient stoves, but wood burning emits particulate matter and carbon monoxide (CO).

Current Air Quality Status

No ambient air quality monitoring has been conducted in the municipality. In addition, no air quality assessments have been done beside that for the Wild Coast N2 Toll Road (CSIR, 2008). Despite the lack of information, the absence of significant sources of air pollution implies that air quality in the local municipality is relatively good, except when sugar cane is burnt and in close proximity to sources. Emissions from industrial activity to the north and the south are unlikely to affect ambient air quality in the local municipality despite the prevailing winds from the northeast and southwest. The prevailing northeasterly winds will disperse pollutants from Sappi Saiccor towards the area, but the effect will be minimal and only occasional in the north-eastern parts of the municipality.

Implications/Impacts

- In terms of air quality, generation of dust during construction could occur, increased dust pollution could arise during construction as a result of construction traffic on the gravel roads, earthworks, grading and building processes.
- The levels of dust pollution generated by traffic on the gravel roads would return to current levels once construction is complete. Should dust pollution become a problem during the construction phase, dust amelioration measures will have to be put in place to control dust generation this will include periodic wetting of exposed surfaces by a water cart.
- Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust.
- Noisy activities must be restricted to the terms given in the Project Specification or General Conditions of Contract
- It is unlikely that noise levels in the area will increase significantly as a result of the development during its operational phase.
- Noise may increase slightly during construction as a result of construction vehicles, grading of internal road,

building processes, earthworks and trench excavations. This negative impact during construction would be short term and very localised. Noise impacts on surrounding residents will therefore not be of major consequence.

- Working hours to be in accordance with national and local bylaws;
- Exits and entrances should be placed in such a way that it forces people to drive slowly when they enter and exit
- Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust.

3.5.7. Visual Aspects

The proposed site currently has a few surrounding dwellings and settlements with a primary school in the vicinity.

Implications/Impacts:

- Lighting on the construction site
- Sites are to be maintained in good and clean conditions.

3.6. Socio-economic

Description

The community requires a sportsground to assist with the youth abstaining from drugs, alcohol, etc. The proposed development will result in the provision of local employment opportunities. Being a new venture, new jobs will be created directly and many more indirectly in the construction industry. The proposed development will also aid in the improvement of the quality of life for youth in the area as well as encourage people to become part of the community.

With regards to the socio-economic character of the surrounding area: The 2020/21 IDP of the Ugu District Municipality approved on 28 May 2020 reports that the major basic service challenge faced by the district is the slow pace of backlog eradication and high levels of aged infrastructure. The ageing infrastructure results in high maintenance costs which have an adverse effect on the eradication of backlog programme due to limited funding. The IDP further indicates that there is also a challenge of high levels of illegal connections which further strain the available resources.

Other key social demographics include: population; race, gender and age; households; health profile; Covid 19; poverty dimensions; distribution; inequality; employment/unemployment; crime; education and skills profile.

Implications/Impacts

- The proposed development will result in the provision of local Employment opportunities. Some new jobs will be created directly and indirectly particularly in the construction sector/industry.

3.7. Cultural resources

Description

The archaeological sites which have been identified within the Ugu District Municipality include:

- ❖ Higharces Farm
- ❖ Bazley
- ❖ Ifafa Beach, Beach Station and North bank
- ❖ Kelso Beach Estate Office and Station North
- ❖ King's Dale
- ❖ Mnamfu River North Bank
- ❖ Mtwalume
- ❖ Mzimayi River
- ❖ Paddy's Caravan Park

- ❖ Pennington Beach and Pennington Road
- ❖ Renishaw Station
- ❖ Scottburgh and Scottburgh North
- ❖ Sezela Beach and Sezela Road
- ❖ Sezela and the new reservoir water tanks
- ❖ TC Robertson Nature Reserve
- ❖ Umbilibili
- ❖ Umdoni Park
- ❖ Umtwalumi River and North Bank
- ❖ Umzimaari River North Bank

Implications/Impacts

- If any heritage objects or artefacts are found construction must stop and AMAFA must be contacted immediately.
- AMAFA is to be contacted if any graves are identified during earthmoving activities
- AMAFA to be contacted if heritage objects are identified during earthmoving activities.

3.8. Safety and Security

Description

General:

The proposed project is located within Ugu District Municipality. There are relatively low crime levels within the municipality (for the period 2008/2009 to 2018/2019 overall crime has decreased at an average annual rate of 2.91% within the Ugu District Municipality).

Site Specific:

Construction phase activities could result in activities that pose some risk to workers or the public; through equipment/building material and construction activities on site. A safety officer will be employed to handle all safety issues.

Implications/Impacts

- Campsites to be fenced.
- Burning at campsite area to be prohibited
- Proper mobile toilet facilities to be provided
- No firearms to be allowed on camp site areas
- No hunting or poaching to be allowed at any time
- Landowner to be forewarned of Contractors presence.
- Construction camps must be cited properly, and away from properties of landowners
- Notification to be given to landowners in advance before accessing land.

4. GREEN BUILDINGS/INFRASTRUCTURE AND CARBON FOOTPRINT

With today's evolving world more concentration is emphasised on constructing efficient buildings which has become a high priority, other building alternatives have been suggested like green building; the concept of sustainable building incorporates and integrates a variety of strategies during the design, construction and operation of building projects. The use of green building materials and products represents one important strategy in the design of a building.

Green building materials offer specific benefits to the building owner and building occupants:

- Reduced maintenance/replacement costs over the life of the building.
- Energy conservation.
- Improved occupant health and productivity.

- Lower costs associated with changing space configurations.
- Greater design flexibility.

Integrating green building materials into building projects can help reduce the environmental impacts associated with the extraction, transport, processing, fabrication, installation, reuse, recycling, and disposal of these building industry source materials.

With this proposed project for water reticulation pipelines, it would be highly beneficial to incorporate green building materials in order to protect the environment and preserve it. Green building materials are composed of renewable, rather than non-renewable resources. Green materials are environmentally responsible because impacts are considered over the life of the product.

In making green buildings a success, different aspects have to be taken into consideration. Materials sourced for this project would be advantageous if recycled content were to be used preferably with resource efficient manufacturing process including reducing energy consumption, minimizing waste in order to reduce greenhouse gases.

Locally sourced materials must also be high priority on the list in order to cut down transportation and high costs pertaining to the project, in this way it is easier to re-use selected materials which can be easily dismantled at the end of the project for further use elsewhere.

When purchasing materials it is always wise to choose durable materials as they are longer lasting and have higher life expectancies as compared to conventional products.

As a result of incorporating green materials into the proposed project, this will help by reducing the overall carbon footprint; there are many ways to reduce carbon emissions. Here are just a few:

- Enacting a recycling policy.
- Educating employees in the need to reduce carbon emissions.
- Reducing the use of electricity.
- Developing new methods of work and manufacturing that are less harmful to the environment.

5. ENVIRONMENTAL FILE

The environmental file is a hardcover file that remains on site throughout the project. This file must 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 competent authority. An Environmental Audit Report will be compiled by the said auditor, a copy of this report will be sent to the Department of Economic development, Tourism and Environmental Affairs, while another will be issued to the 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 Plan (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 in terms 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), and a Site Specific EMPr has been done for the Proposed Project (see Table 2).

6. POTENTIAL LISTED ACTIVITIES - TRIGGERS

List relevant activities according to the 2014 EIA Regulations that may be triggered due to the proposed project activity.

Legislation	Listed Activity Reference	Description as per Regulation	Relevance/Applicability to this Project
Listing Notice 3 of 2014 (GNR 324)	12 (d) (v)	The clearance of an area of 300m2 or more of indigenous vegetation except where such clearance... is required for maintenance purposes....	• The area is classified as a CBA area. APPROXIMATELY 15 000m2 of indigenous grasses will be removed for the development of the sportsfield. As per ecological report: The proposed site for a sports facility at KwaMphondo, is considered to be a site of low ecological significance with no evident natural features worthy of preservation or conservation geographical co-ordinates for triggered area: development footprint vertices:

			<table><tr><th>Footprint</th><th>Latitude</th><th>Longitude</th></tr><tr><td>1</td><td>30°7'47.35S</td><td>30°28'25.65E</td></tr><tr><td>1</td><td>30°7'42.17S</td><td>30°28'32.08E</td></tr><tr><td>1</td><td>30°7'42.17S</td><td>30°28'32.08E</td></tr><tr><td>1</td><td>30°7'45.45S</td><td>30°28'36.08E</td></tr><tr><td>1</td><td>30°7'49.61S</td><td>30°28'30.37E</td></tr><tr><td>1</td><td>30°7'47.35S</td><td>30°28'25.65E</td></tr></table>	Footprint	Latitude	Longitude	1	30°7'47.35S	30°28'25.65E	1	30°7'42.17S	30°28'32.08E	1	30°7'42.17S	30°28'32.08E	1	30°7'45.45S	30°28'36.08E	1	30°7'49.61S	30°28'30.37E	1	30°7'47.35S	30°28'25.65E
Footprint	Latitude	Longitude																						
1	30°7'47.35S	30°28'25.65E																						
1	30°7'42.17S	30°28'32.08E																						
1	30°7'42.17S	30°28'32.08E																						
1	30°7'45.45S	30°28'36.08E																						
1	30°7'49.61S	30°28'30.37E																						
1	30°7'47.35S	30°28'25.65E																						

Please note that any authorization that may result from this application will only cover activities specifically applied for.

7. 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. ENVIRONMENTAL MANAGEMENT SPECIFICATIONS

GENERIC EMPr for Proposed Construction of KwaMpondo Sportsground [Umdoni Local Municipality]

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
PRE- CONSTRUCTION PHASE Stakeholder engagement	Inform all registered Interested and Affected Parties of Environmental Authorisation (EA).	Inform all registered I&APs and key stakeholders of the opportunity for appeal of the Environmental Authorisation.	Comply with any prescribed environmental management standards and practices	Notices sent to related parties on the stakeholder database. List of those to whom it was sent on file.	Environmental Consultant	Within the number of EDTEA-required days from the issuing of the Environmental Authorisation.	Pre-construction induction
Permit Requirements	Ensure compliance with legal and other permitting requirements.	Ensure that all relevant legal requirements have been adhered to.	Comply with any prescribed environmental management standards and practices	Permits	<i>Client</i>	Prior to construction	Pre-construction induction
Completion of EMPr and Contractor Compliance Standards	Update EMPr with EA conditions and other mitigation measures from monitoring.	Include further mitigation methods indicated by EDTEA in the EA into the EMPr and Contractor Compliance Standards.	Comply with any prescribed environmental management standards and practices	EMPr and Contractor Compliance Standards	<i>Client</i>	Prior to construction	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
Notification to EDTEA: Director of Compliance Monitoring	Ensure that EDTEA are notified of commencement date.	– Inform EDTEA prior to initiation of construction.	Comply with any prescribed environmental management standards and practices	Proof of communication	Client	As specified by Environmental Authorization	Pre- construction induction
	Ensure EDTEA is informed of any aspects of non-compliance with EMPr or EA	– Notify EDTEA with reasons if any requirements of the EMPr or EA cannot be implemented, and provide alternative	Comply with any prescribed environmental management standards and practices	EDTEA notification	Client	Prior to construction	Pre- construction induction
	Ensure EDTEA is informed of current contact details of applicant.	– Submit the name and contact details of the appointed ECO prior to construction	Comply with any prescribed environmental management standards and practices	EDTEA notification	Client	Prior to construction	Pre- construction induction
	Ensure EDTEA is informed of contact details of ECO	– Submit the name and contact details of the appointed ECO prior to construction	Comply with any prescribed environmental management standards and practices	EDTEA notification	Client	Prior to construction	Pre- construction induction
Grievance Procedure		– 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

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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
	⇒ Haulage roads	- There is existing access. - All roads for construction access must be planned and approved by the Engineer ahead of construction activities. They must not be created on an ad-hoc basis. - Roads must follow natural contours to reduce storm water erosion. - Roads must have as little cut and fill as possible. - Agreed turning areas for haulage vehicles are to be formalized and used by the Contractor. No turning manoeuvres other than at the designated places shall be permitted. - Haulage roads must allow for the natural flow of water where required. - Contractors shall construct formal drainage on all temporary roads in the form of side drains and mitre drains to prevent erosion and point source discharge runoff. <u>Survey Points</u> - Roads or trails that are cut to provide temporary access for survey work must be minimised.			Project Engineer/ Contractor/	During preliminary investigations On the construction of haulage roads. During surveys and preliminary investigations.	
					Project Engineer/ Contractor/ ECO		

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
		- Marking of survey points must be done with the Engineer's approval. - Vegetation clearing must be kept to a minimum during survey points.					
Cultural Environment	Archaeological and Historical objects	- 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
Safety and Security	Fencing ⇒ Lighting	- Secure the site in order to reduce the opportunity for criminal activity in the locality of the construction site. - Potentially hazardous areas such as trenches are to be demarcated and clearly marked. - Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residence or businesses.	Comply with any prescribed environmental management standards and practices	Audit reports Visual inspection	ECO	During site surveys and preliminary investigations and site set up.	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
SITE ESTABLISHMENT	Site Division	– Restrict all activities, materials, equipment and personnel to within the area specified, and restrict activities to only those areas that are necessary to undertake the works. – Site camp must be established away from any watercourse and all activities including storage of materials must remain within the demarcated area.	Comply with any prescribed environmental management standards and practices	Visual inspection Method Statement	The Contractor	Throughout project	Audit Reports and 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
	Site Demarcation	- Erect and maintain permanent and/ or temporary fences of the type and in the locations specified by the Engineer. - Such fences shall, if so specified, be erected before undertaking designated activities. The temporary staging areas, material stores and lay-down areas must 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

*(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	RESPONSIBILI TY	FREQUENCY & TIMING and by when to be implemented	Env. Awareness plan
CONSTRUCTION PHASE Compliance with EMPr	Confirm Contractors commitment to EMPr and Contractor Compliance Standards	Ensure that the EMPr is available at the site throughout construction and implemented by the contractor.	Comply with any prescribed environmental management standards and	Copy of signed EMPr with Contractor	Contractor / Engineer	Prior to construction	Induction

	Auditing of compliance with EMPr	Audit frequency to be as per EA	practices Comply with any prescribed environmental management standards and practices	Audit report and proof of submission to EDTEA	ECO	Auditing of compliance with EMPr and EA	Induction
Access to site	Maintenance of Access	- Contractors must ensure that access roads are maintained in good condition by attending to potholes, corrugations and storm water damage as soon as these develop. - 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
Maintenance of site	Workers conduct on site	Eating areas - Eating areas must be regularly serviced, and cleaned to ensure the highest possible hygiene and cleanliness. - All litter throughout the site must be picked up and placed in bins provided. Housekeeping - The contractor shall ensure that his camp and working areas are kept clean and tidy at all times. - 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. - No firearms allowed on site or in	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.

		- vehicles transporting staff to/from site (unless used by security personnel) – Prevent excessive noise. – Prevent unsocial behavior. – Construction staffs are to make use of the facilities provided for them, as opposed to alternatives. – Other than pre-approved security staff, no workers shall be permitted to live on site.					
	Haulage Roads	– 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. – Contractors must ensure that access roads are maintained in good condition by attending to potholes, corrugations and storm water damage as soon as these develop. – Vehicles travelling to and from construction site must adhere to speed limits. – Access and other cleared surfaces must be dampened whenever possible and especially in dry/windy conditions.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ Contractor/ECO	Construction Phase	Induction
		Surfaces – The Contractor must monitor and manage drainage of the campsite to avoid standing water and soil erosion. – Run-off from the campsite must not discharge into neighbors' properties & business properties.			Project Engineer/ Contractor/ ECO	Ongoing	
					ECO	Weekly Inspection.	

		Ablutions - Chemical toilets are to be maintained in a clean state and must be moved to ensure that they adequately service the work area. - The Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility or washing purposes. Camp Waste disposal - If chemical toilets are used then the waste must be disposed of regularly. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas. - A registered chemical waste company is to be used to remove waste from chemical toilets. - Bins and/or skips must be emptied regularly and waste must be disposed of at a registered landfill site.			ECO	Ongoing	
	Waste Water Management	- A designated, bunded area is to be set aside for vehicle washing and maintenance. - Provision must 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. - No form of secondary pollution should arise from the disposal of sewage and refuse. If any problems should arise,	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

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	⇒ Waste Management	obstruct natural water pathways over the site. i.e. These materials must not be placed in stormwater channels, drainage lines or rivers. – No temporary works, stockpiles or other circumstances may exist that impede natural water movements or act to concentrate run-off. – There must be periodic checking of the site's drainage system to ensure that the water flow is unobstructed. – The use of high velocity stormwater pipelines must be avoided in favour of open, high friction, semi-permeable channels wherever feasible. – Stormwater outfalls must be designed to reduce flow velocity in order to reduce and avoid soil erosion. – Refuse must be placed in designated skips. These must remain in demarcated areas. – Littering on site is forbidden and the site must be cleared of all litter at the end of each working day. – Collect waste paper, glass and metal waste separately and arrange for collection by recycling contractors. – Litter bins must be equipped with a closing mechanism to prevent their contents from blowing out. – Litter bins must be emptied on a weekly basis.	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
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		- All waste must be removed from the site and transported to a Registered, permitted landfill site. - Ensure that solid waste disposal is transported properly in order to avoid waste spills en-route. - 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) - Construction rubble shall be disposed off in a pre-agreed demarcated spoil dumps that have been approved by the Engineer. - 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. - No form of secondary pollution must arise from the disposal of sewage and refuse. If any problems should arise, the Developer should address these immediately. - 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			Project Engineer/ECO/ Contractor	Throughout the duration of the project	
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	⇒ Dust / Air Pollution	– of waste rock and inert building rubble. No solid waste may be burned on site. – The excavation and use of rubbish pits on site is forbidden. – Vehicles traveling along the access roads must adhere to speed limits to avoid creating excessive dust. – Camp construction / haulage road construction areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. – Ash disposal areas are to be promptly rehabilitated to minimize potential for dust pollution.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Contractor	Throughout the duration of the project.	Induction
Storage areas	General substances and materials	– Choice of location for storage areas must take into account prevailing winds, distance to water bodies and general on-site topography. – Storage areas must be designated, demarcated and fenced. – Fire prevention facilities must be present at all storage areas. – Where materials are borrowed (mined) proof must be provided of authorisation to utilise these materials from the landowner and the Dept. of Mineral Resources.	Comply with any prescribed environmental management standards and practices	Audit report Maintenance records	Project Engineer/ECO/ Contractor	Construction phase	Induction
	⇒ Hazardous storage areas	– Hazardous storage areas must be banded with an impermeable liner to protect groundwater quality.	Comply with any prescribed environmental	Audit report	Project Engineer/ECO/	Construction phase	Induction

	⇒ Accidental Spills and Leaks	– Storage areas containing hazardous substances/materials must be clearly signed. – Material Safety Data Sheets (MSDSs) must be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental spill releases or escapes. – Emergency numbers must be put up on site and consulted should any accidents / spillages of hazardous substances and / or materials take place. The Contractor is to outline a method statement for the dealing of accidents / spillages of hazardous materials or substances. This statement must be handed to the Engineer as well as to DWA should the incident occur near a body of water. – Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded areas as soon as possible after detection in order to minimise the risk of pollution and reduced bunding capacity.	management standards and practices	Maintenance records	Contractor Project Engineer/ECO/ Contractor	Construction phase Construction phase	
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		_Chemical spills – Contain chemical spills and arrange for clean-up / control by the supplier or by professional pollution control personnel. _Oil and Fuel spills – The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint etc. and these must be cleaned up. – Immediately clean up any accidental oil or fuel spills or leakages. – Do not hose oil or fuel spills into a stormwater drain or sewer, or into the surrounding natural environment. – Clean small oil or fuel spills with an approved absorbent material, such as 'Drizit' or 'Spill-sorb'. – Contain oil or fuel spills in water using an approved oil absorbent fibre. – Treat soil contaminated by oil or fuel using one of the following approved methods, as per instruction of the RE or Project Engineer: – <i>Remove the soil to the depth of the contamination and dispose of it at a registered Hazardous Waste Disposal Site.</i> – <i>Remove the soil to the depth of the contamination, and regenerate it by using approved bio-remediation methods.</i> – Report all major oil or fuel spills to the provincial Department of			ECO		
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		Water Affairs, as well as to the relevant Local Authority.					
Visual aspects	Lighting on site	– 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	– Care to be taken not to introduce alien plant species to site – Do not remove any large indigenous tree without the permission of the Project Engineer/ECO. – Ensure that permits from DFFE are in place before removing any protected plant/tree, and that licences have been obtained for the damage or removal of trees/plants protected under the National Forest Act. – No open fires are permitted under any tree. – No vegetative matter may be removed for firewood. – No material storage or lay down is permitted under trees. – No heavy equipment, machinery	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection	RE/Contractor ECO	Ongoing monitoring As the work front progresses. Ongoing monitoring	Induction

	⇒ Alien Vegetation Control	and vehicles may be parked under any tree unless authorised by the Project Engineer. – Utilise the method of mechanical de-bushing rather than chemical. – Wherever possible, store removed indigenous vegetation in a nursery for replanting during rehabilitation. – 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. – All sites disturbed by construction activities must be monitored for colonisation of exotics or invasive plants and control these as they emerge. – Follow manufacturer's instructions when using chemical methods, especially in terms of quantities, time of application etc. – Ensure that only properly trained people handle and make use of chemicals. – Dispose of the eradicated plant material at an approved solid waste disposal site. – Immediate re-vegetation of stripped areas and the removal of	Comply with any prescribed environmental management standards and practices	Audit report Visual inspection	Project Engineer/ Contractor	Ongoing monitoring	Induction
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		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. – 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. – Topsoil that is suspected to be contaminated with the seed of alien vegetation must not be used. Alternatively, the soil is to be sprayed with specified herbicides.					
Soil Erosion and Excavations	⇒ Soil Erosion due to excavation and construction vehicles	– The time that's stripped areas are left open to exposure must be minimized wherever possible. Care must be taken to ensure that these times are not excessive. – Soil erosion on site must be prevented during all phases of the development. – Wind screening and stormwater control must be undertaken to prevent soil loss from the site. Stormwater control and wind screening must be undertaken to prevent soil loss from the site. – All embankments shall be protected by a cut-off drain to prevent water from cascading down the face and causing soil erosion. – Monitor access roads and the site for signs of erosion and remedy this as soon as possible. – 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	- Topsoil removed must be placed carefully aside and must be used for rehabilitation purposes. Surface Water Management: - 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 must be rectified as soon as they arise. - Repair identified leaks and address issues of water wastage as soon as these are identified. - Avoid over-wetting, saturation and unnecessary runoff during dust control activities and irrigation. - 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. - 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. - 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. - 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. - Stormwater control and wind screening must be undertaken to prevent soil loss from the site.	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
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	⇒ Erosion Protection	– 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. – All natural trees, shrubbery and grass species must be retained wherever possible. – Do not permit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the Works Area. – Utilise only light equipment for access and deliveries into areas of unstable soils and in areas where erosion is evident. – Do not allow erosion to develop on a large scale before effecting repairs. When in doubt. – 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.	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	– Excavations must be undertaken carefully incorporating appropriate drainage. – For significant trees trenching must be 3m away from the stem. – Excavate and backfill trenches on a progressive basis. – Ensure that no trench longer than 1000m is exposed at any one time. – As far as possible, excavations must not be allowed to stand for longer than 2 days					

		where at all possible. – 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. – Excavation activities must be limited to areas of immediate work to prevent soil erosion.					
Air Quality Noise & Dust	Slight increase in noise/dust during construction.	– Construction hours to be limited to normal working hours. – 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. – Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust. – 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/E CO/ Contractor	Ongoing Monitoring	Induction
Safety and Security	Construction camp	– The site must be secured (fenced) or protected by security personnel in order to reduce criminal activity – Potentially hazardous areas such as trenches are to be demarcated and clearly marked with danger tape. – Material stockpiles or stacks (pipes) must be stable and secured to prevent collapse – Obstruction to drivers' line of site due to stockpiles and stacked materials must be	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

		avoided, especially at intersections and sharp corners. - No materials are to be stored in unstable or high-risk areas (steep slopes). - All I&AP's must be notified in advance of any potential risks associated with the construction site and the activities. - Campsites to be fenced where feasible. - Burning at campsite area to be prohibited - Proper mobile toilet facilities to be provided - 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	- Contractor's activities and movement of staff to be restricted to designated construction areas. - The Engineer and Contractor are responsible for ongoing communication with those people that are interested in/affected by the project. A complaints register must 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	- All fuel storage equipment (e.g. tanks) must meet appropriate standards for structural design and integrity. - All fuel storage tanks must be fitted with leak detection technology. - Install shutdown valves (e.g. automatic pressure-activated valves, to shut down or isolate ruptured tanks and pipes). - Ensure impermeable bunds are always used.	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

		– Ensure that staff is adequately trained in spill prevention, containment and response. – Ensure all stormwater management precautions are in place. – A suitable area for the temporary waste storage areas and secure waste skips must be selected, away from drainage lines. – 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. – Construction waste management will be governed by an EMPr and will incorporate reduction, recycling and re-use principles. – All wastes produced from Project activities on site will be transferred to designated temporary storage areas and where possible into secure containers. – Solid wastes will be segregated to facilitate reuse and recycling of specific materials. – 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. – Proof of all disposals must be provided, in complete disposal slips, which must be filed in the environmental file. Failure to comply will result in a financial penalty.					
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		- 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. - Fuels on site in drums will be stored in a locked container within a fenced and secure temporary staging area. - Trucks and construction vehicles will be serviced off-site. - Effluent and stormwater run-off will be discharged away from any identified drainage lines. - All concrete mixing be undertaken on impermeable plastic lining or bunded shutter boards, to prevent contamination of the soils and surrounding areas. - 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. - The construction contractor will remove refuse collected from the designated waste storage areas at the site at least once a week. - All rubble generated during the construction phase will be removed from the site regularly to a licensed landfill site.					
Traffic Impact	Mitigate traffic impacts	- A Driver Code of Conduct will be applied	Comply with any	Driver Code of	Contractor/	Prior to construction	Audit Reports

		instructing and governing safe driving behavior, which will include no use of cell phones whilst driving – All vehicles to not exceed the mandated speed limits – 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	prescribed environmental management standards and practices	Conduct Visual inspection Traffic Management Plan Relevant permits	Engineer	During construction Prior to and throughout construction	and Induction.
Noise	Minimize noise impacts	– Contractor(s) will consider using acoustic screening if unacceptable noise impacts are predicted to shield receptors. – 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. – Contractor(s) will ensure that all on-site workers will have appropriate ear plugs as standard personal protection equipment (PPE). – 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. – 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.

	Empty Cement Bags	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. - The location of these sites is to be approved by the Engineer and the ECO. - 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. - 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. - 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 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	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

		builders holidays). A disposal slip/certificate must be obtained for this. No plastics, shrink wrap, paint buckets or any other debris that does not constitute clean building rubble, shall be stored at such stockpile sites					
	Eating Areas	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	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
	Environmental Awareness Training/ Inductions	- Environmental awareness training sessions shall be run for all personnel on the site. - Courses shall be run during normal working hours at a suitable venue provided by the Contractor. - 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	Comply with any prescribed environmental management standards and practices	Recorded Attendance Registers	Environmental Consultant & Contractor	Monthly Employment of new staff	Audit Reports and Induction
	"No go" Areas	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 go" areas at any time.	Comply with any prescribed environmental management standards and	Visual inspection	Contractor	Throughout project	Audit Reports and Induction

			practices				
	Fire Control	- No fires may be lit on the site. - Any fires which occur shall be reported to the Engineer immediately. - 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. - 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. - 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
	Working Hours	- Working hours in terms of the planning approval shall be adhered to. - 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	- 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. - 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: - 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; • Emergency and Management telephone numbers to be available and displayed; and • Adequate ventilation. - 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	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
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		• Inspection schedule and log by security or contracts staff. – 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					
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*(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/ 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
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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
OPERATIONAL PHASE Dust and emissions	Prevention of excessive dust generation	- 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. - No fires will be lit on site, and no toxic materials will be burned. - Audit reports will be produced to ensure regular checks and maintenance is carried out for vehicles and machinery. - 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.	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
Soil Erosion	Erosion control	- 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. - Repair identified leaks and address issues of water wastage as soon as these are identified. - 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	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
		effecting repairs. When in doubt, seek advice from the Project Engineer.					
Site Maintenance	⇒ Site Camp	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 and rehabilitation) must be returned to a usable state and / or a state no worse than prior to the initial construction. Inert waste and rubble – The site must be cleared of all inert rubble, including surplus rock, foundations and batching plant aggregates. – All excess spoil and inert rubble must 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.	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/ 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
		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 must be taken to avoid leaks, overflows and spills. The disposal of any waste must 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. Final shaping – All trenches and test pits must be backfilled with in-situ material. – All dangerous excavations must be made safe by backfilling, and grading. – Where possible, programme the backfill of excavations so that the subsoil is deposited first, followed by the topsoil. The layers must 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 must be shaped in order to fit in with the surrounding environment. – No excavated material or stockpiles must be left on site after construction has been completed. All materials remaining after the backfill must be smoothed over the site to blend in					

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
Rehabilitation	Site Rehabilitation ⇒ Topsoil replacement and Soil amelioration	with the surrounding landscape. - Rehabilitation must commence as soon as possible - Execute top soiling activity prior to the rainy season or any expected wet weather conditions. - Topsoil placement must be executed concurrently with deconstruction where possible, or as soon as deconstruction in an area has ceased. - Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas activities). - Place topsoil in the same area where it was stripped. If there is insufficient topsoil available from a particular soil zone to produce the minimum specified depth, topsoil of a similar quality may be brought from other areas of similar quality. - Topsoil that is suspected to be contaminated with the seed of alien vegetation must not be used. Alternatively, the soil is to be sprayed with specified herbicides. - After topsoil placement has been completed, available stripped vegetation must be spread randomly by hand over the topsoiled area.	Comply with any prescribed environmental management standards and practices	Visual inspection and ECO records	Project Engineer/ECO	Project Completion	Audit reports
	⇒ Ripping and scarifying	- Rip and / or scarify areas following the application of topsoil to facilitate mixing of the upper most layers - 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.	Comply with any prescribed environmental management	Visual inspection and ECO records	Project Engineer/ECO	Project Completion	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
	Vegetation – Revegetation	– 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. – 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	standards and practices 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/ 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
Noise	Minimize noise impacts	– Client and its Contractor(s) will ensure equipment and vehicles are regularly maintained in accordance with manufacturers specifications. – 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
	Emergency Procedures	– An appropriate and timeous response to emergency situations will ensure that the environmental consequences of such situations are managed and reduced. – Client shall ensure that the fire control system is maintained according to the relevant SANS requirements. – 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. – Firefighting equipment is to be visible Emergency Procedure to be drawn up by Contractor Emergency Contact Details – 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: • Fire Department: 10111 • Disaster Management: 107 • Ambulance Services: 10177	Comply with any prescribed environmental management standards and practices		Client	Throughout operations	Induction

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
		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.

9. ENVIRONMENTAL MANAGEMENT SPECIFICATIONS

SITE SPECIFIC EMPr for Proposed Construction of KwaMpondo Sportsground (Umdoni Local Municipality)

Table 2:

Environmental issues and development constraints were identified using professional judgement, project information, and site inspection, a review of available literature and consultations with authorities and the general Public.

An assessment was undertaken of the bio-physical and socio-economic environment for the proposed area. Collection of baseline information was undertaken in order to establish the sensitivity of the environment to potential project impacts and to determine restrictions the environment may have on the proposed deviation of the route.

Information was also obtained from specialist reports, on site observations, Google-earth images and the 1:500 topographical maps for the area.

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
CONSTRUCTION PHASE activities/service provision	Maintenance of site	❖ Surfaces – The Contractor must monitor and manage drainage of the site camp to avoid standing water and soil erosion. – Run-off from the campsite must not discharge into neighbours' properties & business properties.	Comply with any prescribed environmental management standards and practices	Maintenance records Visual inspection and ECO records	Project Engineer/ Contractor/ECO	Construction Phase	Induction
Excavation/ trenching activity	Soil loss and erosion	– The site geology comprises Namibian-age gneissose granite of the Margate Suite, Natal Structural and Metamorphic province. – The shallow soil condition derived from the underlying geology is inferred to comprise clayey gravelly SAND and silty gravelly CLAY. – The overall suitability of the site area from a geotechnical perspective has been evaluated in accordance with "Terrain Classification System for Geotechnical Constraints on Development" . – The site classifies as Most Favourable to Intermediate. Inferred constraints identified comprise a perched groundwater risk and the mild to a moderate slope which will require levelling. – The desktop exercise indicates that the site appears to be characterised in the main by the following geotechnical factors: • Slope Stability: At this stage, it appears that the site is stable i.e. slopes are currently stable with no identified source of instability. The site has a gentle to moderately east to south-easterly slope aspect. – At desktop level, the presence of any "fatal flaws" from a geotechnical perspective has not been identified.	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Maintenance records Visual inspection and ECO records	Project Engineer/ Contractor/ECO	Construction Phase	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
		<u>Excavatability</u> – Inferring from regional geology mapping to scale 1:250 000, the weathered gneiss rock to shallow depths of less than approximately 2m and the derived soil cover inferred to underlie the general area of the site, tend to be relatively excavatable in terms of hardness using “light” earth moving equipment. – These units are inferred to classify as SOFT TO INTERMEDIATE in terms of excavation classes set out in the SANS 1200DA (South African Bureau of Standards, 1990) specification. The excavability class given above is inferred based on the inferred geology. – It is therefore, quite possible that conditions at variance with those given in the “<i>Report to Dartingo Consulting Engineers (Pty) Ltd on a Desktop Geotechnical Appraisal for the Proposed KwaMpondo Sports Ground (Site 2), Umdoni Local Municipality, Kwa-Zulu Natal, 02 July 2021</i>” could be encountered on site. – It is therefore important that Geosure be appointed to carry out a detailed geotechnical fieldwork to verify the assumption made in the aforementioned report. <u>Guidelines for foundations</u> – The geology inferred for the site suggests a natural shallow to moderately deep foundation condition. – Accordingly, the following options to engineer’s detail may be considered at planning/ conceptual design stage for the proposed					

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
		development: - Reinforced concrete (RC) strip and/or spread/ pad footings on approved rock; - RC stiffened raft; - Improved ground/structural fill to geotechnical engineers design. – The choice of foundation solution will also be guided by the extent of bulk earthworks design and foundation design pressure(s).					
Flora and Fauna	Disturbance of Flora and Fauna due to excavations and trenching	- The subject site covers approximately 12000m² of which approximately 8 000m² has been subject to excavation and further transformation. - Soils on site are clayey sand, cumulic which are generally orthic and weakly developed, promoting primarily a graminoid vegetation cover. - The dominant vegetation cover is indeed a graminoid <i>Astritida junctiformis</i> habitat (Ngongoni Veld) with some extensive invasion associated with the upper embankments, where the exotic weed <i>Senna didymobotria</i> is common, as is the secondary shrub <i>Crotalaria lanceolata</i>. - Little in the way of forbs were identified within the site, such dearth being a consequence of extensive burning. - Evidently, much of the vegetated habitat around the site is subject to both intermittent burning as well as grazing by livestock. - The excavation of the land and the general change of both topography and edaphics within the subject site has however altered the area to one that is irrevocably transformed. - As a consequence of this, seral graminoid states on the site	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation	Maintenance records Visual inspection and ECO records	Project Engineer/ Contractor/ECO	Construction Phase	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
		are unlikely to align with the prevailing Ngongoni Veld. - It is clear that the disturbance and transformation of the site has resulted in the establishment of exotic vegetation primarily around the perimeter of the study area. - The establishment of the sports facility will likely give rise to this change/impact: Loss of habitat: The site in question has been highly transformed however adjacent areas of secondary vegetation will also be subject to further transformation and result in the alteration of habitat within and around the site. Such change/impact can be mitigated through: - Redress of exotic vegetation and; - Stabilization of the site with appropriate vegetation following construction.					
OPERATIONAL PHASE							
Soil Erosion	⇒ Erosion control	Specialist mitigation - The prevailing geology of the region is a deep, highly fractured sandstone, with occasional tillites, which give rise to deeper clayey soils which are susceptible to erosion, - The fractured geology gives rise to the prevailing undulating terrain, with deep valleys and scarps being a common feature of the region.	Comply with any prescribed environmental management standards and practices,	Maintenance records Visual inspection and ECO records	Project Engineer	Operational phase	Audit reports

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
		- No wetland or riverine environments are present on site, nor proximal to site, however the disposal of storm water from the site requires consideration in order not to elicit undue erosion, while the use of suitable sewerage disposal method is required. - It follows that sound engineering and construction is required on site to address both of the above elements.	GEOTECH REPORT				
Vegetation	Weed control	- Redress of exotic vegetation and; - Stabilization of the site with appropriate vegetation following construction.	Comply with any prescribed environmental management standards and practices	Rehabilitation plan	Contractor/ECO/ Project Engineer	Operational phase.	Audit reports
	Storm water disposal	- Given the nature of the surrounding soils, sound storm water - Using the rational method, the stormwater infrastructure has been designed for a 1 in 50-year return period, with a design flow of $0.373m^3/s$ based on the design flow, the following must be noted: - All storm water will be carried off site in the form of precast stormwater channels which will be installed along each of the seating areas, ramps and walkways. The stormwater will be collected and suitably discharged into a soakaway separate to that of the soakaway dealing with the effluent from the ablutions. - All other unsurfaced platforms, other than the sports ground, will be sloped such that stormwater will be	Comply with any prescribed environmental management standards and practices	STORMWATER REPORT	Contractor/ECO/ Project Engineer	Operational phase.	Audit reports

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
		directed into the precast concrete channels and into the soakaway system. • In addition, subsoil drainage will be installed beneath the surface of the sports field which will discharge into the soakaway. • All stormwater outfalls will be designed using gabions and Reno mattresses to reduce flow velocity and avoid soil erosion. • During construction, temporary cut off drains and berms will be required to capture stormwater and promote infiltration. <u>Sewerage Disposal</u> – Sewerage disposal from the proposed ablution is likely to be discharged through a septic tank system. – This disposal method must ensure that there is a suitably large evapo-transpiration field that does not align with stormwater discharge points. Notably percolation and discharge may be affected by the nature of the soils on 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.

10. 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

Obligations imposed by the EMPr are legally binding in terms of environmental statutory legislation (i.e. the Environmental Authorization in terms of the National Environmental Management Act No.107 of 1998, as amended) and in accordance with any other requirements specified by the DEADP.

The requirements of this EMPr do not release the Developer from the requirements of any other legislation that may be applicable to the Project such as those listed below.

National:

- National Environmental Management Act (Act No. 107 of 1998), as amended;
- NEMA EIA Regulations 2010, (Government Notice No R543, R544, R545 and R546 of June 2010);
- National Environmental Management Waste Act (Act No. 59 of 2008);
- National Environment Management: Air Quality Act (Act No. 39 of 2004);
- National Water Act (Act No. 36 of 1998);
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004);
- National Heritage Resources Act (Act No. 25 of 1999);
- Hazardous Substances Act (Act No. 15 of 1973);
- Major Hazardous Installations Regulations (GNR 96 of 1998 and GNR 692 of 2001); and
- Occupational Health and Safety (Act No. 85 of 1993).
- Integrated Coastal Management Bill (2008)

Provincial:

- Department of Environmental Affairs & Development Planning (DEA&DP) NEMA EIA Regulations Guideline and Information Document Series, 2010.

10.1 National Environmental Management Act (NEMA) No 107 of 1998

The National Environmental Management Act (NEMA) reinforces the constitutional imperative to protect, promote and fulfil the environmental right in the Bill of Rights. Section 24(1) of the act states that any proposed activity which requires authorisation or permission by law and which may significantly affect the environment must be considered, investigated and assessed before implementation. In addition section 24(7) (f) calls for "the investigation and formulation of arrangements for the monitoring and management of impacts, and the assessment of the effectiveness of such arrangements after their implementation." This in

effect refers to management plans for construction and operational phases of the project. Of the NEMA principles, the following are of particular relevance to these guidelines:

- Development must be socially, environmentally and economically sustainable.
- Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated.
- Disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimized and remedied.
- Disturbance of landscapes and sites that constitute the nations cultural heritage is avoided or where they cannot be altogether avoided, is minimized and remedied.
- That negative impacts on the environment and on peoples environmental rights be anticipated and prevented and where they cannot be altogether avoided, is minimized and remedied.
- The participation of all interested and affected parties must be promoted.
- Decisions must be taken in an open and transparent manner, and access to information must be discharged in the national interest.

The proposed development entails listed activities as defined by NEMA and the amended Environmental Impact Assessment Regulations of 2006. Listed activities require environmental authorization, and in this case the Department of Economic Development, Tourism and Environmental Affairs is the decision-making authority.

10.2 Conservation of Agricultural Resources Act No 43 of 1983

The aim of this act is to provide for the conservation of the natural agricultural resources of South Africa "...by the maintenance of the production potential of land, by the combating and prevention of erosion and weakening or destruction of water sources, and by the protection of the vegetation and the combating of weeds and invader plants.

10.3 National Water Act No 36 of 1998

The purpose of this act is "...to ensure that the nation's water resources are protected used developed, conserved, managed and controlled." The act sets out the principles for regulating water use, which includes pollution of watercourses and abstraction of water from a natural water resource.

10.4 Development Facilitation Act

The Development Facilitation Act, 1995 (Act 67 of 1995) contains provisions and general principles relating to land development and Land Development Objectives (LDOs). Provision is made in the Act for granting statutory status to such principles and policies in both the national and provincial spheres of government.

10.5 National Heritage Resources Act No 25 of 1999

The National Heritage Resources Act established the South African Heritage Resources Agency (SAHRA) in 1999. SAHRA undertaking is to protect heritage resources of national significance.

10.6 National Spatial Biodiversity Assessment, 2004

The National Spatial Biodiversity Assessment (NSBA), conducted by the South African

National Biodiversity Institute (SANBI) is a comprehensive spatial assessment of biodiversity throughout the country. The NSBA classifies areas that require protection based on its biophysical characteristics, which are ranked according to priority levels. The key focus areas of the study include four main components; terrestrial, freshwater, estuarine and marine environments.

11. CONCLUSION

In order to mitigate impacts on the environment to a level of low significance, it is vital that all mitigatory recommendations made within this EMPR are adhered to. Key recommendations are summarised as follows:

1. All management recommendations made in this report as well as Table 1 and 2 must be strictly adhered to.
2. This EMPR addresses the issues of solid waste management; materials management; re-vegetation; erosion; surface water, hazardous waste and pollution control.

This project could potentially result in negative impacts on the receiving environment. These significant negative impacts have been identified and assessed. These impacts can be effectively mitigated thus reducing the risk to the environment. This can be achieved by effective implementation of the necessary mitigation measures as stipulated in the EMPR.

12. REFERENCES

- Terrestrial Biodiversity Assessment for the proposed establishment of a sports facility at KwaMphondo, near Dududu, Ugu Region, S C Bundy BSc MSc (Pr.Sci. Nat.) SDP Ecological and Environmental Services
- PRELIMINARY DESIGN REPORT , Dartingo Consulting Engineers
- Stormwater Management Plan, Dartingo Consulting Engineers
- Report to Dartingo Consulting Engineers (Pty) Ltd on a Desktop Geotechnical Appraisal for the Proposed KwaMphondo Sports Ground Site 2, Umdoni Local Municipality, KwaZulu Natal GEOSURE (Pty) Ltd

13. ANNEXURE A – LAYOUT PLAN (as per BAR)

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 (eg 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 issue 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

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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.
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.

Appointment	OHSA Reference	Requirement
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	- Firefighting 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 KWAMPONDO SPORTS GROUND - WARD 1

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 1. 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 KWAMPONDO SPORTD GROUND – WARD 1

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 definitions as listed in the OHS Act 85/1993 and Construction Regulations (February 2014) shall apply.

