TENDER 58/2025

MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION

TENDERER	
ADDRESS OF TENDERER	
TELEPHONE/FACSIMILE	
EMAIL ADDRESS	
B-BBEE STATUS	
TENDER AMOUNT	
COMPLETION PERIOD	
NAME REPRESENTATIVE	

November 2025

THE MUNICIPAL MANAGER
LANGEBERG MUNICIPALITY
28 MAIN ROAD
ASHTON
6715

TEL: (023) 615 8000

5th FLOOR MODENA BUILDING
BELLA ROSA VILLAGE
C/O DURBANVILLE & BELLA ROSA STREET
BELLVILLE
7530

TEL: (021) 975 1718

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PART T1 : TENDERING PROCEDURES

T1.1 Tender Notice and Invitation to Tender

T1.2 Tender Data

LANGEBERG
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TENDER NOTICE

TENDER NO. 58/2025

MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION

Tenders are hereby requested for the **MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION,** as specified in the bid document. Completed Bids, in sealed envelopes, clearly marked **TENDER 58/2025 MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION,** should be placed in the tender box, at the Langeberg Municipal Office, 28 Main Road, Ashton, not later than **12:00 on 23 January 2026** when the Bids will be opened in public. Late, faxed or e-mailed tenders will not be considered.

Tenderers must be registered with the CIDB in a class of construction works and have a grading designation equal to or higher than that determined in accordance with the sum tendered or a value determined in accordance with regulation 25 (7A) of the Construction Industry Development Regulations, 2004. It is estimated that tenderers will need a grading designation of 3CE/3GB OR HIGHER,

COMPULSORY CLARIFICATION MEETING:
A COMPULSORY CLARIFICATION MEETING WILL BE HELD ON 03 DECEMBER 2025 AT 12H00, AT THE McGREGOR MUNICIPAL OFFICES, 24 VOORTREKKER Rd, McGREGOR. NO LATE COMERS WILL BE ADMITTED AFTER 12H05.

PLEASE NOTE:
The official Bid document must be fully completed in black ink, all pages must be returned and the document should preferably be stapled or bound. Supporting documents must be submitted separately and must be stapled or bound. The Langeberg Municipality may appoint "reserve bidders" and award the bid to the second – or third ranked bidder during the adjudication stage if the highest-scoring bidder fails to perform during contract execution.

The lowest, or any tender, will not necessarily be accepted and council reserves the right to accept any tender. Tenders will be evaluated according to the Council's Supply Chain Management Policy and the 80/20 Preference Point system. The Supply Chain Management Policy can be viewed at Municipal Offices or www.langeberg.gov.za

A minimum functional assessment score of 56 out of 80 points will apply to this contract

Bid documents are available from **24 November 2025**, on the Langeberg Municipal website: www.langeberg.gov.za
Please refer written enquiries to MR N ALBERTYN nalbertyn@langeberg.gov.za

DP LUBBE
MUNICIPAL MANAGER
Private Bag X2,
Ashton, 6715

LANGEBERG MUNICIPALITY

TENDER NO. 58/2025

MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION

General Tender Information

TENDER ADVERTISED	:	21 November 2025
ESTIMATED CIDB CONTRACTOR GRADING DESIGNATION	:	3CE/3GB or higher
SITE VISIT/CLARIFICATION MEETING	:	03 December 2025 at 12h00
VENUE FOR SITE VISIT/ COMPULSORY CLARIFICATION MEETING	:	McGregor Municipal Offices, 24 Voortrekker Road, Mc Gregor
CLOSING DATE	:	23 January 2026
CLOSING TIME	:	12h00
TENDER BOX & ADDRESS	:	The Bid Box, at the Entrance of Municipal Office, 28 Main Road, Ashton, LANGEBERG Municipality.

The Tender Document (which includes the Form of Offer and Acceptance) completed in all respects, plus any additional supporting documents required, must be submitted in a sealed envelope with the name and address of the tenderer, the tender No. and title and the closing date indicated on the envelope. The sealed envelope must be inserted into the appropriate official tender box before closing time at 12h00.

If the tender offer is too large to fit into the abovementioned box or the box is full, please enquire at the reception for alternative instructions. The onus remains with the tenderer to ensure that the tender is placed in either the original box or as alternatively instructed.

TENDERERS MUST NOTE THAT WHEREVER THIS DOCUMENT REFERS TO ANY PARTICULAR TRADEMARK, NAME, PATENT, DESIGN, TYPE, SPECIFIC ORIGIN OR PRODUCER, SUCH REFERENCE SHALL BE DEEMED TO BE ACCOMPANIED BY THE WORDS "OR EQUIVALENT"

PART A (MBD1)
INVITATION TO BID

THE FOLLOWING PARTICULARS MUST BE FURNISHED (FAILURE TO DO SO WILL RESULT IN YOUR OFFER BEING DISQUALIFIED)

YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE LANGEBERG MUNICIPALITY					
BID NUMBER:	T58/2025	**CLOSING DATE:**	23 January 2026	**CLOSING TIME:**	12h00
DESCRIPTION:	MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM.					

BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT:
ENTRANCE OF THE MUNICIPAL OFFICES 28 Main Road Ashton 6715

SUPPLIER INFORMATION			
NAME OF BIDDER			
POSTAL ADDRESS			
STREET ADDRESS			
TELEPHONE CODE & NUMBER			
CELL PHONE NUMBER			
FACSIMILE CODE & NUMBER			
E-MAIL ADDRESS			
VAT REGISTRATION NUMBER			
TAX PIN		TAX REFERENCE NUMBER	
CSD No			
ORIGINAL AND VALID TAX CLEARANCE CERTIFICATE / TSC PIN SUBMITTED? YES☐ NO☐			
A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BEE. NOTE A CERTIFIED COPY OR ORIGINAL IS COMPULSORY			
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE SUBMITTED? (MBD 6.1) YES☐ NO☐ IF YES, WHO WAS THE CERTIFICATE ISSUED BY? (Tick applicable box) A VERIFICATION AGENCY ACCREDITED BY SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM (SANAS) ☐ or A SWORN AFFIDAVIT FOR EME'S AND QSE'S ☐			
RECENT MUNICIPAL ACCOUNT OF COMPANY (NOT OLDER THAN 90 DAYS) **MUST** BE ATTACHED			
RECENT MUNICIPAL ACCOUNTS OF ALL THE DIRECTORS/ SHAREHOLDERS **MUST** BE ATTACHED			
IF LEASING/RENTING/LODGING – ATTACHED LATEST VALID COPY OF AGREEMENT **IF NO PROPERTY REGISTERED IN YOUR NAME SUBMIT AN AFFIDAVIT CONFIRMING THIS.**			

BID PRICE OFFERED **NB: NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE (see definition on MBD 4 attached)**	
TOTAL BID PRICE (INCL Contingencies & 15% VAT)	

ANY ENQUIRIES REGARDING THE BIDDING PROCEDURE MAY BE DIRECTED TO:

LANGEBERG MUNICIPALITY
Contact Person: Mr N Albertyn
Tel: 023 626 8200
Fax: 023 615 1563
E-mail: nalbertyn@langeberg.gov.za

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

YOURS FAITHFULLY,

DP LUBBE
MUNICIPAL MANAGER
MUNICIPAL OFFICES
PRIVATE BAG X2
ASHTON
6715

TEL: 023 626 8200

PART B (MBD 1)
TERMS AND CONDITIONS FOR BIDDING

1. BID SUBMISSION:

1.1 BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.
1.2 **ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED – (NOT TO BE TYPED) OR ONLINE**
1.3 THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2022, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER SPECIAL CONDITIONS OF CONTRACT.

2. TAX COMPLIANCE REQUIREMENTS

2.1 BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.
2.2 BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYERS PROFILE AND TAX STATUS.
2.3 APPLICATION FOR THE TAX COMPLIANCE STATUS (TCS) CERTIFICATE OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA
2.4 FOREIGN SUPPLIERS MUST COMPLETE THE PRE-AWARD QUESTIONNAIRE IN PARAGRAPH 3 BELOW
2.5 BIDDERS MAY ALSO SUBMIT A PRINTED TCS CERTIFICATE TOGETHER WITH THE BID.
2.6 IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED; EACH PARTY MUST SUBMIT A SEPARATE TCS CERTIFICATE / PIN / CSD NUMBER.
2.7 WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.

3. QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS

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

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

NB: FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID.
NO BIDS WILL BE CONSIDERED FROM PERSONS IN THE SERVICE OF THE STATE

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

SM 1

CHECK LIST

This list is to assist all bidders to submit complete proposals. Bidders are to check the following points before the submission of their proposals:		
1	All pages of the document have been read by the contractor and initialled.	☐
2	Any discrepancy and/or misunderstanding is cleared with the relevant officials.	☐
3	All pages requiring information have been **completed in black ink.**	☐
4	The Schedule of Quantities has been checked for arithmetic correctness.	☐
5	Totals from each sub section of the Schedule of Quantities have been carried forward to the summary page and done so correctly.	☐
6	The total from the summary page has been carried forward to the Form of Offer.	☐
7	Surety details where applicable have been included in the proposal.	☐
8	All sections requiring information have been completed.	☐
9	Bidder ensured that all documents is properly completed and signed	☐
10	The contractor has complied with the proposal prerequisites.	☐
11	The document is submitted before 12h00 on the due date at the designated bid box of Langeberg Municipality.	☐

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

T1.2: TENDER DATA

The Conditions of Tender are the Standard Conditions of Tender as contained in Annexure F of the CIDB Standard for Uniformity in Construction Procurement (www.cidb.co.za) and included as Appendix A in this document.

The Standard Conditions of Tender make several references to the Tender Data. 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	Wording
F.1.1	The employer is **Langeberg Municipality**
F.1.2	The tender documents issued by the employer comprise: **THE TENDER** **PART T1 : TENDERING PROCEDURES** T1.1: Tender Notice and Invitation to Tender T1.2: Tender Data **PART T2 : RETURNABLE DOCUMENTS** T2.1: List of Returnable Documents T2.2: Returnable Schedules **THE CONTRACT** **PART C1: AGREEMENTS AND CONTRACT DATA** C1.1: Form of Offer and Acceptance C1.2: Contract Data C1.3: Form of Guarantee (Pro Forma) **PART C2 : PRICING DATA** C2.1: Pricing Data C2.2: Bills of Quantities C2.3: Dayworks Schedule **PART C3 : SCOPE OF WORKS** C3: Scope of Work C3.1: Description of the Works C3.2: Engineering C3.3: Procurement C3.4: Construction C3.5: Management C3.6: Annexes
F.1.4	**PART C4: SITE INFORMATION** The Employer's Agent is: Name: Invictus Engineering Services Pty (Ltd) Address: 5th Floor Modena Building, Bella Rosa Village, BELLVILLE, 7530 Tel: 021 975 1718 E-mail: francoisr@invictuseng.co.za
F.2.1.1.1	Only those tenderers who satisfy the following eligibility criteria are eligible to submit tenders:

Clause	Wording
	a) Availability of resources b) Availability of skills to manage and perform the contract (assigned personnel.) c) Previous experience on contracts of a similar value and nature. d) Financial good standing and capability.
F.2.1.1.2	Only those tenders who are registered with the Construction Industry Development Board (CIDB), or are capable of being so prior to the evaluation of submissions, in a Contactor grading designation determined in accordance with the sum tendered, or a value in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations, for a 3CE/GB class of construction work, are eligible to have their tenders evaluated. Joint Ventures are eligible to submit tenders provided that: 1. Every member of the joint venture is registered with the CIDB; 2. The lead partner has a contractor grading designation in the class of construction work; and 3. The combined contractor 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 class of construction work or a value determined in accordance with Regulation 25(1B) or 25(7A) of the Construction Industry Development Regulations. Notwithstanding the above, tenderers who are capable of being so registered prior to the evaluation of submission may be evaluated at the sole discretion of the Employer.
F.2.7	The arrangements for a compulsory clarification meeting are as stated in the Tender Notice. Tenderers should be represented at the clarification meeting by a person who is suitably qualified and experienced to comprehend the implications of the work involved.
F.2.12	If a tenderer wishes to submit an alternative offer/solution, then the Bill of Quantities (BoQ) must be completed (as is) and the alternative offer/solution, must be presented in a tender letter attached to the BoQ. Calculations, drawings and all other pertinent technical information and characteristics as well as modified or proposed Pricing Data must be submitted with the alternative tender offer to enable the Employer to evaluate the efficacy of the alternative and its principal elements, to take a view on the degree to which the alternative complies with the Employer's standards and requirements and to evaluate the acceptability of the pricing proposals. Calculations must be set out in a clear and logical sequence and must clearly reflect all design assumptions. Pricing Data must reflect all assumptions in the development of the pricing proposal. Acceptance of an alternative tender offer will mean acceptance in principle of the offer. It will be an obligation of the contract for the tenderer, in the event that the alternative is accepted, to accept full responsibility and liability that the alternative offer complies in all respects with the Employer's standards and requirements. The modified Tender Data must include an amount equal to 5% of the amount tendered for the alternative offer to cover the Employer's costs of confirming the acceptability of the detailed design before it is constructed.
F.2.13.5	The Employer's address for delivery of tender offers and identification details to be

Clause	Wording
	shown on each tender offer package are: Location of tender box: Langeberg Municipality Physical Address: 28 Main Road ASHTON, 6730 Identification details: TENDER NO: 58/2025 McGregor Sportsfields – New Spectator Pavilion
F.2.13 / F.3.5	A two-envelope procedure will not be followed.
F.2.15	The closing time for submission of tender offers is: 12H00, 23 January 2026
F.2.15	*Telephonic, telegraphic, telex, facsimile or e-mailed tender offers will not be accepted*
F.2.16	*The tender offer validity period is 120 days.*
F.2.22	Return all retained tender documents within twenty-eight (28) days after the expiry of the validity period.
F.2.23	The tenderer is required to submit the following certificate with the tender:
F2.23.1	Tax Clearance Certificate Tenderers shall be registered and in good standing with the South African Revenue Service (SARS) and shall submit documentary evidence in the form of an original valid Tax Clearance Certificate issued by SARS or proof that he or she has made arrangements with SARS to meet his or her outstanding tax obligations. Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate, or proof that he or she has made the necessary arrangements with SARS.
F3.2	Issue addenda *Add the following to F.3.2:* Notwithstanding any request for confirmation of receipt of Addenda issued, the tenderer shall be deemed to have received such addenda if the employer can show proof of transmission thereof (or a notice in respect thereof) via electronic mail, facsimile or registered post.
F3.4	The time and location for opening of the tender offers are: Time: 12H00, 23 January 2026 Location: Municipal Offices – Ashton, Langeberg Municipality, 28 Main Road, ASHTON
F.3.11.1	**General**
	Add the following to F.3.11.1: The procedure for the evaluation of responsive tenders is **Method 2: Financial Offer and Preference**. (F.3.11.3)
F.3.11.3	**Method 2: Financial Offer and Preference.**

Clause	Wording
	Add the following to F.3.11.3: **Pre-evaluation of tenders** The following criteria will be used. a) Tenders will be pre-evaluated on specific criteria. b) Satisfactory bank rating. c) Bidders that score less than 70% (56 Points) for the functionality criteria, will be regarded as submitting a non-responsive tender and will not be evaluated on price and preference points. The evaluation and scoring of the respective bidders will be based on the sole discretion of Langeberg Municipality. The Municipality reserves the right to adjudicate no tender. d) Information not indicated on the respective schedules, unclear or incomplete information provided will result in no points being allocated. e) Bidders should therefore ensure that all information is provided. **The procedure for the evaluation of responsive tenders is as follows:** The financial offer will be scored: a) 80 where the financial value inclusive of VAT of all responsive tenders received have a value not exceeding R50 000 000.
F3.11.4	**Risk Analysis** Notwithstanding compliance with regard to CIDB registration or any other requirements of the tender, the employer will perform a risk analysis in respect of the following: a) Reasonableness of the financial offer b) Reasonableness of the unit rates and prices c) The tenderers ability to fulfil his obligations in terms of the tender document, that is, that the tenderer can demonstrate that he possesses the necessary professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience, reputation, personnel to perform the contract. No tenderer will be recommended for an award unless the tenderer has demonstrated that he has the recourses and skills required.
F.3.11.7	**Scoring Financial Offers** *Add the following to F.3.11.7:* The financial offer will be scored using **Formula 2 (Option 1)** where the value of W1 is 80 (eighty) points. A maximum of 80 (eighty) tender evaluation points (W1) will be scored for Financial Offers from responsive tenders under consideration scoring points according to the formula:
	(P-Pm) NFO = W1 x [1 - Pm] where, NFO = Number of tender evaluation points awarded for Financial Offer W1 = Maximum tender evaluation points awarded for Financial Offer = 80 (eighty) points
	P = Financial Offer+ Tender Sum (including VAT, contingencies, provisional Sums and escalation) = the comparative offer of the tender offer under construction Pm = Lowest Tender Sum (including VAT, contingencies, provisional sums and escalation) = the comparative offer of the most favourable comparative offer.
F.3.11.8	**Scoring Preferences**

Clause	Wording
	Add the following to F.3.11.8: The procedure for the evaluation of responsive tenders will be in accordance with the Tenderer's B-BBEE Status Level Certificate and Specific Goals in respect of Location. Points for preference may be awarded to bidders having attained a B-BBEE status level of contributor and/or for goals envisaged in Section 2(1)(d) and (e) of the PPPFA.
F.3.13	**Acceptance of Tender Offer** *Add the following to F.3.13:* The Municipality reserves the right to withdraw any invitation to tender and/or to re-advertise or to reject any tender or to accepts a part of it. The Municipality does not bind itself to accepting the lowest or only Tender. Tender offers will only be accepted if: i) the Tenderer has included within this document, or provided on request, an original Tax Clearance Certificate issued by the South African Revenue Services or has made arrangements to meet outstanding tax obligations. ii) the Tenderer is registered with the Construction Industry Development Board (CIDB) in the appropriate CIDB Contractor grading designation before the tender closing date/time. iii) the Tenderer or any of its directors is not listed on the Register of Tenders Defaulters in the terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector. iv) the Tenderer had not: a) Abused the Employer's Supply Chain Management System; or b) Failed to perform on any previous contract and has been given a written notice to this effect. v) the Tenderer has completed the Compulsory Enterprise questionnaire and there are no conflicts of interest which may impact on the Tenderer's ability to perform the contract in the best interests of the Employer or potentially compromise the tender process. vi) the Tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer. vii) the Employer is reasonably satisfied that the Tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and recourses to carry out the work safely.

Clause	Wording
	Tender offers will be rejected if they show any additional items nor originally included in the tender documents, conditional or incomplete offers, irregularities of any kind in the tender. A tender may be rejected if the unit rates, or lump sums for some of the terms in the Schedule of Quantities are, in the opinion of the Employer, unreasonable or out of proportion, and the Tenderer fails, within a period of 7 (seven) days of having been notified in writing by the Employer to justify any specific rates or lump sums (i.e. to provide a financial breakdown of how such rates or sums were obtained) or to adjust the unit rates or lump sums for such items while retaining the tender sum unchanged. The Employer does not bind himself to accept the lowest priced tender, highest point's tender or any tender offer. The Employer has the right to accept any part of a tender as he may deem expedients subject to negotiation with the successful Tenderer for the whole tender. viii) the Tenderer is registered and in good standing with the compensation fund or with a licensed compensation insurer; ix) the Employer is reasonably satisfied that the Tenderer has in terms of the Construction Regulations, 2014, issued in terms of the Occupational Health and Safety Act, 1993, the necessary competencies and recourses to carry out the work safely. *Add the following new sub clause F.3.13.1:*
F.3.17	F.3.13.1 **Notification of decision and objection period** All Tenderers will be notified of the decision of the Supply Chain Management Tender Adjudication Committee as regards to the successful Tenderer. Regulation 49 of the Supply Chain Management Regulations gives any person whose rights have been affected by such a decision, the right to objection such decision within 14 (fourteen) days of notification of the decision. Any Tenderer wishing to exercise this right, must submit their objection in writing to the Employer. The format of the objection must: i) set out the reasons for the objection. ii) state on which way the appellant's rights have been affected by the decision. iii) state the remedy sought, and iv) be accompanied by a copy of the notification advising the Tenderer of the decision of the Supply Chain Management Tender Adjudication Committee. The notification of the decision sent to the successful Tenderer is Acceptance in terms of the General Conditions of Contract. The successful Tenderer will be notified in writing after 14 (fourteen) days of the notification of any final decision (i.e. Acceptance) or any developments with respect to the objection process, and, if applicable, procedures for the commencement of the work.
F.3.17	**Provide copies for the contract.** *Add the following to F.3.17:* The number of paper copies of the signed contract to be provided by the Employer is **1 (one).**
	Local Labour It is a requirement from the client (Langeberg Municipality) that un-skilled labour used on site will consist of at least 100% local labour employed from the local ward/s in McGregor.
F.3.18.4	Letter of good standing from the Commissioner of Compensation

Clause	Wording
	a) A valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof, must accompany the bid documents unless the bidder is registered on the Accredited Supplier Database of the Municipality and the Municipality has a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof for the bidder on record. The onus is on the bidder to ensure that the Municipality has a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof on record. b) In the case of a Consortium/Joint Venture every member must submit a separate valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof with the bid documents unless the member is registered on the Accredited Supplier Database of the Municipality and the Municipality has a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof on record for all members of the Consortium/Joint Venture. c) If a bid is not supported by a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof, either as an attachment to the bid documents or on record in the case of suppliers registered on the Supplier Database of the Municipality, the Municipality reserves the right to obtain such document after the closing date. If no such document can be obtained within a period as specified by the Municipality, the bid will be disqualified. d) If a bid is accompanied by proof of application for valid Letter of Good Standing from the Compensation Commissioner, the original or certified copy thereof must be submitted on/or before the final date of award. e) Should a bidder's Letter of Good Standing from the Compensation Commissioner expire during the contact period, a valid certificate must be submitted within an agreed upon time. f) The right is reserved to not award a tender if a valid Letter of Good Standing from the Compensation Commissioner or a certified copy thereof is not submitted within the requested time. EPWP This is not an EPWP project, but the project needs to report on EPWP with regards to creation of work opportunities. The Langeberg LM will do induction training on EPWP, where-after the Contractor will have to abide to the monthly reporting instructions related to it.

PART T2 : RETURNABLE DOCUMENTS

T2.1 List of Returnable Documents

T2.2 Returnable Schedules

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.

1.	**RETURNABLE SCHEDULES REQUIRED FOR TENDER EVALUATION PURPOSES (included hereafter for completion)**
Schedule 1	Pre-Qualification of Bidders
Schedule 2	Compulsory Enterprise Questionnaire
Schedule 3	Authority for Signatory
Schedule 4	Certificate of Authority for Joint Ventures
Schedule 5	Personnel Schedule
Schedule 6	Schedule of Work Experience
Schedule 7	Details of Key-Personnel Experience
Schedule 8	Preliminary Programme
Schedule 9	Estimated Monthly Cash Flow
Schedule 10	Schedule of Proposed Subcontractors
Schedule 11	Proposed Amendments and Qualifications
Schedule 12	Certificate of Attendance at Clarification Meeting
Schedule 13	Declaration of Interest – MBD 4
Schedule 14	Preference Points Claim Form in Terms of the Preferential Procurement Regulations 2022 – MBD 6.1
Schedule 15	Health and Safety
Schedule 16	Tax Clearance Certificate – MBD 2
Schedule 17	Certificate of Contractor's Registration Issued by the CIBD
Schedule 18	Documents of Incorporation
Schedule 19	Declaration of Bidder's past Supply Chain Management Practices – MBD 8
Schedule 20	Certificate of Independent Bid Determination – MBD 9
Schedule 21	Banking Details
Schedule 22	Municipal Rates and Services
Schedule 23	Letter of Good Standing to Relevant Authorities

2.	**RETURNABLE SCHEDULES THAT WILL BE INCORPORATED INTO THE CONTRACT (included hereafter for completion)**
Schedule 24	Record of Addenda to Tender
Schedule 25	Declaration Concerning Fulfilment of the Construction Regulations, 2003
Schedule 26	Mandatory Agreement
Schedule 27	Notification of Construction Work
Schedule 28	Authorisation for the deduction of outstanding amounts owed to the Langeberg Municipality

3.	**OTHER SCHEDULES AND AFFIDAVITS THAT WILL BE INCORPORATED INTO THE CONTRACT (included hereafter for completion)**
C1.1	Form of Offer and Acceptance
C1.2	Contract Data
C1.3	Pro Formats
C2.2	Bills of Quantities
C2.3	Daywork Schedule

SCHEDULE 1: PRE-QUALIFICATION OF BIDDER

The following Functionality criteria shall apply to this tender:

1. Bank rating (Eligibility Criteria)

- Proof of bank rating is applicable from bids with an estimated value of R3m and higher and proof must be submitted with the tender document.
- Bidders can easily obtain such proof within a few days, and it must be attached to their tender document. The municipality can verify this, if necessary, by asking its own bankers to verify the rating at the bidder's bank. This can take a few days.
- This is a tender condition and if proof is not submitted the bid will be deemed not responsive or if a bidder does not have the required rating, it will also be deemed not responsive.
- Bank rating to be project specific (name and value of the works)

2. Pre-evaluation of tenders

a) The following criteria will be used.

a. Tenders will be pre-evaluated on the criteria as set out under (e).

b. Bidders that score less than 70% (56 Points) for the functionality criteria, will be regarded as submitting a non-responsive tender and will not be evaluated on price and preference points. The evaluation and scoring of the respective bidders will be based on the sole discretion of Langeberg Municipality. The Municipality reserves the right to adjudicate no tender.

c. Unclear or incomplete information provided will result in no points being allocated.

d. Bidders should therefore ensure that all information is provided.

e. The following criteria will be used to calculate points for the functionality of tenders and bidders should ensure that they submit all information in order to be pre-evaluated on the criteria mentioned below:

	CRITERIA	WEIGHT	SCORE
1	**Relevant experience and references (Schedule 6)**	**40**	
2	**Personnel qualifications (Schedule 7)**	**40**	
	TOTAL	**80**	

Functionality criteria are further divided as follows and points will be awarded as indicated below:

Criterion 1a: Relevant experience (Schedule 6 – 25points)

(a) A maximum of 25 points will be awarded at the sole discretion of the Municipality's Bid Evaluation for bidders with experience of construction of new or upgrading of building works > R2m.

New or upgrades of building works > R2m

Description	Maximum points	Points Scored by bidder
zero relevant projects completed	0	
1 or less relevant projects (value R5,0 million plus)	5	
2 completed relevant projects (value R5,0 million plus)	10	
3 or less relevant projects (value R5,0 million plus)	15	
4 completed relevant projects (value R5,0 million plus)	20	
5 completed relevant projects (value R5,0 million plus)	25	

(b) In order to claim points for the above, bidders **must submit** the following information in Schedule 6 as well as documentary proof:

i. Information of how long the business is in existence supported by Company or Business registrations documents.

ii. Detailed list of information for each project completed to be entered on Schedule 6.

1) Names of client with contact details.
2) Description of work performed.
3) Duration of contracts.
4) Letter of Appointment
5) Completion Certificate

iii. Points will only be awarded for **relevant** experience for information entered in Schedule 6 and not evaluated without 4 and 5 above.

Criterion 1b: References (Schedule 6 – 15points)

(a) In order to claim points, bidders must submit in Schedule 6 with the tender document details of three **contactable** references from businesses to which the required similar services have been provided to.

(b) These references must not be older than ten (10) years.

(c) If the references are unable to provide information on past performances or relevant experience, no point will be awarded for that particular reference.

(d) If the provided references are not reached or contactable by 3 telephone calls and 1 email within the 1-week period, no point will be awarded for that particular reference.

A maximum of 15 points will be awarded. Points will be awarded by contacting 3 references who will answer 5 questions. 1 point will be awarded for every ''yes'' answer. The following questions will be asked to reference:

Question	**Response**
1. Has the Contractor performed similar/relevant Nature of work	Yes / No Comments .....
	.....
	.....
	.....
	.....
	.....
2. Was the work completed within the time frame?	Yes / No Comments .....
	.....
	.....
	.....
	.....
	.....
3. Was the work completed within budget?	Yes / No Comments .....
	.....
	.....
	.....
	.....
	.....
4. Did the Contractor comply with safety regulations?	Yes / No Comments .....
	.....
	.....
	.....
	.....
	.....
5. Overall satisfied with the Contractor's performance?	Yes / No Comments .....
	.....
	.....
	.....
	.....
	.....

Criterion 2: Personnel qualifications (Schedule 7 – 40 points)

(a) A maximum of 40 points will be awarded at the sole discretion of the Municipality's Bid Evaluation Committee based on the information provided and will be split as follows:

Description	Years Relevant Experience	Highest Qualification	Professional Registration
Contracts Manager (10 points)	4 (1 point per year)	3	3
Construction Manager (15 points)	5 (1 point per year)	5	5
General Foreman (15 points)	10 (1 point per year)	5	N/A

(b) In order to claim points for the above, bidders must submit the following information as well as documentary proof:

- Detailed Curriculum Vitae of key personnel
- Points will only be awarded for relevant experience only
- Points will be awarded for B Eng, B Tech, ND (All Civil) and Grade 12
- Points will be awarded for Pr Eng, Pr Tech and PrTechni (All Civil).

The Tenderers were required to provide names and CV's for the Contracts Manager, Construction Manager and General Foreman in Schedule 7 or attached clearly showing years relevant experience (Total 19 points), highest qualification (Total 13 points) and professional status (Total 8 points) in order to claim the points.

Contracts Manager (10 points):
Experience (4 points) – 1 point per year relevant experience to maximum of 4 points;
Qualification (3 points) – BSc Eng/B Eng 3 points, BTech/NHD 2 points and ND/Grade 12 with experience > 10yrs 1 point;
Professional Status (3 points) – PrEng 3 points, PrTech 2 points and PrTechni 1 point.
Construction Manager (15 points):
Experience (5 points) - 1 point per year relevant experience to maximum of 5 points;
Qualification (5 points) – BSc Eng/B Eng 5 points, BTech/NHD 3 points and ND/Grade 12 with experience > 10yrs 1 point;
Professional Status (5 points) – PrEng 5 points, PrTech 3 points and PrTechni 1 point.
General Foreman (15 points):
Experience (10 points) - 1 point per year relevant experience to maximum of 10 points;
Qualification (5 points) BTech/NHD 5 points, ND 3 points and Grade 12/Grade 10 with experience > 10yrs 1 point.

NB: Relevant experience is defined as experience in the construction of new or upgrading to building works > R2m and as determined by the Langeberg Municipality and/or professional consulting engineer overseeing this project.

SCHEDULE 2: 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 been in the service of any of the following:

- ☐ a member of any municipal council
- ☐ 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
- ☐ An official of any municipality or municipal entity
- ☐ 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 an accounting authority of any national or provincial public entity
- ☐ an employee of Parliament or a provincial legislature

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:

i) authorizes the Employer to obtain a tax clearance certificate from the South African Revenue Services that my / our tax matters are in order;
ii) confirms that the 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;
iii) confirms that no partner, member, director or other person, who wholly or partly exercises, or may exercise, control over the enterprise appears, has within the last five years been convicted of fraud or corruption;
iv) confirms that I / we are not associated, linked or involved with any other tendering entities submitting tender offers and have no other 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
v) 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 .....

SCHEDULE 3: AUTHORITY FOR SIGNATORY

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 and any contract resulting from it on behalf of the company.

As witnesses:

1. ..... Chairman: .....

2. ..... Date: .....

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 of 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 ..... to sign all documents in connection with the tender for Contract .... and any contract resulting from it on our behalf.

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

NAME OF FIRM	ADDRESS	AUTHORIZING SIGNATURE NAME & CAPACITY	Date

D. Certificate of 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.

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 4: Certificate of Authority for Joint Ventures

This Returnable Schedule is to be completed by joint ventures.

We, the undersigned, are submitting this tender offer in Joint Venture and hereby authorise.

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 .....
CIDB registration no	.....	Designation .....
.....	.....	.....
Partner	.....	Signature .....
.....	.....	Name .....
CIDB registration no	.....	Designation .....
.....	.....	.....
Partner	.....	Signature .....
.....	.....	Name .....
CIDB registration no	.....	Designation .....
.....	.....	.....

SCHEDULE 5: PERSONNEL SCHEDULE

Tenderers shall provide curriculum vitae of all key personnel as indicated under Schedule 7.

Job Description	Number of Non-Local Labour to be Employed on the Contract	Number of Local Labour to be Employed on the Contract
Contract Manager		
Site Agent		
Quantity Surveyor		
Surveyors		
General Foreman		
Foremen		
First Aid Officer		
Community Officers		
Clerks		
Operators		
Bricklayers		
Learner Bricklayers		
Steel fixers		
Watchmen		
Gang Bosses		
Pipe Layers		
Labourers		
* Other		

* To be filled in by Tenderer

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

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

Tenderer: .....

SCHEDULE 6: SCHEDULE OF WORK EXPERIENCE

The tenderer shall insert in the spaces provided below a list of the tenderer's past work experience in terms of similar new or upgrades to building works > R2m, **successfully completed**. The value and scale of the projects indicated for these purposes must be supplied together with any other relevant information requested. A letter of appointment and completion letter/certificate, per project, must be attached to this schedule.

Listed projects with invalid or incorrect contact details for the employer and/or consulting engineer and information not supplied in the format as requested below will **NOT** be evaluated.

Criteria 1a – 5 projects experience for new or upgrades to building works > R2m

Employer (Name and Contact No)	Consulting Engineer (Name and Contact No)	Relevant projects (Tenderer need to identify the type of work in a brief description)	Value of Work Incl. VAT (R million)	Date Completed (Month and Year)
Project 1				
Project 2				
Project 3				
Project 4				
Project 5				

Criteria 1b – 3 References:

Employer (Name and Contact No)	Consulting Engineer (Name and Contact No)	Project Reference and Description	Value of Work Incl. VAT (R million)	Date Completed (Month and Year)
Reference 1				
Reference 2				
Reference 3				

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

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

Tenderer: .....

SCHEDULE 7: DETAILS OF KEY PERSONNEL EXPERIENCE

The tenderer shall set out in the table's hereafter details of the relevant experience in similar successfully completed projects of the persons identified for each listed position. Tenderers shall provide curriculum vitae of all key personnel as indicated under Schedule 5.

Tenderers that fail to supply the information requested in this schedule (both pages of this schedule included) with their tender offers and in this format will NOT be evaluated.

Note: One person only to qualify for each of the positions listed below. The key personnel to be used in this regard will be subject to the approval of the Engineer prior to the commencement date of the contract. Should any of the persons identified not be available for the position which they are indicated for, then a suitable candidate with equal or superior tertiary qualification and/or relevant experience than that of the person which he/she replaces shall be used for every such positions.

CONTRACT MANAGER	**NAME:** **HIGHEST QUALIFICATION:** **PROFESSIONAL STATUS:**			
Contact and Client	**Project Description**	**Position held**	**Value of work (incl. VAT) (R million)**	**Year completed**

CONSTRUCTION MANAGER	**NAME:** **HIGHEST QUALIFICATION:** **PROFESSIONAL STATUS:**			
Contact and Client	**Project Description**	**Position held**	**Value of work (incl. VAT) (R million)**	**Year completed**

GENERAL FOREMAN	**NAME:** **HIGHEST QUALIFICATION:**			
Contact and Client	**Project Description**	**Position held**	**Value of work (incl. VAT) (R million)**	**Year completed**

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

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

Tenderer: .....

SCHEDULE 8: PRELIMINARY PROGRAMME

The tenderer shall attach a preliminary program for the duration of the construction period indicated to this schedule which must show that the tenderer clearly understands and fully identifies with the scope of works of this project.

The works to be executed over one financial year namely 2025/26. Tenderers to see to it that programming and resources are allocated to ensure spending requirements are achieved.

A detailed program (Gant chart) indicating all construction activities, phasing, resources, timelines, monthly expenditure and critical path for the duration of the construction period indicated is requested.

The tenderer shall also take into account the additional requirements stated in the Project Specifications when drawing up the program and the working hours shall be indicated.

Note: Where the entity tendering is a joint venture, one preliminary plan on behalf of the joint venture is adequate for these purposes.

Details of the Preliminary Plan shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule ……. (if nil, enter NIL).

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

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

Tenderer: .....

SCHEDULE 9: ESTIMATED MONTHLY CASH FLOW

The Tenderer shall state below the estimated value of work to be completed every month, based on his preliminary programme and his tendered unit rates.

The amounts for Contingencies and Contract Price Adjustment must not be included. The Tenderer must make note of any cash-flow restrictions.

MONTH	VALUE
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
TOTAL	

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

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

Tenderer: .....

SCHEDULE 10: SCHEDULE OF PROPOSED SUBCONTRACTORS

We notify you that it is our intention to employ the following Subcontractors to work on this contract.

If we are awarded the contract, we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

No.	Name and Address of Proposed Subcontractor	Nature and Extent of Work	Previous Experience with Subcontractor
1.			
2.			
3.			
4.			
5.			
6.			
7.			

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

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

Tenderer: .....

SCHEDULE 11: PROPOSED AMENDMENTS AND QUALIFICATIONS

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in a covering letter to his tender and reference such letter in this schedule.

The Tenderer's attention is drawn to clause F.3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the employer's handling of material deviations and qualifications.

Page	Clause or Item	Proposal

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

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

Tenderer: .....

SCHEDULE 12: CERTIFICATE OF ATTENDANCE OF 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 BUSINESS ENTITY attending the meeting and representative(s):

Name ..... Signature .....

Capacity .....

Name ..... Signature .....

Capacity .....

Attendance of the above Business Entity at the meeting is confirmed by the Employer's Agent, namely:

Name Francois Ryke Signature .....

Capacity Engineer

Particulars of other individuals within the BUSINESS ENTITY to whom tender information need to be forwarded to:

Name ..... Signature .....

Capacity .....

Email Address .....

SCHEDULE 13: DECLARATION OF INTEREST – MBD 4

1. No bid will be accepted from persons in the service of the state[1].

2. 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.

3 In order to give effect to the above, the following questionnaire must be completed and submitted with the bid.

3.1 Full Name of bidder or his or her Representative: .....

3.2 Identity Number:. .....

3.3 Position occupied in the Company (director, trustee, shareholder[2]): .....

3.4 Company Registration Number: .....

3.5 Tax Reference Number: .....

3.6 VAT Registration Number: .....

3.7 The names of all directors / trustees / shareholders members, their individual identity numbers and state employee numbers must be indicated in paragraph 4 below.

3.8 Are you presently in the service of the state? **YES / NO**

3.8.1 If yes, furnish particulars.....

.....

[1]MSCM Regulations: "in the service of the state" means to be –

(a) a member of –
  (i) any municipal council;
  (ii) any provincial legislature; or
  (iii) the national Assembly or the national Council of provinces;
(b) a member of the board of directors of any municipal entity;
(c) an official of any municipality or municipal entity;
(d) an employee of any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999);
(e) a member of the accounting authority of any national or provincial public entity; or
(f) an employee of Parliament or a provincial legislature.

[2] Shareholder" means a person who owns shares in the company and is actively involved in the management of the company or business and exercises control over the company.

3.9 Have you been in the service of the state for the past twelve months? ..... **YES / NO**

3.9.1 If yes, furnish particulars .....

.....

3.10 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**

3.10.1 If yes, furnish particulars .....

.....

.....

3.11 Are you, aware of any relationship (family, friend, other) between any other 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**

3.11.1 If yes, furnish particulars .....

.....

.....

3.12 Are any of the company's directors, trustees, managers, principal shareholders or

stakeholders in service of the state?..... **YES / NO**

3.12.1 If yes, furnish particulars. .....

.....

.....

3.13 Are any spouse, child or parent of the company's directors' trustees, managers, principle

shareholders or stakeholders in service of the state? ..... **YES / NO**

3.13.1 If yes, furnish particulars. .....

.....

.....

3.14 Do you or any of the directors, trustees, managers, principle shareholders, or

stakeholders of this company have any interest in any other related companies or

business whether or not they are bidding for this contract. ..... **YES / NO**

3.14.1 If yes, furnish particulars: .....

.....

4. Full details of directors / trustees / members / shareholders.

4.

Full Name	**Identity Number**	**State Employee Number**

....

Signature Date

....

Capacity Name of Bidder

Schedule 14: **MBD6.1 – PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2022**

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

1. GENERAL CONDITIONS

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

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

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

1.2 **Points for this tender shall be awarded for:**

(a) Price; and

(b) Specific Goals.

1.3 **To be completed by the organ of state:**

The maximum points for this tender are allocated as follows:

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

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

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

2. DEFINITIONS

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

(a) **"price"** means an amount of money tendered for goods or services, and

includes all applicable taxes less all unconditional discounts;

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

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

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

3. FORMULAE FOR PROCUREMENT OF GOODS AND SERVICES

3.1 POINTS AWARDED FOR PRICE

3.1.1 THE 80/20 PREFERENCE POINT SYSTEMS

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

80/20

$$\boldsymbol{Ps = 80\left(1 - \frac{Pt - P\,min}{P\,min}\right)}$$

Where

Ps = Points scored for price of tender under consideration

Pt = Price of tender under consideration

P min = Price of lowest acceptable tender

4. POINTS AWARDED FOR SPECIFIC GOALS

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

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

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

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

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

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

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

The specific goals allocated points in terms of this tender	Number of points allocated (80/20 system)	Number of points claimed (80/20 system) (To be completed by the tenderer)
BBBEE Level 1	10	
BBBEE Level 2	9	
BBBEE Level 3	7	
BBBEE Level 4	6	
BBBEE Level 5	4	
BBBEE Level 6	3	
BBBEE Level 7	2	
BBBEE Level 8	1	
Non-compliant contributor	0	

Locality	Number of Points for Preference	Number of points claimed (80/20 system)
	80/20	(To be completed by the tenderer)
Within the boundaries of the Langeberg Municipality	10	
Outside of the boundaries of Langeberg Municipality	0	

5. DECLARATION WITH REGARD TO COMPANY/FIRM

5.1 Name of company/firm……

5.2 Company registration number: ……...

5.3 TYPE OF COMPANY/ FIRM

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

[TICK APPLICABLE BOX]

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

i) The information furnished is true and correct;

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

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

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

(a) disqualify the person from the tendering process;

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

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

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

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

6. SUB-CONTRACTING

6.1	Will any portion of the contract be sub-contracted?	**YES / NO**
6.2	If yes, indicate:	
6.2.1	What percentage of the contract will be subcontracted?	%
6.2.2	The name of the sub-contractor? (Insert below)	
6.2.3	The B-BBEE status level of the sub-contractor?	
6.2.4	Whether the sub-contractor is an EME or QSE?	**YES / NO**
6.2.5	Specify, by ticking the appropriate box, if sub-contracting with an enterprise in terms of Preferential Procurement Regulations, 2022.	

Designated Group: An EME or QSE which is at least 51% owned by:		**EME** √	**QSE** √
6.3	Black people		
6.4	Black people who are youth		
6.5	Black people who are women		
6.6	Black people with disabilities		
6.7	Black people living in rural or underdeveloped areas or townships		
6.8	Cooperative owned by black people		
6.9	Black people who are military veterans		
	OR		
6.10	Any EME		
6.11	Any QSE		

SURNAME AND NAME OF REPRESENTATIVE:	
DATE:	
ADDRESS:	
SIGNATURE(S) OF REPRESENTATIVE:	

SCHEDULE 15: HEALTH AND SAFETY PLAN

Tenderers are to note the requirements of the Occupational Health and Safety Act No. 85 of 1993 and the Construction Regulations 2014 issued in terms of Section 43 of the Act. The tenderer shall be deemed to have read and fully understood the requirements of the above Act and Regulations and to have allowed for all cost in compliance therewith.

The tenderer shall attach to this schedule a Health and Safety Plan in respect of the Works in order to demonstrate the necessary competencies and resources to perform the construction work all in accordance with the Act and Regulations.

Such Health and Safety Plan shall cover inter-alia the following details:

1. Management Structure, Site Supervision and Responsible Persons including a succession plan.
2. Contractor's induction training programme for employees, sub-contractors and visitors to the Site.
3. Health and safety precautions and procedures to be adhered to in order to ensure compliance with the Act, Regulations and Safety Specifications.
4. Regular monitoring procedures to be performed.
5. Regular liaison, consultation, and review meetings with all parties.
6. Site security, welfare facilities and first aid.
7. Site rules and fire and emergency procedures.

Tenders are to note that the Contractor is required to ensure that all sub-contractors or others engaged in the performance of the contract also comply with the above requirements.

The tenderer shall also take into account the additional requirements stated in Part C3: Scope of Work when drawing up the Health and Safety Plan for the contract.

Note: Where the entity tendering is a joint venture, one Health and Safety Plan on behalf of the joint venture is adequate for these purposes and the score awarded for it will be based on the same criteria than that for a sole partner entity.

Details of the Health and Safety Plan shall be appended to this Schedule.

Number of sheets appended by the tenderer to this Schedule..... (If nil, enter NIL)

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

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

Tenderer: .....

SCHEDULE 16: TAX CLEARANCE CERTIFICATE – MBD 2

An original Tax Clearance Certificate from the South African Revenue Services (SARS) shall be attached to this Schedule or proof that the tenderer has made arrangements with SARS to meet his or her outstanding tax obligations.

Each party to a Consortium/Joint Venture shall submit a separate Tax Clearance Certificate, or proof that he or she has made the necessary arrangements with SARS.

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

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

Tenderer: .....

TAX CLEARANCE CERTIFICATE REQUIREMENTS

It is a condition of bid that the taxes of the successful bidder must be in order, or that satisfactory arrangements have been made with South African Revenue Service (SARS) to meet the bidder's tax obligations.

1 In order to meet this requirement bidders are required to complete in full form TCC 001 "Application for a Tax Clearance Certificate" and submit it to any SARS branch office nationally. The Tax Clearance Certificate Requirements are also applicable to foreign bidders / individuals who wish to submit bids.

2 SARS will then furnish the bidder with a Tax Clearance Certificate that will be valid for a period of 1 (one) year from the date of approval.

3 The original Tax Clearance Certificate must be submitted together with the bid. Failure to submit the original and valid Tax Clearance Certificate will result in the invalidation of the bid. Certified copies of the Tax Clearance Certificate will not be acceptable.

4 In bids where Consortia / Joint Ventures / Sub-contractors are involved; each party must submit a separate Tax Clearance Certificate.

5 Copies of the TCC 001 "Application for a Tax Clearance Certificate" form are available from any SARS branch office nationally or on the website www.sars.gov.za.

6 Applications for the Tax Clearance Certificates may also be made via eFiling. In order to use this provision, taxpayers will need to register with SARS as eFilers through the website www.sars.gov.za.

SCHEDULE 17: CERTIFICATE OF CONTRACTOR'S REGISTRATION ISSUED BY THE CIDB

A certificate of the Contractor's Registration issued by the CIDB or proof of application for registration submitted shall be attached to this schedule.

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

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

Tenderer: .....

SCHEDULE 18: DOCUMENTS OF INCORPORATION

A certified copy of the Certificate of Incorporation of the tenderer's company, close corporation or trust shall be attached to this schedule.

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

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

Tenderer: .....

SCHEDULE 19: 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) wilfully 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 as a company or person prohibited from doing business with the public sector? (Companies or persons who are listed on this database were informed in writing of this restriction by the National Treasury after the audial teram partem rule was applied).	**Yes** ☐	**No** ☐
4.1.1.	If so, furnish particulars:		

Item	Question	Yes	No
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)? (To access this Register enter the National Treasury's website, www.treasury.gov.za, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445).	**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:		

		Yes	No
4.4.	Does the bidder or any of its directors owe any municipal rates Yes No 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?	☐	☐
4.4.1.	If so, furnish particulars:		

		Yes	No
4.5.	Was any contract between the bidder and the municipality / Yes No 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?	☐	☐

Item	Question	Yes	No
4.5.1.	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.

Signature ..... Date .....

Position ..... Name of Bidder.....

SCHEDULE 20: CERTIFICATE OF INDEPENDENT BID DETERMINATION – MBD9

1. This Municipal Bidding document (MBD) must form part of all bids[1]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:

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 complete, secretly conspire to raise prices or lower the quality of goods and / or services for purchases who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid: .....

.....

(Bid Number and Description)

In response to the invitation for the bid made by: .....

(Name of Municipality / Municipal Entity)

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

I certify, on behalf of: .....that:

(Name of Bidder)

1. I have read and I understand the contents of this Certificate;

2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect.

3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;

4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;

5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:

   (a) Has been requested to submit a bid in response to this bid invitation;

   (b) Could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and

   (c) Provides the same goods and services as the bidder and/or is in the same line of business as the bidder.

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.

7. In particular, without limiting the generality off 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.....

3Joint 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.

SCHEDULE 21: BANKING DETAILS

The Bidder must provide all relevant banking details in table below:

Financial Institution .....

Contact Person .....

Branch .....

Account Number .....

Name of Account Holder .....

We hereby give LANGEBERG MUNICIPALITY permission to obtain the necessary bank codes from out financial institution.

Signature ..... Date .....

Position ..... Name of Bidder.....

SCHEDULE 22: MUNICIPAL RATES AND SERVICES

The bidder must provide all relevant details in table below:

Names of Directors/Partners/Senior Managers	Physical Residential Address of the Director/Partner/Senior Manager	Residential Municipal Account Numbers	Name of Municipality

NB: Please attach copy/copies of Municipal Account(s)

DECLARATION

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

CERTIFY THAT THE INFORMATION FURNISHED ABOVE IS CORRECT. I ACCEPT THAT THE STATE MAY ACT AGAINST ME SHOULD THIS DECLARATION PROVE TO BE FALSE

Signature ..... Date .....

Position ..... Name of Bidder.....

SCHEDULE 23: LETTER OF GOOD STANDING TO RELEVANT AUTHORITIES

The tenderer must attach to this page a letter from the relevant authorities indicating his good standing with regard to UIF payments and COIDA. Each party to a Joint Venture or Consortium shall submit separate documents.

SIGNED BY TENDERER: .....

SCHEDULE 24: RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Procuring Department 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 25: DECLARATION CONCERNING FULFILMENT OF THE CONSTRUCTION REGULATIONS 2014

In terms of the Construction Regulations, 2014and the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) the Employer shall not appoint a contractor to perform construction work unless the Contractor can satisfy the Employer that his/her firm has the necessary competencies and resources to carry out the work safely and has allowed adequately in his/her tender to the due fulfilment of all the applicable requirements of the Act and the Regulations.

Tenderers shall answer the questions below:

1. I confirm that I am fully conversant with the Regulations and that my company has (or will acquire/procure) the necessary competencies and resources to timeously, safely and successfully comply with all the requirements of the Regulations.

	(Tick)
Yes	
No	

2. Indicate which approach shall be employed to achieve compliance with the Regulations.

	(Tick)
Own resources, competent in terms of the Regulations (refer to 3 below)	
Own resources, still to be hired and/or trained (until competency is achieved)	
Specialist subcontract resources (competent) – Specify: …… …… …… ……	

3. Provide details of proposed key persons, competent in terms of the Regulations, who will form part of the Contract team as specified in the Regulations (CV to be attached)

   .....

   .....

   .....

4. Provide details of proposed training (if any) that will be undergone:

   .....

   .....

   .....

5. List potential key risks identified and measures for addressing risks:

.....

.....

.....

6. I have fully included in my tender rates and prices (in the appropriate payment items provide in the Schedule of Quantities) for all resources, actions, training and any other costs required for the due fulfilment of the Regulations for the duration of the construction and defects repair period.

	(Tick)
Yes	
No	

SIGNATURE OF PERSON(S) AUTHORISED TO SIGN THIS TENDER:

1. ..... ID NO: .....

(Name in Print):

2. ..... ID NO: .....

(Name in Print):

SCHEDULE 26: MANDATARY AGREEMENT

OCCUPATIONAL HEALTH AND SAFETY ACT NO 85 OF 1993

Note: Section 1(1) (xxviii) of the Act defines a “mandatary” as including “an agent, a contractor or a subcontractor for work”

Agreement made and entered into between LANGEBERG MUNICIPALITY

and ..... (mandatary)

as envisaged by the provisions of Section 37(2) of the Occupational Health and Safety Act 1993 as amended.

I, ...representing

(Mandatary) .....do hereby

Acknowledge that (mandatary) .....

Is and employer in its own right with duties as prescribed in the Occupational Health and Safety Act 1993 as amended and agree to ensure that all contractual work will be performed and that all machinery and plant will be used in accordance with the provisions of the said Act. In conclusion, I do hereby indemnify the LANGEBERG MUNICIPALITY

against any claim of whatever nature that may arise as a result of any injury sustained by or any act of omission or negligence by any employee of (mandatary): .

SIGNED: ..... on the ..... day of .....2026.

WITNESS .....

(for and on behalf of the Mandatary)

WITNESS .....

(for and on behalf of the LANGEBERG MUNICIPALITY)

SCHEDULE 27 : NOTIFICATION OF CONSTRUCTION WORK

ANNEXURE A

OCCUPATIONAL HEALTH AND SAFETY ACT, 1993
Regulation 4 of the Construction Regulations, 2014

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

   _____

   (b) Name and tel. no. of principal contractor's contact person: _____

   _____

2. Principal contractor's compensation registration number: _____

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

   _____

   (b) Name and tel. no. of client's contact person or agent: _____

   _____

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

   _____

   (b) Name and tel. no. of designer(s) contact person: _____

   _____

5. Name and telephone number of principal contractor's construction manager on site appointed in terms of regulation 8(1) :_____

   _____

6. Name/s of principal contractor's sub-ordinate supervisors on site appointed in terms of regulation 8(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:

    Total:...

    Male:...

    Female:...

12. Planned no of contractors on the construction site accountable to principal contractor:

    _____

13. Name(s) of contractors already chosen:

    _____

    _____

    _____

Principal Contractor: ..... Date .....

Client: ..... Date .....

- THIS DOCUMENT IS TO BE FORWARDED TO THE OFFICE OF THE DEPARTMENT OF LABOUR **PRIOR TO COMMENCEMENT** OF WORK ON SITE.
- **ALL PRINCIPAL CONTRACTORS** THAT QUALIFY TO NOTIFY MUST DO SO EVEN IF ANOTHER PRINCIPAL CONTRACTOR ON THE SAME SITE HAD DONE SO PRIOR TO THE COMMENCEMENT OF WORK.

LANGEBERG MUNICIPALITY

TENDER NO. 58/2025

MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION

Schedule 28 : Authorisation for the deduction of outstanding amounts owed to the Langeberg Municipality

To: **THE MUNICIPAL MANAGER, LANGEBERG MUNICIPALITY**

From: _____
(Name of tenderer)

The tenderer:

a) hereby acknowledges that according to SCM Regulation 38(1)(d)(i) the Municipal Manager may reject the tender of the tenderer if any municipal rates and taxes or municipal service charges owed by the tenderer (or any of its directors/members/partners) to the LANGEBERG MUNICIPALITY, or to any other municipality or municipal entity, are in arrears for more than 3 (three) months; and
b) therefore hereby agrees and authorises the LANGEBERG MUNICIPALITY to deduct the full amount outstanding by the Tenderer or any of its directors/members/partners from any payment due to the tenderer; and
c) confirms the information as set out in the tables below for the purpose of giving effect to b) above;
d) The tenderer hereby certifies that the information set out in this schedule and/or attached hereto is true and correct, and acknowledges that failure to properly and truthfully complete this schedule may result in steps being taken against the tenderer, the tender being disqualified, and/or (in the event that the tenderer is successful) the cancellation of the contract and/or steps in terms of abuse of the Supply Chain Management Policy.

Physical **Business** address of the Tenderer	Municipal Account number(s)

If there is not enough space for all the names, please attach the additional details to the Tender Document

Name of Director / Member / Partner	Identity Number	Physical **residential** address of Director / Member / Partner	Municipal Account number(s)

SIGNED ON BEHALF OF TENDERER:	
NAME, SURNAME & POSITION	
DATE	

PART C1 : AGREEMENT AND CONTRACT DATA

C1.1 Form of Offer and Acceptance

C1.2 Contract Data

C1.3 Pro Forma's

C1.4 Performance Guarantee

C1.1 : FORM OF OFFER AND ACCEPTANCE

(Agreement)

OFFER

The Employer, identified in the acceptance signature block / the Contract Data Part 1, has solicited Offers to enter into a Contract in respect of the following works:

LANGEBERG MUNICIPALITY: TENDER NO: 58/2025: MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION

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

The offered total of the prices inclusive of value-added tax is .....

..... Rand (in words);R .....(in figures)

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

For the Tenderer:

Signature .....

Name .....

Capacity .....

Name and address of organization:

.....

.....

.....

Signature and name of Witness:

Signature .....

Name .....

Date .....

ACCEPTANCE

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

The terms of the contract are contained in

Part C1 : Agreements and Contract Data (which include 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 C1 to C4 above.

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

The Tenderer shall after receiving a completed copy of this Agreement, including the Schedule of Deviations (if any), deliver to the Employer's agent (whose details are given in the Contract Data), within such time(s) as stated in the Contract Data, any bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data. Failure to fulfil any of the obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Contractor), within five (5) days of the date of such receipt, notifies the Employer in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding Contract between the parties.

For the Employer:

Signature .....

Name.....

Capacity .....

Name and address of organization:

.....

.....

.....

Signature and name of Witness:

Signature .....

Name.....

Capacity .....

SCHEDULE OF DEVIATIONS

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 agreements and recorded here, shall also be incorporated into the final draft of the Contract.

1. Subject _____

2. Details _____

3. Subject _____

4. Details _____

5. Subject _____

6. Details _____

By the duly authorized 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 changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

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

FOR THE TENDERER		**FOR THE EMPLOYER**
	Signature:	
	Name:	
	Capacity:	
Name and address of organisation:		Name and address of organisation:
	Witness Signature	
	Witness Name	
	Date	

CONFIRMATION OF RECEIPT

The Tenderer (now Contractor), identified in the Offer part of this Agreement, hereby confirms receipt from the Employer, identified in the Acceptance part of this Agreement, of one fully completed original copy of this Agreement, including the Schedule of Deviations (if any) today:

The .....day)

of ..... (month)

20. ..... (year)

At .....(place)

For the Contractor:

Signature .....

Name .....

Capacity .....

Signature and name of witness:

Signature .....

Name.....

C1.2: CONTRACT DATA

PART 1: DATA PROVIDED BY THE EMPLOYER

CONDITIONS OF CONTRACT

The General Conditions of Contract for Construction Works, Third Edition 2015, published by the South African Institution of Civil Engineering (SAICE), Private Bag x200, Halfway House, 1685 is applicable to this Contract and are obtainable from www.saice.org.za.

CONTRACT SPECIFIC DATA

The following contact specific data, referring to the General Conditions of Contract for Construction Works, Third Edition 2015, are applicable to this Contract:

1.1.1.10	The **Contract Sum** may be subject to such addition or deduction thereto as may be required by the **funds available for the Contract.**
1.1.1.13	**Defects Liability Period** The Defects Liability Period is **12 (Twelve) calendar months**.
1.1.1.14	The time for achieving Practical Completion of the whole of the Works is as stated in Part 2 of the Contract Data.
1.1.1.15	**Name of the Employer** The name of the Employer is **Langeberg Municipality.**
1.1.1.16	**Name of the Employers Agent** The name of the Engineer is **Invictus Engineering Services** represented by an employee duly authorised thereto in writing.
1.1.1.26	**Pricing Strategy** Re-measurement Contract.
1.2.1.2	**The Employer's address for receipt of communications is:** Telephone: 023 615 8002 E-mail: nalbertyn@langeberg.gov.za Address (Postal): Private Bag X2 ASHTON 6715 Address (Physical): 28 Main Road ASHTON 6715

1.2.1.2	**The Engineer's address for receipt of communications is:** Telephone: 021 975 1718 E-mail: francoisr@invictuseng.co.za Address: 5th Floor Modena Building Bella Rosa Village c/o Durbanville Avenue and Bella Rosa Street BELLVILLE 7530
1.3.2	**Governing Law** The governing law is the law of the Republic of South Africa.
1.3.3	**Language of the Contract** The language of the Contract and of written communications is **English**.
4.3.2	If required, and for the duration of this contract, the Contractor shall provide proof to the Engineer that the Contractor is in good standing with respect to duties, taxes, levies, and contributions required in terms of legislation applicable to the work in this Contract. Failure to prove such prove shall entitle the Employer to withhold any payments due to the Contractor until such proof is provided.
4.4.1	The Contractor shall not subcontract the whole contract
4.4.2	The Contractor shall be liable for the acts, default and negligence of any subcontractor, his agents, or employees as fully as if they were the acts, default or negligence of the Contractor.
4.4.3	The contractual relationships be the Contractor and any subcontractor selected by the Contractor in consolation with the Employer in accordance with the requirements of and a procedure set out in the Scope of Work, shall be the same as if the Contractor had appointed the subcontractor in terms of Clause 4.4.2
4.4.4.	Any appointment of a subcontractor in accordance with Clause 4.4.3 shall not amount to a contract between the Employer and the subcontractor, or a responsibility or liability on the part of the Employer to the subcontractor and shall not relieve the Contractor from any liability or obligation under the contract.
4.4.6	In the events of termination of the contract under 9.2, the subcontractor in terms of Clause 4.4.4 shall be assigned to the Engineer upon such instruction by the Employer.
5.3.1	**Documentation Required before Commencement of Works** The following documentation is required before Commencement with Works execution: a) Health and Safety Plan (Refer to Clause 4.3) b) Letter of Good Standing (Refer to Clause 4.3) c) Initial Programme (Refer to Clause 5.6). d) Security (Refer to Clause 6.2) e) Insurance (Refer to Clause 8.6)
5.3.2	**Time to submit documentation** The time to submit the documentation required before commencement with Works execution is **14 days**.

5.4.2	Access to and possession of the site shall not be exclusive to the Contractor insofar as the provisions of Clause 4.8 apply and where ongoing use by the general public is required. The Contractor shall bear all cost and charges for special and temporary rights of way required by him in connection with access to the site.
5.8.1	**Non-working days** The non-working days are after 14h00 Saturdays and full day Sundays. The special non-working days are public holidays and the year-end break which shall be defined for the purposes of this Contract as commencing on 15 December 2025 and ending on 07 January 2026, inclusive.
5.12.2	Add the following to GCC 5.12.2 **Extension of time from abnormal climatic conditions** The Contactor shall make allowance for the average rainfall and windy conditions that may exist during the contract period. All necessary steps shall be taken to proceed with the works despite inclement weather. The Contactor shall however record all rainy and windy periods which adversely affect the contract extension of time in terms of clauses 5.12 (2, 3 & 4) of the general conditions of contract, arising from abnormal climatic conditions, shall be applied as follows: Delays on working days only (based on a five-day working week) will be taken into account for the extension of time, but the Contractor shall make provision in his program of work for an expected delay of “n” working days caused by normal inclement weather, for which he will not receive any extension of time. The value of “n” for this contract shall be based on the loss of 31 working days per annum due to inclement weather. Extension of time during working days will be granted to the degree to which actual delays, as defined above, exceed the number of “n” working days as mentioned above. When considering extension of time for abnormal climatic conditions, the effect of the loss of 31 working days per annum due to normal inclement weather shall be taken cumulatively over the whole contract period.
	For portions of less than one year the appropriate number of days of normal inclement weather will be determined on a pro rata basis based on the following table:

MONTH	NUMBER OF NORMAL INCLEMENT WEATHER DAYS EXPECTED
January	2
February	3
March	2
April	2
May	3
June	3
July	4
August	3
September	2
October	3
November	3
December	1
Total	**31**

Should the Contractor wish to submit a claim for extension of time for the completion of the works due to the works being delayed by reason of abnormal climatic conditions he shall do so in writing and with the following details:

1. The times work was stopped and recommenced.

	2. A motivation for the reason's construction could not continue, with reference to the agreed construction programme activities. 3. A report on active resources on site at the time of the disruption, which shall be certified by the Engineer's Agent or Clerk-of-Works. 4. The circumstanced surrounding any instruction by a third to stop work due to inclement weather (i.e. Industrial Council/Safety Officer, etc.). The Contractor shall submit to the Engineer claims for all time lost due to inclement weather within 1 working day of the claim day, duly certified by the Engineer's representative or Clerk-of-Works, as the case may be. A record of inclement weather will be kept and recorded at site meetings on a regular basis. Only when all parts of the contract have been handed over will claims, if any, be considered for exceptionally inclement weather. The onus is on the Contractor to prove these claims. The delays granted, in terms of this clause, shall not automatically result in an overall extension of time being granted for completion of the works unless the effect is clearly applicable to the critical path of the agreed construction programme.
5.13.1	**Penalty for delay** The penalty for delay of the Works is R 7,500 per calendar day, exclusive of 15% VAT.
5.16.3	**Latent Defect Period** The latent defects period is 10 years.
6.2.1	The Performance Guarantee is to contain the wording of the document included in C1.3 The Performance Guarantee shall be ten percent (10%) of the Tender Price.
6.2.2	Delete Clause 6.2.2 in its entirely.
6.2.3	The expiry date shall be the date on which the Certificate of Completion of the Works is issued, approved by the Engineer and by the Municipality.
6.3	**Variation Orders** Prior approval of variations is to be obtained from the Director Community Services, in writing, before commencement of work. Failure to comply will result in unauthorised expenditure.
6.5.1.2.3	**Percentage allowance for overheads** The percentage allowance to cover overheads charges is as stated in the Part 2 of the Contract Data.
6.8.2	**Contract Price Adjustment Factor** A Contract Price Adjustment Factor shall not be applied to the value of certificates and the rates and prices shall be final and binding.
6.8.2	Add the following to Clause 6.8.4: Notwithstanding the above, in the event that a public holiday is proclaimed within 28 days before the closing date for tenders, no cost other than those that can be claimed under Clause 5.12.3 shall be added to the contract price.
6.10.1.5	**Percentage advance on materials** The percentage advance on materials not yet built into the Permanent Works is 80% (Eighty percent) and has to relate to the approved Project Programme.
6.10.3	**Limit of Retention Money** Notwithstanding the provision of a performance guarantee in terms of clause 6.2.1, interim payment certificates to the contractor shall be subjected to a retention by the Employer of an amount of 10% of the certificate value. The limit of retention money shall be 5% of total contract value.
6.10.4	Add the following to Clause 6.10.4: Notwithstanding the above, the Engineer shall be empowered to withhold the delivery of the payment certificate until the Contractor has complied with his obligations to report in terms of GCC Clause 4.10.2 and as described in the Scope of Work.

8.6.1.1.2	**Value of Plant & Materials by Employer** The Tender makes provision for an alternative where the Employer procure segmented paving through an existing Municipal Tender. Paving bricks will be delivered to site in accordance with the successful Tenderers programme. Should this alternative be followed, it will be required from the Tenderer to add the value of the materials, procured by the Swellendam Municipality, to the tendered value for the required insurance value.
8.6.1.1.3	**Amount to cover Professional Fees** The amount to cover professional fees for repairing damage and loss to be included in the insurance sum is **R 20,000.00.**
8.6.1.3	**Liability Insurance** The limit of indemnity for liability insurance is **R 10,000,000.00**
8.6.1.5	In addition to the insurance required in terms of General Conditions of Contract Clauses 8.6.1.1 to 8.6.1.4 the following insurance is also required: a) Insurance of construction equipment (including tools, offices and other temporary structures and contents) and other things (except those intended from incorporation into the Works) brought onto the site for a sum sufficient to provide for their replacement. b) Insurance in terms of the provisions of the Compensation for Occupational injuries and Diseases Act No. 130 of 1993. c) Motor Vehicle Liability Insurance comprising (as a minimum) “Balance of Third Party” risk including Passenger Liability Indemnity. d) Where the contract involves manufacturing and/or fabrication of the Works or part thereof at premises other than the Site, the Contractor shall satisfy the Employer that all materials and equipment for incorporation in the Works are adequately insured during manufacture and/or fabrication. In the event of the Employer having an insurable interest in such work during manufacture or fabrication then such interest shall be noted by endorsement to the Contractor’s Policies of Insurance.
8.6.6	The evidence that the insurances have been affected in terms of Clause 8.6.1, shall be in the form of an insurance broker’s warranty.
10.7.1	**Determination of disputes** The determination of disputes shall be by arbitration.

C1.2: CONTRACT DATA

PART 2 : DATA PROVIDED BY THE CONTRACTOR

1.1.1.9	The Contractor is: .....
1.2.1.2	**The Contractor's address for receipt of communications is:**
	Telephone:
	Facsimile:
	E-mail :
	Address (Postal) :
	Address (Physical) :
1.1.1.14	**Practical Completion** The time for achieving Practical Completion for the Contract is **6 months** (inclusive 2 weeks for the Contractor to provide the guarantee, Health and Safety File and other requirements, and for approval by the Municipality), plus all non-working and special non-working days.
6.2.1	**Security by Contractor** The security to be provided by the Contractor shall be as follows and include Value Added Tax:

Type of Security	**Contractor's Choice "Yes" or "No"**
Performance Guarantee of 10% of the Contract Sum plus	**Yes**

6.5.1.2.3	**Percentage allowance to overhead charges** The percentage allowance to cover overhead charges is ..... %

C1.3 PERFORMANCE GUARANTEE

GUARANTOR DETAILS AND DEFINITIONS

"Guarantor" means: .....

Physical address: .....

"Employer" means: .....

"Contractor" means : .....

"Engineer" means: .....

"Works" means: .....

"Site" means: .....

"Contract" means: The Agreement made in term 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 VAT of R .....

Amount in words: .....

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

Amount in words: .....

"Expire Date" means: Date id issue by the Engineer of the Certificate of Completion of the Work

CONTRACT DETAILS

Engineer issues: Interim Payment Certificates, Final Payment Certificates and the Certificate Completion of the Works as defined in the Contract.

PERFORMANCE GUARANTEE

1. The Guarantor's liability shall be limited to the amount of the Guaranteed Sum.

2. The Guarantor's period of liability shall be from and including the date of issue of this Performance Guarantee and up to and including the Expiry Date or the date of issue by the Engineer of the Certificate of Completion of the Works or the date of payment in full of the Guaranteed Sum, whichever occurs first. The Engineer and/or the Employer shall advise the Guarantor in writing of the date on which the Certificate of Completion of the Works has been issued.

3. The Guarantor hereby acknowledge that:

   Any reference in this Performance Guarantee to the Contract is made for the Purpose of convenience and shall not be constructed as any intention whatsoever to create an accessory obligation or any intention whatsoever to create a suretyship.

   It's 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 document identified in 4.1 to 4.3:

   1. A copy of a first written demand issued by the Employer to the Contractor stating that payment of a sum certified by the Engineer is 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;

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;

3. A copy of the aforesaid payment certificate which entitles the Employer to receive payment in terms of the Contract to 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:

   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

   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

   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 the 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):.....

PART C2 : PRICING DATA

C2.1 Pricing Instructions

C2.2 Bill of Quantities

C2.1: PRICING INSTRUCTIONS

C2.1.1 PREAMBLE TO THE BILL OF QUANTITIES

C2.1.1.1 The method of measurement published by the South African Bureau of Standards in Clause 8 of the Standardised Specifications for Civil Engineering Construction is applicable, subject to the variations and amendments contained in the section "Applicable SABS 1200 standardised specifications".

C2.1.1.2 Descriptions in the Bill of Quantities are abbreviated and comply generally with those in the Standardised Specifications. Clause 8 of each Standardised Specification, read together with the relevant clauses of the Scope of Work, set out what ancillary or associated activities are included in the rates for the operations specified. Should any requirements of the measurement and payment clause of the applicable Standardised Specification, or the Scope of Work, conflict with the terms of the Bill, the requirements of the Standardised or Scope of Work, as applicable, shall prevail.

C2.1.1.3 The clauses in a specification in which further information regarding the bill item can be obtained appear under "Reference clause" in the Schedule. The reference clauses indicated are not necessarily the only sources of information in respect of schedule items. Further information and set specifications may be found elsewhere in the contract documents. Standardised Specifications are identified by the letter or letters which follow SABS in the SABS 1200 series of specifications, e.g. G for SABS 1200 G.

C2.1.1.4 Unless otherwise stated, items are measured nett in accordance with the drawings, and no allowance is made for waste.

C2.1.1.5 The quantities set out in the Bill of Quantities are the estimated quantities of the Contract Works, but the Contractor will be required to undertake whatever quantities may be directed by the Engineer from time to time. The Contract Price for the completed contract shall be computed from the actual quantities of work done, valued at the relevant unit rates and prices.

C2.1.1.6 The prices and rates to be inserted in the Bill of Quantities are to be the full inclusive prices for the work described under the several items. Such prices and rates shall cover all costs and expenses that may be required in and for the execution of the work described, and shall cover the cost of all general risks, liabilities, and obligations set forth or implied in the documents on which the tender is based, as well as overhead charges and profit. Reasonable prices shall be inserted as these will be used as a basis for assessment of payment for additional work that may have to be carried out.

C2.1.1.7 A price or rate is to be entered against each item in the Bill of Quantities, whether the quantities are stated or not. An item against which no price is entered will be considered to be covered by the other prices or rates in the Bill of Quantities.

C2.1.1.8 Except where rates only are required, the Tenderer shall insert all amounts to be included in his total tendered price in the "Amount" column and show the corresponding total tendered price.

C2.1.1.9 The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1 000 kg)
m2	=	square metre	No.	=	number
m^2.pass	=	square metre-pass	sum	=	lump sum
ha	=	hectare	MN	=	Mega Newton
m^3	=	cubic metre	MN.m	=	Mega Newton-metre
m^3.km	=	cubic metre-kilometre	P C sum	=	Prime Cost sum
ℓ	=	litre	Prov sum	=	Provisional sum
kℓ	=	kilolitre	%	=	per cent
MPa	=	Mega Pascal	kW	=	kilowatt

C2.2: BILL OF QUANTITIES

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
	SANS 1200 A	**SCHEDULE A: PRELIMINARY AND GENERAL**				
A.1	8.3	**FIXED-CHARGE ITEMS**				
A.1.1	8.3.1	Contractual Requirements	Sum	1		
	8.3.2.1	Facilities for Engineer (SANS 1200 AB)				
A.1.2		a) Nameboard	Sum	1		
	8.3.2.2	Facilities for Contractor				
A.1.3		a) Offices and storage shed	Sum	1		
A.1.4		b) Living accommodation	Sum	1		
A.1.5		c) Ablution	Sum	1		
A.1.6		d) Tools and equipment	Sum	1		
A.1.7	SD A 8.3.2.3	e) Water supplies, electrical power and communication facilities	Sum	1		
A.1.8	SD A 8.3.3.2	f) Dealing with water	Sum	1		
A.1.9	SD A 8.3.2.3	g) Access	Sum	1		
A.1.20		h) Plant	Sum	1		
A.1.21	8.3.3	Other fixed-charge obligations (Specify)	Sum	1		
A.1.22	8.3.5	Health and Safety Plan - submit for approval	Sum	1		
A.2	8.4	**TIME-RELATED ITEMS**				
A.2.1	8.4.1	Contractual requirements	Month	6		
A.2.2	8.4.2	Operation and maintenance of facilities on site	Month	6		
	SD A 8.4.2.1	Facilities for Engineer (SANS 1200 AB)				
A.2.3		a) Nameboard	Month	6		
	8.4.2.2	Facilities for Contractor for duration of Contract				
A.2.4		a) Offices and storage shed	Month	6		
A.2.5		b) Living accommodation	Month	6		
A.2.6		c) Ablution	Month	6		
A.2.7		d) Tools and equipment	Month	6		
A.2.8	SD A 8.3.2.3	e) Water supplies, electrical power and communication facilities	Month	6		
A.2.9	SD A 8.3.2.3	f) Dealing with water	Month	6		
A.2.10	SD A 8.3.2.3	g) Access	Month	6		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY		TENDER AMOUNT
BROUGHT FORWARD						
A.2.11		h) Plant	Month	6		
A.2.12	8.4.5	Other time-related obligations (Specify)	Month	6		
A.2.13	8.4.3	Supervision	Month	6		
A.2.14	SD A 8.4.4	Company and Head office overhead costs	Sum	1		
A.2.15	SD A 8.19	Wayleaves	Sum	1		
A.3	SD A 8.5	**SUMS STATED PROVISIONALLY BY ENGINEER**				
	SD A 8.5 (a)	Sums Stated Provisionally by Engineer for work done by Contractor or Selected Sub-Contractor				
A.3.1		i) Tests required by Engineer	Prov. Sum	1	R 10 000,00	
A.3.2		ii) Electrical Supply & Internal Electrical	Prov. Sum	1	R 100 000,00	
A.3.3		iii) Plumbing for watre and drainage	Prov. Sum	1	R 40 000,00	
A.3.4	SD A 8.5 (b)	(ii) Contractor's overheads, profit etc on items A.3.1 - A.3.3	%	R -		
A.4	SD A 8.7	**DAYWORK**				
A.4.1		Trench excavator with minimum capability of 75 kW Manufacturer:..... Model:.....	h	10		
A.4.2		Front end Loader with minimum capability of 60 kW Manufacturer:..... Model:.....	h	5		
A.4.3		Digger-loader with minimum capability of 50 kW Manufacturer:..... Model:.....	h	10		
A.4.4		Tip truck with minimum capacity of 6m3 Manufacturer:..... Model:.....	h	5		
A.4.5		Grader with minimum capability of 150kW Manufacturer:..... Model:..... Compactors:	h	5		
A.4.6		Self-propelled single drum vibrating compactor. Minimum mass: 19 t Minimum capability: 97 kW Manufacturer:..... Model:.....	h	5		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY		TENDER AMOUNT
BROUGHT FORWARD						
A.4.7		Hand controlled double drum vibrating compactor Minimum drum width: 0.39 m Minimum capability: 3.7kW Manufacturer:..... Model:.....	h	5		
A.5	SD A 8.7.1	**STANDING TIME COSTS**				
A.5.1		Plant	day	5		
A.5.2		Labour	day	5		
A.5.3		Other resources (Specify)	day	5		
A.6	8,8	**TEMPORARY WORKS**				
A.6.1	SD A 8.8.2	Accommodation of traffic	Sum	1		
A.6.2	SD A 8.8.5	Cost of Survey - beacons, benchmarks, boundary pegs: locate, protect and re-establish	Sum	1		
A.6.3	SD A 8.9	Implementation and adherence to the occupational health and safety act	Sum	1		
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
	SANS 1200 C	**SCHEDULE B: SITE CLEARANCE**				
B.1	SD C 8.2.1	Clear and grub in :				
B.1.1		a) Carefully remove existing grass, stockpile and maintain	m^2	525		
B.1.2		b) Pipeline routes at 2.0m wide	m	60		
B.2	SD C 8.2.11	Extra over items B.1.1 to B.1.2 for the removal of cleared material to an offsite spoil location	m^3	100		
B.3	SD C 8.2.12	Remove from site and dispose of rubble and undesirable material at a site to be identified by the Contractor	m^3	10		
B.4	SD C 8.2.13 (a)	Existing services intersecting excavation for streets				
B.4.1		i) Existing sewermains	m	60		
B.5		Reinstate grass from stockplie around building works	m^2	525		
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
	SANS 1200 DB	**SCHEDULE C: SEWERAGE**				
C.1	SD DB 8.3.2 (a)	**EXCAVATION**				
		Trench excavation in all material, backfilling, compacting and removal of surplus material for house connection pipes nominal diam 110mm to 160mm for depths:				
C.1.1		a) 0,00 - 1,01 m	m	50		
C.1.2	SD DB 8.3.2 (d)	Excavation by hand to expose existing services	m³	5		
C.2	SABS 1200 LB	**BEDDING (PIPES)**				
		Supply and compact bedding to 100% Mod.AASHTO-density with material:				
	8.2.2.3	from commercial sources:				
C.2.1		a) Bedding	m³	5		
C.2.2		b) Blanket	m³	20		
C.3	SABS 1200 LD	**SEWERS**				
	8.2.1	Supply and lay uPVC Class 34 heavy duty, on Class C bedding, joint and test sewer pipes				
C.3.1		b) 160 mm diam	m	50		
C.4	SD LD 8.2.3	**MANHOLES**				
		Precast concrete ring type manhole with heavy duty ductile iron EN124-D400 hinged cover and frame as per detail on drawing Drg. No. 2104161/C/600 complete for depths:				
C.4.1		a) 0,00 - 1,00 m	No	3		
C.4.2		b) 1,01 - 1,51 m	No			Rate Only
C.4.3		c) 1,51 - 2.00 m	No			Rate Only
C.5		**ERF CONNECTIONS**				
	8.2.1	Supply, lay, joint, bed (Class C) and test uPVC class 34 sewer pipes				
C.5.1		110mm dia	m	10		
		End Caps				
C.5.2	SD LD 8.2.13	110 mm dia uPVC	No	2		
C.5.3	SD LD 8.2.14	Extra over item E.6 for uPVC erf connections directly to new manhole	No	2		
	SD LD 8.2.18	Marker posts as per detail for:				
C.5.4		a) Erf connections	No	2		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
BROUGHT FORWARD						
	SD LD 8.2.11	Extra over item C4 for manholes on existing sewermains				
C.5.5		160mm diam	No.	2		
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
		SCHEDULE D: WATER RETICULATION				
D.1	SANS 1200 DB	**EXCAVATIONS**				
	SD DB 8.3.2 (a)	Trench excavations in all materials, backfilling, compacting and removal of surplus material for pipes nominal diam 110mm to 200mm for depths:				
D.1.1		a) 0,00 - 1,01 m	m	100		
D.1.2	SD DB 8.3.2 (d)	Excavate by hand to expose existing services	m³	5		
D.2	DB 8.3.3	**EXCAVATION ANCILLARIES**				
	SD L 8.2.22	Services that intersect a trench				
D.2.1		i) Existing sewer	No.	1		
D.3	SANS 1200 LB	**BEDDING (PIPES)**				
		Supply and compact bedding to 100% Mod.AASHTO-density with material:				
	8.2.2.3	From commercial sources:				
D.3.1		a) Bedding	m³	10		
D.3.2		b) Blanket	m³	30		
D.4	SANS 1200 L	**MEDIUM-PRESSURE PIPELINES**				
	SD L 8.2.1	HDPE PN12				
		Supply, handle, lay and bed (Class C bedding), joint as described in notes on drawing, test and disinfect pipes for:				
D.4.1		50 mm diam	m	100		
D.5	8.2.2	**SPECIALS AND FITTINGS**				
		Extra over Items F.4.1 for supply, lay, handle, bed (Class C bedding), joint, including cut pipes to lengths where required, test and disinfect for:				
		Plasson T-Piece				
D.5.1		50 mm diam	No	1		
		Plasson End Caps				
D.5.2		50mm	No	1		
	SD L 8.2.3	Valves: Supply and install resilient seal type valve, including cutting pipes where necessary, with T-piece and other required specials and fittings, complete to detail (excluding chamber) for:				
D.5.3		a) 50 mm diam	No	1		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
BROUGHT FORWARD						
		ANCILLARIES				
D.6	SD L 8.2.11	Anchor/thrust blocks and pedestals according to details	m³	1		
D.7	8.2.13	**VALVE CHAMBERS**				
D.7.1		Valve chamber to detail for depth up to 1.0 m including painting cover and frame.	No	1		
D.8	SD L 8.2.16	Locate, cut into and connect including all special pieces to existing watermain:				
D.8.1		50 mm dia connection	No	1		
D.9	SANS 1200 LF	**ERF CONNECTIONS**				
D.9.1	SD L 8.2.1	Supply, lay and bed HDPE PE100 PN16 pipes on Class C bedding complete with couplings, test and disinfect the following pipes:				
D.9.1.1		25 mm dia	m	10		
	SD L 8.2.2	Extra-over item L.8.2.1 for specials				
		End caps for HDPE pipes				
D.9.1.2		25 mm	No	2		
	SD L 8.2.18	Marker Posts				
D.9.1.3		a) Erf Connections	No.	2		
TOTAL CARRIED FORWARD TO SUMMARY						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
		SCHEDULE E: BUILDING & STRUCTURAL				
E.1	8.3.1.1	Preparation of shop detail drawings for all steel fabricated members for approval by Engineer	Sum	1		
E.2	**SABS 1200 D**	**EXCAVATIONS**				
	8.3.3	Excavate and for use as backfill under floor slab				
E.2.1		i) Footings of Portal Roof Structure	m³	100		
E.2.2		ii) Foundations of Pavilion	m³	100		
E.2.3	SD D 8.3.14	Backfill or fill material from maintained stockpiles				
E.2.3.1		i) Restricted backfill for foundations/footings	m³	70		
E.2.3.2		ii) Restricted backfill under surface beds	m³	85		
E.2.4	SD D 8.3.1	Preparation of in-situ material before fill	m²	415		
E.3	**8.2**	**FORMWORK**				
	8.2.1	Rough: (Degree of Accuracy III)				
E.3.1		a) Vertical, footings	m²	85		
E.4	**8.3**	**REINFORCEMENT**				
	8.3.1	Steel Bars:				
E.4.1		(a) Mild steel bars	t	0,5		
E.4.2		(b) High tensile bars	t	2		
		Fabric Reinforcement:				
E.4.3		(a) Mesh ref 617 in foundations	m²	160		
E.4.4		(b) Mesh ref 617 in concrete surface bed	m²	415		
E.5	**SABS 1200**	**CONCRETE**				
	8.4.3	Strength concrete:				
E.5.1		i) Blinding 2500x2500x50mm for RC bases only.	m²	90		
E.5.2		ii) In 1800x1800x650mm RC bases 30MPa/20mm	m³	32		
E.5.3		iii) In 1000/800x300mm RC foundation for brick walls 25MPa/20mm	m³	52		
E.5.4		iv) Surface Beds	m³	42		
	8.4.4	Unformed surface finishes:				
E.5.5		i) Steel-floated finish (Degree of Accuracy II)				
E.5.5.1		a) Surface bed	m²	415		
E.6		**WALLS (inclusive brickforce & bagging)**				
E.6.1		i) Foundation brickwork 440mm with ROK bricks min 14 Mpa strength	m²	24		
E.6.2		ii) Foundation brickwork 220mm with ROK bricks min 14 Mpa strength	m²	76		
E.6.3		iii) 440mm brick walls from 222 x 106 x 73 NFX smooth and bagged	m²	200		
E.6.4		iv) 220mm brick walls from 222 x 106 x 73 NFX smooth and bagged	m²	560		
E.6.5		v) 110mm brick walls from 222 x 106 x 73 NFX smooth and bagged	m²	30		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
TOTAL BROUGHT FORWARD						
E.7	SD G 8.10	**SUNDRY CONCRETE ITEMS**				
E.7.1		i) Black plastic bond breaker under floor, 250 micro meter membrane	m²	415		
E.8		**PRECAST DECKING**				
E.8.1		Supply and install Hollowcore decking 5m x 1090mm x 150mm or similar approved	No.	72		
E.8.2		Expansion Joints between slab ends with FC11 30 x 30 mm or similar approved	m	66		
E.8.3		Expansion Joints between slabs with FC11 30 x 30mm or similar approved	m	66		
E.9		**STAIRS**				
E.9.1		2 x 170mm step stair 900mm wide	No.	40		
E.10		**ROOFING**				
E.10		i) Supply and install 152mm x 76mm x 2200mm treated timber grade 5 SA-Pine Purlins	No.	8		
E.11	**SANS**	**CLADDING AND SHEETING**				
	8.2.2	Supply and install cladding and sheeting (colorbond, Zinkalume AZ150				
E.11.1		i) Roof sheeting	m²	12		
E.11.2		ii) Fascia board, Nutec 12mm thick x 225mm high	m	2,1		
E.11.3		iii) Marley uPVC streamline double-flo gutter	m	2,1		
E.11.4		iv) Gutter downpipe complete 80mm x 80mm square with specials as	No	1		
E.12		**GLAZING**				
		Supply and install Aluminium Windows including opaque glazing, hinges and handles				
E.12.1		i) W01 Model PTT69 by Kenzo Swartland - Charcoal or similar approved	No	5		
E.13		**CARPENTRY**				
		Hard Wood doors including frames, varnished, fitted complete with hinges, handles and 3 lever "Union" lock or similar approved.				
E.13.1		i) D1 Model SD2/1612 by Swartland	No	3		
E.13.2		ii) D2 Model SD2 by Swartland	No	3		
E.13.3		iii) D3 Stall Doors	No	6		
E.14		**IRONMONGERY**				
E.14.1		Supply and install Security Gates G1 SD2/1612 with hidden fixtures including galvanizing	No	2		
E.14.2		Stoneguarding including all fittings with 3mm steel tubing and expanded i) 3000 x 950 x 150mm stoneguarding	No	1		
E.14.3		ii) 1800 x 950 x 150mm stoneguarding	No	1		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
TOTAL BROUGHT FORWARD						
E.15		**FIXTURES & SANITARY WARE**				
E.15.1		i) Supply and install Cobra showerhead vandalproof Bc, Round Rose or similar approved, inclusive all pipework and fittings from supply.	No	5		
E.15.2		ii) Cobra vandal-proof time-controlled combination tap or similar approved, inclusive all pipework and fittings from supply.	No	10		
E.15.3		iii) Cobra Shower Trap 100 x 100mm all inclusive or similar approved to sewer trap.	No	5		
E.15.4		iv) Supply and install Corner Shower Unit Pan and Surrounds to fit all inclusive .	No	1		
E.15.5		v) Supply and install Lecico Atlas pan, floor mounted toilet or similar approved all inclusive to sewer trap.	No	5		
E.15.6		vi) Lecico Sanaa 45cm basin or similar approved all inclusive from supply to outlet sewer trap.	No	5		
E.15.7		vii) Supply and install 200L Kwikot hybrid type geyser in storeroom all inclusive from supply.	No	2		
E.15.8		vii) Supply and install 150L Kwikot hybrid type geyser in storeroom all inclusive from supply.	No	1		
E.16		**TILING**				
		Showers:				
E.16.1		i) Waterproofing to shower walls and floors with "SIKA Rain Tite®" or similar approved waterpoofing system	m²	40		
E.16.2		ii) Tiling for shower wall and floor with 300mm x 300mm white glazed tile	m²	40		
		Basins splashbacks				
E.16.3		i) Tiling for shower with 300mm x 300mm white glazed tile	m²	2		
E.17		**FLOOR FINISH**				
E.17.1		15mm grano screed finish to locker room area	m²	80		
E.17.2		Supply and install non-slip rubber carpet tiles to locker room area	m²	70		
E.17.3		Supply and install varnished hard wood skirting 70 x 21mm	m	65		
E.18		**CEILING**				
E.18.1		i) Supply and install 152mm x 76mm x 3800mm treated timber grade 5 SA-Pine Purlins to walls in locker room area	No	20		
E.18.2		ii) Supply and install 152mm x 76mm x 2000mm treated timber grade 5 SA-Pine Purlins to walls in locker room area	No	10		
E.18.3		iii) Supply and install uPVC type ceiling on 50 x 50mm brandering fixed to purlins in lpocker room area	m2	80		
E.18.4		iv) Supply and install S2-LX 115mm uPVC cornices	m	65		
E.19		**ANCILLARIES**				
E.19.1		Supply and install 450mm wide, 40 x 25mm slatted, varnished hard wood benches mounted on 50 x 50mm galvanized steel angle brackets fixed to wall with 3 x 12mm x 80mm galvanized coach screws @ 500mm ctc	m	25		
E.19.2		Supply and install Chrome double towel hooks(total 42) mounted on 200 x 16mm varnished hardwood fixed above benches	m	25		
TOTAL CARRIED FORWARD						

ITEM NO	PAYMENT	DESCRIPTION	UNIT	TENDER QTY	RATE	TENDER AMOUNT
TOTAL BROUGHT FORWARD						
	SANS 1200H	**STRUCTURAL STEELWORK**				
E.20	8.3.1	Supply and Fabrication of Steelwork (Galvanised)				
E.20.1	8.3.1	i) Structural Steel for Portal Frame (Grade S355 JR:)				
E.20.1.1		a) 175 x 75 x 20 x 3 CFLC	t	3,6		
E.20.1.2		b) 254 x 254 x 89 I SECTON	t	5,2		
E.20.1.3		c) 406 x 178 x 67 I SECTON	t	7,1		
E.20.1.4		e) 305 x 305 x 97 I SECTION	t	6,2		
E.20.1.5		f) 60 x 60 x 6 RSA	t	0,5		
E.20.1.6		g) 100 x 50 x 10 PFC	t	0,65		
E.20.2		ii) Base plates (see Drg. No. 2302584/S/001)	t	1,0		
E.20.3		iii) Stiffeners and end plates (see Drg. No. 2302584/S/001)	t	3,0		
E.20.4		iv) All other connection elements((see Drg. No. 2302584/S/001)	t	1,5		
E.20.5	8.3.2	Delivery to Site:				
E.20.5.1	8.3.2.1	Normal Delivery	t	30		
E.20.5.2	8.3.3	Erection on Site	t	30		
E.20.6		Erection Bolts - supply and install				
E.20.6.1		a) M10 to M20 bolts & nuts - Grade 8.8 and including Hot-dipped	t	2,00		
E.20.7		Holding-Down (HD) Bolts - supply and install				
E.20.7.1		a) HD Galv. Bolts of Grade 8.8 of size M16 and M20 including Hot-	No	100,00		
E.21	**SANS**	**CLADDING AND SHEETING**				
	8.2.2	Supply and install cladding and sheeting including all flashings to roofs,				
E.21.1		i) Roof sheeting - Colourbond, Charcoal Grey Colour	m²	465		
E.21.2		ii) Bullnose Sheeting - Colourbond, Charcoal Grey Colour	m	62		
E.21.3	8.2.3	Supply and install ancillaries for bullnose sheeting (Radius of 500mm)	m	62		
TOTAL CARRIED FORWARD TO SUMMARY						

SUMMARY

SUMMARY	FROM PAGE	AMOUNT (RAND)
SCHEDULE A: PRELIMINARY AND GENERAL	2	
SCHEDULE B: SITE CLEARANCE	5	
SCHEDULE C: SEWERAGE	6	
SCHEDULE D: WATER	8	
SCHEDULE E: BUILDING & STRUCTURAL	10	
CONTINGENCIES		
Allow the sum of 10% (ten percent) of the above Sub-total for Contingencies to be spent as the Engineer may direct and to be deducted in whole or in part if not required.		
TOTAL INCLUDING CONTINGENCIES		
VALUE ADDED TAX (VAT)		
ADD: VAT at the rate of 15%		
Carried to Part C1.1 – Form of Offer & Acceptance		

DECLARATION (In respect of completeness of Tender)

To:

The Municipal Manager
Langeberg Municipality
Private Bag X2
ASHTON
6715

I/we, the undersigned, do hereby declare that these are the properly priced Bills of Quantities forming Part C2.2 of this Contract Document containing 14 **pages** in consecutive order upon which my/our tender for **TENDER NO: 58/2025: MCGREGOR SPORTSFIELDS – NEW SPECTATOR PAVILION.**

SIGNATURE OF TENDERER/S

DATE

Part C3: Scope of Work

Pages

C3.1 Description of the Works ..... 1 – 5

C3.2 Engineering 6

C3.3 Procurement ..... 7 - 8

C3.4 Construction ..... 9 - 116

C3.5 Management 117-126

C3.6 Annexes 127-138

Status
Should any requirement of provision in the parts of the Scope of Works conflict with any requirement of any Standardised Specification, particular specification or any drawings, the order of precedence, unless otherwise specified, is:

- Drawings
- Scope of work
- SANS/ Standardised Specifications

This **Scope of Works** is set out as follows:

C 3.1: **DESCRIPTION OF THE WORKS** covers a general description of the works or project and the facilities available.

C 3.2: **ENGINEERING** covers a list of drawings and standard drawings supplied separately and/or bound with the tender document

C 3.3: **CONSTRUCTION** covers variations and additions to the standard specifications that are applicable to the contract, as well as Particular Specifications that is applicable.

All clauses in the Specification Data are preceded with "SD" followed by the relevant letter(s) and number of the relevant clause of the standard specifications. This will replace, amend or add to the standard specification with the same number. For a new clause the numbers follow on from the last clause number used in the relevant specification.

Any clause referred to in the standard specification will also include the relevant Specification Data.

The Particular Specifications are the Environmental and Health & Safety Specifications.

C 3.4: **MANAGEMENT** cover the applicable standards and the methods and procedures to be followed in managing the works to the requirements of the Engineer and the Employer.

C 3.5: **ANNEXURES** covers the Locality Plan and other drawings issued to Tenderers

C3.1 Description of the Works

CONTENTS **PAGES**

1.	**EMPLOYER'S OBJECTIVES**	**2**
2.	**OVERVIEW OF THE WORKS**	**2**
3.	**EXTENT OF THE WORKS**	**3**
4.	**CONSTRUCTION TIME PERIOD**	**3**
5.	**CONTRACTOR'S CAMP SITE, POWER SUPPLY AND SERVICES**	**3**
6.	**CONSTRUCTION IN CONFINED AREAS**	**3**
7.	**WATER FOR CONSTRUCTION PURPOSES**	**4**
8.	**FEATURES REQUIRING SPECIAL ATTENTION**	**4**
9.	**ACCOMMODATION OF TRAFFIC**	**5**
10.	**ENVIRONMENTAL REQUIREMENTS**	**5**
11.	**LIMITED FUNDS**	**6**

1 EMPLOYER'S OBJECTIVES

The Employer's objective for this contract is the building of a new spectator stand and player ablutions at McGregor Sportsfields.

The description of the project contained in the Scope of Work is merely an outline of the Contract Works and shall not limit the work to be carried out by the Contractor under this Contract. Details of some of the major items are given in this section and approximate detailed quantities for each type of work to be carried out in accordance with the Contract Documents are included in the Bill of Quantities.

2 OVERVIEW OF THE WORKS

2.1 General Description

The employer of the project is Langeberg Municipality.

The work to be carried out under this contract entails the following:

- Relocation of existing municipal sewermain;
- Installation of new water supply;
- Building of new covered spectator pavilion;
- Building of new player and officials ablutions.

Approximate quantities of each type of work are given in the Schedule of Quantities.

2.2 Work Areas

The construction site is within the Mc Gregor Sportsground, Keerom Street, Mc Gregor.

The Contractor must take note of the fact that transport equipment to be used on existing roads is limited to the allowed legal axle-loads in accordance with the Road Ordinance of the relevant Authority. The Contractor shall use temporary bypass roads where necessary. No additional payment shall be made in this regard and any additional costs shall be regarded to be included in relevant supplied rates.

The Contractor is made aware that except for payment item 8.3.2.2 of the SANS 1200 A regarding access, no other payment will be made for access to the site of works, borrow pits and dumping sites.

2.3 Occupation of the site

Access to the site of the works will be given to the Contractor on the Commencement Date.

The site of the works is on a recreational area which is used by the public, which will remain in use during the course of the work. No road may be closed (unless authorized in writing by the Engineer) and traffic shall be accommodated as specified.

3. EXTENT OF THE WORKS

The work that is to be carried out under the contract is as provided for in the schedule of quantities. However, if during the course of construction conditions are found to differ from those anticipated, the Engineer reserves the right to modify the scope of the work to suit the prevailing conditions and circumstances. Variations introduced in this manner will be measured and paid for at the rates tendered for appropriate items listed elsewhere in the schedule of quantities or in the absence of such rates, as extra work.

The work to be undertaken by the Contractor shall include the following:

CIVIL & STRUCTURAL WORKS

- Relocation of existing municipal sewermain;
- Installation of new water supply;
- Building of new covered spectator pavilion;
- Building of new player and officials ablutions

This description of the Works is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract.

4 CONSTRUCTION TIME PERIOD

The time period specified for completion by the Engineer, as stated in the Contract Data in terms of Clause 1.1.1.14 of the Conditions of Contract, is maximum **6 months** inclusive of all non-working, special non-working days and year end break 16 December 2026 to 06 January 2027. The Contractor shall plan and programme his construction sequence for completion within the time period specified.

4.1 Construction work programme

The Contractor shall take note of various factors contained in these specifications, which will have a significant influence on the compilation of the construction work programme. Prominent items are those which might require a lead time for ordering the equipment or which might entail a special manufacturing period.

The specified contract period is maximum **6 months**. The Contractor shall take the above into consideration when drawing up his programme and no claims will be entertained in this regard. The contractor shall programme his works in relation with the budget and financial year constraints set out by the municipality.

5. CONTRACTOR'S CAMP SITE, POWER SUPPLY AND OTHER SERVICES

The Contractor must make his own arrangements for a camp site within the sportsground perimeter.

"The camp site area must be fenced off with a temporary 1.8m high 100% shade cloth fence. The cost to erect, maintain and remove and all related costs will be deemed to be included in his tendered rates".

The Contractor shall make his own arrangements concerning the provision of water, electricity and other services for the campsite and office facilities.

No direct payment will be made for the provision of electrical 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.

6. CONSTRUCTION IN CONFINED AREAS

It will be necessary for the Contractor to work within confined and restricted areas. The method of construction in these confined areas largely depend on the contractor's constructional plant.

Regardless, measurement and payment will be in accordance with the specified cross-sections and dimensions only, irrespective of the method used for achieving these cross-sections and dimensions. It is deemed that the rates tendered in the Pricing Schedule / Priced Bill / Schedule of Quantities 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. **No additional payment will be made nor will any claim for payment be considered for work done in such confined areas, despite indications to the contrary in the Standard Specifications.**

7. WATER FOR CONSTRUCTION PURPOSES

The Contractor must make adequate provision in his tender for all negotiations and procurement of water for construction activities and all related costs will be deemed to be included in his tendered rates.

8. FEATURES REQUIRING SPECIAL ATTENTION

8.1 Existing Services

Any work requiring the excavation of existing road pavements, sidewalks and verges will require the necessary wayleaves be obtained from the relevant service authorities (Telkom, Electrical Department / Eskom, Roads & Stormwater Department, Waterworks Department and Drainage & Sewerage Department).

Prior to commencing work, the Contractor shall confer with all Authorities and Departments concerned and obtain the necessary wayleaves for both overhead and underground services affected by the Works and shall satisfy himself that he has obtained all the relevant information required to complete the Contract. The Contractor will be liable for obtaining all the necessary wayleaves and work permits from the relevant service authorities prior to the commencement of work within the road reserve.

The Contractor shall carry out the works with the minimum interference to existing services and it shall be clearly understood that obtaining the necessary wayleaves, will be at his own cost. The cost of repairing any damage to services, due to miscalculations or negligence on the part of the Contractor or his failure to carry out the duties set out in this Clause, shall be borne by the Contractor.

8.2 Health and Safety Plan

Prior to commencing work, the Contractor shall submit a Health and Safety Plan, compiled in accordance with the Health and Safety Specifications in Part E of the Works Specifications to the Engineer for approval. The Contractor may not commence construction without the Engineer's approval of the Health and Safety Plan.

8.3 Standard of Materials, Workmanship, Testing and Performance

The attention of Tenderers is particularly drawn to the high standard of materials, workmanship, testing and performance applicable to his Contract as a whole and he shall convey this requirement to his proposed Sub-Contractors.

The Contractor will carry out control testing of materials and workmanship as required in terms of the specifications. Where necessary, the Engineer may carry out acceptance control testing. The Employer will not pay claims or grant extension of time for delays to the works resulting from the awaiting of test results. Testing as required by the Engineer will be effected as promptly as possible but it is in the Contractors own interest to submit material samples and other components of workmanship for testing in good time to assist in avoiding or minimising delays.

8.4 Weatherproof Protection for Workers

All staff required to continue working during rain shall be provided with oilskins and rubber knee boots, or other approved protective clothing and footwear.

8.5 Night Work and Work on Public Holidays

Where the Contractor requires staff to work overtime, he shall make the necessary arrangements with the Client and obtain written approval from the Client. No work will be allowed on public holidays and Sundays.

The Contractor shall bear the cost of his overtime work. Normal working hours shall be between 08:00 and 17:00 on weekdays from Mondays to Fridays and between 8:00 and 14:00 on Saturdays.

8.6 Other Contractors

The Contractor's attention is drawn to the fact that there will be other contractors working on the Site of the Works. In accordance with Clause 4.8 of the General Conditions of Contract, the Contractor shall note and make allowance for reasonable access to and for the adjacent operations of these other contractors on the site of the works.

9. ACCOMMODATION OF TRAFFIC

The traffic shall be accommodated on the existing surfaced carriageway and shoulders. No bypasses or temporary deviations shall be constructed. During non-working days the Contractor will be required to shut down normal construction activities and only emergency work will be allowed. The traffic safety officer will be required to patrol during these non-working periods and ensure that all temporary traffic-control facilities are in place and functional.

10. ENVIRONMENTAL REQUIREMENTS

The Contractor shall take particular note of the environmental requirements contained in the Works Specifications.

Personnel and plant shall not enter property beyond the sportsground boundary irrespective of whether or not the boundary is fenced. The Contractor shall take every precaution to avoid damage to vegetation within that area of the sportsground which falls outside the designated work area is indicated on the drawings. Any damage caused is to be repaired at the Contractor's expense.

Storage and stockpiling of materials within the sportsground will not be permitted without the written consent of the Engineer. Excess material from excavations and waste material shall be spoiled off site at suitable locations.

11. LIMITED FUNDS

While the Employer has every intent to complete the full scope of works, the Employer reserves the right to reduce or increase the scope of works according to the dictates of the budget, or to terminate this contract, with adjustment to the agreed rates, sums or fees and without payment of any penalty in this regard. The Service Provider shall however be entitled to pro-rata payment for all services carried out in terms of any adjustment to the Scope of Work or, in the case of termination, remuneration and/or reimbursement.

Should the total Contract Value not be available for construction, the scope of work will be reduced in line with the available funding. The time related preliminary and general items will be adjusted pro-rata to the pro-rata adjusted contract duration.

C3.2 Engineering

Drawings

The drawings listed below are attached in order to give an overview of the project. Additional construction drawings will, in terms of the General Conditions of Contract, be issued to the Contractor by the Engineer/Employer on the commencement date and from time to time as required.

The Works shall be carried out in accordance with the drawings listed in C5 of the tender documents and included in Volume 4: Drawings and form part of the contract documents.

The reduced drawings that form part of the tender documents shall be used for tender purposes only.

The Contractor will be supplied with 3 unreduced paper prints of each of the drawings required for construction. These copies are issued free of charge and the Contractor shall make any additional copies he may require at his own cost.

Only figured dimensions shall be used, and drawings shall not be scaled unless otherwise instructed.

The Contractor shall ensure that accurate as-built records are kept of all infrastructure installed or relocated during the contract. The position of pipe bends, junction boxes, duct ends and all other underground infrastructure shall be given by either co-ordinates, or stake value and offset. Where necessary, levels shall also be given. A marked-up set of drawings shall also be kept and updated by the Contractor. This information shall be supplied to the Engineer's Representative on a regular basis.

All information in the possession of the Contractor, which the Engineer requires to complete his record drawings shall be supplied to the Engineer's Representative before a certificate of completion will be issued.

The drawings prepared by the Employer for the permanent Works are listed. The Employer reserves the right to issue amended and/or additional drawings during the contract.

C3.3 Procurement

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3.3.1. TARGETED CONSTRUCTION PROCUREMENT

3.3.1.1 Objective

The Employer applies and promotes the principles of Targeted Construction Procurement. In terms of Employer's current procurement policy this project provides for the following objectives to be actively pursued:

- the provision of opportunities for Small, Medium and Micro- Business Enterprises (SMMEs).
- the provision of work opportunities for local labour.
- the maximising of job creation by adopting labour-intensive construction methods wherever physically feasible and economically justifiable.

3.3.1.2 Contract requirements

Preference to be given to all sub-contracted work to local suitable approved sub-contractors from the McGregor Municipal Area.

3.3.1.3 Labour workforce

100% of unskilled labour to be sourced locally, meaning within the boundary of the McGregor Municipal Area.

3.3.1.4 Labour-intensive construction

Where practical and economically feasible, construction work should be undertaken using labour-intensive methods. The Contractor shall employ labourers, artisans and subcontractors for the execution and completion of this work.

Some of the activities, which may be considered as being suitable to be undertaken by labour-intensive methods include the following:

- shallow excavations
- construction of fence
- cleaning and trimming of site

3.3.2. SUBCONTRACTING

3.3.2.1 General

The Contractor may subcontract portions of the Works included in the Contract. Clause 4.4 of the General Conditions of Contract makes provision for subcontracting.

Subcontract work provides opportunities for small or specialist businesses and can also be used to secure contract participation goal credits for HDI participation or other specific goals, where applicable. In the interests of all parties, the Contractor shall enter into a written subcontract agreement with each Subcontractor.

Where participation credits are claimed by the Contractor in respect of subcontractors, suppliers, manufacturers and/or service providers, the Contractor shall ensure that all such are registered and verified on the Western Cape Supplier Database. The Employer shall not accept any claim for participation in respect of subcontractors, etc. unless they are registered and verified.

Notwithstanding the above, contract participation goal credits may not be claimed for work undertaken in respect of provisional sums and prime cost items.

Where monetary allowances for provisional sums or prime costs items have been allowed and the monetary allowance is less than R200 000, the Contractor shall invite three quotations from suitably qualified subcontractors, etc. for the required scope of works. The selection of the Subcontractors, etc. shall be approved by the Engineer.

Where monetary allowances for provisional sums or prime cost items have been allowed and the monetary allowance is greater than R200 000, an open tender process will have to be followed in respect of a subcontractor for this work. In such cases the tender will be issued by the Engineer on behalf of the Contractor.

3.3.2.2 Selected Subcontractors

With reference to subcontractors selected by the Contractor in consultation with the Employer, Clause 4.4.4 (GCC 2015) of the General Conditions of Contract states that this shall be done in accordance with the requirements of "a procedure set out in the Scope of Work."

The procedure for Selected Sub-contractors as referred to in Subclause 4.4.4 (GCC 2015) of the General Conditions of Contract and Contract Data shall be:

All specialist merchants, tradesmen and others executing any work or supplying any goods for which provisional or prime cost sums are provided in the Bill / Schedule of Quantities and who are selected for this purpose by the Contractor as specified hereafter, shall in the execution of such work be subcontractors of the Contractor and are herein referred to as "Selected Subcontractors".

Unless another procedure is specified, Selected Subcontractors are chosen and appointed as follows. The Employer and the Contractor shall compile a list of firms or persons acceptable to both and who will be invited to submit tenders for certain work or goods to be supplied by Selected Subcontractors. Before the closing date of such tenders the Contractor shall furnish the Employer with a sealed list in which is indicated the price increase required by the Contractor regarding the handling and appointment of every tenderer as Selected Subcontractor. No price increase requested by the Contractor in such list may be higher than the percentage or amount the Contractor has tendered in the main Contract against the provisional or prime cost item concerned. The list is then opened with the tenders and on the basis thereof the Employer shall indicate which tender he wishes to accept. The Contractor shall accept the tenderer and appoint him as Selected Subcontractor.

The Contractor shall incorporate in the subcontract provisions that:

(a) In respect of the work or the goods that are the subject of the subcontract the Selected Subcontractor undertakes to the Contractor mutatis mutandis the obligations and liabilities as are imposed upon the Contractor to the Employer in terms of the Contract, and holds the Contractor harmless from and indemnifies him against the same and in respect of all claims, demands, lawsuits, damages, costs, charges and expenses whatsoever arising out of or in connection therewith, or arising out of or in connection with any failure to perform such obligations or to fulfil such liabilities, and,

(b) The Selected Subcontractor holds the Contractor harmless and indemnifies him against:

- (i) Shortcomings in the subcontract works if and where the works were designed by the Selected Subcontractor;
- (ii) defects in the goods if and where the goods were manufactured and/or supplied by the Selected Subcontractor;
- (iii) any negligence by the Selected Subcontractor, his agents, workmen and servants;
- (iv) any misuse by the Selected Subcontractor of any Constructional Plant, Temporary Works or materials provided by the Contractor for the purposes of the Contract;
- (v) any claims as aforesaid.

C3.4 Construction – Works specification

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PART A: STANDARD SPECIFICATIONS

The **Standard Specifications for Civil Engineering Construction, SANS 1200,** which the tenderer shall obtain/ purchase from the South African Institution of Civil Engineering (SAICE), Private Bag X200, Halfway House 1685, Tel: (011) 805 5947, Fax: (011) 805 5971, e-mail: civilinfo@saice.org.za.

The following relevant standardised specifications, as listed below, shall form the Standard Specifications and apply to this contract:

SECTION	DESCRIPTION
A	GENERAL
AB	ENGINEERS OFFICE
C	SITE CLEARANCE
D	EARTHWORKS
DB	EARTHWORKS (PIPE TRENCHES)
DM	EARTHWORKS STREETS
G	CONCRETE (STRUCTURAL)
L	MEDIUM PRESSURE PIPELINES
LB	BEDDING (PIPES)
LE	STORMWATER DRAINAGE
M	ROADWORKS GENERAL

PART B: PROJECT PARTICULAR SPECIFICATIONS

Amendments to the standard specifications are included in this Part B: Project Specifications.

(i) The project specifications form an integral part of the contract documents and supplement the standard specifications.

(ii) In the event of any discrepancy between the project specifications and a part of the standard specifications, the schedule of quantities, or the drawings, the project specifications shall take precedence.

(iii) The standard specifications, which form part of this contract, have been written to cover all phases of work normally required for road contracts, and they may therefore cover items not applicable to this particular contract.

In certain clauses the standard specifications allow a choice to be specified in the project specifications between alternative materials or methods of construction and for additional requirements to be specified to suit a particular contract. Details of such alternatives or additional requirements applicable to this contract are contained in this part of the project specifications. It also contains some additional specifications required for this particular contract.

The number of each clause and each payment item in this part of the project specifications consists of the prefix SD followed by a number corresponding to the number of the relevant clause or payment item in the standard specifications. The number of a new clause or a payment item which does not form part of a clause or a payment item in the standard specifications and which is included here, is also prefixed by SD followed by a new number. The new numbers follow on the last clause or item number used in the relevant section of the standard specifications.

Amendments to the standard specifications are bound in the contract documents. The following relevant section off the Standard Specifications, as listed below, shall apply to this contract:

The following variations and additions to the SABS 1200 Standardized Specifications referred to in clause SD 24 will be valid for this contract. The prefix "SD A" indicates an amendment to SANS 1200 A, "SD C" to SANS 1200 C, etc. The numbers following these prefixes are the relevant clause numbers in SANS 1200.

A: GENERAL

SD A 1: SCOPE

Replace subclause 1.1 with the following:

"This specification covers requirements, principles and responsibilities of a general nature which are normally applicable to all civil engineering contracts as well as the requirements for the contractor's establishment on site."

SD A 2: INTERPRETATIONS

SD A 2.2: Applicable edition of standards

Add at the beginning of Subclause 2.2:

"Unless a specific edition is specified (see the List of Applicable Specifications)"

SD A 2.3: Definitions

(a) General

Add the following definitions:

"General conditions: The general conditions of contract specified for use with this contract and the special conditions of contract as applicable.

Specified: As specified in the standardized specifications, the drawings or the Specification Data. Specifications shall have the corresponding meaning."

(b) Measurement and payment

Replace the definitions for fixed charge, time-related charge and value-related charge with the following:

"Fixed charge: 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.

Time-related charge: 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.

Value-related charge: 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."

The terms "ESCOM", "ESC" and "Electricity Supply Commission" shall mean "Eskom".

The terms "GPO", "P&T", "Department of Posts and Telecommunications" and "Telkom" shall mean "Telkom SA Limited".

The terms "South African Railways", "SAR", "South African Transport Services", "SATS" shall mean "Transnet Limited".

Except for references to the Bureau itself, or to the (official) SABS mark, the term “SABS’” shall mean “SANS”.

SD A 2.4: Abbreviations

(a) Abbreviations relating to standard documents

Add the following abbreviations:

"CKS: SABS Co-ordinating Specification."

"MAMDD: Modified AASHTO maximum dry density".

A3: MATERIALS

SD A 3: Quality

Substitute the second sentence of the first paragraph of A3.1 with the following:

"Where a material to be used in this Contract is specified to comply with the requirements of an SABS Standard Specification, and such material is available with the official SABS mark, the material used shall bear the official mark."

Substitute the second paragraph with the following:

"Samples on which control testing is required by the Engineer, shall be delivered free of charge to a SANAS approved commercial laboratory. The Contractor is responsible for the cost of all testing to ascertain that the materials do comply with the relevant minimum requirements and all such costs shall be deemed to be included in the tendered rates. The cost of control test done by the Engineer and of which the results do not comply with the minimum requirements shall be for the Contractor's account.

The Contractor shall inform the Engineer of any control testing to be done at least 48 hours before such test are required and must allow in his programme for the time necessary for the tests and the processing of the results thereof."

Add the following sub-clause to Clause A3:

SD A 3.3: Ordering of materials

The quantities set out in the Bill of Quantities have been determined from calculations based on data available at the time and should therefore be considered to be only approximate quantities. The contractor shall therefore, verify the quantities before ordering materials of any kind. No liability or responsibility whatsoever shall be attached to the employer for materials ordered by the contractor except if they have been ordered in accordance with written confirmation issued by the Engineer.

The Contractor shall satisfy himself of the continuous availability of material. No extension of time or additional compensation will be granted if material cannot be obtained locally or has to be sources elsewhere."

A 4: PLANT

SD A 4.2: Contractor's Office, Stores and Services

Add the following paragraph before the first paragraph:

"The Contractor's construction camp shall be fenced off and shall contain all offices, stores, workshops, testing laboratories, toilet facilities, etc. The camp shall always be kept in a neat and tidy condition.

Add the following the second paragraph:

"One toilet per 10 workmen shall be provided and must be screened from public view and their use shall be enforced. The suitable sanitary services shall be of the bucket or chemical type and shall be readily accessible to workers at all areas of the site. The Contractor shall make all the necessary

arrangements with the relevant local authority for the disposal of the contents of the toilets on a regular basis."

The contractor shall make arrangements if necessary for the removal of any soil.

Add the following to A 4.2:

"The Contractors Construction Manager or representative must be contactable at all times by phone. Should use be made of radio and or cellular-phones, these must be operational at all times with sufficient back-up batteries or recharging facilities.

There exists no housing facilities for the Contractor's work force, and arrangements must be made by the Contractor to accomplish that as well as transport. The Contractor is solely responsible for their housing, or the arranging thereof, and no payment or extension of time will be allowed because of any delay and/or work damage that may arise. No personnel will be allowed to reside on the site. Only night-watchmen may be on the site after hours.

SD A 4.3: Medical facilities and safety equipment

The suitable first aid services required in terms of Subclause 4.2 of SANS 1200 A shall include, inter alia, a First Aid cabinet fully equipped and maintained with at least the minimum contents as listed in the Annexure (Regulation 3) to the General Safety Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993), to deal with accidents and ailments which are likely to occur during the construction period.

The Contractor shall provide personal safety equipment and facilities as required by Regulation 2 of the General Safety Regulations of the Occupational Health and Safety Act, 1993 (Act 85 of 1993)."

On completion of the Works the Contractor shall scarify all disturbed areas where offices, stores, etc., were located and all temporary roads and tracks, and he shall place a 100 mm thick layer of approved topsoil over all such areas. These areas shall then be seeded with an approved indigenous grass or other approved seed, watered and fertilized in an approved manner and in such quantity as to promote rapid growth. The cost for placing the 100mm layer of topsoil shall be deemed to be included in the rates tendered for the site facilities.

A 5: CONSTRUCTION

A 5.1: Survey

SD A 5.1.1: Setting out of the Works

Add the following to A 5.1.1:

Benchmarks as well as reference pegs have been placed on the Site and these will be used to set out the Works. Setting out of the works is the sole responsibility of the Contractor and shall be done from survey pegs along the road reserve boundaries and from benchmarks as indicated on the drawings. The positions and values of these pegs are given on the drawings.

The Contractor shall within two (2) weeks after the land surveyor has set out pegs, check levels over all reference pegs and benchmarks and line pegs. This must be done before the Contractor intends constructing any portion of the Works influenced by such pegs or benchmarks. The Engineer shall be informed in writing of any discrepancy discovered in the positions or levels immediately on discovery but in any event at least 7 days before such construction is due to start. The Contractor shall advise the Engineer of any conflict between the position of any part of the Works and an existing feature. Any costs or subsequent costs arising from discrepancies, which have not been reported to the Engineer within the aforementioned period, shall be the sole responsibility of the Contractor. If no written statement is received from the Contractor it will be held that the Contractor has satisfied himself that the positions and levels of the reference pegs and benchmarks are correct.

"The Contractor shall be responsible for the true and proper setting out of the Works and for the correctness of the position, levels, dimensions and alignment of all parts of the Works and for the provisions of all necessary instruments, appliances and labour in connection therewith.

The Contractor shall carefully protect and preserve all benchmarks, sight-rails, pegs and other things used in setting out the Works.