4. SCOPE OF WORKS

The scope of work which has been currently identified, includes but may not be limited to the following:

- Bulk earthworks
- Stormwater management
- Construction of a sports field
- Construction of a combi-court
- Construction of an ablution/change rooms/storeroom building
- Construction of a covered embankment seating
- Construction of concrete ramps and walkways
- Gravel parking
- Septic tank and soakaway
- 2.1m high clearVu fencing

5. DESCRIPTION OF THE SITE

The Construction work -: Rural Area Ward 1

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:**

- Removals / demolitions
- Building/Wet trades
- Floor repairs and construction
- External walling
- Internal Divisions
- Internal Wall finishing's,
- Painting
- Ceilings
- Electrical Installations
- Fire Services
- Air-conditioning
- Waste management
- 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	
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 by Enaq Consulting monthly. 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 preferred site (Site 2) is located approximately 1.7 km northeast of Site 1 within the Ntabesikopo area. Ntabesikopo is approximately 32 km northeast of Scottburgh and falls within the jurisdiction of Ugu District Municipality and Umdoni Local Municipality. The locality the site is shown below.



District Municipality	Local Municipality	Description	Co-ordinates of Approximate Project Site	
			Latitude	Longitude
Ugu District Municipality	Umdoni Local Municipality	Kwampondo Sportsfield	30° 7' 47.60" S	30° 28' 24.40" E

C4.2. GEOTECHNICAL REPORT

NATURE OF GROUND AND SUBSOIL CONDITIONS

A desktop geotechnical investigation undertaken for this project. Additional geotechnical analysis shall be undertaken prior to construction, as per the Engineers request.

The 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.

The following Drawings have been provided for **TENDER PURPOSES ONLY**.

TENDER DRAWINGS

Tender Drawing List	
Drawing No	Drawing Description
	GENERAL NOTES
1263/G100	General notes
1263/G101	Building Finishes Schedule
	ARCHITECTURAL DRAWINGS
1263/A-100	Site Locality
1263/A-101	Site Layout
1263/A-102	Sports field Layout
1263/A-103	Combi-court Layout
1263/A-104	Changeroom- Plan & Sections
1263/A-105	Changeroom- Elevations
1263/A-106	Window and Door Schedule
1263/A-107	Window and Door Layout
	CIVIL DRAWINGS
1263/C-101	Embankment Seating
1263/C-102	Standard Details
1263/C-103	Combi-Court Details
1263/C-104	Retaining Wall, Standpipe & Grid Inlet Detail
1263/C-105	Soakaway and Septic Tank Detail
1263/C-106	Stormwater Layout
1263/C-107	Stormwater Long-sections
1263/C-108	Gravel Road Horizontal and Vertical Layout

Tender Drawing List	
Drawing No	Drawing Description
	STRUCTURAL DRAWINGS
1263/SC-101	Changeroom- Foundation and Surface Bed Layout
1263/SC-102	Changeroom- Typical Details
	ELECTRICAL DRAWINGS
1263/E-101	Lighting and Power Layout
1263/E-102	Ablution Lighting Layout
1263/E-103	Ablution Power Layout
1263/E-104	Distribution Board DB-A Schematic Layout
1263/E-105	Distribution Board DB LV Kiosk Schematic Layout



UMDONI LOCAL MUNICIPALITY

CONSTRUCTION OF KWAMPONDO SPORTSGROUND

07/2023 MN: 68/2022

TENDER DRAWINGS



COMPILED BY:

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

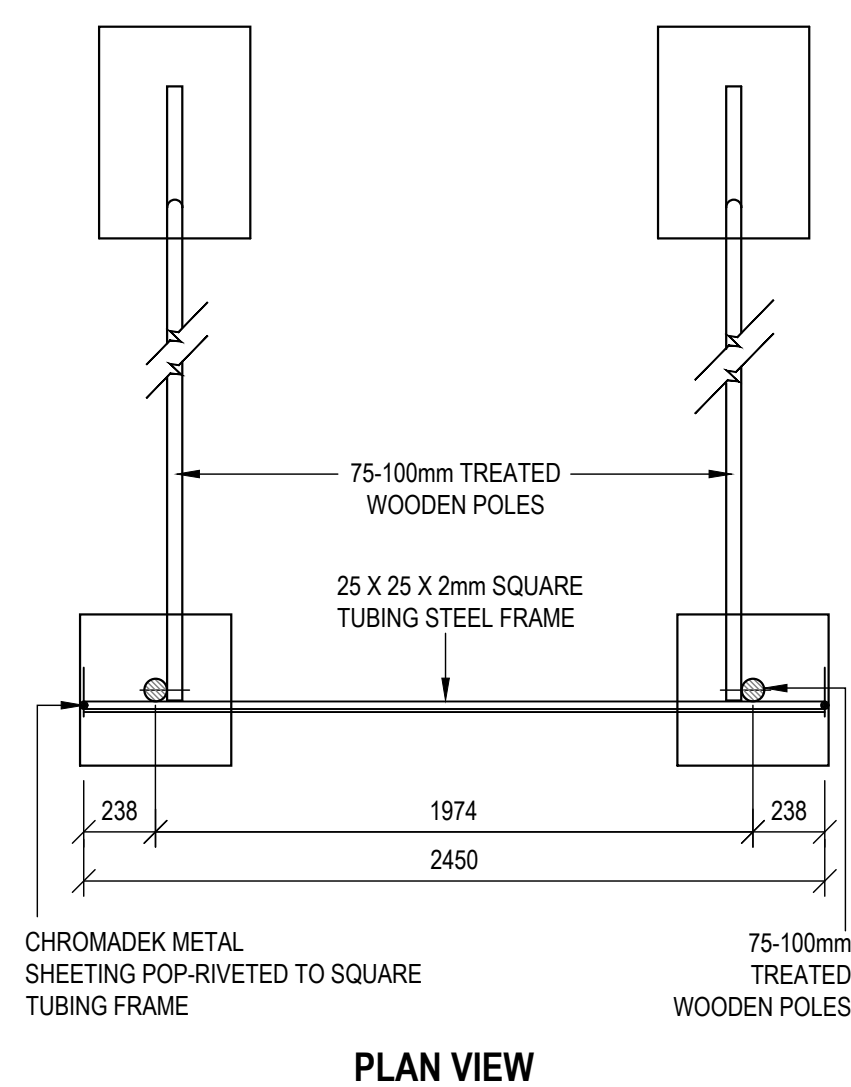
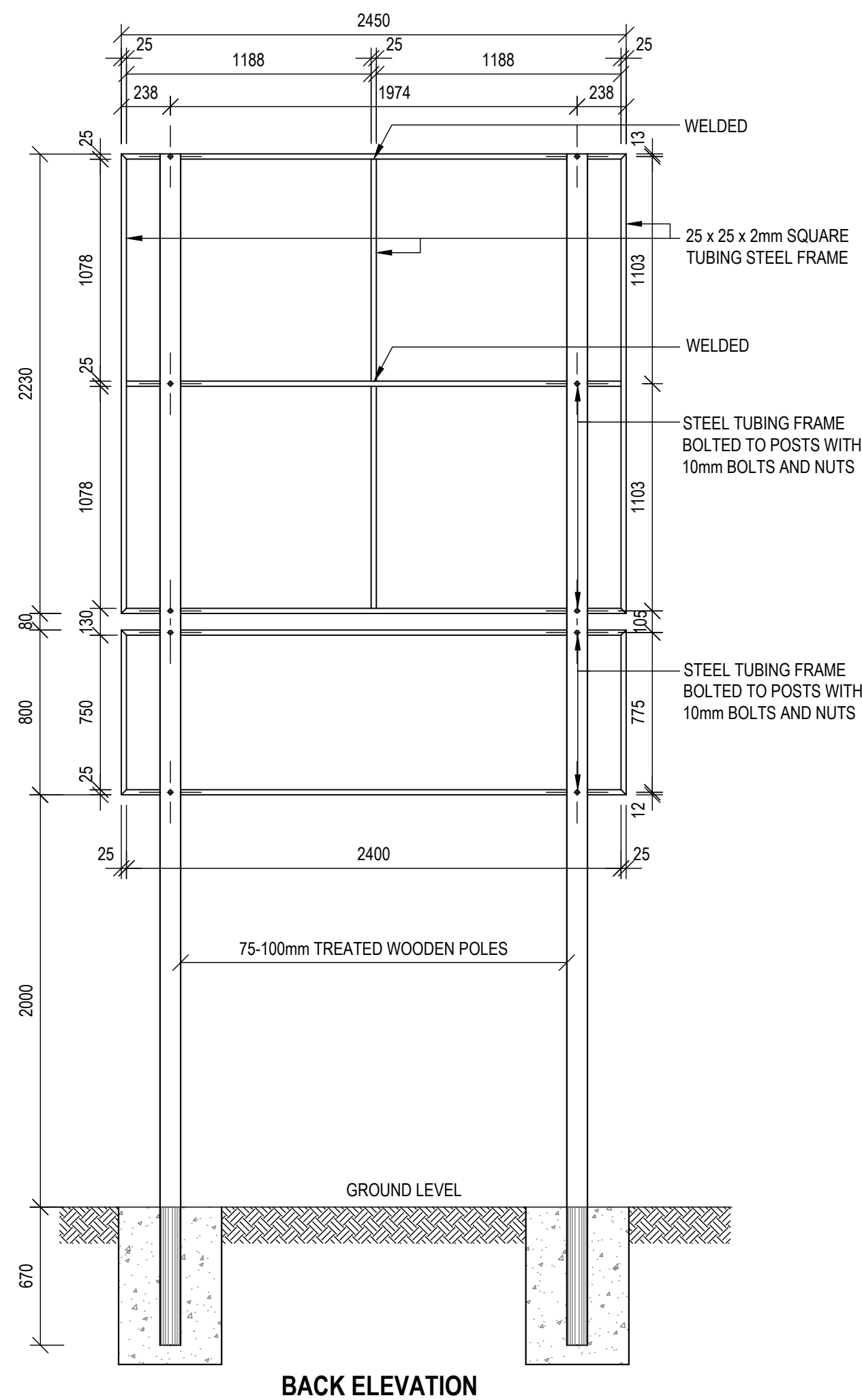
Tel: (031) 266 0903/4
Fax: (031) 266 0906



ON BEHALF OF:

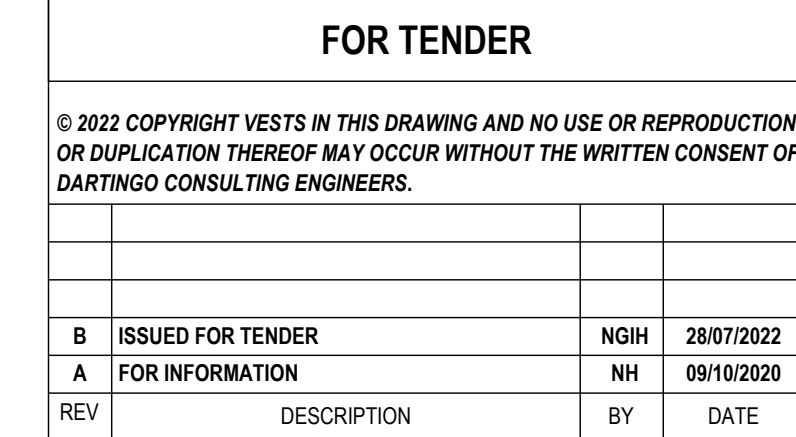
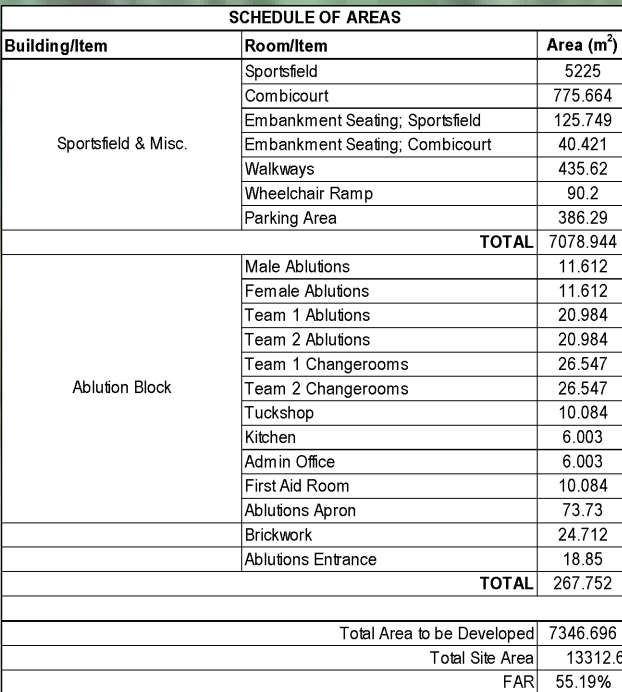
Umdoni Local Municipality
Cnr Bram Fischer & Williamson Streets,
Scottburgh
4180

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



- ### SIGNBOARD DETAILS
- SCALE: 1:25

0				50				100mm											
ORIGINAL SCALE																			
© 2022 COPYRIGHT VESTS IN THIS DRAWING AND NO USE OR REPRODUCTION OR DUPLICATION THEREOF MAY OCCUR WITHOUT THE WRITTEN CONSENT OF DARTINGO CONSULTING ENGINEERS.																			
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																			
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY																			
CAPACITY:																			
DATE :																			
DM DRAWING No.																			
CONTRACT No : 07/2023																			
 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																			
KWAMPONDO SPORTS FIELD WARD 1																			
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 :								1264/G-101											



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

The logo of Umdoni Municipality is circular. It features a stylized tree in the center, with a person standing next to it. The text "UMDONI MUNICIPALITY" is written in a circle around the top, and "ULANGABALI WARDENSHIP" is written around the bottom. The background of the logo is blue and yellow.

APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE : _____

DM DRAWING No.

CONTRACT No : 07/2023



64 Underwood Road P O Box 65596 Tel: 031 - 2660903
Pinetown Reservoir Hills Fax: 031 - 2660906
3610 4090 Email: admin@dartingo.co.za

APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS

CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

PROJECT	
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KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

SITE LOCALITY

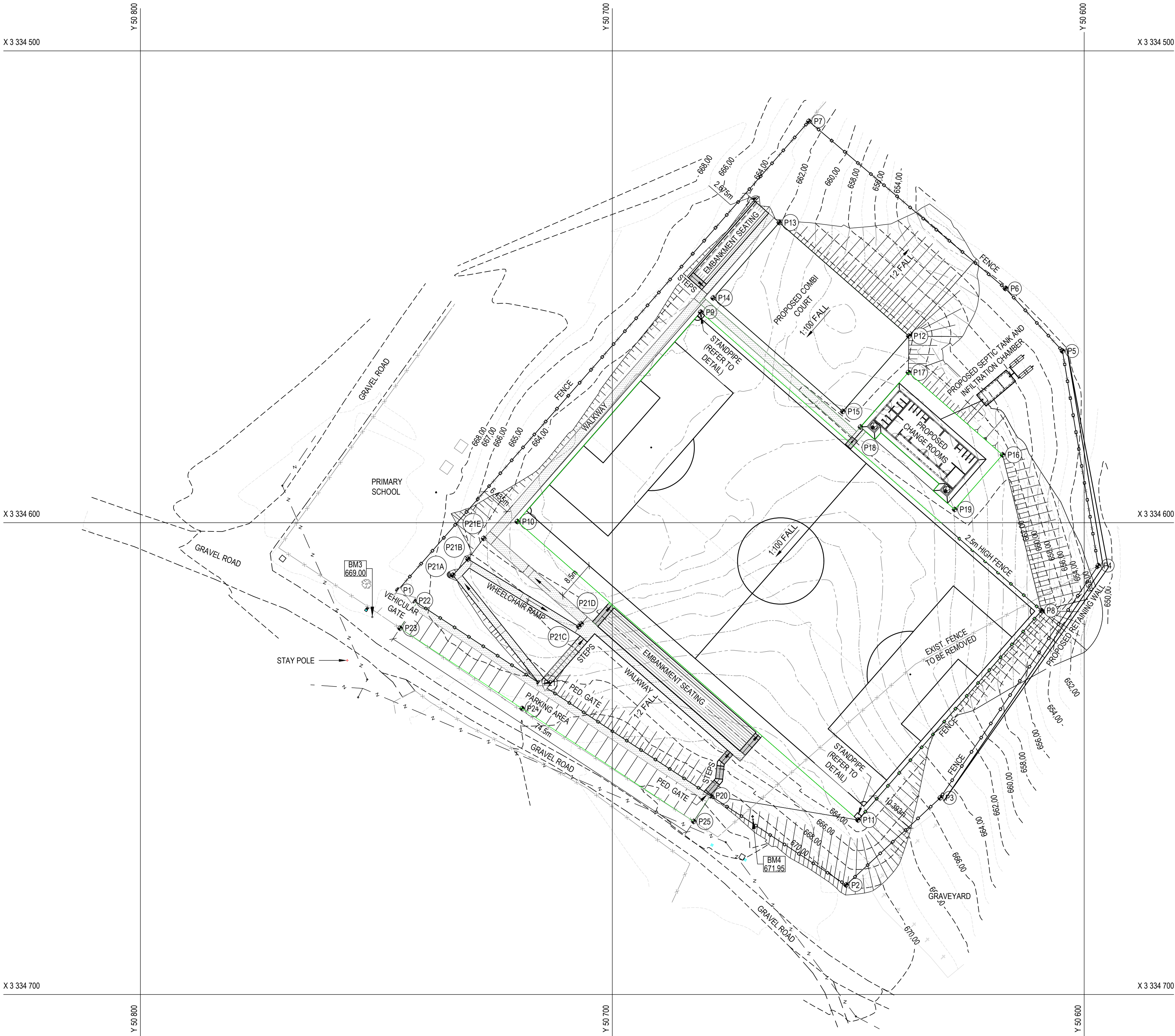
DESIGNED : NH	DATE : 01/10/2020
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DRAWN: NH	SHEET: 01
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CHECKED : JVR	ORIGINAL SHEET SIZE: A1
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SCALE :	AS SHOWN	REV :	B
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DRAWING No : 1264/A-100



SITE LAYOUT
SCALE: 1:500

FOR SETTING OUT COORDINATES SEE DRAWING 1264/CE101

SETTING OUT CONTROL				
NAME	Y	X	Z	DESCRIPTION
BM3	50 750.855	3 334 619.984	669.000	12mm PEG IN CONCRETE
BM4	50 670.193	3 334 662.894	671.945	12mm PEG IN CONCRETE

NOTES:
1) SURVEY BASED ON TRIG (WGS 84) AND ALL LEVELS RELATED TO M.S.L.
2) ONLY VISIBLE SERVICES WERE SURVEYED.

0 50 100mm
ORIGINAL SCALE

N

LEGEND:

- EXISTING FENCE
- POWER LINE
- POWER POLE
- WATER METER
- VALVE
- GRAVEYARD
- GATE
- TREE
- TAP
- MANHOLE
- MARKER
- PROPOSED FENCE
- PROPOSED GATE
- EXISTING FENCE
- TO BE REMOVED

FOR TENDER

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D	ISSUED FOR TENDER	NGH	28/07/2022
C	SETTING OUT TABLE ADDED	NH	10/02/2021
B	CHANGE ROOM REPOSITIONED	NH	05/11/2020
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
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CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 07/2023

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

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CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

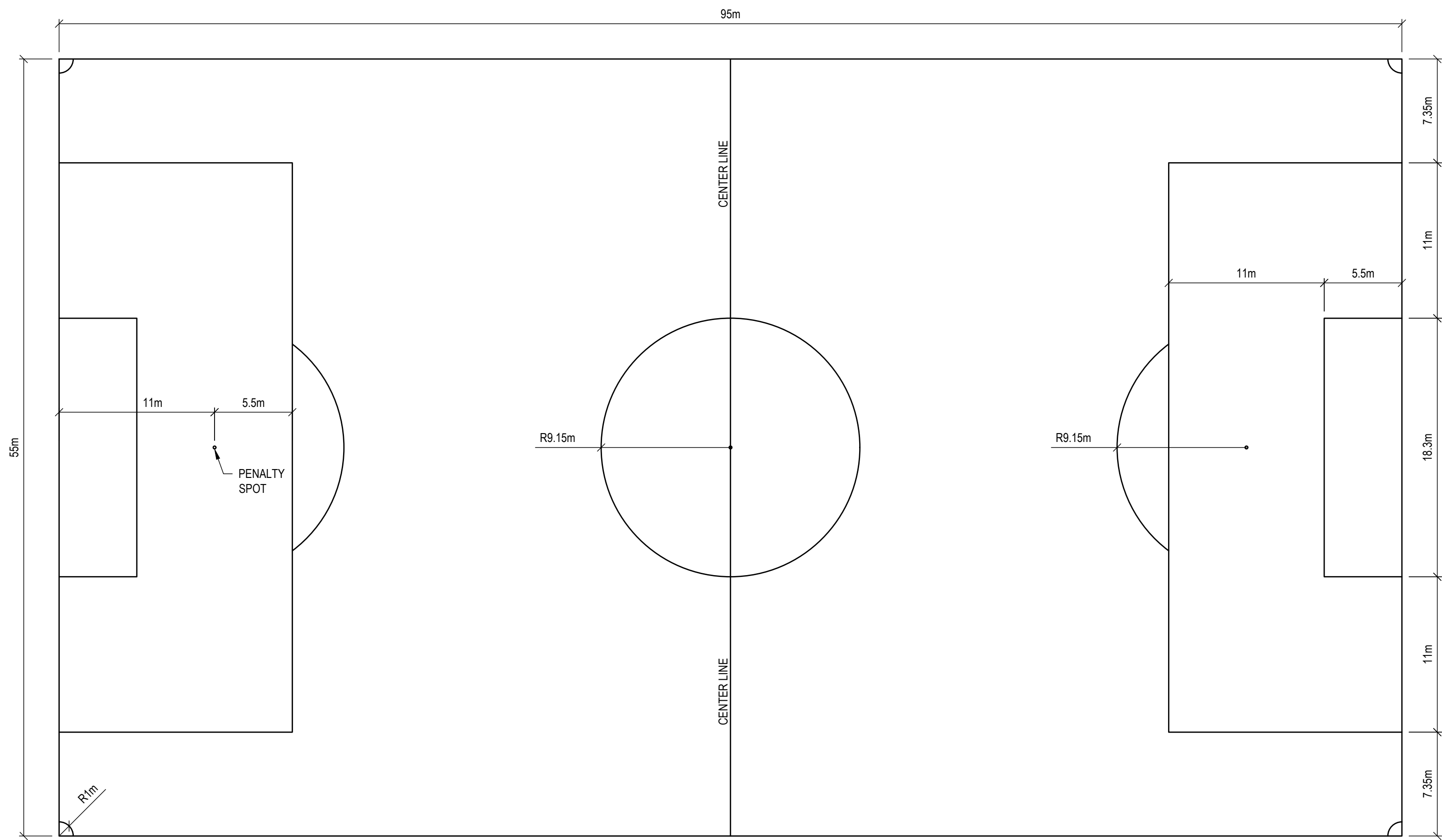
PROJECT

**KWAMPONDO SPORTS FIELD
WARD 1**

DRAWING TITLE

SITE LAYOUT

DESIGNED : NGH	DATE : 28/07/2022
DRAWN : NGH	SHEET : 01
CHECKED : PBJ	ORIGINAL SHEET SIZE: A1
SCALE : 1:500	REV : D
DRAWING No :	1264/A-101



SPORTS FIELD LAYOUT
SCALE: 1:250

0 50 100mm

ORIGINAL SCALE

FOR TENDER

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B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION	NH	09/10/2020
REV	DESCRIPTION	BY	DATE

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SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
TEL 039 976 1202 / 039 978 4313
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CAPACITY:
DATE :
DM DRAWING No.
CONTRACT No : 07/2023



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Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
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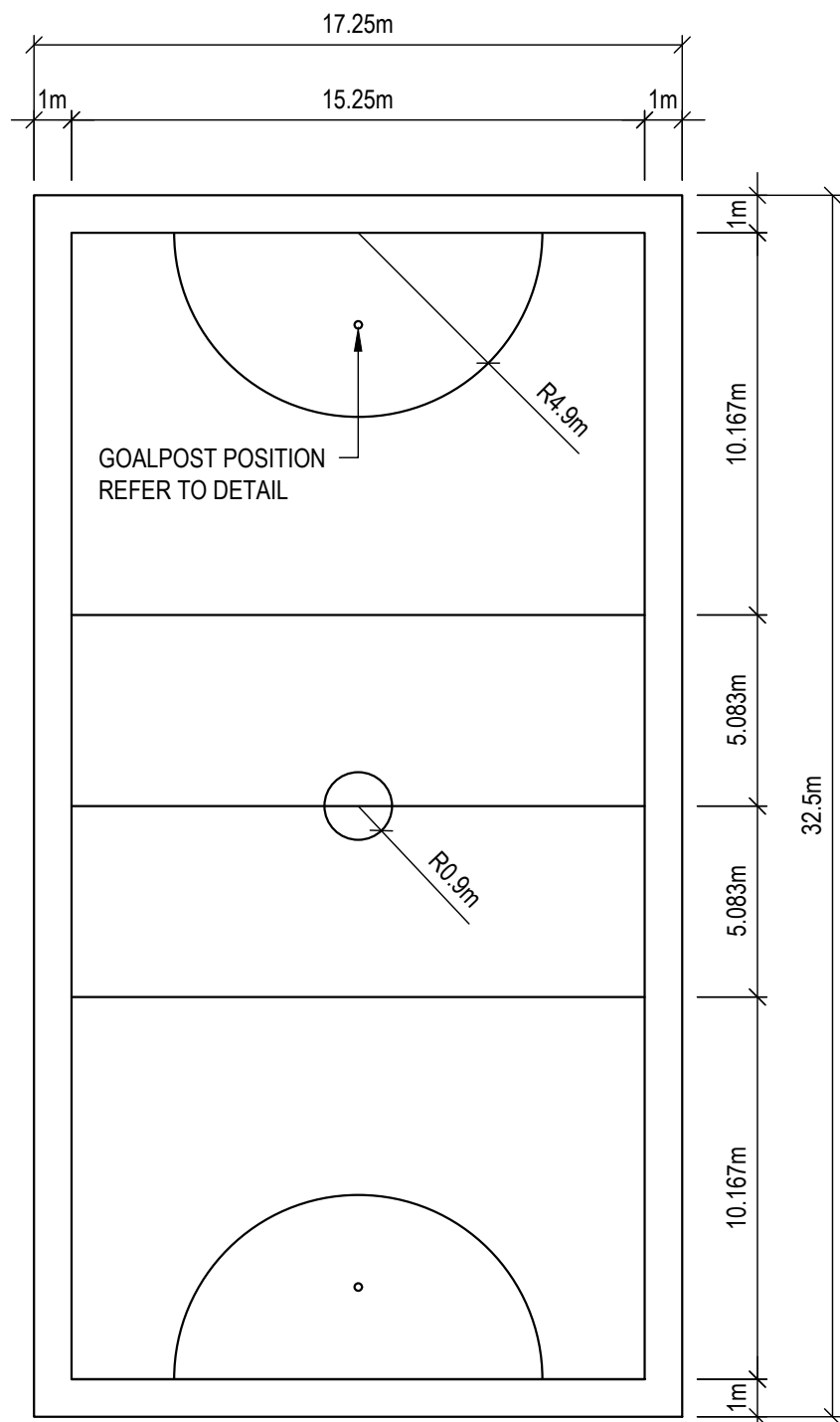
CAPACITY : DIRECTOR
DATE : 28 July 2022
Pr No : 200570114
PROJECT

**KWAMPONDO SPORTS FIELD
WARD 1**

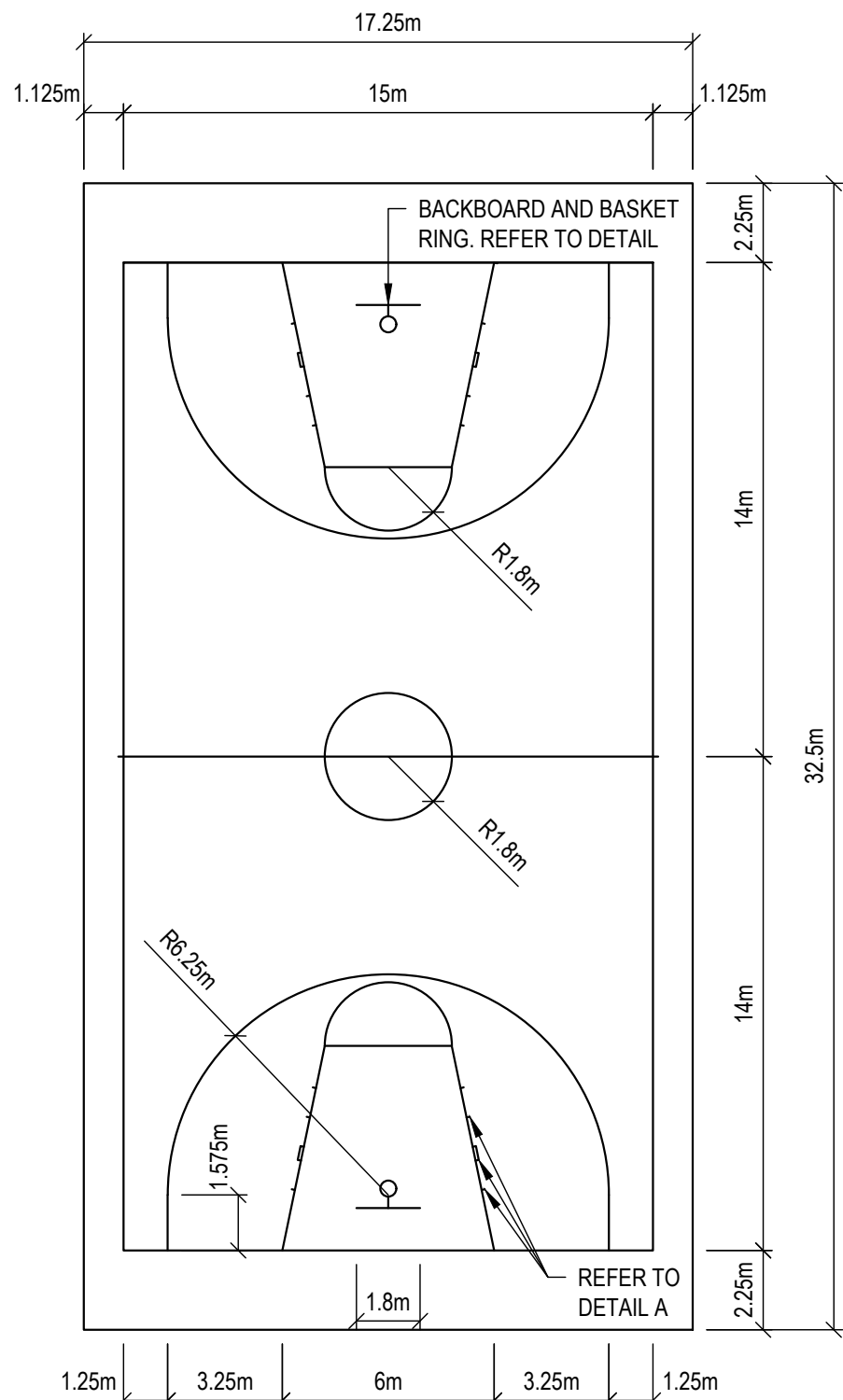
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SPORTS FIELD LAYOUT

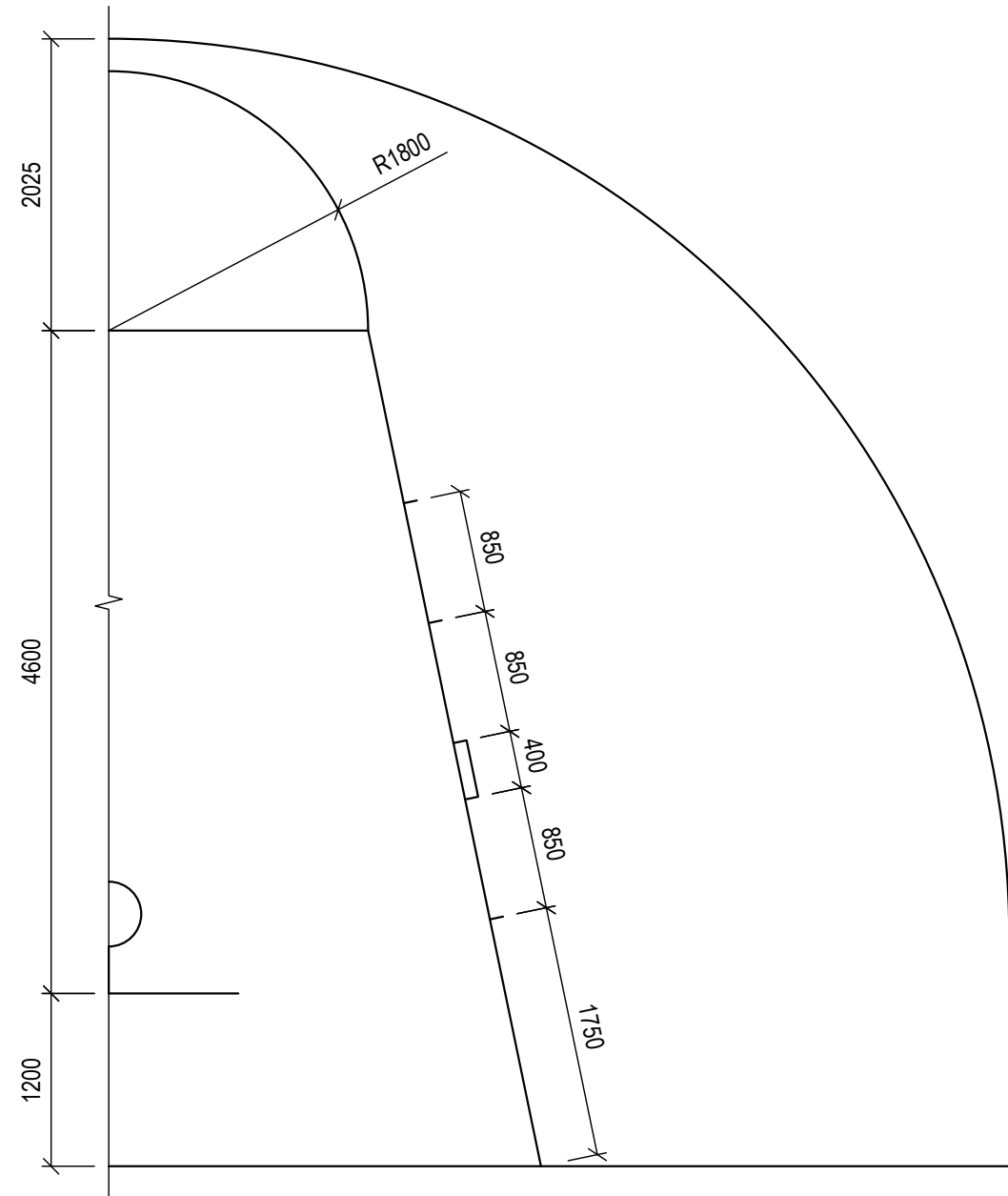
DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/A-102



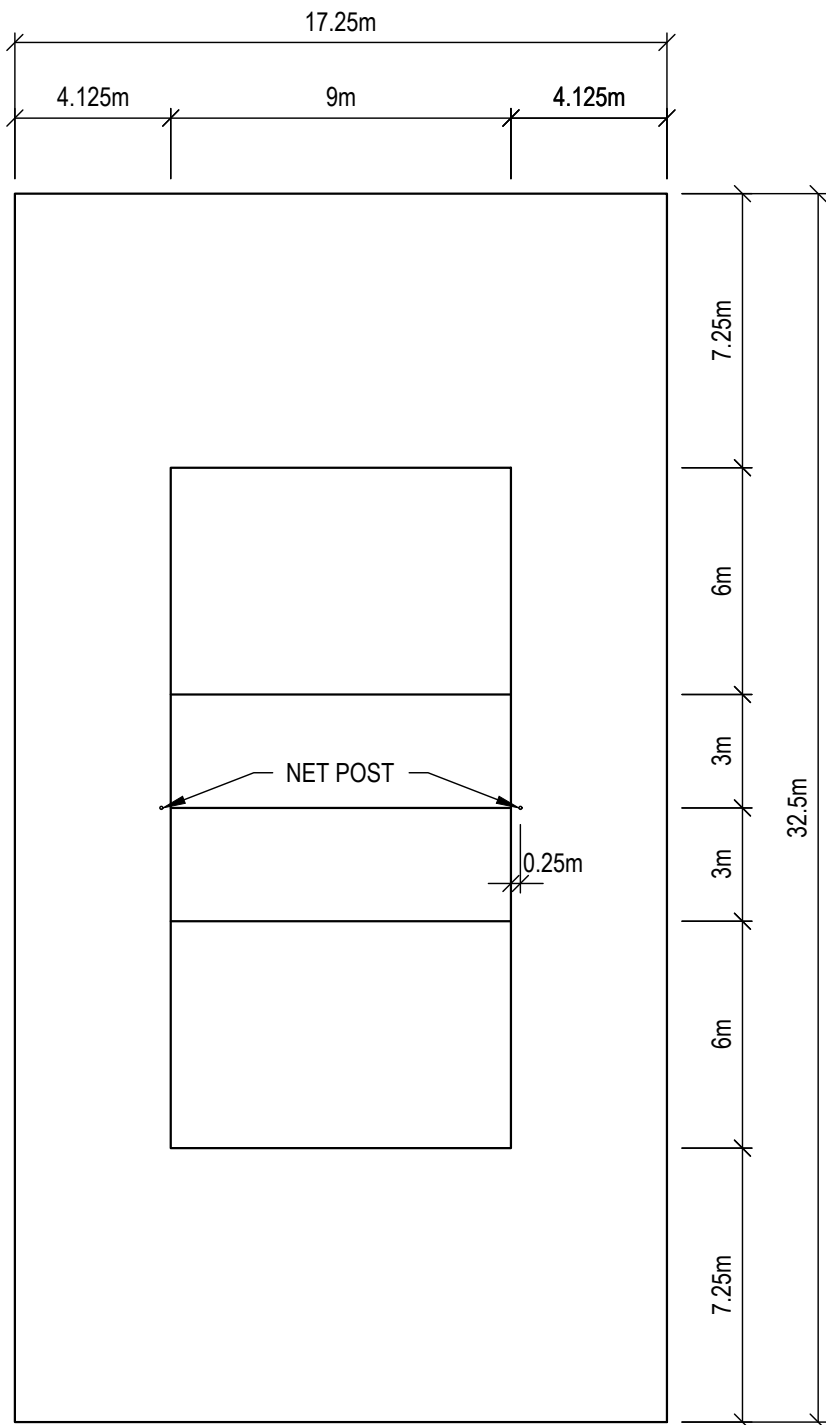
NETBALL COURT LAYOUT
SCALE: 1:200



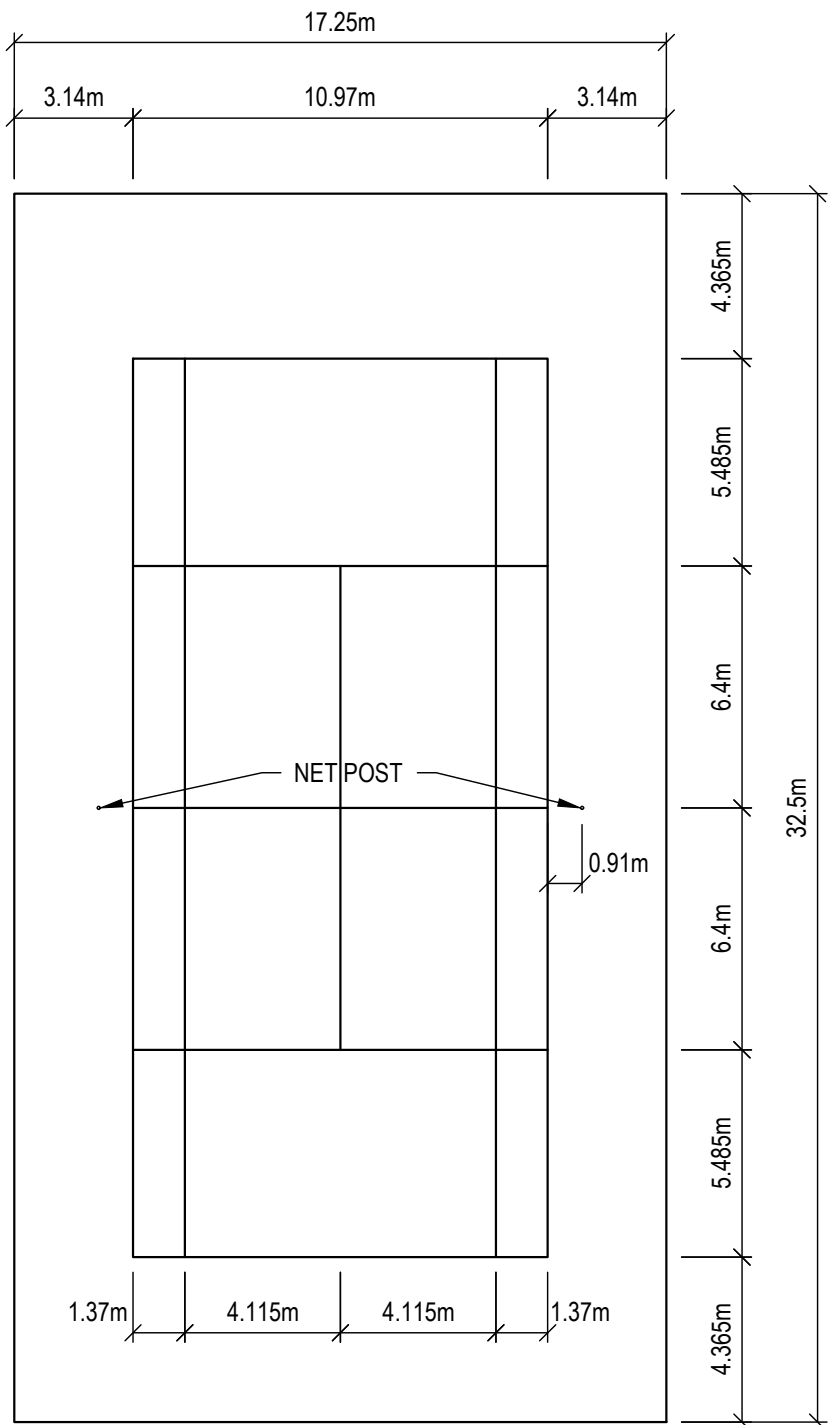
BASKETBALL COURT LAYOUT
SCALE: 1:200



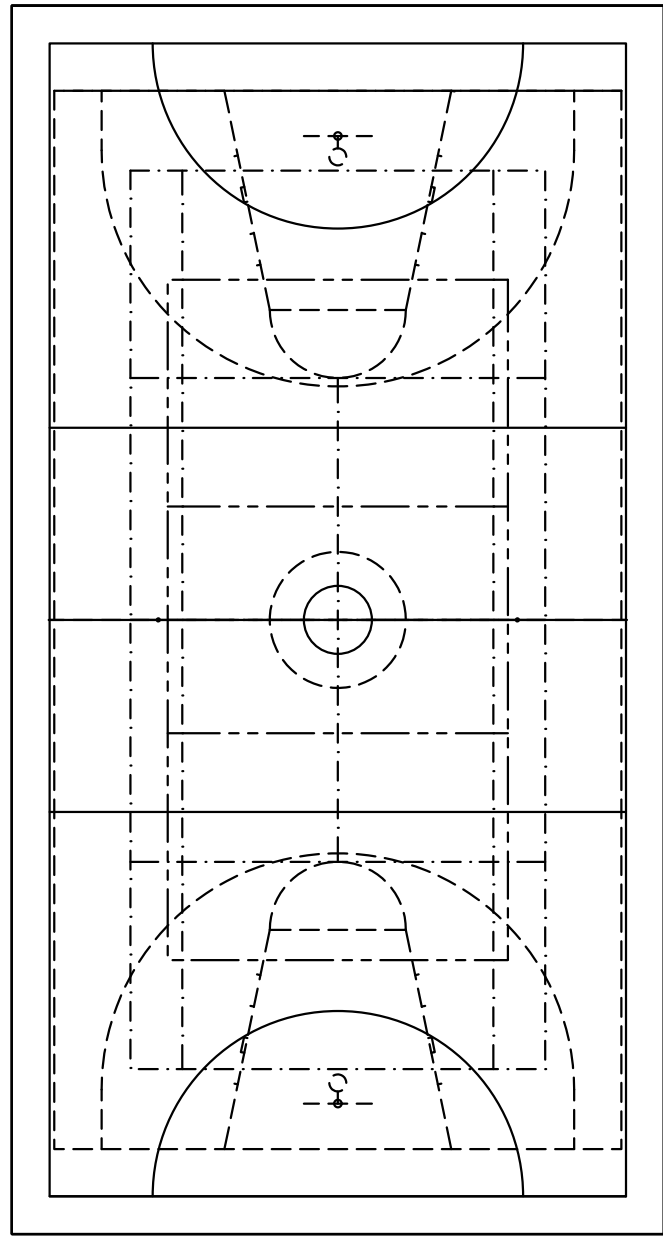
DETAIL A
SCALE: 1:50



VOLLEYBALL COURT LAYOUT
SCALE: 1:200



TENNIS COURT LAYOUT
SCALE: 1:200



COMBI-COURT LAYOUT
SCALE: 1:200

NOTES:
ALL COURT MARKINGS SHOULD BE 50 mm WIDE.

050100mmORIGINAL SCALE

FOR TENDER

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C	ISSUED FOR TENDER	NGH	28/07/2022
B	DETAILS ADDED	NH	
A	FOR INFORMATION	NH	09/10/2020
REV	DESCRIPTION	BY	DATE

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SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
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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

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CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

PROJECT

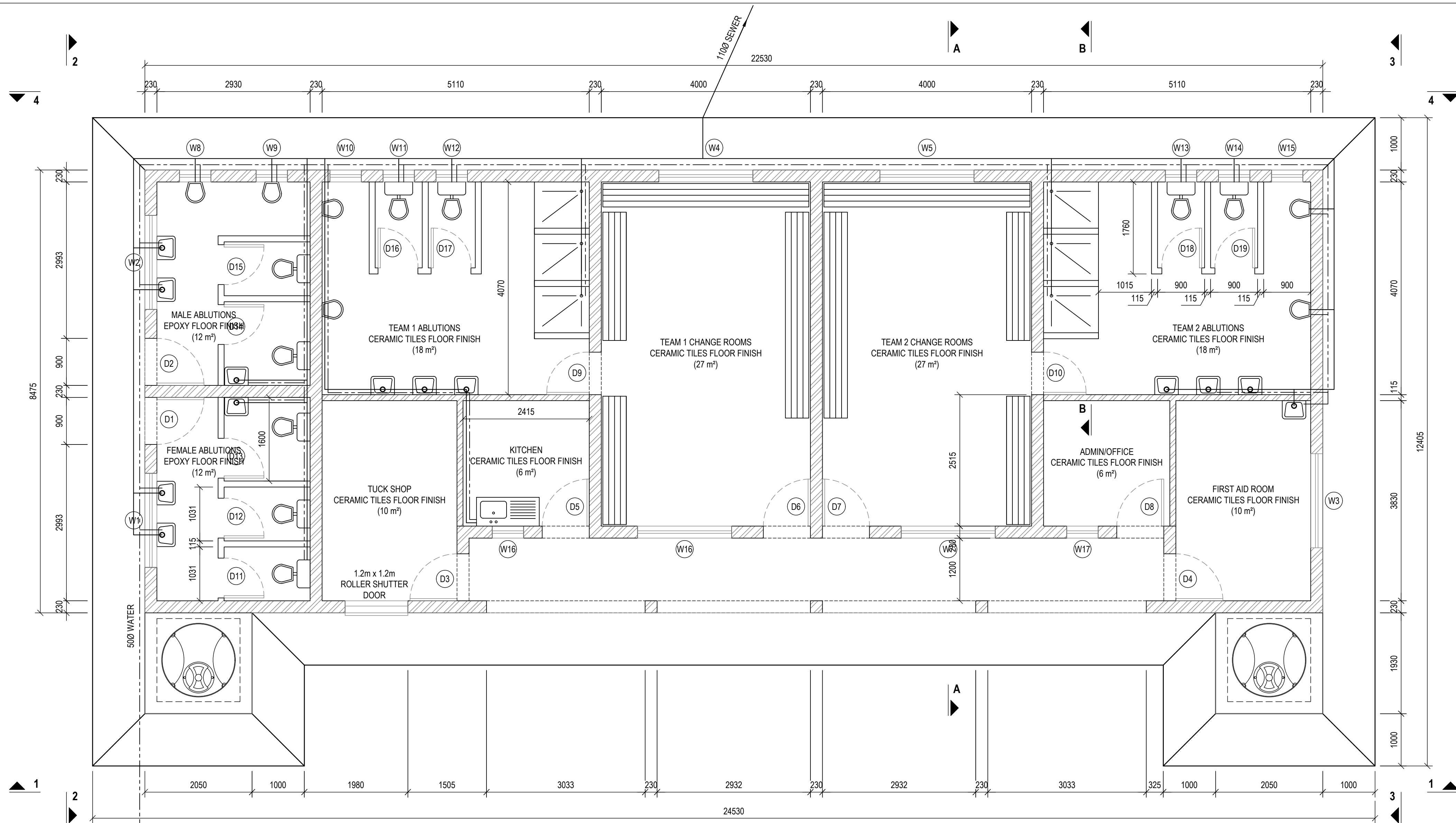
KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

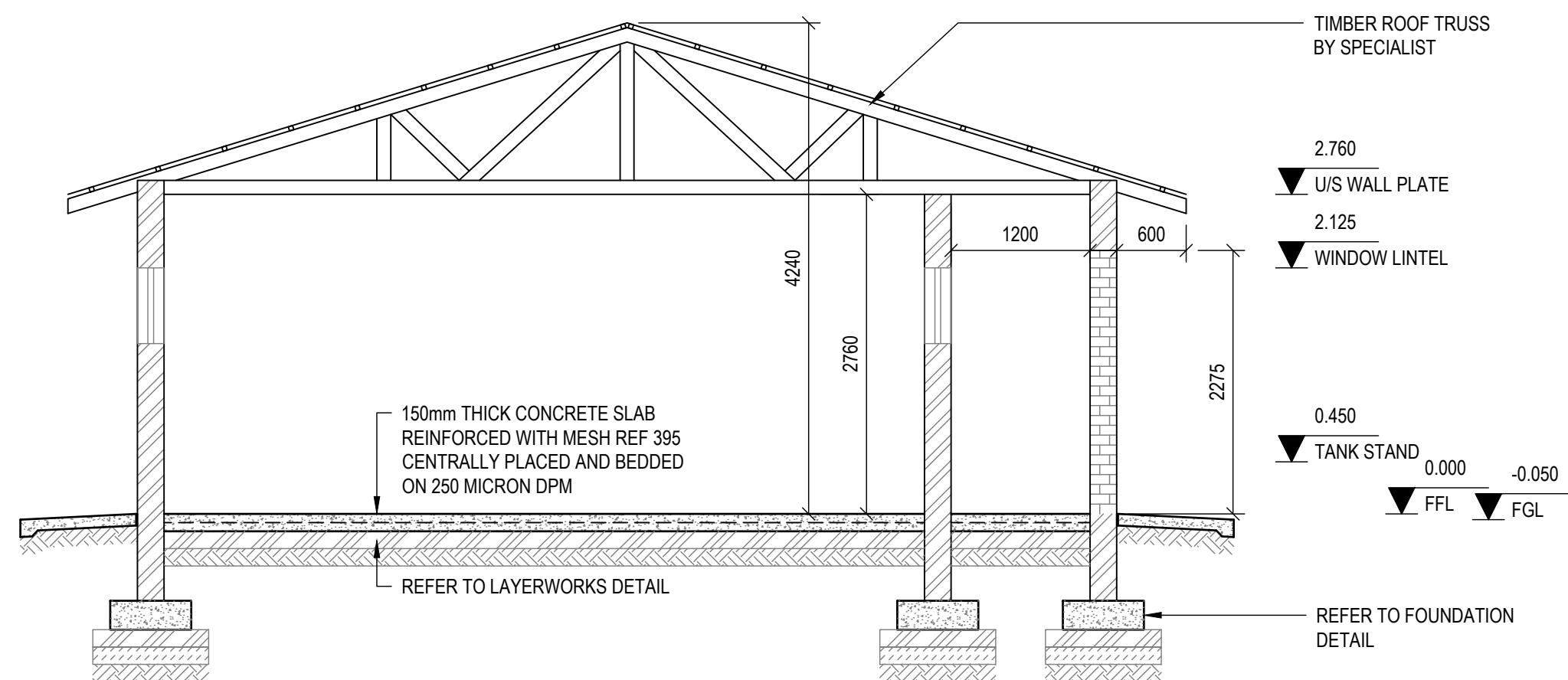
COMBI-COURT LAYOUT

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : C
DRAWING No : 1264/A-103	

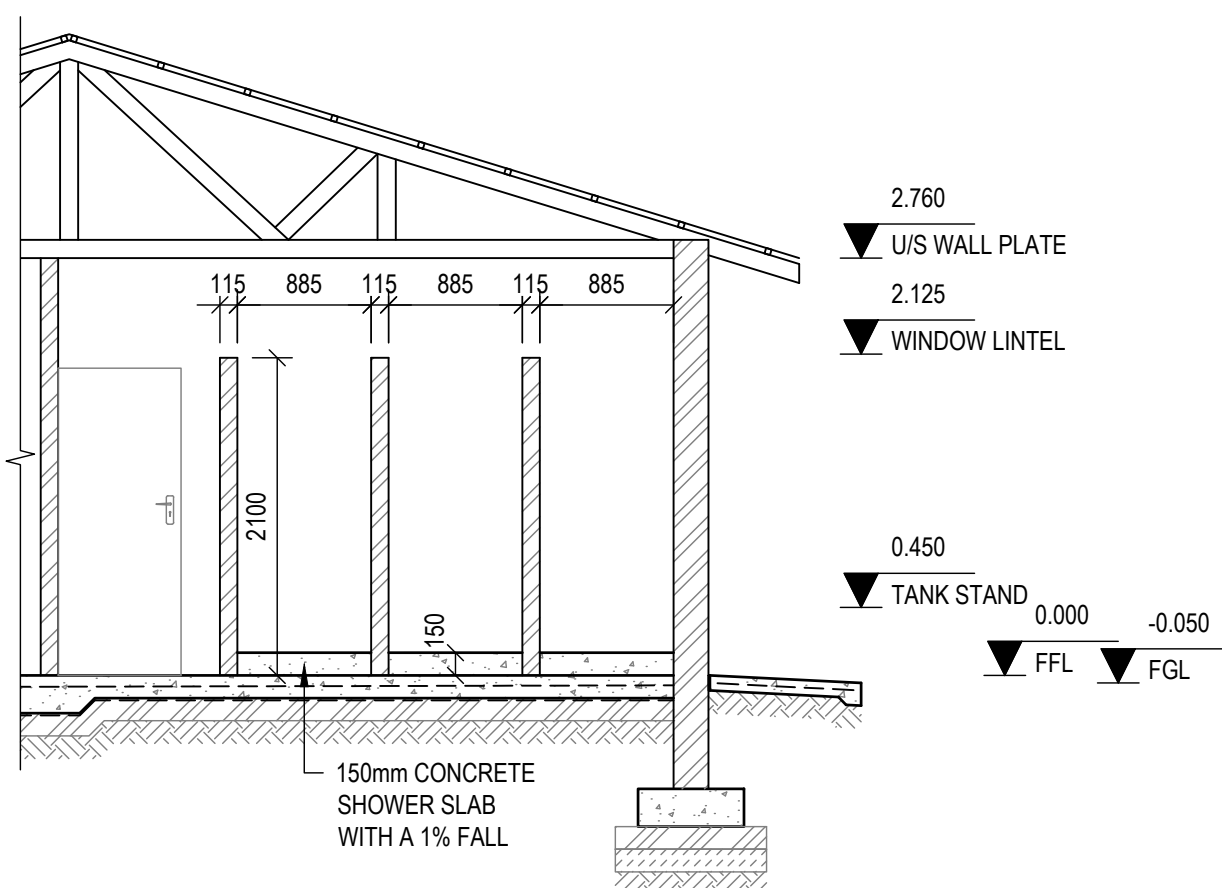
M:\1264_KwaMpondo Sportsground\01-DESIGN STAGE\Drawings\04-Tender Drawings\1264_Site Layout.dwg 280722



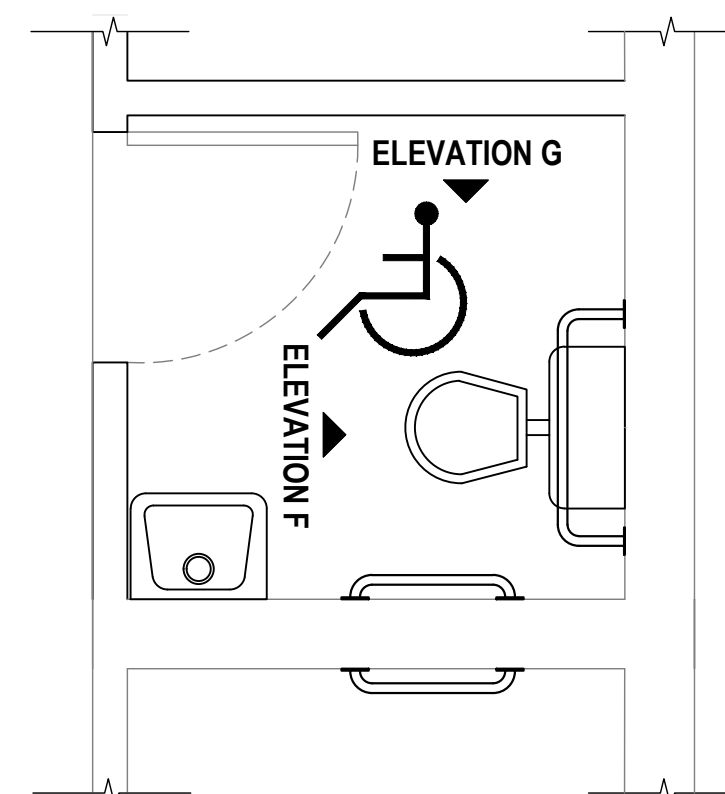
PLAN
SCALE: 1:50



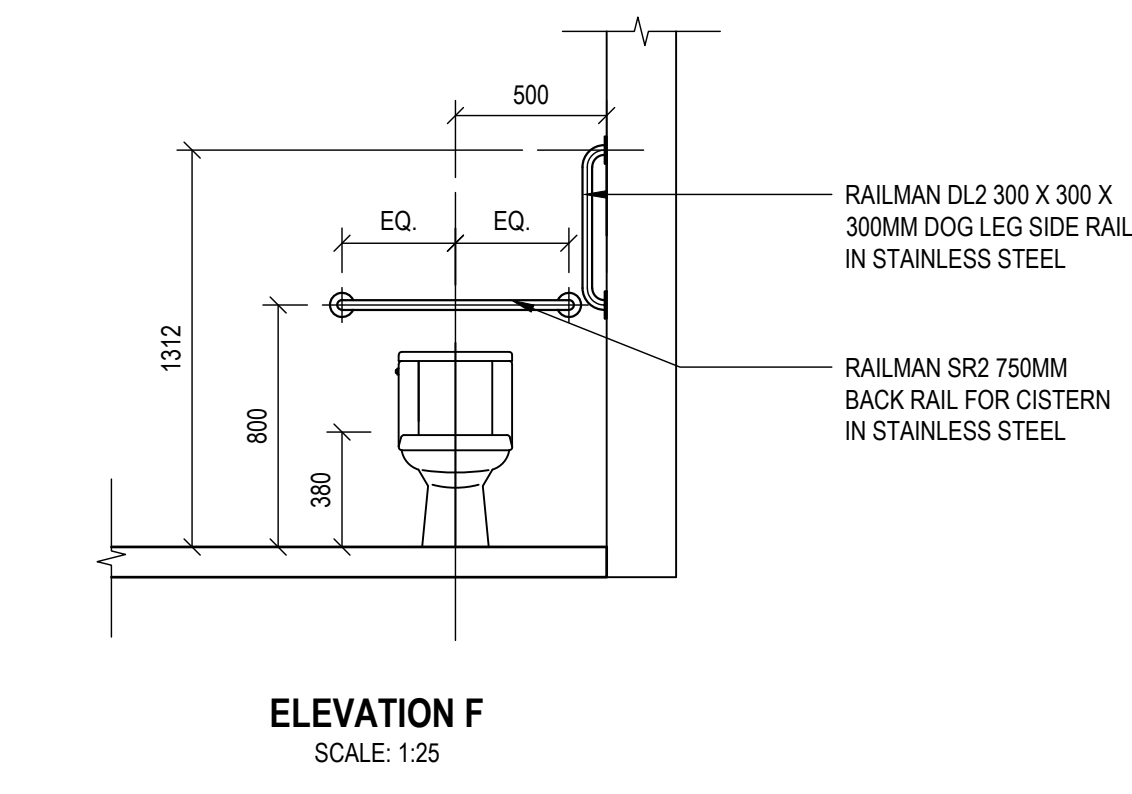
SECTION A-A
SCALE: 1:50



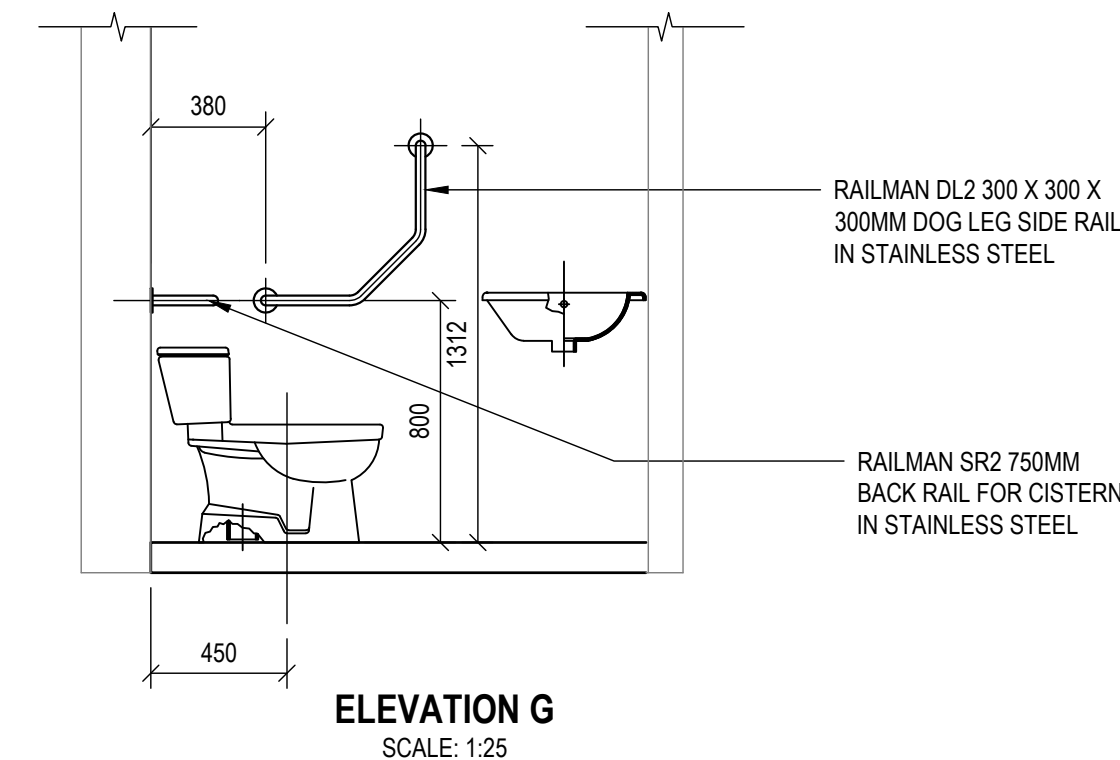
SECTION B-B
SCALE: 1:50



PLAN
SCALE: 1:25



ELEVATION F
SCALE: 1:25



ELEVATION G
SCALE: 1:25

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.
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REV	DESCRIPTION	BY	DATE
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A	FOR INFORMATION	NH	09/10/2020

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CNR BRAM FISCHER & WILLIAMSON STREETS,
SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
TEL 039 976 1202 | 039 978 4313
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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 July 2022

Pr No : 200570114

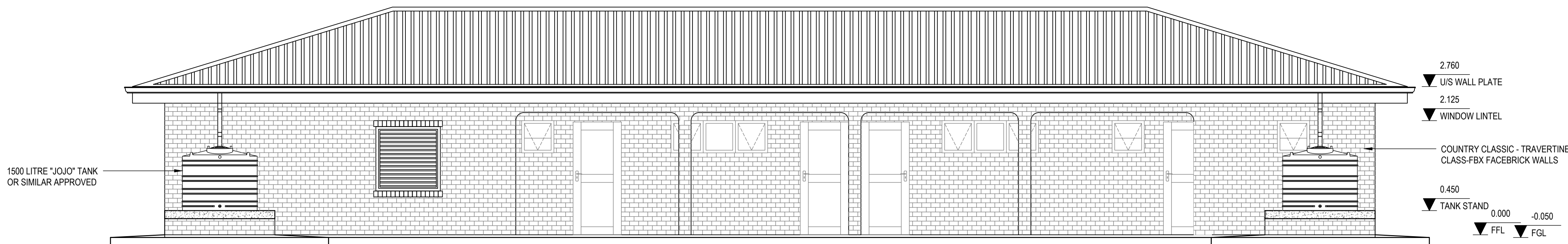
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

CHANGEROOM - PLAN & SECTIONS

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/A-105

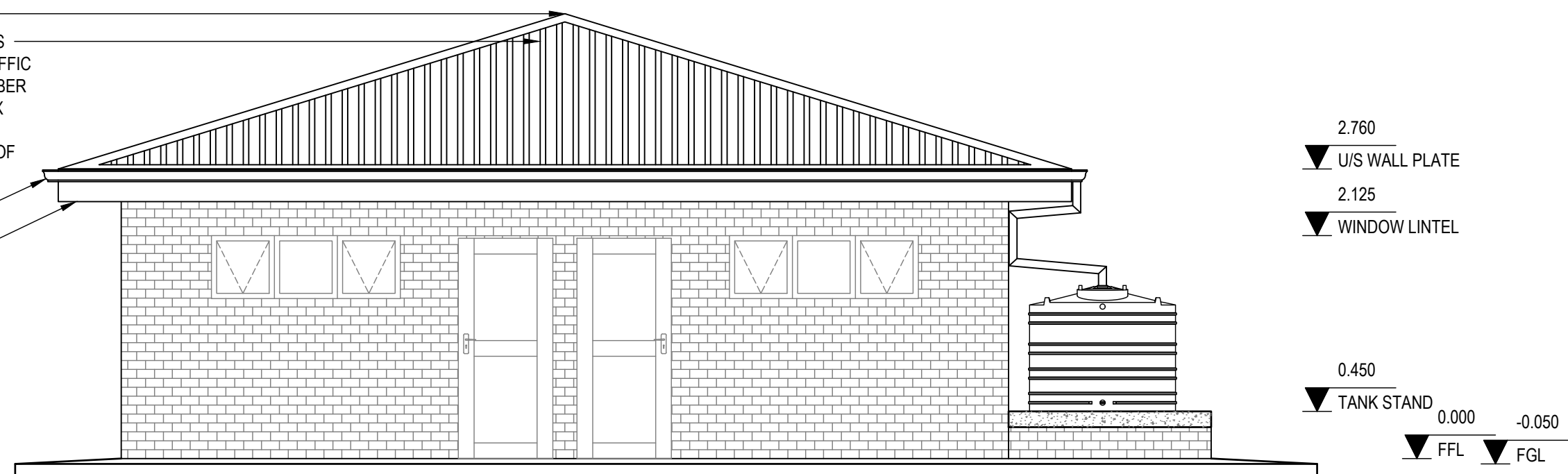


ELEVATION 1
SCALE: 1:50

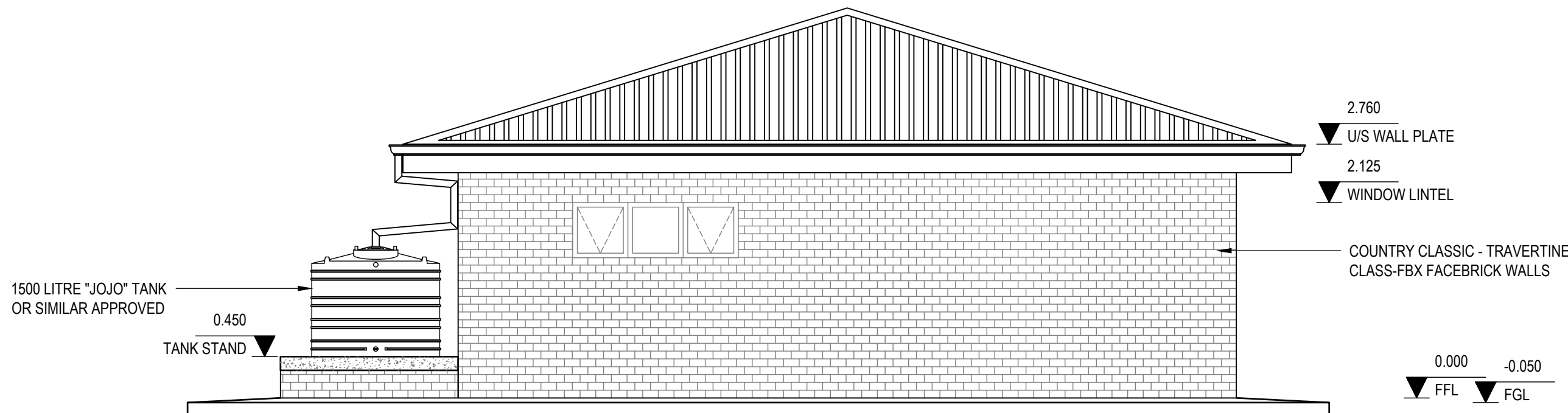
APEX FLASHING TO SUIT IBR 890 PROFILE
GLOBAL ROOFING SOLUTION 890MM COVER IBR 890 PROFILE ROLL-FORMED IN CONTINUOUS LENGTHS FROM 0.58mm THICK GALVANISED STEEL. Z200 SPELTER ISO550 CHROMADEX TRAFFIC GREEN FINISH TOP COAT AND PEBBLE GREY BACKINGCOAT ROOF SHEETING, FIXED TO TIMBER INTERMEDIATE PURLINS AT MAX 2600mm CENTRES AND EAVES AND RIDGE PURLINS AT MAX 2300mm CENTRES USING HEX FLANGE + EPDM SEAL SELF DRILLING TYPE 17 DRILL POINT, NO1 12-11 x 85mm LONG FASTNERS. PURLIN FIXED TO SECOND, FOURTH AND SIXTH CREST OF EACH SHEET AND AT ALL CREST OF EACH SHEET ENDS, ALL IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS BY A GRS APPROVED CONTRACTOR.

BRONZE ANODISED ALUMINIUM "OGEE" GUTTER

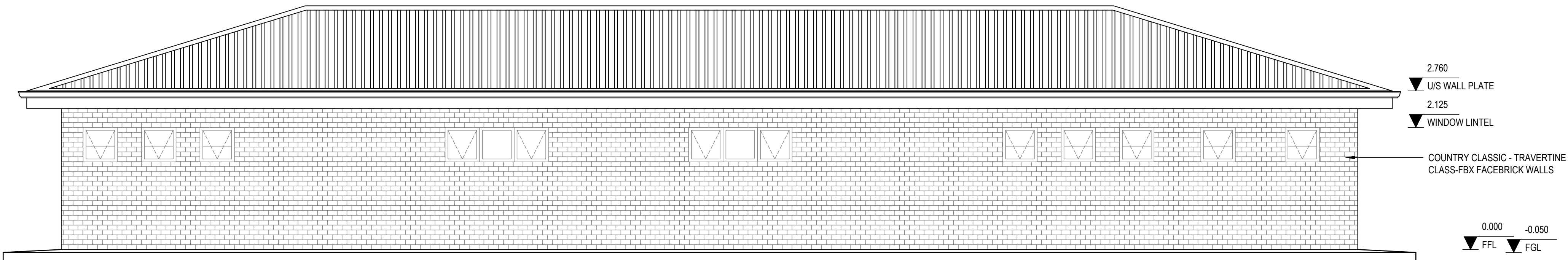
6mm THICK x 150mm
FIBRE CEMENT
FASCIA BOARD
PAINTED WHITE



ELEVATION 2
SCALE: 1:50



ELEVATION 3
SCALE: 1:50



ELEVATION 4
SCALE: 1:50

0 50 100mm

ORIGINAL SCALE

NOTE:

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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
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CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 07/2023



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 July 2022

Pr No : 200570114

PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

CHANGEROOM - ELEVATIONS

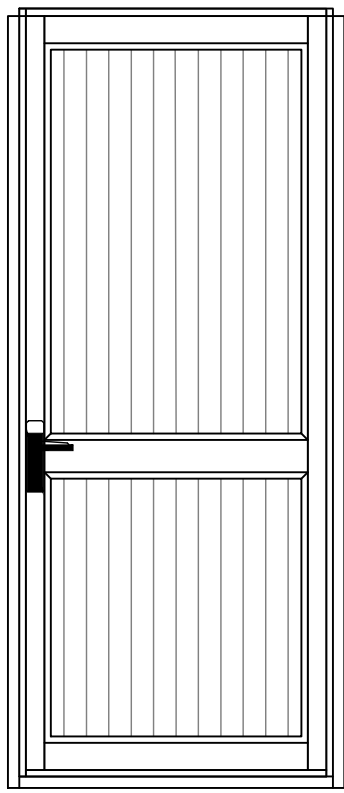
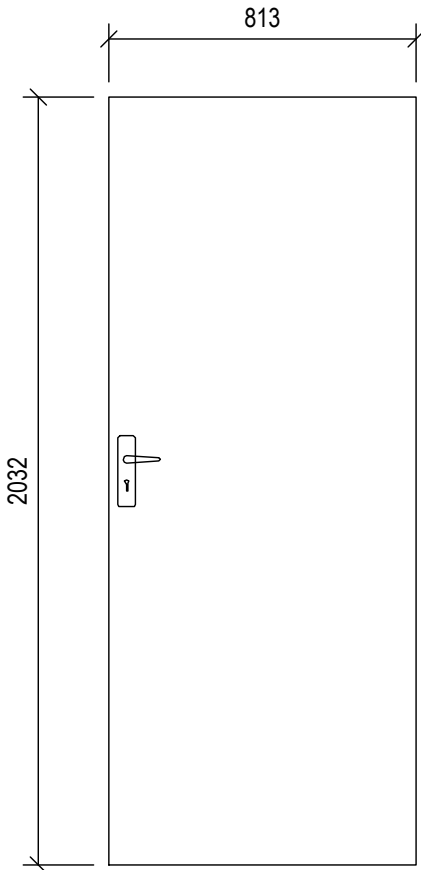
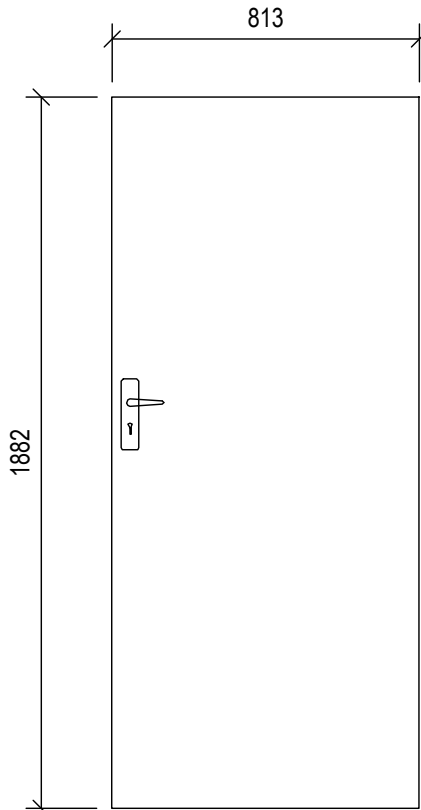
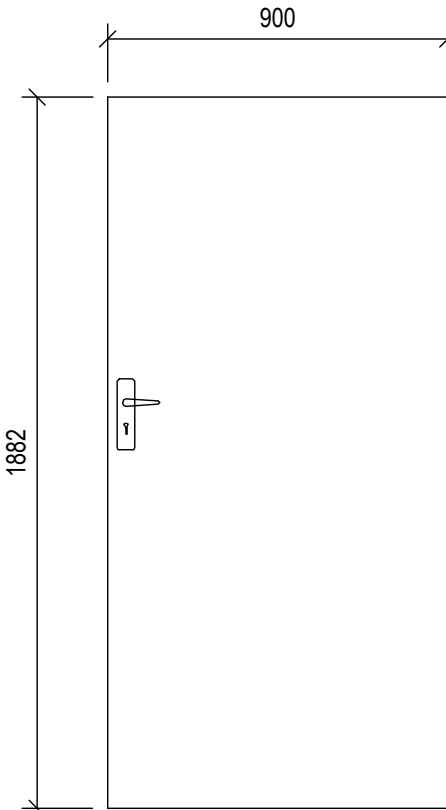
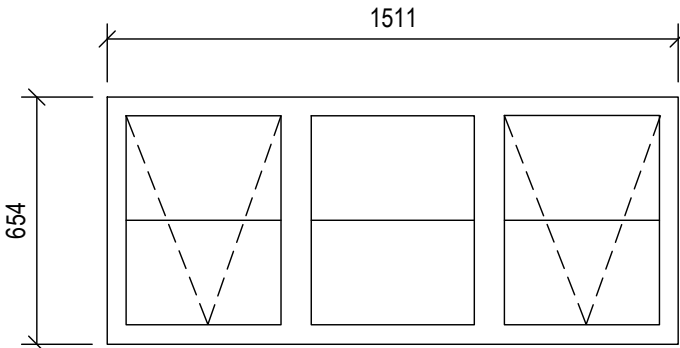
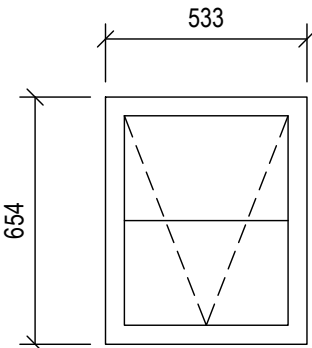
DESIGNED : NH DATE : 01/10/2020

DRAWN : NH SHEET : 01

CHECKED : JVR ORIGINAL SHEET SIZE: A1

SCALE : AS SHOWN REV : B

DRAWING No : 1264/A-106

DOOR AND WINDOW SCHEDULE						
PROFILE	DOORS				WINDOWS	
						
CATALOGUE NO.	TYPE DN1	TYPE DN2	TYPE DN3	TYPE DN4	TYPE WN1 (E4H)	TYPE WN2 (E1H)
	CLASS 1 EXTERIOR, HEAVY DUTY (SABS 545), ALUMINIUM WITH VERTICAL PANELS FRAME DOUBLE REBATED GALVANISED PRESSED STEEL FRAME. PBS FRAME TO TAKE 2032 X 813 X 44mm DOOR, ON A 230mm WALL ONE COAT UNIVERSAL PRIMER AND TWO COATS PLASCON EGGSHELL ENAMEL PAINT D 01 - LH D 02 - RH D 03 - LH D 04 - RH D 05 - RH D 06 - RH D 07 - LH D 08 - RH	DOOR TYPE D1 - 2032 X 813 X 44mm SEMI SOLID CORE FLUSH PANEL WITH HARD WOOD EDGING ONE COAT WOOD PRIMER, ONE UNDERCOAT AND TWO COATS MATTE AND ENAMEL PAINT ON WOODEN DOOR ONE COAT UNIVERSAL PRIMER AND TWO COATS PLASCON EGGSHELL ENAMEL PAINT ON DOOR FRAMES FRAME DOUBLE REBATED GALVANISED PRESSED STEEL FRAME. PBS FRAME TO TAKE 2032 X 813 X 44mm DOOR, ON A 115mm WALL D 09 - LH D 10 - RH	DOOR TYPE D1 - 1882 X 813 X 44mm HOLLOW FLUSH PANEL WITH HARD WOOD EDGING ONE COAT WOOD PRIMER, ONE UNDERCOAT AND TWO COATS MATTE AND ENAMEL PAINT ON WOODEN DOOR ONE COAT UNIVERSAL PRIMER AND TWO COATS PLASCON EGGSHELL ENAMEL PAINT ON DOOR FRAMES FRAME DOUBLE REBATED GALVANISED PRESSED STEEL FRAME. PBS FRAME TO TAKE 2032 X 813 X 44mm DOOR, ON A 230mm WALL D 11 - RH D 19 - RH D 12 - RH D 15 - LH D 16 - RH D 17 - RH D 18 - RH	DOOR TYPE D1 - 1882 X 900 X 44mm HOLLOW FLUSH PANEL WITH HARD WOOD EDGING ONE COAT WOOD PRIMER, ONE UNDERCOAT AND TWO COATS MATTE AND ENAMEL PAINT FRAME DOUBLE REBATED GALVANISED PRESSED STEEL FRAME. PBS FRAME TO TAKE 1882 X 762 X 44mm DOOR, ON A 115mm WALL D 13 - RH D 14 - LH	TYPE W1 REF.E4H -PURPOSE MADE HOT DIPPED GALVANISED ROLLED MILD STEEL WINDOW FRAME. PROJECTED TOP HUNG OPEN OUT 4mm MONOLITHIC ANNEALED OBSCURE GLASS WINDOW TYPE 1: W1, W2, W3, W4, W5, W6, W7	TYPE W2 REF.E1H -PURPOSE MADE NATURAL ANODISED ALUMINIUM WINDOW FRAME. FIXED PANEL 4mm MONOLITHIC ANNEALED OBSCURE GLASS WINDOW TYPE 2: W8, W9, W10, W11, W12, W13, W14, W16, W17
QUANTITY	8	2	7	2		

050100mm

ORIGINAL SCALE

NOTE:

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A	FOR INFORMATION	NH	09/10/2020
REV	DESCRIPTION	BY	DATE

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CNR BRAM FISCHER & WILLIAMSON STREETS, SCOTTBURGH
PO BOX 19,
SCOTTIBURGH, 4180
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CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 07/2023

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64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
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CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

PROJECT

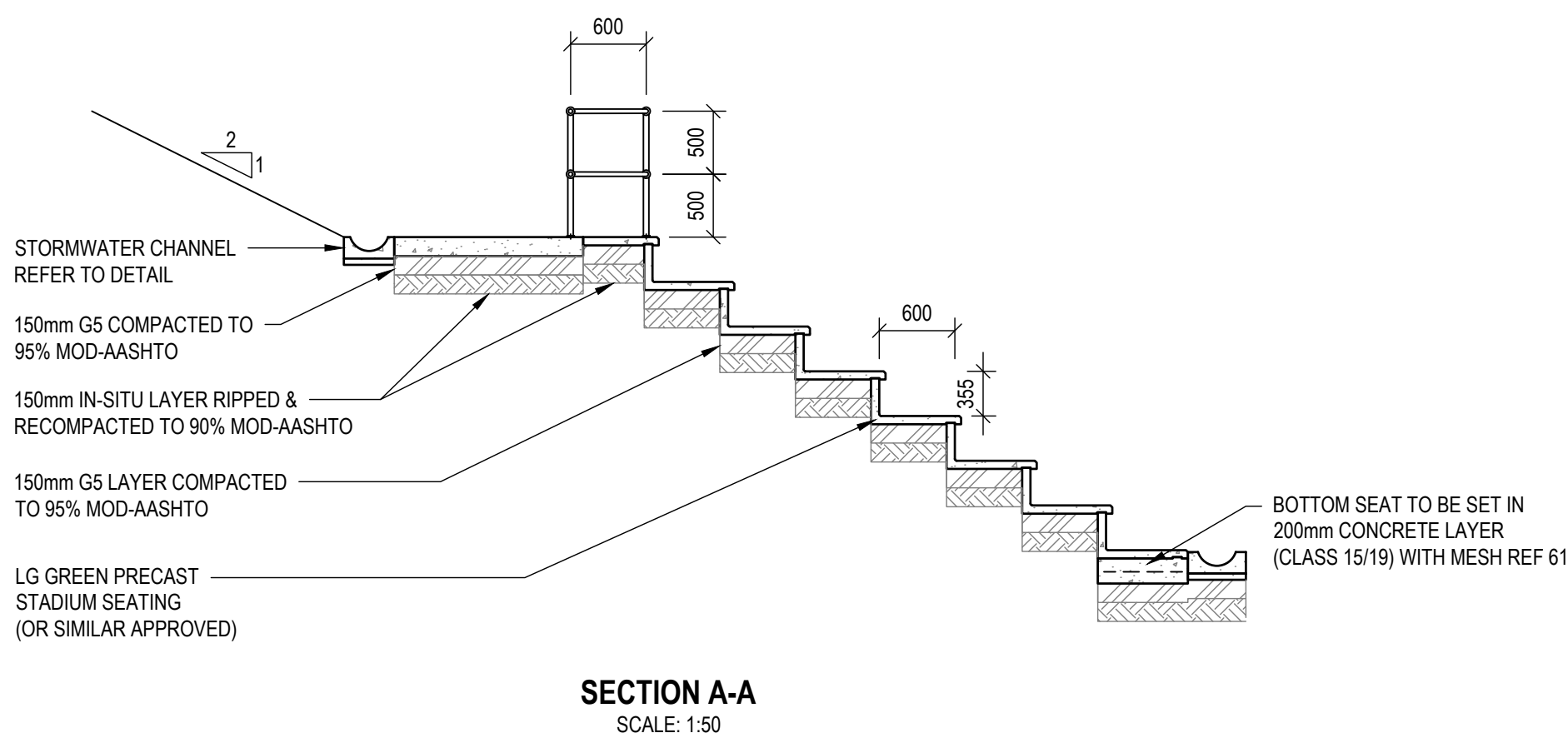
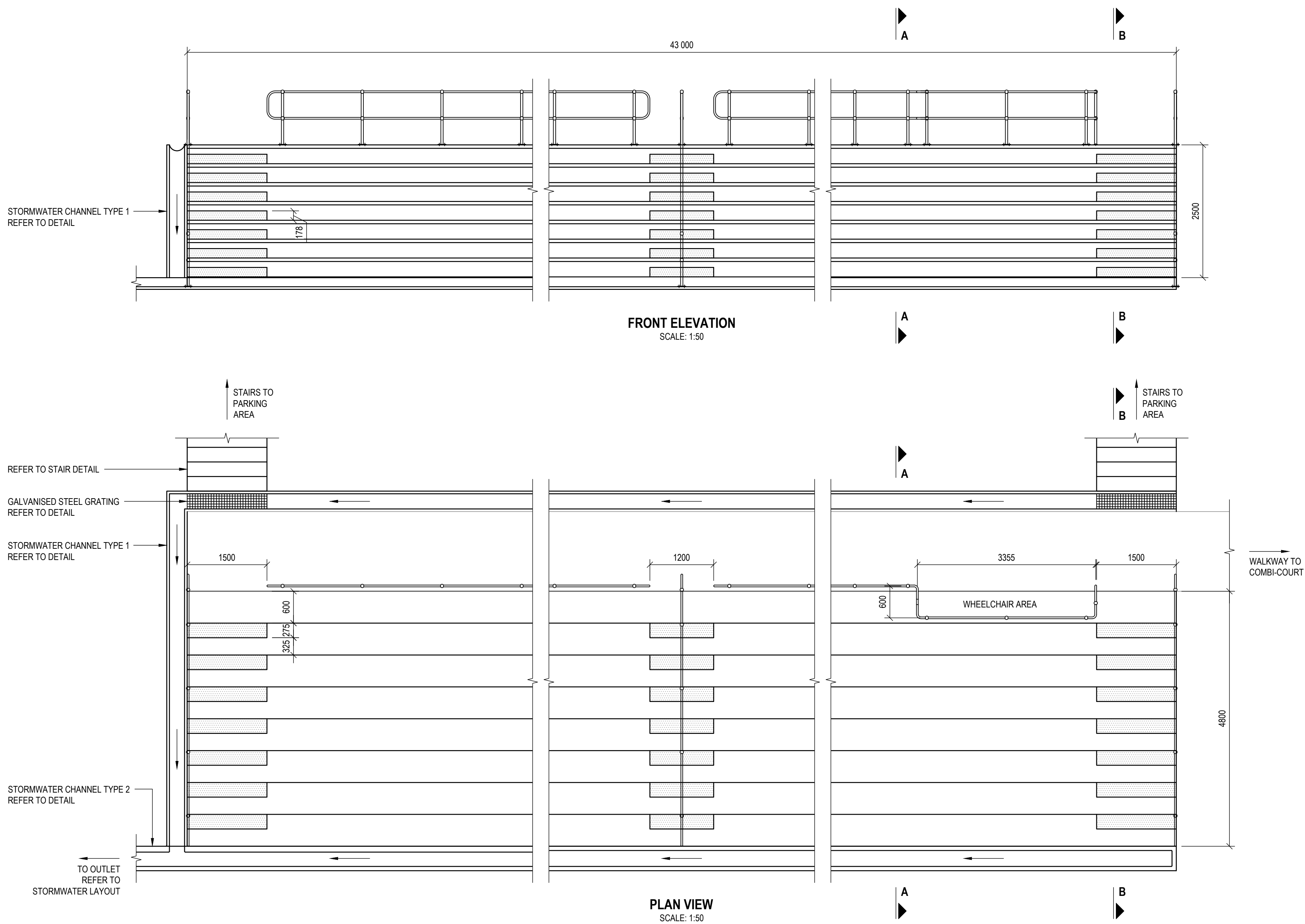
KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