The checking of any setting-out or of any line or level by the Engineer shall not relieve the Contractor of his responsibility for the correctness thereof.

If at any time during the progress of the Works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the Works, the Contractor, on being required to do so by the Engineer, shall at his own expense rectify such error to the satisfaction of the Engineer, but if such error is based on incorrect data supplied in writing by the Engineer or if there is any delay in providing the particulars required, the Contractor shall, in respect of that delay and the Cost of such rectification, be entitled to make a claim in accordance with General Condition of Contract."

SD A 5.1.2: Preservation and replacement of beacons and pegs subject to the land survey act

Add the following to A 5.1.2:

"Immediately upon taking over the site the Contractor shall identify and mark all relevant cadastral boundary pegs. After the completion of mass earthworks, the Contractor shall, under the direction of the Engineer, search for these pegs and compile a list of such pegs that are apparently in their correct positions. The Contractor shall certify this list for future reference.

In the case where cadastral boundary pegs have already been placed, these pegs will be pointed out and handed over to the Contractor and he shall take all precautions necessary to ensure that such pegs and the pegs referred to in SD A 5.1.1 are not disturbed or destroyed. Any costs in connection with the replacement of pegs for which the Contractor is responsible in terms of Sub-clause 5.1.2 will be recoverable from the Contractor by deduction from the monthly certificate of payment.

A Land Surveyor shall verify all cadastral boundary pegs after the completion of all operations. All disturbed pegs shall be replaced at the Contractors expense."

SD A 5.2: Watching, Barricading, Electric Lighting and Traffic Crossing

Add the following to A 5.2:

"The crossing of existing entrances to sites and streets must be done so that free access is ensured at all times.

The crossing of roads with services must be done in half-widths to ensure vehicular access at all times. Traffic control shall be done with Stop/Go sign control with the relevant road signs during daytime. The Contractor must use hazard lights to warn traffic at night. All excavations must be marked with reflective delineators, reflecting tape and warning signs to satisfaction of the Engineer.

Road traffic signs shall comply with the requirements of the "South African Road Traffic Signs Manual" and shall be approved by the Engineer before construction commences."

"The Contractor shall, in connection with the Works, provide and maintain all signs signboards, lights, barriers, barricades, fencing and watching when and where

a) specified in or reasonably to be inferred from the Contract, or
b) required by any competent statutory or other authority, or
c) required by the Engineer for the protection of the Works or for the safety or convenience of the public or others;

provided that, if the Engineer shall instruct the Contractor to provide any sign, signboard, light, barrier, barricade, fencing or watching not included in paragraphs (a), (b) or (c), such requirement shall constitute a variation by the Engineer in terms of Clause 6.4 of the General Conditions of Contract (Third Edition 2015)."

SD A 5.3: Protection of structures

Add the following to A 5.2:

"Before commencing work in an area, the Contractor shall make sketches as directed by, and to the satisfaction of the Engineer, and, if so directed, take photos of the fences, walls and structures within the working width, in order that the standard after completion of the Works can be compared with the original standard, and shall submit the sketches and photos to the Engineer.

If the Engineer issues a written instruction to remove existing fences, walls or other structures or parts thereof, the Contractor shall dismantle and recover the various components and store them in a security area. As soon as possible after completion of the work in the area, the Contractor shall, if so directed, re-erect the fences, walls or other structures to a standard at least equal to the original, using the recovered material as far as possible and, if necessary, new material of a type and quality equivalent to the original."

SD A 5.4: Protection of the overhead and underground services

Add the following to A 5.4:

"The Contractor shall as soon as possible after handing over of the site, commence with the detection of existing services, continuously without interruptions and finalize it at least 7 days before excavation starts at that particular section.

Provision must be made for the protection and maintenance of existing services for the duration of the contract. No payment will be made in respect of this and all costs must be included in the tendered rates. All such services, the positions of which have been located at the critical points, shall be designated as "known" services and their positions shall be indicated on a separate set of drawings, a copy of which shall be furnished to the engineer.

While he is in occupation of the site, the contractor shall be liable for all damage caused by him to known services as well as for consequential damage arising there from, whether caused directly by his operations or by lack of proper protection."

Various services are known to exist on the site. Their approximate positions are shown on the drawings but, although they are based on the best information available, their accuracy cannot be guaranteed. It is likely that other services that are not shown on the drawings exist along the route of the pipeline.

All services, in particular cables, shall be treated as live until proven otherwise.

Before the commencement of any excavation the Contractor shall confirm the name and telephone number of the relevant officials directly concerned with the known or suspected services, shall acquaint himself with the position of the control points of the services and shall have readily available the equipment necessary to shut-off and isolate any such service. The Contractor shall liaise with the relevant authorities or controlling bodies for the necessary temporary closure of any services during construction.

Before any work that involves services to any property is carried out, the Contractor shall serve notice on the resident, occupier and/or owner of every property, at least 7 working days in advance of any temporary disconnection, advising the nature, time and duration.

In addition to the requirements of Subclause 5.4 the Contractor shall deal with the crossing of known existing services by the pipelines by:

a) Notifying to the Engineer's Representative and the relevant authority 48 hours prior to executing the work.

b) Serving notice on the resident, occupier and/or owner of every property affected at least 36 hours in advance of any temporary disconnection, advising the nature, time and duration.

c) Excavating by hand, under the supervision of the Engineer's Representative and/or the authority involved, on the line of the trench up to 2 m, or such for the distance as may be necessary, in both directions from the indicated position to locate the exact position of the services.

Work done by service authorities:
The Contractor shall give assistance to service authorities with the location, protection, alteration and/or removal of services controlled by that authority.

Electricity cables:
The Contractors shall at all times accept that all underground and overhead cables are live and that Cape Town Municipality nor Eskom nor Telkom, in their capacity as either the Employer or the owner of the service shall not be held liable for injury or death of any person due to the live electricity cables exposed under the Contract.

SD A 5.6: Pollution

The Contractor's attention is drawn specifically to dust disturbance, due to the fact that the works takes place near an existing residential area (See SD D 5.1.4.1).

SD A 5.8 Ground and access to works

Add to Subclause 5.8:

"The Contractor shall not use the Site or land connected with the Works or cut down trees or vegetation, for any purpose whatsoever other than for the proper carrying out of the Works and shall locate any facilities that may be required for the Contract on the Site in such areas as the Engineer shall stipulate."

The Contractor shall not operate outside the "working width" or construction area as defined on the drawings, and he will be held wholly responsible for any damage or nuisance caused by himself, his plant, vehicles or staff throughout the period of the Contract.

The Contractor shall:

a) During construction of the Works:

   i. improve and maintain to a standard that will ensure the safe execution of the Works, any existing access roads, or roads built under this contract and required by him for the works,

   ii. construct and maintain additional roads as necessary for his purposes to and along the working width of the channel route, to a standard required for the efficient construction of the Works,

   iii. keep all roads and access tracks used by him watered to minimise dust. The frequency of the watering shall be at least daily when roads and tracks are used by the Contractor, unless it is sufficiently damp after rain.

b) Immediately on completion of each section of the Works:

   i. reinstate all private roads used by him, other than those under (ii) below, to at least their original condition,

   ii. scarify all roads constructed by him for construction purposes and which are not required by the property owner or the Employer.

Add the following new items

SD A 5.9: Workmen's Compensation Act

Add the following after A 5.8:

Compensation for Occupational Injuries and Disease Act (COID)

All labour employed on the site shall be covered by the COID Act. The Contractor shall pay in full, including the payment of the necessary levies, such amounts as are due in terms of the Act. The manner in which Compensation will be handled shall be resolved by the Contractor at the commencement of the Contract.

SD A 5.10: Drawings and details

Tender drawings shall not be used for construction purposes. Construction drawings and additional detailed information will be made available to the Contractor as and when required by him.

The originals of all Drawings and Specifications prepared by or on behalf of the Engineer shall remain in his custody and references herein to delivery to the Contractor of Drawings or specifications shall relate to true copies thereof.

The Contractor shall be entitled to receive free of charge, to the extent provided in the Contract, copies of each such Drawing and specification and to receive, at the cost of reproduction, such additional copies as he shall reasonably require.

One copy of all documents constituting the Contract shall be kept on the Site and be available for perusal by the Engineer or any person authorised by him.

The Contractor shall, in accordance with the Engineer's instructions, maintain a register on the Site of all drawings and revisions thereof in the chronological order in which they are delivered to him.

SD A 5.11 Connections to existing live water services

All connections to any existing live systems will be undertaken by the relevant authority. This work may have to be done at night in order to minimise inconvenience to users. The Contractor shall supply all materials required to undertake the connections to existing services and provide any other assistance that may be required.

A7: TESTING

SD A 7.4: Statistical analysis of control tests

Replace A 7.4 with the following:

"Test results will not be analysed by statistical methods, and all results must comply with the minimum requirements of the materials concerned."

A 8: MEASUREMENT AND PAYMENT

A 8.1: Measurement

In the second line of Subclause 8.1.1, after words "standardized specification or in" add: "the measurement and payment clause of the standard specification, particular specification or".

Add the following sub clause to A 8.1.1:

Free haul and Overhaul

Notwithstanding any clauses in any of the Standard Specifications or Project Specification Section dealing with the definition, no measurement and/or payment for overhaul will be made. All haulage will be considered to be free haul and the cost thereof will be deemed to be covered by other rates in the Bill of Quantities."

SD A 8.2: Payment

SD A 8.2.5: Adjusted payment for time-related items

The payment to the Contractor for time-related items shall be adjusted in accordance with the following formula in the event of the contract being extended:

$$\text{Sum of Tendered amounts for time-related items} \times \frac{\text{Extended Contract Period As Authorised By Variation Order}}{\text{Tender contract period}}$$

The abovementioned adjustment of the payment for time-related items shall be made in the Completion Payment Certificate and shall be the only payment for additional time-related costs.

Notwithstanding the stipulation of Sub-clause 8.2.2, an approved extension of time will only entitle the Contractor to payment in terms of the General Conditions of Contract (Third Edition 2015).

SD A 8.3.2.1 Facilities for Engineer

Add the following to A 8.3.2.1:

(d) Carport ..... Sum
(e) Meeting room ..... Sum

SD A 8.3.2.3: Access

Add the following to A 8.3.2.3:

In addition to the above, the tendered rates for A 8.3.2.2 (i) must also include all costs including materials for the building, gravelling and maintenance of access roads to the works, borrow pits and spoil sites, as well as the breaking up and, the removing or clearing and tidying up of such roads on completion of the works, in addition to keeping all spoil routes clean throughout the contract."

SD A 8.3.3.2: Dealing with water

The cost of supplying and operating the equipment for dewatering of excavations and controlling of stormwater will be held to be included in the tendered sums for Items A1.14 and A2.15 and no separate payment will be made for this work.

The sums shall cover all costs with regard to the preventive measures that must be taken with regard to water and the repair of damaged portions of the Works, as well as all costs for supplying and operating the equipment to keep excavations dry and to control stormwater.

SD A 8.4.2.1: Facilities for Engineer

Add the following to A 8.4.2.1:

(d) Carport ..... Sum
(e) Meeting room ..... Sum

SD A 8.5(a:) Sums Stated Provisionally by Engineer for work done by Contractor or Selected Sub-Contractor ..... Prov Sum

Add the following to A 8.5(b)(i):

"Payment will be in accordance with Clause 6.6.1.1 or 6.6.1.2 of the General Conditions of Contract (Third Edition 2015), whichever is relevant."

SD A8.5(b): Percentage Allowed for Supervision, Management and Co-Operation with Selected Sub-Contractor .....%

Add the following to A8.5(b)(ii):

"The tender percentage includes full compensation for supervision and control over the nominated sub-contractor, delays, profits, etc.

The percentage will be calculated on the final amount paid under SD 8.5."

SD A 8.7: Day work

Add the following:

"Day work will be paid according to the percentage allowance method for items not included in a Schedule of Day work rates. In this case, for calculating the total remuneration the General Conditions of Contract for the Construction of Civil Engineering Work (Third Edition 2015) shall apply, with the amendments as in the appropriate special conditions of contract, which are bound into this document. A day work schedule will be provided for filling in the necessary information. A working day will consist of 9.25 hours per day only."

Provisional items for Daywork are scheduled as follows:

a) Labour at hourly rates for skilled, semi-skilled and unskilled labourers.

b) Material as a Provisional Sum with a percentage allowance on the net cost.

c) The Contractor's own plant as a Provisional Sum.

Tendered unit rates or unit rates that are agreed in terms of the General Conditions of Contract (Third Edition 2015) for the Contractor's own plant used for Daywork shall cover the full cost of the use of such plant and shall therefore, in addition to the items listed in Sub-clause 8.7, cover the cost of plant operators, consumable stores, fuel and maintenance.

d) Hired plant as a Provisional Sum with a percentage allowance on the net cost.

The Contractor will be paid the actual net cost of plant hired by him for Daywork and in addition will be paid a percentage allowance on the net cost of such hire, which allowance will cover the Contractor's own overhead costs and profit.

Add the following sub-clause to A8.7:

SD A 8.7.1: Standing time costs

a) equipment ..... **working day**
b) labour ..... **working day**
c) other resources (to be specified by Contractor) ..... **working day**

The tendered sum for each item shall include full compensation for all standing time costs of the specified resource of whatever nature and approved by the Engineer, which are not recoverable by way of the provision made in SD A 8.2.5 for the adjusted payment of time-related items.

For purpose of calculating the total standing time cost, a working week shall be held to consist of five working days and a working day of 9,25 hours.

Payment for the partial standing of any of the scheduled resources for a day or part thereof, or the standing of a complete resource for part of a day, will be made pro-rata in proportion to an appropriate factor assessed by the Engineer.

The amounts by which the standing time costs are adjusted shall be subject to the contract price adjustment formula as defined in the conditions of contract.

The Contractor shall take note that this payment item shall only apply to delays, which **in the opinion of the Engineer,** are incurred as a result of riot, commotion, politically motivated sabotage and acts of terrorism or disorder outside the Contractor's control. This item shall also apply to standing time incurred as a result of labour boycotts, except that only sub-items (a) and (c), as applicable, will be paid where the Contractor did not pay his labour for the time of boycott. Costs for delays incurred for all other circumstances shall be treated as provided for in the conditions of contract.

The provision of this clause shall in now way prejudice the right of either the Employer or the Contractor to determine the contract in terms of the provisions of clause 9 of the General Conditions of Contract (Third Edition 2015).

The Contractor shall take note that no payment will be considered for additional cost or time lost for any daily removal of plant and equipment from the site, any additional costs incurred in protecting his plant and site establishment, or loss incurred in protecting his equipment and site establishment, or loss incurred in respect of damage to construction plant, equipment and materials supplied and the works.

In the event that Clause 5.13.1 of the General Conditions of Contract (Third Edition 2015) becomes applicable, the time on which such penalties are calculated shall be reduced by the total standing time approved by the Engineer.

SD A 8.8.1 Dealing with access (Subclause 8.8.1)

The Contractor will be held to have satisfied himself with regard to the accessibility of the sites and the standard of access available via the existing main roads and minor roads. The tendered sums shall cover the cost of the maintenance of existing access.

The cost of maintenance of all existing access roads shall be included in the amounts allowed for Items A.1.15 and A.2.17.

SD A 8.8.2: Accommodation of traffic..... Sum

Add the following to A 8.8.2:

For all of these items the tendered rate covers all costs in respect of the supplying, erection, moving, re-erection and maintenance of all temporary barricades, road signs, lights and flagmen that are required for the protection and safe guarding of the works (all as per the S.A. Road Traffic Signs manual) road note 13, for making the necessary traffic arrangements and arrangements with regards to the regulations in respect of moving and/or the re-erection of existing road signs, as well as other costs that may arise during construction in respect of the traffic. No old style signs shall be permitted."

SD A 8.8.5: Survey beacons, bench marks, boundary pegs – locate and protect ..... Sum

Replace A 8.8.5 with the following:

"The amount covers all costs in respect of labour, materials and equipment needed for the finding, noting and compilation of a list and protecting of pegs, all of which are described in Clause 5.1.2 of SANS 1200 A."

SD A 8.9: Implementation and Adherence to the Occupational Safety and Health Act..... Sum

The tendered sum for each item shall include full compensation to cover all requirements as specified in the Health and Safety Specifications – Part D of Part C3.4.

SD A 8.10: Environmental Control ..... Sum

The tendered sum for each item shall include full compensation to cover all requirements as specified in the Environmental Management Plan & Specifications – Part C of Part C3.4.

SD A 8.11 Free haul and overhaul

Notwithstanding any clauses in any Standardized Specification or Standard Specification Section dealing with the definition, measurement and/or payment for transport, free haul and/or overhaul, no measurement nor payment for overhaul will be made. All haulage will be considered to be free haul and the cost thereof will be deemed to be covered by the rates for the provision or disposal of the applicable material.

SD A 8.12 Survey

SD A 8.12.1 Setting out

The cost of setting out, including the cost of establishing temporary bench marks and pegs in terms

of SD A 5.1.1, will be held to be covered by the rates tendered for the fixed charge and time-related items in Section A of the Bill of Quantities.

SD A 8.12.2 Survey beacons and boundary pegs

Any costs in connection with the replacement of beacons or pegs for which the Contractor is responsible in terms of Subclause 5.1.2 will be recoverable from the Contractor by deduction from the monthly certificate of payment.

SD A 8.13 Dealing with authorities and others

The rates for dealing with authorities and others shall cover the cost of liaison with the relevant Authority and others to their requirements and will be measured and paid as a lump sum for each Authority and others.

SD A 8.14 Removal of site establishment

The tendered rate for the removal of the Site establishment and the Engineer's site offices shall, in addition to Subclause 8.3.4, cover the cost of the work specified in SD A 4.2 and the cost of complying with Clause 19.1 of the General Conditions of Contract (First Edition 2004).

SD A 8.15 Fencing of Contractor's site

The fencing of the Contractor's site will be held to have been covered by the tendered rates for the establishment and removal of site facilities.

SD A 8.16 Protection and/or moving of structures and fences.

The structures to be protected or moved will be measured by the sum for each structure scheduled.

The tendered sum shall cover the cost of either protecting or moving and replacing the structure or for the additional cost of working in close proximity to such structure as the case may be.

Structures not scheduled will be held to have been covered by the tendered rates for other scheduled items.

SD A 8.17 Alterations to existing services

Permanent alterations made to existing services by the Contractor will be measured and paid under the relevant scheduled items. The length of service that is re-laid will be measured in its final position.

SD A 8.18 Miscellaneous items

An item which, in the payment clause column of the Bill of Quantities, refers to this clause (SD A 8.18), will be measured in the unit scheduled.

The sum or rate for such item shall cover the cost of all materials, labour and plant required to execute and complete the work as specified, described in the Schedule of Quantities or shown on the drawing(s).

SD A 8.19 Accommodating traffic and maintaining temporary deviations.

The unit of measurement shall be the kilometre, measured along the centre lines of temporary deviations. It shall not include sections along which the traffic Is diverted onto existing roads. The tendered rate shall include full compensation for accommodating traffic and maintaining temporary deviations, including roads constructed in half-widths and existing roads used as temporary deviations during construction and maintenance periods. The tendered rate shall include relocation, establishment, de-establishment and operation of the traffic control measures for the duration of the project. The tendered rate shall also Include full compensation for the provision of a full time traffic safety officer and for all the duties performed by him, The tendered rate shall also Include full compensation for the provision of communications equipment required for regulating the traffic ranging lor the moving of services, solving traffic problems, complying with the legal requirements of all authorities concerned, for providing temporary access to private property and for the provision and maintenance of temporary drainage. Payment will be made in relation with the length of pipeline installed.

AB ENGINEERS OFFICE

AB 3: MATERIAL

SD AB 3.1: Name boards

Substitute "South African Institution of Civil Engineers" in the first paragraph of AB 3.1 with "South African Association of Consulting Engineers".

Name boards must be erected on site, situated as specified by the Engineer. The board will be as specified on the standard detail drawing no. 2301565/C/101.

Two nameboards, manufactured as specified in Subclause 3.1 and as shown on the drawings, shall be provided, and shall be erected, plumb and level, in position as directed by the Engineer.

SD AB 3.2 Office Buildings

Add the following to AB 3.2

i. 1 Fire extinguisher
ii. 9000 BTU air conditioner unit
iii. Suitable power supply for computer, lighting & air conditioning unit.

SD AB 3.3 Carports

The Contractor shall provide, maintain and service a parking facility for the use of the Engineer and his personnel. The facility shall consist of one covered carports with closed sides. The carport shall measure at least 6.0 x 3.5m and shall have a roof 2.4m above a free draining gravelled surface.

SD AB 3.4 Protective clothing

The Contractor shall provide and replace when necessary one set of rubber wellington boots (of sizes as required), reflective safety jacket and hard hat to the Engineer and Engineer's Representative.

SD AB 3.5 Meeting Room

The Contractor shall provide and furnish one meeting room (as scheduled) for the use of the Engineer. The meeting room shall consist of one room with a floor area of at least 12m^2 and a ceiling height of at least 2.5m.

The meeting room shall be weatherproof, shall have a wooden boarded floor that is at least 150mm above the ground and shall be provided with a ceiling and a lining to the walls, or equivalent insulation, with an acceptable type of door with a secure lock and two opening windows of glazed area at least 3m^2. The meeting room shall be well ventilated and shall be so insulated as to provide comfortable working conditions. The internal furnishings of the meeting room shall include:

- One table seating 10 people
- Ten chairs
- 1x fire extinguisher
- 9000BTU air-conditioner unit
- Suitable power supply for lighting and air conditioner unit.

On completion of the Works, ownership of the buildings and their furnishings shall revert to the Contractor who shall remove them from the Site.

SD AB 4.2 Medical facilities and safety equipment

The Contractor shall make the first aid services and such personal safety equipment and facilities as are required in terms of SD A 4.3, available to the Engineer and his site staff.

AB 5: CONSTRUCTION

SD AB 5.1: Name boards

Add the following to AB 5.1:

The name boards shall be erected within a month of the commencement date of the contract and shall be placed at the positions indicated by the Engineer. Any damage to these boards shall be repaired within fourteen days of a written instruction issued by the Engineer. No payment shall be made in terms of the contract prior to the erection of the name boards.

Site instruction book

Throughout the construction period the Contractor shall supply an A4 carbon triplicate book as a site instruction book.

This book shall be kept on Site and shall be accessible to both the Contractor and the Engineer at all times. It shall be used:

a) by the Contractor for providing the Engineer with any information regarding the construction of the Works which may be requested, and giving notification in writing of inspections, drawings, etc, required by the Contractor, and

b) by the Engineer for the purpose of writing day-to-day instructions and confirming any verbal information or instructions given to the Contractor.

One copy of each site note issued shall remain in the book.

SD AB 5.2 Key personnel

The Contractor shall inform the Engineer of the person whom he has charged with the duties with respect to the Site in terms of the Occupational Health and Safety Act and the person(s) who are in possession of a valid certificate of competency in first aid. The Contractor shall give copies of the minutes of the site safety meetings to the Engineer.

SD AB 5.5: Survey Assistants

Replace paragraph 5.5 with :

"one suitable, trained and experienced workman to be used as a survey assistant shall be made available to the Engineer during working hours as and when required. As far as practical the same assistant, shall be allocated to the Engineer for the full duration of construction."

SD AB 5.6: Survey Equipment

The Contractor shall provide the following tested and approved survey equipment on site for the duration of the contract and for the use of the Engineer whenever needed:

a) 1 x engineer's automatic level with tripod,
b) 1 x level staff with staff bubble,
c) 2 x ranging rods,
d) 1 x builder's spirit level of length 900 mm,
e) 1 x steel tape of length 30 m,
f) 1 x pocket tape of length 3 m,
g) 1 x steel level transfer plate, and
h) all steel and wood pegs, concrete, hammers, picks, etc., that the Engineer may require.

The above-mentioned equipment may by arrangement be shared between the Contractor and the Engineer's representative.

The Contractor shall provide proof, at the start of the contract, that an acceptable institution has recently serviced the tachometer and level.

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.

The Contractor shall maintain the equipment in good working order and keep it clean throughout the contract period.

SD AB 5.7 Medical facilities and safety equipment

The Contractor shall make the first aid services and such personal safety equipment and facilities as are required in terms of SD A 4.2 available to the Engineer and his site staff.

AB 8: PAYMENT

SD AB 8.2.2: Telephone, Fax machine, Photocopy machine, Survey Assistants, Equipment, etc.

No payment will be made in respect of the above-mentioned, and all the costs concerned will be deemed covered by the unit prices for the Contractors' facilities.

C: SITE CLEARANCE

SD C 3: MATERIAL

SD C 3.1: Disposal of material

Substitute the first sentence of C 3.1 with the following:

"Material obtained from clearing and grubbing, demolition of concrete structures and brickwork, dismantling of pipes and removal of any items shall be disposed of off-site at a spoil site to be identified and procured by the Contractor. Materials qualifying for disposal on site will be spoiled where indicated by the Engineer. All transport costs shall be included in the rates tendered for site clearance."

SD C 5: CONSTRUCTION

SD C 5.1: Areas to be cleared and grubbed

Substitute the first sentence of C 5.1 with the following:

Only areas as directed by the Engineer shall be cleared and grubbed where necessary. The Contractor may proceed with clearing and grubbing after handing over of the site only in areas as approved by the Engineer.

Excavation for structures and pipe trenches should generally allow for a sufficiently wide strip equal to the trench width or structural area plus the estimated allowance for side slopes plus the width of stockpiled backfill and an area for placing material alongside the excavation shall be cleared of vegetation.

The vegetation cleared shall be disposed of off-site to an approved spoil site approved by the relevant authority, or used as ordered by the Engineer.

Measurement and payment for clearing and grubbing shall only occur for areas as required in writing by the Engineer.

Substitute the last paragraph with the following:

The Contractor shall program his work in such a way that re-clearing will not be necessary. The cost of re-clearing shall be borne by the Contractor.

SD C 5.2.3.2: Individual trees

Add the following to C 5.2.3.2:

Trees outside the reservoir area and pipeline routes must be left standing and undamaged, except where otherwise ordered in writing by the Engineer.

SD C 5.3: Clearing

Add the following to C 5.2:

Damages that occur to the removed fence shall be at the Contractors expense and no additional payment shall be made in this regard.

SD C 5.6: Conservation of Topsoil

Add the following sentence to C 5.6:

All topsoil removed to a nominal depth of 150 mm shall be preserved for re-use and erosion thereof shall be prevented. Measurement and payment shall be in accordance to C 8.2.10.

Until required for spreading, the stockpiles of topsoil shall be stabilized by watering or other approved means.

SD C 5.9: Topsoiling

Upon completion of construction, a 150mm thick topsoil layer from the stockpile shall be placed and watered until germination of natural seeds in the soil is achieved. Measurement and payment shall be in accordance with SD C 8.2.12.

C 8: MEASUREMENT AND PAYMENT

C 8.2: SCHEDULED ITEMS

Add the following payment items:

SD C 8.2.1: Clear and Grub in:..... m² or m

The clearing operation will be decided into the following sections as listed below:

a) Reservoir area
b) Pipe route (6m wide)

SD C 8.2.11: Remove and Reinstate fences ..... m

a) 1.8m High fence
b) 2.06m Electrical security fence

The rate shall cover the cost of removal and stacking of existing fencing materials, including all gates, as well as for all costs for reinstating the fence that was removed, including labour, material, concrete, etc and shall be for a complete unit. Payment shall be per linear metre of reinstated fence, complete.

No additional payment will be made for the replacement of fencing material that has been damaged by the Contractor.

Material that is unsuitable for re-erection must be viewed by the Engineer before it is removed after which the Engineer must give written approval for the replacement thereof and for payment, therefore.

Removal of existing fences will be limited to a 6m wide strip for pipelines not in street reserves.

For security reasons, the rate shall also cover the cost of supplying temporary fencing to secure the property and allow access on a regular basis.

SD C 8.2.12: Top Soiling from stockpile ..... m³

The provisions as in clause SANS 1200 D 8.3.10 shall apply to this item:

The rates shall cover all costs for the spreading, placing and levelling of a 150mm thick topsoil layer from the maintained stockpile and the watering thereof until germination of natural seeds in the soil is achieved in accordance to clause SD C 5.9.

SD C 8.2.13: Break up existing asphalt, road kerbs and channels and dump at a site to be identified by the contractor ..... m²

The rate shall cover the cost of excavating, removal, loading, transporting of the existing asphalt, kerbs and channels to a dump site identified by the Contractor, and the finishing of the area to the Engineers satisfaction.

SD C 8.2.11: Remove from site and dispose of rubble and undesirable material at a site identified by the contractor……m^3

The rate shall cover the cost of excavating, removal, loading, transporting of Rubble and undesirable material to a dump site identified by the Contractor, and the finishing of the area to the Engineers satisfaction.

D: EARTHWORKS

SD D 2: INTERPRETATIONS

SD D 2.1: Supporting Specifications

Replace subclause 2.1.2 with the following:

"SD D 2.1.2: Any of the other SANS 1200 specifications may form part of the contract documents."

SD D 2.3: Definition

Replace the definition "Specified density" with the following:

"Specified density: The specified dry density expressed as a percentage of modified AASHTO dry density."

Replace the definition "Stockpile" with the following:

"Stockpile (Verb): The process of selecting and, as maybe necessary, loading, transporting and off-loading material in a designated area for later use and a specific purpose."

Add the following definitions:

"Fill: An embankment or terrace constructed from material obtained from excavations or borrow. In roads it includes the earthworks up to below the selected subgrade level.

Fill (material): Material used for the construction of an embankment or terrace.

Roadbed: The in situ material on which a fill is to be constructed.

Placing: Placing shall mean spreading of backfilling material, watering, mixing, compacting, final grading, complying with the required tolerances and providing for testing, all in accordance with the requirements of the specification."

D3: MATERIALS

D 3.1: Classification for Excavation purposes

SD D 3.1.2: Classes of excavation

Add the following to D3.1.2:

For the purposes of measurement and payment in this contract, intermediate and boulder excavation are to be classified as soft excavation, Hard Rock remains as classified in this clause.

D 3.2: Classification for placing purposes

SD D 3.2.1: Material suitable for embankments and terraces

Add the following to D 3.2.1:

Boulders may be used in fill for embankments, provided that no voids result and that the material around the boulders is compacted to the required density containing unsuitable material that is to be spoiled.

D 3.3 Selection

SD D 3.3.1: General

Substitute the second paragraph of D 3.3.1 with the following:

The Contractor shall deal selectively with material from general excavation. Any imported material in road reserves that does not comply with the minimum requirements for the respective layers, shall be removed and replaced with suitable material, all at the Contractor's expense.

The Contractor shall deal in such a way with materials from all excavations for streets, channels or pipe trenches to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with suitable material, all at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

All unsuitable material shall be removed prior to importing fill material to such areas. Prior to commencing with earthworks, the Contractor shall make trial holes at positions and to depths ordered by the Engineer, to determine the area.

D5: CONSTRUCTION

D 5.1 Precautions

SD D 5.1.2.2: Detection, location and exposure

Add the following to D 5.1.2.2:

If existing services are not shown on the drawings but the existence thereof can be reasonably expected, the Contractor shall, in conjunction with all relevant authorities, determine the exact depth and location of such services before commencing with construction. After locating the exact position of services the Contractor shall be liable for all costs and subsequent costs arising from the damage thereof as a result of the Contractor's activities. These services must also be indicated on the record drawings.

SD D 5.1.2.3 Protection of Cables

Substitute "estimated position" in the second sentence of D 5.1.2.3 with "actual or exposed position".

SD D 5.1.4.1 : Dust nuisance

Add the following to D 5.1.4.1:

The Contractor is responsible for dust control and is responsible for all claims which may arise from dust disturbance from the date of site handover to the date of completion of the contract. No payment will be made in respect of the above mentioned and all costs will be deemed as covered by the tendered rates.

SD D 5.1.6: Road traffic control

Add the following to D 5.1.6:

a) Sufficient road signs must be erected in such a way that motorists are warned well in advance of works, e.g. at the closing of a street sufficient signs to direct traffic must be erected at the preceding intersection.
b) Bypasses and/or road signs shall be provided and/or erected at all locations where the free flow of traffic is obstructed and shall be approved by the Engineer before the commencement of construction. Where main roads are crossed, detours and temporary traffic signs must be provided.
c) Where a trench crosses a street or wherever a trench crosses the direction of traffic flow, reflective delineators must be placed in the street, and not just along the sides of the street, with warning tape in between.

d) Delineators shall be reflective, TW401/402 as necessary and provided with retro-reflective warning tape between and around them. Delineators shall be plastic with plastic basis. The delineator size will be 150mm x 600mm.
e) The spacing and placement of delineators must be according to Table 13.4 of SARTSM Volume 2 and must be visible from all directions.

D 5.2: Methods and Procedures

SD D 5.2.2.3: Disposal

Substitute the second sentence of D 5.2.2.3 with the following:

All surplus and unsuitable material shall be dumped and neatly finished off to the levels as instructed by the Engineer at the dump site (dump site must be **off-site** and must adhere to the environmental requests) which is to be identified by the Contractor, and agreed to by the Engineer.

SD D 5.2.2.4 Excavation by hand around existing services

Where hand excavation is required around existing services it shall be done within 3,0 m above and on both sides of cables and within 500 mm above and on both sides of pipes, as well as underneath the services.

D 5.2.3: Placing and Compaction

SD D 5.2.3.2: Backfilling and Filling against structures

Add the following to D 5.2.3.2:

"After construction of the structures, backfilling and compaction of material against the structure shall commence as follows

a) General: Selected backfill material, free of rocks or rubble larger than 300mm in diameter, shall be placed in layers of maximum thickness 500mm, and each layer shall be compacted to 90 % Mod AASHTO.

b) Restricted: Restricted backfill material, free of rocks larger than 150mm in diameter, vegetation matter or other rubble, shall be placed in layers of maximum thickness 300mm, and each layer compacted to 90 % Mod AASHTO.

The tendered rates shall include all costs for selecting and loading from stockpiles, hauling, backfilling, spreading and compacting material as applicable."

SD D 5.2.8: Imported Materials

The imported fill material shall be similar to the sandy material on site

D 8: MEASUREMENT AND PAYMENT

D 8.3: Scheduled items

SD D 8.3.2: Bulk Excavation

a) Excavate in all materials and use for embankment or backfill or dispose, as ordered .....m^3

Add the following to D 8.3.2 (a):

Payment shall be irrespective of the depth of excavation. No differentiation shall be made between material containing rubble and material not containing rubble.

No payment shall be made for stockpiling of imported fill material where such stockpiling is necessitated by non-removal of unsuitable material.

SD D 8.3.2(b): Extra over for

i) Hard rock excavation (methods other than blasting) ..... m^3

This payment item shall be for hard rock excavation by methods other than blasting.

SD D 8.3.3: Restricted Excavation ..... m^3

(a) Excavate for restricted foundations and footings in all materials below bulk excavation line, separate from general backfill and stockpile and maintain for backfill

Add the following to D 8.3.3 (a):

"Excavation and trimming of remaining 75mm beyond bulk excavation line to neat profiles in all materials. Over- excavation shall not be paid for, unless specifically directed by the engineer.

The rate shall cover all costs for excavation in trimming to neat profiles, costs due to excavation and disposal of material described in SD D 5.2.2.3.

Payment shall be for the cubic metre of excavation beyond the bulk excavation line."

SD D 8.3.4: Importing of materials

Add the following payment item:

a) Extra over for importation of sand from commercial sources ..... m^3

The rate shall cover all additional material, labour and plant costs for the supply from a commercial source in addition to SD D 8.3.2 and SD D 8.3.3. Sand as described in SD DB 3.5 (b) will be used.

SD D 8.3.7 Additional Lateral Support ..... m^2

Add the following to D 8.3.7:

The depth of shoring will be measured from the bottom of excavation to the top of excavation that requires support. Additional lateral support shall be measured in depth increments where necessary.

D 8.3.8: Existing Services

SD D 8.3.8.1: Location

SD D 8.3.8.1 b) The use of specialist equipment for detection ..... Hour

Add the following to D 8.3.8.1(b):

The rate shall cover the cost of lease of equipment, supply and deliver of all material and labour necessary for the detection of the existing services once only, as well as for operating the equipment.

The rate shall also cover all costs for labour and equipment to determine the position, direction, level and diameter of the service. This information must be indicated on the "as-built" drawings.

SD D 8.3.8.1 c) Excavate by hand in soft material to expose services ..... m^3

Add the following to D 8.3.8.1(c):

Excavation by hand to expose existing services shall only be measured and paid for if so ordered in writing by the Engineer. After the excavation of trial holes to determine the exact position and depth of existing services, at intervals as required by the Engineer, the excavation to a level of 300

mm above such services shall be measured and paid for as normal excavation, independent of the depth of such excavation. Only excavation within 300 mm of the existing services will be measured and paid for as excavation by hand and then only if ordered in writing by the Engineer. The rate shall include the required backfilling and compaction.

D 8.3.9: Backfill of Material from Maintained Stockpiles Against Structure.....m^3

a) Restricted backfill of soil from stockpile against structures constructed under ground level and compact in layers as specified in SD D 5.2.3.2.

DB EARTHWORKS (PIPE TRENCHES)

SD DB 3.1: Classes of excavation

Add the following to DB 3.1:

For the purposes of measurement and payment in this contract, intermediate and boulder excavation are to be classified as soft excavation. Hard Rock remains as classified in this clause.

SD DB 3.5: Backfill Materials

b) Substitute "from trenches" in DB 3.5(a) with "from trenches, channels or street excavations".

Add the following to DB 3.5.

b) All pipe trenches underneath the roadway must be backfilled with sand of upper selected layer quality compacted to 100% of the modified AASHTO maximum density. Sand is defined as non-plastic material and complies with the following sieve analysis:

	% passing
4.740 mm sieve	95% minimum
0.425 mm sieve	50% minimum
0.075 mm sieve	10% maximum

DB 3.6: Materials for reinstatement of roads and paved areas

SD DB 3.6.1: Subbase and Base

Substitute DB 3.6.1 with the following:

Where trenches cross or run adjacent to surfaced roads and paved areas of which the surfaces are scheduled to be reinstated, the material excavated from the existing base and/or subbase pavement layer(s) shall be set aside and used in the reconstruction of the subbase layer. Where applicable, new material complying with the requirements of SANS 1200 MF shall be used for the reconstruction of the base layer. Any shortfall in material for the reconstruction of the subbase layer shall be made up by the use of material complying with the requirements of SANS 1200 ME.

SD DB 3.7: Selection

Add the following to sub clause DB 3.7:

The Contractor shall deal selectively with material from general excavation. Any material that does not comply with the minimum requirements for the respective layers, shall be removed and replaced with suitable material, all at the Contractor's expense.

The Contractor shall deal in such a way with materials from all excavations to ensure that usable material is not contaminated with unsuitable material. If usable material is contaminated, such contaminated material shall be removed and replaced with suitable material, all at the Contractor's expense. No additional payment shall be made in respect of this and all relevant costs shall be deemed to be included in the tendered rates.

All unsuitable material shall be removed prior to importing fill material to such areas.

Prior to commencing with earthworks, the Contractor shall make trial holes at positions and to depths ordered by the Engineer, to determine the area containing unsuitable material that is to be spoiled.

SD DB 3.8: Geotextiles for unstable trench-bottom conditions

The following products are acceptable: A4 Geotextile.

Alternatives may be submitted to the Engineer for approval.

DB 4: PLANT

SD DB 4.1: Excavation equipment

Add the following to DB 4.1:

All excavations exceeding the specified widths, shall be backfilled with approved selected material. No payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates.

DB 5: CONSTRUCTION

SD DB 5.1: Precautions

SD DB 5.1.: Stormwater, seepage and dewatering of excavations

The Engineer may instruct the Contractor to place a layer of crushed stone bedding (150 mm minimum thickness) on the bed of the trench. If the conditions remain unstable due to the condition of the material and degree of saturation, the Engineer may instruct the Contractor to place a geotextile membrane underneath the layer of crushed stone.

After placement of the stone bedding, geotextiles must be folded over with a minimum overlap of 300 mm to form a closed subsoil drain. The crushed stone bedding and geotextile will only be measured when instructed in writing by the Engineer.

SD DB 5.2: Minimum base widths specified

Substitute paragraph (b) of DB 5.2 with the following:

The minimum base width for all pipes and ducts with a diameter less than 125 mm shall be 600 mm plus the outside diameter of the pipe or duct, irrespective of the depth at which they are laid, except for subsurface drains where the width shall be 400 mm and for house water connections where the width shall be 600 mm. Bedding is required for all pipes and ducts irrespective of the diameter, except for subsurface drain pipes.

The payment for bedding, blanket and other volumetric based items will be based on the minimum base width specified above irrespective of the equipment used by the Contractor, which may result in wider trenches (Also refer to SD DB 4.1). For example, if a pipe with a 400mm outside diameter is laid the width for the calculation of the volume of the bedding, blanket and selected backfill will be 1000mm (2x 300mm + 400mm) irrespective of the equipment used for the excavation. If the wider trench necessitates wider bedding, blanket or backfill material, the costs of the extra material will be deemed to be included in the tendered rate.

SD DB 5.4: Excavation

Add the following to DB 5.4:

Excavation and backfilling of pipe trenches on sidewalks in the residential area shall be done in such a way as to ensure the least possible disruption to the public and entrances to properties. No additional payment shall be made for this and all relevant costs shall be deemed to be included in the tendered rates. The tendered rate for trench excavations shall also include the cost to backfill trenches to provide access to adjacent private properties on daily basis.

The maximum length of continues open trenches may not exceed 100m the total length of open trench on site may not exceed 150m at any given time.

SD DB 5.5: Trench bottom

Substitute "90%" in the second paragraph of DB 5.5 with "93% (100% for sand)".

SD DB 5.6: Backfilling

SD DB 5.6.2: Material for backfilling

Substitute "from trench excavations" in the first paragraph for DB 5.6.2 with "from trench, channel, road reserve or other excavations on the site of works".

Add the following:

All trenches underlying or adjacent to streets shall be backfilled with sand compacted to 100% of Mod AASHTO density, to the bottom of the subbase.

SD DB 5.6.3: Disposal of Soft Excavation Material

Add the following to DB 5.6.3:

All surplus and unsuitable material as described in DB 5.6.3 shall be disposed of at the spoil site, (as described in SD D 5.2.2.3) and levelled off.

DB 5.7: Compaction

SD DB 5.7.2: Areas subject to traffic loads

Add the following *to DB 5.7.2:*

All pipe trenches that fall in the street reserves, will be regarded as areas subject to traffic loads.

Sand backfilling shall be compacted to 100% of Mod.AASHTO density.

DB 5.9 Reinstatement of surface

SD DB 5.9.4: Bitumen Roads : Subbase and Base

Add the following to DB 5.9.4:

Any additional imported material required for the reinstatement of selected layers, subbase or base shall comply with the requirements of the relevant standardised and/or specification data for this contract.

DB 8: MEASUREMENT AND PAYMENT

SD DB 8.1: Basic principles

Delete "along the route of the pipeline" in DB 8.1.1.

SD DB 8.1.2 (b) *Replace the depth increments of 1 m with 0.5 m for excavation, where applicable.*

DB 8.2: Computation of quantities

SD DB 8.2.4: Shoring

Add the following to DB 8.2.4:

No payment will be made in respect of this and all costs will be deemed as covered by the rate for excavation. Shoring will only be measured and paid for if written approval is given by the Engineer before it is installed.

DB 8.3: Scheduled items

SD DB 8.3.2: Excavation

SD DB 8.3.2 (a): Excavate in materials for trenches, backfill, compact and dispose of surplus material ..... m

Add the following to DB 8.3.2 (a):

The depth of excavation in street reserves shall be measured from the final finished level of the road reserve profile to the invert level of the pipe. Additional excavations required for bedding of pipes must also be included in this rate.

The rates for trench excavation must also include any actions needed to deal with any water in the excavations, as well as loading and transportation of material to a spoil site, spoiling and compacting the material to 90% (100% for sand) of Mod AASHTO at a spoil site as described in SD D 5.2.2.3. The backfill material must be compacted to 93% of Mod AASHTO (100% for sand) in all backfilling of trenches.

The rate for excavation for subsurface drains shall cover the costs of excavation and spoil of surplus material and the supply of suitable free draining sand to be placed directly above the geotextile up to 200mm below the final surface levels.

The rate shall also provide for the fact that the excavation width in sand/boulders will be wider than normal.

For duct excavations the tender shall refer to the section where all the types, diameters and pipe combinations are listed to determine trench width and depth detail.

The rates are to allow for excavation in the classes of material as referred to in SD D 3.1.2 as well as excavation and disposal of unsuitable material from the trench bottom. There will be no extra-over payment in terms of intermediate or boulder excavation, but only for hard-rock excavation.

Add the following to DB 8.3.2 (b):

SD DB 8.3.2(b): Extra over for excavation in:

In accordance with SD DB 3.1, all classes of excavation will be paid for under item SD DB 8.3.2 (a), except for hard rock that will be paid for under this item.

1) Hard rock excavation ..... m^3
2) Hard rock excavation (methods other than blasting) ..... m^3

This payment item shall be for hard rock excavation by methods other than blasting.

SD DB 8.3.2(c): Excavate unsuitable material from trench bottom ..... m^3

Delete “and the disposal” in the heading of DB 8.3.2 (c) and in the last paragraph.

SD DB 8.3.2(d): Hand excavation and backfill ..... m^3

The provisions of DB 8.3.2(a), DB 8.3.2(b) and DB 8.3.2(c) shall apply mutatis mutandis for hand excavation.

Payment shall only be made if so ordered by the Engineer.

SD DB 8.3.2(e) Extra-over SD DB 8.3.2(a) for temporary stockpiling of material ..... m^3

Temporary stockpiling of material will only be measured and paid for if ordered so in writing by the Engineer and if it is not contaminated with unsuitable material.

The rate shall provide for the handling and stockpiling of the material within the free haul distance.

SD DB 8.3.2(f) Extra-over item SD DB 8.3.2.(a) for restricted excavation for pipe trenches in all materials and use for backfilling, fill or disposal ..... m^3

Restricted excavation will be measured and paid as an extra over ordinary excavation in cases where the work space is insufficient to place excavated material alongside the trench, and some or all excavated material has to be temporary removed.

Restricted excavation will only be paid when approved in writing by the Engineer.

Restricted excavation will be measured and paid where work space problems occur whether shoring is installed in the trench or not. Where no shoring is installed, the natural slope of the in-situ and excavated material as contained in SANS 0120 Part 5 DB 3.1.3 will be considered when determining the available space for placing the excavated material.

Should excavated material be unsuitable as backfill material and has to be removed, then no restricted excavation will be measured and paid, but payment will be made under the item for the removal of unsuitable material.

Measurement and payment for restricted excavation will only be made according to the nominal trench excavation and not the volume of excavated material. The rate for restricted excavation must allow for trench walls that collapse where no shoring is installed. The rate must also allow for handling excavated material twice, load, transport, off-load, temporary storage and/or stockpiling, load, transport back to the required position and off-load/placing.

Restricted excavation will be paid according to the discretion of the Engineer in cases where there is enough space for excavated material, but not enough space to place pipe material directly next to the trench.

No overhaul will be measured or paid and all haulage will be regarded as free haul.

Restricted excavation will be measured according to the percentage of the nominal trench excavation that needs to be removed.

The stipulations of Clauses DB 8.3.2(a), DB 8.3.2(b) and SD DB 8.3.2(c) shall apply mutatis mutandis.

SD DB 8.3.2(g) Extra-over item SD DB 8.3.2(a) for hand excavation and backfill around existing services ..... m^3

Hand excavation around existing services as described in SD D 5.2.2.4 will be measured as an extra over machine excavation. The rate must include the standing time cost of the machine while hand excavation around the service is executed.

SD DB 8.3.3.3: Compaction in road reserves ..... m^3

Add the following to DB 8.3.3.3:

This item is only applicable to the backfill above the bedding and fill blanket. The volume measured for payment under this item will be determined from the final finished level. No payment will be made where sand, compacted to 100% of Mod AASHTO is used for backfill. All type A3 sands will qualify as sand. This item is only payable if the compaction effort requirement is greater than that specified in SD DB 8.3.2. This item is applicable only to the pipe trenches that cross the roads.

SD DB 8.3.3.4: Overhaul ..... m^3 or m^3 km

No overhaul will be measured or paid and all haulage will be regarded as free haul.

DB 8.3.5: Existing services that intersect or adjoin a pipe trench

SD DB 8.3.5 (a): Services that intersect a trench ..... no

Add the following to DB 8.3.5 (a):

Existing services with a depth of cover exceeding 300 mm, measured from the bottom of excavation to the top of the existing service shall not be measured and paid for. There will be distinguished between existing trunk services and existing erf connection.

The rate shall also allow for the cost of the following:

(i) Sufficient photo's of existing services being taken and handed over to the Engineer before they are being crossed, if there is a possibility of a difference in opinion over the condition of those services.

(ii) Reinstatement of existing services damaged by the Contractor.

(iii) Reinstallation of services which were removed by the Contractor.

SD DB 8.3.5 (b): Services that adjoin a trench ..... no or m

Add the following to DB 8.3.5 (b):

The unit "number" will only be used for services such as poles and trees.

The cost for shoring shall be deemed as covered by the listed items and no additional payment will be made for this.

No payment will be made for overhead services that do not directly rest on the ground except where allowance is made for this in the schedule of quantities.

Existing services that rest directly on the ground e.g. poles, trees, walls and structures are handled in the same way as underground services, but the axis of the services will be determined as follows:

The vertical axis is defined as the nearest side or corner of the existing structure to the excavation, measured at the point where the structure and natural ground level intersect.

The horizontal axis will be at the point where the structure and the natural ground level intersects. In this instance, where the excavation falls above the 45° line but within 1,0 meter horizontally from the structure, the service will also be measured as adjoining.

If the structure, according to the abovementioned does not qualify as an adjoining service but the foundation of the structure is such that if a 45° line drawn from the nearest bottom corner thereof cuts through the excavation, the structure will be measured as an adjoining service if approved by the Engineer.

If there is more than one service adjoining the same trench and such a service is on the same side of the trench, payment will only be made for the nearest service to the trench, of if they are the same distance from the trench for the top one. The maximum number of services that will be paid for, is therefore one on each side.

SD DB 8.3.6.1: Reinstate road surfaces, complete with all courses ..... m²

Add the following to clause DB 8.3.6.1

The layer works to be allowed for under this item are as follows below. The costs of the imported material to be used in terms of SD DB 3.6.1 and SD DB 5.9.4, and for surfacing to be included in this rate are:

For Asphalt roads	40mm	Medium continuously graded premix
	150mm	G4 base coarse compacted to 98% MOD AASTHO density
	150mm	G5 subbase compacted to 95% MOD AASTHO density
	150mm	G7 upper selected compacted to 93% MOD AASTHO density
	150mm	G9 lower selected compacted to 90% MOD AASTHO density

For sidewalk: 15mm	30mm	Fine continuously graded premix
	100mm	G5 subbase course compacted to 95% MOD AASHTO density
	100mm	G7 upper selected compacted to 93% MOD AASTHO density
For Paved Areas	80mm	80mm Concrete Interlocking paver on 20mm sand
	150mm	G5 subbase compacted to 95% MOD AASTHO density
	150mm	G7 upper selected compacted to 93% MOD AASTHO density
	150mm	G9 lower selected compacted to 90% MOD AASTHO density
For gravel roads type 1	150mm	G5 gravel wearing coarse compacted to 95% MOD AASTHO density
	150mm	G7 upper selected compacted to 93% MOD AASTHO density
For gravel roads type 2	150mm	Rip and recompact to 93% MOD AASTHO density
	150mm	G5 gravel wearing coarse compacted to 95% MOD AASTHO density

Should the layer works for reinstatement at certain locations be changed, on instruction by the Engineer to suit the existing, the rate will be adjusted accordingly.

No additional payment for a selected layer or any work relating to a selected layer shall be made, since the backfill material in road reserves shall be as per SD DB 3.5. Should level control of the backfill material be required, it is deemed to be included in the tendered rate.

The tendered rate shall be for reinstating the actual width of road layers damaged including provision for the fact that the excavation width in sand and wet conditions will be wider than normal as well as for benching each layer with 150mm. The rate shall also include material, labour and equipment for cutting back the damaged premix layer to form a neat straight line parallel to the kerb line with no steps for at least 20m per section. The rate shall also include the removing of the old premix by hand and replacing it with new premix. The rate shall also include the sealing of joints between existing and new premix with a viaseal.

However, where actual reinstatement is specified in the Bill of Quantities, no additional allowances need to be considered since the actual reinstated dimensions will be measured for payment. This will only be done on the instruction of the Engineer for other areas indicated by the Engineer.

The rate shall also include the removal of excess material (including asphalt) and dumping at a site identified by the contractor.

SD DB 8.3.8: Handling of ground water in trenches

The rates for excavation must include any costs for action needed to deal with water in the excavation.

Where instructed by the Engineer, a layer of crushed stone will be put down to stabilize the trench bed. The volume will be calculated according to the length of the trench, the specified minimum width and prescribed thickness.

The tendered rate shall provide for all additional excavations, and the preparation of the trench bed to allow for the layer of stone, the removal of unsuitable material, the provision and placing of 150 mm layer of crushed stone for the prescribed width as well as any other action need to stabilize the trench.

If the Engineer instructs the use of geotextile, it will be measured per area.

The rate must include all costs for the provision and placing of material and losses for excavation that are bigger than prescribed.

a) Provision and placing of crushed stone .....m^3
b) Provision and placing of geotextile .....m^2

SANS 1200 G: CONCRETE (STRUCTURAL)

SD G 3: MATERIAL

SD G 3.2: CEMENT

SD G 3.2.1: Applicable Specifications

Replace G 3.2.1 with the following:

Concrete with the minimum and maximum cement contents of 325 kg/m3 and 400 kg/m3 respectively shall be used. For concrete containing PFA the maximum cementitious content shall be 450 kg/m3. The water cement ratio shall not exceed 0.50. All concrete mix designs shall be approved by the Engineer in advance. Strength of concrete is as shown on the drawings.

The mix design and casting procedure shall be approved by the Engineer prior to casting.

Portland Cement I5FA ("PC I5FA") compliant with the requirements of SANS 831 can be used. The fly-ash cement obtained by blending of the OPC and Pulverised Fly Ash (PFA) shall comply with the requirements of SANS 1466-1988. No other types of cement (e.g. Rapid Hardening Cement, Portland Blast furnace Cement) may be used. If aggregates to be used in this contract are alkali-reactive, the OPC used on this Contract shall not have an alkali content Na 2 O+0,656K 2 O) which exceeds 0.6% by mass of the cement. For the cement used in conjunction with the selected additional aggregates the alkali content per cubic metre of concrete shall not exceed 2,1kg. The Contractor shall submit the necessary test results to prove the above.

Add the following to G 3.2.1:

"In accordance with the new SANS, all Portland cement (OPC or RH) shall be in accordance with SANS ENV 197-1 (CEM II) except for non-structural concrete where CEM I 32.5 is acceptable. Pulverized fly ash (PFA) shall conform to the requirements of SANS 1491-2."

SD G 3.2.2: Alternative types of cement

Replace the contents of G 3.2.2 with the following:

Only ordinary Portland cement (OPC) may be used. Should the Contractor wish to use any other type of cement, he shall obtain the Engineer's prior written approval (see G 8.1.3.2 and 8.1.3.3).

SD G 3.2.3: Storage of cement

Add the following to G 3.2.3:

Cement shall not be kept in storage for more than 10 weeks without the Engineer's permission.

SD G 3.4: AGGREGATES

SD G 3.4.1: Applicable Specification
Replace G 3.4.1 with the following:

The stone size for all concrete shall be as shown on the drawings.

The maximum water absorption of the coarse aggregate shall not exceed 1% and the flakiness index shall not exceed 25%. The maximum water demand of the fine aggregate shall be 190 l/m3 and the aggregate shall comply with the requirements of SANS 1083.

Aggregates to be used in this contract shall be tested in accordance with subsection C-15 of SANS 1083 to determine whether they are potentially alkali-reactive. If they are alkali-reactive they shall either be replaced with aggregates that are non-reactive. The fineness modulus of the sand must be between 1,7 and 2,8 with a standard deviation of not more than 0,1.

At tender stage the Contractor shall assure himself by means of tests and test mixes by an accredited laboratory that the fine and coarse aggregates that he intends to use comply with the specification. The tendered rates shall therefore be deemed to allow for the importation of aggregates that do comply with the Specification.

The Contractor shall be responsible for locating the sources of all aggregates.

SD G 3.4.3: Storage of aggregates

Where aggregates of differing chloride content are stockpiled on the site, strict control shall be exercised over their use for differing classes of concrete.

Add the following new sub-clause to G 3.5:

SD G 3.5.3: Mixing Water

Only potable water shall be used for mixing water.

SD G 4: PLANT

SD G 4.3.1: General Requirements for Mixing Plant

Add the following to sub-clause G 4.3.1:

All concrete shall be weight batched.

SD G 4.4: Vibrators

Add the following to clause G 4.4:

All concrete shall be compacted by vibrators and a spare vibrator in working order shall be available on Site for use at all times.

SD G 4.5: Formwork

SD G 4.5.3: Ties

Add the following to G 4.5.3:

Form work ties in water-retaining structures shall be of the 12mm Extended Coil Tie with Water-Bar-type of Form-Scaff. No ferrules or ferrule pipes may be used in structural elements of water-retaining structures. The Contractor shall allow in his rates for the specified formwork ties and ensure that his formwork is compatible with these ties.

After removal of plastic cones from concrete, the openings in the concrete shall be made rough with a mechanical wire brush. Thereafter the openings shall be painted with cement mortar and filled with a shrinkage-free grout such as “M Bed Standard” from Sternson or a similar approved non-toxic product compatible with the chemicals used in the water. The grout filling shall be applied in such a way as to protect the ties against corrosion.

SD G 5: CONSTRUCTION

SD G 5.1: Reinforcement

SD G 5.1.2: Fixing of reinforcement and spacer-blocks.

Add the following to clause G 5.12:

The welding of reinforcement steel is not permitted.

Spacer-blocks must be of an approved design.

Where mortar blocks are used, they must be properly shaped so that they do not slip out of position and they must be made of the same mortar mix as the concrete into which it is cast. The mortar must be compacted by using approved methods in order to give blocks that have a density of at least 2 300 kg per m3 and that are free of honey-combing. They must be cured in water for at least 7 days.

SD G 5.1.3: Cover
Replace G 5.1.3 with the following:

The minimum concrete cover for water-retaining and non-water retaining structures are indicated on the drawings.

The cover blocks for water-retaining structures shall be made of 30 MPa/l3 mm concrete using "PC 15FA" cement. The size of the cover blocks shall be 50mm x 50mm, with a thickness equal to the specified cover. Wires shall be cast into the blocks to enable them to be fixed to the reinforcement. The concrete shall be thoroughly compacted, and the blocks shall be protected against early drying and shrinkage due to sun and wind, by frequent wetting while still in the mould. After the blocks have been removed from the mould they shall be kept in water until used.

SD G 5.1.4: Splicing
Add the following to G 5.1.4:

Splice lengths for water-retaining structures shall not be less than 45 diameters and in non-water-retaining structures not less than 40 diameters. Where applicable in water-retaining structures, splices shall be staggered so that they are evenly spread throughout the structure.

SD G 5.2: Formwork

SD G 5.2.1: Classification of finishes

Add the following to clause G 5.2.1(b):

Wherever it is indicated on the drawings, exposed concrete surfaces above final ground level and inside the valve chambers and pump building must have a smooth surface finish. The forms used shall be unblemished and the panels regular. In the case of circular surfaces to be formed, a "Flexform system" or similar approved curved formwork system shall be used. Joints shall be a feature of the pattern and shall be handled with care. The finished concrete shall be accurate to Degree of Accuracy II. After removing the formwork, the surfaces must receive no after-treatment except in the positions of the formwork anchor bolts. These must be placed in a regular and precise pattern.

Add the following sub-clauses to G 5.2.1:

c) <u>Special off-shutter finish</u>
The special off-shutter finish is applicable to all visible concrete. Form work panels shall be made of steel panels. Approved laminated wooden board inserts to steel framed panels shall only be used in confined places and the use thereof will be subject to approval by the Engineer. The panels shall be free from rust, ridges, fins, bulges, imperfections, irregularities, air bubbles, honeycomb or surface discolourations. Grout checks and chamfers shall be used at all construction joints and corners.