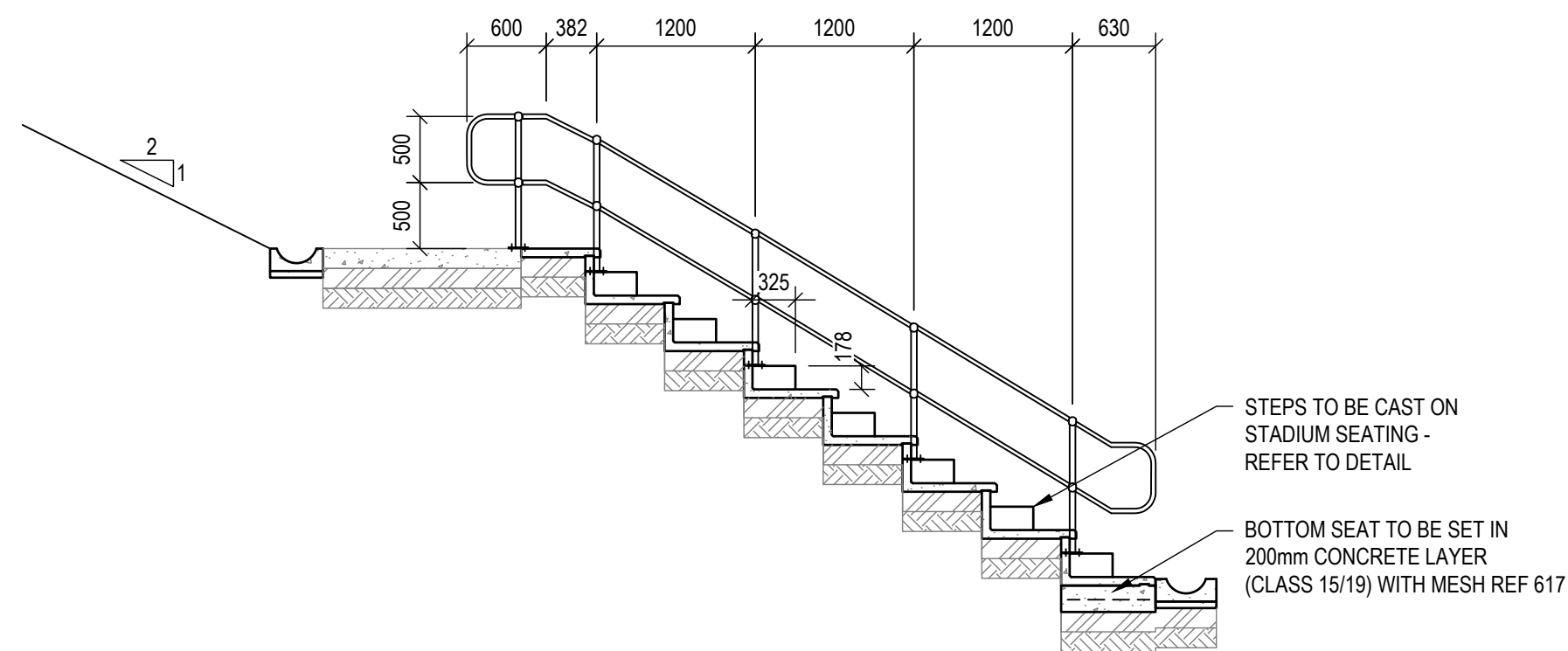
WINDOW & DOOR SCHEDULE

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/A-107

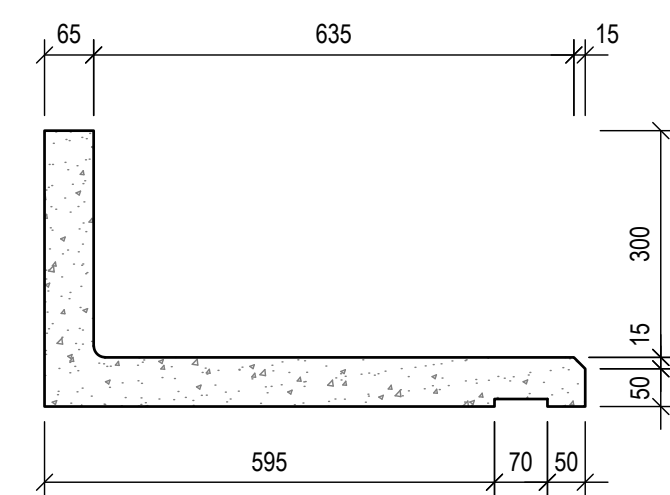
M:\1264_Kwampondo Sportsground\01-DESIGN STAGE\Drawings\04-Tender Drawings\1264-Abulon.dwg 280722



SECTION A-A
SCALE: 1:50



SECTION B-B
SCALE: 1:50



PRECAST SEATING DETAIL
SCALE: 1:10

0 50 100mm

ORIGINAL SCALE

NOTE:
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SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
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CAPACITY:
DATE :
DM DRAWING No.
CONTRACT No : 07/2023



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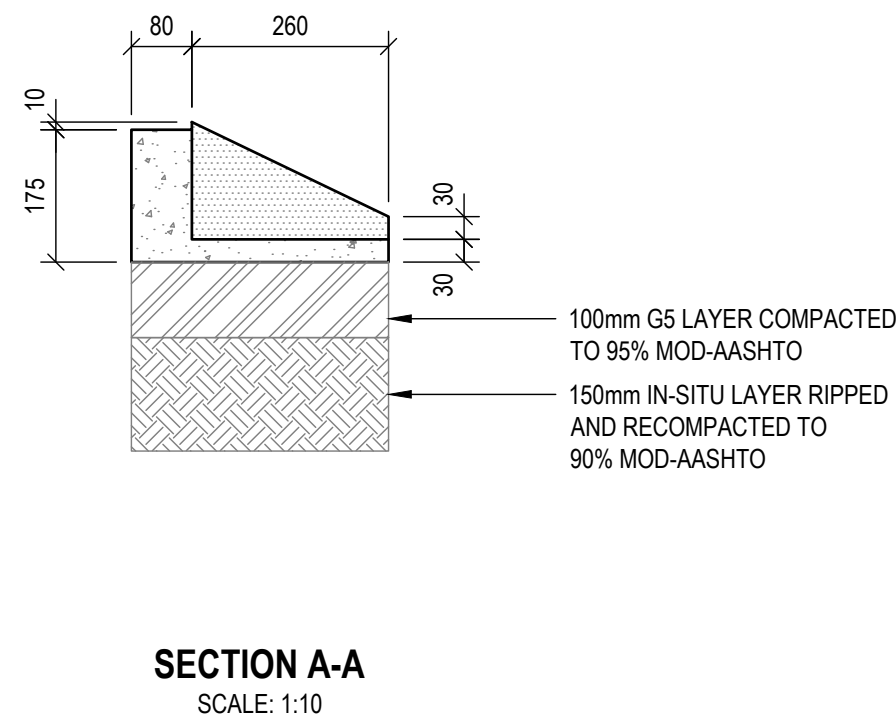
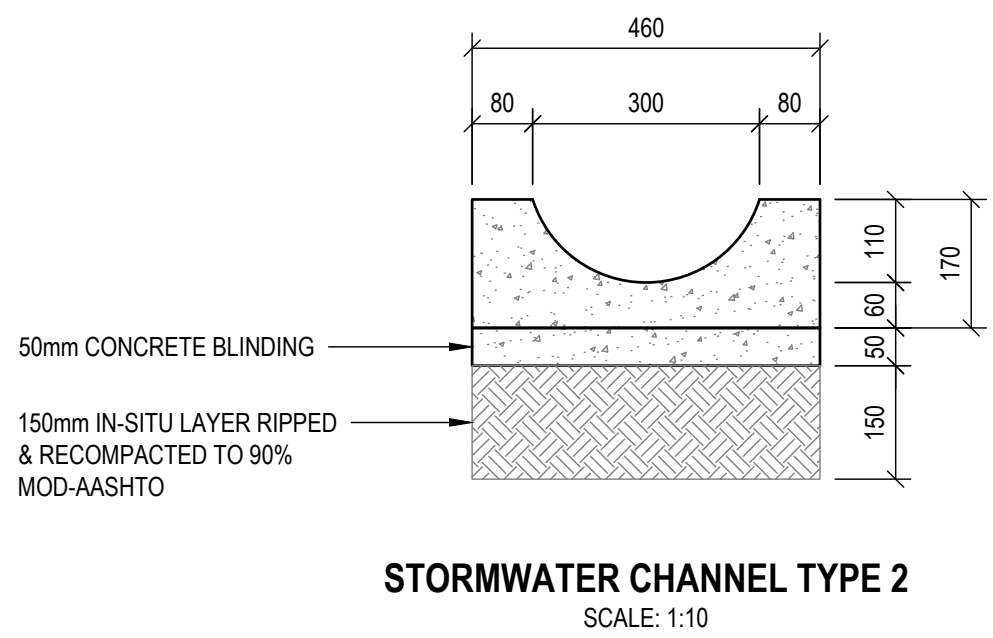
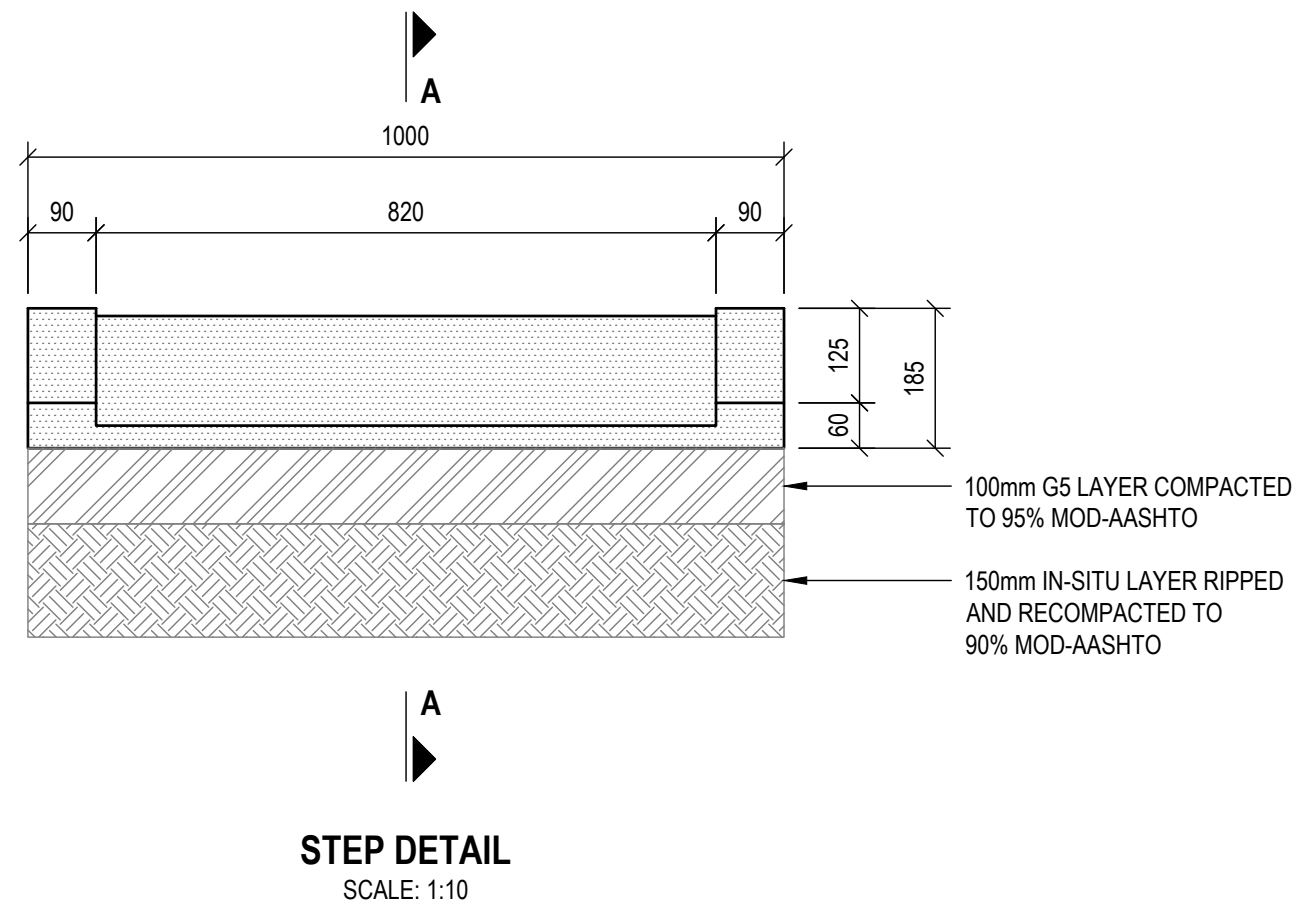
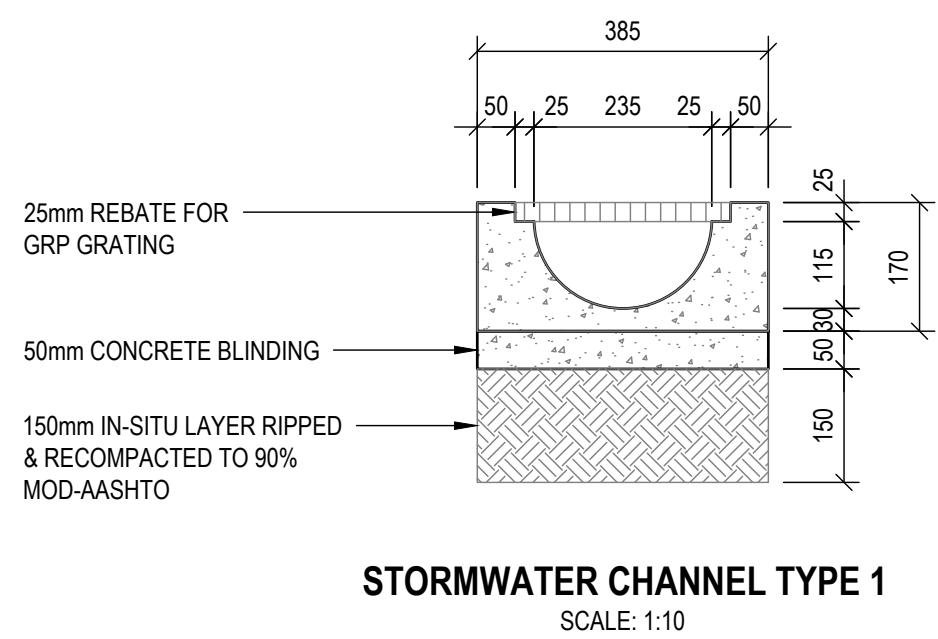
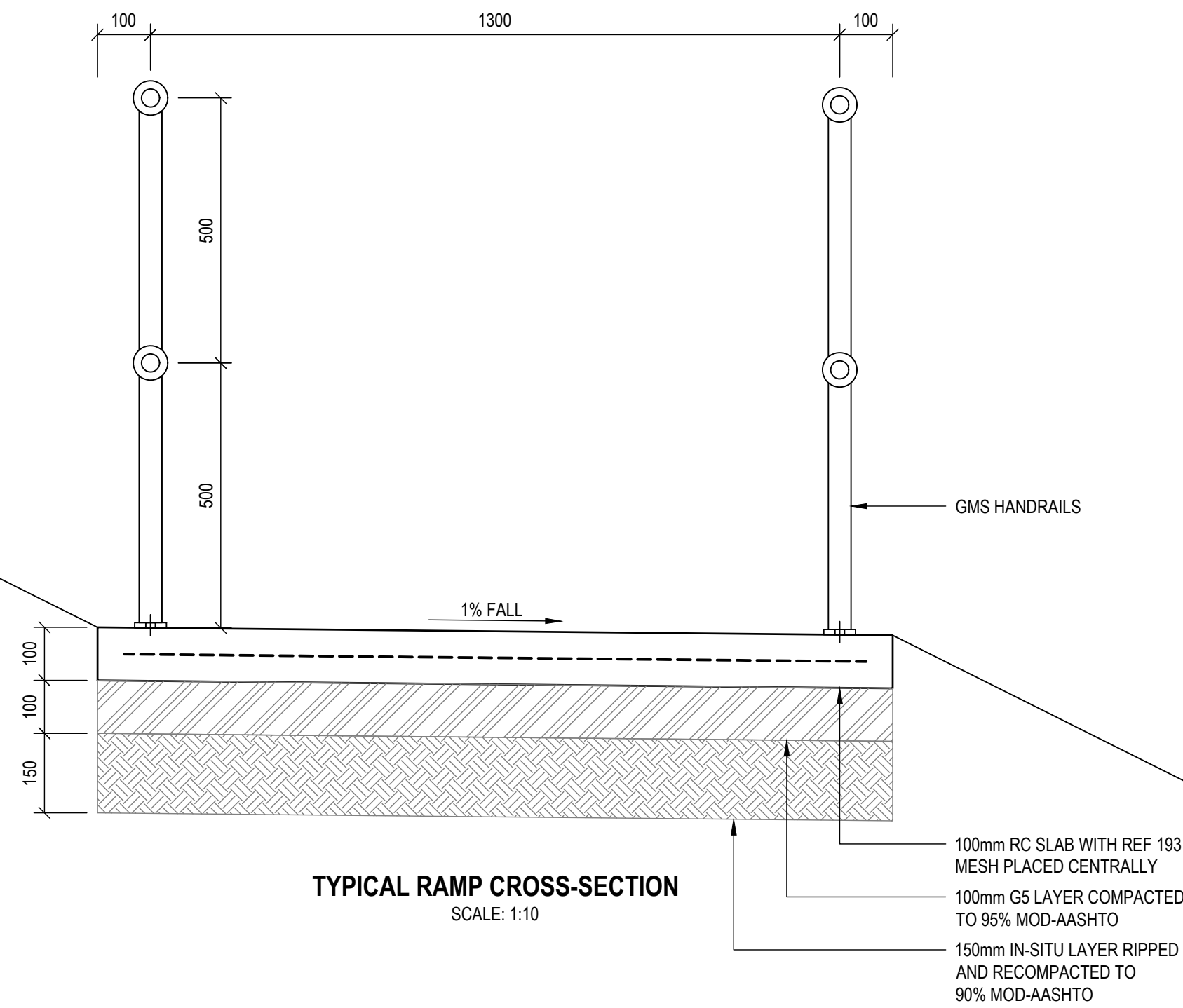
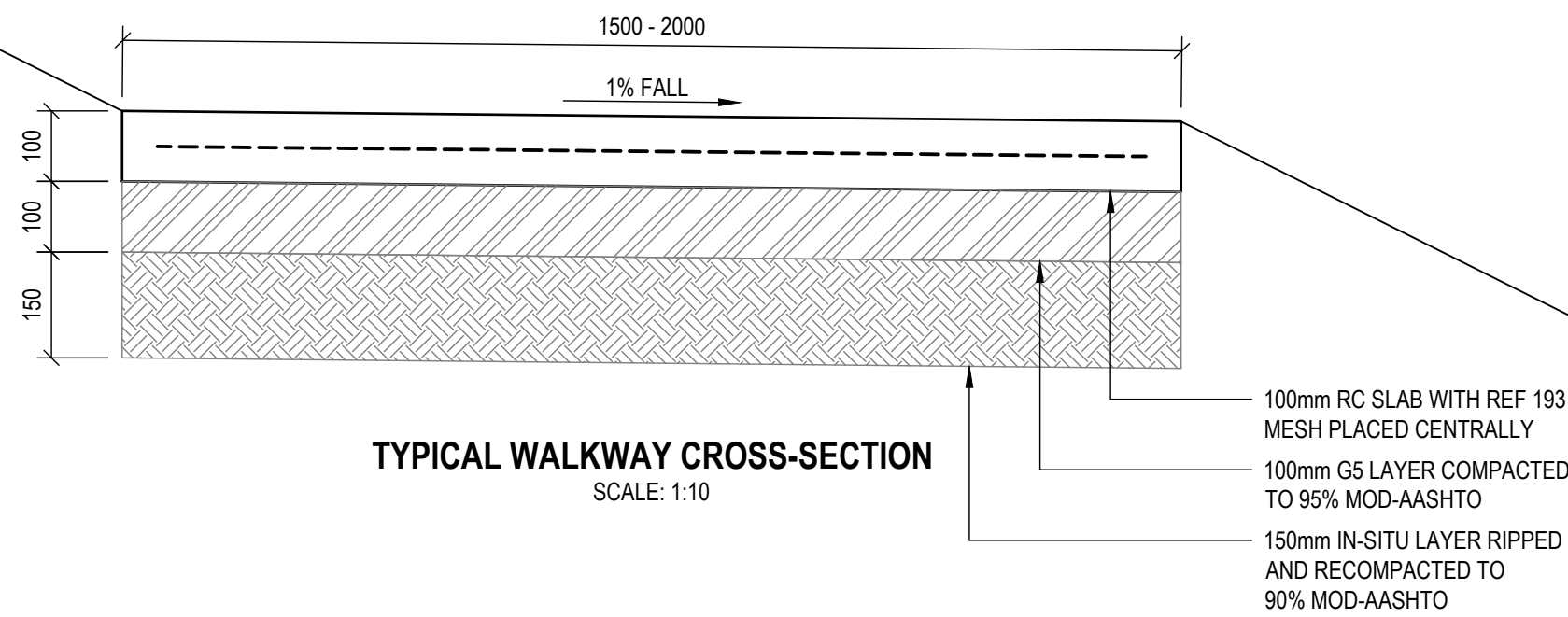
CAPACITY : DIRECTOR
DATE : 28 July 2022
Pr No : 200570114
PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

EMBANKMENT SEATING

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/CSD101



- NOTES:**
- STEPS
 - ALL STEPS ARE TO BE PRECAST STEPS SUPPLIED BY LG GREEN (PRODUCT CODE - ST101), OR SIMILAR APPROVED.
 - THE BOTTOM STEP IS TO BE SET IN 200mm THICK CONCRETE (CLASS 15/19) WITH REF 617 MESH.
 - RAMPS / WALKWAYS
 - ISOLATION JOINTS ON RAMPS AND WALKWAYS TO BE NO MORE THAN 6m APART.
 - RAMPS TO FALL AT A MAXIMUM SLOPE OF 1:12.
 - HANDRAILS
 - ALL HANDRAILS ARE TO BE GALVANISED TO SABS 1461 REQUIREMENTS.
 - ALL STANCHIONS TO BE MENTIS TYPE MT90 (OR SIMILAR APPROVED) UNLESS SPECIFIED OTHERWISE.
 - STANCHIONS - 42.9mm OD
 - BENDS - 34.1mm OD
 - HANDRAIL TUBING - 34.1mm OD - 2.5mm THICK - 6000mm LONG
 - STANCHIONS TO BE SPACED AT A MAXIMUM OF 1000mm CENTERS FOR SPECTATOR AREAS AND 1500mm CENTERS FOR RAMPS AND WALKWAYS.

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.

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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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DM DRAWING No.

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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

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CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

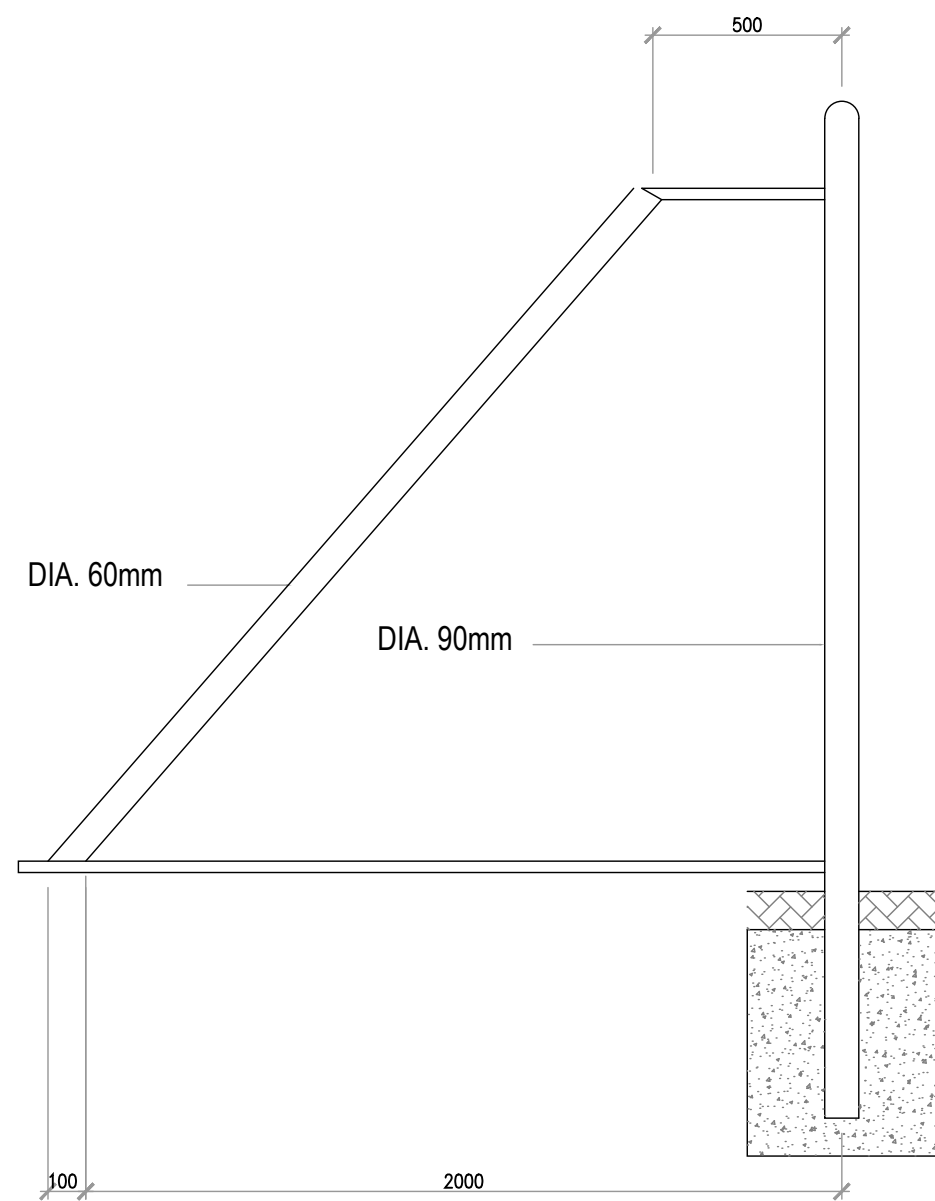
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

STANDARD DETAILS

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/CSD102



SIDE ELEVATION
SCALE 1 : 200



FRONT ELEVATION
SCALE 1 : 200

0 50 100mm

ORIGINAL SCALE

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PO BOX 19,
SCOTTBURGH, 4180
TEL 039 976 1202 / 039 978 4313
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64 Underwood Road
Pinetown
3610
P O Box 65596
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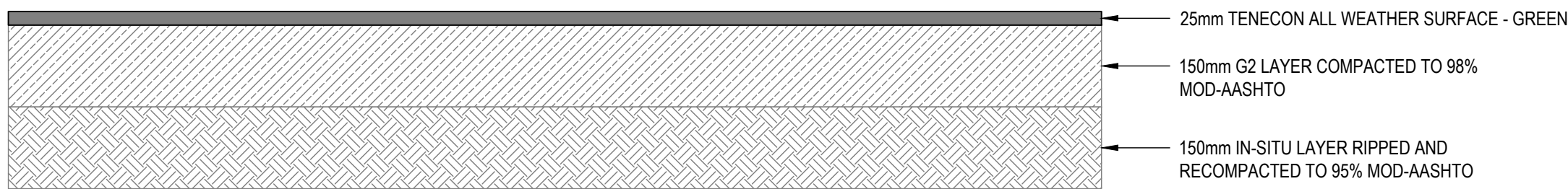
PROJECT

KWAMPONDO SPORTS FIELD WARD 1

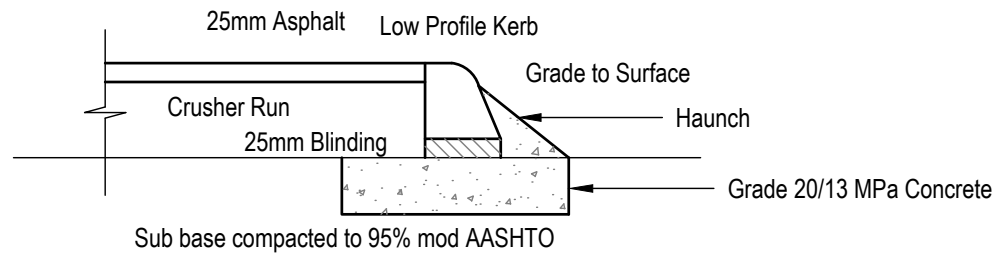
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SOCCER GOAL POST

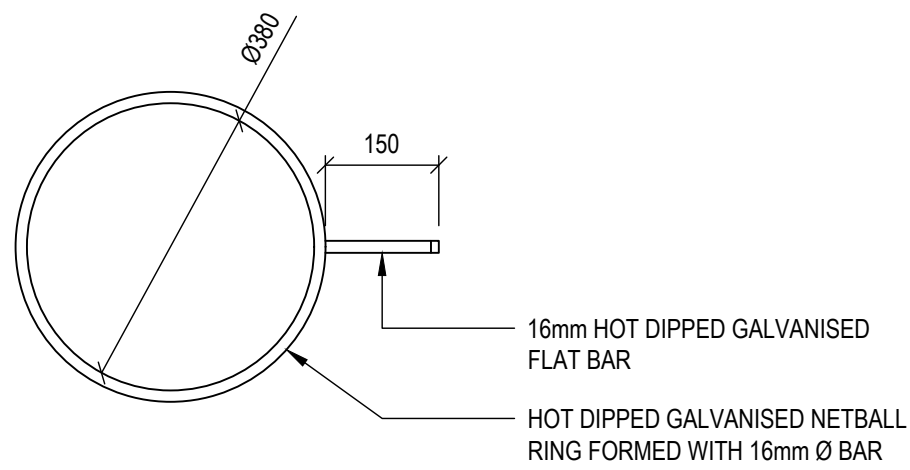
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DRAWING No :	1264/CSD103



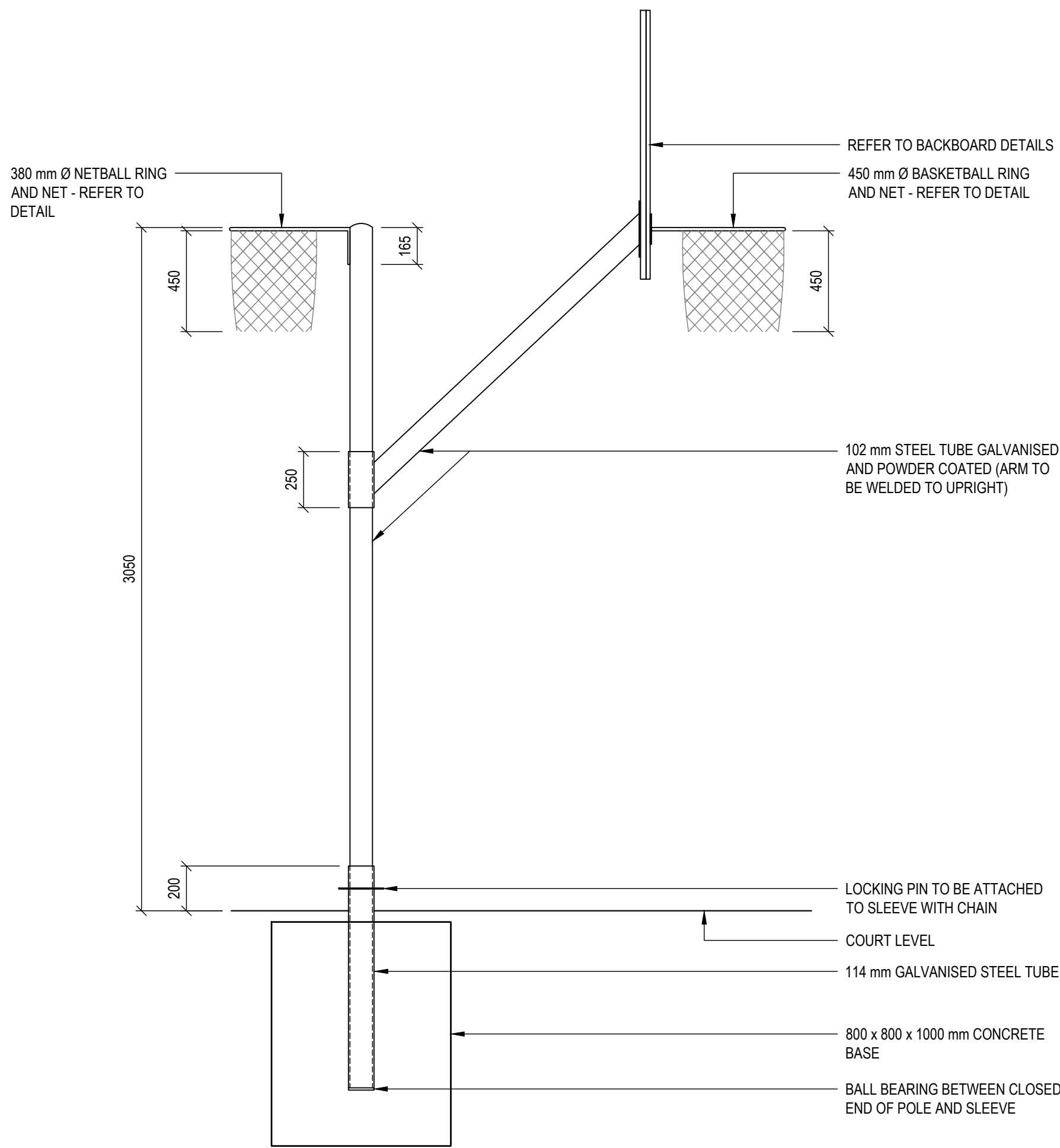
COMBI-COURT LAYERWORKS DETAIL
SCALE: 1:10



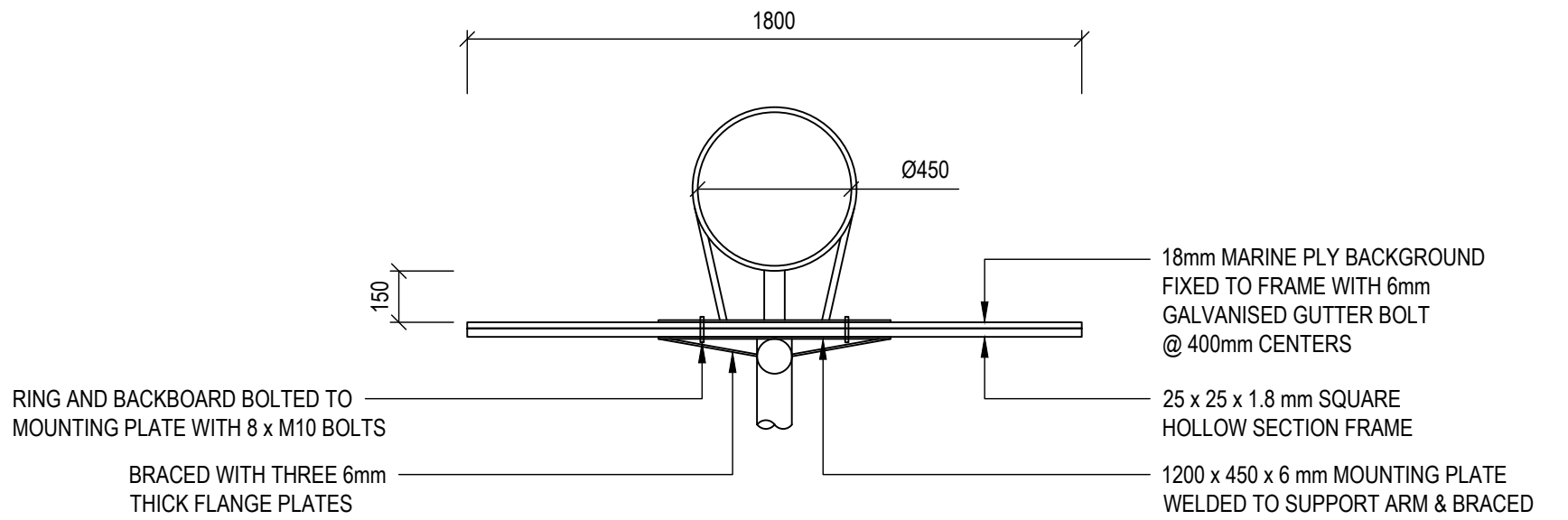
COURT SURROUNDING KERBING
SCALE: 1:20



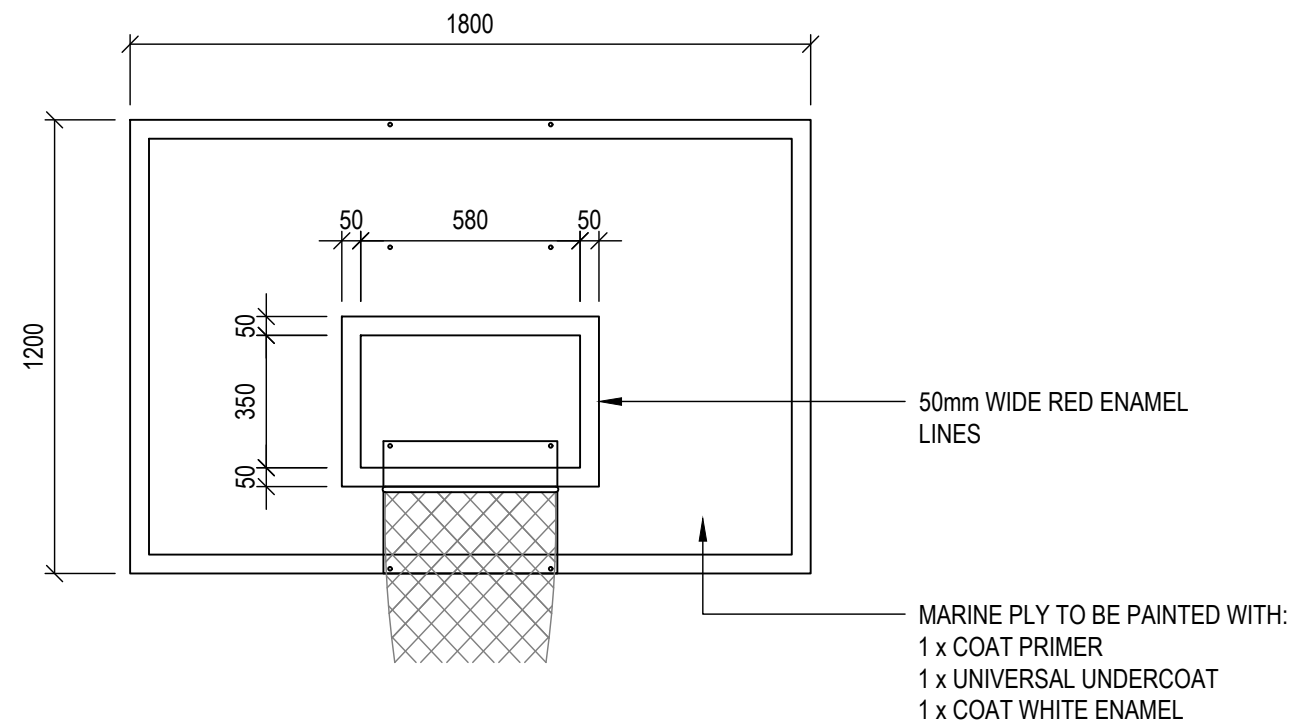
NETBALL RING DETAIL
SCALE: 1:10



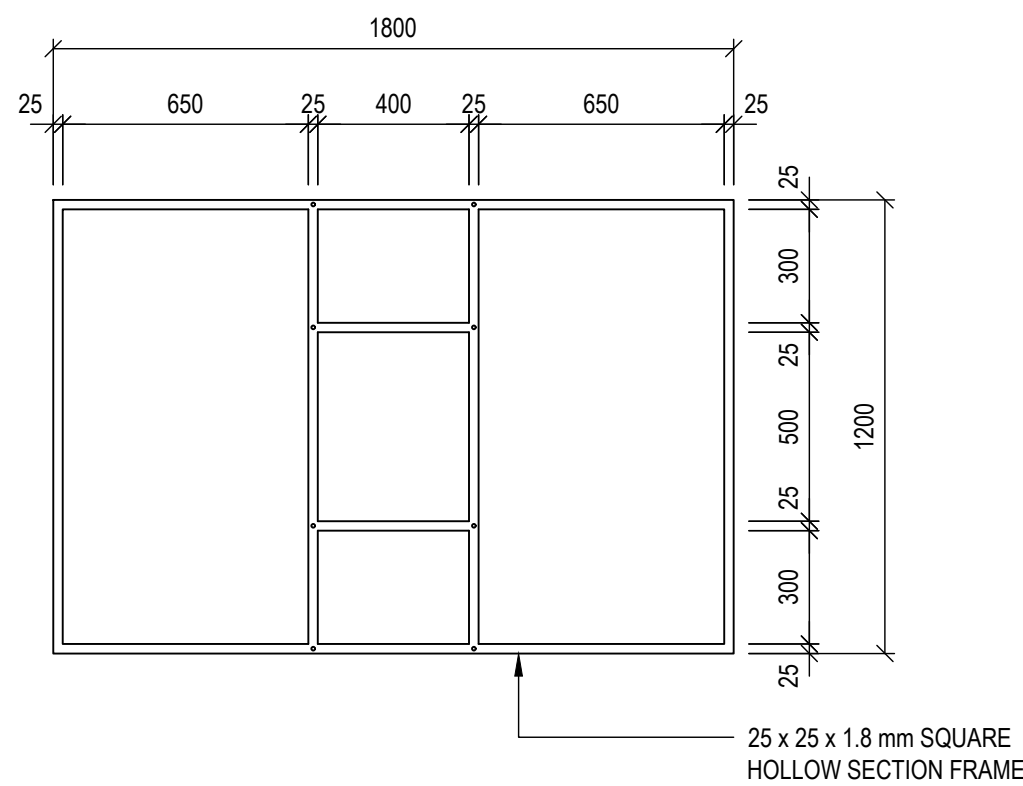
BASKETBALL AND NETBALL SWIVEL POLE
SCALE: 1:20



DETAIL OF BASKETBALL BACKBOARD (TOP ELEVATION)
SCALE: 1:20



DETAIL OF BASKETBALL BACKBOARD (FRONT ELEVATION)
SCALE: 1:20



DETAIL OF BASKETBALL BACKBOARD (REAR ELEVATION)
SCALE: 1:20

0 50 100mm

ORIGINAL SCALE

FOR TENDER

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SCOTTBURGH, 4180
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Pinetown
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PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

COMBI-COURT DETAILS

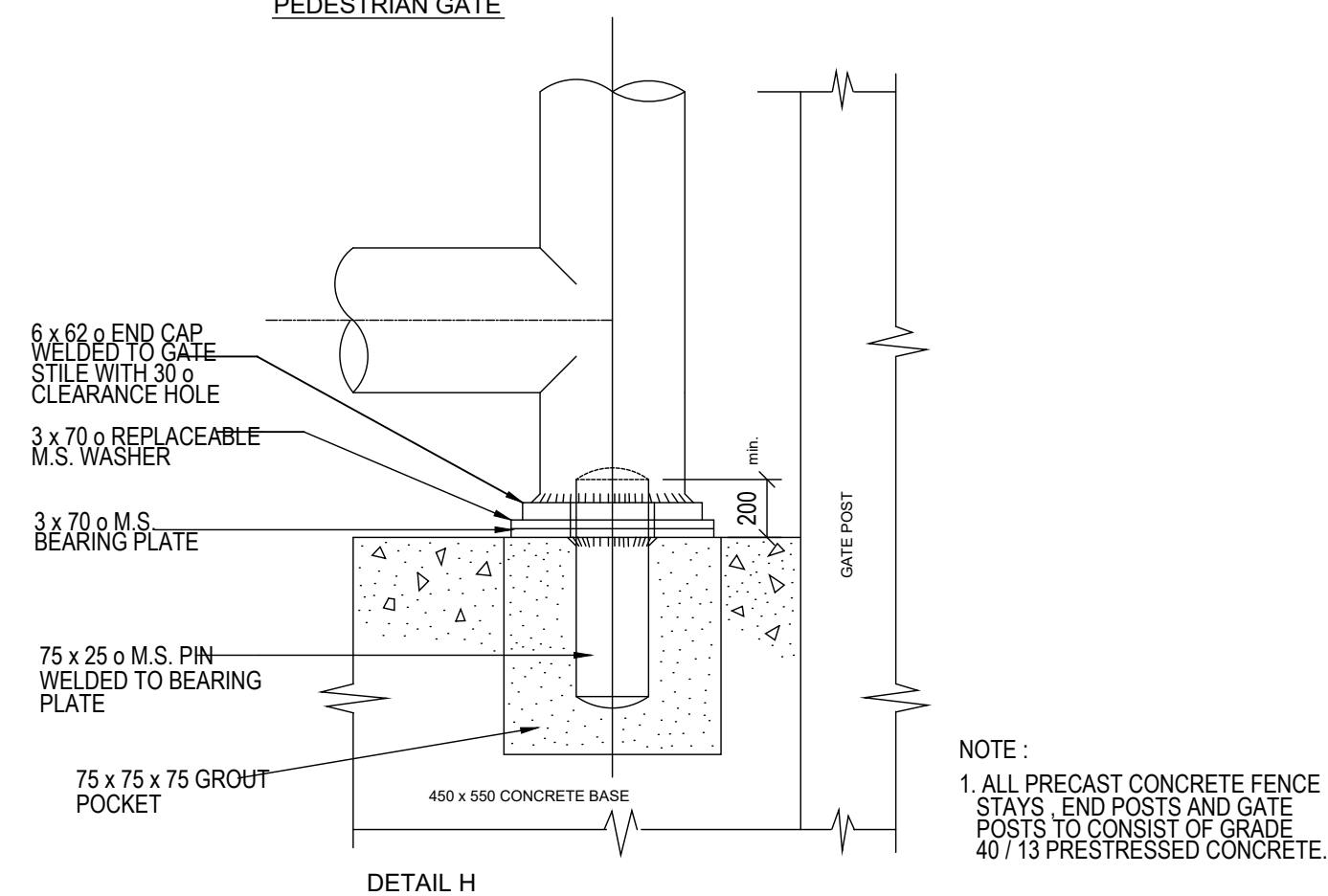
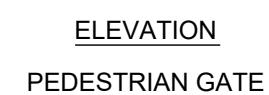
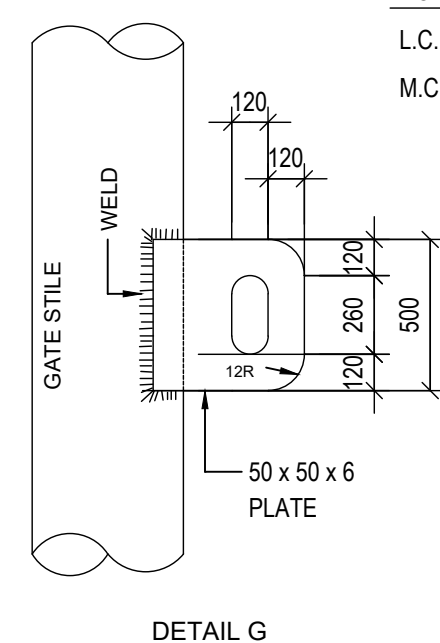
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DRAWN : NH SHEET : 01

CHECKED : JVR ORIGINAL SHEET SIZE: A1

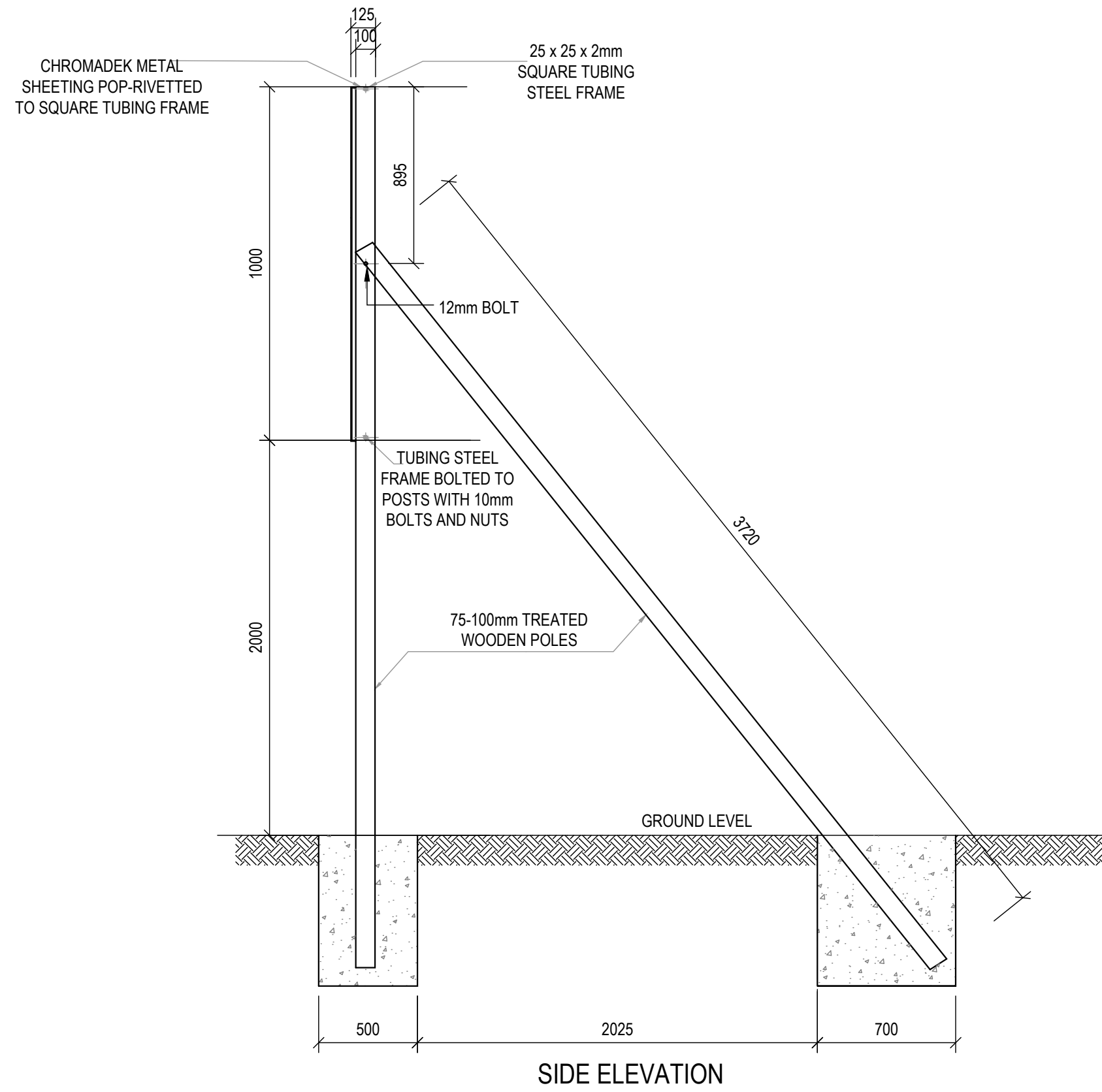
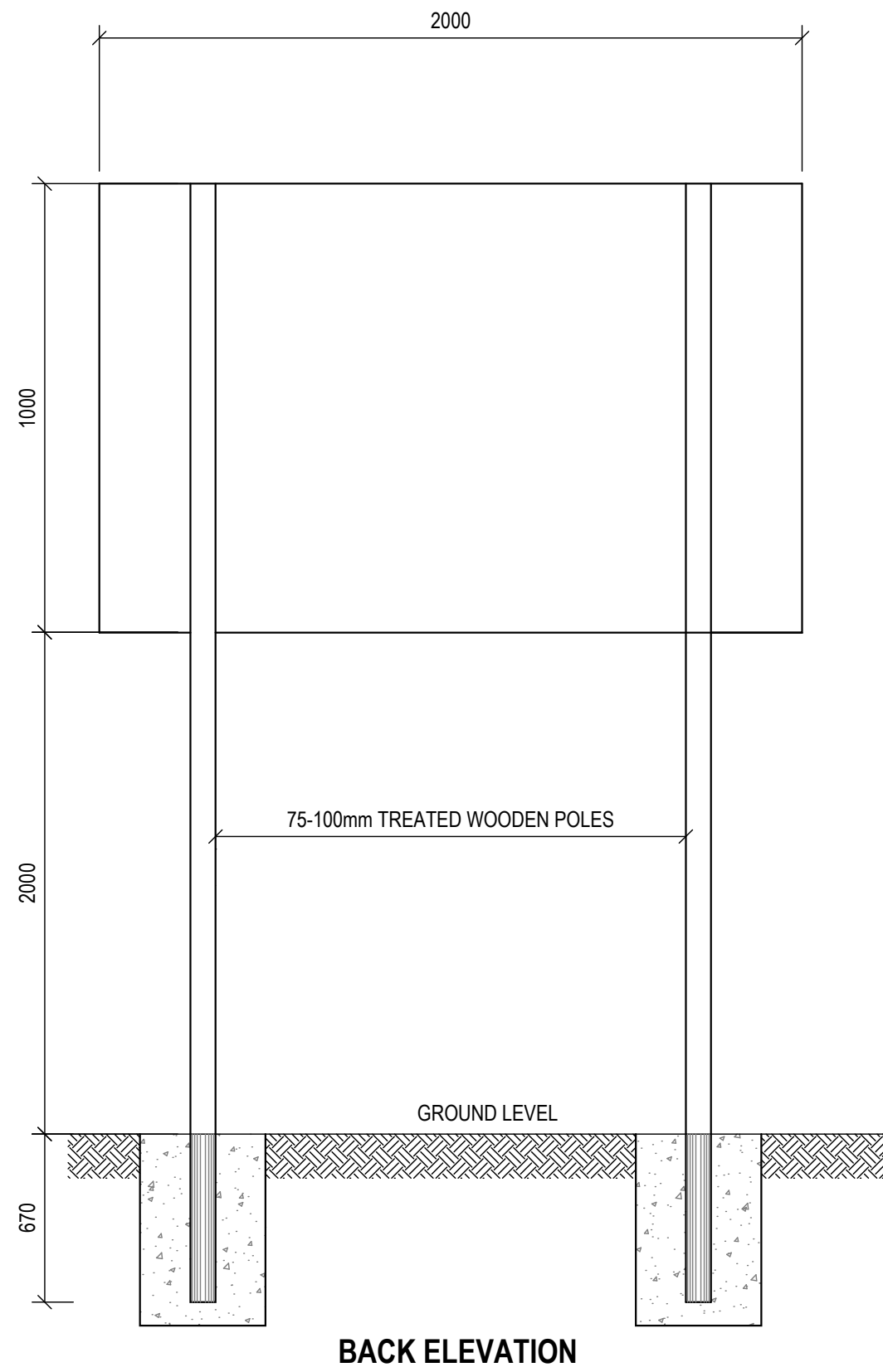
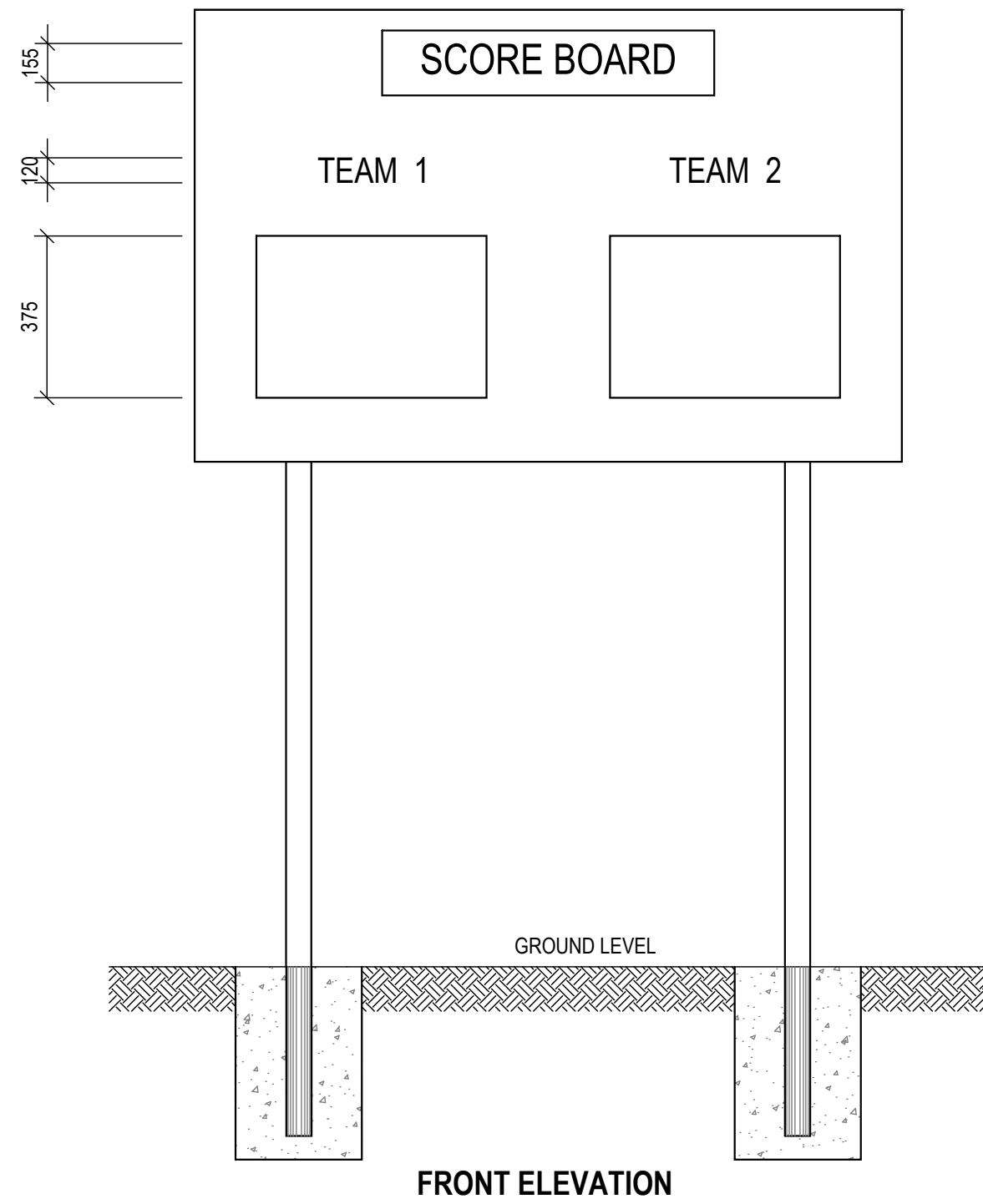
SCALE : AS SHOWN REV : B

DRAWING No : 1264/CSD104

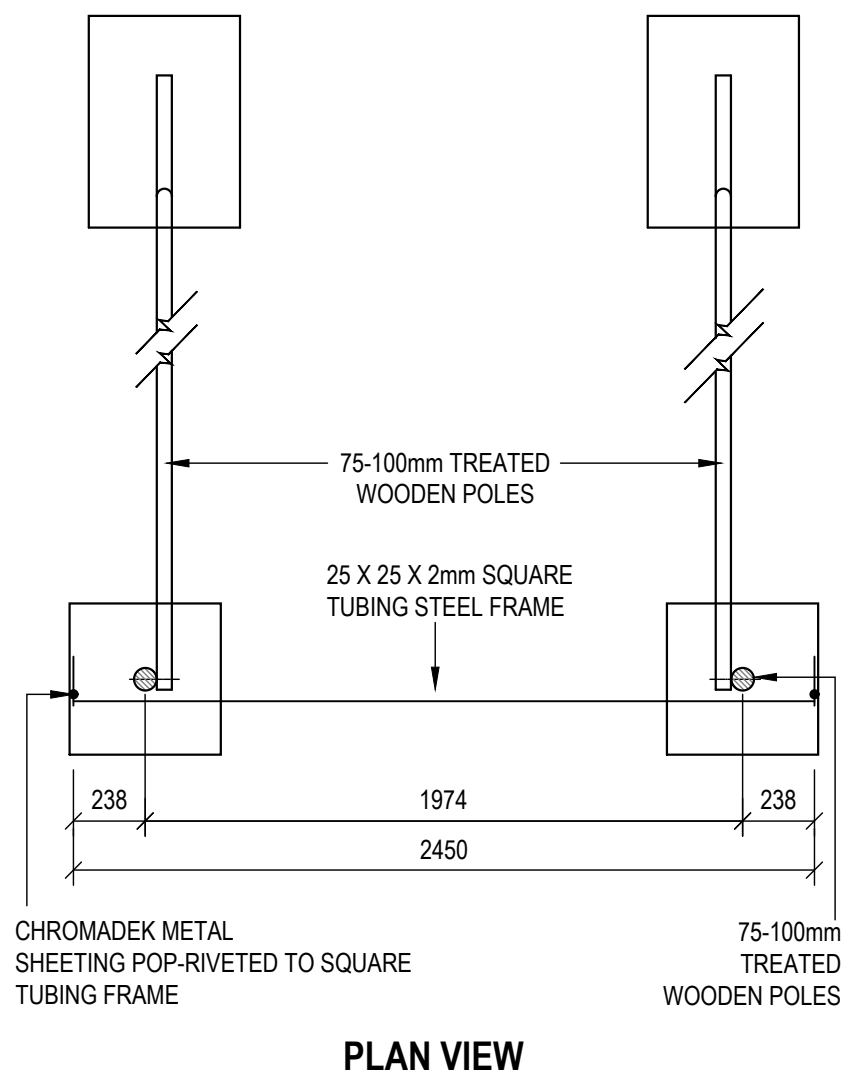


WIRE MESH FENCE

DRAWING No : 1264/CSD105



- 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)



050100mm

ORIGINAL SCALE

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CONSULTING CIVIL & STRUCTURAL ENGINEERS

64 Underwood Road
Pinetown
3610

P O Box 65596
Reservoir Hills
4090

Tel: 031 - 2660903
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Pr No : 200570114

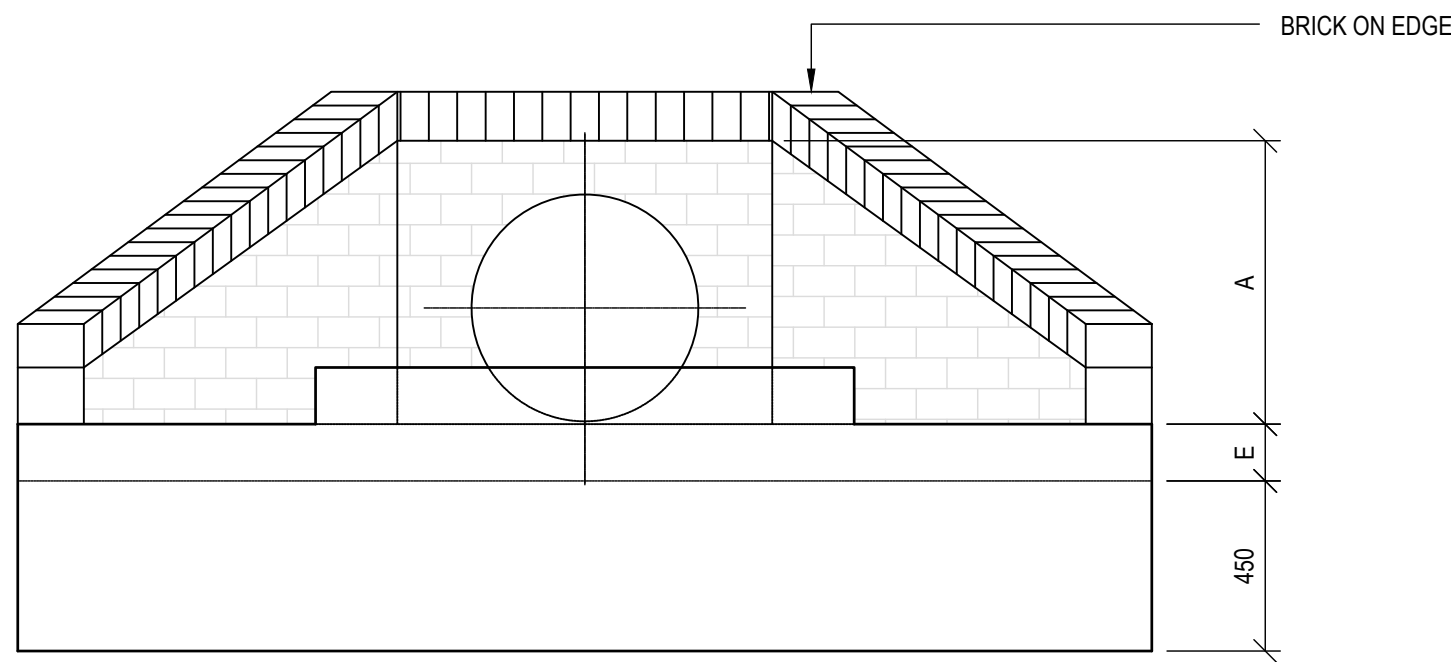
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

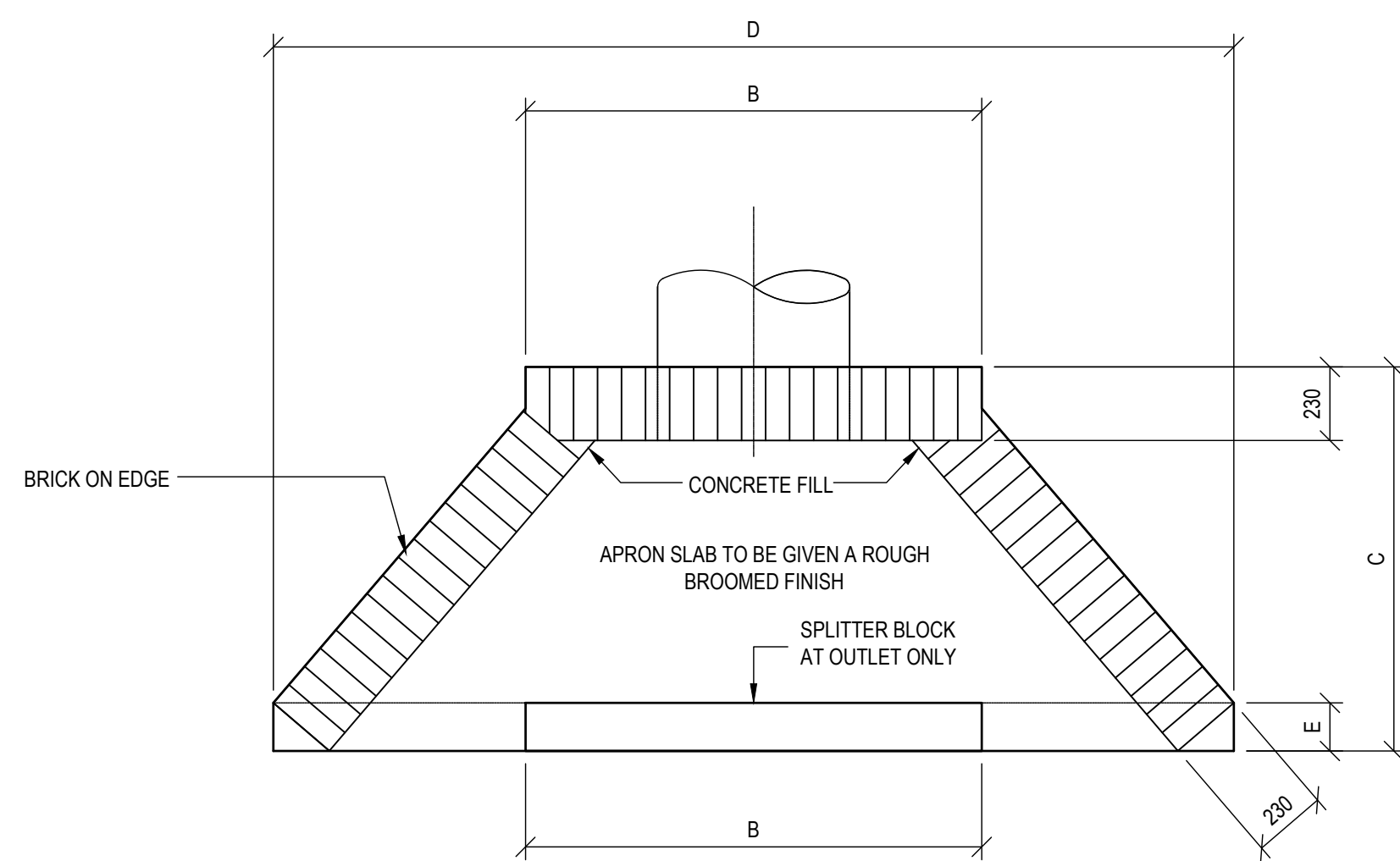
DRAWING TITLE

SCORE BOARD

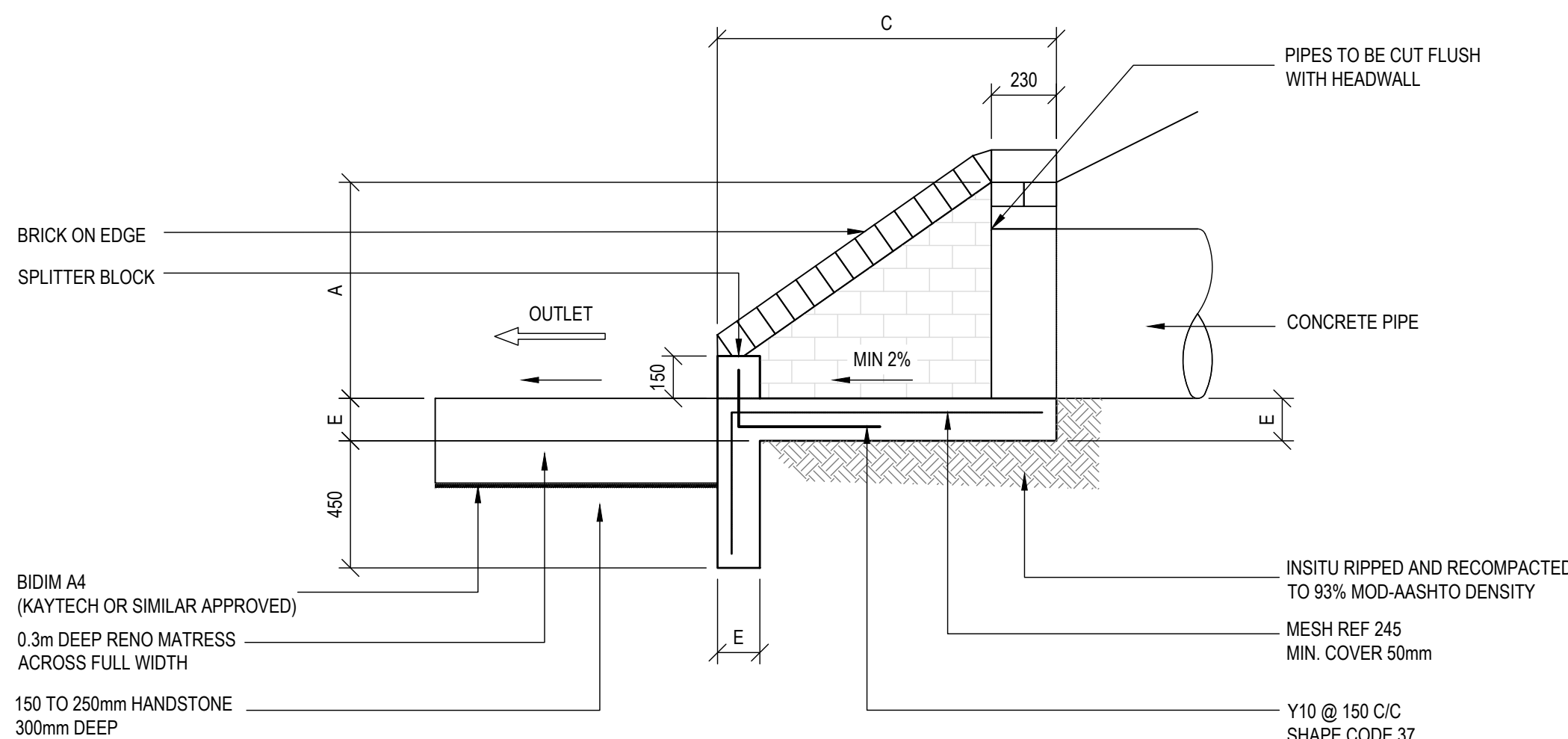
DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/CSD106



FRONT ELEVATION ON OUTLET HEADWALL
SCALE: 1:20



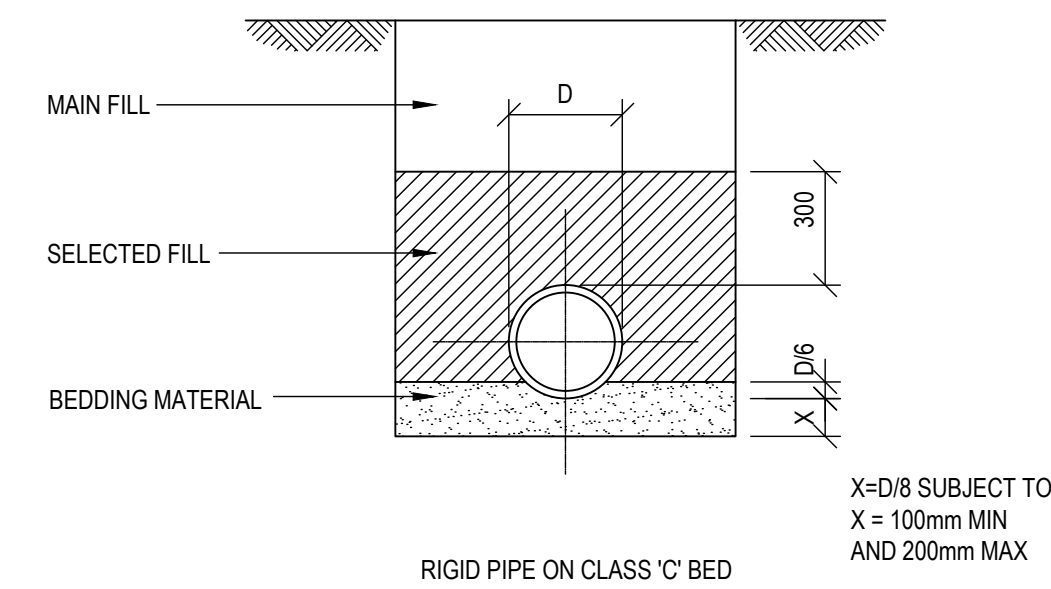
PLAN ON OUTLET HEADWALL
SCALE: 1:20



TYPICAL SECTION AT OUTLET
SCALE: 1:20

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

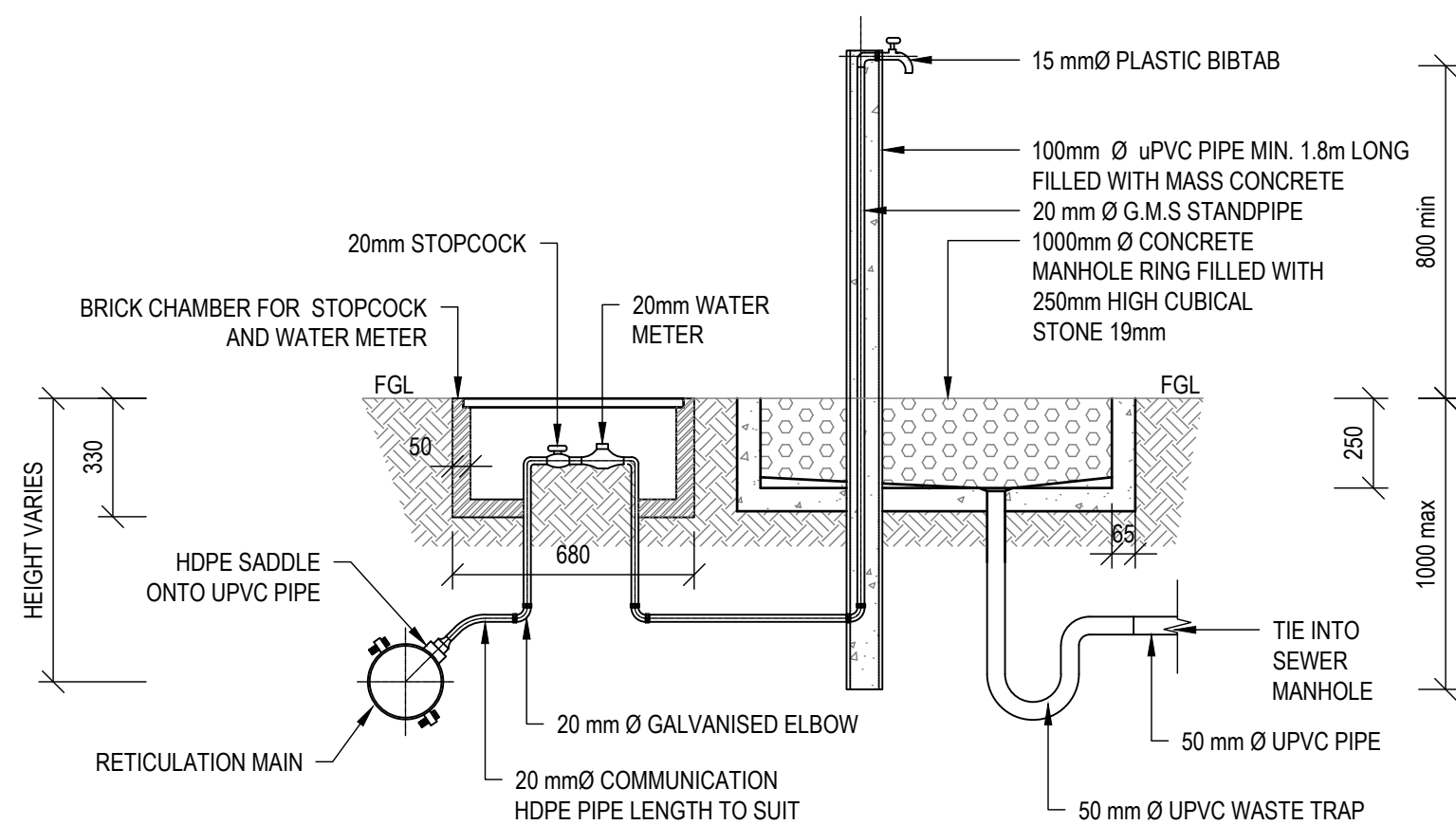
- HEADWALL NOTES:
- ALL WING WALLS TO BE 230mm "NFX" BRICKWORK.
 - BRICKFORCE TO BE PROVIDED ON EVERY 3rd COURSE.
 - APRON SLAB AND CUT OF WALLS TO BE 25MPa CONCRETE.
 - ALL EXPOSED CORNERS TO HAVE 20 x20 CHAMFERS.
 - ALL CONCRETE TO BE REINFORCED WITH MESH REF 245.
 - CUT OFF WALLS REQUIRED FOR BOTH INLET AND OUTLET STRUCTURES.



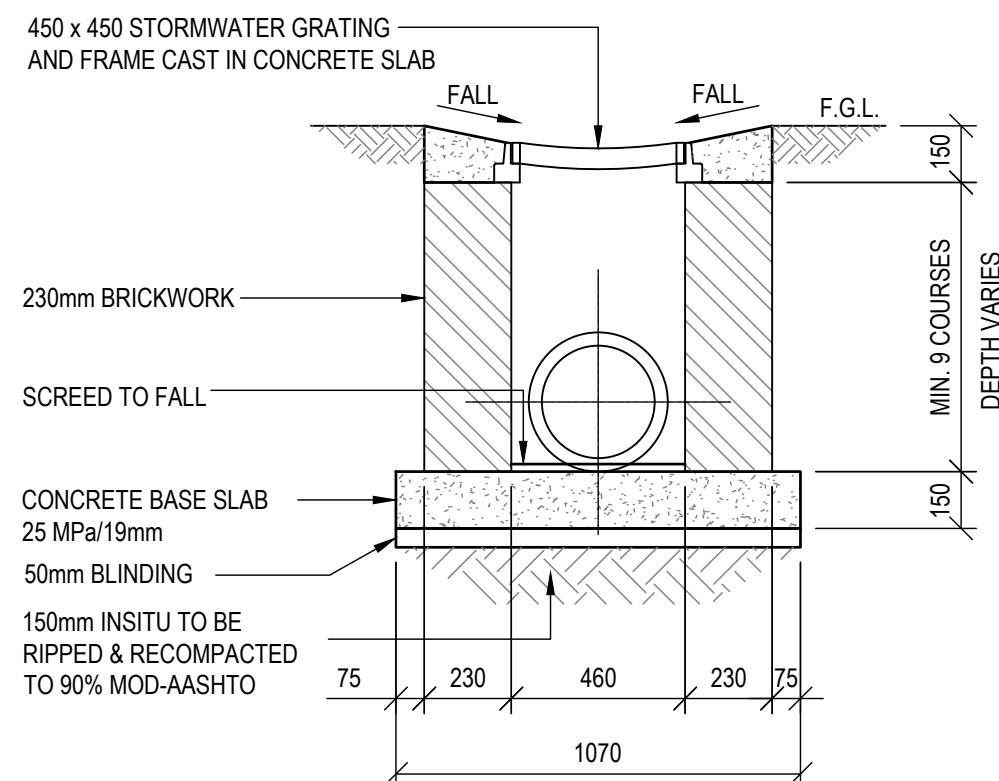
PIPE BEDDING DETAILS
SCALE: 1:20

- 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 LAYERS NOT EXCEEDING 150mm
 - SELECTED FILL MATERIAL TO BE COMPACTED TO 90% MOD-AASHTO DENSITY IN LAYERS NOT EXCEEDING 150mm
 - 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.