Joints between panels shall be sealed tightly to prevent local honeycombing or leaching of concrete. Joints between panels shall form straight horizontal and vertical lines which shall be spaced evenly on the formed concrete surface, and shall be even and smooth and require minimal or no finishing. The layout of all form work panels and construction joints shall be discussed with the Engineer before application, and approved in writing.

d) Finish on blinding layers
A blinding layer or 15 MPa/13mm concrete with a minimum thickness as shown on the drawings shall be used.

e) Concrete finish
All unformed concrete to have a wood-floated finish unless indicated different on the drawings.

f) Visible corners
Visible corners shall have a 25mm x 25 mm chamfer. No additional payment will be made for this and it will be deemed to be included in the tendered rates.

g) Smooth Finishes
Wherever it is indicated on the drawings, exposed concrete surfaces above final ground level and inside the valve chambers and pump station building must have a smooth surface finish. The forms used shall be unblemished and the panels regular. Joints shall be a feature of the pattern and shall be handled with care. The finished concrete shall be accurate to Degree of Accuracy II. After removing the formwork, the surfaces must receive no after-treatment except in the positions of the formwork anchor bolts. These must be placed in a regular and precise pattern.

SD G 5.2.5: Removal of Formwork

Add the following to sub-clause G 5.2.5:

The Contractor shall make provision for the continued support of beams and slabs while the formwork is being removed and/or for back propping of beams, slabs, etc. The propping may be required simultaneously on more than one level directly underneath one another. The requirements for continuous propping and/or back propping shall be calculated to a theoretical model that is acceptable to the Engineer, and details shall be submitted for the Engineer's approval. Data required for such calculations, e.g. design loads and structural dimensions, will be supplied by the Engineer on request.

Add the following new sub-clause to G 5.2:

SD G 5.2.6: Chamfers and Fillets

All internal and external corners in the concrete must be formed with chamfers or fillets, except where otherwise specified or instructed. This requirement is normally not shown on drawings. This item shall not be measure and paid separately and the costs thereof shall be allowed for in the formwork rates.

SD G 5.3: Holes, chases and fixing blocks

Add the following to clause G 5.3:

Fixing blocks and fixtures may be embedded in concrete, provided that the strength or any other desirable feature (such as the appearance of the member) is not, in the opinion of the Engineer, impaired thereby.

SD G 5.5: Concrete

SD G 5.5.1.3: Workability

Replace G 5.5.1.3 with the following:

The workability range for all PFA concrete (slump) shall be between 60mm and 90mm for a pump mix and between 50mm and 60mm for a non-pump mix.

SD G 5.5.1.5: Durability

The exposure conditions for concrete are classified as "Severe".
Replace G 5.5.1.5 with the following:

The maximum water/cement ratio for moderate sections, general reinforced concrete, exterior portions of mass concrete, as well as for internal concrete in buildings under conditions of moderate exposure, is 0,50.

The maximum water/cement ratio for concrete slabs on the ground under very severe conditions, is 0,45.

SD G 5.5.1.7: Strength concrete
Add the following to sub-clause G 5.5.1.7:

c) Due to the design approach and assumptions adopted for this Contract, it is of the utmost importance that good strength concrete with consistent quality and composition is used throughout. All possible measures to limit shrinkage shall be applied.

d) In addition to the requirement that the Contractor design the mixes to the specified strengths, the cementitious material content shall be within the limits of 325 kg/m3 to 400 kg/m3 for Strength 35MPa reinforced concrete. For concrete containing PFA the maximum cement content shall be 450 kg/m3.

e) All concrete shall be based on designed mixes. Trial mixes shall be made by an approved laboratory with suitable experience in the design of PFA concrete mixes. No concrete shall be cast before the design mix and casting procedures has been approved by the Engineer. The Engineer may at any time request that the concrete mix must be revised.

f) The concrete mix, which is used in water retaining structures, must have a cement water ratio of at least 2.0, and to ensure workability, water reducing agents of approved manufacture may be used. The concrete mix design must be prepared in an approved laboratory and must be presented to the Engineer for approval. In the design of the concrete mix, special attention must be given to the fact the concrete is to be used in a water retaining structure, and should therefore be a very dense mix.

Add the following new clause to G 5.5.1:

SD G 5.5.3.2: Ready-mixed concrete

Add the following to G 5.5.3.2:

The use of ready-mixed concrete for this Contract will only be permitted if adequate proof of quality control for the specific design mix can be provided to the Engineer.

SD G 5.5.5: Placing

Add the following to sub-clause G 5.5.5.1:

The Contractor shall give the Engineer at least 24 hours notice of his intention to cast concrete.

Add the following to sub-clause G 5.5.5.5:

Concrete in water-retaining structures shall not be allowed to fall freely through a height of more than 2.4m. This implies that walls in these structures may not be cast in lifts of more than 2,4m in height.

SD G 5.5.7: Construction Joints

Add the following to sub-clause G 5.5.7.1:

Construction joints may only be placed where shown on drawings. Should the Contractor wish to deviate from the Engineer's placement of the construction joints, he shall indicate his positioning of the construction joints on the drawings before construction work commences and submit these to the Engineer for comment and approval.

SD G 5.5.8: Curing and Protection

Add the following to this clause:

a) Floor and wall footings
Abovementioned structural elements shall be protected with approved plastic sheets that comply with the requirements as specified below immediately after the prescribed surface finishing has been completed. When the concrete has gained sufficient strength to prevent damage to the surface thereof, the plastic sheets shall be removed on a regular basis to allow the application of more water to the concrete to ensure that it is kept moist continuously. Plastic sheets shall be reinstalled after each wetting of the concrete. The curing period shall be at least 10 days.

b) Wall and columns
Structural elements other than horizontal elements, such as walls, columns etc shall be thoroughly sprayed with water immediately after the removal of form work. Immediately after this the concrete shall be covered with approved plastic sheets. These shall be removed on a regular basis to allow the application of more water to the concrete to ensure that it is kept moist continuously. Plastic sheets shall be reinstalled after each wetting of the concrete. Abovementioned shall be cured by means of this method for at least 10 days.

Plastic sheets used for curing shall be waterproof and may not be torn or otherwise discontinuous. It shall be white or lightly coloured. Black or other dark coloured plastic sheets shall under no circumstances be allowed. Sheets shall be held down or fixed securely to the elements being cured and joints in sheets shall be taped to prevent loss of moisture from the concrete. Care shall be exercised to prevent staining of exposed concrete.

Notwithstanding the preceding specifications, the Contractor shall also ensure that the concrete shall not be exposed to thermal shocks during the first 28 days after casting and he shall take the necessary, additional precautionary measures to shield the concrete with plastic sheets or hessian during extreme warm, cold or windy weather conditions. Hessian shall be wetted should the conditions necessitate this. Curing methods shall be such that saturation and subsequent damage to soil foundations is prevented. The Contractor shall make allowance in his rates for the abovementioned curing methods.

SD G 5.5.10: Concrete Surfaces

Add the following to sub-clause G 5.5.10.2:

(a) Wood-floated Finish
When a wood-floated finish is specified, the surface shall first be treated as specified in sub-clause 5.5.10.1, and after the concrete has hardened sufficiently, it shall be floated to a uniform surface tree from trowel marks. The levelled surface shall be wood floated either by hand or by machine only, to remove trowel marks.

(b) Steel-floated Finish
When a steel-floated finish is specified, the surface shall be treated as specified for a wood-floated finish above, except that when the bleed water has disappeared and the concrete

has hardened sufficiently to prevent the migration of concrete foam to the surface, the levelled surface shall be floated with a steel trowel on which a firm uniform pressure shall be applied to provide a dense, smooth, uniform surface of high quality free from trowel marks.

SD G 5.5.13: Grouting
Add the following to replace G 5.5.13:

SD G 5.5.13.1: Materials

SD G 5.5.13.2: Water

Water for grout shall comply with the requirements given in Sub-clause 3.3 of SANS 1200 G.

SD G 5.5.13.3: Aggregates

Notwithstanding the requirements of Sub-clause 3.4.1of SANS 1200 G, the grading of fine aggregate (sand) and coarse aggregate (stone or pea gravel) shall conform to the gradings given in Tables 1 and 2, respectively, hereafter.

SD G 5.5.13.4: Cement

Cement shall be ordinary Portland cement complying with the requirements of SANS 471.

SD G 5.5.13.5: Admixtures

Admixtures shall comply with the requirements of Sub-clause 3.5 of SANS 1200 G and shall have a proven record of satisfactory performance. All admixtures to be approved by Engineer.

SD G 5.5.13.6: Proprietary grouting materials

Unless otherwise approved by the Engineer, proprietary grouting materials shall be obtained ready mixed in sealed pockets as supplied by the manufacturers.

Table 1

1	2
Test sieve nominal aperture size, mm	% Passing (by mass)
9.5	100
4.75	95-100
1.18	46-65
0.3 9 (300 um)	5-15
0.15 (150 um)	0-5

Table 2

1	2
Test sieve nominal aperture size, mm	% Passing (by mass)
9.5	100
4.75	95-100
2.36	0-5

SD G 5.5.14: Defects

Add the following sub-clause G 5.5.14.1:

The method of repair of defects in the concrete shall be by approved epoxy primer, epoxy and filler applied strictly according to the manufacturer's specifications or such other methods acceptable to the Engineer. Cementitious mortar may not be used for such remedial works. All repair materials shall be of an equivalent thermal and structural elasticity to concrete.

Add the following new sub-clauses to G 5:

SD G 5.6: Joints

SD G5.6.4: Construction Joints in the Walls (Horizontal)

This clause is to be read in conjunction with G 5.5.7. Construction joints in the walls are permitted.

Allowable positions of these joints are shown on drawings or shall be to the approval of the Engineer.

The payment unit shall be for the linear metre. The tendered rate shall include supply and casting-in of waterstop, the sealant and the forming and preparation of concrete at the joint as per detail drawings.

SD G 6: TOLERANCES

SD G 6.1: Basis of measurement

SD G 6.1.1: General

A Degree of Accuracy II shall apply in general, except for smooth shuttering (exposed wall and inside valve chambers) which must have a Degree of Accuracy I.

SD G 6.2: Permissible deviations

SD G 6.2.3: Specified permissible deviations

Add the following to G 6.2.3:

Degrees of Accuracy shall apply as specified in SD G 6.1.1. Each specified permissible deviation shall be binding by itself. No cumulative effect of permissible deviations will be considered.

The specified permissible deviations also apply to slip-form concrete, unless the Engineer has accepted another set of permissible deviations in writing beforehand. Such amended permissible deviations shall clearly make provision for interfaces between structures erected with the aid of conventional concrete.

The maximum permissible deviation from a 3 m long straight line connecting two points on the surface of a finished floor is 5 mm.

Add the following to G 6.2.3 b):

Monolithic finishes should be laid in panels of the same size as those of the base. For separate bonded finishes, the area of a panel should not exceed 9,0 m². Where a concrete overslab is used to provide a concrete wearing surface over a damp-proof membrane (i.e. separate unbonded construction), joint spacing should not exceed the lesser 30 times the slab thickness, and 4,5 m.

The general pattern of the panels will depend upon such aspects as the shape of the floor area and the position of columns. Wherever possible, panels should be square, or the length of a panel should be limited to 1.25 times its width, to reduce the tendency to crack.

SD G 7: TESTS

SD G 7.2: Testing

SD G 7.2.1: General

Add the following:

The Contractor shall allow for all the costs for testing in his rates.

SD G 7.3: Acceptance criteria for strength concrete

SD G 7.3.2: Criteria for Three Valid Test Results

Add the following to G 7.3.2:

Test results obtained by a ready-mixed concrete production plant as part of its quality-control system are not acceptable for evaluation purposes in terms of sub-clause G 7.3, but test samples shall be taken from ready-mixed concrete on location.

Cubes shall be taken on all pours in accordance with G 7.3. All costs hereof shall be deemed to be included in the rate tendered for the supply of concrete. Where cubes are not taken during a pour no payment shall be made for that particular pour.

Add the following new item to clause G 7:

SANS 1200 L: MEDIUM PRESSURE PIPELINES

L3: MATERIAL

SD L 3.1: General

Substitute the first sentence of L3.1 with the following:

Types and classes of pipes shall be as specified on the drawings.

All bends, T-pieces, reducers and other fittings for uPVC pipes, excluding couplings, shal be mild steel specials shall after manufacture be hot dip galvanized and coated internally and externally with Plascoat PPA 571 HES, to minimum 0.25mm coating thickness or carboline 891 (3 coats, minimum 125 microns/coat) to the manufacturer's specification.

Only stainless-steel bolts and nuts shall be used on all fittings such as saddles, flanges, short collar couplings, etc.

All brass fittings shall be SANS approved and manufactured from DZR brass.

Compression fittings for HDPE pipes must be in accordance with the Particular Specifications.

SD L 3.3: C.I. pipes, fittings and specials

In the second sentence:

Change "AC pipes" to "AC or uPVC pipes"

SD L 3.8: Jointing materials

SD L 3.8.1: uPVC pipes

Add the following to L 3.8.1:

Cast iron fittings, valves and hydrants must be joined to AC pipes with short collar couplings. If the pipe differs from the class of the cast iron fittings, class to class adaptors shall be used and the cost shall be included in the cost of the fitting.

SD L 3.4: Steel pipes, fittings and specials

SD L 3.4.2 Pipes of Nominal Bore up to 150 mm

Replace L 3.4.2 with the following:

All steel pipes with a nominal bore up to 150 mm shall be flanged and heavy duty and shall comply with the applicable requirements of SANS 62. According to this standard, the minimum wall thickness will be as indicated in the table below.

ND	Wall Min (mm)
80	4.2
100	4.7
125	4.7
150	4.7

All mild steel pipes and specials, except puddle pipes, shall after manufacture be hot dip galvanized and coated internally and externally with Plascoat PPA 571 HES, to minimum 0.25mm coating thickness or carboline 891 (3 coats, minimum 125 microns/coat) to the manufacturer's specification.

SD L 3.4.3 Steel pipes of nominal bore over 150 mm
Replace L 3.4.3 with the following:

All mild steel pipes with a nominal bore over shall be flanged and manufactured from Grade B steel and shall have a wall thickness of at least 6.0 mm, except where otherwise specified. The pipes and specials are to be welded and manufactured according to the requirements of SANS 719 Grade B.

All mild steel pipes and specials, except puddle pipes, shall after manufacture be hot dip galvanized and coated internally and externally with PlascoatPPA 571 HES, to minimum 0.25mm coating thickness or carboline 891 (3 coats, minimum 125 microns/coat) to the manufacturers specification.

Hydraulics tests, according to SANS 719, shall be carried out on all pipes prior to dispatch from the manufacturers workshops. The welding protective painting etc. shall be inspected and tested by the SANS or an approved independent inspection company. The test certificate shall be submitted to the Engineer upon delivery of the pipes to site.

SD L 3.8: Jointing materials

The jointing material used on all flange joints shall be of a suitable compressed mineral fibre at least 3 mm thick complying respectively with BS EN 681 or BS EN ISO 23936, as applicable. All gaskets shall be full face.

SD L 3.8.3: Flanges and Accessories

Change "SANS 1123 to "the applicable table in SANS 1123" and delete the words “or BS 4504”

SD L 3.8.4: Loose flanges

Substitute the first sentence of the last paragraph of L 3.8.4 with the following:

Bolts and nuts shall comply with the requirements of SANS 135.

SD L 3.9.5: Joints, Bolts, Nuts and Washers

Substitute L 3.9.5 with the following:

All joints, bolts, nuts and washers shall be stainless steel 316.

SD L 3.9.7: Contact between Dissimilar metals

Isolating bolt units shall be supplied.
Add the following to L 3.10

SD L 3.10.1: Valves

1. All valves shall be of the AVK Type or approved equivalent and shall comply with the requirements of SANS 664, shall bear the SANS mark, and the pressure rating shall be as per the relevant drawings.

2. Valves shall have non-rising spindles and the direction for opening and closing shall be permanently engraved on the valve casing and shall close clockwise (RH closing).

3. Valves shall be fitted with cast iron tops, secured with retaining bolts or as specified on the drawings.
4. Only valves supplied with minimum thickness of 250 micron CoponKSIR 88 epoxy paint applied to all internal and external surfaces after it has been thoroughly cleaned by grit blasting's to SA 2.5 finish in compliance with requirements of SIS 050900 or valves with similar approved coatings will be acceptable.
5. All flanged valves shall be drilled according to the applicable table in SANS 1123.
6. Pipes shall not be tested against a closed valve.
7. Thrust blocks for test sections shall be approved by the Engineer prior to testing of pipes.
8. Butterfly valves shall have actuators or geared handwheels or cast iron tops as specified on the drawings.
9. Butterfly valves shall be eccentric valves or as specified on the drawings.

SD L 3.10.2: Inline Basket Strainer

The Contactor shall allow for the supply and installation of a suitable flanged, inline, basket type strainer for installation in the gravity fed pipeline. The strainer shall have a top pull-out design with a bolted down cover. Y-strainers shall not be accepted. The strainer shall be rated at 16 bar, and the flange and drilling shall be as per the connecting pipework.

The screen shall be manufactured from perforated sheet metal with a maximum hole size of Ø 5 mm. The basket shall be removeable for cleaning purposes. The cover shall be bolted to a mating flange on the body and shall be equipped with lifting lugs. The body shall have a drain plug.

The materials of construction shall be as follows:

- • Body - Ductile Iron
- • Cover - Ductile Iron
- • Screen basket - 304 Stainless Steel
- • Fasteners - Stainless Steel
- • Eye bolts - 304 Stainless Steel
- • Drain plug - 304 Stainless Steel

The body and cover shall be epoxy coated to a minimum DFT of 250 microns.

SD L 3.10.3: Pressure Gauges

The pressure gauges to be used shall be of the Bourdon Tube type and shall comply to the following basic technical specification:

- Stainless Steel casing with Brass Internals
- Glycerine filled
- Gauges shall be accurate to 5 %
- The size of the face shall be 100 mm
- The size of the connection shall be 10 mm BSP
- Shut off valve to be included
- Gauges shall be calibrated in meters water head
- Ranged 0-200m
- If specified, gauges shall be supplied with marking pointers
- Gauge cocks shall be of the three-way type allowing venting to atmosphere.

SD L 3.10.4 Air Valves

Air valves for potable water shall be suitable for a working pressure of PN12 or PN20 as per drawings and schedule of quantities. All air valves shall be double action air valves of Vent-o-mat series RBX or similar approved.

The branch pipe diameter of the tee on the main pipe shall be equal to the main pipe.

All air valve installations shall be supplied with an isolating valve and distance piece between the air valve and the branch of the tee, and other fittings shown on the drawings.

Double-acting air valves shall have large as well as small orifices. The large orifice shall have a rubber bed, and the small orifice a brass bed on which the balls can shut. Double-acting air valves shall be flanged and supplied with flanged isolating valves. Air valves shall be designed to remain open until all the air has escaped and shall not close due to the speed of the escaping air.

SD L 3.10.5 Pipeline Scour valves

Scour valves shall be suitable for a working pressure of PN12 or PN20 as per drawings and schedule of quantities.

Scour valves shall consist of a flanged gate valve of 200mm diameter coupled horizontally to a flanged scour tee. The outlet pipe shall be a 200mm nominal diameter galvanised steel pipe with 6mm wall thickness. The outlet shall discharge above ground level in the direction of the fall of the natural ground surface, perpendicular to the main pipe. The outlet end of the pipe shall be cut diagonally and supplied with a cover that is hinged and that will remain closed unless it is forced open by the water. The hinge shall be non-removable.

SD L 3.10.6 Control Valves

The Control Valve shall be Bermad or approved equivalent. The casing of the control valves shall be manufactured from close-grained cast iron and the flanges shall be drilled according to applicable SANS 1123 Table.

The valves shall be of the diaphragm single bed ball-type controlled hydraulically by a pilot valve. The main valves shall be fixed on three sides with single removable bronze beds and synthetic rubber disks with a rectangular cross-section, with disk clamps. No packing material will be allowed and repairs must be done without removing the valve from the pipeline.

The design must be such that no water can come from the main valve into the pilot valve system.

SD L 3.10.7 Non-Return Valves

Non-return valves shall be Bermad non slam or approved equivalent, fully flanged valves. The valve pressure class shall be as specified on the drawing.

L 3.11: Manholes and surface boxes

SD L 3.11.6: Surface boxes

Add the following to L 3.11.6:

The type of boxes shall be as specified on the drawings.

L 4: PLANT

SD L 4.3: Testing

Add the following to L 4.3:

The Contractor must ensure that the test equipment is in good order and that it is supplied with a calibration certificate upon request of the Engineer.

L5: CONSTRUCTION

L 5.1: Laying

L 5.6: Valve and hydrant chambers

SD L 5.6.1: General

Substitute the first sentence of L 5.6.1 with the following:

The drawings of valve and hydrant chambers shall supersede the corresponding drawings in the standard specification.

SD L 5.11: Manholes, inspection chambers etc

SD L 5.11.1: General

Refer to SANS 1200 LD and substitute LD 5.7.1 with the following:

Manholes shall be constructed as follows:

1. Final cover levels of manholes in streets and paved areas shall be to the same level as the street or paved area.
2. In the veld 200 mm above natural ground level.

If a manhole is positioned at a low point or in a hollow where storm water infiltration may occur the manhole cover level must be raised to a level to avoid the danger of infiltration, or t a level as agreed with the Engineer.

The joint between the manhole and the concrete roof slab shall be sealed effectively with sealant, to the prescriptions of the manufacturers and approval of the Engineer, to prevent the infiltration of subsurface water or storm water. Lifting holes shall be sealed off effectively with approved epoxy after installation and before backfilling.

In the case of only one inlet pipe with the same diameter as the outlet pipe and with a deviation of less than 45º from the straight, the invert level of the outlet pipe shall be 10 mm lower than that of the inlet pipe.

Where the angle between the inlet and outlet of the manhole deviates by 45º or more from the straight or where more than one inlet enters a manhole, the following will be applicable.

- Where the inlet of the main line has the same diameter as the outlet, the invert level of the outlet pipe shall be 30 mm lower than that of the main inlet pipe.
- Where the inlet of the main line has a smaller diameter than the outlet, the soffits of the two pipes shall be the same level.
- The level difference between the various inlet levels will be as indicated on the plan.

Complete, full-length standard prefabricated units for splits will be used to minimize junctions manhole channel. No channel will be made up by short sections where a full-length split section can be used.

If junctions between splits can be reduced by shortening the full-length section, it should be considered. The gap between split sections and between the split and the in- and outlet pipe will not be more than 3 mm and must be grouted with epoxy.

The end of the inlet and outlet pipe must be cut, flush with the inside of the manhole wall to prevent debris to accumulate on top of the pipe wall.

SD L 5.11.3: Step Irons

Refer to SANS 1200 LD and add the following to LD 5.6.3:

Calcamite step irons shall only be installed in manholes deeper than 1,2 m.

Calcamite step irons must be installed above the outgoing pipe.

SD L 5.11.4: Brick Manholes

Refer to SANS 1200 LD and add the following to LD 5.6.4.3:

Walls of brick manholes, as well as the extension of manholes above the concrete roof slab, shall be plastered internally as shown on drawing LD-3. External plaster work shall extend to at least 150 mm below ground level. Manholes shall not be extended above the concrete roof slab by more than 300 mm with brickwork.

If manhole covers are raised with bricks, a half-brick recess, as a foothold, shall be left directly above the concrete slab above the step irons.

SD L 7: TESTING

SD L 7.3: Standard hydraulic pipe test

SD L 7.3.1: Test pressure and time of test

Add the following to L 7.3.1.1:

Pipes shall not be tested against isolating valves. Special blank flanges or end caps, fully anchored, shall be provided for testing.

Substitute L 7.3.1.2 with the following:

The test pressure for field testing shall be 1,5 times the rated maximum working pressure of the pipe e.g. class 12 AC pipe (0,6 MPa rated working pressure) shall be tested to 0,9 MPa and class C AC pipe (0,9 MPa rated working pressure) to 1,35 MPa.

Substitute L 7.3.1.3 with the following:

The test pressure applied according to L 7.3.1.2, must, with allowance for any level differences along the pipe line, be such that the pressure at any point in the pipe will be at least 1,25 times and not more than 1,5 times the rated working pressure of the pipe.

SD L 8: MEASUREMENT AND PAYMENT

SD L 8.2: Scheduled items

SD L 8.2.1: Supply, lay and bed pipes complete with couplings.

Add the following to L 8.2.1:

"The tendered rates shall also include full compensation for the cost of all labour, material, Construction equipment, chemicals and overheads for the complete sterilization of the entire potable water reticulation system and the disposal of the sterilizing solution as approved by the engineer."

SD L 8.2.5: Supply, and place pipes, valves and specials

Add the following to L 8.2.5:

"The tendered rates shall also include full compensation for the cost of commissioning of the valves and actuators.

SD L 8.2.11: Anchor/Thrust blocks and pedestals ..... Unit: m³

Substitute L8.2.11 with the following:

Anchor and thrust blocks shall be measured per cubic metre concrete and the tendered rate shall include for all formwork and reinforcement (where specified) for the required dimensions.

SD L 8.2.13: Valve and hydrant chambers ..... Unit :No

Add the following to L 8.2.13:

"The tendered rate shall be an all-inclusive rate for the complete valve chamber as per the relevant drawing. Included in the tendered rate shall be, among other, clear and grub, excavation, backfill, shoring, dewatering, protection of existing services, access ladders or stepping rings, blinding where required, concrete and/or brickwork, reinforcing, formwork, manhole cover and frame with locking mechanism as specified, ventilation pipes, lifting hooks/holes, finishing of structure.

The allowance for reinforcing steel shall be as specified on the detail drawings. If not specified on the drawing, a weight of 125kg/m³ concrete shall be allowed in the tendered rate.

The rate for the valve chamber shall exclude supply and installation of all pipework, gauges, equipment, valves and specials as shown on the drawings and in the drawing's pipe schedule.

The tendered rate shall also include all labour, material and plant required to perform the work."

SD L 8.2.16: Connect and cut into existing watermain ..... Unit: No

The cutting into existing mains shall be measured by the number of each type and diameter of pipe cut into.

The tendered rate shall include full compensation for all arrangement with the relevant authorities, providing a detailed method statement, isolating the main, cutting into the

main to accommodate the connecting fitting, dewatering, excavating, removing of excess material, taking steps to prevent the ingress of soil, stones and other material into the main as well as all material and labour to connect to the pipe.

SD L 8.2.17: Marker posts ..... Unit: No

The tendered rate shall allow for the following:

a) uPVC pipe as per standard detail

LB BEDDING (PIPES)

LB 3: MATERIALS

SD LB 3.1: Selected granular material

Substitute LB 3.1 with the following:

Selected granular material shall be an aggregate, sand or granular material, all of a non-cohesive nature and free from any organic material, of which the grading analysis shows 100% passing a 13,2 mm sieve and not more than 5% passing a 0,075 mm sieve.

SD LB 3.2: Selected fill material

Substitute LB 3.2 with the following:

The requirements of SD LB 3.1 shall apply mutatis mutandis.

SD LB 3.3: Bedding

Add the following to LB 3.3:

All pipes shall be classified as rigid pipes and shall be laid on a Class C bedding except water connections which shall be classified as flexible pipes.

SD LB 3.4.1: Suitable material available from trench excavation

Replace the first sentence of LB 3.4.1 with:

Irrespective the requirements of subclause 3.7 of SANS 1200 DB and subclause 3.4.1 of SANS 1200 LB regarding the use of selective methods of excavation, the Contractor must use selective methods of excavation and supply and use plant that will avoid burying or contaminating material that is suitable and required for bedding or covering the pipeline.

LB 5: CONSTRUCTION

LB 5.1: General

SD LB 5.1.4: Compacting

Substitute "90% of MAASTHO" in LB 5.1.4 with "93% of Mod.AASHTO (100% for sand)".

LB 8: MEASUREMENT AND PAYMENT

LB 8.1: Principles

SD LB 8.1.1: Supply of bedding materials measured separately

Add the following to LB 8.1.1:

Payment for bedding material and selected fill material is only made if the selected trench-excavation material cannot be used in the same position as bedding material but has to be obtained from another part of the site of works or designated borrow pits, or from commercial sources.

SD LB 8.1.3: Supply of bedding materials measured separately

Add the following to LB 8.1.3:

Where the Contractor uses plant, which will result in a width of the trench wider than the width as per SD DB 5.2, the volume of the bedding will be determined on the width (pipe diameter + 600 mm)

specified and not the wider width. The rate tendered must make provision for this and no additional payment will be made.

SD LB 8.1.4: Separate items for cradle and blanket

Substitute LB 8.1.4 with the following:

Although distinction may be made as regards items for the bedding cradle and selected fill blanket, the material in both cases shall comply with the requirements for material for bedding cradle.

SD LB 8.1.5: Disposal of displaced material

Add the following to LB 8.1.5:

Excess displacement material must be disposed of at the dumping site as specified in clause SD D 5.2.2.3.

LE: STORMWATER DRAINAGE

LE 3: MATERIALS

LE 3.1: Culvert units and pipes

Add the following:
Types and classes shall be as specified on the drawings.

SD LE 3.1 (d): Skewed Ends

Substitute LE 3.1 (d) with the following:

Where pipe culverts are to be constructed with a skew angle of more than 20°, the skew ends shall be cut on site.

LE 3.4: Manholes, catchpits and accessories

SD LE 3.4.3: Manhole covers, grid inlets, etc.

Substitute the last sentence in LE 3.4.3 with the following:
Covers and frames for manholes shall comply with EN124-D400 and shall be Heavy Duty ductile iron with hinged cover where the hinge of the lid must be positioned on the side of the approaching traffic in the lane, or at right angles to the direction of the flow.

Side inlet catchpits will be constructed with a precast concrete cover slab wit cover and frame to withstand the loading requirements of SANS for heavy duty applications.

Grid inlets shall be heavy duty ductile iron with hinged cover in compliance with EN124, Class B125.

SD LE 3: Geofabric blanket

Replace LE 3.5 with the following:
The geotextile blanket shall be made of a polymer material which has been processed to achieve a homogeneous permeability. A geotextile blanket made from polyamide is not acceptable as this material is sensitive to varying temperatures and moisture absorption.

a) Testing

Testing must be done in accordance with the standard test-methods approved by the Provincial Administration: Department of Roads. A copy of these methods, hereafter called Appendix A, are available for inspection at the engineers offices.

b) Classification

The geotextiles used for subsoil-drainage are classified into two grades (Grade 2 and 3) as well as four classes. The grade is mainly determined by the required tensile strength and resistance to puncture needed whereas the class determine the permeability and the equivalent opening sizes (EOS) required. Geotextiles used for protection work shall be a Grade 1 (greater tensile strength, CBR strength and better resistance to puncture) and classified as Class B.

c) Tensile strength

The minimum tensile strengths per meter width for the various grades as determined by test-method 8 of appendix A are:

Grade 1: 15000 N/m

Grade 2: 10000 N/m
Grade 3: 5000 N/m

d) Elongation at breakpoint

The average elongation at breakpoint shall be determined according to test-method 8 of Appendix A, expressed as a percentage of the original length and presented to the Engineer for approval with respect to Grade 2 and 3. The minimum average elongation at breakpoint for Grade 1 in 50%.

e) Resistance to puncture

The resistance to puncture shall be determined according to test-method 9 of Appendix A and expressed as the average diameter hole formed by a 45º cone having a mass of 1 kg and dropped from a height of 500 mm above the outstretched geotextile being:

Grade 1: 14 mm maximum
Grade 2: 26 mm maximum
Grade 3: 32 mm maximum

f) Mass

The minimum mass for Grade 1, Class B geotextile, determined according to test-method 6 of Appendix A shall be 320 gr/m2.

g) Porosity

The porosity for Grade 1, Class B geotextile determined according to test-method 5 of Appendix A shall be 80% ± 10%.

h) CBR strength or penetration joints

The minimum tensile strength for a Grade 1 geotextile, determined according to test-method 7 of Appendix A shall be 25 000 N/m at breakpoint.

i) Filtration

The minimum rate of filtration determined according to test-method 11 of Appendix A, shall be 30 l/s per square meter for a constant water pressure head of 100 mm.

j) Equivalent opening size (EOS)

The class division according to EOS is as follows:

Class	EOS (095) mm
A	0.02 - 0.06
B	0.06 - 0.20
C	0.20 - 0.60
D	0.60 - 0.80

k) Chemical reaction

The geotextile shall not show any perceptible signs of weakening after submersion in the following chemicals:

i) an Alkaline-solution with a minimum pH of 12 at 50°C.
ii) an Acid-solution with a pH of 3 at 50°C.

l) Ultra-violet light

The geotextile shall, after exposure to direct sunlight for 1500 hours, have at least 80% of the original strength.

m) **Decay**

The geotextile must be totally decay resistant and must not promote algae growth.

SD LE 3.6: Subsurface drains

SD LE 3.6.1: Pipes

Add the following to LE 3:
Pipes for subsurface drains shall be uPVC "Corflo" pipes (or similar approved) complying with the requirements of SANS 1601 and shall be perforated or slotted wit smooth internal bore.

Perforations shall be spaced in two rows for 110 mm pipes and in three rows for 160 mm pipes. The arrangement of perforatives and slots shall be subject to the Engineer's approval.

Pipes without slots or perforations required for conveying ground water from the subsoil drainage proper to the point of discharge, shall be unperforated uPVC pipes as specified above.

"Core-drain" pipes will not be accepted.

SD LE 3.6.2: Geotextile blanket

Geotextile blanket around subsurface drains shall comply with the requirements of SD LE 3.5 and shall be "Bidim Grade A2" or similar approved. Before construction commence the Contractor must liaise with the geotextile supplier in order to verify that the Bidim specified is compatible with the soil conditions on site. Any tests required for this purpose is deemed to be included in the tendered rates and no additional payment will be made in this regard. The correct selection of the geotextile remains the responsibility of the Contractor

SD LE 3.6.3: Crushed stone

Crushed stone in subsurface drains shall be 9.5 mm nominal size stone complying with the grading requirements of SANS 1083.

SD LE 3.6.4 Sand backfilling

Sand for backfilling subsurface drains shall be clean, hard, free-draining sand from approved borrow pits.

LE 5: CONSTRUCTION

LE 5.1: Trench bottom

SD LE 5.1.3: Unsuitable founding conditions

Substitute "90% of MAASTHO maximum density" in LE 5.1.3 with "90% of Mod.AASHTO maximum density (100% for sand)".

LE 5.2: Bedding and laying

SD LE 5.2.2: Pipe culverts

Add the following to LE 5.2.2:
All pipes shall be laid on a Class C bedding, as specified in SANS 1200 LB. Spigot and socket pipes are to be used.

SD LE 5.4: Backfilling of prefabricated culvert units

SD LE 5.4.2: Portal and rectangular sections

Add the following to LE 5.4.2:
Backfilling on the sides of portal and rectangular sections can, if indicated on the drawings and requested in writing by the Engineer, be done with a 1:3:6/38 mix concrete.

LE 5.5: Catchpits, manholes, inlets and outlet structures

SD LE 5.5.1: General

Add the following to LE 5.5.1:
Manholes and inlet and outlet structures shall be constructed in accordance with the details as shown on the drawings.

Dolomite aggregate and low alkali sulphate resistant cement to SANS 471 shall be used for all concrete, mortar or screeding.

All joints to be sealed with Sika Pro 2 HP or similar approved.

All external joints between concrete rings to be wrapped with a 300mm denso tape or similar approved.

All manholes shall be watertight.

Lifting holes to be plugged with Sika Pro 2 HP or similar approved.

Maximum chimney height of 400mm will be acceptable.

SD LE 5.5.5 Precast manholes and SD LE 5.5.7 : Precast inlet and outlet structures

Substitute LE 5.5.5 and LE 5.5.7 with the following:
Manholes and inlet and outlet structures shall be constructed in accordance with the details as shown on the drawings.

SD LE 5.8: Backfilling around Structures

Add the following to LE 5:

Material used to backfill around manholes that fall within the road reserve must comply with SANS 1200 LB Subclause 3.1. Material used to backfill around other manholes must comply with SANS 1200 DB Subclause 3.5.

Material adjacent to the walls of the manholes must be watered and mixed to its optimum moisture content, and compacted in layers not exceeding 150 mm in the compacted state. Compaction must be minimum 100% MOD.AASHTO for non-cohesive material, and minimum 93% of MOD.AASHTO density for cohesive materials.

Backfilling around the structure must be carried out in even layers to avoid uneven side forces."

LE 8: MEASUREMENT AND PAYMENT

LE 8.2: Scheduled items

SD LE 8.2.1: Supply and lay pipe…….……..……..……..…… Unit: m

Add the following to LE 8.2.1:
The provisions of LE 8.2.1 shall apply mutatis mutandis to uPVC pipes.

C 3.4 CONSTRUCTION SPECIFICATIONS

PART C: PARTICULAR SPECIFICATIONS

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PART C: PARTICULAR SPECIFICATIONS

ELECTRICAL SPECIFICATION

GENERAL NON-TECHNICAL REQUIREMENTS

Definitions

The following words and expressions shall have the meanings assigned to them hereunder, except where the context otherwise requires:

Contractor : As identified in the Form of Sub-Contract Agreement as indicated in Part 2 of this Specification

Drawings : The drawings on which the requirements for the Sub-Contract Works are specified and which form part of the Sub-Contract Documents.

Local Authority : Langeberg

Local Supply Authority : Langeberg

MV : Medium Voltage, i.e. 11 000V

LV : Low Voltage, i.e. 415V (no load)

Site : The area as identified in the location plan in Part 1 of the Specification

Specification : This document in which the requirements for the Sub-Contract Works are specified and which forms part of the Sub-Contract Documents.

Sub-Contractor : The Sub-Contractor appointed by the Contractor to undertake the Sub-Contract Works. Refer to the Form of Sub-Contract Agreement as included in Part 2 of the Specification.

Sub-Contract Works : Internal Electrical Installation

Introduction and General

Order of Precedence

Should any of the technical requirements in terms of the Specification and the Drawings for the Sub-Contract Works be found to be contradictory, the following list of documents, in descending order of precedence, shall apply:

Bill of Quantities
Drawings
Specification

Contradictory Requirements

Should any requirements of the Specification and/or the Drawings be found to be contradictory, the Sub-Contractor shall bring such contradictions to the attention of the Engineer prior to the ordering of Materials and Goods and prior to the execution by the Sub-Contractor of any work which may be affected by such contradictions.

Scope of the Works

Site Location

Robertson, Western Cape

Extent of the Sub-Contract Works

The Sub-Contract Works included in this Sub-Contract involves:

The supply, delivery, erection, commissioning and guarantee for twelve (12) months of the electrical installation, based on the parameters given in the Specification and consisting mainly of the following:

Distribution boards (surface mounted and recessed)
Low voltage distribution cables: 2-core and 4-core copper conductors
Wireways (cable tray, trunking and conduiting) and wiring
Luminaires
Light switches, socket outlets and power outlets
Supply and installation of PVC sleeves 50mm dia and smaller
General area/flood lighting
Sports field lighting
Complete testing and commissioning of the above

Sub-Contract Construction Period

The Sub-Contract Construction Period will be as stated in the Minutes of Meetings, but the Sub-Contractor shall adhere to the Programme of the Main Contractor.

Type of Sub-Contract

The Sub-Contract will be a selected sub-contract to the Principal Contract.

Site Conditions

Access to the Site

Access to the Site will be as per the requirements of the Main Contractor.

Other Sub-Contractors on Site

The Sub-Contract will run concurrently with the Principal Contract and all other sub-contracts required for the construction of the building.

Co-Operation During Construction

The Sub-Contractor shall co-operate with all other Sub-Contractors on Site and co-ordinate activities in order to allow all Sub-Contractors to do their work.

Site Facilities

Site Office

To be supplied by Sub-Contractor if required.

Toilet and Ablution Facilities

Basic toilet and ablution facilities will be provided by the Contractor at a location to be determined by the Contractor.

Storage of Materials and Goods

The Sub-Contractor shall provide on Site a suitable store or container for the temporary storage of Materials and Goods.

Provided the Conditions of Sub-Contract do not exclude payment for Materials and Goods on Site, but not yet installed, the Sub-Contractor will be paid for such Materials and Goods, but only if such Materials and Goods are stored in a proper store or container duly issued.

The location and nature of the store or container shall be determined on Site in collaboration with the Engineer and payment for materials on Site will only be considered if the Engineer is satisfied that the store or container will ensure adequate security for such materials. The store or container shall be removed and the area cleared to the satisfaction of the Engineer on completion of the Sub-Contract.

Living Quarters

Apart from quarters to accommodate security personnel, no other living quarters shall be available on Site and no such quarters shall be constructed by the Sub-Contractor unless agreed to by the Engineer. With the exception of the security personnel, no other person in the Sub-Contractor's employment shall be allowed to sleep on Site.

Water, Electricity and Sewerage

Will be provided by the main contractor.

Communication

The Sub-Contractor shall provide his own communication facilities on Site.

Weather Conditions

The Sub-Contractor shall consider the local weather conditions when planning the Sub-Contract Works. The Programme shall allow for the normal weather conditions prevailing at the Site during the construction period.

Bedding Sand

The Contractor shall evaluate the available sand on site for suitability as bedding sand. The removal of such sand shall be subject to the approval of the Engineer. On completion of the removal process, the Sub-Contractor shall level the removal area and clear same to the satisfaction of the Engineer.

Dumping Facilities

Excess soil from excavations shall be levelled on site. Rock and other rubble shall not be dumped on site and the Sub-Contractor shall negotiate with the Local Authority for a suitable dumping site.

Existing Services

The Sub-Contractor shall negotiate with the Engineer, other Sub-Contractors on site, the Local Authority, the Local Supply Authority (if not the Local Authority), Telkom and other relevant parties regarding the presence of existing services on site.

The Sub-Contractor shall exercise care to avoid any damage to existing services. Excavations in the vicinity of existing underground services shall be done by hand and under supervision of the site foreman.

The Sub-Contractor shall be liable for the costs involved to repair any damage inflicted upon existing services by the Sub-Contractor or his personnel. Such repairs may not be undertaken by the Sub-Contractor unless approved by the Engineer, since such existing services may still be under guarantee and any interference by the Sub-Contractor with such services may nullify such guarantees. All damage shall therefore be reported to the Engineer who will arrange for the repairs of such damage.

The Sub-Contractor is however strongly advised to insist on written quotations in respect of repairs to damage prior to the undertaking of such repairs.

The Engineer reserves the right to issue variation orders on this Contract to omit any costs due to repairs by others.

Sub-contract Administration

Pre-Construction Launching Meeting

None required.

Supervisory Personnel

The Sub-Contractor will be required to nominate a responsible person to supervise the Sub-Contractor's activities on Site and to act as the liaison officer on the Sub-Contractor's behalf.

The Engineer will nominate a responsible person who will carry out inspections on Site and act as the Engineer's liaison officer, if required.

Site Meetings

It will be required from the Sub-Contractor to attend all Site meetings and inspections. It is a requirement that both the senior foreman on Site and the liaison officer of the Sub-Contractor shall attend such Site meetings and inspections.

Site Instructions (Sub-Contractors)

All Sub-Contractor's Instructions regarding the Sub-Contract Works will be noted in the Contractor's site instruction book. However, instructions contained in minutes of meetings or in letters by the Engineer, need not of necessity appear in the site instruction book.

Only instructions issued by the Engineer or approved by him, shall be executed by the Sub-Contractor. All instructions resulting in variations to the Sub-Contract Works as described in the Specification and on the accompanying drawings, shall be confirmed by means of written variation orders, whether such variations result in cost implications or not. The Sub-Contract Sum will only be adjusted once approved official variation orders by **the Engineer have been issued.**

Employer's and/or Local Supply Authority's Representative

The Employer and the Local Supply Authority are authorised to send an inspector or any other representative to the Site for observation and inspection purposes. Such inspector or other representative will however not be authorised to issue any instructions to the Sub-Contractor. The Sub-Contractor shall under no circumstances perform work as a result of any instructions from such inspector or other representative, unless the necessary approval therefor is obtained from the Engineer first. No claim for additional compensation as a result of work performed by the Sub-Contractor on the instruction of an inspector or other representative of the Employer and/or the Local Supply authority will be considered by the Engineer, unless such instructions were obtained in writing and approved by the Engineer.

The Sub-Contractor is strongly advised to request an inspector or other representative of the Employer and/or the Local Supply Authority to contact the Engineer should such inspector or representative require any variation to the Sub-Contract Works.

Construction Program

The successful Tenderer shall be prepared to commence with the execution of the Sub-Contract Works immediately after receipt of the Letter of Acceptance. The Sub-Contractor will be advised in writing of the actual starting date for the execution of the Sub-Contract.

The Sub-Contractor will be required to compile a construction program which will include all work related to the Sub-Contract Works. The construction program shall be co-ordinated with all other construction activities on Site.

Laws, Bye-laws, Regulations, Standards and Codes

Compliance

The Sub-Contractor shall be responsible to ensure that the Sub-Contract Works comply in full with the requirements laid down by the following laws, regulations, standards and codes of which the latest issues and revisions shall apply:

a) The Occupational Health and Safety Act, Act 85 of 1993
b) Code of Practice for the Wiring of Premises, SANS 10142:
c) The Regulations of the Local Supply Authority
d) The Regulations of the Local Fire Brigade
e) The Regulations of Telkom SA
f) The Standard Regulations of any Government Department or Public Service Company where applicable.
g) Specifications and codes by the South African Bureau for Standards where applicable
h) The technical guidelines and/or technical specifications as issued by the relevant Local Supply Authority and applicable to electrical installations within the Local Supply Authority's area of jurisdiction.

Notices and Fees

The Sub-Contractor shall complete and submit all notices and pay all the fees in respect of the Sub-Contract Works as may be required by the Local Authority and the Local Supply Authority, except for the electricity connection cost which will be paid by the Employer directly to the Local Supply Authority.

Exemption

The Sub-Contractor shall exempt the Employer from all liabilities, losses, costs or expenditure which may arise as a result of the Sub-Contractor's negligence to comply with the requirements of the laws, bye-laws, regulations, standards and codes specified above.

Contradictions

It is assumed that the Sub-Contractor is conversant with the above-mentioned laws, regulations, standards and codes. Should any law or regulation contradicting the requirements of this Specification, apply or become applicable during construction of the Sub-Contract Works, such law or regulation shall overrule the requirements of this Specification. The Sub-Contractor shall immediately inform the Engineer of such a contradiction, if possible prior to the ordering of any materials affected and prior to the execution of any work affected. Under no circumstances shall the Sub-Contractor carry out any variations to the Sub-Contract Works in terms of such contradictions without first obtaining the written permission to do so from the Engineer.

Operation and Maintenance Documentation

Operation and Maintenance Manuals

The Sub-Contractor shall submit to the Engineer three (3) complete sets of operation and maintenance, manuals, drawings, pamphlets, test certificates and other technical literature which may be required for the maintenance and/or operation of the Sub-Contract Works.

Record Drawings

During the construction of the Sub-Contract Works, the Sub-Contractor shall record the as built conditions on a set of record drawings to be supplied by the Engineer for that purpose. On completion of the Sub-Contract Works, the Sub-Contractor shall submit a complete set of record drawings to the Engineer.

Works Completion Certificate

The submission of operation and maintenance documentation will form part of the Sub-Contract Works and the Works Completion Certificate will not be issued unless acceptable and complete documentation had been submitted to the Engineer.

Electricity Supply

Permanent Electrical Connection Point

The connection point for the permanent electrical supply will be as shown on the applicable drawings.

Liaison with Local Authority

The Sub-Contractor shall closely co-operate with the Electrical Contractor regarding their requirements for the connection to the permanent electricity supply in order to meet the technical requirements and the time programme.

Application for Electricity Connection

The Client shall submit the necessary application for the permanent electricity connection to the Local Supply Authority. The Contractor will pay all costs directly associated with the permanent electricity connection directly to the Local Supply Authority, as allowed for in the bill of quantities.

Wayleaves

The Sub-Contractor shall submit the application for wayleaves to the Local Supply Authority and Telkom. The Sub -Contractor shall be subject to the provisions and specifications of the Local Supply Authority and Telkom regarding such wayleaves.

Repairs and Clearing

Repair of Incidental Damage

The Sub-Contractor shall be liable for the repair of any incidental damage caused by the Sub-Contractor or his personnel on site. Such repairs shall be effected to the satisfaction of the Engineer and the Engineer reserves the right to call for the replacement of any items which are badly damaged. All such repairs and replacements shall be effected at the cost of the Sub-Contractor.

Clearing

On completion of the Works, the Sub-Contractor shall clear away and remove from site all excess materials and rubble resulting from the execution of the Contract. The Sub-Contractor shall further tidy and clean the site to the satisfaction of the Engineer.

Project Board

The main board will be supplied by the Contractor.

GENERAL TECHNICAL REQUIREMENTS

Quality of Materials and Equipment

All material to be supplied in terms of this Sub-Contract shall be new and unused. Where specific manufacturers' materials or equipment were not prescribed in the Specification, Materials and Goods supplied shall be of the best quality available. Preference shall be given to materials of South African manufacture and in particular to materials bearing the SANS mark of quality.

The Engineer reserves the right to call for the replacement of any materials found on Site which do not conform with the above requirements, provided that alternative materials which do conform with the above requirements, are available. Any such replacements shall be effected by the Sub-Contractor at his own cost and the cost shall not be recoverable from the Employer or the Engineer.

Delivery of Materials and Equipment

The Sub-Contractor shall ensure that all materials required for the completion of the Works, shall be timeously ordered and delivered. Delivery dates and possible delays shall be established at an early stage. No claims for extension of the Sub-Contract period as a result of delays in delivery of materials shall be considered by the Engineer, unless such delivery periods are in excess of the time for completion of the Sub-Contract works.

Finishes on Materials and Goods

General

All Materials and Goods to be supplied for the Works, shall have durable finishes to withstand the weather conditions on Site for acceptable periods of time. The Sub-Contractor shall exercise care regarding Materials and Goods to be utilised in corrosive areas.

The types of finishes required on various Materials and Goods and the final colour are specified in the relevant sections of the Technical Specification.

In the event of painting, baked enamel and electrostatically applied powder coating, the metal surface shall be prepared as follows prior to painting. All sharp edges shall be smoothed and rounded to ensure that the finishing layer(s) will adhere properly to the entire metal surfaces. Surface preparation shall comply with the requirements of SANS 1064. All metal parts shall be thoroughly cleaned of corrosion, millscale, grease and foreign matter to a continuous metal finish. Sand or shot blasting or acid pickling and washing shall be employed for this purpose.

Finishes

The following terms will be used to specify the required finishes and are defined as follows:

a) Painting:

In the event of ungalvanised metal work, one layer of approved zinc chromate undercoat conforming to the requirements of the SANS 1679, Type 1, shall be applied immediately after cleaning is competed and the metal properly dried. The undercoat dry film thickness shall measure at least 25 microns. Once the undercoat layer has dried for a period of minimum 24 hours, the first of two final coats of high gloss paint shall be applied. The paint shall conform to the requirements of SANS 1630, Grade 1. The dry film thickness for each coat shall be minimum 25 microns, resulting in an overall paint dry film thickness of at least 75 microns. In highly corrosive areas or in areas within 50km from the coast, the paint thickness shall be increased so that the total dry film thickness shall be at least 120 microns.

In the event that painting of galvanised metal work is required, the galvanised metal shall be treated with a passivate coating and then washed with water and dried. Thereafter one coat of calcium plumate undercoating complying with the requirements of SANS 1912 shall be applied, followed by one coat of approved undercoat conforming to the requirements of SANS 1681, Type 2. Once the undercoat has dried for a period of minim 24 hours, the first of two final coats shall be applied. The paint shall conform to the requirements of SANS 1630, Grade 1. The dry film thickness for each coat shall be minimum 25 microns, resulting in an overall paint dry film thickness of at least 75 microns.

In the event that painting of aluminium is required, one coat of self-etching primer, conforming to the requirements of SANS 1723 (Plascon Hi-Sheen or similar and equal) shall be applied immediately after the cleaning is completed and the metal properly dried. Once the primer has dried for a period of minimum 24 hours, the first of two final coats shall be applied. The paint shall conform to the requirements of SANS 1630, Grade 1. The dry film thickness for each coat shall be minimum 25 microns, resulting in an overall paint dry film thickness of at least 75 microns.

Paint thickness shall be determined in accordance with the SANS 1140 or 1141 methods.

b) Baked Enamel:

Immediately after cleaning, all surfaces shall be covered by a tough, corrosion inhibiting, unbroken, metal phosphate film and then properly dried. Within forty eight (48) hours after phosphatising, a passivating layer, consisting of a high quality zinc chromate primer shall be applied, followed by two coats of high quality alkyd based baked enamel paint. The enamel finish shall comply with the requirements of SANS 1783, Type IV. The minimum dry film thickness shall be 75 micron and in coastal areas the dry film thickness shall be increased to at least 120 micron. The paint finish shall further have an impact resistance of 5.65 J on cold rolled steel plate and a scratch resistance of 2.0 kg.

c) Powder Coating:

Immediately after cleaning, the metal shall be pre-heated and then covered by a microstructure paint powder applied electrostatically. Particular care shall be taken to cover all sharp edges properly. The paint shall then be baked and shall harden within 10 minutes at a temperature of 190 EC. The minimum dry film thickness after baking shall be 50 micron and in coastal areas the dry film thickness shall be increased to 100 micron. The paint

finish shall further have an impact resistance of 5.65 J on cold rolled steel plated and a scratch resistance of 2.0 kg.

d) Galvanising:

All galvanising shall be of the hot dip process and shall conform to the requirements of SANS 1763. All completed galvanised structures shall either bear the SANS mark of approval or shall be accompanied by a certificate by the galvanising company to confirm that the galvanising conforms to the requirements of the SANS 1763. It will be the Sub-Contractor's responsibility to obtain and submit such certificates to the Engineer and pay all costs in such regard. Should the Engineer at his own discretion prefer to have the galvanising evaluated by the SANS and the SANS should find that such galvanising does not conform to the requirements of the SANS 1763 specification, the Sub-Contractor will be instructed to have all suspect structures regalvanised at his own costs. In addition, the Sub-Contractor will be liable for all costs incurred by the Employer and the Engineer during the process of evaluation by the SANS and the regalvanising process.

Prior to galvanising, the metal work shall be designed and prepared to ensure thorough liquid zinc coverage of all metal surfaces, both inside and outside, and to prevent undue distortion of the metal structure due to the heat of the hot dip process. The metal structure shall be prepared with all drilling, welding, punching, cutting, bending and other forming processes completed prior to galvanising. Furthermore, all welded seams shall be inspected for suitability and properly prepared prior to galvanising.

In the event that the galvanising finish should get damaged after galvanising and prior to the first handover of the Sub-Contract, the Sub-Contractor will be liable to repair such damage at his own cost and to the satisfaction of the Engineer. Repairs shall be in the form of either re-galvanising or on site repairing. On site repairing shall be by means of soldering or preferably hot zinc spaying in accordance with SANS 1763, as called for by the Engineer at his own discretion.

Colours

The colour of HV switchboards and HV switchgear enclosures shall be AAVOCADO GREEN@, colour C17 of SANS 11091.

The colour of LV switchboards and equipment enclosures in buildings shall be AELECTRIC ORANGE@, colour B26 of SANS 11091 as recommended in SANS 10140, Part II unless specified to the contrary.

The standby power section of LV switchboards in buildings shall be coloured ASIGNAL RED@, colour AII of SANS 11091.

Switchboards for no-break power supplies or sections of switchboards containing no-break power supplies, shall be coloured ADARK VIOLET@, colour FO6.

In the case of switchboards and larger equipment enclosures, a tin of matching touch-up paint shall be provided.

Operating Conditions

All material and equipment supplied by the Sub-Contractor and all installation methods applied by the Sub-Contractor shall be suitable for the following operating conditions.

Environmental Conditions

Altitude above sea level	:	∀ 300m
Distance from sea	:	100km
Ambient temperature	:	-4EC to 40EC
Wind speed	:	In excess of 120 km/h
Rain	:	Light drizzle to heavy driving rain in stormy conditions

Electrical Conditions

To be confirmed with Local Supply Authority

Existing Services

The Sub-Contractor shall negotiate with other Sub-Contractors on Site, the Local Authority, the Local Supply Authority (if not the Local Authority), Telkom and other relevant parties in order to determine the presence of existing services on Site which will influence the Sub-Contract Works and shall advise the Contractor accordingly.

The Sub-Contractor shall exercise care to avoid any damage to existing services. The Sub-Contractor will be liable for the costs involved to repair any damage inflicted upon existing services by the Sub-Contractor or his personnel. Such repairs may not be undertaken by the Sub-Contractor unless approved by the Engineer, since such existing services may still be under guarantee and any interference by the Sub-Contractor with such services may nullify such guarantees. All damage shall therefore be reported to the Engineer who will arrange for the repairs of such damage.

The Sub-Contractor is however strongly advised to insist on written quotations in respect of repairs to damage prior to the undertaking of such repairs.

The Engineer reserves the right to issue variation orders on this Sub-Contract to omit any costs due to repairs made by others.

LOW VOLTAGE CABLES

LV Supply Cables

General

The Main Electrical Contractor shall terminate and connect the main LV supply cable at the minisubstation.

The Sub-Contractor shall supply, install, terminate and connect the 16mm5/2C/CU + 10 ECC (service connection cables) from the main distribution board (MDB-B) to each domestic DB, as per the drawings.

The cable shall be manufactured in accordance with the requirements of SABS 1507-1990 and shall bear the SABS mark of approval.

Low voltage cable shall conform to the following requirements:

Manufacturer: Aberdare or similar and equal approved
Type: PVC/PVC/SWA/PVC - Main LV supply cable
PVC/PVC/PVC/PVC - Service connection cable
Conductor material: Copper
Conductor size: As indicated on drawing
Cores: 2 and 4
Applicable specification: SABS 1507-1990 (Cables shall bear the SABS mark of approval)

Where armouring is specified it shall consist of one layer of galvanized steel wire in the case of multi-core cables and nonmagnetic metallic wire in the case of single-core cables. Aluminium strip or tape armouring is not acceptable.

Through Joints

Through joints shall typically be of the Scotchcast or Durocast resin type, or the Raychem heatshrink type, chosen and installed in accordance with the cable manufacturer=s recommendations. The resin filled joint kit shall comprise a self-sealing plastic mould of high mechanical strength having sufficient connector space.
The mould and resin shall be completely waterproof and non-hygroscopic and shall be resistant to ultraviolet radiation. In addition, the heatshrink sleeving shall be used over each in-line ferrule. The heatshrink shall be of the type with adhesives on the inside. The number of joints shall be kept to an absolute minimum and joints will only be allowed where cable runs exceed full drum lengths, unless otherwise authorised in writing by the Engineer.

Cable joints shall be marked on the kerb stones opposite the joints. In addition, the exact location of each joint shall be indicated on the record drawings, complete with dimensions from fixed reference points such as erf boundaries (in two directions).

Terminations

Cable terminations throughout the system shall follow the same phase rotation.

Suitable tinned lugs, terminals, and other fittings shall be used to match the different sizes and construction of cables. The correct type of crimping tools shall be used to crimp the lugs, terminals and other fittings onto the cores. Cable lugs shall be complete with a colour coded heat shrink covering. The lugs shall be installed directly onto the busbars, terminals or other fittings. Lugs shall be of the correct size to suit both the conductors and the bolts they have to be connected with. Oversize lugs will not be accepted. Suitably sized washers shall be installed on top of the lugs and split washers shall be used underneath nuts for all bolted terminations. Densal paste shall be applied at all terminations to prevent the ingress of moisture.

Conductor tails shall be of sufficient length to terminate the cable in a neat and workmanlike manner. Excess length of tails shall be removed. The tails shall be neatly bound together with PVC straps and secured where possible.

SANS approved type cable glands, complete with neoprene shrouds, shall be used wherever suitable gland plates are available for the securing of cables at termination points. Glands shall be provided with ISO threads and shall be suitable for the specified cable sizes. For unarmoured cables the cone bush and compression ring of the gland shall be replaced with a synthetic rubber compression bush and ring to provide the required grip on the outer sheath of the cable. Where suitable unistruts are available, suitable K-clamps shall be used to secure the cables. In the event that cable ends are exposed to the weather, such ends shall be sealed against the ingress of water. The shrouds shall be made of non-deteriorating neoprene or other synthetic rubber, and shall be resistant to water, oil and sunlight. The shrouds shall fit tightly around the glands and cable. For cable glands suitable inner seals will be acceptable. For non-cable gland terminations, suitable heat shrink cable end seals shall be provided.

All armouring at cable ends shall be suitably bonded to earth. In the event of cable glands, suitably sized earth tags shall be provided as an integral part of the glands. Suitable accessories shall be provided with glands to be used on ECC armoured cables to facilitate a bolted lug connection of the earth continuity conductors. Grooves cut into the barrel or cone bush to accommodate the earth continuity conductors are not acceptable. The earth tags shall be connected to the earth bar by means of a stranded copper earth conductor of the same cross sectional area as the cable cores, or alternatively a cross sectional area chosen in accordance with the requirements of the Wiring Code (SANS 10142). The conductor shall be crimped into suitable lugs which shall be bolted onto the earth tag and the earth bar. In the event of K-clamps, one third of the armouring shall be twisted together and crimped into a suitable lug which shall be bolted onto the earth bar. Should the length of armouring be insufficient, the armouring shall be connected to a length stranded copper earth conductor of a size as specified above for the cable gland and connected in a similar way. A suitable line tap shall be used to connect the armouring to the earth conductor.

At each cable termination the cable shall be provided with a label. The labels shall be of the Bowthorpe Hellerman or the stainless steel Dymotape type and shall be secured to the cables just underneath the glands or K-clamps by means of PVC cable ties. The labels shall nevertheless always be visible and should the positions below the glands or K-clamps not be visible, the labels can be secured to the cable tails just above the glands or K-clamps. The labels shall indicate the following information:

a) size of the cable
b) identity of the equipment at the other end of the cable

A typical label shall read: "50/4C/CU, M/S .....@.

Installation

Cables shall be handled and stored in accordance with the manufacturer's instructions and shall be installed in a workmanlike fashion and in accordance with generally accepted standards. Cables shall never be installed over any sharp edges without suitable protection for the cable against damage. Two or more cables installed next to each other shall be installed parallel and shall not cross each other unnecessarily.

The cable installation shall further be planned in advance in order to minimize the number of times that cables installed parallel shall have to cross at turn off points. The distance between adjacent cables shall not be less than 2 x the diameter of the larger cable. No cable shall be bent to a radius of less than 10 x the overall diameter of such a cable in accordance with the requirements of the Wiring Code (SANS 10142-1: 2003).

Cables installed into trenches shall be installed with the aid of suitable cable rollers to avoid damage to the cable due to the installation process.

Cables installed between the main distribution board and the sub-distribution boards shall be installed on galvanized cable tray of medium duty. The minimum relevant sizes are as indicated on the drawings. The Sub-Contractor is to ensure that the cable trays are correctly sized to accept the number and size of cables specified.

The cable trays shall be secured by means of unistrut (P4000) and clamps at the minimum intervals as specified by the Manufacturer.

DISTRIBUTION BOARDS AND ANCILLARY EQUIPMENT

General

The Sub-Contractor shall supply and install the electrical distribution boards, complete with switchgear as specified. Details of the distribution boards are indicated on the relevant drawings.

The onus rests with the Sub-Contractor to ensure that the distribution board offered, comply in all respects with the requirements of this Specification and the SANS regulations.

Manufacturers

The distribution board shall be manufactured by an approved and accredited distribution board manufacturer, such as Switchboard Manufacturers, EDS, Nuco or MCB Switchboards.

The fact that a distribution board manufacturer is considered to be "approved", merely implies that the standard of workmanship as experienced before, is acceptable. However, such "approval" does not in any way alleviate the responsibility of the Sub-Contractor to ensure that the requirements of the Specification are met in all respects by such a manufacturer.

Construction and Finish

General

The distribution board shall be constructed in accordance with the requirements of the SANS 11180, Part 2 specification.

The distribution board shall be manufactured from galvanised mild steel, minimum thickness 1,6 mm or 2,0 mm, depending on overall dimensions. The epoxy paint finish is specified on the drawing.

Sealing strips and gaskets shall be made of durable non hardening rubber, neoprene and other synthetic materials. Care must be taken to ensure that even pressure is exerted along the entire length of the gasket and that neither deflection nor buckling of panels occurs when the gaskets are compressed. Door latching and unlatching operation shall be smooth.

Bolts, nuts and washers used shall be cadmium plates, with the exception of busbar bolts, which shall be of high tensile stainless steel.

Flash barriers shall be interposed between items of equipment which by virtue of their operation in the board could cause breakdown of the dielectric insulation to adjacent items of equipment.

All parts of the distribution board shall be electrically continuous and a suitable stud shall be provided for the earthing of the enclosure. Particular attention shall be paid to the earth continuity of supervisory equipment. Flexible copper straps may be used for the purpose of ensuring earth continuity between the board and panels.

Free standing boards shall be protected against vermin, especially from below. Where cables have to pass through the gland plate, rubber grommets shall be provided and enough non-hardening compound shall be delivered with the board so that these holes can be sealed properly after installation of the cables

Accommodation

The mounting of equipment shall comply with the SANS 11180, where applicable.

The distribution equipment shall be mounted in parallel horizontal rows. The arrangements shall be such that a minimum 100mm space exists between adjacent rows of equipment for the installation of incoming and outgoing conductors and expansion of ionised gas generated during circuit interruption. Minimum 75mm space shall be provided between the top and the bottom rows of equipment and the top and bottom edges respectively. Similarly minimum 50mm space is required between side edges of the switchboard and equipment. The spaces specified shall be free space, accessible for the full dimensions specified. The minimum clearance between live and live parts, live and neutral parts and live and earthed parts shall be 20mm for systems up to 500V.

The board shall be of sufficient dimensions to allow for all equipment specified, plus for 20% spare capacity for future circuits or equipment.

Particular attention shall be paid to the accommodation and bending of the incoming and outgoing conductors within the enclosure and the working space required for making off the cables, crimping the lugs and connecting into the equipment. Adequate provision shall be made for earthing of the LV cable armouring, where required.

Circuit breakers for socket outlet circuits shall be preceded by the earth leakage unit controlling those circuits. Immediately after such circuit breakers, a minimum of two spaces shall be provided for future circuit breakers to be connected to the same earth leakage unit. The interconnecting busbar shall extend to the positions for such future circuit breakers.

In a similar fashion, all spaces for future circuit breakers shall be provided with busbars to facilitate easy installation of future circuit breakers. Provision shall also be made in the capacity of neutral and earth bars to accept future conductors for the equipment to be installed in the spare spaces.

Dummy circuit breakers or blank covers shall be provided for all spaces for future equipment.

Wiring and Busbars

The phase identification colours shall be red, white and blue from the top of the distribution board to the bottom and from the left to the right. All other conductors in the board, supplying control circuits, etc. shall be coded in colours other than those specified above. A colour code shall be devised for each board and the colour code shall be shown on the wiring diagrams. Wiring sizes shall be selected in accordance with SANS 10142 according to the rated current of the circuit breaker or fuse controlling the current to such wiring, suitably derated to allow for the bunching of wiring inside the board.

All wiring shall be 600/1000V grade PVC insulated, multi-stranded copper conductors conforming to the requirements of SANS 11507. Insulation shall be stripped without damage to the conductors, utilising a purpose designed tool. Insulation shall be stripped to the proper length for the terminal or lug so that exposed bare conductor is limited to maximum 1 mm. Crimped on lugs and ferrules shall be used throughout, except where box or compression type terminals exist.

Cables connected to incoming or outgoing circuits shall be terminated on the gland plate supplied for this purpose. Power cables up to and including 70mm5 may terminate on clamp type terminals where the clamping screws are not in direct contact with the conductor. Connection to the equipment can then be made with cables that are similarly connected to the clamp terminal. All power cables larger than 70mm5 terminate on busbars that are connected to the associated equipment. Parallel incoming or outgoing cables shall be connected to a collector busbar without crossing the conductors.

The cutting of strands in order that conductors may fit into terminals, lugs or ferrules will not be accepted. Suitable extended terminals shall be used to accommodate conductors which are too big for standard terminals. A maximum of two conductors shall be installed onto the same terminal.

Wiring shall not impede access to any of the equipment inside the board. The wiring shall be neatly grouped together in horizontal and vertical rows and tied with PVC cable ties.

Conductors to hinged panels and doors shall be secured on both the door and the frame and shall be looped between the two points. The loop shall be arranged to produce a twisting motion when the door is opened or closed. A flexible protection sleeve shall be installed over the conductors.

Where wiring channels are used, they shall be installed horizontally and vertically. Under no circumstances may power and control circuit wiring be installed in the same wiring channels. Channel shall not be more than 40% full.

All wiring between different panels within the same switchboard shall be installed in wiring channels.

Grommets shall be installed in each hole in the metalwork through which conductors pass.

All wiring shall be installed away from terminals, clamps or other current carrying parts. Wiring shall also be kept away from exposed metal edges or shall be protected where they cross metal edges.

Wiring should as far as possible be confined to the front portions of switchboards for ease of access. This requirement is important for wiring between smaller circuit breakers and the associated main circuit breaker as well as the wiring from circuit breakers to lighting and socket outlet circuits.

A maximum of two conductors will be allowed per equipment terminal. Where more conductors must be connected to the same equipment terminal (e.g. a main circuit breaker feeding other circuit breakers), stub busbars shall be provided for the various conductors.

Equipment with a rating exceeding the current rating of 70mm5 conductors shall be connected by means of busbars to the main busbars. Looped connections may only be installed for a maximum of two outgoing circuits. Where there are more than two outgoing circuits, busbars shall be used and equipment connected individually to the busbars. Where miniature circuit breakers are mounted in continuous rows and supplied by busbars connected to each MDB, each busbar shall be supplied by a separate conductor. This conductor shall be connected to the busbar by means of a separate lug and not via an MCB terminal.

Connections to circuit breakers, isolators or contactors shall be made by one of the following methods:

a) A ferrule of the correct size;
b) soldering the end of the conductor, or
c) winding a conductor strand tightly around the end to totally cover the end.

All conductors terminating on meters, fuse holders and other equipment with screwed terminals shall be fitted with lugs. The lugs shall be crimped to the end of the conductor. The correct amount of insulation shall be stripped from the end to fit into the terminal. Strands may not be cut from the end of the conductor.

Busbars shall be manufactured of solid drawn high conductivity copper with a rectangular cross-section in accordance with SANS 1784, SANS 11195, BS 159 and BS 1433, where applicable.

Busbars shall be supplied for the following applications:

Distribution of supply voltage
Connection of equipment with ratings exceeding the current rating of 70mm5 conductors
Connection of outgoing circuits with current ratings in excess of that allowed for 70mm5 conductors
Collector bars for parallel cables
Connection bars for neutral conductors
Earth busbars
Connections to miniature circuit breakers

Busbars shall be rated for minimum 120% of the current rating of the circuit breaker or fuse controlling the current to such busbar, subject thereto that the fault current can be accommodated. The maximum acceptable current density for copper busbars is 1,5 A/mm5 and 0,8 A/mm5 for aluminium busbars. Busbars shall be installed on colour coded insulators of sufficient size and strength to withstand the fault current specified for that board without any damage.

Workshop Drawings

The manufacturing of the electrical distribution boards shall only commence once the Engineer approved in writing the workshop drawings for such distribution boards.

Three paper prints of each workshop drawing shall be submitted to the Engineer. These workshop drawings shall indicate on a scale not smaller than 1:10 the following:

A complete wiring diagram of the equipment on the distribution boards.
Front view of distribution boards showing face panel layout, types and current ratings of switchgear and circuit numbers. External dimensions shall also be shown.

A typical section through the distribution board showing the relative positions of switchgear, busbars, gland plate, etc.
A complete list of the switchgear indicating the make, catalogue number, frame size and fault current rating for each.
All labelling information on a separate sheet.
Details regarding type and thickness of metal, paint finish, etc.

All workshop drawings for distribution boards will be approved by the Engineer subject thereto that such distribution boards shall comply with all the requirements of the Specification. The onus rests therefore with the Sub-Contractor to ensure that the distribution boards comply in all respects with such requirements of the Specification.

Site Conditions

The Sub-Contractor will be responsible to ensure that the distribution boards are suited to the actual Site conditions, such as:

Access route(s) for distribution boards (especially door heights)
Final positions of distribution boards
Maximum dimensions for distribution boards
Number and sizes of sleeves and conduit
Termination and/or connection of sleeves, conduit and other wiring channels
Permissible mass

Inspections

The Sub-Contractor shall notify the Engineer timeously of the completion of distribution boards by the manufacturer. A minimum of two (2) days' notice is required in respect of a proposed inspection date. Switchboards may be inspected by the Engineer at the manufacturer's factory prior to the despatching thereof to the Site.

The Sub-Contractor shall undertake the inspection of all distribution boards himself and shall ensure that the distribution boards comply with all the requirements of the Specification and with all the requirements with regard to the installation of the distribution boards on the Site. The Sub-Contractor shall be fully responsible for accepting the distribution boards from the manufacturer. Should any defects be found once the distribution boards have left the manufacturer's premises, the Sub-Contractor shall be fully liable for the cost to rectify such defects to the satisfaction of the Engineer.

The Engineer's inspection (if any) shall be regarded as a supporting effort to identify possible defects at an early stage so same can be rectified timeously. Under no circumstances will the Engineer approve distribution boards prior to the final inspection on Site and the official works completion hand-over of the completed Sub-Contract Works.

All distribution boards will therefore remain the full responsibility of the Sub-Contractor until the final handover of the completed Sub-Contract Works.

Labels

All switchgear protruding through the face plates of distribution boards shall be provided with permanent engraved labels. Wherever possible all switchgear and instruments shall be provided with labels describing the exact function of such switchgear and/or instruments.

Each distribution board shall be identified by means of an engraved label bearing a legend similar to the following:

"DB-A or DB-G"

In addition to the above all switchgear and equipment behind faceplates of distribution boards shall also be provided with engraved labels denoting the functions of such equipment. Labels at fuses shall denote inter alia fuse ratings.

All labels shall consist of engraved Ivorene or Trafolite material of suitable sizes. White lettering on a black background shall be used for all "normal" power labels. White lettering on a red background shall be used all "emergency" power labels.

All labels shall fit tightly into proper label holders welded or alternatively rivetted to the metal work. Alternatively labels may be secured directly onto the metal work. In the event of numbered labels, a suitable legend card frame or holder shall be provided to accommodate a detailed legend card. The frame shall accommodate the legend card and a transparent cover and shall allow the legend card to be removed easily. All legend cards shall be typed and shall identify the nature of the equipment connected to a circuit, as well as the circuit number.

Wire Numbers

All instrumentation, control and electrical wiring shall be installed in suitable wiring channels and each conductor shall be identified by means of its unique circuit number at both ends where such a conductor is connected. In the case of terminal strips, the terminals shall be labelled with corresponding numbers or alternatively their own unique numbers. Wiring channels shall be of adequate size to ensure that the collective cross-sectional area of all conductors shall not exceed 50% of the measured internal cross-sectional area of such a wiring channels as per SABS requirement.

Equipment

The switchgear, instruments and other equipment to be provided on the distribution board shall be of the prescribed types. Wherever possible, equipment manufactured in South Africa and bearing the SANS mark of approval, shall be utilised.

Tenderers shall base their tenders on the specific prescribed types of equipment specified. Should any of the prescribed equipment not be obtainable, the Tenderer shall state so in his Tender and shall qualify the Tender with regard to the alternative equipment offered. Similar equipment used on all distribution boards shall be of the same manufacture.

All equipment to be utilised shall have a minimum fault current rating capacity of 5 kA unless specified otherwise.

Equipment shall be arranged and grouped in logical fashion as follows:

Main switch to be installed either at the top or bottom of the board
Short circuit protection equipment - fuse gear of fuse switches
Change-over contactors or other contactors controlling the supply
Motor supplies
Fuse switches for outgoing circuits
Other circuits and equipment

Where a portion of the equipment on the switchboard is supplied from a standby power source, the change-over contactor and the associated equipment shall be grouped in a separate compartment.

Where earth leakage units are required, the associated circuit breakers shall be installed adjacent to the unit.

All moulded case circuit breakers shall be flush mounted with only the toggles protruding. Miniature circuit breakers may be installed in clip-in trays mounted on the frame. All other circuit breakers shall be bolted to the chassis. Special provision shall be made for large main switches when designing the framework. Care shall be exercised that the rear studs of circuit breakers are properly insulated from the steel chassis. Where necessary, insulating material shall be installed between the rear studs and the chassis. Circuit breakers shall be installed so that the toggles are in the up position when AON@ and down when AOFF@.

All metering instruments shall be flush mounted in the front panel or door. The rear terminals of instruments mounted on doors shall be covered with an insulating material to prevent accidental contact. Current transformers for metering shall be mounted so that the rating plate is clearly visible. Fuses for instrumentation shall be mounted in an easily accessible position and clearly marked.

Fuse holders shall be mounted semi-recessed in the front panel so that fuses can readily be changed without removing the front panel. Busbar mounted fuses for instrumentation shall be used as far as possible.

Where equipment requiring fuses is specified on a board (fuse switches, etc.), a ruling shall be obtained from the Engineer on the quantity of spare fuses to be provided.

If the main switch is a moulded case circuit breaker or isolator it shall be flush mounted.

Contactors controlling the supply shall be installed behind separate front panels.

All metering, protection and indicating equipment shall be clearly visible from the front of the board. Current transformer ratios and multiplication factors shall be clearly marked. Where doors are specified the equipment shall be installed flush in the doors and covered.

All circuit breakers and fuses (with the exception of fuse switches) may be grouped together behind one or more panels.

Fuses or fuse switches providing back-up protection for circuit breakers, shall be grouped with the associated circuit breakers. Exposed surfaces of fuse switches shall be of the same finish and colour as the rest of the board where practical.

Where standby power from a diesel generator set or UPS is available and has to be connected to some of the equipment on a switchboard, the switchboard shall be divided into separate sections with sheet metal divisions to isolate standby power and mains power sections.

Standby, UPS or normal supply shall each have its own incoming isolator or circuit breaker.

The equipment on the respective distribution boards is identified in the Specification and on the relevant drawings by means of abbreviations. The explanation of these abbreviations and further details regarding the distribution boards are specified in the Technical Schedules.

Switchboards shall be properly ventilated, especially when containing contactors, transformers, motor starters, lighting dimmers and other heat producing equipment. Louvres shall be fitted to provide adequate upward or cross ventilation. All louvres shall be vermin proofed with 1,5mm brass mesh or perforated steel plate internally spot welded over the louvres. The internal ambient temperature shall not exceed 40°C.

Wiring Terminals

Terminal bodies and screws shall be of non-corrosive metal, enclosed in fire resistant, moulded plastic insulating bodies. Terminal bodies or screws shall not project beyond the insulating material and shall afford suitable protection against accidental contact by personnel and against short circuits and tracking.

The construction of the terminal block and mounting rail shall be such as to ensure a firm and positive location of the terminal blocks. It shall be possible to add additional terminal blocks within the terminal sequence without having to disconnect or dismantle the terminal strip. The terminal blocks shall be held in position by means of standard end clamps.

It shall be possible to intermix terminals of various sizes, i.e. for different sizes of conductors, whilst utilising the same mounting rail. Where smaller terminal blocks occur adjacent to larger terminal blocks, suitable shielding barriers shall be inserted to cover the terminals that might otherwise be exposed.

The terminal bodies and clamping screws shall be so constructed as to ensure that conductors are not nicked or severed when the clamping screws are tightened. Screws shall not come in direct contact with the conductors.

Terminals shall be sized and rated to match the conductors that are connected to them.

Each terminal block shall have provision for clip-in numbering or labelling strips to be installed, together with protective, clear caps over the sheets.

Installation

The distribution board shall be installed with the top of the board 1,8 m above the finished floor level.

A metal cable channel with removable metal cover plate shall be installed by the Sub-Contractor and shall extend from the line shop distribution board to the floor or into the ceiling void as required. The channel shall coincide with the position of sleeves, where installed.

The cable channel shall be large enough to permit the installation of cable glands and future cables.

The colour of the channel cover shall match that of the associated switchboard.

Where cables in floor trenches are connected to wall mounted switchboards, approved sleeves or conduits shall be installed from the side of the trench to the bottom of the switchboard. These sleeves shall be positioned and fixed.

Where conduits from a distribution board run into a false ceiling space above the board, a minimum of two 25mm and two 20mm spare conduits shall be installed into the ceiling space immediately above the board.

Where underground cables are to be connected to distribution boards, it shall be the responsibility of the Sub-Contractor to ensure that sleeves are built in correctly to enable installation and connection of the cable to the switchboard.

Additional Equipment Specifications

Kilowatt-Hour Meters

Unless specified to the contrary, kilowatt-hour meters are to be suitable for operation on 250/400V, 50Hz systems and to have no creepage reading under voltage fluctuation or no load.

The meter is to be of the digital type with recording memory capacity of up to 3 months.

The integrating period on maximum demand meters is to be 30 minutes, unless specified to the contrary.

Kilowatt-hour meters are to be graded and calibrated for the specific application to avoid the application of multiplication factors where possible. Where multiplication factors are unavoidable, this is to be clearly indicated in unit form and not a combination of several factors. Current transformer ratios must be incorporated in the factor.

Facilities for a security seal are to be provided on the fixing screws of the cover.

Instantaneous and Maximum Demand Ammeters

Ammeters are to be manufactured to the international standard and to be totally enclosed in robust insulated dust proof housings, suitable for flush mounting in a vertical position.

The ammeter is to have 100mm5 dial with a clear scale showing the instantaneous current value and maximum demand mean current value on the basis of a 15 minute period, and is to be fitted with a residual pointer to indicate the maximum mean current value during any period between manual resetting.

Ammeters are not to impose a burden exceeding three V.A. at the current corresponding to full-scale deflection. Current transformers are to be manufactured to the international standard and be rated at 5VA and have a Class AC@ accuracy. The current transformers are to have a short circuit time rating equal to that of the switchgear in which they are installed.

Voltmeters

Voltmeters are to be manufactured to the international standard. They are to be of the moving iron, spring controlled pattern totally enclosed in robust insulation dustproof housings, suitable for flush mounting in a vertical position.

The voltmeters are to have 100mm5 dial scaled to suit the system voltage and having a suppressed zero. The nominal voltage must be marked with a red line.

The voltmeters are to be protected by HRC cartridge fuses and housed in suitable fuse carriers with a panel mounting base.

A rotary selector switch is to be provided to select the voltage between lines or between any line and neutral. The switch must be clearly marked to indicate which reading has been selected.

Moulded Case Circuit Breakers

The circuit breakers shall comply with SANS 1156.
The continuous current rating, trip rating and rupturing capacity shall be as specified.
The contacts shall be silver alloy and shall close with a high pressure wiping action.

Where specified, the circuit breaker shall be capable of accommodating factory fitted shunt trip or auxiliary contact units or similar equipment.
The operating handle shall provide clear indication of AON@, AOFF@ and ATRIP@ positions.
The mechanism shall be of the TRIP-FREE type preventing the unit from being held in the ON position under overload conditions.
All moulded case circuit breakers in a particular installation shall as far as is practical be supplied by a single manufacturer.
The incoming terminals of single pole miniature circuit breakers shall be suitable for connection to a common busbar.
The circuit breaker shall have a rating plate indicating the current rating, voltage rating and breaking capacity.
Extension type operating handles shall be provided for units of 600A rating and above.

Isolators

This section covers switches suitable for panel mounting for use in power distribution systems of 50Hz, 600V. Switches for motor isolation are included.

The switches are to be of the single- & triple pole, on load, hand operated type. The switches are to have a high-speed closing and opening feature.

The switches are to be suitable rated for the continuous carrying, making and breaking of the rated current specified, as well as the through-fault current capacity as specified.

To distinguish the switches from circuit breakers the operating handles are to have a distinctive colour and/or the switch is to be clearly and indelibly labelled AISOLATOR@.

Earth Leakage Relays

Earth leakage relays shall be single or three-phase units with a sensitivity of 30mA, with associated circuit breaker or on-load switch for use on 220/250V single phase or 380/433V three phase, 50Hz, supplies.
The units shall be suitable for installation in switchboards in clip-in trays or bolted to the chassis.
The earth leakage relay shall function on the current balance principle and shall comply with SANS 1767 as amended, and shall bear the SANS mark. Integral test facilities shall be incorporated in the unit.
Circuit breakers with trip coils used integrally with earth leakage units (two pole for single phase units and three pole for three phase units) shall comply with SANS 1156.
On-load switches used integrally with earth leakage units (two pole for single phase units and three pole for three phase units) shall comply with SANS 1152.
The fault current rating of the unit shall be 2,5/5kA as required, when tested in accordance with SANS 1156.

Current Transformers

Current transformers shall comply with the requirements of BS 3938 and IEC 185 with the exception of the required impulse test level.

Current transformers are to be of the ring-type and shall be suitable for the primary currents listed hereunder and their decimal multiples:

10, 12.5, 15, 20, 25, 30, 40, 50, 60 and 75

The preferred values are:

10, 15, 20, 30, 50 and 75

Current transformers shall have secondary ratings of 1, 2 and 5A being preferred.

Current transformers shall have standard outputs of 2, 5, 10, 15 or 30VA as applicable in terms of the burden of the instruments and interconnecting wiring. The current transformer output shall match the actual instrument burden as closely as possible in order not to introduce unnecessary errors.

For metering applications, accuracy classes of 0.1, 0.2, 0.5, 1 or 3 are applicable. Where no accuracy class has been specified, the following table may be used as a guide:

Application	Primary Current	Suggested Class
Indicating Instruments	All	5
Metering Applications	Up to 200A	1
Metering Applications	200A to 600A	0.5
Metering Applications	600A and above	0.2

Where ring type current transformers are specified, the aperture shall not be unnecessarily large as accuracy is thereby reduced.

The classes for protection are 5P, 10P, 15P, 20P or 30P with 5P and 10P being standard.

Manufacturers shall supply the magnetisation curve details and saturation factors of each different transformer ratio.

All current transformers shall come complete with a label on which the following information is indelibly stamped:

Manufacturer
Serial number or type
Rated primary and secondary current
Rated frequency
Rated output and accuracy class
Highest system voltage
Rated insulation level

Current transformers shall be capable of withstanding the dynamic forces resulting from the maximum through-fault current which may be encountered at the point where they are installed. The short time current rating of current transformers shall be at least equal to that of the associated circuit breaker.

Current transformers used in system voltage in excess of 660V shall withstand an impulse test level of 95kV. Impulse levels for current transformers used in system voltages up to 660V shall comply with BS 3938.

One protection current transformer of each type used in a contract shall be tested to confirm the estimated characteristics. The following results shall be submitted:

Magnetisation curve
Secondary resistance
Secondary leakage reactance, if not negligible or if required by the Department

Time Switches

Time switches shall be of single pole type, suitable for 220/250V systems, with contacts rated for the duty to be performed with a minimum rating of 15A. Contacts shall be of high quality material, eg. silver plated or solid silver.

The clock shall be driven by a self-starting, hysteresis synchronous motor, keeping accurate mains time. All clocks shall be controlled by an electrically wound escapement providing the main spring with a minimum of 15 hours reserve in case of a power failure. The main spring shall be kept fully wound without the use of slipping clutch devices that may wear and fall out of adjustment.

The main spring shall have a minimum of 15 hours reserve under full load and if fully discharged, shall be completely rewound within 15 minutes of the restoration of power.

An external manual bypass switch shall be provided to permit the circuit to be switched AON@ or AOFF@ manually without affecting the operation of the time switch.

The time switch shall have a 24 hour dial, with day and night indication, that can be set to switch in 30 minute steps. The dial shall be fitted with 48 tappets corresponding to 48 change-over operations in a 24 hour period.

The time switch shall be fitted with a day omission dial comprising a total of 14 tappets which can be set to switch in 12 hour steps.

The time switch shall be housed in a dust-tight moulded plastic or metal case, consisting of a plastic clip-on front cover and a moulded plastic or metal base. Time switches to be used for surface mounting on walls shall be provided with a suitably positioned 20mm conduit knock-out.

Photocells

The switches shall be used for the control of general and parking area lighting and shall be provided with switch contacts able to carry at least 5A. The current during no-load conditions may not exceed 50mA.

The units shall be suitable for 240V + 6%, 50Hz, single phase alternating current.

A time delay of no less than 60 seconds must be provided to prevent the unit from functioning due to short period changes in illumination. The unit must be effectively safeguarded against voltage surges by means of a suitable surge protector, which must preferably form an integral part of the unit.

The unit is to be of the wall mounting or panel type and be fitted onto an approved polycarbonate bulkhead fitting, complete with a suitable bracket.

The cover of the unit is to be manufactured from a tough, durable material providing protection against tampering. The cover is to have good weathering properties. It is to be ultraviolet-resistant and not to deteriorate when exposed to sunlight for prolonged periods.

The units shall switch on when the light intensity drops to 54 lux + 20% and shall switch off when the light intensity again reaches 108 lux + 20%.

The positions of the switches as indicated on the drawings are provisional and the exact positions are to be confirmed with the Architect on site.

A by-pass switch enabling the lights to be turned on at any time must be provided.

CONDUIT, WIRING CHANNELS, POWER SKIRTING, OTHER WIREWAYS

General

Only one manufacture of conduit and conduit accessories will be permitted throughout the installation.

Bushes or grommets shall be provided at wiring entrances, exits and transitions in order to prevent damage to wiring insulation.

Where the capacity of a wireway is not covered in the regulations and standards, the combined overall cross sectional area of the conductors installed into such a wireway shall not exceed 40% of the interior cross sectional area of the wireway.

Elements to be installed in concrete structures

Any element of the Sub-Contract Works to be installed within a concrete structure will be subject to the approval of the structural engineer. This requirement applies especially to conduit and/or sleeves to be installed in concrete columns, beams or slabs. The Sub-Contractor is advised to clarify the intended routes for conduit and/or sleeves with the structural engineer prior to the installation of such material. No claims for additional cost resulting from variations requested by the structural engineer, will be considered by the Engineer, unless the Sub-Contractor can prove that the variation was requested subsequent to approval being obtained for the original installation.

All conduits to dry wall partitions are to be run down from ceiling in preference to being cast into floor slabs.

Conduit and Accessories

General

The Sub-Contractor shall supply and install all conduit and accessories which may be required for this Sub-Contract Works. The respective drawings indicate mostly collective conduit, conduit for supply wiring to switchboards and few other conduit. The routes for such conduit are indicated schematically only and does not

therefore specify the actual physical routes to be followed on Site. Conduit for individual circuits are mostly not shown at all on the drawings.

Tenderers must ensure that general approval of the proposed conduit system to be used is obtained from the Engineer prior to the submission of their tender. Under no circumstances will consideration be given by the Engineer to any claim submitted by the Contractor, which may result from a lack of knowledge in regard to the requirements of this specification.

Types of Conduit

All conduit to be used in this Sub-Contract Works shall bear the SANS mark of quality.

5.3.2.1 Non-Metallic Conduit and Accessories

Non-metallic conduit and fittings shall conform with the requirements of SANS 1950.

White PVC conduit will be acceptable in general, except in the case of surface mounted conduit or exposed conduit which shall be galvanised in all cases. Conduit laid below the floor slab, shall be installed in a sand bedding with 50 mm cover and only PVC conduit shall then be used.

5.3.2.2 Screwed Metallic Conduit and Accessories

All metallic conduits shall be manufactured of mild steel with a minimum thickness of 1,2mm for plain-end conduit and 1,6mm in respect of screwed conduit.

Conduits shall comply with SANS 11065 and shall bear the SANS mark.

All conduit shall be heavy gauge, welded or solid drawn, hot-dip galvanized or black enamelled, screwed tube.

Galvanized conduit shall be hot-dipped inside and outside in accordance with SANS 1763.

All conduit ends shall be reamed and threaded on both sides and delivered with a coupling at one end and a plastic cap on the other end.

All metal conduit accessories shall be of malleable cast iron or pressed steel with brass bushes in accordance with SANS 11065. Alloy or pressure cast metal accessories or zinc base alloy fittings are not acceptable. All fittings, whether galvanized or black enamelled, shall be fitted with brass screws.

The boxes shall be of the long spout pattern, manufactured of malleable cast iron or pressed steel and stove enamelled jet black or galvanized as required. The two cover fixing holes shall be diametrically opposite each other, drilled and tapped at 50mm centres.

Junction, draw-in and inspection boxes shall be of adequate size and shall be supplied with heavy gauge metal cover plates.

Boxes shall comply with SANS 11065.

All switch boxes and socket outlet boxes shall be manufactured of pressed galvanized steel of at least 1mm thickness. All boxes shall be fitted with the necessary lugs to suit standard flush mounted switches and socket outlets manufactured in accordance with SANS 1518 and SANS 11085.

Light switch boxes shall be 100 x 50 x 50mm with two 20mm knockouts on the sides, one 20mm knockout on the top, bottom, side and back.

Socket outlet boxes shall be 100 x 100 x 50mm with two 20mm knockouts each on the top, bottom, sides and back.

Switch and socket outlet cover plates shall comply with SANS 11084.

Earth clamps shall consist of copper strips at least 1,2mm thick and not less than 12mm wide secured with a brass bolt, nut and washers and shall be so constructed that the clamp will fit firmly to the conduit without any additional packing.

Installation of Conduit

The positions of switchboards, drawboxes, outlet boxes and circuits are indicated on the drawings. The Sub-Contractor shall design the actual conduit installation with the aid of the information given on the relevant drawings.

All accessories such as boxes for socket outlets, switches, lights, etc. shall be accurately positioned. It is the responsibility of the Sub-Contractor to ensure that all outlets are installed level and square, at the correct height from the floor, ceiling or roof level and in the correct position relative to building lines and equipment positions as specified. It shall be the responsibility of the Sub-Contractor to determine the correct final floor, ceiling and roof levels in conjunction with the Main Contractor. Draw boxes shall not be installed in positions where they will be inaccessible after completion of the installation. Draw boxes shall only be installed in inconspicuous positions when approved by the Engineer. This shall then be indicated on the Aas-built@ drawings.

Draw boxes shall be installed at maximum intervals of 15m in straight runs. All bends shall be made without heating the conduit or without reducing the diameter of the conduit. The inside radius of a bend shall not be less than five times the outside diameter of the conduit (refer to SANS 10142-1).

A maximum of two 90° bends or the equivalent displacement will be allowed between outlets and/or boxes.

The edges of flush mounted outlet boxes shall not be deeper than 10mm from the final surface. Spacer springs shall be used under screws where necessary.

All excess holes in draw boxes or other conduit accessories shall be securely blanked off by means of brass plugs to render the installation vermin proof.

Care shall be taken to prevent debris or moisture from entering conduits during and after installation. Conduit ends shall be sealed by means of a solid plug which shall be screwed to the conduit end. Conduits shall be cleaned and swabbed to remove oil, moisture or other debris that may be present before conductors are installed. Swabs shall not be attached to the conductors.

Each length of conduit shall be inspected for defects and all burrs shall be removed. All conduits that are split, dented or otherwise damaged or any conduits with sharp internal edges, shall be removed from site. The Sub-Contractor shall ensure that conduits are not blocked.

To ensure that all electrical conductors are easily withdrawable from conduits and to ensure that there are no joints in the conductors, the Engineer will have the right to have the conductors of any circuit removed at his discretion. If the conductors are found to have been damaged during the installation or removal or if joints are found, they shall be replaced and the cost shall be borne by the Sub-Contractor.

Conduit runs shall be kept as straight and as short as possible. In order not to delay building operations, the Sub-Contractor shall ensure that all conduits and accessories which are to be cast in concrete are placed in position in good time. The Sub-Contractor or his representative shall be in attendance when the concrete is cast.

Draw boxes, expansion joints and round ceiling boxes shall be installed where required and shall be neatly finished to match the finished slab and wall surfaces. Ceiling draw boxes shall be of the deep type. In hollow block slabs, rear-entry draw boxes shall be used. In columns where flush mounted draw boxes are installed, the conduits shall be offset from the surface of the column immediately after leaving the draw box.

Elbows for conduits of 32mm dia and smaller and sharp bends will not be allowed in concrete slabs.

Draw boxes and/or inspection boxes shall, where possible, be grouped together under a common approved cover plate, and must preferably be installed in passages or male toilets. The cover plate shall be secured by means of screws.

All conduits shall be installed as close as possible to the neutral axis of concrete beams, slabs and columns. The conduits shall be rigidly secured to the reinforcing to prevent movement towards the surface of the concrete.

All conduits, draw boxes, etc. shall be securely fixed to the shuttering to prevent displacement when concrete is cast. Draw boxes and outlet boxes shall preferably be secured by means of a bolt and nut installed from the back of the box through the shuttering. Fixing lugs may also be used to screw the boxes to the shuttering. Wire will not be accepted for securing boxes to the shuttering where off-shutter finishes are required. Where fibreglass shuttering is used by the Builder, the equipment shall be fixed to the steel only and no holes shall be drilled or

made in shuttering. All draw boxes and outlet boxes shall be plugged with wet paper before they are secured to the shuttering.

Before any concrete slabs are cast, all conduit droppers to switchboards shall be neatly spaced and rigidly fixed.

Conduits will not be allowed in concrete floor slabs of boiler rooms (or boiler houses), laundries or other damp areas. All socket outlets and three phase outlets in damp areas shall be supplied from above with galvanized conduit and accessories.

As far as possible, conduits shall not be installed across expansion joints. Where this is unavoidable, a conduit expansion joint shall be provided.

In the event of conduit installed into slots cut into walls, the slots shall be deep enough to install the conduit flush with the surface of the bricks. The conduit shall be secured to the bricks prior to the plastering of the wall. In the event of conduit in ceiling spaces, such conduit shall be secured to the rafters or beams at regular distances not exceeding 2m.

Under no circumstances will conduit having a wall thickness of less than 1,6mm be allowed in screeding laid on top of concrete slabs.

The installation of conduits in floor screeds shall be kept to a minimum. Where conduits are installed in screeds, the top of the conduit shall be at least 20mm below the surface of the screed. Where the screed is laid directly on the ground, galvanized conduits shall be used. This ruling will always be applicable to the lowest floor of a building. A minimum distance of twice the outside diameter of the conduit shall be left free between adjoining conduits. Conduits shall be secured to the concrete slab at intervals not exceeding 2m. The Sub-Contractor shall ensure that conduits are not visible above the screed where the conduits leave the screed.

All draw boxes, conduits, etc. which are installed in concrete shall be cleaned with compressed air and provided with draw wires two days after the removal of the shuttering. Errors that occurred during the installation of the conduits, or any lost draw boxes, or blocked conduits shall be immediately reported to the Engineer by telephone and confirmed in writing in order that an alternative route can be planned and approved by the Engineer before the additional concrete is cast. Any additional cost shall be for the Sub-Contractor=s account.

Uncovered threading in steel conduit shall be avoided. Should open threading be unavoidable, such open threading shall be treated with lead oxide paint to prevent corrosion.

The open ends of conduit shall be protected at all times. The use of paper plugs will not be accepted. For steel conduit metal plugs or short sealed lengths of conduit shall be installed onto conduit ends. For PVC conduit the conduit ends shall be heated and then bent over and sealed.

Bending and setting of conduit must be done with special bending apparatus manufactured for the purpose and which are obtainable from the manufacturers of the conduit systems. Damage to conduit resulting from the used of incorrect bending apparatus or methods applied must on indication by the Engineer inspectorate staff, be completely removed and rectified and any wiring already drawn into such damaged conduits must be completely renewed at the Sub-Contractor=s expense.

Conduits may not be installed closer than 150mm to pipes containing gas, steam, hot water or other materials, which may damage the conduits or conductors. Conduits may not touch pipes of other service installations in order to prevent electrolytic corrosion. Where this is unavoidable, cathodic protection shall be provided.

Conduit and conduit accessories used for flame-proof or explosion proof installations and for the suspension of luminaires as well as all load bearing conduit shall in all instances be of the metallic screwed type.

When any part of a non-metallic conduit system has to be connected to metal equipment or components (eg. switchboard, surface socket outlet or switch box, existing metallic conduit system, etc.), fittings and joints manufactured specifically for this purpose must be used. Non-metallic conduit must not be threaded to fit metallic connectors.

Surface Mounted Conduit

Wherever possible, the conduit installation is to be concealed in the building work; however, where unavoidable or otherwise specified, conduit installed on the surface must be plumbed or levelled and only straight lengths shall be used.

Conduits shall be firmly secured by means of saddles and screws and in accordance with SANS 10142. Where saddles are used to secure vertical lengths of conduit connected to surface mounted switch boxes or socket outlet boxes, the saddles shall be spaced so that the intervals between the box and the first saddle, between any two successive saddles and between the last saddle and the ceiling or roof are equidistant. Conduits shall be secured within 150mm before and after each 90° bend and within 100mm of each outlet box.

Conduit routes shall be carefully planned to avoid crossovers. Where a crossover is inevitable, one conduit only shall be offset to cross the other. Crossovers shall be as short as possible and shall be uniform. Alternatively, crossovers shall be installed in purpose-made boxes. This method shall be employed on facebrick walls and in other circumstances where required by the Engineer.

Parallel conduit runs shall be equidistant and saddles shall be installed in line. Alternatively, a special clamp may be used to secure all conduits in unison. In the case of conduits of different diameters, the latter method shall only be used if a purpose-made clamp designed to accommodate the various conduit sizes, is provided.

All surface mounted conduits and accessories shall be painted with two coats of a high quality enamel paint or as otherwise specified. The colour shall comply with the colour code specified for the installation or where no code has been specified, shall match the colour of the surrounding finishes.

In open roof spaces (no ceiling) conduits shall run along the wall plates and the rafters. The installation of conduits suspended between the rafters is not acceptable.

Conduit in roof spaces shall be installed parallel or at right angles to the roof members and shall be secured at intervals not exceeding 1,5m by means of saddles screwed to the roof timbers for metallic conduit and 1m for non-metallic conduit.

Nails or crampets will not be allowed.

Under flat roofs in false ceilings or where there is less than 900mm clearance, or in instances where the ceilings are insulated with glass-wool or other insulating material impeding access, the conduit shall be installed in a manner which allows for wiring from below the ceilings.

Conduit runs from switchboards shall terminate in fabricated sheet steel draw boxes installed directly above or in close proximity to the boards. Refer to the specification for ACONNECTIONS TO SWITCHBOARDS@.

Spare conduits covering the total number of spare ways on switchboards, shall be provided between the boards and the roof draw box.

Where non-metallic conduit has been specified for a particular service, the conduit shall be supported and fixed with saddles with a maximum spacing of 450mm throughout the installation. The Contractor shall supply and install all additional supporting timbers in the roof space as required.

Only approved plugging materials such as aluminium inserts, fibre plugs or plastic plugs, etc. and round-head screws shall be used when fixing saddles, switches, plugs, etc. to walls. Wood plugs are not acceptable nor should plugs be installed in joints in brick walls.

Surface mounted conduit will only be accepted when specified or when written permission thereto was obtained beforehand from the Engineer. In the event that any conduit is omitted during the construction when such conduit was specified to be installed flush, the Sub-Contractor shall be liable for the cost involved to install such conduit flush at a later stage.

Conduits concealed above suspended ceilings are to be priced as a surface installation.

Chases and Builder's Work

Except where otherwise specified the Sub-Contractor shall be responsible for the builder's work concerned with conduits, outlet boxes, switchboard trays, bonding trays and the wall outlet boxes as well as the necessary chasing and cutting of walls and the provision of openings in ceilings and floors for light fittings and other electrical outlets. The Sub-Contractor shall notify the Contractor of his requirements and the responsibility lies with the Sub-Contractor to ensure that these requirements are met.

Electrical materials to be built in must be supplied, placed and fixed in position by the Sub-Contractor when required by the Contractor. The Sub-Contractor shall also ensure that these materials are installed in the correct positions.

Chases shall be made by means of an approved vacuum-type double blade cutting machine.

Under no circumstances shall face brick walls or finished surfaces be chased or cut without the written permission of the Engineer. Where it is necessary to cut or drill holes in the concrete structure, the prior permission of the Structural Engineer shall be obtained to ensure that the structure is not weakened.

Drawboxes

All drawboxes installed on the surface shall be of the galvanised type, except in the case of drawboxes which will be exposed to the external atmosphere in which case such drawboxes shall be of the weatherproof type. In all other cases the type of drawboxes shall match the type of conduit used.

The requirements of the SANS wiring code with regard to drawboxes in conduit runs shall be strictly adhered to. The positions of drawboxes provided by the Sub-Contractor as a result of long runs of conduit or excessive bends in conduit runs, shall be marked on the drawings to be used for the installation of conduit. The positions for such additional drawboxes will be subject to the Engineer's approval.

The Sub-Contractor's attention is drawn to the fact that special collective expansion joint drawboxes shall be used where conduit runs cross an expansion joint in the structure of a building. The draw boxes shall be installed adjacent to the expansion joint of the structure and a conduit sleeve, one size larger than that specified for the circuit, shall be provided on the side of the draw box nearest the joint. The one end of the sleeve shall terminate at the edge of the joint and the other shall be secured to the draw box by means of locknuts. Such expansion joint drawboxes can be collective drawboxes for various circuits, but separate drawboxes shall be provided for the electrical, telephone and other services.

All drawboxes and outlet boxes to be installed in concrete ceilings shall be of the deep type. Where such drawboxes or outlet boxes are to be installed in coffer type concrete slabs, the boxes shall be installed in the centre of the upper surface of such concrete coffers. Wherever possible the associated conduit shall be installed along the ribs of the coffer structure.

All drawboxes installed in concrete shall be secured to the reinforcing steel with the open ends of such drawboxes flush onto the surface of the shuttering. The drawboxes shall be filled with wet paper to prevent concrete from entering the drawboxes.

Drawboxes installed in brick walls will not be accepted if the front edges of such drawboxes are more than 15 mm below the final surface of the walls. Once installed, these drawboxes shall be filled with paper and tied with binding wire to prevent the inside of the drawboxes and conduit from being filled with dagha.

Drawboxes installed in ceiling spaces shall be secured to supporting wooden battens so that the open ends of such drawboxes shall be flat onto the upper surface of the ceiling boards where applicable. Drawboxes which are not flat onto the ceiling surface will not be accepted. The supporting wooden battens shall be installed by the Sub-Contractor to prevent the drawboxes from being moved away from the ceiling surface and to provide a supporting structure for the drawboxes where luminaires are installed onto such drawboxes.

Due to scale it is not always possible to indicate exact locations for drawboxes on drawings. The Sub-Contractor is required to use good judgement in the location of drawboxes. Eg. if a drawbox is required in the wall underneath a window, the drawbox shall be located in the centre of the window. In the event of a light-switch above a socket outlet, the boxes shall be installed in a vertical line. Drawboxes installed adjacent to each other, shall be located next to each other at the same height. It is preferable that two bushes shall be installed as separators between adjacent drawboxes. Refer in this regard to the standard drawings.

Draw Wires

The Sub-Contractor shall supply and install corrosion resistant draw wires into all conduit and sleeves into which the Sub-Contractor will not install wiring himself. Such conduit and sleeves include inter alia the conduit and sleeves for the following services:

Telephone cable wire ways
Intercom cable wire ways

Internet/Data wire ways
Conduit for future equipment
Spare conduit and cable sleeves

Spare Conduit for Future Extensions

The Sub-Contractor shall supply and install minimum 2 X 20mm diameter and 2 X 25mm diameter spare conduits from each switchboard to the ceiling space directly above it for future use. No wiring shall be installed by the Sub-Contractor into these spare conduits.

Conduits intended for future switches and socket outlets, shall terminate 40mm above the tie beams in roof spaces with more than 900mm free space. The conduit ends shall be threaded and fitted with a coupling and brass plug.

Conduit ends shall protrude 150mm from the concrete to facilitate the installation of future extensions above, below or to the side of the concrete slabs. All these conduits shall be connected to a draw box, which is cast into the concrete within 2m of the end of the concrete. Conduit ends shall be threaded and fitted with a coupling and brass plug. In cases where holes cannot be drilled through the shuttering to accommodate the conduit end, a deep draw box with rear entry may be placed over the conduit end.

Unused boxes for switches and socket outlets shall be covered with metal cover plates. Unused boxes for luminaires shall be covered with round galvanized metal cover plates, which fit tightly against the finished surface. The cover plate shall overlap the outlet box and recess.

Connection to Floor Standing Surface Mounted Switchboards

All conduit required to bring about connections into floor standing surface mounted switchboards, shall be connected to suitable lengths of 127 mm x 76,2 mm galvanised steel channels (O-L 9 000 or equivalent) installed on the wall above the switchboard. The position of the channel on the wall shall be clarified with the manufacturer of the switchboard beforehand in order that a slot may be provided on the top of the switchboard in order that the wiring from the channel may be routed directly into the switchboard.

Inspections

The Engineer may at his discretion prefer to inspect conduit installations prior to the casting of concrete. Such inspections shall however be regarded as a preventative measure in an effort to locate problems in the conduit installations prior to the casting of concrete. Under no circumstances will the Engineer be liable for any shortcomings in the conduit installation which may possible have been overlooked during such inspections. The responsibility to ensure that all conduit installations are complete will be entirely the Sub-Contractor's. The Sub-Contractor shall notify the Engineer at least forty eight (48) hours prior to the time that an inspection by the Engineer may be required.

Abbreviations

A number of abbreviations are used in the Technical Schedule and on the Drawings to identify the various types of drawboxes and outlet boxes. The explanation of such abbreviations is specified in the Technical Schedules.

Telephone wireways

General

The Sub-Contractor shall supply and install the necessary outlet points, conduiting and wire ways for the telephone network. The positions of drawboxes and the sizes of conduit are shown on the relevant drawings.

Telkom Requirements

The Sub-Contractor's attention is drawn to the requirements of Telkom with regard to the telephone cable wire ways installation shall be strictly adhered to during the installation of the said cable wire ways. The Sub-Contractor is strongly advised to obtain a copy of the Telkom specification applicable to the cable wire ways installation. The completed cable wire ways installation will be subject to the approval of Telkom.

Installation of Telephone Wireways

The position of the telephone distribution boards are shown on the relevant drawings. It shall be of the surface-mounted type complete with door and latch and shall be of the standard type as approved by Telkom. A 20mm thick soft wooden panel (SA Pine or similar) shall be supplied and installed over the full area inside the distribution board against the back panel.

The drawboxes for telephone outlets within the building shall each consist of a 100 x 100 x 50mm deep flush mounted drawbox with a blank cover plate of the same colour as prescribed for the socket outlets. The Sub-Contractor shall ensure that all securing screws are installed on such blank cover plates.

The sizes of conduit connections between the various drawboxes are in general indicated on the relevant drawings, but the minimum conduit size which will be accepted is 25mm diameter.

All wire ways for telephone cables shall be provided with corrosion resistant draw-wires.

Where telephone points are shown as part of the power skirting, such points and covers shall consist of a purpose made cover and shall be supplied by the power skirting manufacturer to suit the power skirting.

Conduit connections to power skirting or surface mounted metal channels, shall consist of a 100 x 100 x 50mm draw box which is flush mounted immediately behind the duct or channel in which the telephone cables are to be installed. A hole shall be cut in the back of the duct or channel, immediately opposite the draw box. The edges of the hole shall be grommeted. The draw box shall be accessible from the front when the cover is removed.

The distribution board shall be installed with its top edge 1,6m above the finished floor level. Mounting height to be confirmed.

Inspections

The Engineer will inspect the telephone wire ways installation as specified for the conduit installation.

The Sub-Contractor is however strongly advised to insist on an inspection of the completed telephone wire ways installation by the Engineer and a representative of Telkom and to obtain written confirmation from the said parties that the cable wire ways installation is complete and acceptable. Since the cable wire ways installation will only be handed over together with the rest of the Installation at the official first handover at the end of the Sub-Contract period, the Sub-Contractor will be liable for any damage to the completed cable wire ways installation, unless the Sub-Contractor can furnish proof that such damage was inflicted by the Telkom personnel.

PVC sleeves

The 160mm & 110mm dia PVC sleeves shall be supplied and installed by the Contractor.

The Contractor shall supply and install the galvanised draw wire following the installation of the sleeves.

The Sub-Contractor shall ensure that these sleeves are installed in the correct positions and at the correct depths, which shall be 600mm below the final ground level. The Sub-Contractor shall ensure that the sleeve ends are sealed with plastic sheeting wrapped around the ends and secured with binding wire, prior to the sleeves being installed.

WIRING

Conductors for wiring

The Sub-Contractor shall supply and install all conductors for wiring of the Sub-Contract Works. All conductors shall consist of 600/1000 V, PVC insulated, stranded copper conductors. All circuit wiring in conduit and trunking shall be PVC insulated stranded copper conductors to SANS 11507, 1000 V grade. A separate green PVC insulated or bare stranded copper earth conductor shall be run with every circuit to form the earth continuity system. The colours of PVC insulation material shall comply with requirements of the SANS 10142. The colours of PVC insulation material for conductors to be used for circuits with voltages below 231V shall be different in colour to those used for circuits with voltages of 231V up to 1000V.

The colours of conductors for wiring to two-way and intermediate switches shall preferably differ from the colour of phase conductors.

The following is an extract from the SANS 10142 specification giving the minimum sizes of conductors that shall be used throughout for the wiring of circuits, unless specified to the contrary on the Drawings. In general the Sub-Contractor shall ensure that the current carrying capacities of the conductors exceed the current carrying capacities of the circuit breakers protecting such circuits. In the event of the bunching together of wiring, the Sub-Contractor shall derate the current carrying capacities in accordance with the SANS 10142 specification and if necessary, select larger sizes.

The Sub-Contractor's attention is drawn to the fact that only one circuit per final conduit run will be allowed. Conductors that are connected to different switchboards, shall not be installed in the same wireway. This requirement is however not applicable on any of the specified collective conduit or collective trunking.

Installation

All unarmoured conductors shall be installed in conduits, cable channels (trunking) or power skirting and shall under no circumstances be exposed.

Common wire ways will only be permitted for relatively light current carrying conductors such as lighting and socket outlet circuits. Heavy current carrying conductors such as feeders to distribution boards and large power points, must be installed in separate conduits or wire ways.

All wire ways shall be thoroughly cleaned and freed of all builders sand, cement or other debris (if necessary by means of a high power vacuum cleaner) prior to the installation of wiring. Wiring shall not be installed in any wireway until the entire wireway has been completed, is dry and clean and until the building is in an advanced stage of completion.

When conductors are drawn through conduit, care shall be taken that they are not kinked or twisted. Care shall also be taken that the conductors do not come into contact with materials or surfaces that may damage or otherwise adversely affect the durability of the conductor.

All wiring in conduit and other wire ways shall be of the loop-in system. No joints will be accepted in wiring, except when made at terminal points where the wiring is connected to equipment. The free ends of the wiring shall be sufficiently long to facilitate connections and alterations and shall not be less than 150 mm in length.

The insulation of conductors shall only be removed over the portion of the conductors that enter the terminals of switches, socket outlets or other equipment. When more than one conductor enters a terminal, the strands shall be securely twisted together. Under no circumstances shall strands be cut off.

For wiring which may be subject to mechanical strain, the length of the earth conductor shall be such that it will not be subject to strain until after the failure of the strain relieving device and straining of the active conductor. Any strain relieving device shall not be live.

When earth continuity conductors are looped between terminals of equipment, the looped conductor ends shall be twisted together and then soldered or ferruled to ensure that earth continuity is maintained when the conductors are removed from a terminal.

One circuit only will be allowed in any final conduit, i.e. excluding collective conduit such as at expansion joint drawboxes. More than one circuit may be installed in trunking, underfloor trunking or power skirting if necessary, provided that all conductors belonging to the same circuit, including the neutral and earth conductors are secured together by means of ties or similar means apt to identify the conductors of one circuit from those of another at intervals of 1m. The conductors of separate circuits shall however remain separate to ensure that any given circuit can be withdrawn.

With the exception of three-phase outlets, circuits connected to different phases shall not normally be present at lighting, switch or socket outlet boxes. Where this is unavoidable, barriers shall be provided between terminals or connections of the various phases and the box shall be suitably labelled internally to indicate the presence of three-phase voltage.

LUMINAIRES, SWITCHES, SOCKET OUTLETS, AND OTHER EQUIPMENT

Luminaire outlets

General

The conduit to all wall and ceiling surface mounted luminaires shall be terminated in a flush mounted standard 50 mm round draw-in conduit outlet box. This conduit outlet box shall be adequately supported in an approved manner such that a mass of 1 kilogram could be permanently attached to the outlet box fixing cover screws, without appreciable deflection. Additional adequate timber beams may have to be provided to meet this requirement.

Every luminaire shall be adequately secured by not less than two suitable fixing screws and washers, screwed into the outlet box. Rustproofed steel screws shall be used.

All fluorescent luminaires shall be fixed at each end through the stand-off points with an additional fixing at the central outlet box. This additional fixing point shall be utilised for the purpose of providing a standby anchorage, but shall not be tightened up such as to distort the luminaire. The fixing points shall be a relevant portion of the document.

All outdoor mounted luminaires are to be connected via a bushed conduit end rather than mounted over a conduit box, to ensure the integrity of the waterproofing.

Installation

The mounting positions of luminaires shall be verified on site. All luminaires shall be placed symmetrically with respect to ceiling panels, battens, beams, columns or other architectural features of the space unless otherwise indicated. The layout, as shown on the drawings, shall generally be adhered to but any discrepancies or clashes with structural or other features must be referred to the Engineer before commencing of the installation.

Where provision has not been made for the fixing of luminaires, the Sub-Contractor shall supply the necessary supports, hangers, conduit extensions, angle brackets or any other fixing method approved by the Engineer.

The necessary hangers shall be provided where luminaires, which are of the non-suspension type, have to be fixed below false ceilings or roof slabs. The use of 20mm conduits fixed to the roof slab or ceiling is preferred. Provision shall be made for adjustments to enable the levelling of luminaires. Suspended conduits shall be fixed to the ceiling by means of screwed dome lids, bolts and nuts. Ball-and-spigot type dome lids shall be used where conduit lengths exceed 600mm. Wiring shall be installed in the conduit hangers.

In the case of tiled ceilings with exposed or concealed T-section supports, surface mounted luminaires shall be fixed only to the tiles by means of butterfly screws or bolts with nuts and washers. The tiles shall be suitably reinforced. Luminaires may alternatively be fixed to metal cross pieces resting in the ceiling tees. Drilling of holes in ceiling tees to support luminaires will not be allowed. Luminaires shall be fixed in neat relation to the ceiling layout.

In cases where fluorescent luminaires are installed in tandem, only one connection outlet shall be supplied per circuit. All luminaires shall be coupled to one another by means of nipples or brass bushes and locknuts to ensure that wiring is not exposed and that earth continuity is maintained. Luminaires on the same circuit may be wired through the channel formed by the luminaire bodies. In this case silicon rubber insulated conductors shall be used and internal connections shall be made at porcelain terminal blocks. ASCREW-IT@ or similar connectors may only be used if prior permission is obtained from the Engineer. The wiring for any other circuits or outlets, even though these maybe in the same row, may not be installed through the luminaire bodies. The Sub-Contractor shall ensure that continuous rows are straight and parallel to the relevant building lines.

Where recessed luminaires are specified, the Sub-Contractor shall maintain close liaison with the ceiling Contractor. In the case of tiled ceilings, the luminaires shall preferably be installed while the metal supports are being installed and before the tiles are placed in position. The Sub-Contractor shall be responsible for the co-ordination of the cutting of ceiling tiles with the other Contractors concerned.

In all false ceilings, wiring looms shall be used. Recessed luminaires shall be connected to the wiring channels by means of unswitched 5A (minimum rating) socket outlets. The connector cord attached to the luminaire may not exceed 3m in length and shall consist of 1,5mm5 (minimum), 3 core, PVC insulated flexible cord.

Surface mounted bulkhead luminaires shall not be screwed directly to conduit ends. The conduit shall terminate in a round draw-box at the top or rear of the luminaire. The PVC insulated conductors shall terminate in a porcelain terminal strip in the draw-box. Silicon rubber insulated conductors shall be installed from the terminal strip to the luminaire lamp holder. ASCREW-IT@ or similar connectors may only be used if prior permission is obtained from the Engineer.

The central terminal of Edison Screw (E.S.-type) lamp holders shall be connected to the phase conductor and the screwed housing to the neutral conductor.

High bay luminaires shall be securely suspended from the roof structure. A safety chain to keep the luminaire from falling when loosened shall be provided.

Luminaires may be suspended from metal roof trusses with the aid of ACADDY@ or similar fasteners.

Flush- and Surface Mounted Light Switches

General

Switching of the lighting installation in general will be done using light switches as indicated on the drawings. These light switches shall be installed in 100 x 50 x 50mm deep flush mounted draw boxes which shall comply with the SABS 163 and shall bear the SABS mark. Where multiple switches are indicated in adjacent position, these switches shall be installed in the same conduit outlet box provided they are fed from the same circuit.