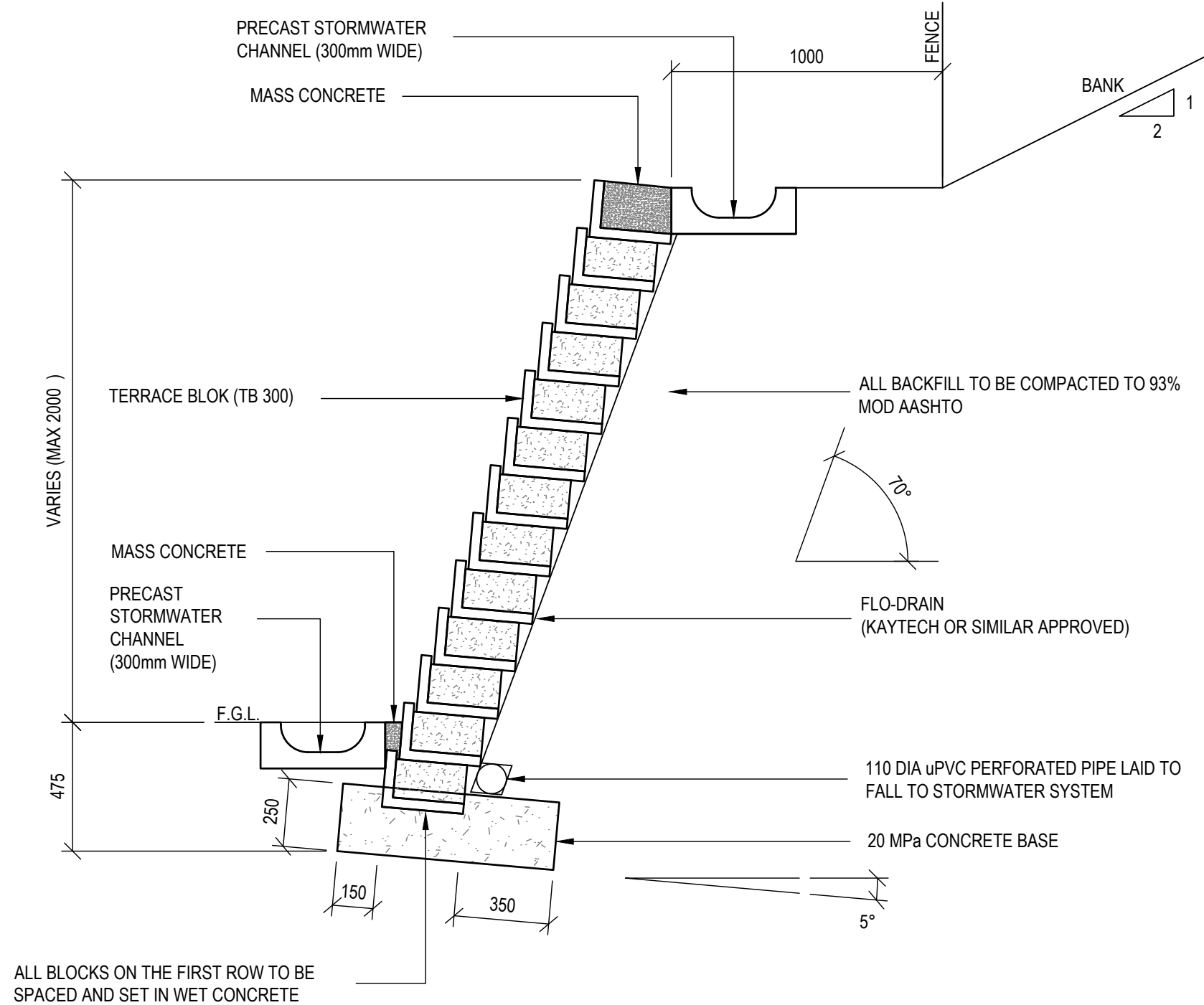
TYPICAL HEADWALL DETAILS
SCALE: 1:20



TYPICAL STANDPIPE DETAIL SECTION
SCALE: 1:20



TYPICAL STORMWATER GRIDINLET DETAIL
SCALE: 1:20



NOTE:
DESIGN TO BE CONFIRMED BY RETAINING WALL SUPPLIER AND DESIGN BASED ON α kPa COHESION AND α ° INTERNAL FRICTION ANGLE

TYPICAL TERRACE BLOCK RETAINING WALL DETAIL
SCALE: 1:20

0 50 100mm

ORIGINAL SCALE

FOR TENDER

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PO BOX 19,
SCOTTBURGH, 4180
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4090

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PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

RETAINING WALL, STANDPIPE & GRIDINLET DETAIL

DESIGNED : NH

DATE : 01/10/2020

DRAWN : NH

SHEET : 01

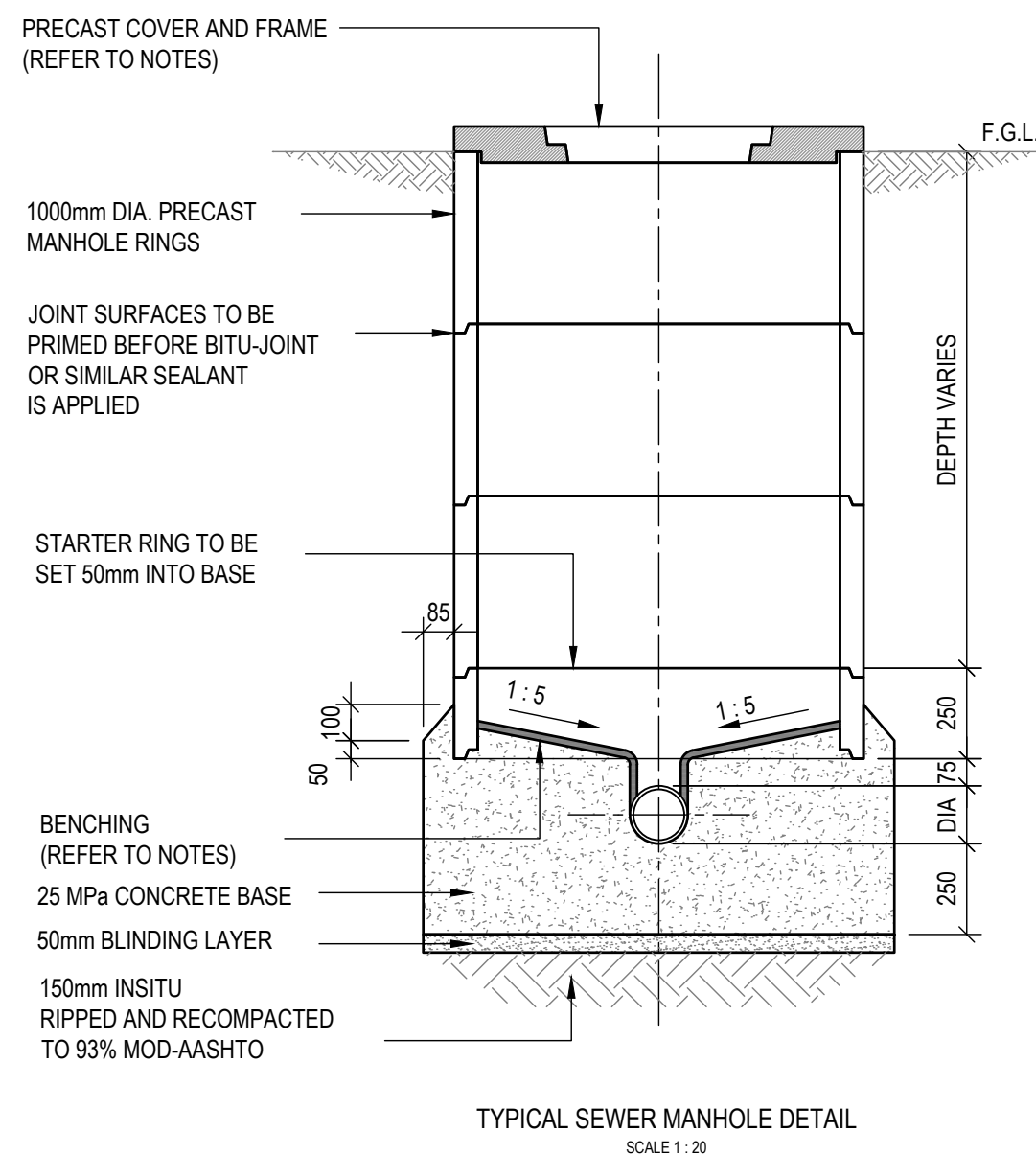
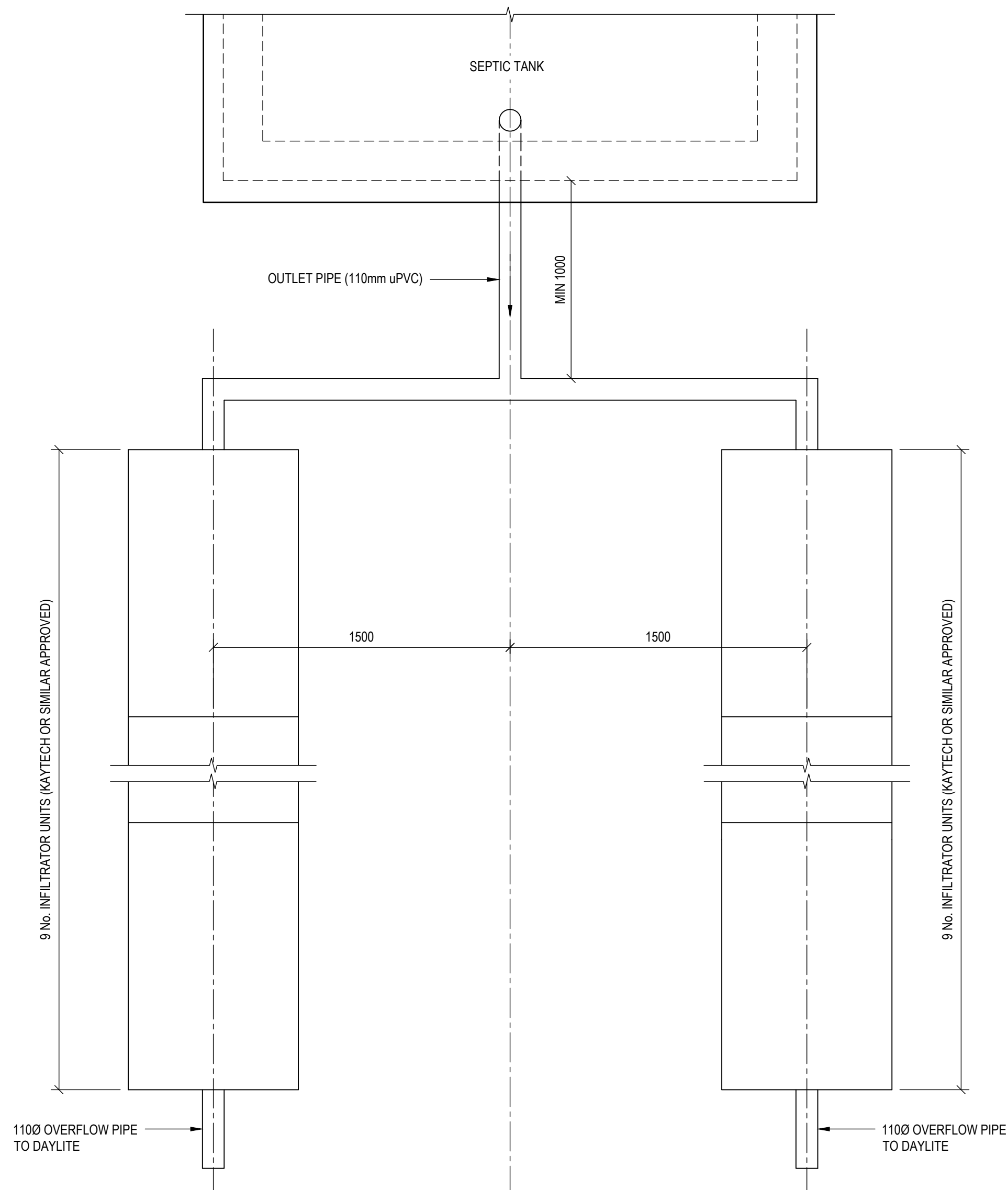
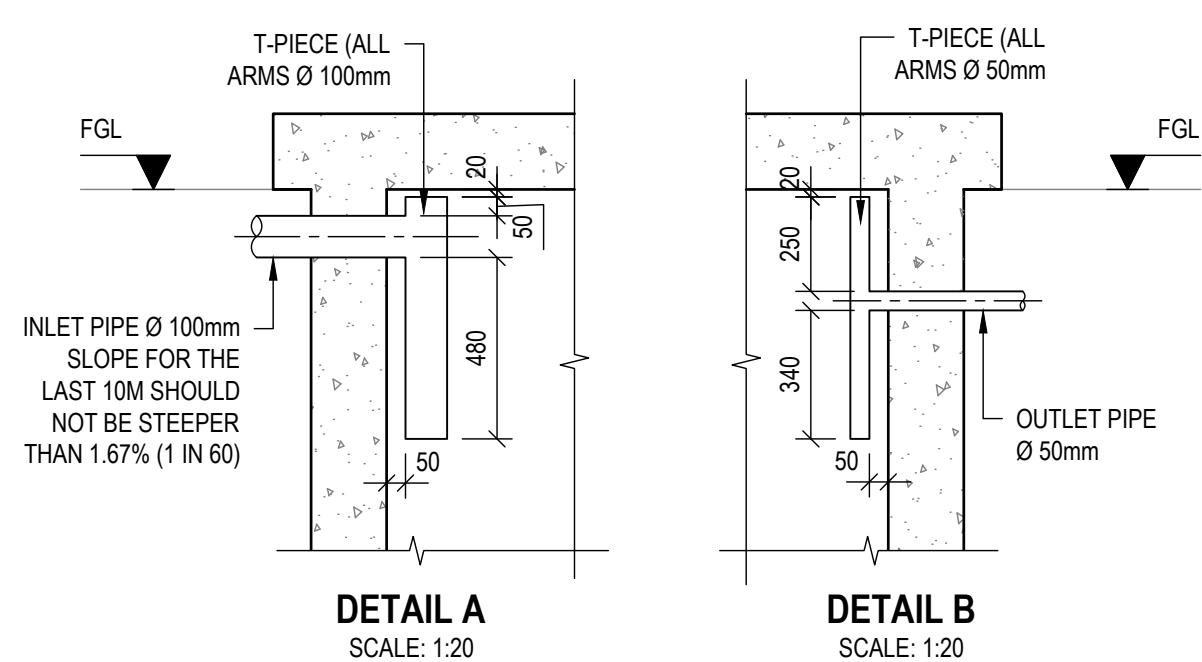
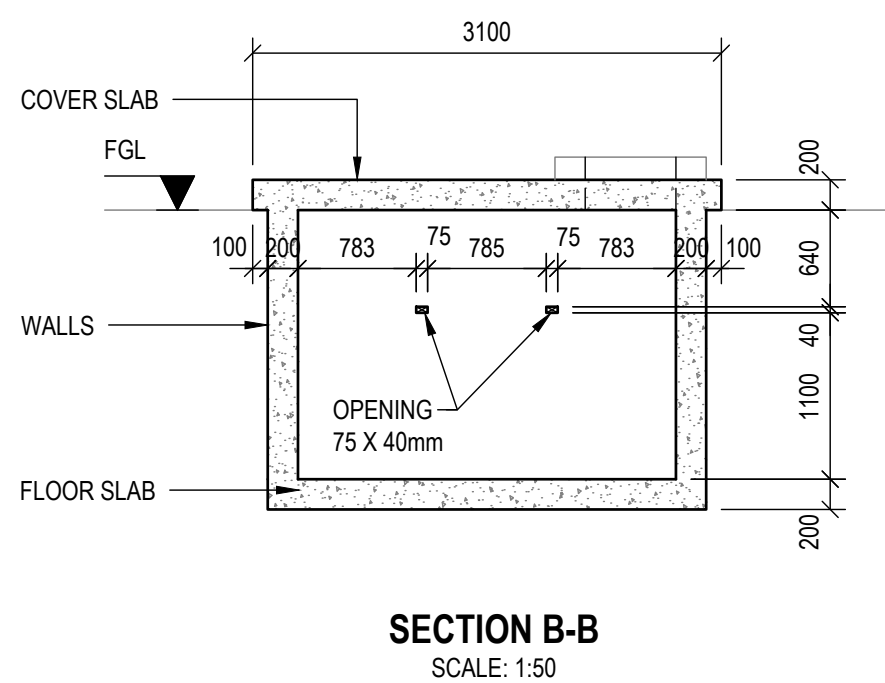
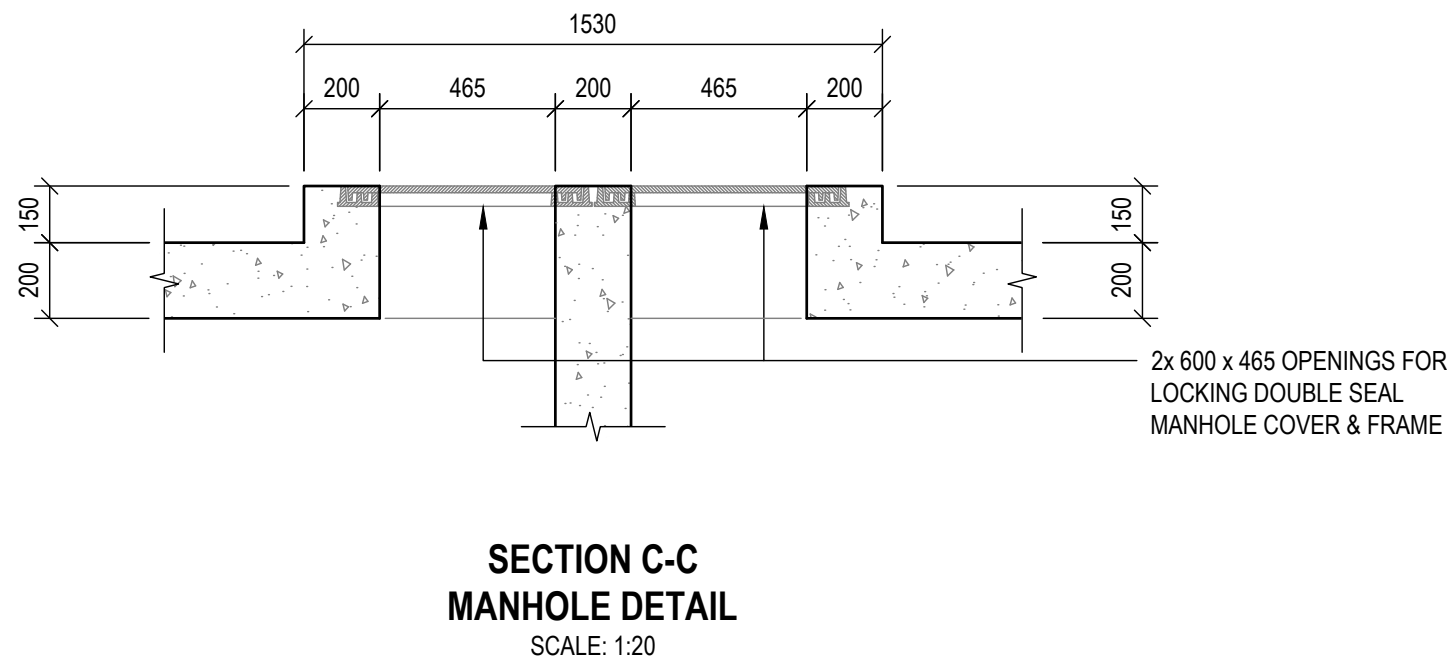
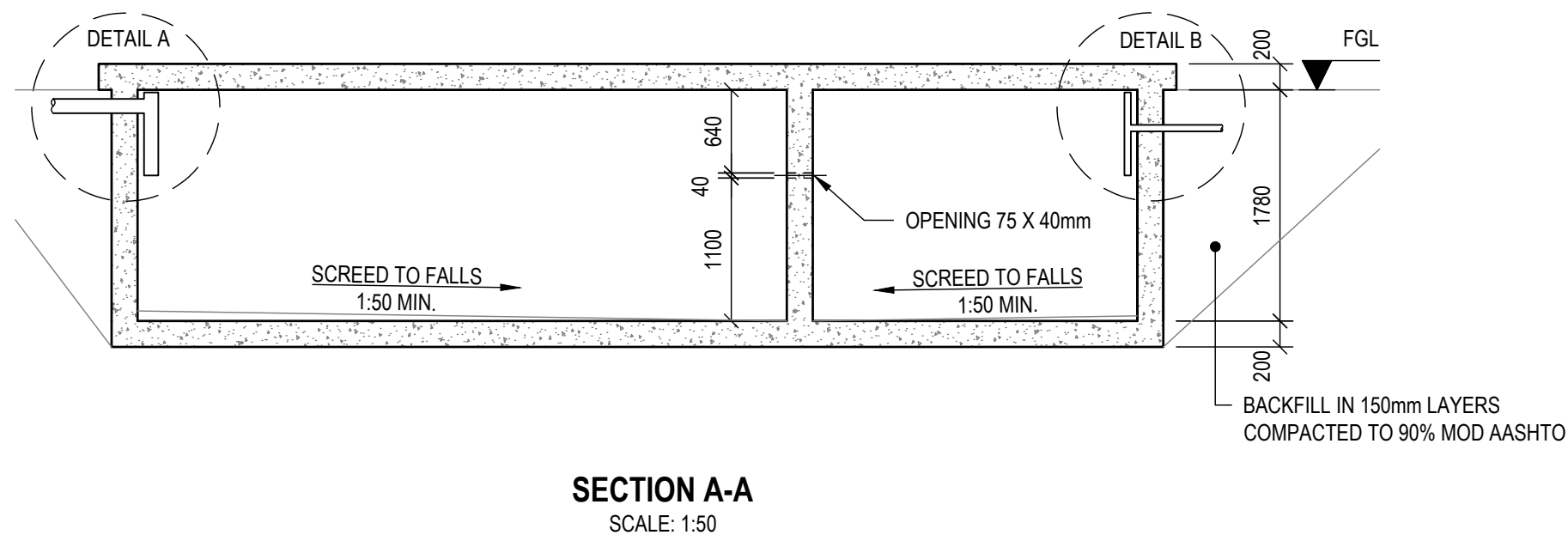
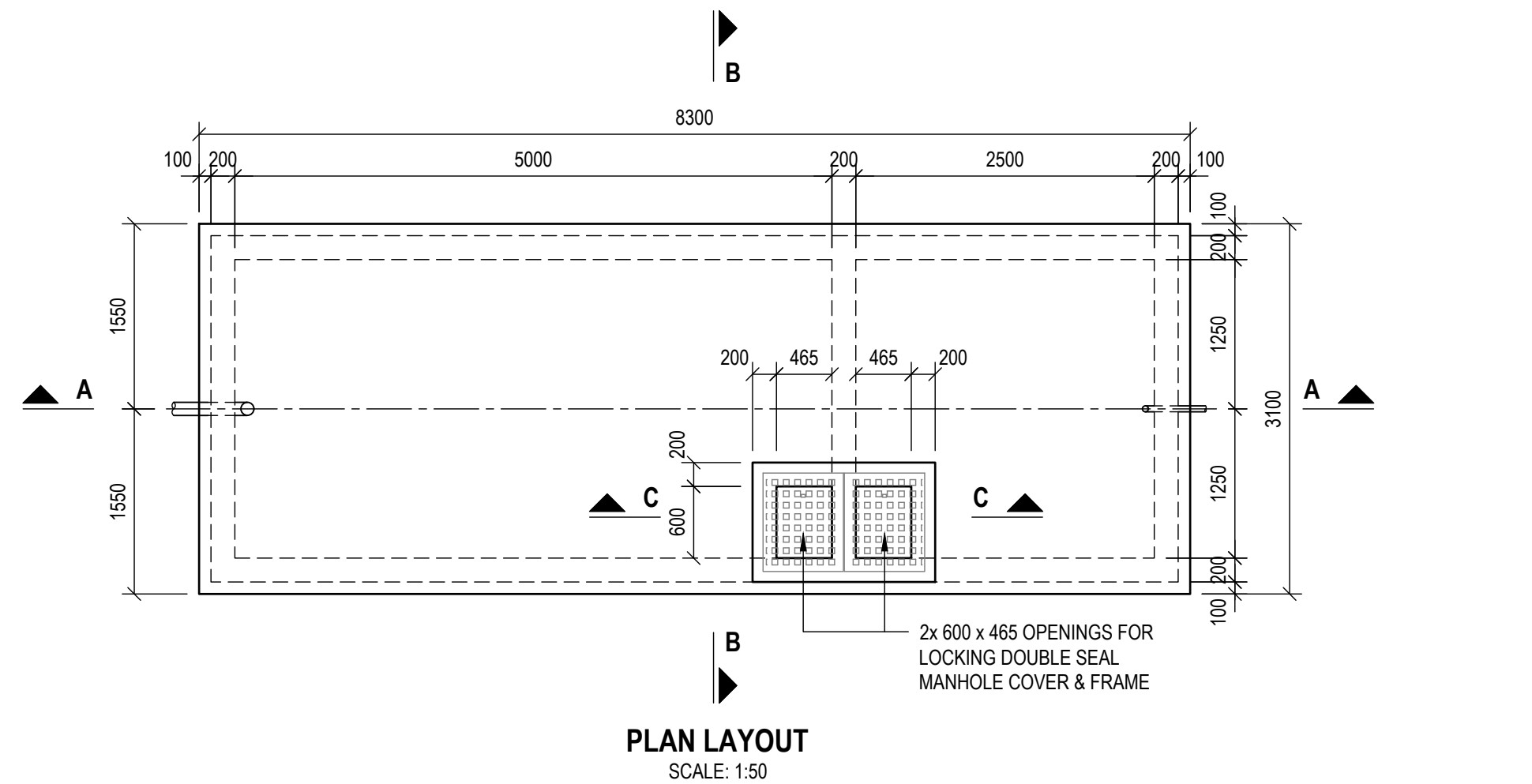
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ORIGINAL SHEET SIZE: A1

SCALE : AS SHOWN

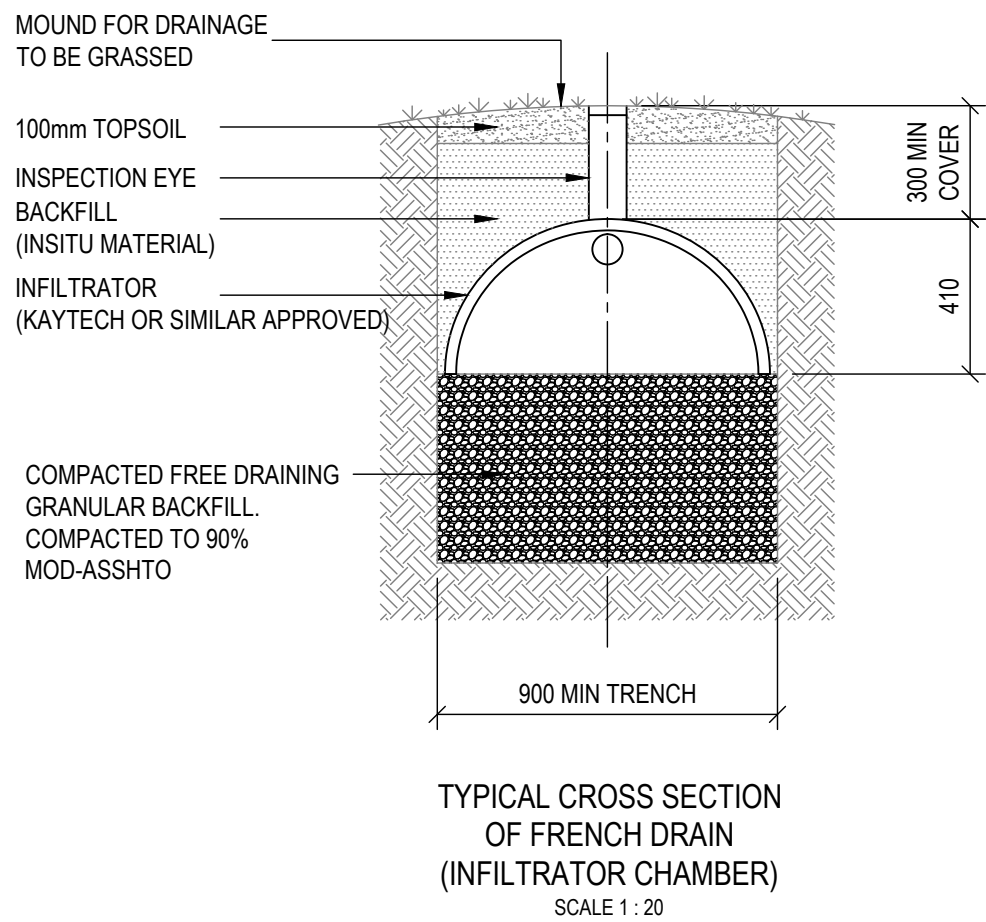
REV : B

DRAWING No : 1264/CSD107



- SEWER NOTES:
- ALL PRECAST CONCRETE MANHOLE COMPONENTS TO COMPLY WITH THE REQUIREMENTS OF S.A.B.S.1294 (WHERE APPLICABLE)
 - RENDERING FOR MANHOLE BENCHING SHALL CONSIST OF 1 PART H.A.C. TO 2 PARTS SAND THOROUGHLY MIXED AND APPLIED TO CONCRETE SURFACES WHILE THE LATTER ARE STILL GREEN. RENDERING SHALL BE AT LEAST 20mm THICK.
 - ALL PIPES BUILT INTO MANHOLES SHALL NOT EXCEED 1.0m IN LENGTH AND THE ADJOINING PIPE SHALL NOT EXCEED 2.0m IN LENGTH.
 - ALL uPVC PIPES BUILT INTO A MANHOLE SHALL HAVE CLEAN DRY SAND (TO S.A.B.S. 1083 TABLE 1) GLUED TO ITS OUTSIDE AS RECOMMENDED BY PIPE MANUFACTURER USING SPECIAL PVC CEMENT (HENKEL S.A. PTY. LTD. TANGIT OR SIMILAR) TO ENSURE GOOD ADHESION TO BASE CONCRETE.
 - PIPE SPECIFICATIONS:
5.1 uPVC PIPES TO BE HEAVY DUTY CLASS 34 SOLID WALL PIPES IN ACCORDANCE WITH SANS 799 SPECIFICATIONS
 - MANHOLE COVERS AND FRAMES:
6.1 HEAVY DUTY CAST IRON MANHOLE COVERS AND FRAMES IN ACCORDANCE WITH SANS 558 TO BE USED IN ALL ROADWAYS.
6.2 HEAVY DUTY PRECAST MANHOLE COVERS AND FRAMES TO BE USED IN WALKWAYS AND VERGES
6.3 LIGHT DUTY MANHOLE COVERS AND FRAMES TO BE USED IN LIGHTLY PEDESTRIAN AREAS.
 - THE MINIMUM COVER FOR ALL PIPES ARE AS FOLLOWS:
7.1 ROADS = 1.2m
7.2 WALKWAYS = 1.0m
7.3 VERGES = 1.0m
7.4 SERVITUDES = 0.8m

- SEPTIC TANK NOTES:
- MANHOLE COVER AND FRAME
1.1. TYPE 2 450 X 600 LOCKABLE DOUBLE SEAL
 - CONCRETE
2.1. SLABS: GRADE 25/26 WITH CUBE CRUSHING STRENGTH OF 25 MPa AT 28 DAYS
2.2. BLINDING: GRADE 15/26 WITH CUBE CRUSHING STRENGTH OF 15 MPa AT 28 DAYS
2.3. MORTAR: 1 PART CEMENT TO 3 PARTS SAND
2.4. ALL EXPOSED EDGES TO HAVE 25mm x 25mm CHAMFERS
 - PIPEWORK
3.1. ALL PIPES TO BE HEAVY DUTY SOLID WALL CLASS 34 UPVC IN ACCORDANCE WITH SANS 799 SPECIFICATIONS
3.2. THE INLET PIPE SHALL BE VENTILATED CLOSE TO THE BUILDING
 - TESTING (WATER TIGHTNESS TEST)
4.1. THE TANK WILL BE TESTED FOR A PERIOD OF 24 HOURS, BY COMPLETELY FILLING WITH WATER. IF WATERTIGHT THE TANK SHALL BE LEFT FULL



0 50 100mm
ORIGINAL SCALE

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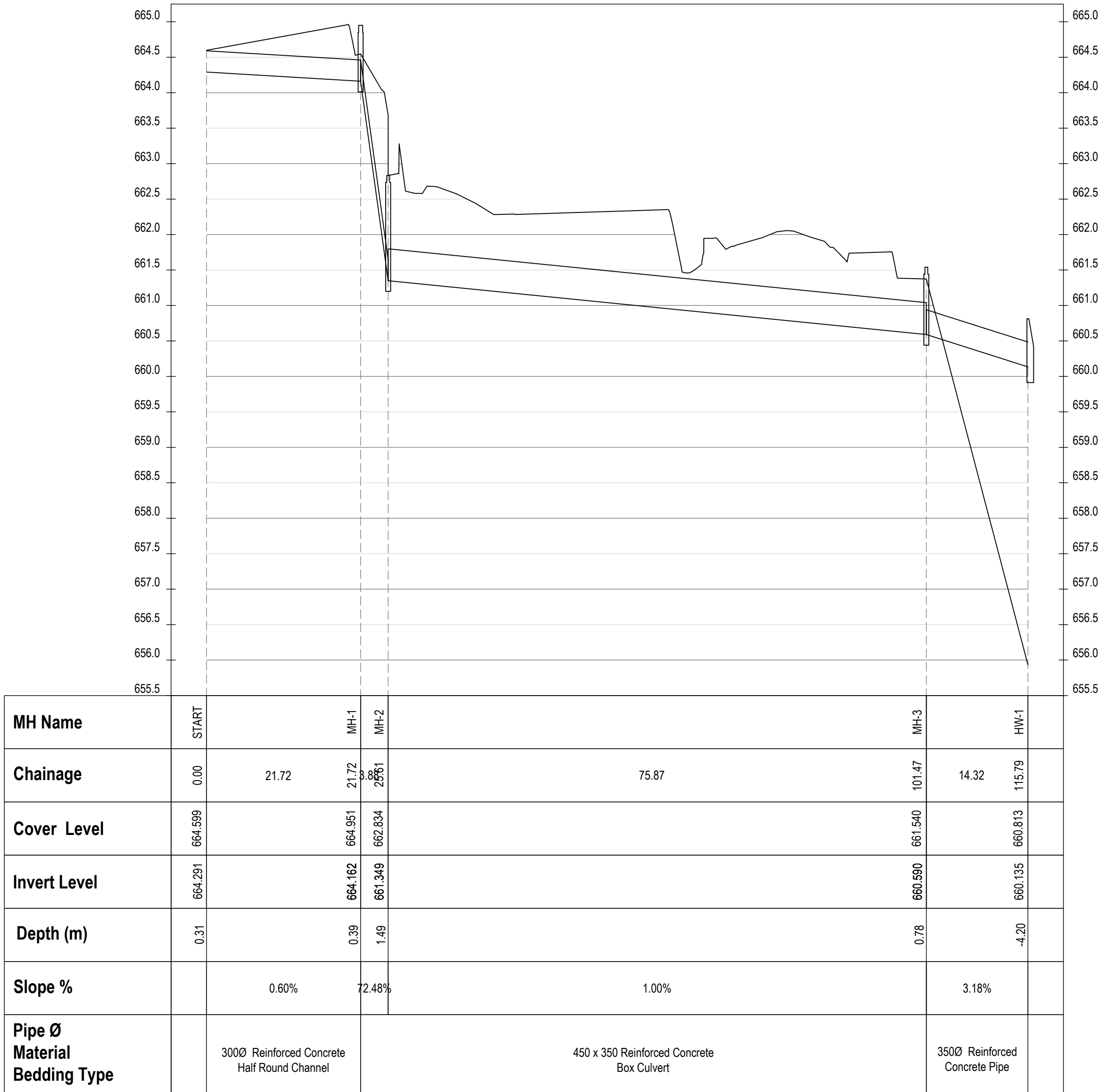
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

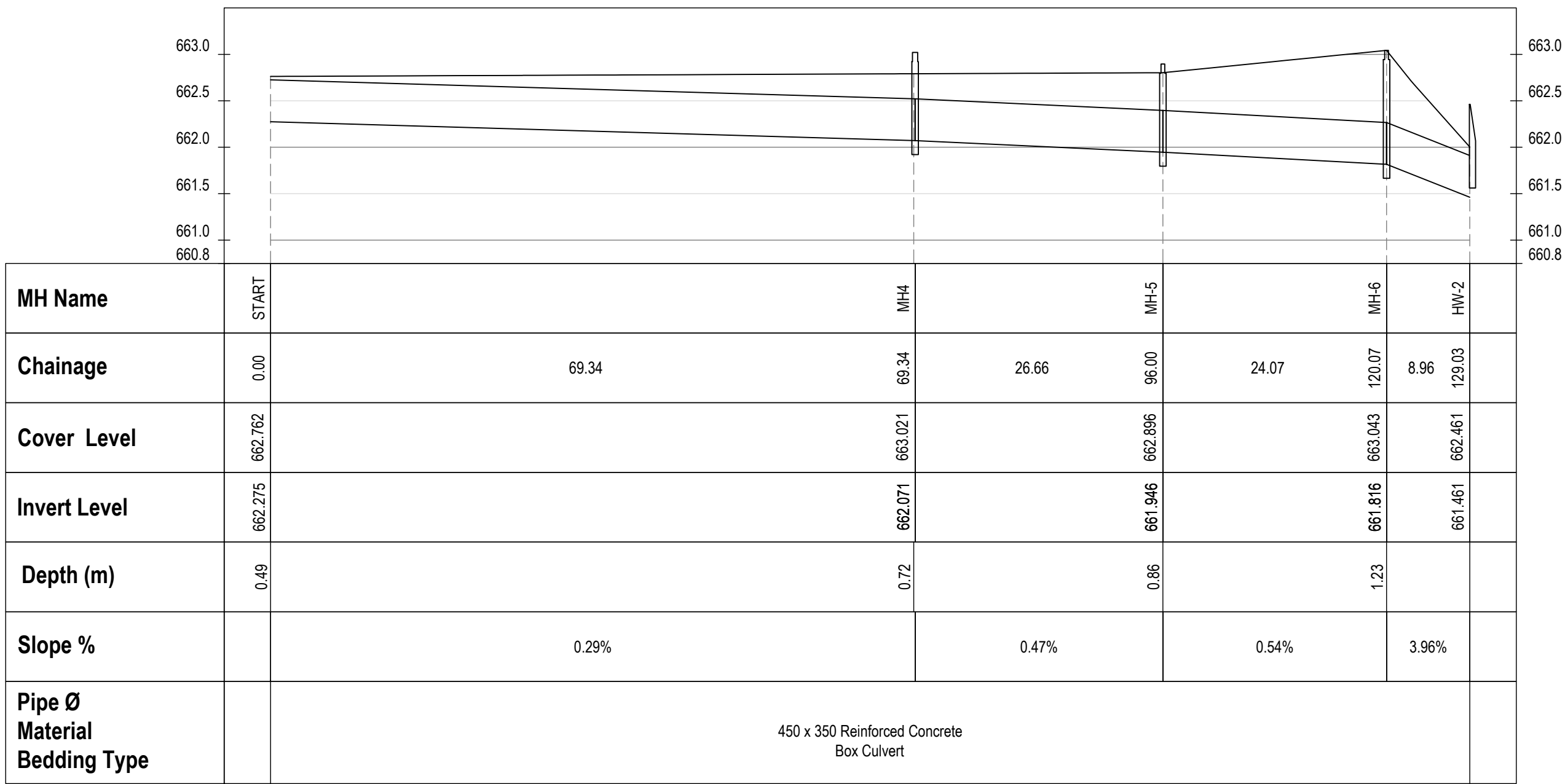
DRAWING TITLE

SEPTIC TANK AND SOAKAWAY
DETAILS

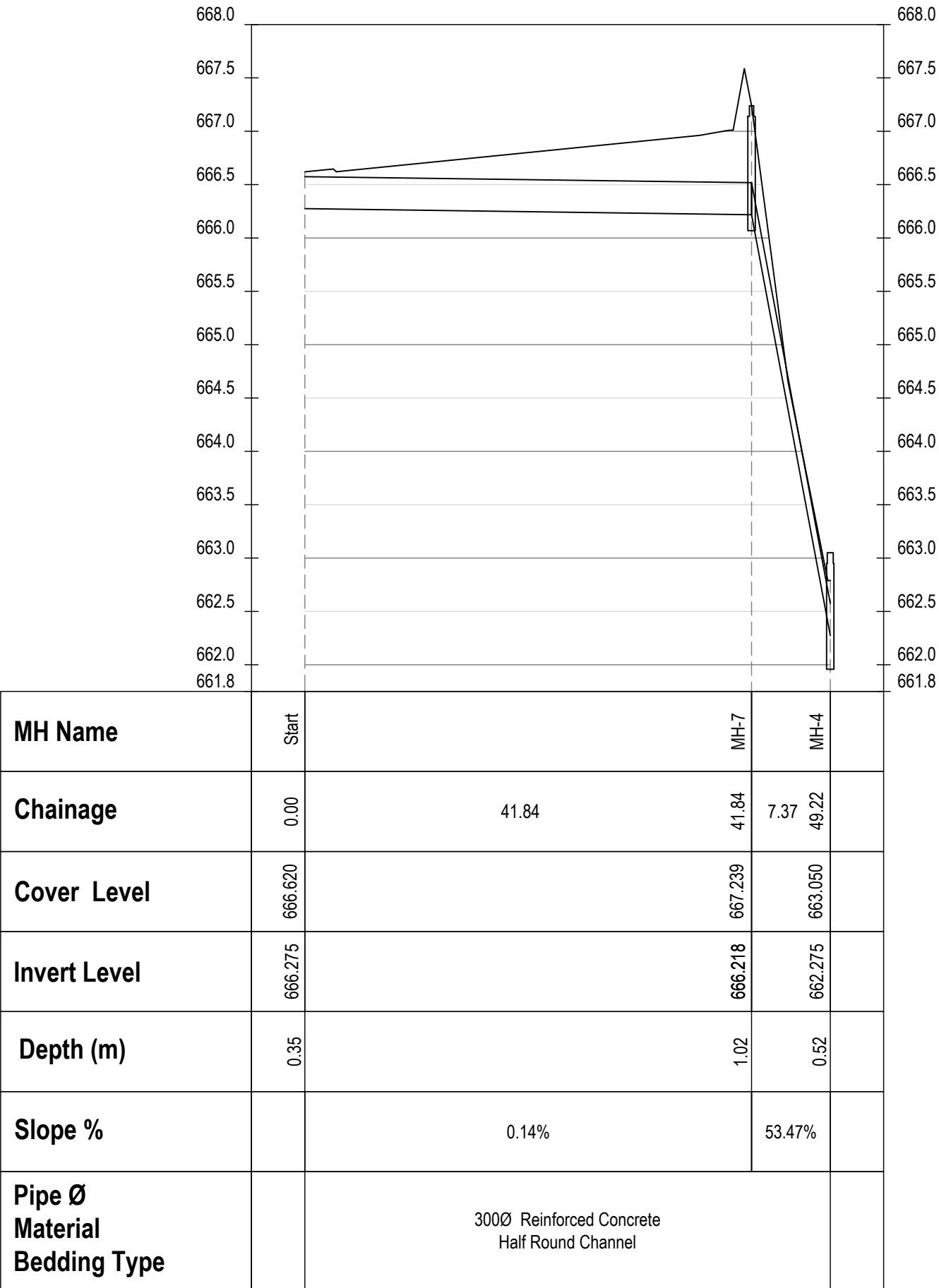
DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No :	1264/CSD108



COMBICOURT STORMWATER
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:50

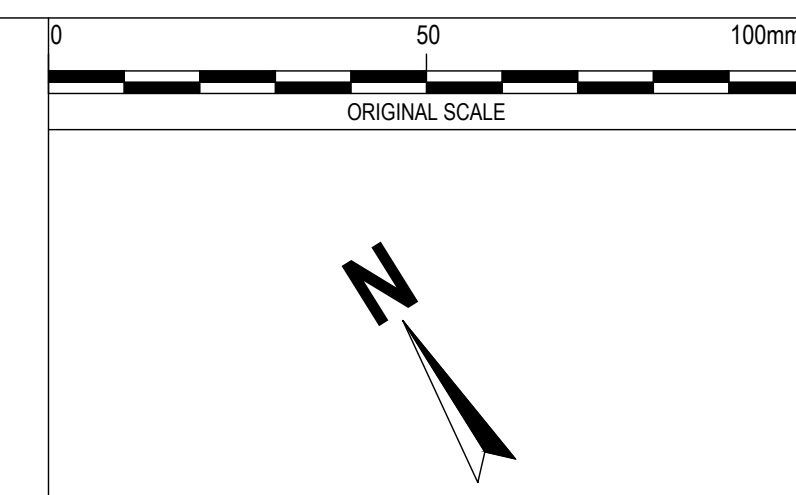


SPORTSFIELD STORMWATER
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:50



EMBANKMENT SEATING STORMWATER
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:50

0		50		100mm	
ORIGINAL SCALE					
FOR TENDER					
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A		FOR INFORMATION		NH 09/10/2020	
REV	DESCRIPTION	BY	DATE		
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CAPACITY:					
DATE :					
DM DRAWING No.					
CONTRACT No : 07/2023					
					
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					
KWAMPONDO SPORTS FIELD WARD 1					
DRAWING TITLE					
STORMWATER LONG SECTIONS					
DESIGNED : NH		DATE : 01/10/2020			
DRAWN : NH		SHEET : 01			
CHECKED : JVR		ORIGINAL SHEET SIZE: A1			
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DRAWING No :		1264/CSW102			

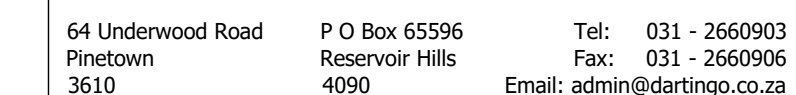


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A	FOR INFORMATION	NH	09/10/2020
REV	DESCRIPTION	BY	DATE

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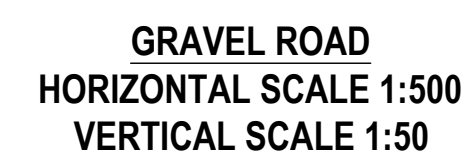
CONTRACT No : 07/2023

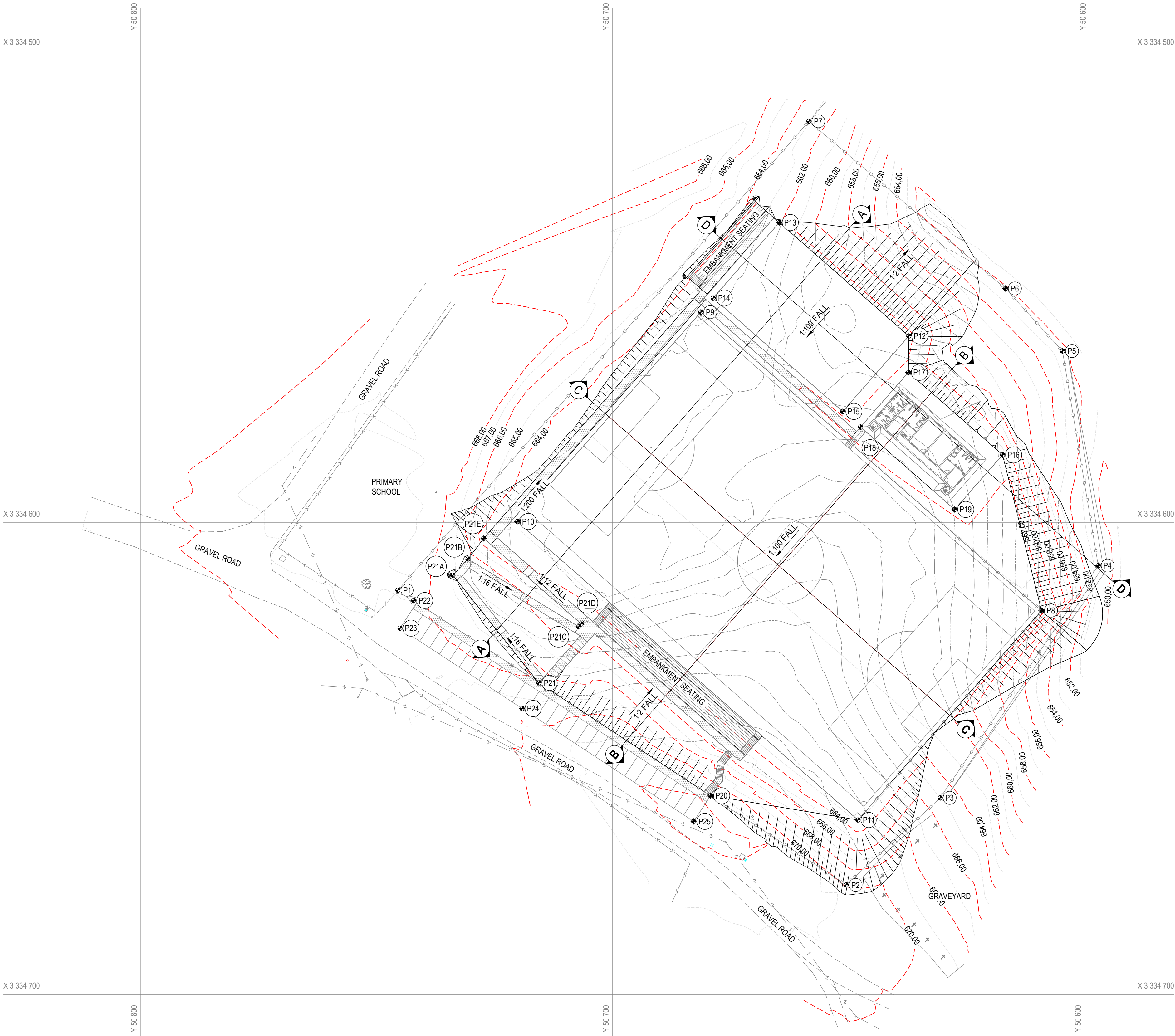


Pr No : 200570114

DRAWING TITLE

DRAWING No : 1264/CR101





SETTING OUT TABLE				
POINT	ELEVATION	X COORDINATE	Y COORDINATE	DESCRIPTION
P1	669.80	3334614.291	50745.423	BOUNDARY FENCE
P2	670.67	3334676.783	50650.436	BOUNDARY FENCE
P3	665.00	3334658.316	50630.508	BOUNDARY FENCE
P4	660.00	3334609.090	50597.018	BOUNDARY FENCE
P5	652.40	3334563.606	50604.595	BOUNDARY FENCE
P6	652.20	3334550.353	50616.699	BOUNDARY FENCE
P7	663.10	3334514.908	50668.343	BOUNDARY FENCE
P8	663.37	3334618.637	50609.048	SPORTS FIELD
P9	663.35	3334555.371	50681.252	SPORTS FIELD
P10	662.76	3334599.746	50720.134	SPORTS FIELD
P11	662.80	3334663.012	50647.930	SPORTS FIELD
P12	662.66	3334560.434	50637.159	COMBI-COURT
P13	662.45	3334536.378	50664.610	COMBI-COURT
P14	662.25	3334552.362	50678.616	COMBI-COURT
P15	662.25	3334576.413	50651.160	COMBI-COURT
P16	661.75	3334585.609	50617.296	CHANGE ROOM
P17	661.75	3334568.125	50637.250	CHANGE ROOM
P18	662.21	3334579.712	50647.403	CHANGE ROOM
P19	661.76	3334597.195	50627.449	CHANGE ROOM
P20	672.20	3334657.876	50679.175	PARKING AREA
P21	669.54	3334633.953	50715.538	PARKING AREA
P22	668.97	3334616.490	50742.081	PARKING AREA
P23	669.04	3334622.359	50744.986	PARKING AREA
P24	669.64	3334639.383	50719.110	PARKING AREA
P25	672.25	3334663.306	50682.748	PARKING AREA

SETTING OUT TABLE - WHEELCHAIR RAMP				
POINT	ELEVATION	X COORDINATE	Y COORDINATE	DESCRIPTION
P21A	0.00	3334611.123	50733.785	Ramp
P21B	666.78	3334607.700	50730.573	Ramp
P21C	0.00	3334622.039	50707.093	Ramp
P21D	0.00	3334621.461	50706.587	Ramp
P21E	0.00	3334603.315	50727.250	Ramp

050100mm

ORIGINAL SCALE

N

FOR TENDER

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D	ISSUED FOR TENDER	NGH	28/07/2022
C	SETTING OUT TABLE ADDED	NH	10/02/2021
B	CHANGE ROOM REPOSITIONED	NH	05/11/2020
A	FOR INFORMATION	NH	09/10/2020
REV	DESCRIPTION	BY	DATE

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PO BOX 19,
SCOTTBURGH, 4180
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DATE :

DM DRAWING No.