Light switches where indicated shall in general be of the 16A, 250V, 50Hz flush-mounted Clipsal (S2000 series) type or similar and equally approved.

Installation

Light switches shall be installed 1,4m above finished floor level unless specified to the contrary. Mounting heights given shall be measured from the finished floor level to the centre of the switch.

Unless specified to the contrary, switches adjacent to doors shall be installed on the side containing the lock. If the position of the lock is not shown on the drawings, the position shall be verified before the switch box is installed. Switch boxes in brick or concrete walls shall be installed 150mm from the door frame.

Flush- and Surface Mounted Switched Socket Outlets

Normal Switched Socket Outlets

All switched socket outlets shall be suitable for mounting in 100 x 100 x 50mm deep flush-mounted draw boxes which shall comply with the SANS 1164 and shall bear the SANS mark.

These shall be of the standard round 2 pole and round earth pin type. They shall be rated at 16A, 250V, 50Hz, shall be shuttered and shall be of the Clipsal S2000 series or similar and equally approved.

The cover plates shall be fixed with chromium plate counter-sunk screws.

Dedicated Socket Outlets

These shall be of the standard round 2 pole and shaved earth pin >D= type. They shall be rated at 16A, 250V, 50Hz, shall be shuttered and shall be of the Clipsal S2000 series or similar or equally approved.

Unswitched Socket Outlets

These shall be 5A, 250V, 3-pin socket outlets intended for the connection of recessed light fittings installed in false ceilings. The socket outlet shall have shuttered live and neutral openings. The 5A socket outlets shall be suitable for installation in pre-punched wiring channels, deep round conduit boxes, 100 x 50 x 50mm or 100 x 100 x 50mm draw boxes.

Installation

Switches and socket outlets shall be accurately positioned in accordance with the drawings. It is the Sub-Contractors responsibility to ensure that all outlets are installed level and square, at the correct height from the floor and at the correct position relative to building lines and equipment positions as specified. It is the Sub-Contractors responsibility to determine the correct final floor level and ceiling level in conjunction with the Main Contractor.

Where flush mounted switches or switched socket outlets are installed in special wall finishes e.g. wood or board panels, acoustic tiles or other cladding, etc. and where the wall finishes must be cut to accommodate the switch, it may be necessary to fix an escutcheon plate to the wall to cover the cut-outs. The escutcheon plate shall fit closely around the outlet boxes and shall be fixed independently of the boxes and cover plates. Bevelled cover plates shall be fixed to the outlet boxes and shall fit firmly against the escutcheon plate.

The sides of adjacent switches, plugs, push-buttons, etc. shall be parallel or perpendicular to each other and uniformly spaced.

Where switch or socket outlet boxes have been set deep, spiral type steel wire spacers shall be used to fix the yoke of the switch or socket.

The cradles of switch socket outlets shall be labelled with nominally 20 mm diameter adhesive labels marked to identify the circuit number supplying the outlet.

LUMINAIRES

General

Type of luminaires shall be as indicated by numbers on drawings and as herein specified.

Locations of luminaires on Electrical Drawings are diagrammatic. Verify location and spacing with Architectural Reflected Ceiling Plans and other reference data before installation. Co-ordinate space conditions with other trades before installation of fittings. Pendant mount, as approved, surface type fittings where required to meet space conditions. Examine existing conditions for variance from drawings and specifications.

Refer to Architectural Finish Schedules and Details for ceiling construction and furnish accessories to suit. Luminaire catalogue numbers do not necessarily denote specific mounting accessories for type of ceilings in which fittings may be installed.

Where plaster ceilings occur, supply plaster frames for setting under work of other Contract. Direct setting and be responsible for correct location; make sure the bottom of frame is flush with finished ceiling, forming screed edge for finished plaster. Luminaires shall be supported by plaster frames utilizing yokes or levelling lugs. Luminaires and supports shall have channel cross-section of approved gauge, and shall support fixture of means of not less than two bolts each. Submit sample if directed.

Lighting in Machine rooms, Duct Voids, Roof Voids, Mechanical Equipment Room and Fan Rooms is diagrammatic, indicating type, quantity and general circuiting of luminaires. Modify locations, mounting, and where necessary, type to suit conditions as approved or directed.

Install rows of luminaires accurately on straight lines unless otherwise indicated on drawings.

Luminaires shall be designed to provide sufficient ventilation of the lamps and ballasts. Outdoor luminaires with vent holes shall have wire mesh screens in the vent holes and preferably filter breathers to prevent ingress of dust and dirt.

Provide approved support for each luminaire outlet.

Pendant-mounted luminaires shall be supported by framework of ceiling or from inserts in slab.

For each wall bracket type luminaire provide flanged metal stem attached to outlet box, with threaded end suitable for holding luminaires. Flanged part of luminaire stud shall be of broad base type and secured to outlet box at not less than three points.

Wiring channels and lamp holder mountings shall be rigid and accurately made.

Lamp holders shall hold lamps securely against normal vibration and maintenance handling. Provide silver plated contacts in lamp holders for the following type of lamps: -

- Edison base incandescent lamps
- Lamps in all outdoor luminaires

- Quartz iodine lamps

Reflector cones, baffles, aperture plates, diffusers and decorative elements of luminaires shall not be installed until completion of plastering, ceiling tile work, painting and the area has been cleaned.

Blemished, damaged or unsatisfactory luminaires shall be replaced in a manner satisfactory to the Architect and Engineer.

Provide labour and materials if necessary for final aiming of all adjustable luminaires under the Architect's supervision. Aiming shall take place immediately before building is turned over to the Employer, after regular working hours where required.

In adjustable luminaires, indicate aiming and locking devices.

In luminaires using lamps with asymmetrical beams, indicate lamp adjustment devices to assure permanent orientation of light beam unaffected by re-lamping.

All luminaires and lamps supplied under this Sub-Contract will be new and unused when delivered to Site.

When luminaires require circuits more involved than simple wiring, the supplier shall submit wiring diagrams to the Engineer for approval at least 4 weeks prior to installation.

Luminaires exposed to the weather shall be anodised or die cast aluminium, stainless steel, or equivalent. All screws or fixings to be stainless steel. Indoor luminaires shall be baked enamel, epoxy coated or anodized except as otherwise individually specified.

No luminaires shall have rough edges anywhere which may be liable to cause damage or injury. All edges shall be finished smoothed and painted as specified.

Every corner on each luminaire shall be cut to a radius.

Adequate numbers of knock-outs are to be provided for wiring and installation.

Fluorescent Luminaires

General

The luminaires shall comply in all respects with the requirements of SANS 11119 and shall bear the SANS mark.

Construction

The luminaires shall be of simple but robust design and construction and shall each comprise a body section accommodating the ballast, starters, internal wiring, insulated and earth terminals, lamp holders, reflectors, frame and diffuser.

The body shall be substantial in design and shall be of not less than 0,8mm cold rolled sheet steel, suitably braced to ensure rigidity and robustness.

The luminaires shall be designed and constructed with adequate ventilation for the auxiliaries, ballasts, etc. which shall not be visible from the lamp compartment.
All ferrous parts shall be treated with a de-greasing agent and then zinc phosphate dipped. Finishing coats shall comprise a minimum of two applications of powdered polyester before baking. All paintwork, inside and out, shall be not less than 40 microns thick.

The channel section in which the ballasts, starters, control gear, terminals, etc., are located shall be accessible to provide ease of maintenance. The section shall be complete with knockouts, earthing terminal and 660 Volts insulated line connection block.

Internal wiring brackets shall be provided.

A substantial earthing terminal shall be securely attached to each luminaire body. All chokes shall have terminal blocks for ease of maintenance.

Starter switches shall be suitable for the operation of the fluorescent tubes and shall comply with BS 3772 - 1975. Starters shall have R.F. and arc suppression capacitors.

Internal Wiring

The internal wiring shall be by means of high quality cables not subject to deterioration. The low voltage wiring shall not be less than 660 Volts grade and in the case of high voltage wiring the continuous voltage grade must be suitable for the open circuit voltage of the ballast.

All internal wiring between the terminal block, ballast, control gear and lamp holders shall be carried out in a neat and orderly manner. All internal wiring shall be harnessed where runs of more than one conductor occur.

Joints in the internal wiring shall be avoided as far as possible and where necessary shall be either soldered or by means of insulated brass connectors to withstand the full test voltage of the insulation of the associated wiring and cables.

Ballasts

Ballasts shall be single or two lamp type, totally enclosed, metal clad, sealed type complying with SANS 1890 and shall be power factor corrected to at least 0,95 at rated load.

Ballasts shall be especially designed for use with lamps specified, under the service conditions mentioned above.

Control gear shall be of the switch-start type.

Low-Loss Ballasts

The power consumption must not be more than 8W for 65/58W ballasts and 6W for 40/36W ballasts.

The temperature rise of the winding must not be more than 35°C under normal, and not more than 60°C under abnormal operating conditions. (Abnormal operating conditions mean - the ballast is connected to its rated supply voltage and load with a 40 ohm resistor (40/36W ballast) or a 25 ohm resistor (65/58 ballast) instead of a lamp.

The power output of the ballast must not be less than 99 % of the output yielded by a reference ballast when operating a reference lamp.

Low-loss ballasts must carry a 10 year guarantee.

Lamp Holders

All lamp holders shall be suitable for T12 Bi-Pin lamps and shall be moulded from white impact-resistant polycarbonate.

Contacts are to be brass with electrical connections of the push-in/type.

Lamps

The lamps shall be suitable for spring loaded type holders and the colour shall be cool white except as noted. Locally manufactured lamps to SANS 11041 are acceptable for this Contract.

All lamps supplied shall be cool white (Colour 21) and shall be of the 26mm diameter type.

Diffusers

Where diffusers are called for, the diffuser shall consist of a glare-limiting, one-piece, injection-moulded acrylic prismatic lens, except as noted. The lens shall be housed in a tip-up, regressed hinged frame or as specified or detailed.

The sub-frame housing the diffuser shall be constructed from white painted steel plate reinforced or shaped to prevent sag or distortion of the diffuser panel. Leakage of light between the frame and diffuser is unacceptable.

Photometric Data

The suppliers shall submit complete photometric data of each luminaire offered.

The photometric data shall be compiled from tests conducted by an approved body on the Manufacturer's behalf, and shall be a true certified copy of the actual test performance of a sample luminaire. Where SABS test sheets are called for, these shall override any other test data.

Luminaires

The Sub-Contractor shall make provision for the installation and connection of all the luminaires. A provisional sum for the supply of luminaires has been allowed.

Discharge Luminaires

Construction

The body shall be substantial in design and shall be of not less than 0,8mm cold rolled steel sheet suitably braced, or of cast alloy with minimum section thickness 1,5mm.

The luminaire shall not comprise more than two enclosures. Where two enclosures are necessary the connecting wiring shall be protected by flexible steel or aluminium conduit. All control gear and wiring shall be totally enclosed.

All ferrous parts shall be treated with a degreasing agent and then zinc phosphate dipped. Finishing coats shall comprise a minimum of two applications or powdered polyester before baking. All paintwork, inside and out, shall be not less than 40 microns thick.

The control gear enclosure in which the ballasts, starters, control gear, terminals, etc., are located shall be accessible to provide ease of maintenance. The section shall be complete with knockouts, earthing terminal and 660V insulated line connection block.

Internal wiring shall be securely saddled. Suitable strain relieving devices shall be provided for all wires leaving the enclosure. All ballasts or chokes shall have terminal block connectors to simplify maintenance.

Enclosures shall be IP 22 for indoor use and IP 45 for exterior use.

Internal Wiring

The internal wiring shall be by means of high quality flexible stranded cables not subject to deterioration. The low voltage wiring shall not be less than 660V grade and in the case of high voltage wiring the continuous voltage grade must be suitable for the open circuit voltage of the ballast.

All internal wiring between the terminal block, ballast, control gear and lamp holders shall be carried out in a neat and orderly manner. All internal wiring shall be harnessed where runs of more than one conductor occur.

Joints in the internal wiring shall be avoided as far as possible and where necessary shall be either soldered or by means of insulted brass connectors to withstand the full test voltage of the insulation of the associated wiring and cables.

Lamps

Low Pressure Sodium - Rated lamp life shall be 18 000 hours or more based on a five hour per start burning cycle

Mercury Vapour - Unless otherwise specified only Deluxe white phosphor coated lamps shall be supplied
- No self-ballasted systems will be considered

Metal Halide - Unless otherwise specified lamps with phosphor coating shall be supplied
- Lamp/lamp holder combinations are to incorporate a locking pin device to ensure proper position of the arc-tube when in use
- Lamp manufacturer's data is to be provided to confirm that the burning position in the luminaire being offered is the correct one.

EARTHING

General

The Sub-Contractor shall supply and install the complete earthing installation. The entire installation shall be properly and effectively earthed and bonded as prescribed in the Wiring Code (SANS 10142-1: 2003), Ameu: Code of Practice for the Application of Neutral Earthing on Low Voltage Distribution Systems, and in the Specification.

All earth conductors shall be stranded copper with or without green PVC insulation. The conductors shall comply with the technical specification for APVC INSULATED CABLES@. All earth conductor sizes shall be determined in accordance with SANS 10142, where the earth does not form an integral part of the cable.

In general the following equipment shall be provided with separate earth installation, i.e. not just connected to other earth installations or the Municipal earthing installation. The detail requirements for each of the following installations are specified below:

a) Building earth (main distribution board)
b) Telkom earth

The following requirements apply in general:

A separate earth bar shall be provided for the main distribution board. All other earth conductors shall be connected to the earth bar by means of bolts, nuts and washers.

Iron, lead and zinc shall not be used in direct contact with copper earth bars or conductors. Suitable bi-metallic or stainless steel connectors shall be employed wherever such a connection is required.

Jointing of lengths of earth conductor and T-off's therefrom shall be performed by means of suitable crimping ferrules. An overlap of minimum three times the width of the conductor shall be used to ensure proper contact. Where lug are used for connecting earth conductors, care shall be taken to ensure that the lugs are matched in size to both the conductors and the bolts they have to be connected with. Oversize lugs will not be accepted. The lug shall be crimped onto the conductor with an approved hydraulic type crimping tool. The lugs shall be so positioned on contact surfaces that the full contact area of each lug is in contact with the contact surface.

Wherever an earth conductor is looped from one piece of equipment to another, the conductor shall not be cut at or in between the pieces of equipment. At each connection point, the conductor shall be bent into a U-shape and the lug crimped onto the U-section. This will ensure that the continuity of the earth conductor is maintained even when the earth conductor has to be removed from the connection point of any individual piece of equipment. Wherever an earth connection is required to be made onto a painted surface, the paint shall be removed over a minimum, but sufficient area to ensure good contact between the lug and the surface. Exposed areas where paint has been removed, shall be coated with petroleum jelly before bolting on lugs. Once the lug is bolted on, any exposed area not covered by the lug shall be treated against corrosion and then painted to match the quality and type of finishing on the adjoining surfaces.

Cadweld spikes shall be minimum 2,4 m long x 16 mm in diameter and shall be driven into the ground until the tops are minimum 500 mm below the final ground level. The earth conductor shall be clamped to the earth spike with a suitable Cadweld clamp. Conductor clamps shall be provided to suit the type and size of rods provided and the type and size of conductor specified.

The material of the clamps shall be electrolytically compatible with the rod and conductor materials.

Where brazed or welded connections are specified, the supplier of the rods shall stipulate at least two types of metals which are compatible with the rod and conductor materials.

An adequate number of driving caps or bolts shall be supplied with the rods to protect the ends of the earthing rods whilst being driven into hard soil.

On completion, every earth installation shall be tested and the earth resistance reading recorded. The tests shall be witnessed by the Engineer or the Local Supply Authority.

All screws, bolts, nuts and washers to be used, shall be stainless steel.

Under no circumstances shall connection points, bolts, screws, etc. used for earthing be utilised for any other purpose. It will be the responsibility of the Sub-Contractor to supply and fit earth terminals or clamps on equipment and materials that must be earthed where these are not provided. Unless earth conductors are connected to proper terminals, the ends shall be tinned and lugged. Lugs may be crimped, using mechanical or pneumatic tools designed for this purpose, on condition that evidence is submitted that the method used complies with the performance requirements of BS 4579, Part 1: ACompression Joints in Copper@.

Building Earth

An earth resistance of maximum 5 Ohm is required.

In addition, the cable armouring of the incoming main LV cable shall be bonded to the earth bar at every termination of the cable. A third of the armouring of each cable shall be twisted together, crimped into a suitable lug and then bolted to the earth bar or earth connection point.

With the 70mm5 earth wire disconnected at the minisubstation, the building earth resistance shall be maximum 5 Ohm. In the event that the measured resistance is more than 5 Ohm, an earth rod shall have to be installed. The Sub-Contractor shall supply and install a Cadweld earth rod in a position close to the main distribution board. The earth rod shall be connected to the earth bar in the main distribution board by means of a 35mm5 bare copper earth wire. The earth wire shall not be exposed and if necessary, shall be installed in a 32mm diameter conduit to conceal the earth wire.

Low Voltage Distribution Cable

The cable armouring shall be bonded to earth at every termination of the cables. A third (1/3) of the armouring of each cable end shall be twisted together, crimped into a suitable lug and then bolted to the earth bar or earth connection point.

A separate earth wire shall be installed together with the service connection cables, general area lighting circuits, etc. and connected to the earth connections at both ends of the cable. Size as indicated on the relevant drawings.

Non-metallic Conduit

Stranded copper earth conductors shall be installed in the conduits and fixed securely to all metal appliances and equipment, including switch boxes, socket outlet boxes, draw boxes, switchboards, luminaires, etc. The securing of earth conductors by means of self-threading screws will not be permitted.

Flexible Conduit

An earth conductor shall be installed in all non-metallic flexible conduit. This earth conductor shall not be installed external to the flexible conduit but within the conduit with the other conductors. The earth conductor shall be connected to the earth terminals at both ends of the circuit.

Water pipes

Metal cold water mains shall be bonded to the earth busbar in the main switchboard by solid 15 x 2mm copper strapping. All other hot and cold water pipes shall be connected by 12 x 0,8mm perforated or solid copper strapping (not conductors) to the nearest switchboard. The strapping shall be fixed to the pipe work by brass nuts and bolts against walls be brass screws at 150mm centres. In all cases where metal water pipes, down pipes, flues, etc. are positioned within 1,6m of switchboards, an earth connection consisting of copper strapping shall be installed between the pip work and the board. In vertical building ducts accommodating both metal water pipes and electrical cables, all the pipes shall be earthed at each switchboard.

Earthing in accordance with the wiring code

In addition to the above measures for earthing, the Sub-Contractor shall supply and install all other earthing measures as required by the Wiring Code, SANS 10142-1.

EXCAVATIONS

Trenching

General

The Sub-Contractor will be responsible for all excavations and backfilling, if required. The Sub-Contractor will be responsible to ensure that trenching and backfilling are done in accordance with the requirements of this Specification. The Sub-Contractor will also be responsible for the supply and installation of bedding sand and danger tape.

The Sub-Contractor shall, before trenching commences, familiarise himself with the routes and Site conditions and the procedure and order of doing the work shall be planned in conjunction with the general construction programme for other services and building requirements.

Existing Services

The Sub-Contractor shall acquaint himself with the positions of all the existing services such as stormwater pipes, water mains, sewer mains, gas pipes, telephone cables, etc. before any excavations are commenced. For this purpose he shall approach the Engineer, the Local Authority, the Local Supply Authority and any other authority which may be involved, in writing with regards to obtaining wayleaves.

In the event of damage to other services or structures during trenching operations the Sub-Contractor shall immediately notify the Engineer and institute repairs. The Sub-Contractor will be held responsible for damage to any existing services brought to his attention by the relevant authorities and shall be responsible for the cost of repairs.

Precautions, Warnings and Inconveniences

The Sub-Contractor shall take all the necessary precautions and provide the necessary warning signs, tapes and/or lights to ensure that the public and/or employees on Site are not endangered. The requirements of the Occupational Health and Safety Act, Act 85 of 1993, shall be strictly adhered to.

The Sub-Contractor shall ensure that the excavations will not endanger existing structures, roads, railways, other Site constructions or other property.

Trenches across roads, access ways or footpaths shall not be left open. If trenches cannot be completed and back-filled immediately, the Sub-Contractor shall install temporary "bridges" or cover plates of sufficient strength to accommodate the traffic concerned.

Mechanical Excavators

Power driven mechanical excavators may be used for trenching operations provided that they are not used in close proximity to other plant, services or other installations likely to be damaged by the use of such machinery.

The use of power driven mechanical excavators shall be subject to the approval of the Engineer. Should the excavator produce trenches that exceed the required dimensions, payment based on volumetric excavation rates will be calculated on the required dimensions only.

Blasting

No guarantee is given or implied that blasting will not be required.

Should blasting be necessary and approved by the Engineer, the Sub-Contractor shall obtain the necessary authority from the relevant Government Departments and Local Authorities. The Sub-Contractor shall take full responsibility and observe all conditions and regulations set forth by the above authorities.

Routes

Trenches shall connect the points shown on the drawings in a straight line. Any deviations due to obstructions or existing services shall be approved by the Engineer beforehand.

The Engineer reserves the right to alter any cable route or portion thereof in advance of cable laying. Payment in respect of any additional or wasted work involved shall be at the documented rates.

The removal of obstructions along the cable routes shall be subject to the approval of the Engineer.

Shoring and Waterlogging

The Sub-Contractor shall provide shoring for use in locations where there is a danger of the sides of the trench collapsing due to waterlogging or other ground conditions. Refer to the Occupational Health and Safety Act, Act 85 of 1993.

The strength of shoring must be adequate for Site conditions prevailing and the shoring must be braced across the trench.

The Sub-Contractor shall provide all pumps and equipment required to remove accumulated water from trenches. Water or any other liquid removed shall be disposed of without any nuisance or hazard.

Trenching

Trenching shall be programmed in advance and the approved programme shall not be departed from except with the consent of the Engineer.

Trenches shall be as straight as possible and shall be excavated to the dimensions indicated in this specification. The bottom of the trench shall be of smooth contour, and shall have no sharp dips or rises which may cause tensile forces in the cable during installation and backfilling.

The excavated material shall be placed adjacent to each trench in such a manner as to prevent nuisance, interference or damage to adjacent drains, gateways, trenches, water furrows, other works, properties or traffic. Where this is not possible the excavated materials shall be removed from site and returned for backfilling on completion of cable laying. Surplus material shall be removed form site and disposed of at the cost of the Sub-Contractor.

Trenches over roads, access ways or footpaths shall not be left open. Temporary bridges or cover plates with sufficient strength to accommodate the traffic concerned shall be installed.

Prior to cable laying, the Engineer shall be notified to inspect the trench and all objects likely to cause damage to the cables either during or after laying shall be removed

Where ground conditions are likely to reduce maximum current carrying capacities of cables or where the cables are likely to be subjected to chemical or the damage or electrolytic action, the Engineer shall be notified before installing the cables. The Engineer will advise on the course of action to be taken.

Surveyors' Pegs

Extreme care shall be taken not to disturb surveyor's pegs. These pegs shall not be covered with excavated material. If the surveyors' pegs are disturbed, they shall be replaced by a qualified surveyor only and the Sub-Contractor will be liable for the cost involved, which cost the Sub-Contractor shall not recover from the Employer.

Dimensions of Trenches

Cable trenches for one or two cables shall not be less than 300 mm wide and need not be more than 450 mm wide. This dimension shall be valid for the total trench depth. The width shall be increased where more cables need to be installed to allow for the spacings required between adjacent cables in a trench as per the SANS 10142.

Where cable joints are required to be made in the course of a cable run, a joint hole shall be excavated of sufficient size to enable the cable jointer to work efficiently and unimpeded. The trench width shall therefore be increased to provide the required joint hole.

Where trenches change direction or where cable slack is to be accommodated, the Sub-Contractor shall ensure that the requirements of the relevant SANS Specification regarding the bending radii of cables are met when determining trench widths.

Classification of Excavated Materials and Measurement

Payment for excavations will be made on volumetric excavation rates calculated on the basis of the given maximum dimensions or the actual dimensions of the trenches, whichever is the lesser. All measurements for payments shall be made jointly by the representative of the Engineer and the Sub-Contractor and the Sub-Contractor shall obtain the signature of the Engineer's Representative including approval of such measurements.

No allowance shall be made for the breaking away or caving in of the trench sides, other earth movements or for trenches excavated in excess of the stipulated dimensions.

Volumetric excavation rates will be based on different types of excavated materials. Excavated materials will be classified as follows:

Soft rock and earth shall means rock and earth that can be loosened and removed by hand-pick and shovel and also a mechanical excavator.

Hard rock shall mean granite, quartzite sandstone, slate and rock of similar or greater hardness, solid shale and boulders in general requiring the use of pneumatic jack hammers to break the material in order to excavate thereafter by hand or mechanical means.

Very hard rock shall mean rock that can only be broken by means of explosives and thereafter removed by hand or mechanical means.

Wherever soft rock and earth is encountered, the Sub-Contractor can proceed to excavate the trenches at his convenience and in accordance with the program. Where hard rock and very hard rock are encountered, the prior approval of the Engineer shall be obtained before proceeding with the excavation. This requirement is stipulated in order to afford the Engineer the opportunity to determine whether an alternative cable route is justified.

The onus will be upon the Sub-Contractor to have the excavated hard rock and very hard rock classified and the extent thereof measured by the Engineer's Representative in order to determine the applicable rates for payment. Such classification and measurement shall take place prior to the back-filling of the trenches and shall be certified in writing by the Engineer's Representative.

Bedding Soil

The bottom of the trench shall be filled across the full width with a 75 mm (minimum) layer of suitable soil sifted through a 6 mm mesh and levelled off.

Only sandy clay or loam soil with a satisfactory thermal resistivity (not exceeding 1.5EC m/W) may be used for this purpose. Sea or river sand, ash, chalk, pet, clinker or clayey soil shall not be used. The use of crusher sand is acceptable.

Where no suitable soil is available on Site, the Sub-Contractor shall import fill from elsewhere and make all the necessary arrangements to do so.

After cable laying is completed, a further layer of bedding shall be provided to extend to 75 mm (minimum) above the cables.

The bedding under MV joints shall be fully consolidated to prevent subsequent settling.

Cable Sleeves

Where cables cross under roads, other services areas, etc., cables shall be installed in PVC, asbestos-cement or earthenware pipes as cable sleeves. Pitch fibre pipes are not acceptable because of the adhesion that occurs after a period of time between the pipe and the sheathing or outer serving of the cables.

Cable sleeves for road crossings will be supplied and installed by the civil Sub-Contractor. The Sub-Contractor shall supply and install all other cable sleeves required for the Works.

Sleeves shall be joined in accordance with the manufacturer's specifications to ensure a smooth inner surface along the full length of the sleeves. Sleeves shall cross roads and railway tracks at right angles. All sleeves shall be graded 1:400 for water drainage. Sleeves shall have a minimum diameter of 110mm for LV cables and 160mm for MV cables. They shall extend at least 1m beyond the road edge or kerb on both sides of the road.

Cable sleeves shall be installed to the spacings and depths required for the cables as specified for trenching above.

Prior to the installation of cable sleeves and pipes, the ends thereof shall be sealed to prevent the insides from being soiled during the installation process. PVC or other suitable wrapping shall be wrapped around the ends and secured by means of galvanised steel binding wire. The wrapping shall only be removed when the cables are being installed. During the installation of the cables, care shall be taken to prevent soil from being dragged into the sleeves and pipes by the cables. Upon completion of the installation of the cables, the ends of all sleeves and pipes shall be sealed with a non-hardening watertight compound. Sleeves and pipes intended for future use, shall retain the wrapping around the ends, or alternatively, be sealed with the same non-hardening watertight compound.

All sleeves intended for future use, shall be provided with 2mm diameter non-corrosive draw-wires which shall extend at least 1m on both end of the sleeves. The excess lengths in the draw-wires shall be coiled and buried at the sleeve ends.

Backfilling

The Sub-Contractor shall not commence with the backfilling of trenches without prior notification to the Engineer so that the cable installation may be inspected. Should the Sub-Contractor fail to give a timeous notification, the trenches shall be re-opened at the Sub-Contractor's cost. Such an inspection will not be unreasonably delayed.

For medium and low voltage cables (600V to 11 kV), a coloured plastic marking tape shall be installed maximum 300mm above each of the medium and the low voltage cables. The tape shall be yellow, with skulls and crossbones with the words "ELECTRIC CABLE/ELEKTRIESE KABEL". These marking shall not be more than 1m apart from centre to centre. The total width of the tape, shall be 200mm more than the distance between the outer cables in the trench and shall be installed with an overhang of 100mm beyond the outer cables in the trench. In the event of multiple layers of tape to achieve the required overall width, the layers shall overlap each other for at least 100mm.

Backfilling shall be undertaken with soil suitable to ensure settling without voids. The maximum allowable diameter of stones present in the backfill material, is 75mm.

The Sub-Contractor shall have allowed in his tender for the import of suitable backfill material if required.

The backfill shall be compacted in layers of 150mm and sufficient allowance shall be made for final settlement. The Sub-Contractor shall maintain the refilled trench at his expense for the duration of the Contract. Surplus material shall be removed from Site and suitably disposed of.

On completion, the surface shall be made good to match the surrounding area.

In the case of roadways or paved areas, the excavations shall be consolidated to the original density of the surrounding material and the surface finish reinstated.

Poles

General

The Sub-Contractor will be responsible for all excavations. The Sub-Contractor will be responsible to ensure that excavations are done in accordance with the requirements of this Specification. The Sub-Contractor will be responsible for backfilling and clearing.

Excavation

Holes for poles shall be excavated to the minimum diameter and depth to ensure that the pole is supported by undisturbed soil. The depth of each hole shall be equal to one sixth of the length of the pole to be planted.

Backfill

The Sub-Contractor shall ensure that the backfill into the pole hole is properly compacted to ensure that the pole is adequately supported to prevent lateral movement. Should the Sub-Contractor doubt the load bearing capacity of the backfill material, cement shall be mixed in with the material to increase the load bearing capacity.

Wooden poles however, shall not be cemented in as this may trap moisture around the pole and promote rot.

On completion of the backfilling, soil shall be heaped around the pole and levelled over an area of 1m diameter, with the pole as the centre of the circle. At the base of the pole, the finished ground level shall be 100mm higher than at the edges of the circle where the level shall be the same as the natural ground level at that point.

Clearing

Upon completion of the backfilling, the excess soil shall be levelled in the vicinity of the pole. In the event that excessive spoil remains, such spoil shall be removed and dumped in suitable dumping locations to be agreed with the Engineer. The area around the pole shall be cleared and levelled to the satisfaction of the Engineer.

INSPECTIONS, TESTING AND COMMISSIONING

Inspections by the Engineer

a) Engineer's responsibility:

Inspections by the Engineer will take place on a sampling basis only. The Engineer is not responsible to ensure that the Sub-Contractor meets with the requirements of the Specification, but will assist the Sub-Contractor in an effort to identify problem areas at an early stage. At no time will an inspection by the Engineer alleviate the Sub-Contractor of his responsibility to provide the Employer with a Works which conforms in all respects with the requirements of the Specification and drawings.

b) At manufacturers' premises:

Wherever applicable, manufacturers shall inspect and test equipment and materials in accordance with the requirements of this Specification and the applicable SABS specifications. The Engineer shall have the right to attend such inspections and/or tests and shall therefore be given notice of such intended inspections and tests. Notice shall be in writing and shall reach the Engineer at least forty eight (48) hours prior to the inspection or test time. The Engineer shall decide at his own discretion whether to attend the inspections or tests, or not.

Should the Engineer attend the inspections and or tests at the manufacturer's premises, such inspections shall be regarded as assistance only to the Sub-Contractor in an effort to identify any possible shortcoming at an early stage. The fact that the Engineer may attend the inspections or tests and approve the relevant equipment or materials at that stage, will in no way alleviate the Sub-Contractor of his responsibility to ensure that the equipment or materials meet with the requirements of the Specification and drawings.

c) On Site:

The Engineer will inspect the Works as the work progresses. Unacceptable work will be identified and the Sub-Contractor will be expected to rectify such work and to prevent the recurrence thereof.

d) Sub-Contractor to be liable for cost of aborted Practical Completion inspection by the Engineer:

Should the Engineer have been advised in writing by the Sub-Contractor of the completion of the Works and then find during the first Works Completion inspection that the Works are incomplete, the inspection will be aborted and the Sub-Contractor shall have to arrange for a further inspection upon completion of the outstanding work. Furthermore the Sub-Contractor will then be liable to pay the Engineer full professional fees on a time and cost basis for the time wasted during the aborted inspection. Should the Sub-Contractor fail to settle the Engineer's account, the Engineer reserves the right to issue a variation order on the Contract to omit an amount of money equal to the cost involved in which case the Engineer's account will be submitted to the Employer for settlement.

Inspections by the Sub-contractor

In terms of the Contract, the Sub-Contractor is responsible to ensure that the Works conform to all the requirements of the Specification. To this effect, it is recommended that the Sub-Contractor shall inspect all materials and equipment prior to the installation thereof. In addition, the Sub-Contractor shall regularly inspect the Works in order to ensure quality control.

Upon receipt of a written advice from the Sub-Contractor, requesting a practical or works completion inspection, the Engineer will conduct an inspection in the presence of the Sub-Contractor or his representative and compile a fault list.

Upon receipt of a written advice from the Sub-Contractor that the remedial work has been completed and that a further works completion inspection is requested, the Engineer will conduct a further inspection. Provided the Works are acceptable and all required documentation has been submitted, the Engineer shall then issue a works completion Certificate.

Upon receipt of a written advice from the Sub-Contractor that a final Completion inspection is required on the expiry of the Defects Liability Period, the Engineer will arrange for a final inspection (if deemed necessary by the Engineer). Provided the Works are acceptable, the Engineer shall then issue a final completion Certificate.

Requirements for Testing

The Sub-Contractor shall provide, at his own cost, the tools, instruments, equipment and consumables necessary for the performance of the tests as required. The Sub-Contractor shall further arrange for the tests to be performed at times suitable for the Engineer. The Sub-Contractor shall perform the tests in the presence of and to the satisfaction of the parties represented.

In general the following tests shall be performed:

a) Low tension cables : Continuity and insulation resistance tests, to be performed by the Sub-Contractor.

b) Low tension installations : Earth resistance, continuity and insulation resistance tests, to be performed by the Sub-Contractor.

After the successful completion of the tests, the Sub-Contractor shall issue the necessary certificates and submit same to the Engineer. In the case of the certificate of compliance by installation electricians which shall be issued in terms of the Act on Occupational Health and Safety, the original of the certificate shall be submitted to the Engineer and a copy to the Local Supply Authority.

Commissioning

The Sub-Contractor shall commission the Works upon approval thereof by the Engineer, after which the Taking Over of the Works will take place.

Certificates

The Sub-Contractor shall hand over the original copies of the required test certificates to the Engineer on completion of the project regarding the following:

Test certificate for the measurement of the earth resistance for the building earth.

Test certificates with the results of insulation tests on all LV cables.

Original certificates of compliance for the domestic installations and general LV installation.

As-built drawings.

General

The installation shall not be considered complete until all of the above requirements listed in this technical specification has been complied with.

The Sub-Contractor is to guarantee all the material and workmanship pertaining to the electrical installation and Specialist Sub-Contractors of this contract for a period of 12 months. The guarantee is to be valid for a full period from the date when the Engineer has accepted the installation in good working condition on the final hand-over date.

The only exclusion to the 12 months will be lamps of luminaires, which are to be guaranteed for a period of 6 months, and the fluorescent ballasts for a period of 5 years.

ARCHITECT SPECIFICATION

Specification and Methodology of Work

Location: McGregor Sportsgrounds (Beneath New Pavilion)
Prepared by: HvN Architects
Date: November 2025

1. Description of Facility

The new structure comprises:

- **Change Room 1**
- **Change Room 2**
- **Referee Change Room** (with one toilet, one shower, and one basin)
- **Store Room** (for geysers and maintenance access)

The building is of **masonry construction** with:

- **Bagged brick external and internal walls** to minimize maintenance.
- **Plastered and painted wall surfaces** only behind tiled areas.
- **Tiled finishes** to all wet areas.
- **Reinforced concrete floor slab** with non-slip floor finishes.
- **Roof structure and finishes** forming part of the overall pavilion superstructure

2. Scope of Work

The following specification applies to **both main change rooms** as well as the **referee change room**, unless otherwise stated.

2.1 Shower Area

- Chase into new brickwork and install **hot and cold-water piping** to serve **two (2)** new **Cobra vandal-proof shower heads** with **vandal-proof time-controlled taps**.
- Prepare wall surfaces and apply **300 × 300 mm First-Grade Ceramic Tiles** up to **1800 mm height**.
- Prepare floor surfaces with proper **screed falls** to two (2) **stainless-steel shower outlets**.
- Construct new **brick partitions (1800 mm high)** between showers and the change area, plastered and tiled both sides.
- Fit **two (2) towel hooks** on the outer face of each brick partition (positions to be indicated on site).
- All plumbing installations to comply with **SANS 10252** and **SANS 10254** standards.

2.2 Toilet Cubicles

- Install **two (2) toilet pans with heavy-duty seats and lids**.
- Install **flushing tanks** complete with flushing mechanisms and all necessary connections.
- Wall finishes: **300 × 300 mm First-Grade Ceramic Tiles** to **1800 mm height** (plastered and painted above tile line).
- Floor finishes: **300 × 300 mm First-Grade Ceramic Tiles**, laid to proper fall towards floor outlets.
- Fit **semi-solid core doors** with indicator bolts, door stops, and enamel paint finish.
- Install **one (1) coat hook** on the inside of each door.
- Fit **vandal-proof toilet-paper holders** (positions to be indicated on site).
- Provide **adequate mechanical or natural ventilation** in accordance with **SANS 10400-O**.

2.3 Change Area

- Prepare walls and finish with **300 × 300 mm First-Grade Ceramic Tiles** to 1800 mm height (bagged brick finish above).
- Prepare and finish floors with **non-slip rubber carpet tiles** on a level screed surface.
- Construct **450 mm-wide hardwood benches** mounted on **50 × 50 mm galvanized steel angle brackets**, fixed to wall using **12 mm galvanized coach screws at 500mm centres**.
    - Bench slats to be **40 × 25 mm hardwood**, screwed and countersunk to brackets; screw heads to be plugged.
    - Apply **marine varnish** to all bench surfaces.
- Install **two (2) hand-wash basins (HWB)** on a **2000 mm-long × 100 mm-thick reinforced concrete (RC) wash slab**, fixed to wall with 5° fall towards wall.
    - Provide **50 mm recess** against wall to form channel with **stainless-steel wash outlet**.
    - Install **Cobra vandal-proof time-controlled cold taps** in positions to be indicated on site.
- Fit **solid-core door** with "CHANGE ROOM" sign and **3-lever lockset**.
- Fit **twenty (20) towel hooks** on the hardwood against wall above benches
- Install **200-liter Kwikot geyser** in the store room (one per change room) complete with all valves, safety devices, and accessories.

2.4 Referee Change Room

- Construct as per the same general specifications, with one (1) toilet cubicle, one (1) shower, and one (1) hand-wash basin.
- Apply **300 × 300 mm ceramic wall tiles** to 1800 mm height in all wet areas.
- Prepare and finish floors with **non-slip rubber carpet tiles** on a level screed surface
- Fit **semi-solid core door** with "REFEREE" sign and **3-lever lockset**.
- Provide **mirror, small bench, and coat hooks** as per Architect's direction.
- Install **Cobra vandal-proof fittings** throughout (toilet, shower, basin).
- Install **150-liter Kwikot geyser** in the store room complete with all valves, safety devices, and accessories

2.5 Store Room

- Construct walls in bagged **brick** for low maintenance.
- Floor to remain as **prepared, compacted surface** and concrete to allow for **future grano screed** at a later stage.
- Provide **plumbing and electrical connection points** for geyser installation.
- Ensure **adequate ventilation** and provide a **lockable access door**.

2.6 External Door Security Gates

- All external doors to the change rooms, referee room, and store room shall be fitted with **custom-made steel security gates with hidden fixture points**.
- Gates to be fabricated from **25 × 25 × 3 mm square hollow steel sections**, fitted with **vertical flat-bar infill (40 × 6 mm) at 100 mm centres** or similar approved.
- Each gate to include:
    - **Heavy-duty hinges**,
    - **Padlockable sliding bolt** or **integrated mortice lock**, and
    - **Protective metal stop frame** fixed to the masonry opening.
- All steelwork to be **hot-dip galvanized**
- Gates must allow the **main door to open fully inward** without obstruction and shall be **independently**
- **lockable** for security when the facility is unattended.

3. Methodology of Work

1. Site Preparation

- Establish site and secure working area with temporary barriers and safety signage.
- Verify all service connection points (water, sewer, and electrical).
- Excavate and prepare foundations according to **engineer's drawings**.

2. Structural Work

- Construct **reinforced concrete foundations, columns, and floor slab** as per structural engineer's specification.
- Erect **masonry walls** using bagged **brick** with plaster finish only where specified (behind tiled areas).
- Install **roof structure and coverings** in accordance with pavilion design drawings.

3. Plumbing and Electrical Installations

- Install all **hot and cold-water reticulation** concealed in walls and floors.
- Test all water lines under pressure before closing up.
- Install **geyser systems** and connect to distribution network per **SANS 10254**.
- All electrical conduits to be concealed and installed as per **SANS 10142**.

4. Floor and Wall Finishes

- Apply **waterproofing membranes** to all wet areas prior to tiling.
- Lay tiles using **approved adhesive** and **waterproof grout**, ensuring correct levels and falls.
- Rubber floor tiles in change areas to be laid after completion of all wet trades.

5. Joinery and Fixtures

- Fit all **doors, benches, hooks, and fittings** as per specifications.
- Ensure all fixings are **vandal-resistant** and securely mounted.

6. Painting and Finishing

- Woodwork: **undercoat plus two coats of enamel or marine varnish**.

7. Testing and Commissioning

- Test all plumbing installations for leaks and proper functionality.
- Verify geyser operation, drainage flow, and fittings.
- Conduct final cleaning of all areas prior to handover.

4. Quality Control and Safety

- All work to comply with **SANS 10400**, **SANS 10252**, **SANS 10254**, and the **OHS Act 85 of 1993**.
- Contractor to maintain a **clean, organized, and safe** working environment.
- Any deviations from the specification must be **approved by the Architect** before execution.

5. Completion and Handover

Upon completion, the Contractor shall:

- Clean and prepare the entire facility for use.
- Remove all debris, waste, and temporary protection.
- Submit **Certificates of Compliance** for all electrical and plumbing installations.
- Arrange a **joint inspection** with the Engineer, Architect and Client for final acceptance.

PART C: ENVIRONMENTAL MANAGEMENT PLAN

Refer to Annexure 3.

PART D: HEALTH AND SAFETY PLAN

Also refer to Annexure 4.

Health and Safety Requirements

Before starting work on site the Contractor shall present to the Engineer or his agent his Health and Safety Plan for approval. He shall also appoint a Health and Safety Officer in writing and give a copy of the letter of appointment to the Employer.

The Health and Safety Specifications are included in Part D and must be referred to when compiling the Health and Safety Plan.

The Contractor is to implement measures and adhere to these conditions for the duration of the contract. The tendered rates shall be an all-inclusive sum for adhering to the Health and Safety Specification and Health and Safety Plan.

Safety

The Contractor must take the safety of the residents and their property into account during the planning and execution of the works. All open trenches, services, material and machines must be protected and clearly marked.

Access to Site by Public

The contractor shall erect fences and employ sufficient security personnel to prevent unauthorised access to the site by members of the public. Notices prohibiting access to the site shall be clearly displayed at all access points.

The notice shall be in English, Afrikaans and the most commonly used local language.

Barricades and Lighting

All excavations and openings in walls and slabs into or through which a person may fall shall be securely barricaded at all times in accordance with the requirements of the applicable Occupational Health and Safety Regulations.

C3.5 Management

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3.5.1. CONTRACT ADMINISTRATION

The Contractor shall submit with each monthly statement for payment, the following returns – the format of which are: are included in C3.6 : Annexes.

Annex 1: B-BBEE Sub-contract Expenditure Report

Annex 2: Project Labour Report

The Project Labour Report must include details of all labour (including that of sub-contractors) that earns less than R250 per day (excluding any benefits) employed from within the Swellendam Municipal Area on this contract in the month in question.

3.5.2. PARTICIPATION OF TARGETED ENTERPRISES

It is a requirement of this contract that enterprises located within the target area, as defined, be engaged by the Contractor for the provision of supplies, services or works necessary for the performance of this contract.

3.5.2.1 Minimum Targeted Enterprises contract participation

To this end, a minimum targeted enterprises contract participation goal (CPG_{2E}) set by the Employer for this Contract is specified in Section 3.3.3 of Part C3.3 : Procurement in the Scope of Work, which shall be achieved by the Contractor in the performance of the contract, failing which, penalties as described will be applied.

The Contractor shall engage targeted enterprises directly or indirectly in the performance of the contract to the extent that the total monetary value of such engagements (exclusive of VAT), expressed as a percentage of the value of the contract, is sufficient to achieve the specified minimum targeted enterprises contract participation (CPG_{2E}). The Contractor shall, within 5 working days of being requested by the Engineer to do so, submit details of his/her plan to achieve the minimum targeted enterprises contract participation (CPG_{2E}).

3.5.2.2 Records

Credits towards achieving the minimum targeted enterprises contract participation goal (CPG_{2E}) shall be granted by converting the total monetary value (exclusive of VAT) of the agreements between the Contractor, or Contractor's sub-contractors, and targeted enterprises, to a percentage of the value of the contract.

No credits shall be accorded should the Contractor (or sub-contractors):

a) make direct payment to third parties in connection with the contract on behalf of targeted enterprises, when such payment is recovered by making deductions from payments due to the targeted enterprise;
b) fail to enter into written contractual agreements with the relevant targeted enterprises.

Credits claimed towards the contract participation goal shall be denied where such written contractual agreements contain any of the following:

i) conditions which are more onerous than those that exist in the prime contract (this contract);

ii) payment procedures based on a pay when paid system;
iii) authoritarian rights given to the employing contractor, with no recourse to independent adjudication in the event of a dispute arising.

No credits may be claimed in respect of targeted enterprises that that do not adhere to statutory labour practices. No credits shall be accorded in respect of targeted enterprises engaged on work in respect of provisional sums or prime cost items.

In the event that a targeted enterprise sub-contracts to another targeted enterprise, only the value of the higher level sub-contract shall be granted as credit towards achieving the specified minimum CPG2E.

In addition to the form required for contract administration (the Targeted Enterprises Contract Participation Expenditure Report), the Contractor shall furnish the Engineer, upon written request, with documentary evidence that the targeted enterprises have their base of operations in the target area, copies of the contractual agreements with the various targeted enterprises, as well as documentary proof of payments made to the various targeted enterprises.

C3.5.3 PLANNING AND PROGRAMMING

C3.5.3.1 Programming

The Contractor must submit his construction programme within the time stated in the Contract Data and the Engineer shall be empowered to withhold all payment certificates until the Contractor has complied with his obligations in terms of this clause.

The programme is subject to the Engineers approval and remains so for the duration of the contract. If necessary, the Engineer may instruct the contractor to adjust his programme to suit other activities.

This programme shall be in the form of a sloping bar chart or other time/activity form acceptable to the Engineer. The programme shall clearly show the anticipated quantities and values of works performed each month.

The unit of measurement in respect of the time periods of activities will be a week. The programme shall reflect at least the following information:

(i) A description of each of the major activities, which are to be carried out during the contract and the sequence in which they will be done.

(ii) The programmed time for carrying out each activity.

(iii) The dependencies which exist between the various activities and whether these are time-related or resources-limited or both.

(iv) The critical path of activities on which final completion of the Works is dependent.

(v) The amount of slack time for non-critical activities.

The following details shall also accompany the programme:

(i) Proposed number of working hours per day, working days per week, "pay weekends": if any, and any proposed holiday or other shut down periods.

(ii) Schedule of proposed labour resources (giving a breakdown of engineers/technicians, foremen, supervisions, artisans, skilled and unskilled labour) for each major activity.

(iii) Schedule of proposed plant resources (giving a breakdown of description and number of units) for each major activity.

A network-based programme according to the precedence method shall also be provided showing the various activities in such detail as may be required by the Engineer. The programme shall be updated monthly in accordance with the progress made by the contractor.

If, during the progress of the work, the quantities of work performed per month fall below those shown on the programme, or if the sequence of operations is altered, or if the programme is deviated from in any other way, the contractor shall, within one week of being notified by the Engineer, submit a revised programme and network.

If the programme has to be revised by reason of the contractor falling behind his programme, he shall produce a revised programme showing how he intends to regain lost time in order to ensure completion of the works within the time for completion as defined in Clause 5.12 of the General Conditions of Contract (Third Edition 2015) or any granted extension of time. Any proposal to increase the tempo of work must be accompanied by positive steps to increase production by either providing more labour and plant on site, or using the available labour and plant in a more efficient manner.

Failure on the part of the contractor to submit or to work according to the programme or revised programmes shall be sufficient reason for the Engineer to take steps as provided in Clause 9.2 of the General Conditions of Contract (Third Edition 2015).

The approval by the Engineer of any programme shall have no contractual significance other than that the Engineer will be satisfied if the work is carried out according to such programme and that the contractor undertakes to carry out the work in accordance with the programme. It shall not limit the right of the Engineer to instruct the contractor to vary the programme should circumstances make this necessary.

It is in the Contractor's interest to give as much information as possible about times allowed for construction as well as resource or other limitations on programme times, since this programme will form the basis for any contractual negotiations about extensions of time once the contract is commenced. Failure to comply with any of these requirements will entitle the Engineer to use a programme based on his own assumptions to evaluate claims for extension of time for the completion of the work and/or for additional compensation.

Once approved by the Engineer in writing, this programme shall be known as the contract programme and shall be revised only as described below. Minor revisions to the contract programme may be introduced from time to time by mutual agreement between the Contractor and the Engineer. Should the Engineer require a major revision to the contract programme for whatever reason, the Contractor shall be notified in writing and such revision shall be submitted for approval to the Engineer within two weeks of receipt of such notification.

If a revised programme is issued, the effect on the initial critical path must be clearly indicated to the Engineer as must the steps required to be taken to ensure the completion of the contract within the stated Time of Completion.

The Contractor shall submit to the Engineer, at least three working days before each monthly site meeting, one paper print of the contract programme with detailed programmes (as described below) duly marked up to reflect the actual progress up to that date.

C.3.5.3.2 Reporting

The Contractor shall submit to the Engineer at least three working days before each monthly site meeting a monthly progress report, which shall include the following:

(i) A summary of progress on site over the month immediately preceding the monthly site meeting. This shall be in the form of a detailed narrative to the contract programme.

(ii) Highlight activities running late, indicating what steps have (or will) be taken (e.g. reprogramming), additional plant and/or labour resources, etc.) to ensure that the specified date of completion is not overrun.

(iii) Status report of all plant employed on site.

(iv) Status report of all labour resources employed on site.

(v) Status report of all material on site.

No separate payment will be made for observing these requirements as it is deemed to be included in the amounts tendered for Section A: Preliminary and General

C3.5.4 METHODS AND PRECAUTION

3.5.4.1 Methods

Construction methods must be of such a nature that no person, property or improvements in the vicinity of the works is endangered. The Employer accepts no responsibility for any work executed without written permission outside the site of Works.

C3.5.4.2 Site Instruction Book

A triplicate book supplied by the Engineer to be used for site instructions shall at all times be kept on the site and is only for the use of the Engineer.

C3.5.4.3 Site Correspondence Book

A triplicate book supplied by the Contractor to be used for site correspondence shall at all times be kept on the site and is only for the use of the parties associated with the execution of the Works and that is represented on the monthly contractual meeting.

C3.5.4.4 Dealing with Water

The Contractor is responsible for the control of storm water from adjoining areas, the site and groundwater. No additional payment will be made and it will be deemed to be included in the rates of the relevant items.

C3.5.4.5 Survey Beacons

The Engineer will provide benchmarks with levels and coordinates. The Contractor's attention is drawn to clause 5.1.2 of SANS 1200 A. The Contractor must confirm the correctness and accuracy of the benchmarks provided before the commencement of any construction works and must confirm acceptance of the benchmarks in the site correspondence book. The Employer accepts no responsibility for incorrect benchmarks in the event that the Contractor failed to follow the above checking and acceptance procedure.

C3.5.4.6 Setting out of Work

The Engineer at the commencement of the Contract will show reference and level beacons to the Contractor and the Contractor will be responsible for transferring the date to the Site of Works.

The Contractor shall check the condition and accuracy of all reference and level beacons and satisfy himself that they have not been disturbed and are true with regard to position and level. A beacon that has been disturbed shall not be used until its true position and level have been re-established and the Engineer has certified the new values. The Contractor shall thereafter be held entirely responsible for the protection of all reference and level beacons.

The Contractor shall employ a capable surveyor to set out the Works to the required lines and levels. The Engineer shall be informed immediately should any discrepancy be discovered between the levels or dimensions obtained by the Contractor and those shown on the drawings.

Where a beacon is likely to be disturbed during construction operations, the Contractor shall establish suitable reference beacons at locations where they will not be disturbed during construction. No beacons shall be covered over, disturbed or destroyed before accurate reference beacons have been established and details of the positions and levels of such beacons have been submitted to the Engineer. The Contractor's reference beacons shall be of at least the same accuracy and sturdiness of construction as the existing beacons.

The Contractor shall submit the method of setting out he proposes to employ to the Engineer. The Contractor shall provide accurate control offline and level at all stages of construction.

The Engineer may check work set out by the Contractor and the Contractor at his own expense shall rectify any errors found. The Contractor shall supply any instrument, equipment, material and labour required by the Engineer for this survey work. Any assistance, including checking given to the

Contractor by the Engineer or any setting out done by the Engineer for Contractor shall not be held as relieving the Contractor of his responsibility for the accurate construction of the Works.

The Contractor's survey instruments, and survey equipment shall be suitable for the accurate setting out of the Works and shall be subject to the approval of the Engineer. They shall furthermore be checked and correctly adjusted by the authorized agents before the commencement of the contract and subsequently when required by the Engineer and when otherwise necessary.

When required the Contractor shall, at his own expense, provide one labourer to assist the Engineer. The Engineer shall have the sole right of approving of such a labourer.

Survey work shall not be measured and paid for directly and compensation for the work involved in setting out shall be deemed to be covered by the rates tendered and paid for the various items of work included under the contract.

C3.5.4.7 Drawings

Only figured dimensions shall be used and drawings shall not be scaled unless so instructed by the Engineer. The Engineer will supply any figured dimensions, which may have been omitted from the drawings.

C3.5.4.8 Record Drawings

As the Works proceed the Contractor must keep detailed records of all changes to the plans. The actual position of all new and existing services must be indicated on the set of drawings supplied free of charge for this purpose.

Any information in the possession of the Contractor, which is necessary for the Resident Engineer to complete his “record” drawings, must be submitted to the Resident Engineer.

The certificate of completion will only be issued once the Engineer has received the record drawings with data compiled by a registered land surveyor. No separate payment will be made for this and it will be deemed to be included in the rates for the relevant items.

C3.5.4.9 Existing Services

The positions of existing services are shown on the drawings. The Contractor shall note that although the drawings have been prepared using available information they show only the approximate positions of existing services and shall be a guide only. The Contractor’s attention is drawn to clause 5.4 of SANS 1200 A.

Before the Contractor commences operations, he must discuss with and have the approval of the Employer, authority or owner concerned regarding the method he proposes to use for relocating or safe-guarding any services and existing works he may encounter during construction.

The positions of existing services shown on the Drawings are given in good faith and no guarantee can be given that:

- these services actually are in the approximate positions indicated.
- that these are the only services in the vicinity, and
- that the nature and description of these services are correct.

The Contractor shall be responsible to locate and safeguard any existing service or work he may encounter during construction and shall obtain clearance from the Employer, authority and the Engineer before commencing work in the proximity of existing services or works.

The Contractor shall be responsible for any damage to such existing services and works in the execution of this contract and shall reimburse the Employer, authority or the owner concerned for any repairs required and for damages.

The Contractor shall be responsible for immediately notifying the Engineer and the authorities concerned regarding any damage caused to public services and existing works.

The Authority concerned shall carry out any alternations to public services unless the Contractor is instructed otherwise.

The Contractor shall provide the necessary assistance during any operations necessary in connection with the removal, alternations or safeguarding of any public service.

C3.5.4.10 Testing and Quality Control

The Contractor shall supply the Engineer with a quality plan within 14 days after being appointed, showing how quality assurance will be managed on site.

The contractor shall engage the services of an approved independent testing laboratory for the testing of materials and the quality testing of layer works, to ensure that his work conforms to the specifications. No separate payment will be made for such testing by an approved laboratory, the costs of which will be deemed to be included in the contractor's tendered rates for the various items of work requiring testing in accordance with the specifications.

C3.5.4.11 Certificates of Payment

The statement to be submitted by the Contractor in terms of clause 6.10 of the General Conditions of Contract (Third Edition 2015) shall be prepared in accordance with the standard payment certificate prescribed by the Engineer and shall consist of at least four sets of A4-sized paper copies.

All costs resulting from the preparation and submission of the statements shall be borne by the contractor.

C3.5.4.12 Construction in Limited Areas

In certain cases working space may be limited. The method of construction in these restricted areas will depend largely on the contractor's plant. However, the contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used to achieve these cross-sections and dimensions, and that the rates and prices tendered shall be deemed to include full compensation for any difficulty encountered while working in limited areas and narrow widths, and that no extra payment will be made, nor will any claim for payment due to these difficulties be considered.

C3.5.4.13 Spoil Material

All spoil material shall be spoil off-site at a site which is to be identified by the Contractor and approved by the Engineer.

C3.5.4.14 Length of Trenches

Where no limitations are imposed by construction stages and unless otherwise permitted in writing by the Engineer, not more than 100m of trench in any one place shall be opened in advance of pipe laying operations.

No trench may be left open over the builders' holidays or weekends.

C3.5.4.15 Samples

The Contractor shall at his own cost, supply all samples that may be required. Material or wok not conforming to the approved samples shall be rejected. The Engineer reserves to himself the right to submit samples to any test to ensure that the material represented by the sample conforms to the requirements of the specifications.

C3.5.4.16 Manufacturer's Instructions

The recommendations of the manufacturers of patented materials must be strictly adhered to regarding the use, mixing, application, fastening, etc. thereof except when otherwise instructed in writing by the Engineer.

C3.5.4.17 Proprietary Materials

Where proprietary materials are specified it is to indicate the quality or type of materials or articles required, and where the terms "or other approved" or "or approved equivalent" are used in connection with proprietary materials or articles, it is to be understood that the approval shall be at the sole discretion of the Engineer.

C3.5.4.18 Notices, Signs, Barricades and Advertisements

The Contractor shall erect the necessary signs, notices and barricades for the duration of the contract in order to safeguard both the works and the public.

Notice, the Contractor may use signs and barricades as well as advertisements only upon approval, and the Contractor shall be responsible for their supply, erection, maintenance and ultimate removal and shall make provision for this in his tendered rates.

The Engineer shall have the right to have any sign, notice or advertisement moved to another position or to have it removed from the site of the works, should it in any way prove to be unsatisfactory, inconvenient or dangerous to the general public.

Such notices, signs and barricades shall be provided and erected at the Contractor's own expense.

The standard name board of the South African Association of Consulting Engineers is specified, the cost of which shall be included in the rates tendered for the item Section 1: Preliminaries of the Bill of Quantities

C3.5.4.19 Workmanship and Quality Control

The onus to produce work which conforms in quality and accuracy of detail to the requirements of the specifications and drawings rests with the contractor, and the contractor shall, at his own expense, institute a quality-control system and provide experienced engineers, foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment, to ensure adequate supervision and positive control of the works at all times.

The costs of all supervision and process control, including testing thus carried out by the contractor shall be deemed to be included in the rates tendered for the related items of work.

The contractor's attention is drawn to the provisions of the various standardized specifications regarding the minimum frequency of testing that will be required for process control. The contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

On completion of every part of the work and submission thereof to the Engineer for examination, the contractor shall furnish the Engineer with the results of all relevant tests, measurements and levels to indicate compliance with the specifications.

C3.5.4.20 Transport of Material

All costs of transporting material, including overhaul, shall be included in the applicable tendered rates. All references in the specifications to transport, overhaul and haul distances shall be deleted irrespective of whether or not the deletion is included in these Specification Data.

C3.5.4.21 Liaison with Local authorities

The contractor will have to liaise with local authorities regarding the following matters:

(a) Dealing with traffic.

(b) Locating of existing underground services.

(c) Protection of existing services during construction.

All the relevant authorities were notified of above operations. It is then the contractor's onus to immediately contact all these authorities and to accommodate their involvement in his programme of work. The contractor should also warn the authorities at least 48 hours before the actual work commence. Compensation for delays, losses or accidents will not be considered should the contractor at any time have failed to keep the local authorities informed.

The engineer or employer must immediately be notified, should the contractor experience any problem regarding work, which involves a local authority.

C3.5.4.22 Format of communication

All communication regarding the contract shall be channelled through the Engineer and / or his duly authorised representative.

C3.5.4.23 Management meeting

Management meetings shall be held once a month for the duration of the contract on dates and times to be agreed.

C3.5.4.24 Daily records

Daily records of site activities must be kept accurately. This would include record of plant, personnel, site and weather conditions.

C3.5.4.25 Interference with Municipal staff and operations

The Contractor shall ensure that none of his staff interfere in any way with any municipal staff member or their functions.

Any member of the Contractor's staff found to be interfering with municipal staff or operations in any way shall be removed from the site and shall not be allowed to return.

C3.6 Annexes

CONTENTS

Annexure 1: B-BBEE Sub-contractor Expenditure Report

Annexure 2: Project Labour Report

Annexure 3: Environmental Management Plan

Annexure 4: Health and Safety Plan

ANNEXURE 1

CONTRACT NO. AND NAME: .....

CONTRACTOR: .....

B-BBEE SUB-CONTRACT EXPENDITURE REPORT BASED ON PAYMENT CERTIFICATE NO. .....

Value of the contract (as defined in Schedule 21: Preferencing Schedule) (**P***)	R

B-BBEE Status Level of Prime Contractor	

Name of Sub-contractor (list all Sub-contractors)	**B-BBEE Status Level of Sub-contractor[1]**	**Total Value of Sub-contract (Excl VAT)[1]**	**Value of Sub-contract work to date (Excl VAT)**	**Value of Sub-contract work to Sub-contractors with a lower B-BBEE Status Level than Prime Contractor**
Sub-contractor A				
Sub-contractor B				
Sub-contractor C				
[1]Documentory evidence to be provided			Total:	
			Expressed as a percentage of **P***	%

Signatures
Contractor: ..... **Date:**

Engineer/ Engineer's Representative: ..... **Date:**

ANNEXURE 2 Project Labour Report

Project/Contract Name:			**Budget:** (tick one)	**Capital** ✓	**Operating**
Project/Contract Number:			**WBS No./Cost Centre No.:**		
Contractor:			**Project/Contract Start Date:**		
Consultant:			**Project/Contract End Date:**		
CLO Name:	**CLO ID Number:**		**Project/Contract Value (incl. allowance for escalation/excl. VAT):**		
Month:			**Project Labour Intensity Target/ Specified Minimum Targeted Labour Contract Participation Goal:**		
Total value of work done to date (incl. escalation/excl. VAT):					

Number of workers	Name	Surname	ID Number/DOB	Targeted Labour (Y/N)	Daily Rate	Number of days worked this month (incl. training)	Disabled (Y/N)	Number of training days this month	Course Name	Training Service Provider
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
	Totals for sheet									
	Sheet of									

Signatures

Contractor: ..... **Date** .....

Consultant/Project Manager: ..... **Date** .....

ANNEXURE 3: ENVIRONMENTAL MANAGEMENT PLAN

ENVIRONMENTAL MANAGEMENT SPECIFICATION

EM 1 SCOPE

This specification covers the requirements for controlling the impact on the environment of construction activities.

EM 2 DEFINITIONS

EM 2.1 Environment means the surroundings within which humans exist and that are made up of –

(i) the land, water and atmosphere of the earth
(ii) micro-organisms, plant and animal life;
(iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and
(iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

EM 2.2 Potentially hazardous substance is a substance, which, in the reasonable opinion of the Engineer, can have a deleterious effect on the environment.

EM 2.3 Method Statement: a written submission by the Contractor to the Engineer following 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 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,
materials and equipment to be used,
getting the equipment to and from site,
how the equipment/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.

EM 2.4 **Reasonable** means, unless the context indicates otherwise, reasonable in the opinion of the Engineer after he has consulted with a person, not an employee of the Employer, suitably experienced in "environmental implementation plans" and "environmental management plans" (both as defined in Act No. 107, 1998).

EM 2.5 **Solid waste** means all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

EM 2.6 **Contract** means the General Conditions of Contract and Special Conditions, Specifications, Drawings, Tender, written records of matters agreed after the submission of the Contractor's tender, Letter of Acceptance and Agreement, together with order documents which the parties have agreed in writing shall form part of the Contract and such amendments or additions to the Contract as may be agreed in writing between the parties.

EM 2.7 **Contaminated** water means water contaminated by the Contractor's activities.

EM 3 ENVIRONMENTAL MANAGEMENT PLAN

EM 3.1 **Demarcation of the site**
For the purpose of the EMP, the site shall be divided into two areas identified by the Engineer and the Contractor:

The construction camp comprising all offices, lay down yards, vehicle wash areas, fuel and material storage areas, batching areas and other infrastructure that is required for the running of the job.
The working area in which construction activity is permitted to take place. No infrastructure, permanent lay down or storage areas shall be established in this working area unless specified in the project specification or prior approval is obtained from the Engineer.

EM 3.1 **Construction camp**

The Contractor shall provide the Engineer with a plan showing the positions of all buildings, yards, vehicle wash areas, batching areas and other infrastructure for approval by the Engineer at least ten (10) days prior to the commencement date. The construction site shall be planned in such away so as to affect as small an area as practically possible. The Engineer shall approve the location and layout of the construction camp prior to establishment.

EM 3.2 **Fencing of the site**

IF a temporary fence is required, the Contractor shall erect and maintain such a fence (demarcating) the boundary of the working area, construction camp and access roads) to the satisfaction of the Engineer. The erection of this fence shall be one of the first tasks undertaken by the Contractor after the commencement date. The boundaries between the construction camp area and the working area within the site shall also be fenced.

The contractor shall ensure that the erection of the fencing causes minimal disturbance to flora, fauna, natural, historical and culture features. A method statement shall be submitted to the Engineer prior to erection to ensure proper positioning of the fence.

All material left over from fencing operations shall be collected after the fence has been erected and removed from site. Fences shall not be moved or removed without the written consent of the Engineer. The Contractor throughout the construction period shall maintain all fences.

EM 3.3 **Workshop**

Any workshop shall be located inside the demarcated construction camp area. The exact location and design of the workshop shall be as approved by the Engineer prior to establishment. The workshop shall have a smooth impermeable (concrete) floor. The floor shall be bunded and sloped towards an oil trap or sump to contain any spillages of substances (e.g. oil). When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. All waste material shall be disposed of in accordance with national, regional and local laws, regulations and by-laws. The waste material shall be regularly removed off site and disposed of at an approved waste site.

EM 3.4 **Eating areas**

The Contractor’s employees shall eat in the designated eating area indicated on the Contractor’s drawing of the construction camp that has been approved by the Engineer. No changes to the eating area shall be made without the approval of the Engineer. The Contractor shall provide shade and adequate scavenger-proof and weatherproof refuse bins in this area.

Any cooking on site shall only be undertaken in the eating area and be done on well maintained gas cookers with fire extinguishers present. No cooking shall be done anywhere else on site and no fires are permitted.

EM 3.5 **Ablution facilities**

The exact location of the toilets shall be as approved by the Engineer. The Contractor shall provide toilets and shall be responsible for the maintenance and servicing on a daily basis. The contractor shall ensure that no spillage occurs when the toilets are cleaned or emptied. Burial of waste from toilets on site is strictly prohibited. The toilets shall be maintained in a clean state. Performing ablutions anywhere other than in toilets is strictly prohibited. Leaking toilets shall be repaired immediately or removed from site.

EM 3.6 **Solid waste collection**

“Solid waste” refers to all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins and cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

The Contractor shall set up a waste control and removal system. The Contractor shall submit a method statement for waste control and removal to the Engineer for approval prior to commencement. Bins shall be closed, weatherproof and scavenger-proof.

Waste shall be collected from these bins on a daily basis and shall be stored in a central collection area prior to removal off-site. This central collection area shall have appropriate storage containers (closed and weatherproof) bunded and lined with plastic or concrete. The waste from this central collection area shall be disposed off-site at an approved waste site. Waste shall be removed from site on a regular basis as approved by the Engineer. Waste shall not be burnt or buried on site or in the surrounding area. Where possible, appropriate material shall be reused or recycled.

EM 3.7 **Fuel storage area**

Fuels required for use during construction shall be stored in a depot at the construction camp at a location as agreed upon by the Engineer. The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are kept firmly shut. The tanks shall be situated on a smooth impermeable (plastic or concrete) base with an earth bund. The impermeable lining shall extend to the crest of the bund and the volume inside the bund shall be 1,5 x the total capacity of the storage tank. The bunded area shall be emptied of water following rainfall events. The floor of the bund shall be sloped towards an oil trap or sump to enable any spilled fuel and / or fuel-soaked water to be removed.

EM 3.8 **Concrete batching area**

Cement and concrete are regarded as hazardous to the environment due to the high pH of the material and the chemicals it contains.

The Contractor shall submit a method statement for mixing of concrete for approval by the Engineer indicating where the mixing will take place and the method to ensure that wastewater and materials are contained in the batching area and disposed of correctly. Concrete shall not be mixed directly on the ground.

EM 3.9 **Equipment maintenance area**

All vehicles and equipment shall be kept in good working order and serviced regularly. Leaking Equipment shall be repaired immediately or removed from site. Where practical, all maintenance of equipment and vehicles on Site shall be performed in the workshop. If it is necessary to do maintenance outside of the workshop area, the Contractor shall obtain the approval of the Engineer prior to commencing activities.

The Contractor shall ensure that in his workshop and other plant maintenance facilities, including those areas where, after obtaining the Engineer's approval, the Contractor carries out emergency plant maintenance, there is no contamination of the soil or vegetation.

When servicing equipment, drip trays shall be used to collect the waste oil and other lubricants. Drip trays shall also be provided in construction areas for stationary plant (such as compressors) and for "parked" plant (such as scrapers, loaders, vehicles).

The washing of equipment shall be restricted to urgent maintenance requirements only. All washing shall be undertaken in the workshop or maintenance areas, and these areas must be equipped with a suitable impermeable floor and sump/oil trap. The use of detergents for washing shall be restricted to low phosphate and nitrate containing, low sudsing type detergents.

EM 3.10 **Materials**

EM 3.10.1 **Material handling, use and storage**

The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (e.g. which access roads to use, including "no go" areas, speed limits, dust control, etc.) required to comply with the EMP before they arrive at site and off load any materials. The Contractor shall ensure that these delivery drivers are supervised during off loading, by someone with an adequate understanding of the requirements of the EMP, so as to ensure that all relevant requirements of the EMP are followed.

Materials shall be appropriately secured to ensure safe passage between destinations. Loads including, but not limited to sand, stone chip, fine vegetation, refuse, paper and cement, shall have appropriate cover to prevent them spilling from the vehicle during transit. The Contractor shall be responsible for any clean-up resulting from the failure by his employees or suppliers to properly secure transported materials.

All manufactured and/or imported material shall be stored within the Contractor's camp, and if so required by the Project Specification, out of the rain. All lay down areas outside of the construction camp shall subject to the Engineer's approval shall not unreasonably be withheld.

EM 3.10.2 **Hazardous Substances**

The Contractor shall comply with all relevant national, regional and local legislation with regard to the transport, use and disposal of hazardous materials.

The contractor shall provide the Engineer with a list of all hazardous materials to be used on site, together with the storage, handling and disposal procedures of the materials. This information shall be available to all personnel on site.

Hazardous chemical substances (as defined in the Regulations for Hazardous Chemical Substances) used during construction shall be stored in secondary containers within the demarcated construction camp area. The relevant Material Safety Data Sheets (MPSS) shall be available on Site. Procedures detailed in the MPSS's shall be followed in the event of an emergency situation.

If potentially hazardous substances are to be stored on site, the Contractor shall provide a Method Statement detailing the substances/materials to be used, together with the storage handling and disposal procedures of the materials.

EM 3.10.3 **Fuel (Petrol and Diesel) and Oil**

Where reasonably practical, plant shall be refuelled at the depot or at the workshop as applicable. If it is not reasonably practical then the surface under the refuelling area shall be protected against pollution to the reasonable satisfaction of the engineer prior to any refuelling activities. Enretech or similar products approved by the Engineer shall be available during any refuelling of maintenance activities.

EM 3.11 **Fire control**

No fires may be lit on site. Any fires that occur shall be reported to the Engineer immediately. Smoking shall not be permitted in those areas where it is s fire hazard which areas shall include the workshop and fuel storage areas and any areas where the vegetation or other material is such as to make liable the rapid spread of an initial flame.

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. This shall include at least rubber beaters when working in urban open spaces and fynbos areas, and at least one fire extinguisher of the appropriate type when welding activities are undertaken.

EM 3.12 **Emergency procedures**

The Contractor shall submit Method Statements covering the procedures for the following emergencies :

EM 3.12.1 **Fire**

The Contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he/she can no longer control it. The Contractor shall ensure that his employees are aware of the procedure to be followed in the event of a fire.

EM 3.12.2 **Accidental leaks and spillages**

The Contractor shall ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the Engineer, CMC Scientific Services and the relevant authorities. The Contractor shall ensure that the necessary materials and equipment for dealing with spills and leaks is available on Site at all times. Treatment and remediation of the spill areas shall be undertaken to the reasonable satisfaction of the Engineer.

In the event of a hydrocarbon spill, the source of the spillage shall be isolated, and the spillage contained. The area shall be cordoned off and secured. The Contractor shall ensure that there is always a supply of absorbent material readily available to absorb and where possible be designed to encapsulate minor hydrocarbon spillage. The quantity of such materials shall be able to absorb/deal with a minimum of 200 l of hydrocarbon liquid spill.

EM 3.13 **Care of surrounding areas**

The Contractor shall ensure that no contamination of or damage to the surrounding area or watercourses shall occur as a result of any of his activities during construction.

Care shall be taken to ensure no accidental spillage or leakage occurs. Should any spillage or leakage occur the Contractor shall immediately stop his operation and clean up the spillage. He shall then rectify the cause of the spillage or leakage before proceeding further to ensure that no further spillages occur.

The cleanup of spillage and any damage caused by the spillage or leakage shall be for the Contractor's account. The Contractor shall submit a method statement for management of accidental leaks and spillages to the Engineer for approval.

EM 3.14 **Erosion And Sedimentation Control**

The Contractor shall take all reasonable measures to limit erosion and sedimentation due to the construction activities and shall, in addition, comply with such detailed measures as may be required by the Project Specification. Where erosion and/or sedimentation, whether on or off the Site, occurs despite the Contractor complying with the foregoing, rectification shall be carried out in accordance with details specified by the Engineer. Where erosion and/or sedimentation occurs due to the fault of the Contractor, rectification shall be carried out to the reasonable requirements of the Engineer.

EM 3.15 **Tolerances**

Environmental management is concerned not only with the final results of the Contractor's operations to carry out the Works but also with the control of how those operations are carried out. Tolerance with respect to environmental matters applies not only to the finished product but also to the standard of the day-to-day operations required to complete the Works.

It is thus required that the Contractor shall comply with the environmental requirements on an ongoing basis and any failure on his part to do so will entitle the Engineer to certify the imposition of a fine subject to the conditions in the Pro Forms : Protection of the Environment and the details set out in the Project Specification.

ANNEXURE 4: HEALTH AND SAFETY PLAN

Health and Safety Specification

Project:

Mcgregor Sportsfield – New Spectator Pavilion

Date:

November 2025

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Project Directory:		
Project Name:	Mcgregor Sportsfield – New Spectator Pavilion	Keerom Street, Mcgregor, Western Cape
Client:	Langeberg Municipality	
Principal Agent:	Invictus Engineering Services	Francois Ryke francoisr@invictuseng.co.za
Designers Architect:	N/A	
Designer Engineer:	Invictus Engineering Services	Francois Ryke francoisr@invictuseng.co.za
Quantity Surveyors:	N/A	
Health & Safety Coordinator for Client	Wesbron H&S Practitioners	info@wesbron.co.za
Client Agent:	JR Louw Pr. CHSM/1068/2022	johan@wesbron.co.za

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1. Definitions

The Definitions as listed in the Occupational Health and Safety Act 85 of 1993 and all relevant Regulations shall apply.

1.1. **"Agent"** means a competent person who acts as a representative for a client

1.2. **"Client"** means any person for whom construction work is being performed

1.3. **"Competent person"** means a person who—

a) has in respect of the work or task to be performed the required knowledge, training and experience and, where applicable, qualifications, specific to that work or task: Provided that where appropriate qualifications and training are registered in terms of the provisions of the National Qualification Framework Act, 2000 (Act No.67 of 2000), those qualifications and that training must be regarded as the required qualifications and training; and

b) is familiar with the Act and with the applicable regulations made under the Act;

1.4. **"Construction manager"** means a competent person responsible for the management of the physical construction processes and the coordination, administration and management of resources on a construction site

1.5. **"Construction site**" means a work place where construction work is being performed

1.6. **"Construction supervisor"** means a competent person responsible for supervising construction activities on a construction site

1.7. **"Construction vehicle"** means a vehicle used as a means of conveyance for transporting persons or material, or persons and material, on and off the construction site for the purposes of performing construction work;

1.8. **"Construction work"** means any work in connection with—

a) the construction, erection, alteration, renovation, repair, demolition or dismantling of or addition to a building or any similar structure; or

b) the construction, erection, maintenance, demolition or dismantling of any bridge, dam, canal, road, railway, runway, sewer or water reticulation system; or the moving of earth, clearing of land, the making of excavation, piling, or any similar civil engineering structure or type of work;

1.9. **"Contractor"** means an employer who performs construction work

1.10. **"Demolition work"** means a method to dismantle, wreck, break, pull down or knock down of a structure or part thereof by way of manual labour, machinery, or the use of explosives

1.11. **"design"** in relation to any structure, includes drawings, calculations, design details and specifications

1.12. **"Designer"** means—

(a) a competent person who—

(i) prepares a design;

(ii) checks and approves a design; or

(iii) arranges for any person at work under his or her control to prepare a design (including an employee of that person where he or she is the employer); or

(iv) designs temporary work, including its components,

b) an architect or engineer contributing to, or having overall responsibility for a design;

c) building services engineer designing details for fixed plant;

d) a surveyor specifying articles or drawing up specifications;

e) a contractor carrying out design work as part of a design and building project; or

f) an interior designer, shop-fitter or landscape architect;

1.13. **"Explosive actuated fastening device**" means a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing. Change explosive power tools to explosive actuated fastening device

1.14. **"Fall arrest equipment"** means equipment used to arrest a person in a fall, including personal equipment such as body harness, lanyards, deceleration devices, lifelines or similar equipment

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1.15. **"fall prevention equipment"** means equipment used to prevent persons from falling from a fall risk position, including personal equipment, a body harness, lanyards, lifelines or physical equipment such as guardrails, screens, barricades, anchorages or similar equipment

1.16. **"Fall protection plan"** means a documented plan, which includes and provides for-

a) all risks relating to working from a fall risk position, considering the nature of work undertaken;
b) the procedures and methods to be applied in order to eliminate the risk of falling; and
c) a rescue plan and procedures

1.17. **"Fall risk"** means any potential exposure to falling either from, off or into

1.18. "Health and safety file" means a file, or other record containing the information in writing required by these Regulations;

1.19. **"Health and safety plan"** means a site, activity or project specific documented plan in accordance with the client's health and safety specification

1.20. "Health and safety specification" means a site, activity or project specific document prepared by the client pertaining to all health and safety requirements related to construction work

1.21. **"Medical certificate of fitness"** means a certificate contemplated in regulation 7(1)(8);

1.22. **"National Building Regulations"** means the National Building Regulations made under the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and promulgated by Government Notice No. R. 2378 of 30 July 1990, as amended by Government Notices No's R. 432 of 8 March 1991, R. 919 of 30 July 1999 and R. 547 of 30 May 2008;

1.23. **"Person day"** means one normal working shift of carrying out construction work by a person on a construction site

1.24. **"Principal contractor"** means an employer appointed by the client to perform construction work

1.25. **"Professional Engineer or Professional Certificated Engineer"** means a person holding registration as either a Professional Engineer or Professional Certificated Engineer in terms of the Engineering Profession Act, 2000 (Act No. 46 of 2000)

1.26. **"Provincial director"** means the provincial director as defined in regulation 1 of the General Administrative Regulations, 2003

1.27. **"Scaffold"** means a temporary elevated platform and supporting structure used for providing access to and supporting workmen or materials or both

1.28. **"Structure"** means—

a) any building, steel or reinforced concrete structure (not being a building), railway line or siding, bridge, waterworks, reservoir, pipe or pipeline, cable, sewer, sewage works, fixed vessels, road, drainage works, earthworks, dam, wall, mast, tower, tower crane, bulk mixing plant, pylon, surface and underground tanks, earth retaining structure or any structure designed to preserve or alter any natural feature, and any other similar structure;
b) any false work, scaffold or other structure designed or used to provide support or means of access during construction work; or
c) any fixed plant in respect of construction work which includes installation, commissioning, decommissioning or dismantling and where any construction work involves a risk of a person falling;

1.29. **"Temporary works"** means any false work, formwork, support work, scaffold, shoring or other temporary structure designed to provide support or means of access during construction work;

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2. Introduction

This Health and Safety Specification was compiled by WESBRON PRACTITIONERS on behalf of the Client to be used for the above-named project.

The Health and Safety Specification is a response to the statutory requirements of the Occupational Health and Safety Act 85 of 1993 and more specifically to the CONSTRUCTION REGULATIONS, 2014. It also includes best practices with regard to management and co-ordination of Health, Safety and Welfare throughout the Construction Phase of the projects, to reduce the large number of serious and fatal accidents and cases of ill health, which occur every year in the Construction Industry.

Under the CONSTRUCTION REGULATIONS, 2014, the Client is required to develop the Health and Safety Specifications for the project before work commences on site and to keep it up to date throughout the Construction Phase. The degree of detail required in the Health and Safety Plan of The Principal Contractor for the Construction Phase and the time and effort in preparing it should be in proportion to the nature, size and level of Health and Safety risks involved in the project.

Hazards posing minimal risks will call for simple, straight forward plans. Hazards posing a significant risk will need more detail.

3. Purpose and Scope

This document describes the requirements of compliance to which the Principal Contractor is to adhere to in relation to the scope of works.
This document defines the minimum management requirement that is to be implemented by The Principal Contractor for the management of Health and Safety on the project.
The aim of this document is to present the safety aspects that need to be controlled and managed on the project and to ensure that contractors submitting tenders make provision for the cost of health and safety measures to be implemented during the duration of the contract/construction process.

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4. Implementation of the Specification

This specification forms an integral part of the project, and The Principal Contractor is required to use it when drawing up their project-specific construction Health & Safety Plan. The Principal Contractor shall forward a copy or the applicable part of this specification to all Contractors, so that they can in turn prepare Health & Safety plans relating to their works. Please ensure that you and your contractors submit your signed "Acknowledgement of receipt" of this Health and Safety Specification on the date of issue.

5. Reference Documents

- Occupational Health and Safety Act, (Act No. 85 of 1993).
- Compensation for Occupational Injury and Diseases Act.
- Client Health and Safety Specification.
- Construction Regulations 2014.
- All Regulations as specified under the headings General, Health, Electrical and Mechanical.

6. Health & Safety Objective and Targets

The aim of this Health and Safety Specification is to ensure that health and safety will be planned into the work undertaken by The Principal Contractor on this project.

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6.1. Health and Safety Objectives

- To put into practical effect the commitment made by The Principal Contractor in their own health and safety policy statement;
- To ensure that, where necessary, the changes in attitude of all those involved with the project take place. The result should be the acceptance of responsibility, towards health and safety objectives;
- To develop further good health and safety management practices on this contract.
- To ensure that high standards of health and safety are achieved.
- Co-operation with the OHS Agent and other contractors involved on the project.
- Reducing accidents, ill health and injury to persons and damage to property, when undertaking work on the project.

6.2. Health and Safety Targets

The following Health and Safety Targets have been set for achievement during the period of this project:

- The achievement, by the Principal Contractor, of an accident – free project, as far as possible, with the prevention of all accidents, and the achievement of a no lost time accident rate.
- Reducing accidents, ill health and injury to persons and damage to property, when undertaking work on the project.
- The workforce's co-operation in ensuring that safety is everybody's responsibility.
- A proactive approach to health and safety by the construction management team.
- That safe working will be a condition of employment in all contractors' organisations.

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7. Project Overview

7.1. The construction site is situated at: Keerom Street, Mcgregor, Western Cape

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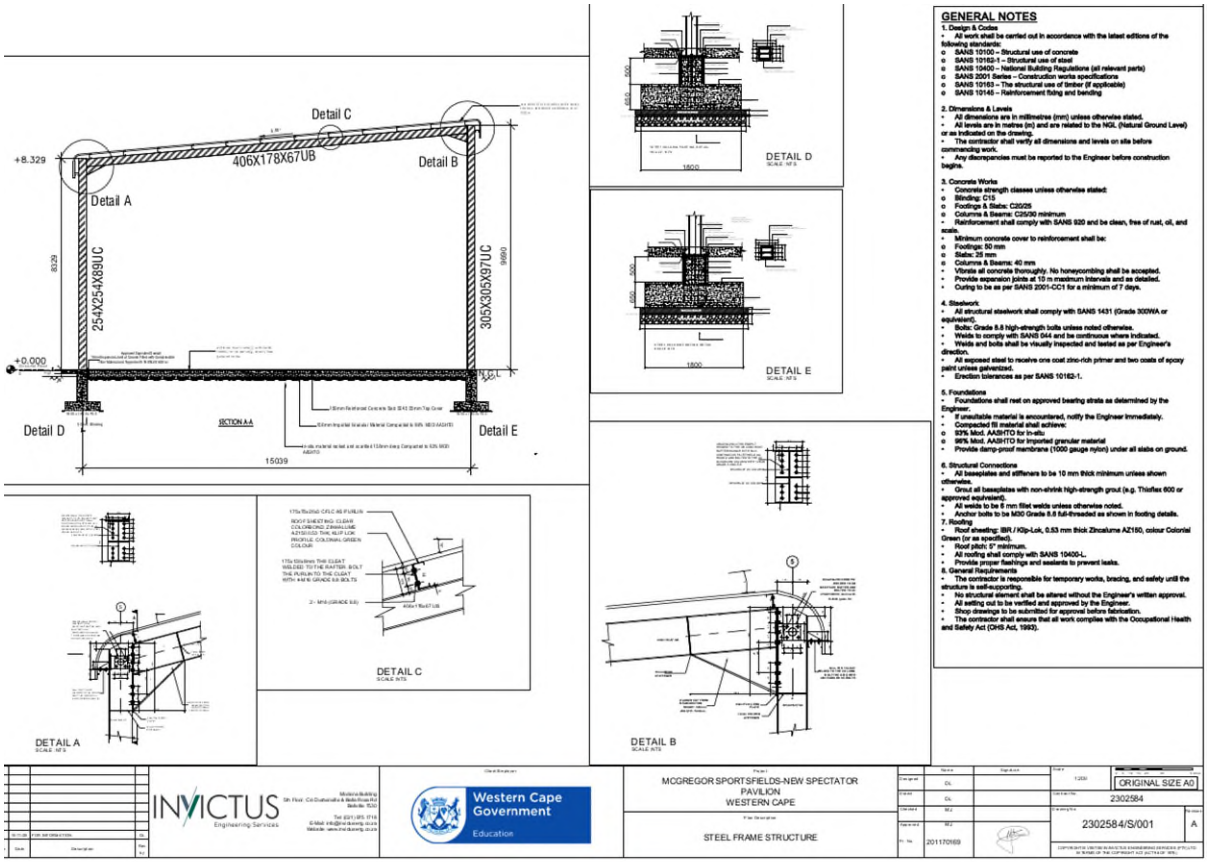
7.2. Scope of Work

<u>The project consists of the construction of a new covered spectator pavilion</u>

The scope of work for the project includes, but is not limited to:

- Relocation of existing municipal sewermain;
- Installation of new water supply;
- Building of new covered spectator pavilion;
- Building of new player and officials ablutions



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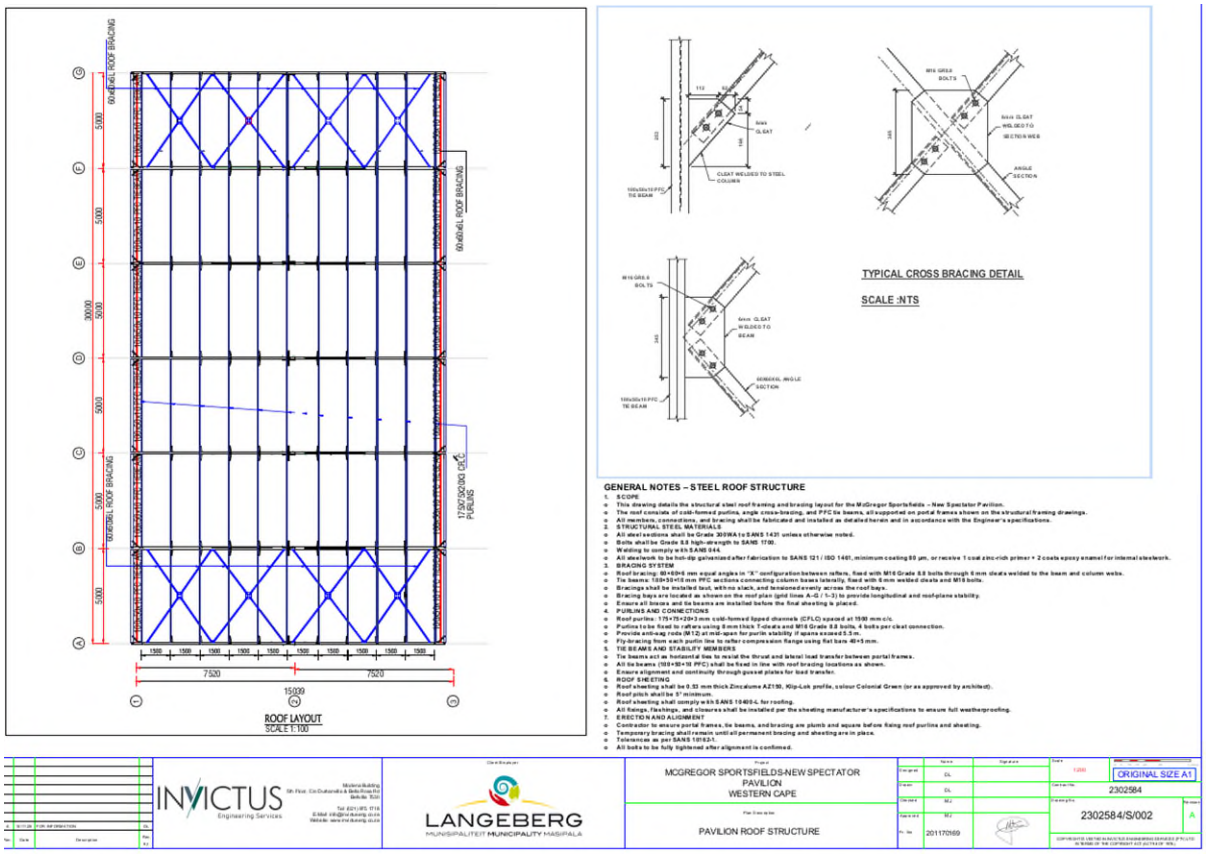

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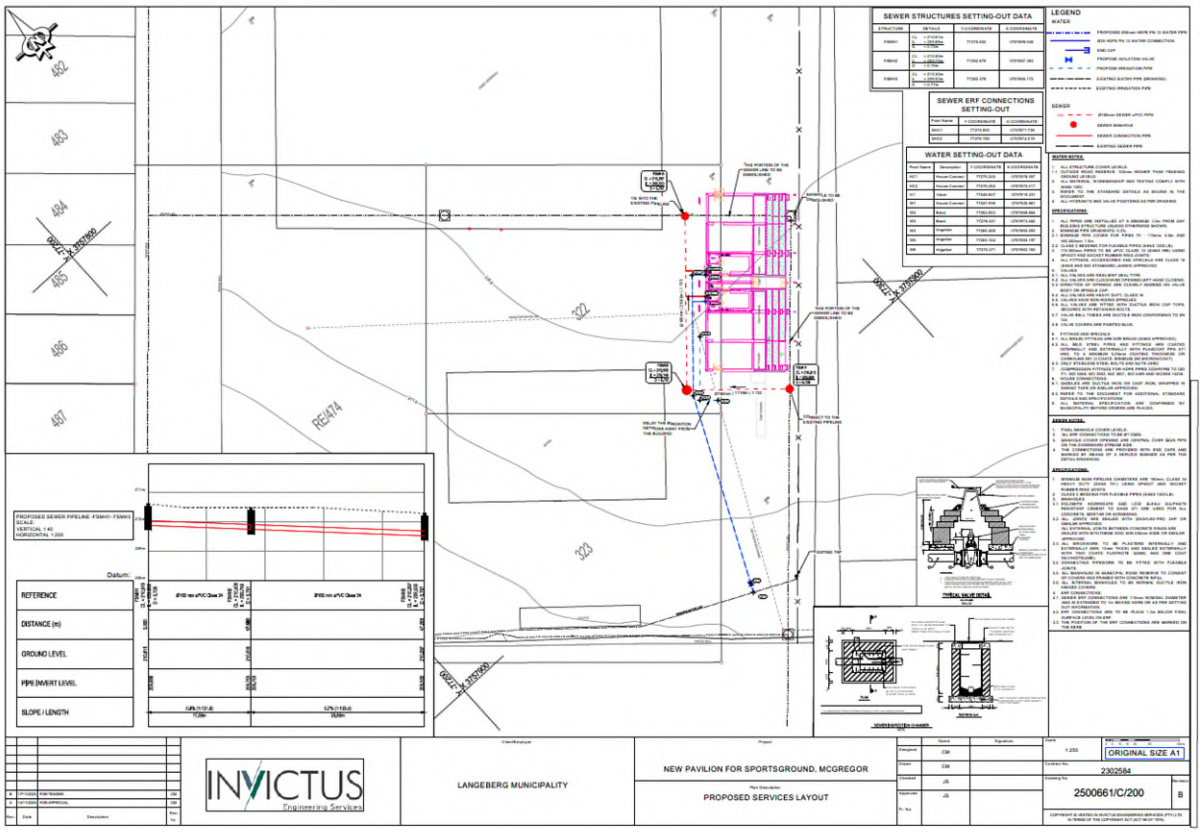

For full scope of work, please see the tender document and bill of quantities.

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8. General Occupational Health & Safety Provisions

8.1. Risk Assessments

The Principal Contractor shall ensure that Hazard Identification Risk Assessment forms the basis of all work to be conducted on site, and a preliminary Task Risk Assessment be submitted for approval to the Client prior to work commencing on site. The Principal Contractor must as part of continuous development update and evaluate new risks on site and incorporate such risks into the project risk assessment. The Principal Contractor must ensure that training forms part of the HIRA process and proof of training attendance is made available to the Client upon request. The risk assessments must as minimum standard include:

- **The identification of the current and emerging risks and hazards to which employees may be exposed to;**
- **The analysis and evaluation of the risks and hazards identified;**
- A documented plan of safe working procedures and any method statements to mitigate, reduce or control the risks and hazards that have been identified;
- Residual risk indication and the remaining risk after the risk mitigation measures have been taken into consideration;
- A plan to monitor the application of the Safe Work Procedures and
- A plan to review the risk assessments as the work progresses and changes are introduced or incidents occurred which requires the re-evaluation of the processes/risk mitigation.

High Risk Activities include but are not limited to:

- **Erection of steel structure**
- **Plant and machinery**
- **Public health & safety**
- **Confined spaces**
- **Excavations**
- **Working at heights**
- **Concrete work.**

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Method Statements and Safe Work Procedures must form part of the HIRA Process and must be conducted in conjunction with the HIRA Process described above.

All contractors including the principal contractor must review their site risk assessments and safe work procedures at intervals of at least 30 days, as the contract develops and changes are made to the designs, plans and construction methods or after an incident, accident or near miss occurs. The Principal Contractor must ensure that all corresponding safe work procedures are updated accordingly and communicated to the employees.

Risk assessments must be forwarded to johan@wesbron.co.za prior to commencement of construction.

8.2. Fall Protection

Where work will be conducted in a fall-risk position a site-specific fall protection plan must be drafted by a competent person (proof of competence on US224449 to be provided) in accordance with Construction Regulation 10.

The site-specific fall protection plan must include but not limited to:

- a risk assessment of all work carried out from an elevated position which shall include the procedures and methods used to address all the risks identified per location;

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- the processes for evaluation of the employees physical and psychological fitness necessary to work at elevated positions and the records thereof;
- the program for the training of employees working from elevated positions and records thereof; and
- the procedure addressing the inspection, testing and maintenance of all fall protection equipment
- **A full list of safety harnesses and serial numbers to be used on the project.**
- **Location of anchor points and safety harnesses used.**
- **Location of access point to roof.**
- **Method of moving material up and down from ground to roof.**

The construction manager & construction supervisor shall be in possession of the most recently updated version of the fall protection plan.

The Fall Protection Plan must be forwarded to johan@wesbron.co.za prior to commencement of construction.

8.3. Responsibilities and Structure

8.3.1. The Client

The Client is responsible for implementing the Specifications for health and safety on the project. The Client will ensure adequate information is available to all parties, to ensure they can perform their duties under the requirements of this document and relevant statutory legislation.

8.3.2. The Clients Agent

Wesbron is the appointed Client Agents for the project and is responsible for representing the Client on the project and for coordinating the Design Team, with reference to the design risk assessment processes. The clients agent may conduct ad hoc site audits to ensure continuous compliance with the health & safety specification and the Occupational Health & Safety Act.

The Client/ Client Agent / Client's Representative can stop any construction / construction related work conducted by any person on the construction site, which is not in accordance with The Principal Contractor Health and Safety Plan and or the Health and Safety Plans of Contractors which poses a threat to the Health and or Safety of persons.

8.3.3. The Principal Contractor

- The Principal Contractor appointed for the project will take the Health and Safety specification and develop a health and safety plan for approval by Wesbron Health & Safety Consultants.
- The detailed Health and Safety plan will set out clearly The Principal Contractor' management systems for managing health and safety on the contract in accordance with Wesbron Health & Safety Consultants health and safety requirements set out in this document, the designer's risk information and any relevant health and safety legislation.
- The Health and Safety plan will be kept up to date by The Principal Contractor to and is to include other contractors' risk control management information.
- The Principal Contractor will co-operate with WESBRON in all aspects of complying with the duties laid upon them by the Construction Regulations 2014.
- All comments contained in this section require specific measures to be incorporated into the construction health and safety plan. The Principal Contractor may not allow work to commence on site before an adequate construction health and safety plan is developed and approved by Wesbron Health & Safety Consultants.

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- The plan must contain the method statements and procedures for the project, before works starts on site. Further risk assessments and method statements must be carried out where the works may change, due to design changes.
- The construction phase health and safety plan, developed by The Principal Contractor must also take into account current health and safety legislation and associated codes of practice.

8.3.3.1. Health & Safety Plan Minimum Content

The Principal Contractors' Construction Health and Safety Plan should include, inter alia, details of the following:

- The positioning of the site access and egress points to ensure that any nuisance or risk to the adjacent properties is minimized and controlled. This should be away from the adjacent occupied and sensitive premises.
- The project-specific preliminary risk assessment. **A detailed task specific risk assessment of all construction activities is required for approval prior to commencement of work.**
- The arrangements and procedures for managing health & safety of construction work including supervision and safety officer involvement.
- The monitoring systems for checking that the Health & Safety Plan and H&S procedures are being followed by the principal contractor and all contractors.
- The Health & Safety Risk Assessment strategy and rating system to be used on this project.
- **The Safety Officer Duties specific to this project - Fortnightly visits required.**
- Safe work procedures for minimizing the risk posed by the hazards identified.
- Fall protection plan specific to the work on this site.
- Selection and control of contractors.
- Site health & safety induction and training.
- Welfare facilities, first aid, emergency planning and fire prevention strategies.
- The location of temporary internal site offices to ensure that sensitive properties are not subjected to any nuisance arising from the use of the facilities.
- **The location of unloading, layout and storage areas to reduce and minimize excessive manual handling of construction materials, damage to adjacent property and the security of the plant, equipment and materials and the erection of site hoarding at least 1.8 meters high**.
- The arrangements for the reception of prospective visitors.
- Site specific rules and procedures including the company disciplinary code.
- Arrangements for emergency fire and first aid facilities.
- Traffic management arrangements to protect site staff and the public from the road and other construction works. **Where the road will be blocked/closed, consent should be obtained from Langeberg Municipality at least 7 days prior to commencement of works.**
- Arrangements for dealing with emergency situations, overhead and underground services. **Langeberg Municipality emergency numbers must be kept on the site health & safety file**.
- Selection and maintenance of plant and equipment.
- Selection of competent contractors**.**

The Health & Safety Plan will then need to be reviewed and updated as the project develops, as information becomes available pertaining to new risks and as information becomes available from the contractors carrying out specific activities on your behalf.

The site specific health & safety plan must be forwarded to johan@wesbron.co.za prior to commencement of construction.

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8.3.3.2. Construction Health & Safety File Minimum Content

- Notification of Construction Work
- Appointment of Principal Contractor
- Mandatory Agreement
- Health & Safety Policies
- Health & Safety Specification
- Health & Safety Plan
- Fall Protection Plan
- Risk Assessments
- Organogram
- Legal Appointments
- Training Records
- Toolbox Talks
- Method Statements / Safe Work Procedures
- Registers / Checklist
- Emergency / Accident Procedures
- Incident Register
- WCA Letter of Good Standing
- Medical Certificates
- Appointment of Contractors
- Mandatory Agreements with Contractors
- Inspection & Audit Reports
- Material Safety Data Sheets
- Occupational Health & Safety Act

8.3.3.3. Statutory Appointments

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The Principal Contractor must in writing appoint one full-time competent person as the construction manager with the duty of managing all the construction work on a single site, including the duty of ensuring occupational health and safety compliance, and in the absence of the construction manager an alternate must be appointed by the principal contractor and copies of all the appointment letters of the responsible persons shall be placed on the SHE file.

A construction manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site

The Principal Contractor shall appoint competent persons in writing at commencement of the project to control the health & safety process on site. These appointments (where applicable) will form part of the Health and Safety file which will be kept on site at all times.

	Appointment	Reference
1.	CEO Assignee	OHSA Section 16(2)
2.	Construction Manager	Construction Regulation 8(1)
3.	Assistant Construction Manager and Alternate to the CR 8(1)	Construction Regulation 8(2)
4.	Construction Supervisor (activity-supervisors and section supervisors)	Construction Regulation 8(7) and 8(8)
5.	Health & Safety Representative	OHSA Section 17
6.	Incident Investigator	General Administrative Regulations 9
7.	Risk Assessor	Construction Regulation 9
8.	First Aider	General Safety Regulations 3
9.	Construction safety officer	Construction Regulation 8(5)

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10.	Emergency co-ordinator and fire equipment inspector	Construction Regulation 29
11.	Scaffolding Erectors, Inspectors and Supervisors	Construction Regulation 16
12.	General Machinery Inspector	General Machinery Regulations 2(1)
13.	Fall protection plan compiler. Fall protection plan supervisor	Construction Regulation 10
14.	Excavation supervisor and inspector	Construction Regulation 13
15.	Portable electrical tool and extension lead inspector	Construction Regulation 24
16.	Ladder inspector (only if ladder will be required on site)	General Safety Regulations 13(A)
17.	Temporary electrical installations inspector	Construction Regulation 22
18.	Hazardous & Chemical substance Inspector	Hazardous Chemical Substance Regulations 10
19.	Batch Plant supervisor	Construction Regulation 18
20.	Induction officer	Health & Safety Specification
21.	Construction plant operators Construction plant inspector(s)	Construction Regulation 23
22.	Explosive actuated fastening device controller and operator	Construction Regulation 21
23.	Stacking and Storage supervisor	Construction Regulation 28
24.	Traffic Control co-ordinator	OHSA Section 9

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8.3.3.4. Construction Health & Safety Officer

The appointment of a <u>part - time safety officer</u> is compulsory and must be registered with the SACPCMP (The South African Council for the Project & Construction Management Professions). Proof of registration or proof of application for registration accompanied by the persons CV is to be placed on file. **Fortnightly, site visits for the appointed safety officer is compulsory.**

8.3.3.5. Health & Safety Representatives

The Principal Contractor shall ensure at least one (1) Health and Safety Representative be nominated, elected and trained to carry out his / her functions in his / her area of responsibility. Irrespective of the amount of employees on site, a health & safety representative is compulsory for this project. This shall also be required in areas where less than fifty (50) employees are engaged in activity. The Principal Contractor shall ensure employees elected shall be designated in writing for a specific area and period of time. The designated persons shall be required to conduct monthly inspections within their area of responsibility, the records must be kept for Client auditing purposes and that deviations recorded are reported to the responsible supervisor within the designated person's area and before the end of his/her shift so that appropriate action can be taken.

The Principal Contractor shall convene a health and safety committee meeting monthly. All members required to be in attendance shall be notified of such meeting by means of a formal agenda which must be made available to the Client upon request.

The Principal Contractor shall ensure an attendance register and minutes are kept for auditing purposes by the Client. A copy of all minutes must be forwarded to the Client monthly. A copy of these minutes must also be placed on the SHE file on site. The designated person/s shall be permitted to participate in the Joint Health and Safety Committee Meetings.

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8.3.3.6. Mandatory Agreements

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

8.4. Subcontractors

- Each contractor will be required to co-operate with The Principal Contractor and provide information on risk assessments, method statements, etc. for inclusion in the Health and Safety plan.
- In addition, each contractor will comply with the site rules and any reasonable instructions formulated by The Principal Contractor Construction, in accordance with current relevant health and safety legislation.
- **Employees employed as part of a labour broker or local labour scheme will not be regarded as a sub-contractor but as full-time employees of the principal contractor. The principal contractor shall be responsible for all requirements in terms of the OHSA, COIDA, LRA and BCEA.**

Further requirement, when appointing subcontractors, are the following:

- To compile a Health and Safety plan which will comply with the Occupational Health and Safety Act and Regulations (No. 85 of 1993) of South Africa, as well as the required Construction Regulations of South Africa, and which addresses hazards identified and includes safe work procedures to mitigate, reduce or control the hazards identified. This plan needs to be signed-off by both parties, the principal contractor and the subcontractor. A signed copy of this plan must be provided to the principal contractor.
- The Subcontractor shall appoint a full-time competent employee in writing as the construction supervisor, with the duty of supervising the construction work for the whole duration thereof. A copy hereof must also be provided to the principal contractor.
- The subcontractor must take reasonable steps as are necessary to ensure co-operation between all other subcontractors to enable each of those contractors to comply with the provisions of the act and relevant regulations.
- To appoint all legally required persons in writing for his/her part/time of the project on the building site. And by not adhering to this, accepts full responsibility as contractor for the action(s) of such employees while on the building site.
- To compile a Health and Safety file consisting of all relevant documentation as referred to above, as well as any other documentation concerning the current Project, as mentioned above. This file must at all times be kept on the building site and must be available to the principal contractor and any other government organisation on request.
- **The subcontractor, must also provide the principal contractor with a copy of his/her company's "Letter of Good Standing" from his/hers Assurance Aid Company (i.e. Workman's Compensation Commissioner, or Federal Employer's Mutual Assurance Aid (Pty) Ltd. Or any other Legal Registered Assurance Aid Company).**
- All subcontractors must be appointed in writing by the Principal Contractor.
- Subcontractors must be provided with Health & Safety Specifications by Principal Contractor
- Subcontractors must provide safety plans to the Principal Contractor.
- All Subcontractors must hand Safety Files to the Principal Contractor
- All Subcontractors must be registered with the Compensation Fund
- Regular safety audits (once per month) shall be carried out by the Principal Contractor.
- Principal Contractor to ensure that all subcontractors submitting tenders have made provision for health & safety expenses.

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- Workers of subcontractors must have medical fitness certificates.
- All workers of subcontractors must be inducted.
- Work Stoppage: The work of any subcontractor may be stopped if the requirements are not complied with.

Please note: All contractor Health & Safety Plans must be approved, in writing by the Principal Contractor and proof thereof kept on the site health & safety files.

8.5. Occupation Health & Safety Policy

The Principal Contractor Health and Safety Policy are to be attached to the Health and Safety Plan and displayed on site.

8.6. Compensation of Occupational Injuries ad Diseases Act (COIDA)

The Principal Contractor shall ensure that a letter of good standing will be provided to the Client prior to work commencing on site for reference purposes as proof of good standing. This could also be a letter of good standing from FEM (Federated Employers Mutual). A copy of this letter must be on the SHE file kept on site.

The Principal Contractor shall ensure all other Contractors appointed; also comply with the above requirements defined in the COIDA.

8.7. Notification of Construction

The project duration is set for **6 months**. It is essential for The Principal Contractor to notify the Provincial Director of the Department of Labour, immediately upon receipt of the Letter of Acceptance of project commencement at least 7 days prior to commencement of work.

A copy of the notification letter and proof of submission thereof to the Provincial Director must be forwarded to the Client for the Client's records. A copy must also be placed on the SHE file in case it would be needed by Department of Labour.

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8.8. Medical Certificates

The Principal Contractor and contractors must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an occupational health practitioner in the form of Annexure 3 as per Construction Regulation 7(1)(g).

8.9. Induction, Training, Awareness and Competency

Training of personnel is a legal requirement and is a necessity and it is required of The Principal Contractor to provide to the Client a training Matrix which must be included in the Health and safety Plan to be submitted prior to work commencing on site.

8.9.1. Induction Training

Induction training must be attended by all The Principal Contractor / Contractors and must include their own requirements. The Principal Contractor must keep records of all attendees to the induction and provide records of the same during the Client or client's Representative site audits.

8.9.2. Awareness Training (Toolbox Talks)

Weekly awareness training must be conducted by the site foreman/safety officer and records of these must be made available to the Client upon request.

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8.9.3. Competency

Training identified through the HIRA Process and conducted through this process shall be kept on file as proof of competency and must be made available to the Client upon request. (This shall include operator competency training and assessments).

The Principal Contractor shall ensure that all personnel on site shall undergo a site induction course which is to be arranged and conducted by The Principal Contractor prior to commencement of activities on site. This could be short and informal, yet the member's names and ID's must be documented, kept on the SHE-file and a card issued to the members stating that he was inducted.

The Principal Contractor is to have available on-site proof of the appointed person's competencies in the form of certificates or proof of training.

8.10. Incident Investigation and Reporting

Should an accident or incident occur, The Principal Contractor shall conduct an investigation into the incident. The Principal Contractor must ensure that a competent person be appointed in writing to conduct the said investigation. The procedure to be followed must be in accordance with the OHSA requirement on the Annexure 1 – Recording and Investigation of Incident form.

The Principal Contractor shall ensure that the results of all investigations are communicated to the employees. The Principal Contractor must ensure that the investigation documents are kept for record purposes in accordance with the prescribed requirements set out in the OHS Act.
Should there be an incident; the Client Agent must be notified within 2-hours, of the occurrence. The Client reserves the right to participate in all investigations into accidents or incidents.

8.11. Checking, Reporting and Corrective Actions

The Principal Contractor shall comply with the requirements set out by the Client. **The Principal Contractor must provide to the Client a safety management action plan upon which the dates of inspections and training and awareness will be entered, conducted and monitored within 3 days of receipt of the report**. The Principal Contractor shall keep all records of inspections and investigations undertaken during the contract for the specified legal period as defined in the OHSA and Regulations. Copies of inspection reports must be placed on the SHE file for the notice of Department of Labour as well as for rectification of mistakes by the foreman on site.

The Principal Contractor must ensure that all the Health and Safety records, required by both the Occupational Health and Safety Act, 85 of 1993 and Regulations are kept for reference purposes and auditing by the Client or his appointed agent.

Further to the requirements set out above, The Principal Contractor must also maintain records that may be defined through the risk assessment process, for auditing purposes.

In accordance with the requirements set out in the Construction Regulations 2014 and the requirement set out in the Client Specification the Principal Contractor must ensure a copy of all Health and Safety records generated during the course of construction are handed over to the Client upon completion of construction.

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8.12. Penalties

Non-compliance with the Client safety specifications will result in work stoppages and possible expulsion from site until the problem has been remedied. **The principal contractor must achieve a minimum audit score of 80%. Failure to meet the threshold may result in site stoppages and re-audits. Any costs due to site stoppages whether risk or audit threshold related shall be borne by The Principal Contractor**. No delay claims may be made due to non-compliances.

9. Operational Health & Safety Requirements

9.1. Housekeeping

The Principal Contractor is to ensure that the good housekeeping principal is to be adhered to at all times. When it concerns safety on Construction Sites, housekeeping is considered the vital issue concerning accidents. Rubble and other demolished materials must be kept in a demarcated area as not to hinder the construction process or public areas. All rubble must be removed from site on a regular basis.

Note needs to be taken with regards to the Environmental aspects relating to waste management. Municipalities are currently on a drive to collect recyclable materials such as plastic, paper, polystyrene, glass, cardboard, tins and aluminium. It would be a best practice to have allocated areas for the recyclable materials and an area for non recyclable materials. Arrangements can be made with the Municipality for collection of the recyclable materials. Building rubble needs to be delivered to the allocated areas/dump sites.

9.2. Stacking and Storage

The Principal Contractor is to ensure that the good stacking and storage is adhered to at all times. The principal contractor must ensure the following:

- a competent person is appointed in writing with the duty of supervising all stacking and storage on the Project
- storage areas must be demarcated
- adequate storage areas must be provided; and
- Storage areas are kept neat, clean and under control.
- The base of any stack is level and capable of sustaining the weight exerted on it by the stack;
- The items in the lower layers can support the weight exerted by the top layers;
- Cartons and other containers that may become unstable due to wet conditions are kept dry;
- Pallets and containers are in good condition and no material is allowed to spill out;
- The height of any stack does not exceed 3 times the base unless stepped back at least half the depth of a single container at least every fifth tier or the approval of an inspector of the Department of Labour has been obtained to build the stacks higher with the aid of a machine. The operator of the machine must be protected against items falling from overhead or off the stack and no items may overhang
- The articles that make up a single tier are consistently of the same size, shape and mass;
- Structures for supporting stacks are structurally sound and able to support the mass of the stack;
- No articles are removed from the bottom of the stack first but from the top tier first;
- Anybody climbing onto a stack can and does do it safely and that the stack is sufficiently stable to support him or her;
- Stacks that are in danger of collapsing are broken down and restacked;
- Stability of stacks are not threatened by vehicles or other moving plant and machinery;

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9.3. Public Health & Safety

In the interests of public safety, The Principal Contractor shall ensure that all persons who may be affected by the work being conducted on site are informed and kept aware of the dangers, which may arise from the work being conducted on site.

- This awareness shall be in the form of posters and inductions for visitors to site and warning signs.
- It is of outmost importance to prevent unauthorised persons from entering the site. The area surrounding the site needs to be cordoned of with permanent barriers. Access to the construction area needs to be prevented by extending the barriers to these areas as required.
- The construction process needs to be maintained within these barriers as far as reasonably possible.
- **The site must be surrounded by barriers at all times. Barriers are to be constructed form a 1.8 meter high fencing, covered with shade netting.**
- **The sports facilities will remain active during the construction period, thus strict access control must be implemented.**
- **All visitors and contractor must be issued with induction cards/stickers.**

9.4. Visitors to a Construction Site

- All visitors to report to The Principal Contractor site office for induction to the site – see site visitor's information form.
- All visitors to sign the visitor's information document.
- No un-inducted visitors will be allowed on site.
- No visitors shall be allowed to access the construction site without wearing the necessary PPE.

9.5. Notices and Signs

The Principal Contractor must access the Health and Safety Signage requirements in conjunction with the Risk Assessment conducted and place the signage at strategic positions on the site works accordingly.

The Principal Contractor shall also maintain the signage to ensure its effectiveness at all times and under all conditions. Signage, which cannot be repaired, must be replaced.

Compulsory notices and signs shall include but are not limited to:

- First Aid
- Firefighting Equipment
- Emergency numbers
- Emergency Assembly route
- Toilets and welfare facilities
- Smoking
- Storage of hazardous and chemical substances
- Non-potable water
- No access
- Construction work in progress.

9.6. Emergency Procedures and Preparedness

Definition: means a plan in writing which, on the basis of identified potential incidents at the installation, together with their consequences, describes how such incidents and their consequences should be dealt with on-site and off-site.

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- The Principal Contractor shall establish a Fire Safety, Emergency Evacuation and Rescue Plan to ensure that the work on Site is undertaken to the highest standard of fire and other aspects of safety. This plan is to be submitted to the Client / Client's Representative for approval and a copy must be kept on the SHE file. The plan shall include the following detail:
- The role and responsibility of every individual in the work area on fire safety, emergency evacuation and rescue;
- General work area precautions, fire prevention, detection, protection and warning alarm systems;
- Fire fighting and rescue equipment including types of fire extinguishers;
- Escape and communications;
- Fire brigade access, facilities and coordination;
- Fire drills and training including the use of fire fighting equipment;
- Material storage including flammable liquids, gasses and waste.
- Relevant drawings indicating access and escape routes.
- The Principal Contractor shall ensure that all procedures, precautionary measures and safety standards stipulated in the Plan are communicated, implemented and complied with by all workers including other interfacing contractors on site.

9.7. Security

The principal contractor must adhere to the following minimum standards:

- Do not take fire arms or liquor onto the premises
- Do not allow your employees to remove anything from the premises.
- Do not allow any person to climb over or under any fence or barrier tape.
- The site needs to be secured after each shift as to prevent theft of any materials or equipment.
- If needed or instructed by the client a permanent security guard should be employed.
- Security on site is the responsibility of The Principal Contractor Construction.

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9.8. Traffic Accommodation

The Principal Contractor must ensure that appropriate and a sufficient number of road signs and flag persons be posted where applicable. These signs also be actively maintained to protect employees against traffic and to warn road users of the presence of construction activities and related risks next to and in the road surface. These signs should be repeated as actual construction work and risk are approached.

The Contractor must take note of the fact that transport equipment to be used on existing roads is limited to the allowed legal axle-loads in accordance with the Road Ordinance of the relevant Authority. The Contractor shall use temporary bypass roads where necessary. No additional payment shall be made in this regard and any additional costs shall be regarded to be included in relevant supplied rates.

9.9. First Aid Box and Contents

The Principal Contractor must ensure that all working areas are adequately provided with first aid attendants irrespective of the amount of employees on site. The First Aid attendant must be trained in accordance with the requirements set out in the OHSA with a recognised and accredited service provider as defined above. The First Aider must be appointed in writing.

The Principal Contractor must ensure that the first aid box is adequately equipped at all times and its location is known to all. A sign must be erected on the site of the first aid box e.g. a container.
The Client shall inspect the contents of the first aid box and dressing record from time to time.

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9.10. Personal Protective Equipment (PPE)

The Principal Contractor shall comply with OHSA requirements to provide PPE.

The Principal Contractor shall through the Risk Assessment process identify the specific PPE needs per activity and then issue the PPE accordingly. (Reference to the OHSA General Safety Regulation 2 – Employer to provide Personal Protective Equipment). Should PPE be lost or stolen, then the employee will be issued with a new set of PPE. The Principal Contractor must ensure adequate training in the use of PPE and its maintenance is provided to all employees, and proof of training shall be kept at the office for auditing purposes

9.11. Welfare Facilities

The Principal Contractor shall ensure that adequate facility is provided for the personnel on site. The area shall provide the following:

- Sufficient seating;
- Seating under cover;
- Protected change rooms;
- Toilets;
- Hand Wash facility;
- Potable water.
- No food preparation shall be permitted on site and designated eating areas will be made to allow adequate seating.
- Waste bins must be provided with plastic liners and must be strategically placed and cleared regularly.