CONTRACT No : 07/2023

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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

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CAPACITY : DIRECTOR

DATE : 28 July 2022

Pr No : 200570114

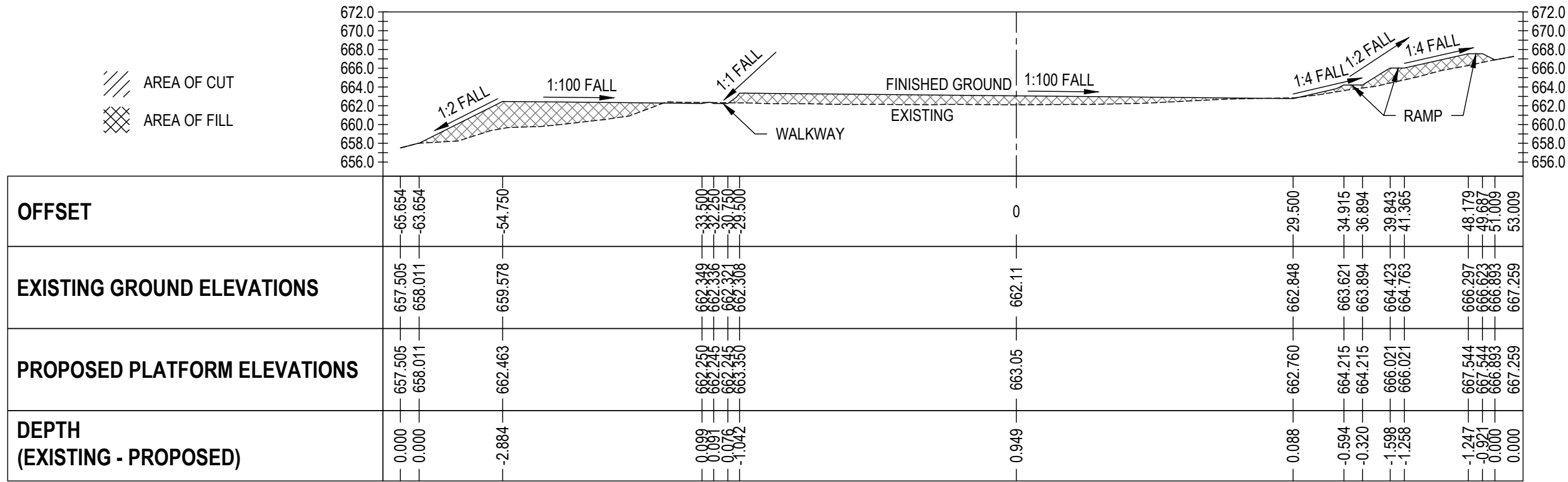
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

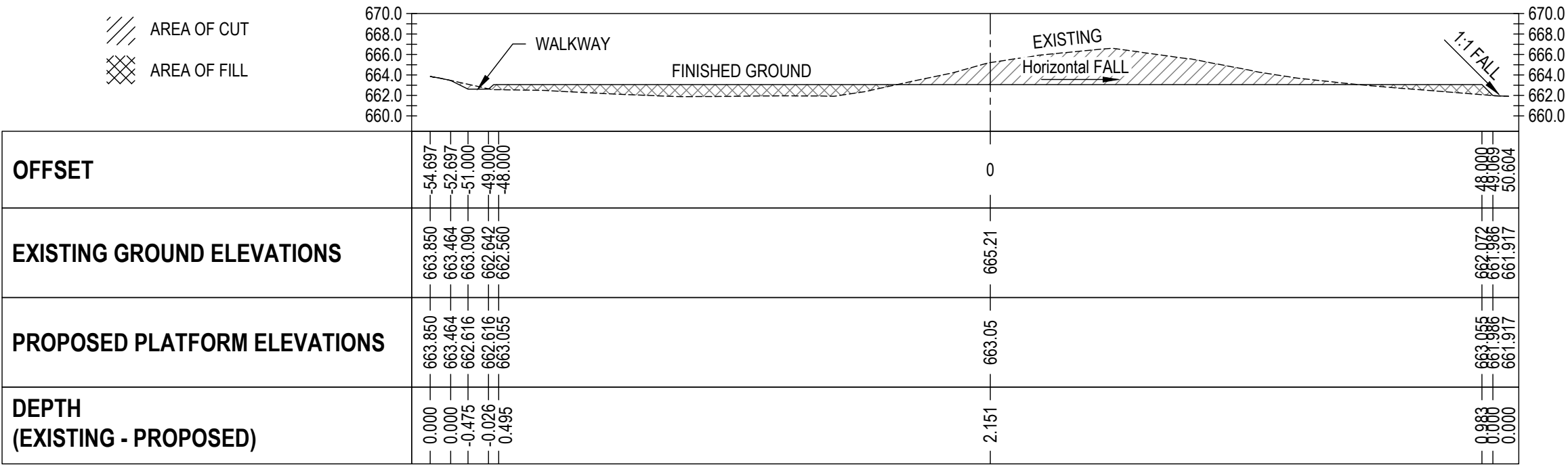
DRAWING TITLE

BULK EARTHWORKS LAYOUT

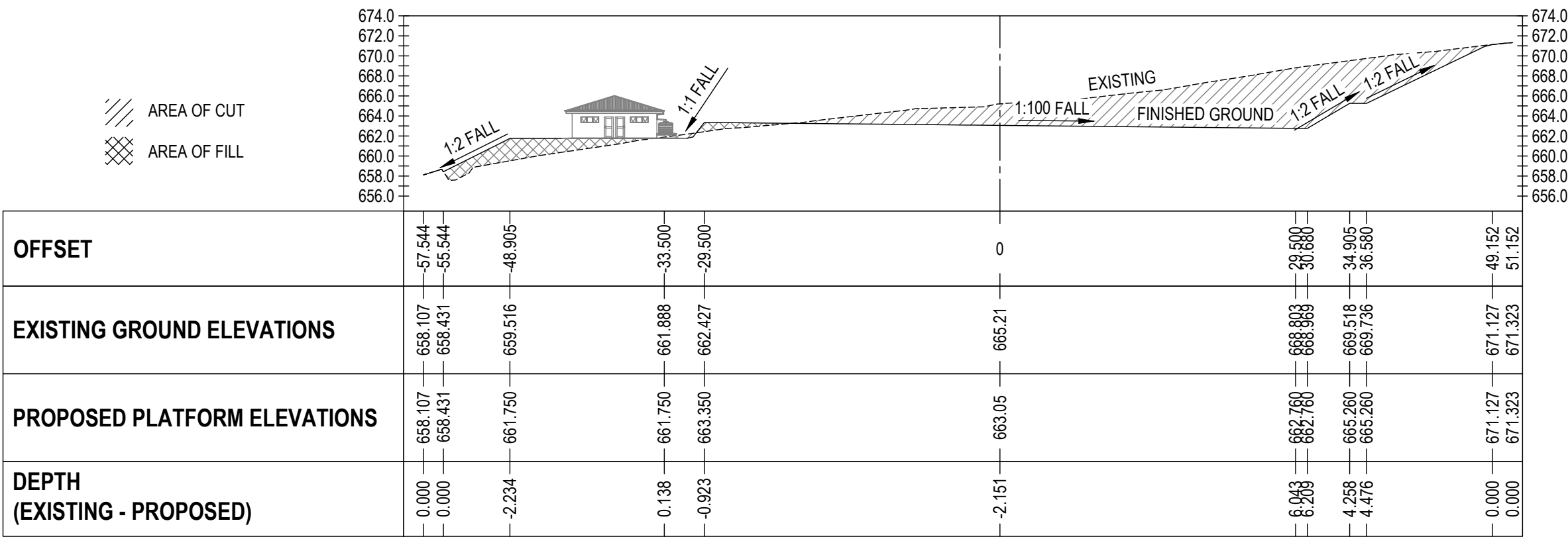
DESIGNED : NH	DATE : 25/05/2022
DRAWN : NH	SHEET : 01
CHECKED : PBJ	ORIGINAL SHEET SIZE: A1
SCALE : 1:500	REV : D
DRAWING No :	1264/CE101



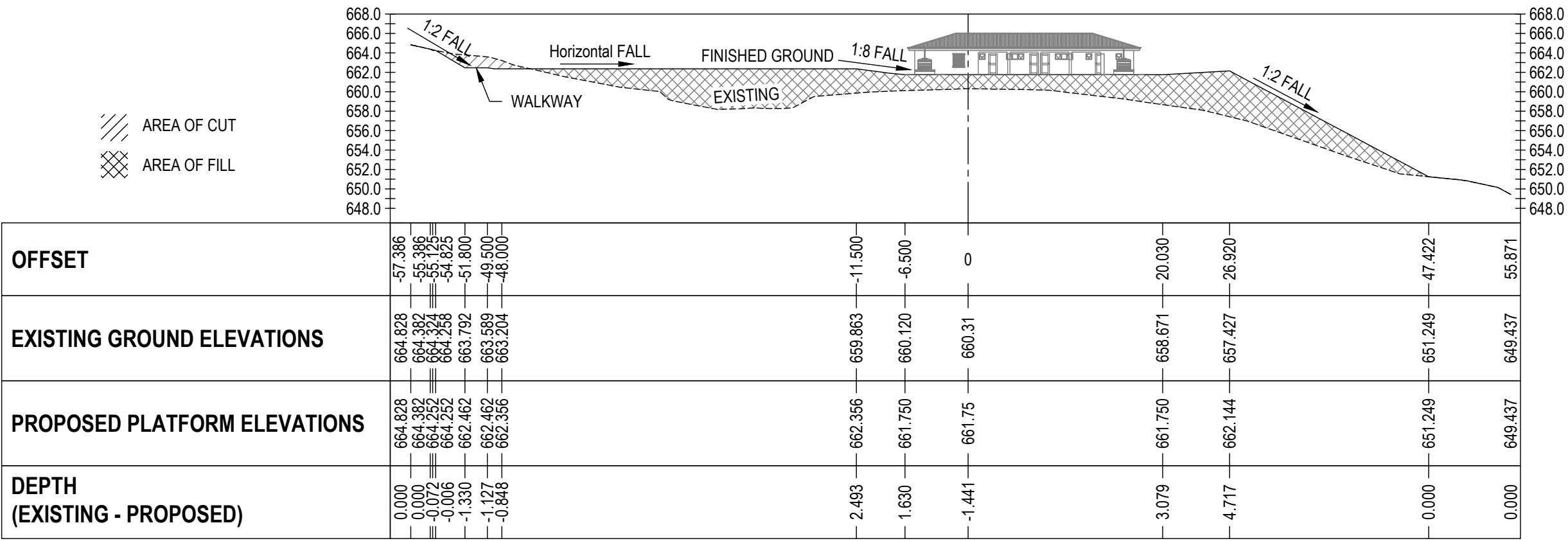
PLATFORM SECTION A-A
SCALE: 1:500



PLATFORM SECTION C-C
SCALE: 1:500



PLATFORM SECTION B-B
SCALE: 1:500



PLATFORM SECTION D-D
SCALE: 1:500

050100mm

ORIGINAL SCALE

FOR TENDER

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ISSUED FOR TENDER

NGIH

28/07/2022

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FOR INFORMATION

NH

09/10/2020

REV

DESCRIPTION

BY

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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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KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

BULK EARTHWORKS SECTIONS

DESIGNED : NH

DATE : 01/10/2020

DRAWN : NH

SHEET : 01

CHECKED : JVR

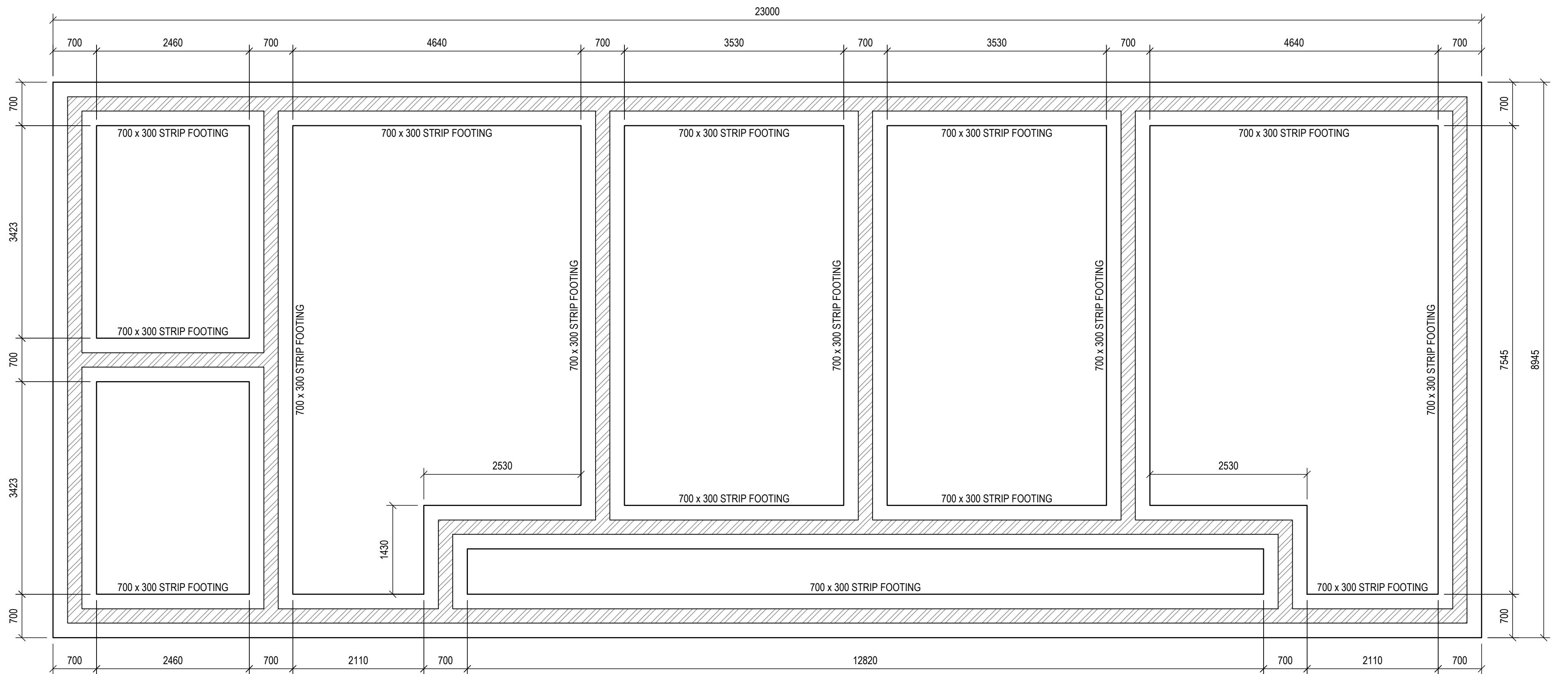
ORIGINAL SHEET SIZE: A1

SCALE : AS SHOWN

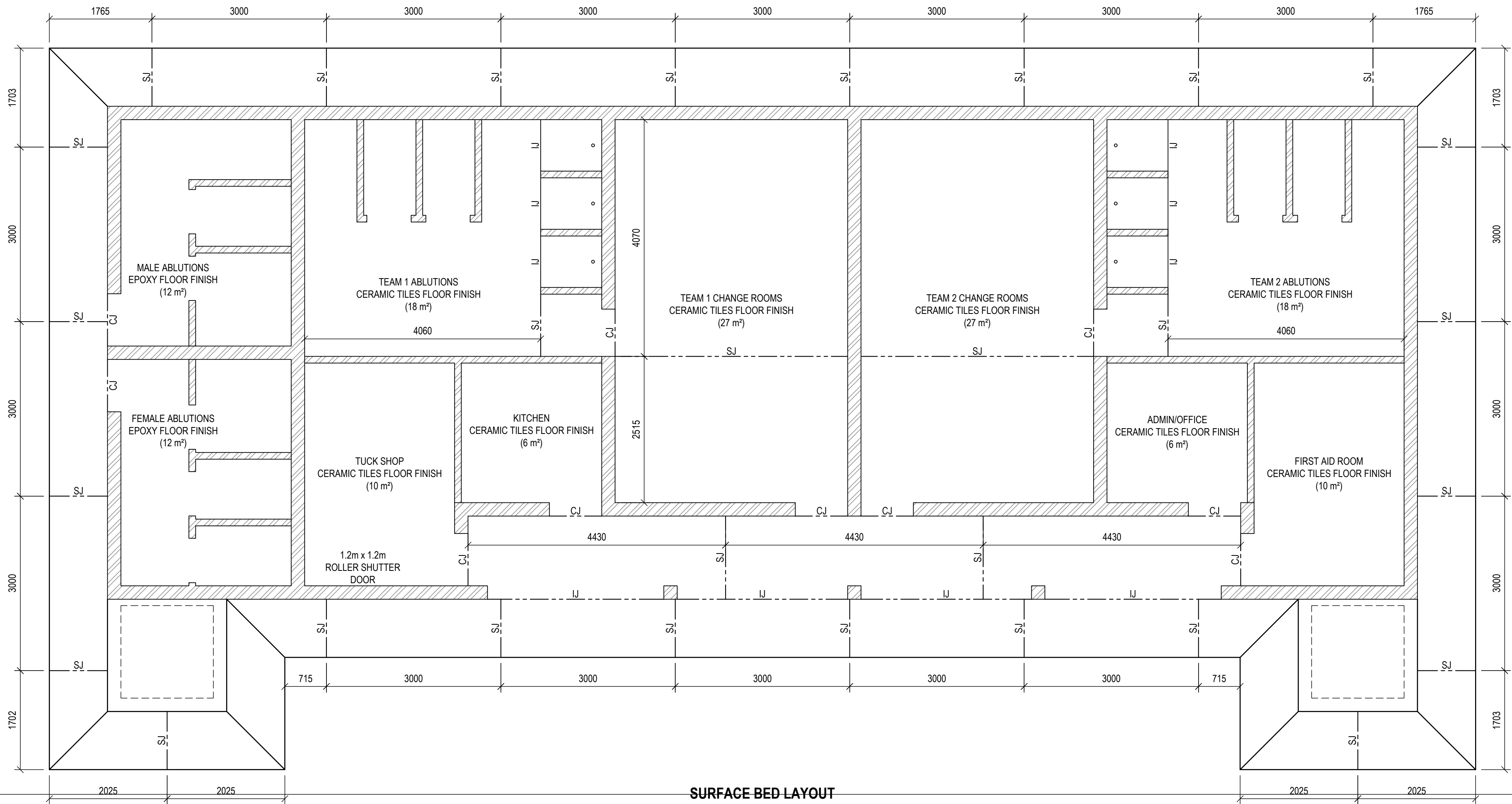
REV : B

DRAWING No : 1264/CE102

M:\1264_Kwampondo Sportsground\01-DESIGN STAGE\Drawings\1264_Tender Drawings\1264_Earthworks Platform.dwg 280722



FOUNDATION LAYOUT
SCALE: 1:50



SURFACE BED LAYOUT
SCALE: 1:50

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.
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SCOTTBURGH
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4090

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PROJECT

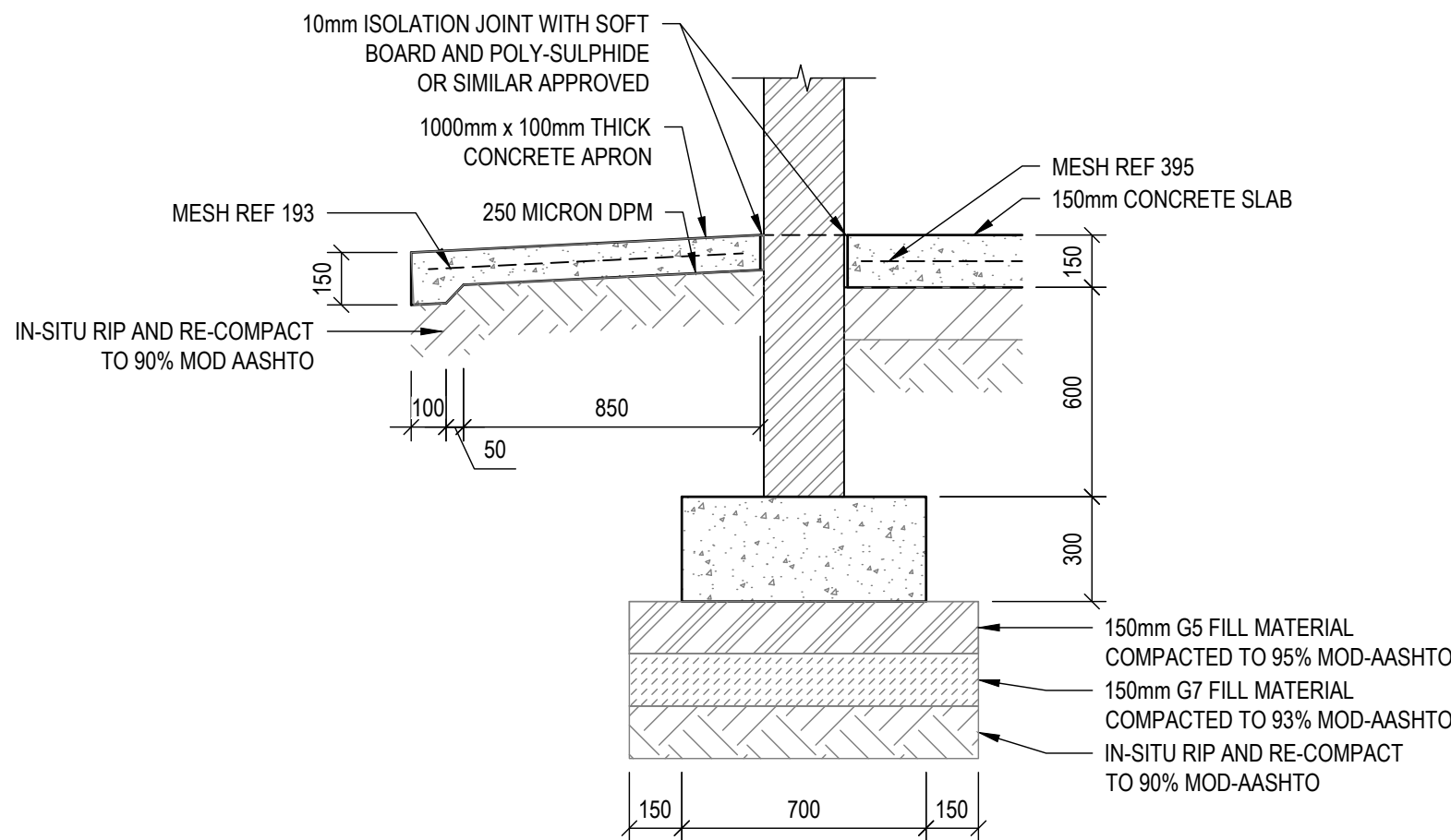
KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

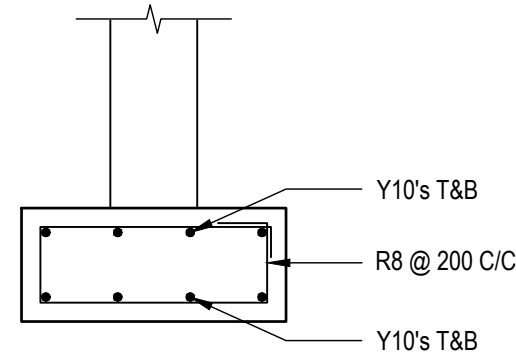
CHANGEROOM- FOUNDATION &
SURFACE BED LAYOUT

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B

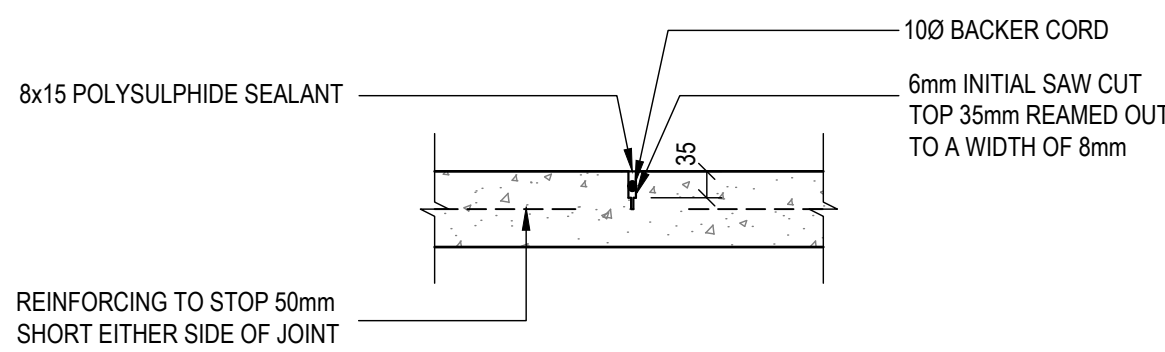
DRAWING No : 1264/SC101



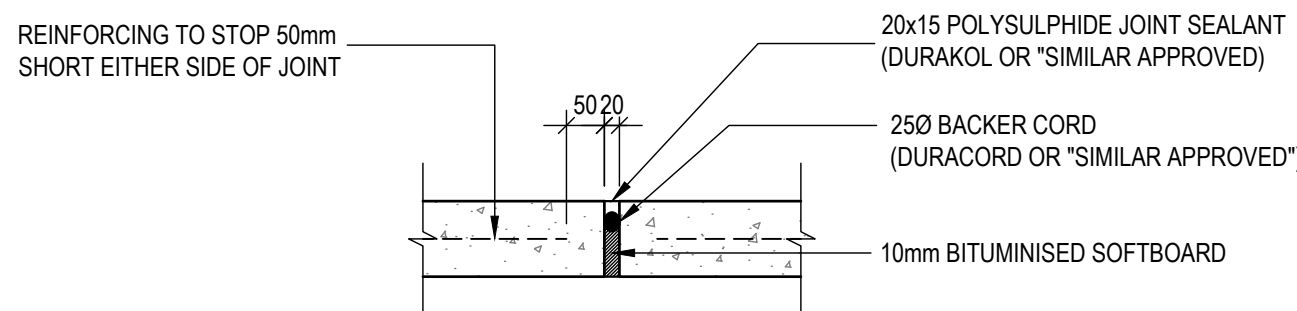
FOUNDATION DETAIL
SCALE: 1:20



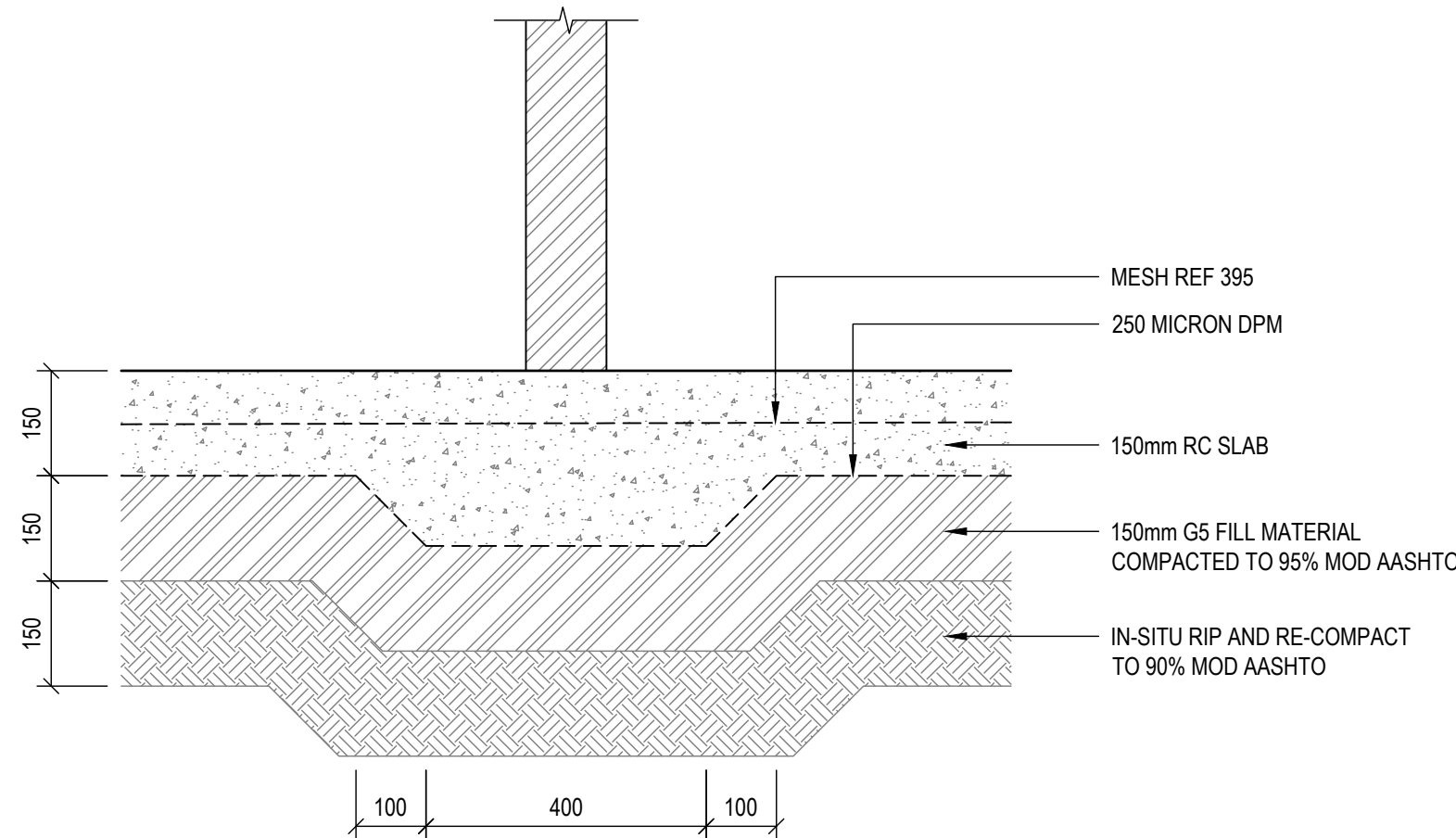
TYPICAL STRIP FOOTING
REINFORCING DETAIL
N.T.S.



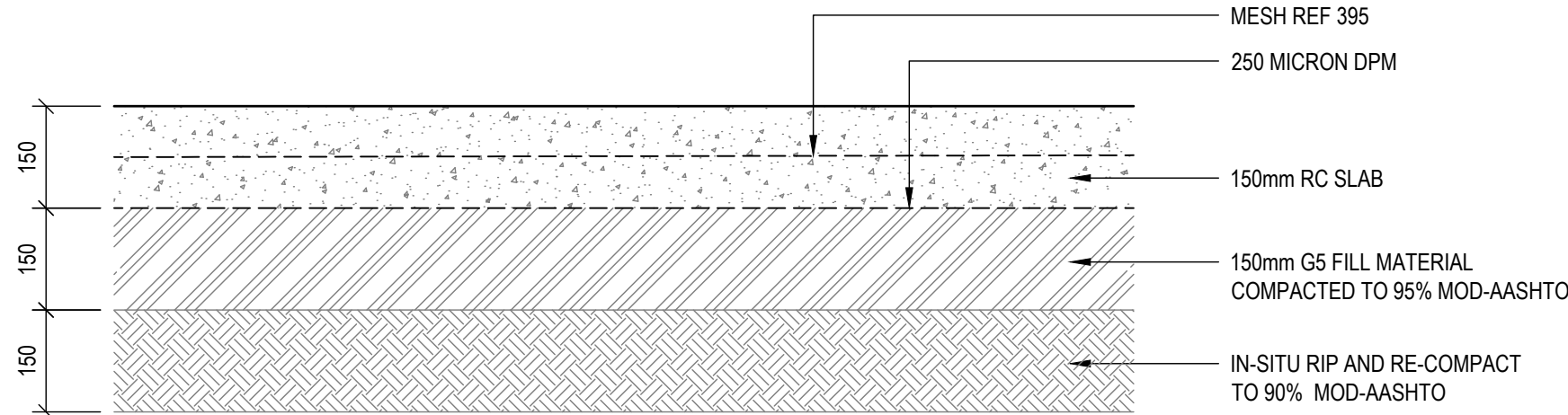
TYPICAL SAW CUT JOINT DETAIL
(SJ)
SCALE: 1:10



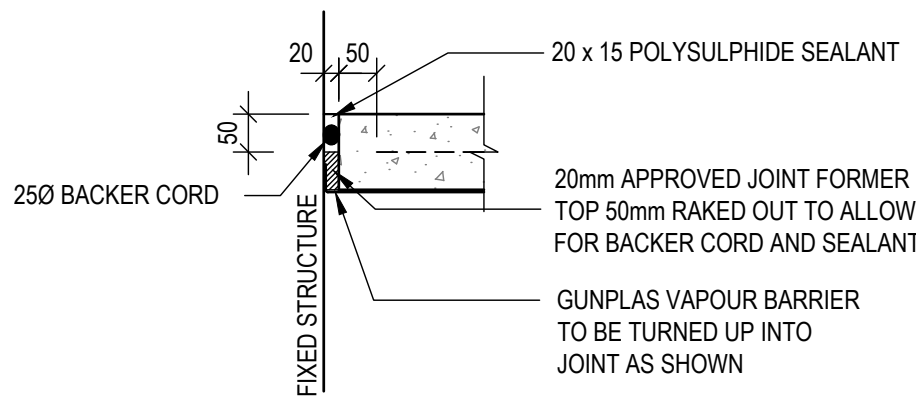
TYPICAL ISOLATION JOINT DETAIL
SLAB TO SLAB
(IJ)
SCALE: 1:10



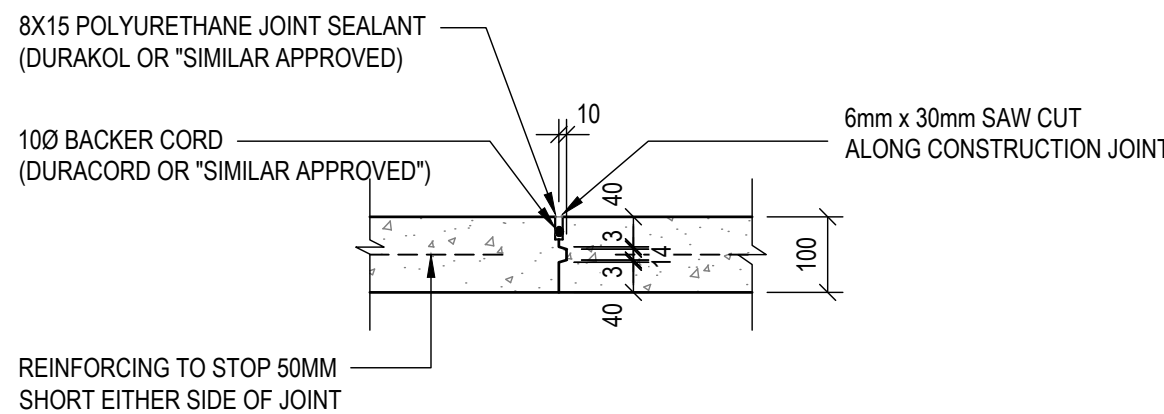
TYPICAL THICKENED SLAB DETAIL
SCALE: 1:10



LAYERWORKS DETAIL
SCALE: 1:10



TYPICAL ISOLATION JOINT DETAIL
SLAB TO FIXED STRUCTURE
(IJ)
SCALE: 1:10



TYPICAL CONSTRUCTION JOINT DETAIL
(CJ)
SCALE: 1:10

- NOTES:
1. CONCRETE TO BE 30MPa WITH WOOD FLOAT FINISH.
 2. DAILY "POUR ENDS" TO BE FORMED AS CONSTRUCTION JOINTS.
 3. SAW CUT JOINTS TO BE MADE BETWEEN 4 - 24 HOURS OF CASTING.
 4. ISOLATION JOINTS, SOFT BOARD TO BE PLACED BETWEEN SURFACE BEDS & WALLS & RAKED OUT 15mm DEEP & FILLED WITH GRAY POLYSULPHIDE SEALANT.
 5. CONCRETE SURFACES TO BE TREATED WITH CURING COMPOUND.

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.
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REV	DESCRIPTION	BY	DATE

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SCOTTBURGH
PO BOX 19,
SCOTTBURGH, 4180
TEL 039 976 1202 / 039 978 4313
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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 July 2022

Pr No : 200570114

PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

CHANGEROOM - TYPICAL DETAILS

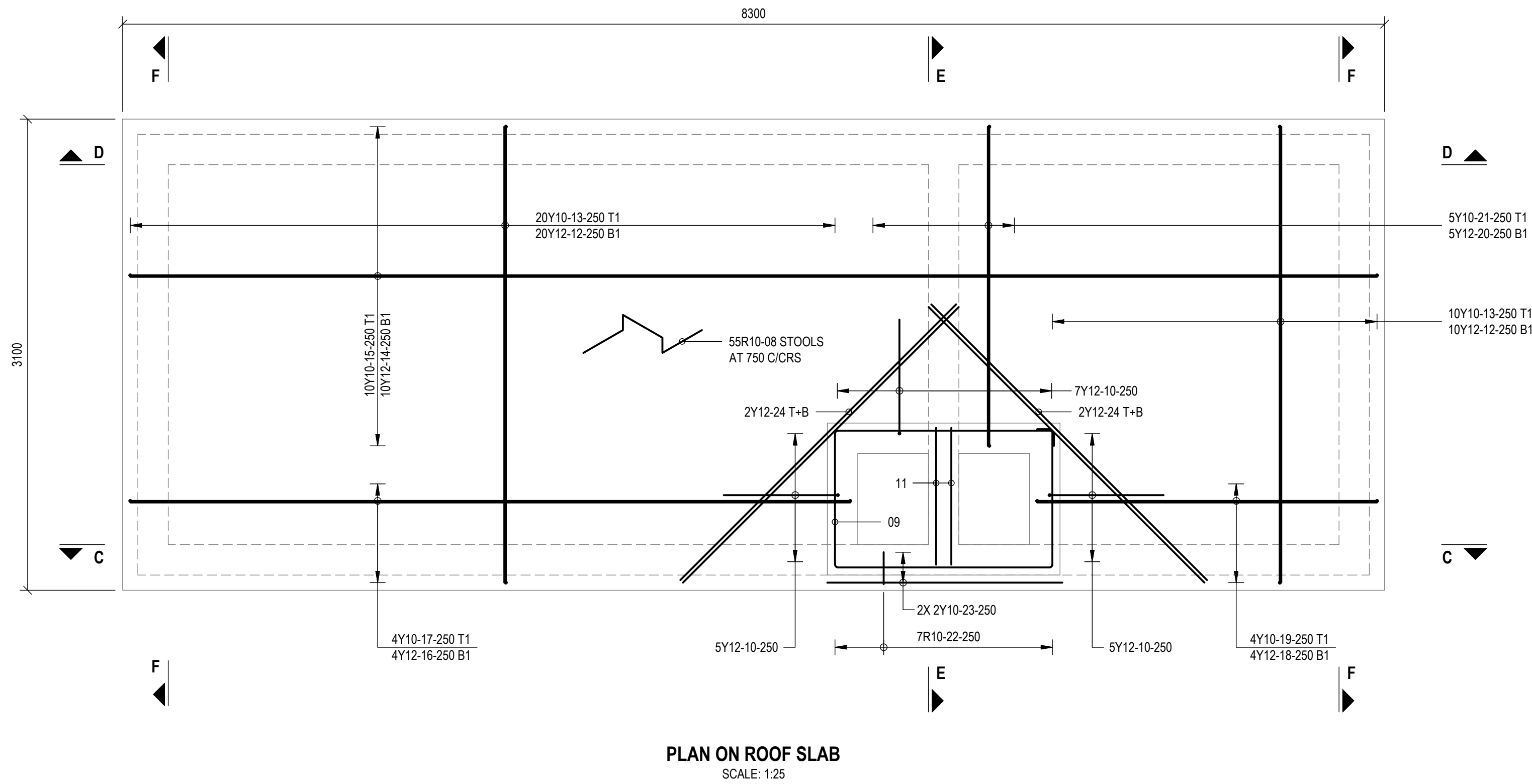
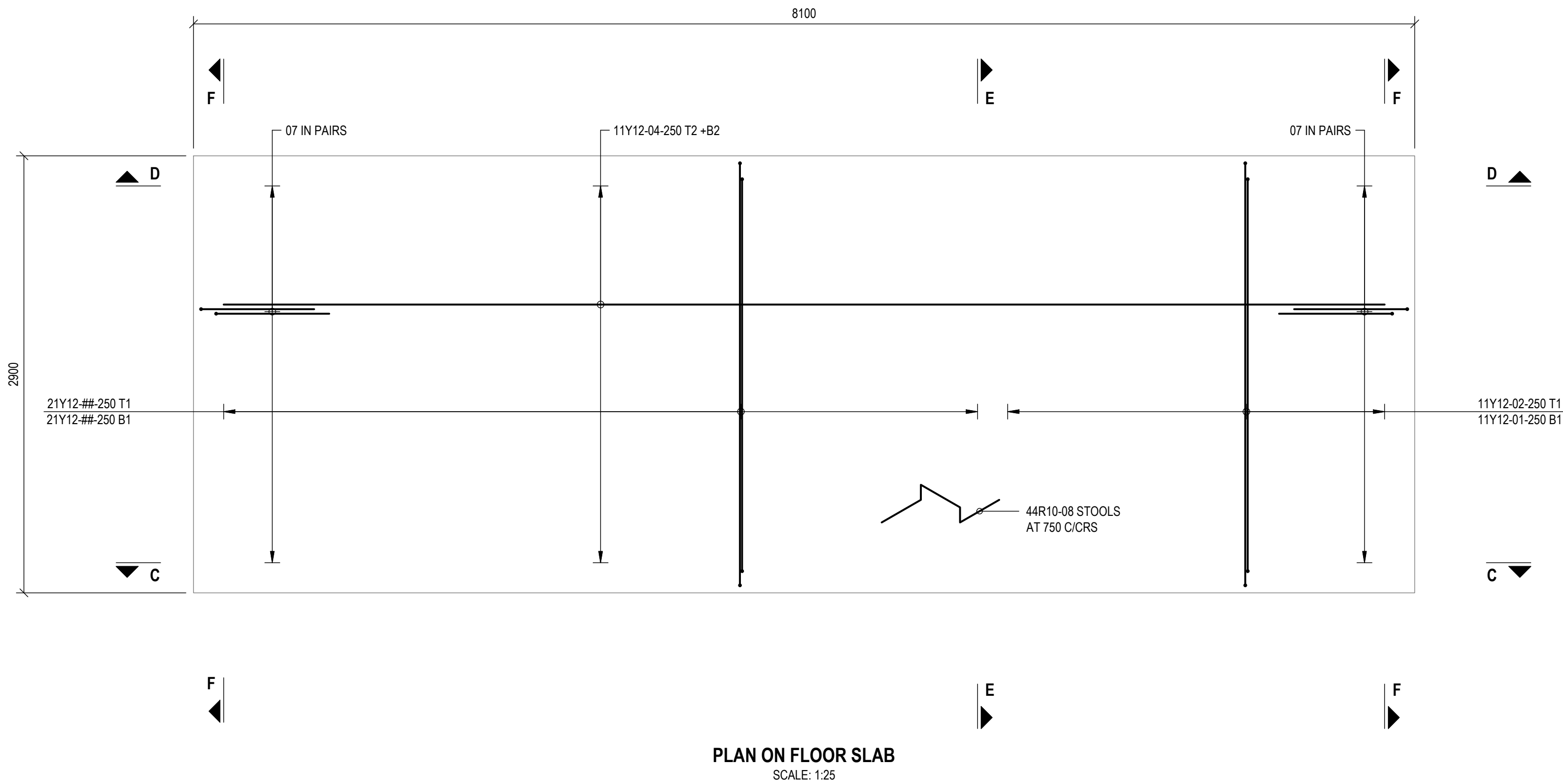
DESIGNED : NH DATE : 01/10/2020

DRAWN : NH SHEET : 01

CHECKED : JVR ORIGINAL SHEET SIZE: A1

SCALE : AS SHOWN REV : B

DRAWING No : 1264/SC102



0 50 100mm

ORIGINAL SCALE

NOTE:

COVER TO BE:
TOP 50mm
SIDES 50mm
BOTTOM 50mm

GENERAL NOTES:

1. ALL CONCRETE STRENGTH IS TO BE 30MPa/19, UNLESS OTHERWISE STATED.
2. ALL CONCRETE COVER TO REINFORCEMENT IS TO BE 50mm, UNLESS OTHERWISE STATED.
3. RE-BAR CALL OFF LEGEND:

5 Y12 - 19 - 150 - NF
NO. OFF
BAR DIA.
BAR MARK
BAR SPACING
BAR POSITION

ABBREVIATIONS

NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
T - TOP
B - BOTTOM

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4090
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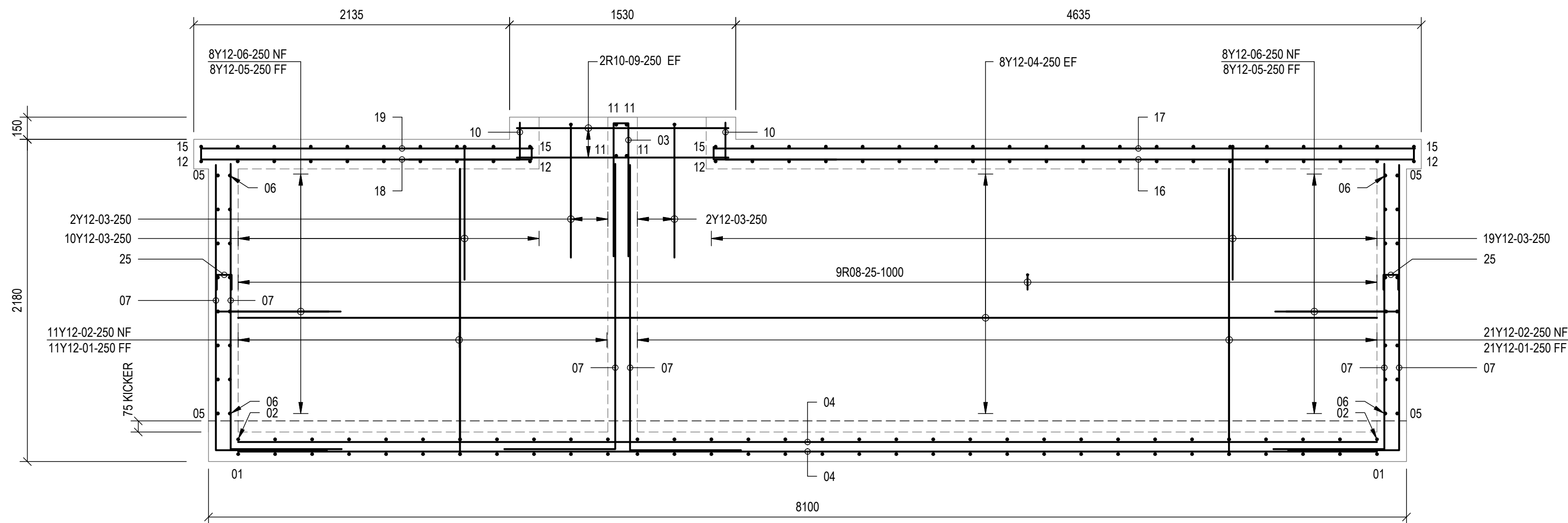
PROJECT

KWAMPONDO SPORTS FIELD WARD 1

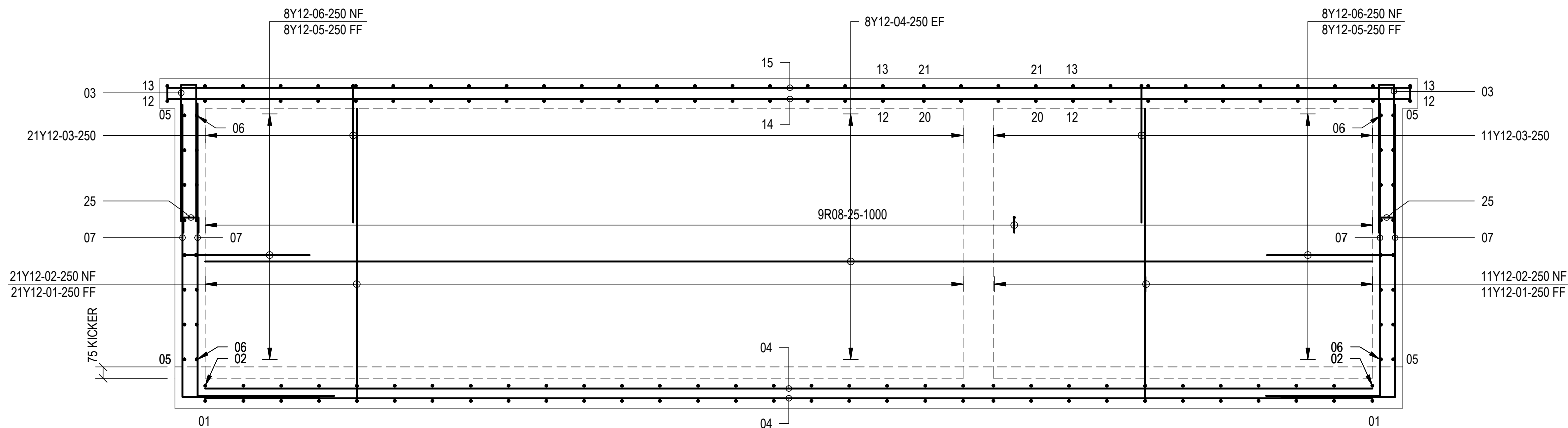
DRAWING TITLE

SEPTIC TANK REINFORCING PLANS

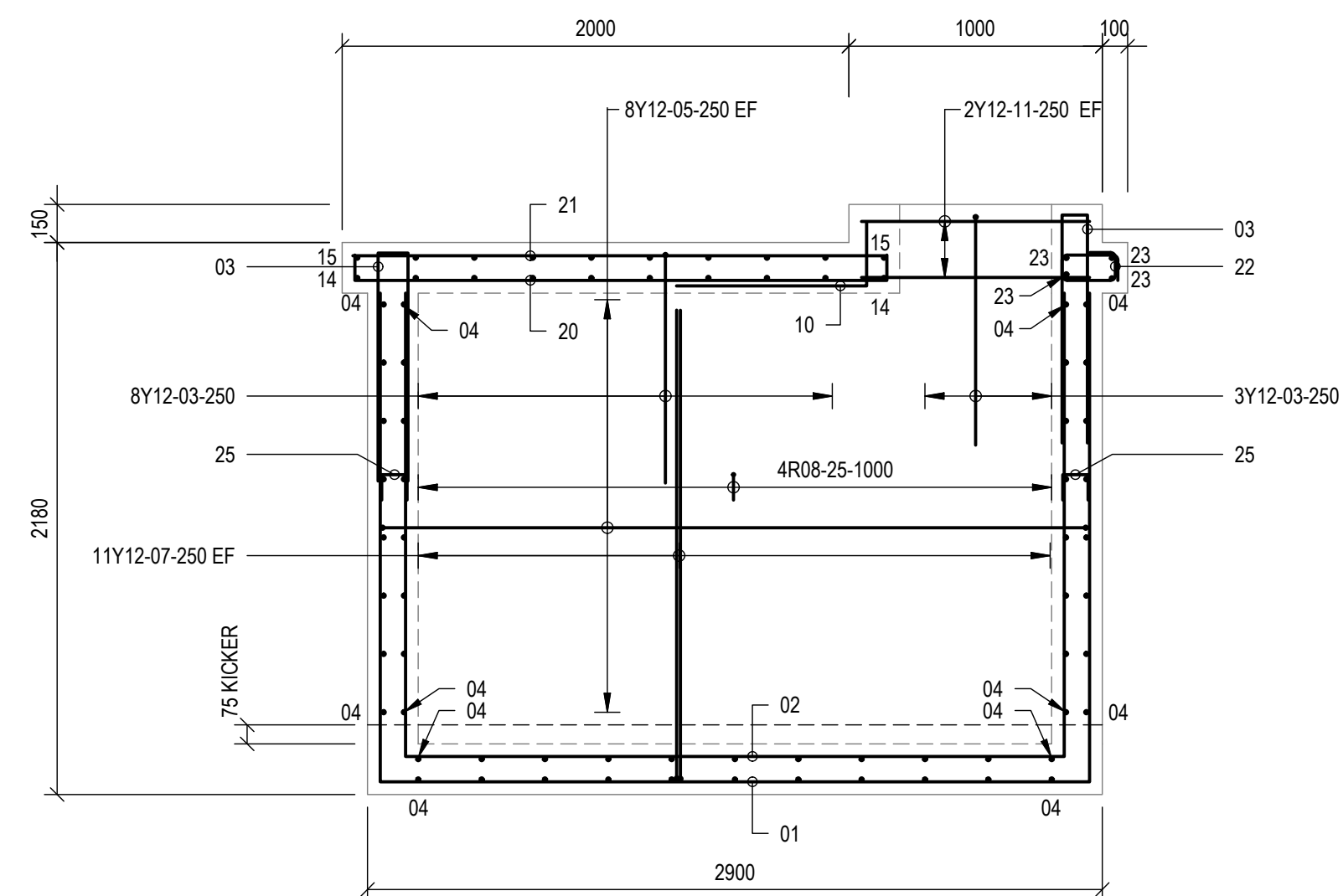
DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
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DRAWING No :	1264/SR101



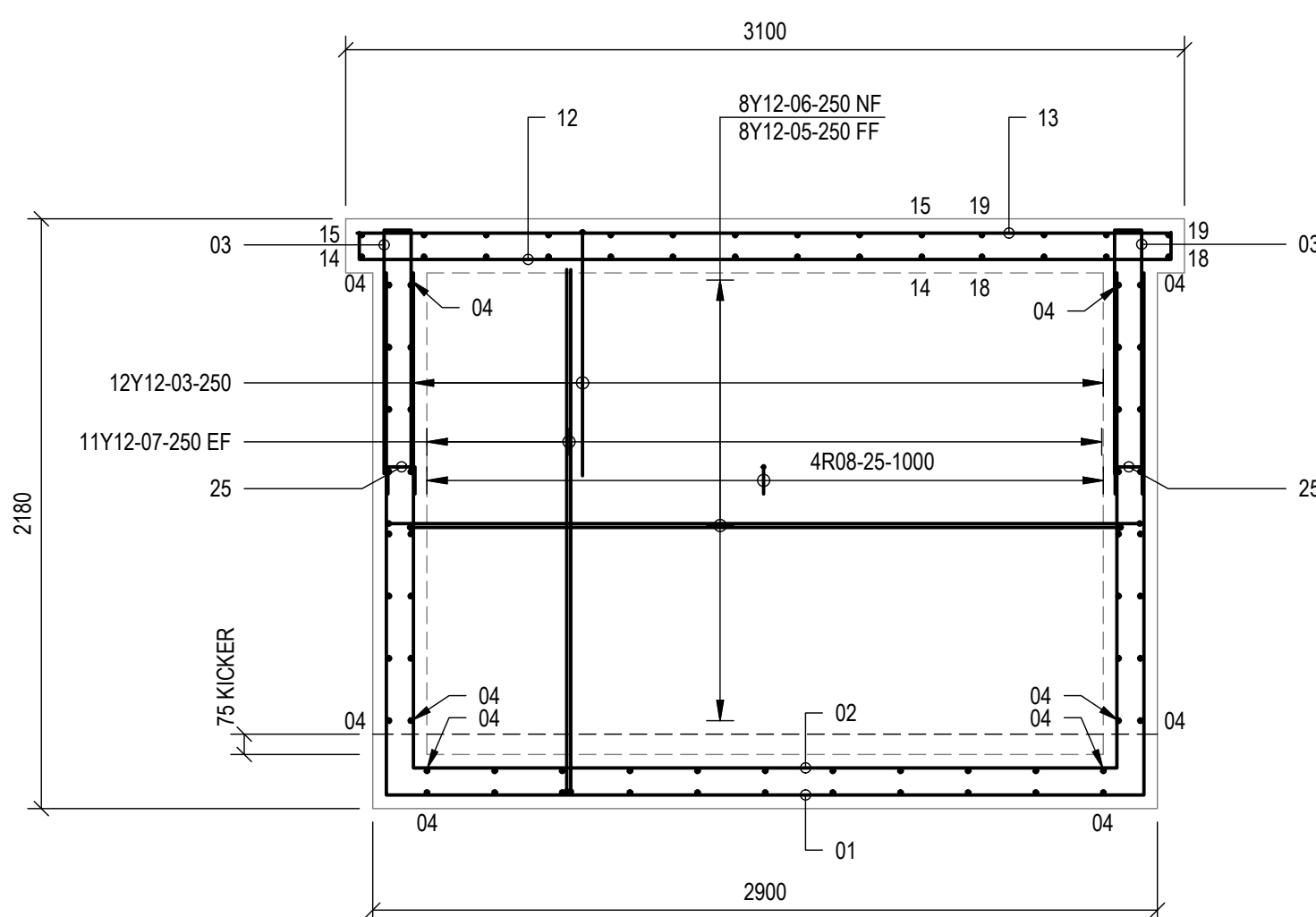
SECTION C-C
SCALE: 1:25



SECTION D-D
SCALE: 1:25



SECTION E-E
ELEVATION ON INTERNAL WALL
SCALE: 1:25



SECTION F-F
SCALE: 1:25

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)
SEPTIC TANK	1	Y12	01	32	32	6600	38	1930	2800	1930		
		Y12	02	32	32	6200	38	1830	2600	1830		
		Y12	03	100	100	1840	38	900	100	900		
		Y12	04	54	54	7700	20	7700				
		Y12	05	32	32	4220	38	750	2775	750		
		Y12	06	16	16	4070	38	750	2625	750		
		Y12	07	44	44	2650	37	1930	750			
		R10	08	99	99	1020	83	300	100	300	300	
		R10	09	2	2	4800	60	900	1430			
		Y12	10	17	17	970	37	250	750			
		Y12	11	4	4	900	20	900				
		Y12	12	30	30	3040	38	100	3000			
		Y10	13	30	30	3000	20	3000				
		Y12	14	10	10	8340	38	100	8200	100		
		Y10	15	10	10	8200	20	8200				
		Y12	16	4	4	4880	38	100	4735	100		
		Y10	17	4	4	4740	20	4740				
		Y12	18	4	4	2380	38	100	2235	100		
		Y10	19	4	4	2240	20	2240				
		Y12	20	5	5	2240	38	100	2100	100		
		Y10	21	5	5	2100	20	2100				
		R10	22	7	7	760	60	100	210			
		Y12	23	4	4	1550	20	1550				
		Y12	24	8	8	2570	20	2570				
		R08	25	30	30	270	38	100	100	100		

		06	08	10	12	16	20	25	32	40	Totals
Length (m)	R		8.100	115.900							124.000
	Y			210.420	1587.850						1798.270
Weight (ton)	R		0.00	0.07							0.07
	Y			0.13	1.41						1.54
Total Weight (ton):											1.61

0 50 100mm

ORIGINAL SCALE

NOTE:

COVER TO BE:
TOP 50mm
SIDES 50mm
BOTTOM 50mm

GENERAL NOTES:
1. ALL CONCRETE STRENGTH IS TO BE 30MPa/19, UNLESS OTHERWISE STATED.
2. ALL CONCRETE COVER TO REINFORCEMENT IS TO BE 50mm, UNLESS OTHERWISE STATED.
3. RE-BAR CALL OFF LEGEND:

5 Y12 - 19 - 150 - NF

NO. OFF
BAR DIA.
BAR MARK
BAR SPACING
BAR POSITION

ABBREVIATIONS
NF - NEAR FACE
FF - FAR FACE
EF - EACH FACE
T - TOP
B - BOTTOM

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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



APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY

CAPACITY:

DATE :

DM DRAWING No.

CONTRACT No : 07/2023



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

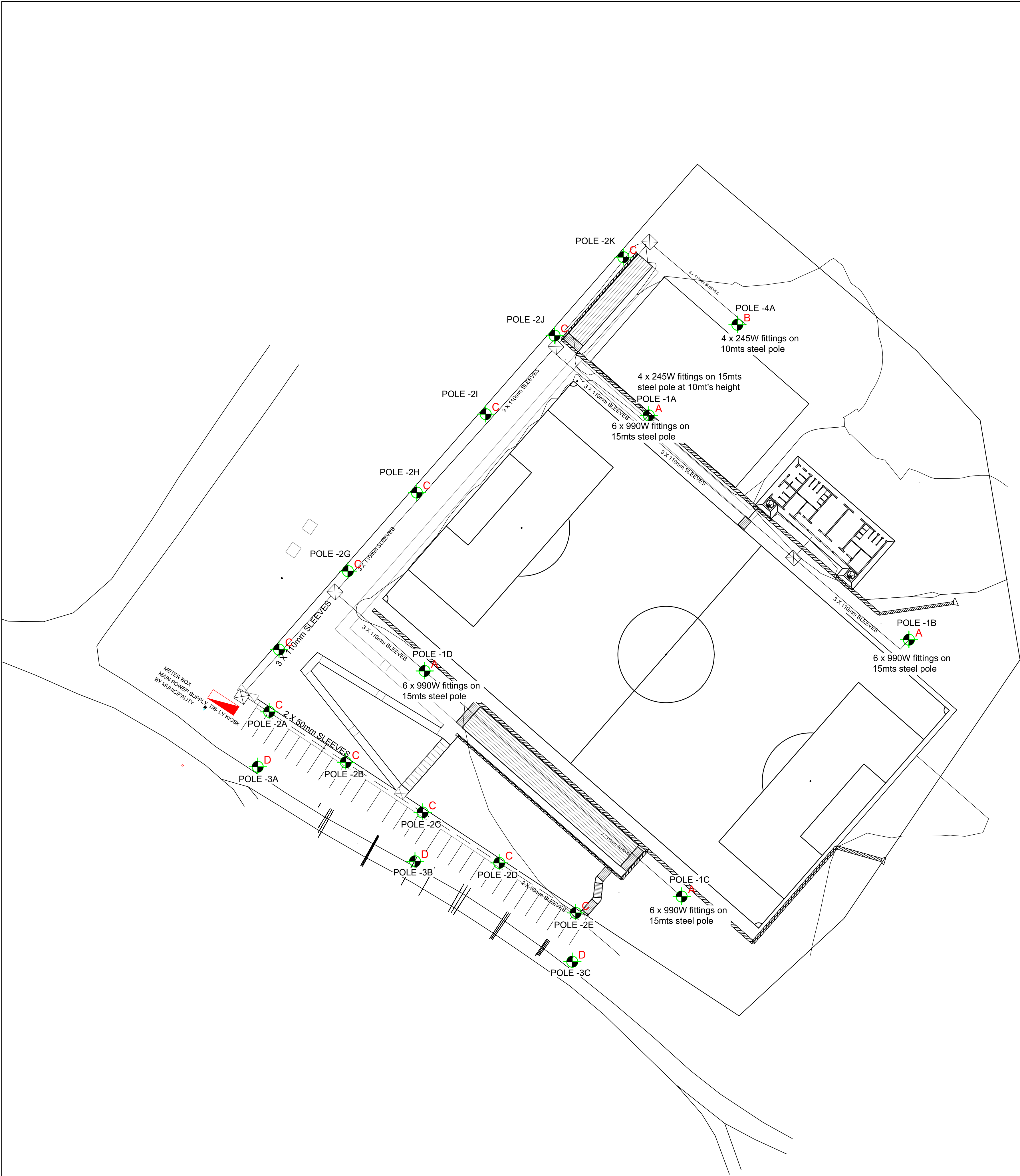
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

SEPTIC TANK REINFORCING
SECTIONS AND SCHEDULE

DESIGNED : NH	DATE : 01/10/2020
DRAWN : NH	SHEET : 01
CHECKED : JVR	ORIGINAL SHEET SIZE: A1
SCALE : AS SHOWN	REV : B
DRAWING No : 1264/SR102	



LIGHTING SCHEDULE	
SYMBOL	DESCRIPTION
	DECORATIVE WALL-MOUNTED LUMINAIRE
	990W LED LUMINAIRE FITTING
	245W LED LUMINAIRE FITTING
	32W LED LUMINAIRE FITTING
	37W LED LUMINAIRE FITTING
	DECORATIVE POST TOP LIGHT FITTING
	2x16A, 1-WAY, RECESSED LIGHT SWITCH
	3x16A, 1-WAY, RECESSED LIGHT SWITCH

POWER SCHEDULE	
SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	CABLE TRAY (MEDIUM DUTY)
	100mm SLEEVES
	50mm SLEEVES
	20A DP ISOLATOR @ 2200mm AFFL. OUTLET @ 1400mm AFFL.
	WEATHERPROOF ISOLATOR, RATING AS INDICATED
	ISOLATOR - SURFACE MOUNTED
	5-PIN SOCKET OUTLET, INCL. ISOLATOR (RATING AS SHOWN)
	1 x 16A SSO IN WEATHERPROOF ENCLOSURE/ YORK BOX
	SINGLE PHASE POWER POINT
	THREE PHASE POWER POINT
	"WT" DENOTES WATER TIGHT
	MANHOLE
	DISTRIBUTION LV KIOSK

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

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NGIH

28/07/2022

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NGIH

19/10/2020

REV

DESCRIPTION

BY

DATE

UMDONI LOCAL MUNICIPALITY

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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 : 07/2023

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

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CAPACITY : DIRECTOR

DATE :

Pr No : 200570114

PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

ELECTRICAL
LIGHTING & POWER
SITE LAYOUT

DESIGNED : RB

DATE : 18/01/2022

DRAWN : RB

SHEET : 01

CHECKED : RB

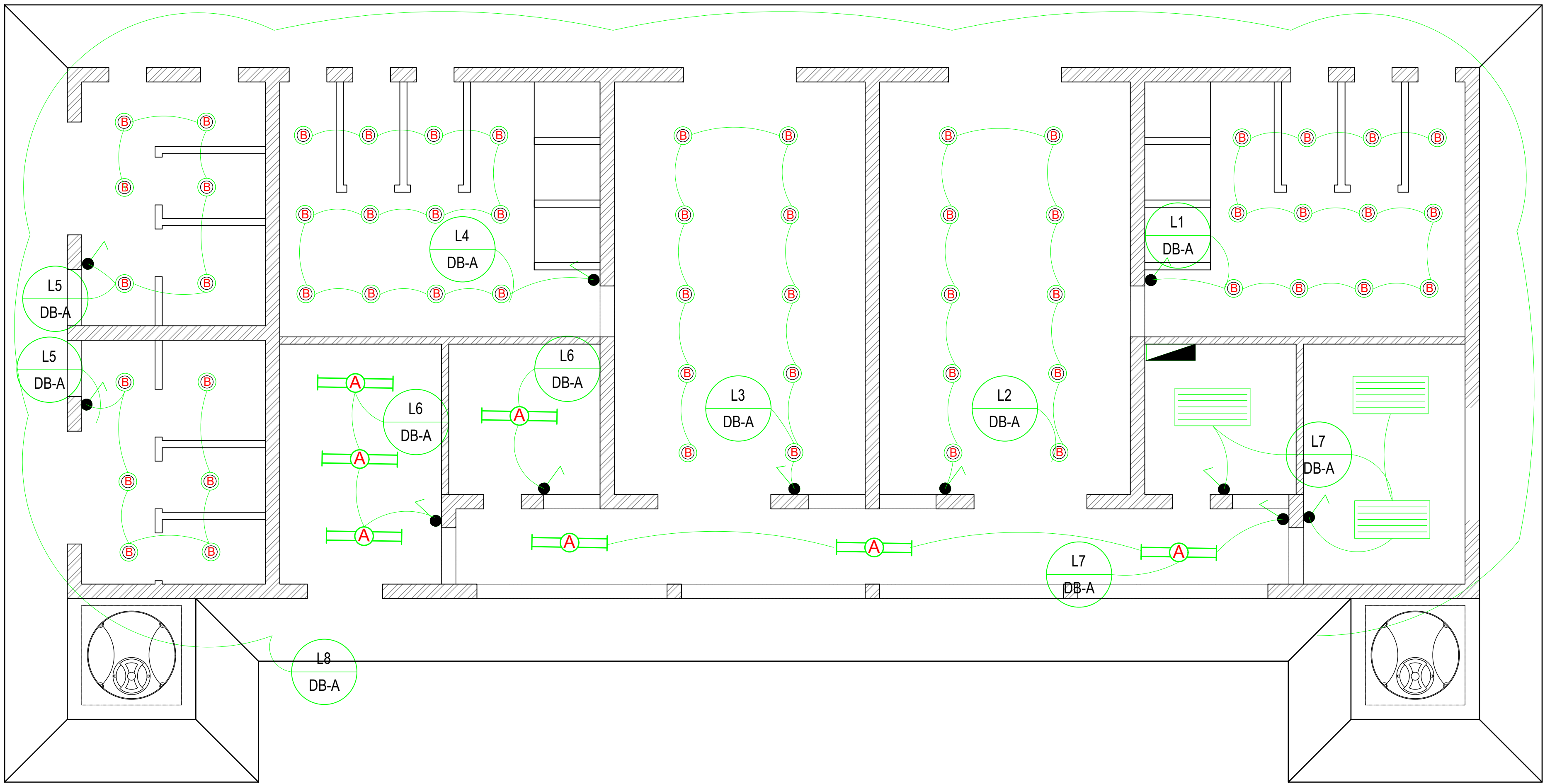
ORIGINAL SHEET SIZE: A1

SCALE : NTS

REV : B

DRAWING No : 1264/E-101

M:\1264_KwaMpondo Sportsground\01-DESIGN STAGE\Drawings\04-Tender Drawings\1264 Electrical.dwg 28/07/22



SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	1200x600 RECESSED FLUORESCENT LBR 3xL36W
	1200x600 RECESSED FLUORESCENT PRISMATIC 3xL36W
	COMMERCIAL WALL-MOUNTED LUMINARE
	2xPL13W RECESSED CFL DOWNLIGHTER
	1xPL13W RECESSED 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 SANS10142 STANDARDS AND SPECIFICATIONS.
 - HVAC DRAWINGS TO BE CO-ORDINATED BY ELECTRICAL CONTRACTOR FOR THE PROVISION OF CONDUITS FOR MECHANICAL EQUIPMENT.

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			
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A	FOR INFORMATION ONLY	NGIH	19/10/2020
REV	DESCRIPTION	BY	DATE
UMDONI LOCAL MUNICIPALITY			
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APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY			
CAPACITY:			
DATE :			
DM DRAWING No.			
CONTRACT No : 07/2023			



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641, Peter Mokaba Ridge Raod, 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 :

Pr No : 200570114

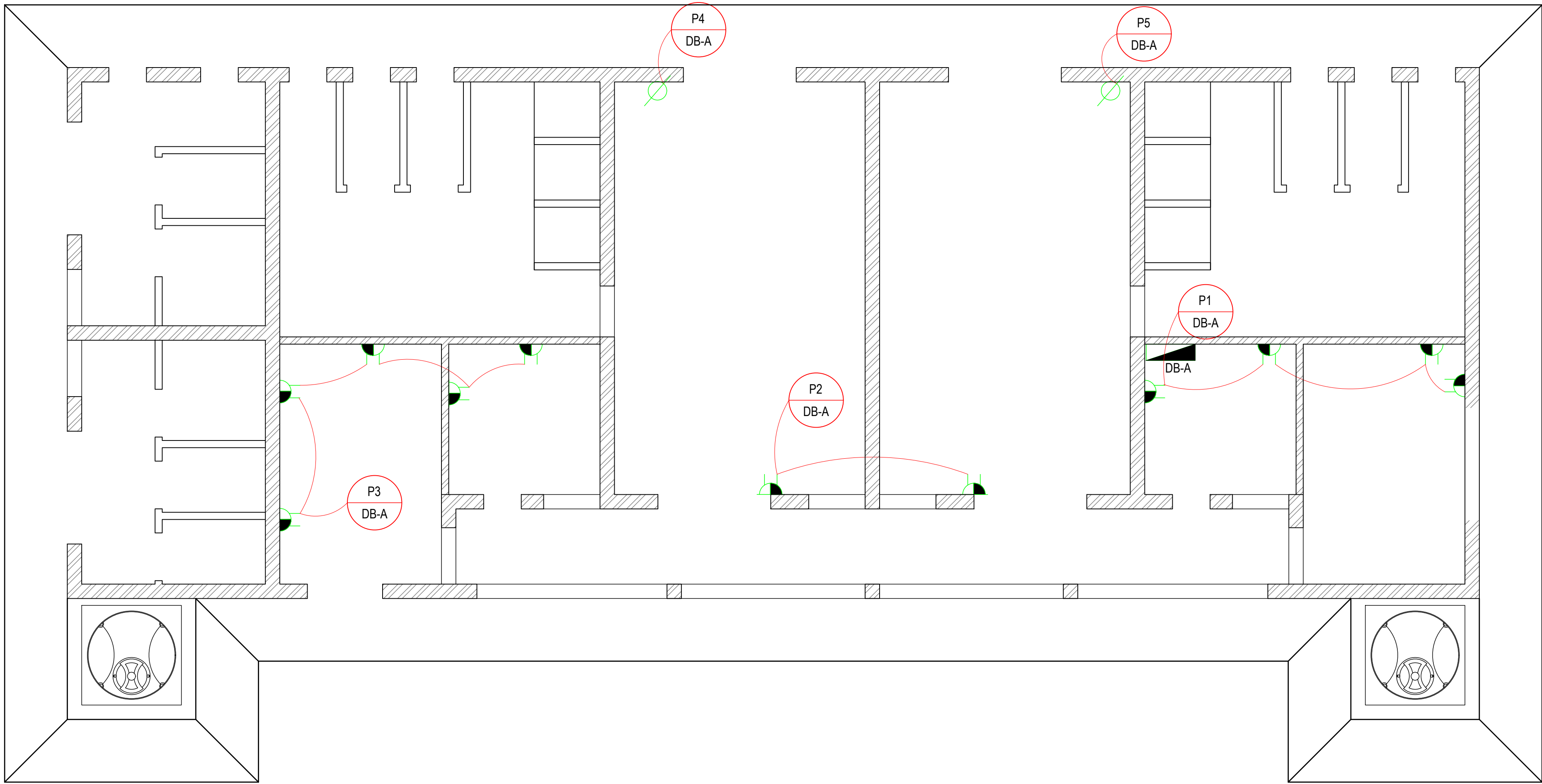
PROJECT

KWAMPONDO SPORTS FIELD
WARD 1

DRAWING TITLE

ELECTRICAL
ABLUTION
LIGHTING LAYOUT

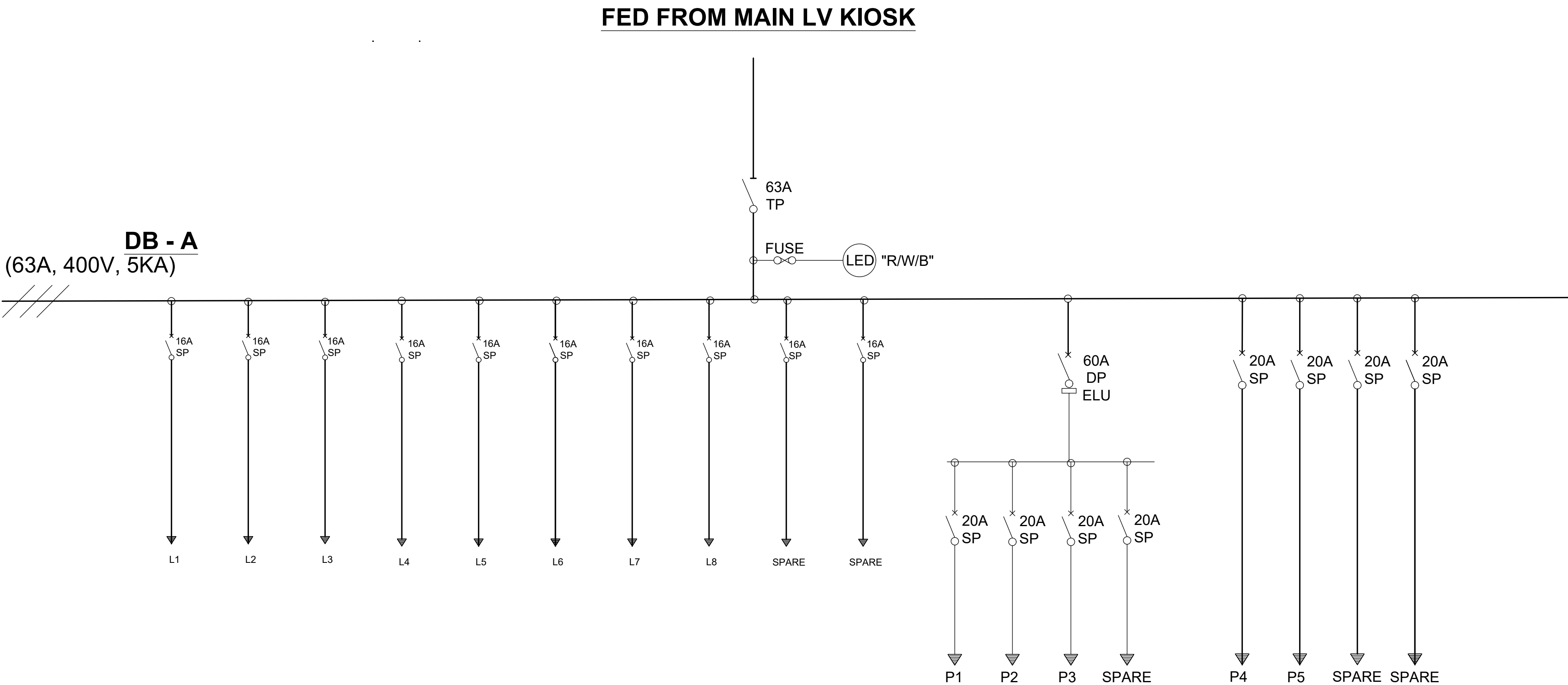
DESIGNED : RB	DATE : 18/01/2022
DRAWN : RB	SHEET : 01
CHECKED : RB	ORIGINAL SHEET SIZE: A1
SCALE : NTS	REV : B
DRAWING No :	1264/E-102



SYMBOL	DESCRIPTION
	DISTRIBUTION BOARD
	1200x600 RECESSED FLUORESCENT LBR 3xL36W
	1200x600 RECESSED FLUORESCENT PRISMATIC 3xL36W
	COMMERCIAL WALL-MOUNTED LUMINARE
	2xPL13W RECESSED CFL DOWNLIGHTER
	1xPL13W RECESSED 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 SANS10142 STANDARDS AND SPECIFICATIONS.
 - HVAC DRAWINGS TO BE CO-ORDINATED BY ELECTRICAL CONTRACTOR FOR THE PROVISION OF CONDUITS FOR MECHANICAL EQUIPMENT.

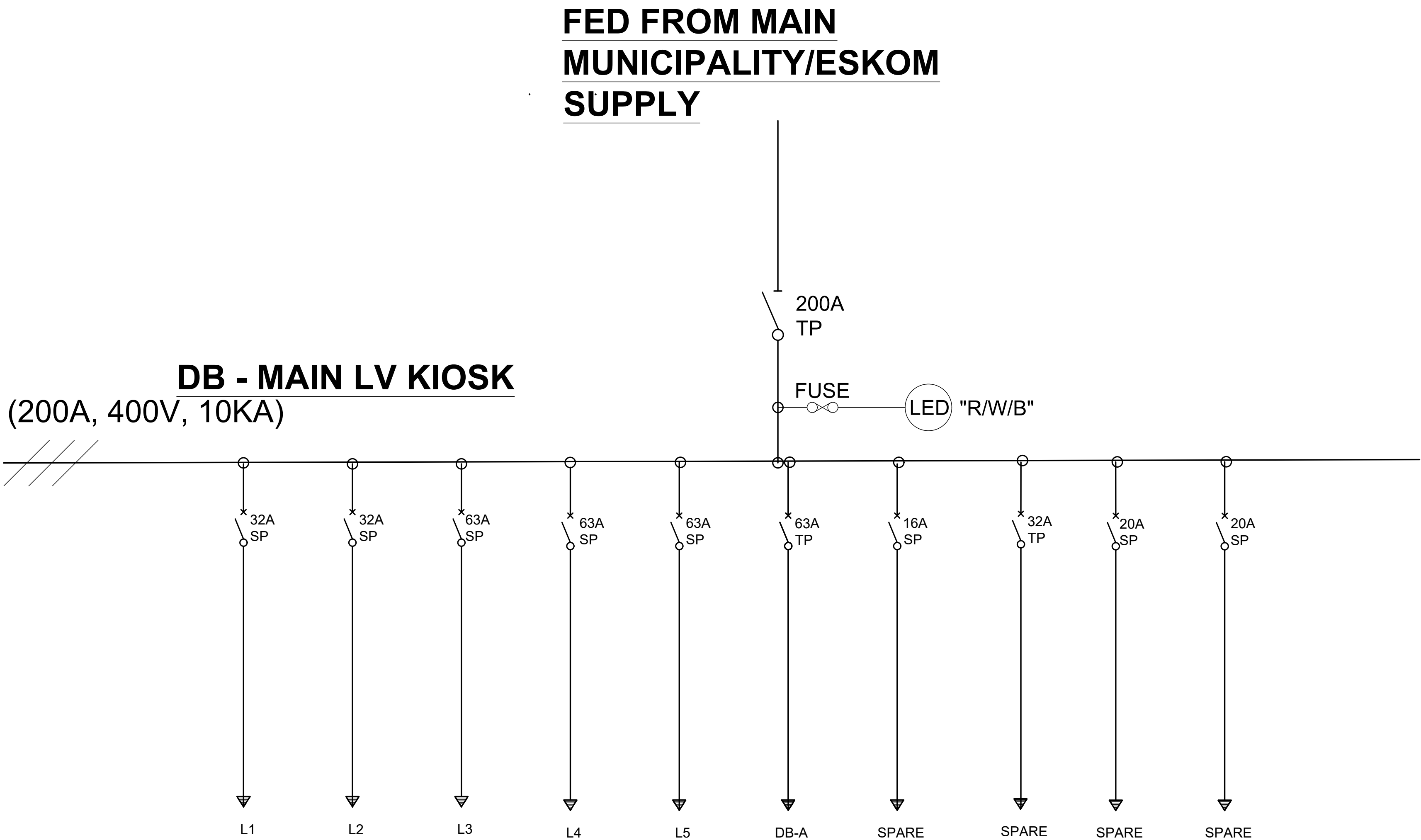
0 50 100mm		
ORIGINAL SCALE		
NOTE: 1. ALL DIMENSIONS, SETTING OUT & LEVELS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR FABRICATION. 2. ANY DISCREPANCIES WITH DIMENSIONS, SETTING OUT & LEVELS TO BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY.		
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A	FOR INFORMATION ONLY	NGIH 19/10/2020
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CONTRACT No : 07/2023		
2nd Floor, MB House, 641, Peter Mokaba Ridge Raod, 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 :		
Pr No : 200570114		
PROJECT		
KWAMPONDO SPORTS FIELD WARD 1		
DRAWING TITLE		
ELECTRICAL ABLUTION POWER LAYOUT		
DESIGNED : RB	DATE : 18/01/2022	
DRAWN : RB	SHEET : 01	
CHECKED : RB	ORIGINAL SHEET SIZE: A1	
SCALE : AS SHOWN	REV : B	
DRAWING No : 1264/E-103		



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)	
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 identif	
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	-

50100mm 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			
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B	ISSUED FOR TENDER	NGIH	28/07/2022
A	FOR INFORMATION ONLY	NGIH	19/10/2020
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			
APPROVED ON BEHALF OF UMDONI LOCAL MUNICIPALITY			
CAPACITY:			
DATE :			
DM DRAWING No.			
CONTRACT No : 07/2023			
 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 Email: admin@dartingo.co.za	
APPROVED ON BEHALF OF DARTINGO CONSULTING ENGINEERS			
CAPACITY: DIRECTOR			
DATE :			
Pr No : 200570114			
PROJECT			
KWAMPONDO SPORTS FIELD WARD 1			
DRAWING TITLE			
ELECTRICAL DISTRIBUTION BOARD DB-A SCHEMATIC LAYOUT			
DESIGNED : RB		DATE : 18/01/2022	
DRAWN : RB		SHEET : 01	
CHECKED : RB		ORIGINAL SHEET SIZE: A1	
SCALE : NTS		REV : B	
DRAWING No :		1264/E-104	



SCHEDULE		SCHEDULE		GENERAL NOTES:	GENERAL NOTES:
ITEM	DESCRIPTION	ITEM	DESCRIPTION	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.	4. EMERGENCY, NORMAL & UPS SECTIONS TO BE ELECTRICALLY & MECHANICALLY SEPERATED BY MEANS OF A FIXED DIVIDING PANELS. 5. TO BE OF FORM 2B CONSTRUCTION.
	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)	
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 identif	
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	-

050100mm

ORIGINAL SCALE

NOTE:

1. ALL DIMENSIONS, SETTING OUT & LEVELS TO BE CONFIRMED ON SITE BY THE CONTRACTOR PRIOR TO CONSTRUCTION OR FABRICATION.

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NGIH

19/10/2020

REV

DESCRIPTION

BY

DATE

UMDONI LOCAL MUNICIPALITY

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CAPACITY:

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DM DRAWING 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 :

Pr No : 200570114

PROJECT

KWAMPONDO SPORTS FIELD WARD 1

DRAWING TITLE

ELECTRICAL DISTRIBUTION BOARD DB- LV KIOSK SCHEMATIC LAYOUT

DESIGNED : RB

DATE : 18/01/2022

DRAWN : RB

SHEET : 01

CHECKED : RB

ORIGINAL SHEET SIZE: A1

SCALE : NTS

REV : B

DRAWING No : 1264/E-105

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