9.12. Working in Confined Spaces

The Principal Contractor shall ensure the following criteria are adhered to when considering work in confined spaces:

- Sufficient ventilation is made available/opening the confined space at least 15 minutes before entering.
- A gas monitor is used to measure for any flammable or toxic substances.
- Ensure management does a headcount of all persons before and after work is done.
- Persons entering a confined space is issued with the required PPE (Safety harnesses, ropes, masks etc.)
- Persons working in the confined space will not remain in such space for more then an hour.
- Provide lighting for the space to be worked in.
- Conducts confined space training with all employees working in or around the space.
- Issues confined space entry permits
- Holds a confined space entry register
- Maintains PPE registers applicable to the confined space.
- Conducts a risk assessment of the confined space.
- Holds incident registers.

9.13. Working in Inclement Weather

The Principal Contractor must implement early warning systems to identify and mitigate construction during inclement weather. This includes work conducted during:

Electrical storms

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- Work will be limited to work inside buildings.
- No working at heights or external works

Rain

- No working at heights or external works
- No electrical work where it can be exposed to wet conditions will be conducted.

Excessive Winds

- No working at heights or external works

The principal contractor may use the following guideline for work during inclement weather:

Weather type	External Work
Lightning	Stop all activities
Light rain	Stop all activities
Heavy rain	Stop all activities
Wind <25 km/h	Full use
Wind 30-35 km/h	Assess conditions
Wind >35 km/h	Stop all activities
Light mist	Full use
Heavy mist	Full use
Hail	Stop all activities
Heat > 40 degrees Celsius	Stop all activities

9.14. Occupational Hygiene

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Construction workers are often exposed to occupational health hazards and risks that can lead to medical conditions like skin disorders, hearing loss and cancers. It is thus important that all possible health and hygiene measures are placed on site by The Principal Contractor to prevent exposure to any unhealthy conditions. Where required the client may instruct the contractor to obtain the services of the Hygienist for monitoring purposes.

9.15. Alcohol and Drugs

The following basic principles must be adhered to:

- No alcohol or any drugs are allowed on site.
- No person **who appears under the influence** of alcohol or any intoxicating substance must be allowed on site.
- Any person suspected of being under the influence must be sent home and the normal disciplinary procedure followed.
- Prescription drugs / medication are a separate issue and must be dealt with accordingly. (Foreman on site to be informed).

9.16. Site Rules

The Principal Contractor will be required to establish site rules. These rules must be communicated to all visitors and employees and must be promptly displayed.

The client holds the right to change these rules as required.

9.17. Hazardous and Chemical Substances (HCS) / Flammable Substances

The Principal Contractor must ensure the necessary training and information regarding the use and storage of HCS is provided to all personnel, and that the use and storage of HCS is carried out as prescribed by the HCS Regulations.

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Furthermore, The Principal Contractor must ensure that all HCS brought to site have a Material Safety Data Sheet (MSDS) and the users are made aware of the Occupational hazards and precautions that need to be taken when using the chemical.

The first Aider must also be made aware of the MSDS and how to treat HCS incidents appropriately.

Access to all HCS records shall be afforded to the Client at all times.

9.18. Construction Plant and Machinery

The Principal Contractor shall ensure the following criteria are adhered to when considering Construction plant and machinery

- All plant must comply with the OHS Act requirements in relation to operation and maintenance thereof.
- Records of service and maintenance of the vehicles must be of a high standard at all times.
- All plants shall be fitted with back-up alarms and audible indicating devices.
- The Principal Contractor shall ensure that all construction plants moving parts are adequately protected.
- Pre-start inspections shall be conducted on all motorised equipment daily; deviations of such inspections shall be recorded.
- Construction plant identified for use shall be operated by a trained and authorised operator only.
- All construction plant shall be operated under the direct supervision of a person competent to identify potential hazards in the work he is conducting.
- Work involving the use of construction plant shall be conducted in accordance with an approved Risk Assessment.
- The Principal Contractor shall ensure all operators are equipped with the necessary PPE namely; safety shoes, overall, safety glasses, gloves and hardhats.
- All Plant shall be fitted with an extinguisher where practicable.
- Washing shall be conducted in the designated washing areas.
- The Principal Contractor shall ensure that all the equipment moving to and from site is adequately secured, and that all The Principal Contractor abide by this requirement.

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9.19. Hired Plant and Machinery

The Principal Contractor shall ensure the following criteria are adhered to when considering hired plant and machinery:

- Hired plant must be checked for safety compliance prior to being accepted for use on site. Should a deviation be identified, the Client reserves the right to order the removal of such equipment from site.
- Should hired equipment be accompanied by an operator, The Principal Contractor shall ensure that the operator's competency be verified and the operator undergoes an induction training session.
- The Principal Contractor shall ensure the operators of hired plant attend weekly toolbox talks in conjunction with The Principal Contractor site personnel.
- The Principal Contractor shall ensure that all operators are equipped with the required PPE before commencing work on site.

9.20. General Machinery

In accordance with General Machinery Regulation 2(1), The Principal Contractor shall:

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- Ensure a competent person be appointed as defined in the above clause from the Occupational Health and Safety Act, 85 of 1993 and Regulations, to service and maintain all machinery in use on site.
- The Principal Contractor shall appoint additional competent persons to assist the competent person mentioned above in accordance with General Machinery Regulation 2(7) (a), as and when required.
- The Principal Contractor shall ensure that records are maintained of all services conducted.
- The Principal Contractor shall provide to the Client a copy of the above appointments prior to work commencing on site.

9.21. Vessels under Pressure (VuP)

The Principal Contractor shall ensure they comply at all times with the requirements of Vessels under Pressure Regulations, with specific reference to the following:

- Ensuring all Equipment owned and hired-in Vessels under pressure, comply with the 36-month pressure vessel inspection, and a certificate of testing is available on site for inspection by the Client.
- Ensuring that all personnel who shall use this equipment are competent and trained.
- Ensuring the users of this equipment is issued with the required PPE.
- Ensuring the area is adequately identified as a noise area and warnings are posted if applicable.
- Ensuring daily pre-start inspections are carried out on all the equipment and the findings recorded.
- Ensuring the correct fire prevention and fighting equipment is available at all times.
- Ensure proper use and storage of gas during construction which may include trolleys upon which bottles are moved and chains to prevent bottles falling over.
- The inspection of these activities will be included in the Client's monthly safety audits.

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9.22. Welding

The Principal Contractor shall ensure the following criteria are adhered to when considering welding:

- A competent person to supervise such work is appointed.
- The welder/cutter is adequately trained.
- Cables and electrodes are isolated.
- The workplace is sufficiently screened off from other employees or bystanders.
- No work is done in wet or damp conditions or in any area which is deemed by a competent person as unsafe or inadequate to conduct such work.
- Pressure cylinders are transported in such manner that it does not damage or bump against each other.
- Adequate fire protection is available in the working area.
- Hot works permits are issued before work is conducted.
- Flashback resistors are well maintained and inspected.

9.23. Fire Equipment and Protection

The Principal Contractor shall ensure that all fire equipment to be used on site comply with the following:

- Extinguishers shall be placed in positions to ensure fast and easy access is maintained at all times.
- Placement of all extinguishers shall be depicted with the required pictograms.

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- Extinguishers shall be serviced once annually, and after discharge or visible signs of depressurisation.
- The Principal Contractor shall ensure all employees are adequately trained in the safe use of the extinguishers and proof of training is kept on site for inspection by the Client.
- The Principal Contractor shall ensure a person is appointed to inspect the extinguishers on a monthly basis and the results of which are to be entered into a register designed for that purpose.
- Where hot work is done a fire extinguisher must be present at all times.

9.24. Electrical Installations

The Principal Contractor shall ensure all electrical installations are done in accordance with the electrical installation regulations.

The Principal Contractor shall ensure that:

- Earth leakage system will be tested monthly.
- Distribution boards to be tested weekly.
- Malfunctions shall be repaired immediately or replaced.
- Responsible person for testing to be appointed in writing.
- Record of all inspections to be kept.
- All distribution board shall be indicated with the correct signage.
- Lighting shall be so positioned as not to interfere with construction activities.
- Lighting shall be provided to ensure adequate visibility under all conditions.
- Lighting and electrical installations shall be weather proof.
- A COC for any electrical installations must be available on the health & safety file.
- The electrical contractor shall provide a copy of his/her DoL registration as electrical contractor/electrician.

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9.25. Portable Electric Tools / Explosive Power Tools

The Principal Contractor shall ensure the following procedure is adhered to regarding Portable Electrical Tools and Explosive Powered tools:

- Minimum compliance with legislation.
- Only competent persons shall be permitted to conduct routine and monthly inspections on the equipment.
- Persons competent to inspect the equipment must be appointed in writing.
- Persons must be trained to operate such equipment and must be appointed and shall be the only authorized person to operate the equipment.
- The Principal Contractor shall ensure operation of the equipment is in accordance with an approved Risk Assessment and Safe Working Procedure.
- All users shall undergo regular awareness training to ensure compliance.
- The Principal Contractor shall ensure the required PPE and clothing is provided and maintained.

Record of inspections must be kept in a Portable Electrical/Explosive Power Tool Register

9.26. Excavations

The Principal Contractor shall ensure the following criteria are adhered to when considering excavations:

- SABS Standard 1200 for earth works need to follow at all times.

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- All excavations deeper than 1.5 meters need to be shored where the angle of the excavation cannot be battered back to the required angle as to prevent its collapse.
- Excavated materials need to be placed at a safe distance from the excavation as not to cause a collapse. Shoring and excavations needs to be checked daily by a competent appointed excavation supervisor and record must be kept on the safety file.
- Where the depth of the excavation is too deep, the excavation needs to be stepped as to prevent its collapse.
- Where existing services need to crossed the contractor is to ensure that these services do not sustain any damage from the work being done. The safe work procedure for these tasks must be in line with the specification from the project engineer. Where Bialy Bridges or any other temporary structures are used to secure and protect existing services, inspections

9.27. Ladders

Use of ladders must comply with the following:

- A register must be kept of all ladders used on site.
- A Ladder Inspector must be appointed in writing with the responsibility of numbering and checking ladders monthly.
- Record of all monthly inspections must be kept on the Safety File.
- Ladders must be fitted with non-skid devices at the bottom end.
- Ladders must be secured to a structure if another person is not available to assist in holding the ladder in place.

9.28. Scaffolding

All access scaffolding used on this project will comply with the requirements as set out in the SANS 10085 code of practice for scaffolding.

- All scaffolds shall be erected under the control of a person trained and competent to conduct scaffold erection.
- A Scaffold Erector must be appointed in writing.
- Competency of such a person may be requested by the Safety Agent at any time.
- All persons involved in the erection of scaffold must make use of the required ppe.
- Scaffold must be fully boarded with toe-boards on all working levels.
- Scaffold boards must be removed or tied down during windy and shutdown periods.
- Safe access must be available for all persons to all levels.
- Guard rails must be fitted to all working levels.
- All access points to scaffold must be depicted with the required signage. (Safe or unsafe for use).
- A scaffold Inspection must be appointed in writing. (This may not be the same person as the scaffold erector).
- All scaffold must be checked daily.
- Record of these inspections must be kept on the Safety file.
- Where a contractor is used to erect scaffold, a certificate must be obtained stating that the scaffold is safe for use. A copy of the certificate must be placed on file for audit purposes.
- Only the scaffold erector will have the authority to make changes to the existing scaffold as these changes must be signed off again.

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9.29. Roof Work

Roof Work needs to comply with the following:

- No work will be done during inclement weather.
- Proper edge protection must be in place or where this is not possible a fall protection system must be implemented.
- Safe access to the roof must be available.
- All employees to wear the required ppe.
- All openings or areas that are not of sufficient strength to withstand the loads imposed on them must be demarcated and signed.
- Ensure that openings are sufficiently covered to withstand the loads imposed.
- All materials to be secured before the end of the shift.
- A safe procedure is in place for the lifting of materials to the roof.

Roof works must be trained on the approved fall protection plan.

9.30. Edge Protection and Penetrations

All edges and penetrations must be clearly identified and sufficient edge protection fitted to such fall risk areas. Edge protection compatible with the temporary works systems must be used for this purpose. The principal contractor must ensure that edge protection comply with the following:

- Edge protection is fitted to any fall risk area of 750mm or higher.
- The edge protection has sufficient strength to reasonably carry 100kg.
- Edge protection installed are between 1000mm and 1200mm high.
- A method statement for the erection and management of edge protection is available and communicated.
- **Identify the materials which will be used for edge protection. Danger tape and netting are not sufficient to be used for edge protection**.
- Where a contractor is responsible for the installation of edge protection during the temporary works, the process for maintenance and replacement of edge protection must be defined to ensure exposed edges are protected at all times.
- **Where edge protection are removed due to construction activities, proper and safe control measures are implemented to ensure the safety of employees.**
- All penetrations must be properly covered and the boards used for this purpose are secured to the structure.
- Training for the removal, installation and maintenance of edge protection must be conducted with all employees.
- No material, rubble or equipment may be stored on edges.

9.31. Working at Heights

The Principal Contractor shall ensure the following criteria are adhered to when considering working in an elevated position:

- As far as is practicable, any person working in a fall risk position will work from a stable platform, ladder or other device that is at least as safe as if he or she is working at ground level and whilst working in this position be wearing suitable fall arrest equipment to prevent the person falling from the platform, ladder or other device utilised. This fall arrest equipment will be, as far as is possible, be secured to a point away, as high as possible above the person, from the edge over which the person might fall and the lanyard must be of such a length and strength that the person will not be able to move over the edge or fall onto the next level.

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- Alternatively any platform, slab, deck or surface forming an edge over which a person may fall shall be fitted with suitable guard rails at two different heights as prescribed in SANS 10085 code of practice for the design, erection, use and inspection of access scaffolding.
- Where the former is not possible the person must be provided with a full body harness that must be worn and attached above the wearer's head at all times and the lanyard must be fitted with a shock absorbing device or the person must be attached to a fall arrest system.
- Employees working in fall risk positions must be trained to do this safely and without risk to their or other person's health and safety.
- Where work on roofs is carried out, the risk assessment must take into account the possibility of persons falling through fragile material such as old roof sheeting or penetrations.
- **Updated records confirming the medical fitness of employees working in fall risk positions must be kept on the health and safety file at all times.**
- **All employees working at heights must be in possession of a working at heights training certificate.**

9.32. Structures

The Principal Contractor shall ensure the following criteria are adhered to when considering Structures:

- Competent person must be appointed in writing.
- Only skilled employees are allowed to erect structures and that the skills of these employees are being verified at regular intervals.
- Steps are taken to ensure that no structure becomes unstable or collapses due to construction work being performed on it or in the vicinity of it.
- No structure is overloaded to the extent where it becomes unsafe.
- Information on known or anticipated hazards relating to the construction work and the relevant information required for the safe execution of the construction work is available
- A geo-scientific report (where applicable) is available.
- The maximum load the structure is designed to bear is identified.
- The methods and sequence of the construction process.
- All drawings pertaining to the design are on site, utilised and available for inspection.
- The competent person must undertake regular inspections and keep record in writing of the inspections.

9.33. Lifting Equipment and Tackle

The principal contractor must ensure that all lifting equipment is designed and constructed in accordance with the manufactures or designers' specifications as well as generally accepted technical standards and operated, used, inspected and maintained in accordance with the manufactures requirements as well as that of the Driven Machinery Regulation 18 of the OHSA.

The principal contractor must further ensure that the following requirements from the Driven Machinery Regulations is complied with.

- Lifting equipment to be clearly and conspicuously marked with the maximum mass load (MML) that it is designed to carry safely. When the MML varies with the conditions of use, the table of maximum loads should be used by the driver/operator.
- Each winch on a lifting machine must at all time have, at least, three full turns of rope on the drum when the winch has been run to its lowest limit;

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- Lifting equipment be fitted with a brake or other applicable device capable of holding the MML. This brake or device must automatically prevent the downward movement of the load when the lifting power is interrupted.
- Lifting equipment fitted with a load limiting device that automatically arrest the lift when the load reaches its highest safe position or when the mass of the load is greater than the MML.
- Every chain or rope on a lifting machine that forms an integral part of the machine must have a factor of safety as prescribed by the manufacturer
- Every hook or load attaching device must be designed as such or fitted with a device that will prevent the load from slipping off or disconnecting.
- Every lifting machine must be inspected, and load tested by a competent person every time it has been dismantled and re-erected and every 12 months after that. The load test must be in accordance with the manufacturer's prescription or to 110% of the MML in addition all ropes, chains, hooks or other attaching devices, sheaves, brakes and safety devices forming an integral part of a lifting machine must be inspected every 6 months by a competent person.
- All maintenance, repairs, alterations and inspection results must be recorded in a log book and each lifting machine must have its own log book; and
- No person may be lifted by a lifting machine not designed for lifting persons.

10. Health & Safety Costs to be considered by the Principal Contractor

The principal contractor must include all health & safety costs within the Bill of Quantities. Sub-Contractors required to tender for the project will be required to make sufficient provision for the costs of implementing and maintaining a health & safety management system. These costs must be submitted with tender.

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No.	Item	Details	Price budget by Contractor
1.	Personal Protective Equipment (PPE)	▪ Safety footwear ▪ Reflector vest ▪ Overalls ▪ General PPE – goggles, dust masks etc.	
2.	H&S Induction Training	▪ All personnel and visitors are to be inducted.	
3.	First Aid Management	▪ First Aid Box ▪ Fist Aider on site permanent	
4.	Excavations, earthworks and trenching	▪ Orange barrier fencing around excavations. ▪ Daily inspections.	
5.	Access control, security and site hoarding	▪ Access gate – separate access gate for pedestrians and vehicles ▪ Chains and locks ▪ Signage and notices ▪ External site hoarding (1.8 meter shade net fencing) ▪ Guarding/fencing along excavations.	
6.	Traffic and pedestrian management	▪ Applicable signage	

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7.	H&S Officer	▪ Monthly rate for a part-time safety officer (Principal Contractor).	
8.	Fire Fighting Equipment	▪ Fire extinguishers ▪ Flammable store ▪ Fire extinguishers in all vehicles and plant.	
9.	Electric compliance	▪ COC to be obtained if temporary supply will be installed.	
10.	Welfare facilities	▪ Toilets – separate toilets for men and women ▪ Soap ▪ Change area ▪ Eating area ▪ Drinking water ▪ Lights ▪ Sitting area ▪ Toilet paper	
11.	Medical Assessments of personnel	▪ All personnel to have a valid Annexure 3 medical.	
12.	Management and Supervision	▪ Full-time construction manager ▪ Full-time supervisors to be appointed ▪ Each contractor to appoint own full time supervisor ▪ Full-time HSE Representative	

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Annexure 1 – Hazardous Biological Agents

1. Introduction

Covid-19 is an infectious respiratory illness that effects a person's lungs and breathing abilities. The South African government has declared the epidemic a national disaster. Employers need to ensure that employees are protected and ensure minimal exposure to the virus. This addendum is aimed at standard operating procedures to be implemented in the workplace as required by The Code of Good Practice: Managing Exposure to SARS-CoV-2 in the Workplace 2022 & HBA Regulations 2022.

2. Objective

The objective of this addendum is to enable:

- To prevent the spread of the virus in the workplace.
- Early and timeous identification and diagnosis of workers at risk of COVID-19 infection.
- Early referral for appropriate treatment, care and timeous return to work of affected workers.
- The protection of other unaffected workers, visitors and clients.
- To be legally compliant with Government Regulations.

3. Standard Operating Procedures

This standard operating procedure is compiled for different stages in the work area. It is based on guidelines from the National Institute of Communicable Diseases (NICD), National Institute of Occupational Health (NIOH) and Department of Employment and Labour (DEL) that are aligned with guidelines received from the World Health Organisation and will apply to any worker, contractor, sub-contractor and visitors. The standard operating procedure is intended to introduce measures to protect employee's welfare on all levels of the company.

Contractors should adhere to social distancing measures as recommended by government regulations and ensure employers, individuals and visitors make every effort to comply with such regulations. Where it is not possible to comply with social distancing procedures the contractor will consider the immediate importance of the particular activity.

Employees presenting symptoms of Covid-19 will be further screened by a designated person to determine his/her further attendance at work.

Symptoms of Covid-19 may include:

- Fever or chills (body temperature above 37.5°C)
- Tiredness
- Dry cough
- Shortness of breath (usually from non-intensive activities like tying shoelaces)
- Sore throat
- Aching body (accompanies by fever/chills)

Additional symptoms may include:

- Nasal congestion
- Runny nose
- diarrhoea

If any of these symptoms are present in employees' staff must report to management immediately. Management will consult with medical staff or approach medical staff via the Covid-19 hotline to determine further tests.

Should an employee, employee of a contractor or visitor test positive for Covid-19 the workplace must disinfected accordingly. Workers who have been diagnosed with COVID-19 and are symptomatic shall inform their employer and isolate themselves for the period as

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recommended by the National Department Health unless a longer period is recommended by a medical practitioner. When applicable the employee shall be placed on paid sick leave in terms of section 22 of the BCEA or if the employee's sick leave entitlement under the section is exhausted, make application for an illness benefit in terms of section 20 of the Unemployment Insurance Act, 2001 (Act No. 63 of 2001). Take steps to ensure that the employee is not discriminated against on grounds of having tested positive for SARS-CoV-2. If there is evidence that the worker contracted COVID-19 arising out and in the course of employment, the employer shall lodge a claim for compensation in terms of the Compensation for Occupational Injuries and Diseases. Employer shall take measures to determine the vaccination status of their workers. Require workers to immediately inform their employer if they experience any of the symptoms associated with COVID-19. If an employee informs their employer that they experience COVID-19-related symptoms, the employer may require the employee to be tested for COVID-19 before permitting the employee to enter the workplace or report for work. The afore mentioned does not apply to workers who report the presence of COVID-19 symptoms between one to three days after vaccination.

The following standard operating procedures will serve as guideline for the contractor:

3.1 Vaccination of Employees

Employer shall notify employees of the obligation to be vaccinated:

- counsel the employee on the issues related to vaccines; permit the employee, at the employee's request, to consult a health and safety representative, a worker representative or a trade union official; give administrative support to the employees to register and to access their COVID-19 vaccination certificates on the EVDS Portal for SARS-CoV-215; and give the employee paid time off to be vaccinated and provide transport for the employee to and from the nearest vaccination site.
- Should an employee suffer a vaccine adverse event that renders them unable to work, the employer must on receipt of a medical certificate, give the employee paid time off to recover if the employee is no longer entitled to paid sick leave in terms of the BCEA or any applicable collective agreement; or subject to any regulations in respect of a COVID-19 Vaccine Injury No - Fault Compensation Scheme, lodge a claim for compensation in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993.
- If an employee refuses to be vaccinated, the employer must counsel the employee and, if requested, allow the employee to seek guidance from a health and safety representative, worker representative or trade union official; take steps to reasonably accommodate the employee in a position that does not require the employee to be vaccinated.
- If an employee produces a medical certificate attesting that an employee has contra-indications for vaccination, the employer may refer the employee for a medical evaluation for confirmation at the employer's expense.
- If the employer accepts the medical certificate or the employee is referred to medical evaluation and that evaluation confirms that the employee has contra-indications for vaccination, it must accommodate the employee in a position that does not require the employee to be vaccinated

3.2 Refusal to Work

An employee may refuse to perform any work if circumstances arise which, with reasonable justification, appear to that employee or to a health and safety representative to pose an imminent and serious risk of their exposure to SARS-CoV-2 virus infection. An employee who has refused to perform work must, as soon as is reasonably practicable, notify the employer, either personally or through a health and safety representative, of the refusal and the reason for the refusal. Every employer that has been notified must after consultation with the health and safety committee or, if there is no committee, a health and safety representative, endeavour to resolve any issue that may arise from the exercise of the right to refuse to work. If the matter

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cannot be resolved internally, notify an inspector of the issue within 24 hours, and advise the employee and all other parties involved in resolving the issue that an inspector has been notified and comply with any prohibition issued by an inspector in terms of section 30 of the OHSA. No person may benefit from, or promise any benefit to any person for, not exercising his or her right. No person may threaten to take any action against a person because that person has exercised or intends to exercise the right to refuse to work. No employee may be dismissed, disciplined, prejudiced, or harassed for refusing to perform any work.

3.3 Exposure Monitoring of Covid-19 / HBA

A monitoring and exposure programme shall be established and maintained which must be in accordance with a validated procedure, sufficiently sensitive and proven effective; conducted by a competent person; monitoring conducted at intervals determined by the risk assessment; conducted when any changes occur which may affect the exposure; recommendations identified in the monitoring repost shall be considered and a documented plan shall be developed in response to the recommendations.

3.4 Medical Surveillance

A documented system of employee medical surveillance shall be established and maintained which is to be overseen by an occupational health practitioner if the results of the HBA risk assessment indicate employee/s exposure to HBA's, the employee's exposure to the HBA is hazardous to his / her health; an initial health evaluation should be carried out by an occupational health practitioner immediately or within 14 days of an employee commences work; periodic medical examinations must be conducted at periods specified by the occupational health practitioner.

3.5 Prevention and Controls of Exposure to Covid-19/HBA

Risk of exposure to HBA's is to be reduced through biological containment and medical fitness restrictions; standard precautions shall include hand hygiene, gloves, face or eye protection, protective clothing, respiratory protective equipment, and other relevant process safety equipment. Implement safety measures identified by the HBA risk assessment, limiting the number of workers in the workplace, implement control measures, viz. barrier isolation, exhaust ventilation, general ventilation, air and surface sanitization, access control to prohibit unauthorised access, immediate access to emergency personal or environmental disinfection.

3.6 Maintenance and verification of control measures, plant machinery and facilities.

A documented risk-based protocols are developed and maintained by a competent person; all control measures plant machinery and facilities are maintained in good working order.

3.7 General Standard Procedures for Workforce

- Every worker is obliged to comply with the employer's plan.
- Employees shall obey any lawful instruction regarding the prevention of an uncontrolled release of an HBA; environmental and health practices, personal hygiene, and good housekeeping; appropriate use of PPE; appropriate wearing of samplers to measure exposure to airborne HBA's; disposal of materials containing HBA's; the disinfection and decontamination of the workplace; reporting during normal working hours for such medical examination or tests; immediately report to the employer or health and safety representative regarding possible exposure
- All site inductions, toolbox talks, and additional communications on covid-19 needs to be done.
- No sharing of cutlery, crockery or anything that can facilitate the spread of the virus will be permitted.

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- If an employee came into contact with another person that has tested positive, must be tested accordingly.
- Avoid touching your eyes, nose and mouth where possible.
- Cough or sneeze in a tissue which must be disposed of.
- Wash your hands as frequent as possible for no less than 20 seconds. If not available use sanitizer.
- Do not crowd or gather if it can be avoided.
- All common surfaces must be sanitized regularly.
- Tools and equipment will be sanitized regurarly.
- If you do not feel well, do not come to work, inform your manager.
- If you become ill during working hours, report this to your manager immediately.
- measures to be implemented in respect of the vaccination of its employees and, considering the intervals between vaccinations, the dates by which the employees must be fully vaccinated.
- Workplace protective measures required to be taken in terms of the HBA Regulations including personal protective equipment and ventilation.
- Social distancing measures including minimising the number of workers in the workplace through rotation, staggered working hours, shift, and remote working arrangements.
- PPE measures, personal hygiene measures such as the wearing of facecloth masks, barriers, hand washing, sanitisers and surface disinfectants, any special measures to mitigate the risk of infection or serious illness or death in respect of individual employees at increased risk such as reducing the numbers in and the duration of occupancy in meeting rooms etc.
- Notify of the contents of the CoP and its plan and the way it intends to implement it.
- Provide workers with information that raises awareness in any form or manner, including, where reasonably practicable, leaflets and notices placed in conspicuous places in the workplace informing workers the dangers of the virus, the manner of its transmission, the measures to prevent infection or limit transmission such as personal hygiene, social distancing, use of facecloth masks and cough etiquette.
- The symptoms associated with COVID-19 as described from time to time by the clinical guidelines published by the National Institute of Communicable Diseases.
- The nature of vaccines used in the country, the benefits associated with these COVID-19 vaccines, the contra-indications for vaccination and the nature and risk of any serious side effects.
- The workplace is to be well ventilated by natural or mechanical means; Where areas of the workplace have poor ventilation, ventilation must be improved through natural ventilation including opening doors, windows and vents and where possible cross ventilation in preference to single-sided ventilation; ventilation using fans, air conditioners or mechanical ventilation; where reasonably practicable, have an effective mechanical ventilation system that is technically assessed to be functioning effectively and in accordance with the manufacturer's instructions and is regularly serviced and maintained by a competent person in particular that ventilation filters are cleaned and replaced in accordance with the manufacturer's instructions; supplies fresh air at an adequate ventilation rate; does not have ventilation vents that feed-back through open windows; does not recirculate the air; and if appropriate have High Efficiency Particulate Air Filters; and ensure that ventilation is in accordance with the NDOH Guidelines for ventilation to prevent the spread of SARS-CoV-2 virus.
- Employer shall check regularly on the websites of the National Department of Health, National Institute of Communicable Diseases, and the National Institute for Occupational Health whether any specialised PPE for COVID-19 is required or recommended in any guidelines based on the nature of the workplace or the nature of a worker's duties and the associated level of risk. Employees are to receive information, instruction, training and supervision on the use and disposal of PPE. Previously used PPE is to be disinfected before re-use. Separate containers or storage facilities are provided for PPE not being used and is stored in a demarcated are under controlled access. Cleaning of PPE to be re-used must be done to avoid cross-contamination.

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3.8 Site Access and Egress Points

- Different access and exit times will be introduced to avoid congestion and to manage access to the site.
- Social distancing must be enforced at all egress points. The number of access points must either increase to reduce congestion or decrease to enable strict monitoring.
- Employees are to keep a distance of two-meters while waiting for access.
- Emergency Exits to be available.
- Require all employees to sanitize or wash their hands for 20 seconds using soap and water when entering and leaving the site.
- Regularly clean common contact surfaces such as turnstiles.
- Signage such as floor markings to maintain social distancing while queuing.
- Notification signage to be displayed to identify egress points, testing points and guidelines to follow with regards to Covid-19.

3.9 Travel to and From Work

Where possible employees will travel to site alone using their own transport. If not possible:

- Travel to and from work should be shared with the same individuals and with the minimum number of persons per vehicle as prescribed by National Government.
- Good ventilation will reduce the risk of transmission in the vehicle.
- All vehicles should be cleaned and sanitized regularly with gloves and cleaning products. Emphases will be on handles, steering wheel, seats and armrests.
- Management will be responsible for providing transport to an ill worker.

3.10 Driving at work and Between Destinations

When travelling at work or between destinations, employees should be urged to travel alone. If employees have no option but to share a vehicle, in the case of deliveries, pickups, transport of material or emergencies employees will be required to:

- Team up so the same individuals do all required driving.
- Where possible employees must maintain a safe distance from each other.
- Good ventilation should be maintained.
- Vehicles must be cleaned after each trip using the required PPE and cleaning products.

3.11 Handwashing

The following procedures pertaining to handwashing should be followed on site:

- Allow regular breaks to wash hands.
- Provide additional hand washing facilities to the usual welfare facilities.
- Ensure adequate supplies of soap and fresh water are readily available and kept topped up at all times.
- Provide hand sanitizer where hand washing facilities are unavailable.
- Regularly clean the hand washing facilities.
- Provide suitable and sufficient rubbish bins for hand towels with regular removal and disposal.
- Display the guideline posters for hand washing and sanitizing at all washing/sanitizing stations

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3.12 Welfare Facilities and Toilets

- Welfare facilities such as toilets, showers, basins and changing areas to be made available.
- Welfare facilities to be cleaned and sanitized regularly.
- Restrict the number of persons using one toilet or facility. Occupancy details per toilet or facility to be communicated with employees.
- Adequate amounts of toilets to be provided.
- Chemical toilets and portable toilets to be cleaned more frequently.
- Social distancing to be enforced when using welfare facilities.
- The sizes of the facilities to be adjusted as possible to accommodate social distancing.
- Where the sizes are limited, occupancy must be limited.
- Suitable storage areas must be provided to ensure no contamination of personal belongings.
- Contact with other employees must always be avoided.
- Display relevant posters pertaining to Covid-19, handwashing methods, better hygiene methods and the company's Covid-19 Policy in or outside all welfare facilities.
- The above-mentioned procedures must be monitored by site management.

3.13 Resting and Eating Areas

- Employees should be encouraged to bring their own food to work where possible.
- Employees should not share food.
- Employees required to wash their hands for a minimum of 20 seconds with soap and water before entering the resting and eating areas.
- Sizes of resting and eating areas to be increased to accommodate space for social distancing.
- Employees to be encouraged to use utensils to eat and not eat with their hands.
- Distribute break times to reduce congestion.
- Tuck shops or informal sales of food only to be allowed under strict monitoring.
- Drinking water to be provided. Employees should be encouraged to provide their own bottles or cups and to store such items with their personal belongings when not used.
- Tables, chairs and benches to be wiped clean and sanitized after use.
- All rubbish must be removed from eating and resting areas once employees leave.
- Employees should be encouraged not the share any personal items e.g. cellphones, earphones, radios etc.

3.14 Work Activities and Working in Close Contact

Normal working activities to resume on site under strict monitoring and measurements. Site work should be planned accordingly by management to ensure the least number of employees is needed in one area to complete tasks. The following measures pertaining to normal work activities should be considered:

- Social distancing of 1 meter should be enforced in all possible areas of the site.
- Where close contact is required, management in consultation with the site Safety Officer must determine the importance of the task and decide on whether the activity should proceed or not. Should the activity be detrimental to the continuation of the project, management must implement mitigating measures to reduce the risk if transmission.
- Avoid sharing the same two-way radios.
- The number of employees in one working area to be limited and controlled by management.

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- Visitors must only be permitted on site should it be vital to the completion of the project.
- Where possible, employees should be split into teams to work different shifts to limit transmission and possible contamination of other employees.
- Administrative personnel e.g. Quantity Surveyors to be limited on site and should be encouraged to work remotely when possible.

4 Sub – Contractors

Sub-contractors will be required to communicate all the required procedures and guidelines with their personnel. No behavior or standard operating procedures that fall outside the scope of the Principal Contractors Health & Safety Plan should permitted on site. Should any sub-contractor require other methods of work a standard operating procedure must be handed to site management for approval.

5 Documentation

The following documentation is required for the site Health & Safety File. All documentation must be communicated to the workforce and proof thereof kept on the Health & Safety File.

- Addendum to Health & Safety Plan pertaining to Covid-19.
- Risk Assessments on Covid-19.
- Health & Safety Policy pertaining to Covid-19.
- Toolbox Talks
- Inductions
- Covid -19 Compliance Officer Appointment Letter
- Additional task specific standard operating procedures.

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Annexure 2: Baseline Risk Assessment

Baseline Risk Assessment											
Date: November 2025		Area of Assessments: Mcgregor Sportsfield					Serial Nr:				
RISK DESCRIPTION			Risk before controls implemented				**CONTROL MEASURES**	Risk after controls implemented			
ACTIVITY	**SIGNIFICANT HAZARD**	**RISK**	**Risk Rating**				**CONTROLS TO REDUCE RISK TO ACCEPTABLE LEVEL**	**Risk Rating**			
			L	**S**	**L x S**	**Risk**		**L**	**S**	**L x S**	**Risk**
Access to construction site and other property	Unauthorized access to site	Injury to trespassers, possibility of theft	2	2	4	Med	Inductions carried out for all workers and id cards & helmet stickers issued. Access control to be used at construction site entrance. Warning signs to be displayed at site entrance indicating "No unauthorized entry". Visitors to sign in at security gate.	1	1	1	Low
	Construction workers walking around premises	Complaints from public and personnel. Potential damage to personal property	4	1	4	Low	Workers informed of requirements during site induction & tool box talks. Site security to monitor compliance	1	1	1	Low
	Unauthorized use of company property	Complaints from neighboring properties and members of the public.	4	1	4	Low	Workers informed of requirements during site induction & tool box talks. Site security to monitor compliance	1	1	1	Low
Work in the vicinity of existing buildings and	Potential for members of the public to come in to contact with construction activities.	Injuries to members of the public damage to the company's reputation	3	3	9	Med	Construction site to be fenced off and clearly demarcated.	1	1	1	Low

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members of the public.	Damage to surrounding buildings as a result of construction activities	Potential injury to people and damage to property	2	1	2	Low	Dilapidation survey conducted by site manager before work begins. Ongoing monitoring of work activities.	2	1	2	Medium
	High noise levels as a result of construction activities	Complaints from public	4	2	8	Med	Work hours to be abided by. Communication with community when noisy activities take place. Equipment to be maintained.	2	1	2	Low
	Vibration from construction activities	Nuisance to workers in surrounding properties causing damage to company reputation	4	2	8	Med	Site manager to notify surrounding properties / center management of nuisance activities and activity durations.	2	1	2	Low
	Uncontrolled dumping of waste and other material	Potential for fines / work stoppage. Damage to company reputation	3	1	3	Low	Requirements of construction environmental management plan implemented. Disposal certificates to be supplied after disposing of waste & hazardous materials.	2	1	2	Low
Fencing construction area	Offloading and storing fencing materials	Potential hand injuries when handling materials	2	2	4	Low	Workers informed on the correct methods for handling material. Sufficient persons available to lift and carry material. Workers to wear gloves when handling material.	1	1	1	Low
	Digging holes for fence posts	Potential injuries from repetitive movement	3	3	9	Med	Workers informed of correct methods for digging post holes. Sufficient personnel to carry out activity. Where possible use hand auger to drill holes.	2	2	4	Low
	Concreting in fence posts	Contact with wet cement	3	2	6	Med	Workers to wear gloves when handling wet cement	2	2	4	Low
	Installing fencing to posts	Potential for cement / contaminated water runoff	3	1	3	Low	Concrete mixing area to be identified. Mixing to take place on an impervious surface. No mixing close to wet land. Excess / waste material to be removed from site.	2	1	2	Low
	Unauthorized persons coming in to work area	Potential hand injuries when handling materials	3	2	6	Med	Workers to wear gloves when handling material and fixing to posts	2	2	4	Low

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Site establishment	Contact with existing services	Potential injury to workers	3	4	12	High	Information on known services to be provided by client	1	4	4	Low
	Unauthorized persons entering work area	Injury to persons	3	3	9	Med	Area fenced off prior to starting site establishment. Warning signs to be displayed. Supervision to monitor persons entering work site	2	1	2	Low
	Off-site transportation accidents	Fatalities and or injury to people, damage to vehicle & property	3	4	12	High	Certified drivers used to transport materials to site, vehicles checked daily & records maintained by plant yard	1	3	3	Low
	Vehicles entering / leaving site colliding with other vehicles or pedestrians	Potential for injuries to people, damage to vehicles & property	3	4	12	High	Speed limit to be adhered to. Drivers to be aware of other road user / pedestrians. Only the agreed entry point to be used.	1	4	4	Low
	Incorrect off-loading of containers and materials	Injuries to people, damage to property	3	3	9	Med	Certified operator to operate truck crane. Supervisor to co-ordinate and oversee work activities	2	2	4	Low
	Exposure to manual handling when offloading material and containers	Injury to workers, damage to property	3	3	9	Med	Supervision coordinating activities. Sufficient workers to be available to carry out activities safely. Workers trained to carry out their tasks	2	2	4	Low
	Connection of electrical supply by unauthorized person	Potential injury to workers	3	3	9	Med	Power supply to be taken from points identified by client. Where temporary supply is required, certified electrician used to connect services. Copy of company's and electricians current electrical registration and certificate of compliance kept on file.	1	3	3	Low
	Inadequate ablution facilities provided for the work force	Spillages, unhygienic conditions, environmental damage	3	1	4	Low	Chemical toilet provided, sufficient for number of employees on site. Chemical toilet cleaned at least weekly. Toilets positioned away from wet land and tied	2	1	2	Low

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							down to prevent from being blown over.				
Site parking	Increase in vehicles entering / leaving work site location	Potential to cause traffic disruption, injuries to people, damage to other vehicles	4	3	12	High	Site Manager to identify suitable parking location. Parking allowed only in allocated parking areas.	2	1	2	Low
Site deliveries and loading / off-loading of vehicles	Delivery & construction vehicles entering & leaving site	Traffic disruption, injuries to people, damage to vehicles & property	4	3	12	High	Deliveries to be coordinated with site management, preferably to avoid peak traffic times. Waste material etc. to be cleaned from parking area / road surface outside construction site entrance. Flag men to be in place should vehicles have to reverse on to / off site.	2	2	4	Low
	Unauthorized persons entering area where loading / offloading is taking place	Potential injury to persons	3	3	9	Med	Loading / offloading activities to be monitored by supervisor / safety officer. Only authorized persons to load / offload vehicles. Persons informed of controls during induction & toolbox talks.	2	2	4	Low
	Offloading material in congested areas.	Potential injury to persons	3	3	9	Med	Offloading area to visually checked prior to offloading. Only necessary personnel to be in offloading area. Supervision / safety officer to monitor activities.	2	2	4	Low
	Potential for material to fall off trucks during off loading	Injury to workers, damage to property	3	3	9	Med	Workers to visually check load for loose materials before starting activity. Only authorized workers to be in loading / offloading area. Workers to wear gloves when handling materials / equipment. When using crane to offload, workers to move clear of materials being lifted. Supervisor / safety officer to monitor activities.	2	2	4	Low

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Establishing the building platform	Construction equipment being offloaded from vehicles / low beds	Potential to injury workers	3	3	9	Med	Only competent persons to offload equipment. No unauthorized persons in work area. No make shift ramps to be used.	1	2	2	Low
	Potential for material to fall off trucks during off loading	Operator exposed to vibration and noise. Potential to cause disturbance to neighboring properties	4	3	12	High	Equipment to be in good condition. Operator to wear gloves and ear protection when using hand operated equipment. Neighboring properties notified of activities causing loud noise or vibration.	2	1	2	Low
	Compaction equipment used to stabilize platform	Potential for workers to be struck by moving vehicles / equipment	3	4	12	High	Only authorized persons to be in work area. Workers to wear reflective vests. Workers informed of controls during site induction and activity specific HIRA.	2	4	8	Medium
Excavations	Damage to underground / hidden services	Injury to people, disruption of construction activities.	3	3	9	Med	Location of underground services to be provided on drawing by engineer. Trial pits dug to identify depth and actual position of underground services. Workers made aware of position of services, instructed on what to do in case of contact. Hand dig where services have been identified. Use of pick axe is prohibited above buried services.	2	2	2	Low
	Excavations conducted without supervision of competent person	Accidents resulting in potential injury	3	3	9	Med	Competent person appointed in writing to supervise excavation work.	2	2	4	Low
	Excavations not adequately barricaded	Potential for site personnel, visitors or vehicles falling into excavations causing injury to people or damage to property	3	3	9	Med	Suitable hard barricading or netting provided around excavations, barrier tape on its own is not acceptable. Barricading / netting to be set back at least a meter from the edge of the excavation.	2	2	2	Low

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	Inadequate shoring or battering of excavation works deeper than 1 meter	Collapse of excavation resulting in injuries to workers and delays to the construction program	3	3	9	Med	Geotechnical report to be provided by client. Site management / supervisor to ensure requirements are complied with. Daily inspection conducted and recorded by the appointed inspector	2	2	4	Low
	Employees not visible to operators of earth moving equipment	Potential to cause serious injuries to workers	3	4	12	High	No employees in confined excavations for bases when mechanical excavation is taking place. Supervision to monitor activity.	2	3	6	Med
	Movement and operation of machinery close to excavations	Potential for the side walls to collapse resulting in injuries to workers	3	4	12	High	Where possible, vehicles to be kept at least 1 meters away from excavation edges. Sufficient hard barricading / netting around excavations.	2	3	6	Med
	Unauthorized / untrained operators operating machinery	Potential to cause Injury to people or damage to equipment	3	4	12	High	Only competent, appointed persons to use equipment. Health & safety appointments to be verified before being allowed to start work on site.	1	3	3	Low
	Unsafe use of hand tools (picks, shovels) when carrying out excavation work	Injury to other workers as a result of overcrowding	3	3	9	Med	Workers trained how to use hand tools. Visual inspections of tools before use. Supervisor to ensure sufficient distance between workers wielding picks.	2	2	4	Low
	Overcrowding of workers in excavation	Injury to other workers	3	3	9	Med	Supervision to ensure safe distances between workers.	2	2	4	Low
Concrete activities	Ready mix vehicles blocking entrance route.	Potential foot traffic disruption and complaints from members of the public.	3	2	6	Med	Concrete deliveries to be coordinated. Access & site routes planned. Once on site, drivers are directed to offloading area.	2	2	4	Low
	Incorrect handling of concrete chute during discharge	Potential injury to workers	3	3	9	Med	Ready mix truck driver to handle concrete chute. Workers to be informed of potential hazard. Gloves to be worn when handling concrete chute.	2	2	4	Low

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	Transporting concrete to pour location by mobile crane / TLB & bucket.	Injury to workers & visitors	3	3	9	Med	Only certified, appointed persons to operate tower crane. Workers to be warned by Supervisor / Banksman when lifting material over workers. Safe routes to work areas planned. Workers informed of control measures during inductions & toolbox talks.	2	2	4	Low
	Taking up an unsafe position when casting concrete columns	Potential injury to workers	3	3	9	Med	Workers to carry out activities from safe platforms. Workers instructed not to stand on top of formwork when positioning concrete chute or concrete vibrator. Tag line to be attached to allow concrete bucket to be controlled	2	2	4	Low
	Concrete spills occurring during discharging & casting activities	Potential to cause environmental pollution	4	2	6	Med	Impervious material to be placed under concrete buckets at discharge point. Concrete buckets are not to be overfilled. Spills cleaned up immediately where possible. Supervision to monitor activities.	2	2	4	Low
	Uncontrolled washing out of ready mix truck and concrete bucket.	Potential to cause environmental pollution	4	2	6	Med	Concrete trucks are not to be washed out on site, this is to be discussed with ready mix supplier. Concrete bucket to washed out at approved area. Where possible, try to contain all water used for cleaning for reuse on site. All spills are to be cleaned up.	2	1	2	Low
	Not using specified PPE when carrying out activities	Potential injury to workers	3	3	9	Med	Site rules, HIRA & Method statement identify required PPE. Workers informed of requirements. Supervisors to ensure workers wear PPE.	2	2	4	Low
	Incorrect handling of concrete bucket during filling & discharging activities	Potential for injuries to hands and fingers.	3	3	9	Med	Workers to be informed on safe handling of concrete bucket. Workers to be aware of their positions when handling the concrete bucket. Gloves to be worn when carrying out activity.	2	2	4	Low

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	Untrained persons operating mobile power floats	Injury to workers, damage to property	3	3	9	Med	Activity to be carried out under supervision. Competent person/s to use equipment. Health & safety appointment verified before activity starts.	2	2	4	Low
	Saw cutting concrete joints in surface beds	Noise, dust & potential to injury workers and damage equipment. Environmental pollution from contaminated water runoff.	4	3	12	Med	Work activities to be planned, HIRA & method statement to be documented for activity. Concrete saw operator to be trained & appointed. Noise zone to be identified within the structure. Operator to wear hearing and eye protection. Concrete slurry to be prevented from free flowing out of the building.	2	2	4	Low
Structural steel erection	Unsafe methods used during off -loading material from trucks	Injury to workers, damage to property	3	4	12	High	Competent persons coordinating activities. Mechanical equipment to be used to offload materials. Competent person to operate equipment.	2	3	6	Medium
	Mobile crane / crane operator is non-compliant	Potential to cause injury to workers or damage to property	3	3	9	Med	Crane to have valid load test certificate. Competent, appointed person to operate equipment. Health & safety appointments to be verified before being allowed to start work on site.	1	3	3	Low
	Incorrect handling of heavy beams	Potential injury to workers	3	3	9	Med	Make use of mobile crane to lift heavy beams. Lifts controlled by qualified rigger / slinger.	2	3	6	Medium
	Using incorrect / under rated / damaged lifting equipment & lifting tackle	Potential to cause injury to workers or damage to property	3	4	12	High	Appointed contractor to indicate type & rating of lifting equipment / tackle to be used. Safety officer to verify lifting equipment / tackle is certified. Monthly / 3 monthly inspections of equipment / tackle by appointed persons.	2	4	8	Medium

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	Working unsafely at height	Potential for falls and injury to workers	3	4	12	High	Appointed subcontractors fall protection plan implemented & communicated. Workers medically fit to work at height. Safety harnesses with double lanyards used. Safe access routes provided to and from work area.	2	4	8	Medium
	Falling materials, equipment	Injury to workers, damage to property	3	3	9	Med	Only authorized persons to be in work area, tag lines to be used when lifting, work area barricaded / demarcated.	2	3	6	Medium
	Working over / above other contractors	Falling material, injury to workers & visitors	3	3	9	Med	Area barricaded / demarcated. Process implemented to ensure work does not take place directly over other workers. Toolbox talks to inform workers. Ongoing monitoring by supervision.	2	3	6	Medium
Welding & cutting	Operating of equipment by untrained personnel	Potential injury to people, damage to property	3	3	9	Med	Competent persons appointed as a welder. Health & safety appointments verified.	2	2	4	Low
	Equipment not inspected and maintained	Potential injury to people, damage to property	3	3	9	Med	Daily inspection carried out and recorded by appointed person.	2	2	4	Low
	Operator not in visual contact with equipment at all times	Potential for fire, injury to people & damage to property	3	3	9	Med	Operator to use own judgement on conditions & position of equipment. Flammable materials to be more than 10 meter away from equipment.	2	2	4	Low
	Using damaged welding cables / gas hoses	Burns, injury to people	3	3	9	Med	Operator to check condition of equipment daily. Damaged cables / hoses / gauges to be replaced	2	2	4	Low
	Welding machinery not correctly earthed	Electric shocks	3	4	12	High	Operator to check condition of equipment daily. Welding set to be positioned in a dry area.	1	3	3	Low
	Insufficient ventilation while welding materials	Long term exposure to gases and fumes could lead to health problems,	3	3	9	Med	Work is taking place outside. Supervision & operators to ensure work place is safe.	1	1	1	Low

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	No use or use of inadequate/wrong PPE	Injury to people	3	3	9	Med	Toolbox talks, site rules communicated, supervision to monitor.	2	2	4	Low
	Gas bottles not secured	Potential to cause injury to people & excessive damage to property	3	3	9	Med	Gas bottles to be stood in upright position and stored in cage / trolley when not in use. When in use stored / secured on trolley with chains or other fitting.	1	3	3	Low
	Surrounding work area not protected from sparks etc.	Fire, injury to workers, damage to property	3	3	9	Med	Hot work permit system in place. Toolbox talks and DSTI to discuss safe work procedure. Welding screens / blankets to be used where required. No work to take place within 10 meters off any flammable substance.	2	2	4	Low
Erecting & dismantling of access scaffolding	Scaffold collapsing as a result of inadequate design/erection	Potential for serious injuries and damage to property	3	4	12	High	Access scaffold to be designed by scaffold supervisor. Competent scaffold supervisor, erectors & inspector appointed. Scaffold signed off as safe prior to use, ongoing inspections carried out and recorded. Bracing / buttress installed according to drawing to ensure stability.	1	4	4	Low
	Collapse due to using substandard or mixed scaffolding sections	Potential for serious injuries and damage to property	3	4	12	High	Scaffold supervisor appointed. Trained and appointed scaffold erectors to build scaffold. Visual inspection of scaffold material before use. Ongoing inspections carried out	1	4	4	Low
	Unauthorized persons erecting / dismantling scaffolds	Fatalities, serious injuries and damage to property	3	4	12	High	Scaffold team appointed. All workers informed of requirements during induction & displayed site rules. Ongoing monitoring by supervisors / safety officer.	2	2	4	Low
	Personnel falling from heights	Potential for serious injury	3	4	12	High	Scaffold erectors to wear safety harnesses when erecting / dismantling scaffolding. Working platforms to be fully boarded with double hand rails / toe boards where required. No unauthorized	1	4	4	Low

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							persons to alter / build scaffolding. No work to take place in inclement weather conditions (heavy rain)				
Tiling work	The use of hand, power tools, scaffolding, ladders. Exposure to, work at height, work in elevated positions, confined spaces, manual handling, chemical substances, dust, noise, elements.	cuts and bruises and repetitive injuries to serious injuries requiring first aid and hospitalisation or possible fatalities. No major environmental impact	3	3	9	Med	Maintenance and inspection of hand, power tools, machinery.	1	3	3	Low
Painting	The use of hand tools, scaffolding, ladders	minor sprains, strains, cuts and bruises	3	3	9	Med	Maintenance and inspection of hand tools Signage Issue of PPE	1	3	3	Low
Plumbing work	The use of hand tools, scaffolding, ladders, plant and machinery, construction vehicles Exposure to, work at height, work in elevated positions, confined spaces, manual handling, chemical substances, dust, noise, elements.	minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring first aid and hospitalisation or possible fatalities. No major environmental impact	3	3	9	Med	Correct planning of operations Personnel trained Supervision Maintenance and inspection of hand tools ladders, scaffolding, Temporary works , Demarcation and placement of barriers for excavation areas Signage Issue of PPE	1	3	3	Low
Steel fixing	The use of hand and power tools, hazardous chemical substances will be necessary in this task Exposure to sharp cutting edges, steel falling onto personnel, personnel falling over steel lying around,	minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring first aid and hospitalization or possible fatalities. No major environment	3	3	9	Med	Correct planning of operations Personnel trained Supervision Maintenance and inspection of hand and power tools Use of mechanical lifting Signage Issue of PPE	1	3	3	Low

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	overloading work area heavy lifting, steel dust										
Drainage and pipe laying	The use of hand, power tools, plant and machinery, lifting machinery Exposure to excavations, trenches, dust, elements, flying objects, machinery	minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring first aid and hospitalization or possible fatalities. No major environmental impact	3	3	9	Med	Correct planning of operations Operators trained Supervision Maintenance and inspection of plant and machinery Shoring and bracing Demarcation and placement of barriers for backfilling operations Signage Issue of PPE Placement of fire fighting equipment near refueling areas Placement of spill and absorption kits	1	3	3	Low
Water proofing	Exposure to solvents, work at height, work in elevated positions, confined spaces, manual handling, chemical substances, dust, noise, elements.	minor sprains, strains, cuts and bruises, burns and repetitive injuries to serious injuries requiring	3	4	12	High	Signage Issue of PPE Issue hot works permit Supervision Maintenance and inspection of equipment	3	3	9	Med
Installing Roof & wall panels / Installing roof sheeting	Unsafe methods used during offloading material from trucks	Injury to people, damage to property	3	3	9	Med	HIRA & method statement provided by subcontractor. Competent persons coordinating activities.	1	3	3	Low
	Use of uncertified lifting equipment / lifting aids	Potential Injury to operator and damage to equipment	3	3	9	Med	Specialist contractor to supply appropriate HIRA and equipment certificates. Certificates to be verified prior to activity starting. Ongoing inspections by supervisor / safety officer	1	3	3	Low
	Unsafe methods used when installing concrete wall panels	Potential Injury to operator and damage to equipment	3	4	12	High	Specialist contractor to supply appropriate HIRA and method statement. Employees to be informed of control measures.	2	4	8	Medium

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							Ongoing monitoring of activities by competent supervision				
	Working unsafely from roof structure	Potential for Falls causing serious injury to workers	3	4	12	High	HIRA, method statement & fall plan developed, implemented & communicated. Workers to be medically fit. Safety harnesses with double lanyard connected to suitable tie off points or life line system. Fixing points for tie off / life lines to be designed in to the structure by the structural engineer. Permit to work system implemented. Ongoing monitoring by supervisor / safety officer.	2	3	6	Medium
	Lifting & positioning material at work place	Potential for falls causing serious injury to workers. Potential	3	4	12	High	HIRA & method statement and fall plan documented for activities. Workers informed of control methods. Certified equipment used for lifting / lowering materials. Supervision to monitor activities. Permit to work system implemented. Supervisor / safety officer to monitor.	2	3	6	Medium
	Working above other contractors	Falling material, injury to workers & visitors	3	3	9	Med	Ground area to be barricaded / demarcated. Process implemented to ensure work does not take place directly over other workers. Toolbox talks to inform workers of controls. Supervision to monitor compliance.	2	3	6	Medium
	Use of faulty electrical tools & equipment	Injury to workers,	3	3	9	Med	Daily inspection of equipment, Requirements communicated through DSTI's & toolbox talks supervisor to monitor	2	2	4	Low
Work in elevated positions	Unsafe access to work areas resulting in falls from heights	Potential to cause serious injury	3	4	12	High	Suitable access ways to be in place to all elevated work areas. Workers informed of requirements during toolbox talks. Supervision to plan for access.	2	3	6	Medium

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	Barricading not installed around exposed edges & floor openings / penetrations not covered	Potential to cause serious injury	3	3	9	Med	Solid barricading to be installed on all edges and around openings in slabs. Service penetrations to be covered with identified boards which are securely fixed to prevent movement. . Supervisors to monitor.	1	3	3	Low
	Material, equipment falling to lower levels	Serious injuries, death, damage to property	3	3	9	Med	No material left on exposed edges or access scaffold. Toe boards installed on scaffold platforms and on slab edges where required. Supervision to monitor work activities, preferably one trade does not work directly over another.	2	3	6	Medium
	Unfit persons working in elevated positions	Potential to cause serious injury	3	4	12	High	Persons working in elevated positions to be in possession of a valid medical certificate issued by an occupational health practitioner. SHE Officer to monitor validity of certificates	1	3	3	Low
	Unauthorized personnel altering / modifying scaffolds	Potential to cause serious injury	3	4	12	High	Personnel informed of correct process to alter / modify scaffolding during site induction. Ongoing monitoring of scaffolds by scaffold supervisor & area supervisors. Personnel to be removed from site for non-compliance. Communication through site induction, DSTI's and toolbox talks	2	3	6	Medium
	Personnel working in a fall risk situation not using the required equipment	Potential for serious injuries from falling to lower levels	3	4	12	High	Activities assessed and suitable scaffold systems or MEWP's to be preferably used. Mobile scaffolds to be equipped with the necessary bracing, hand rails, access ladders, wheels including working brakes. Ongoing monitoring. Communication through site induction, DSTI's & toolbox talks	1	4	4	Low

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Working from ladders	Faulty equipment being used	Potential injury to workers	3	3	9	Med	Ladders to be visually inspected prior to use, damaged ladders to be removed from site. Supervision / safety officer to monitor.	1	3	3	Low
	Positioning & working on an unsafe or unstable surface	Potential injury to workers	3	3	9	Med	Workers informed of control methods during induction & toolbox talks. Ladders to be placed on stable surface. Supervision to monitor.	2	3	6	Medium
	Working off top step resulting in falls	Potential injury to workers	3	3	9	Med	Workers to be informed of the dangers of working on the top two steps at site induction & through DSTI's and toolbox talks. Person to support ladder at base when ladder exceeds 1.8 meters.	2	3	6	Medium
	Material or equipment falling from elevated positions	Injury to workers, damage to property	3	3	9	Med	Preferably work from a scaffold platform. When ascending / descending access ladders, material is to be pulled up to elevated levels by rope / tool bag.	2	2	4	Low
Manual handling of materials	Carrying, lifting & positioning heavy & unmanageable pieces of materials and equipment	Potential injury to workers and damage to property	3	3	9	Med	Workers to be trained in the correct lifting techniques during toolbox talks and DSTI's. Sufficient number of persons available for manual movement. Access to work area to be free from tripping hazards. Gloves to be worn. Supervision to monitor.	2	2	4	Low
Brickwork	Using faulty or damaged hand tools when mixing mortar	Injury to workers	3	3	9	Med	Daily inspections of tools before use. Workers informed of hazards & controls during induction & toolbox talks	2	1	2	Low
	Unsafe methods used for stacking bricks	Collapsing of stacks resulting in damage to property and injury to people	3	3	9	Med	Stacks placed on stable & level ground. Stacking supervisor to monitor brick stacks. Supervisors to monitor brick stacks at the work area & on scaffold / work platforms.	2	2	4	Low

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	Exposure to cement dust when mixing mortar	Inhalation of excessive dust could lead to long term health problems	3	3	9	Med	Dust masks to be worn, workers informed of hazard. Dry mix to be used if possible.	2	3	6	Medium
	Prolonged exposure to wet cement	Dermatitis	3	3	9	Med	Workers to be informed of dangers. Gloves & overalls to be worn when mixing.	2	2	4	Low
	Materials and other objects falling from heights / work platforms	Injury to people	3	3	9	Med	Toe boards to be used on exposed edges / work platforms when materials are being stacked on them. Platforms not to be overloaded with material.	2	2	4	Low
	Repetitive bending & lifting of materials may cause back injuries	Injury to workers	3	3	9	Med	Cement pockets moved to work area in wheel barrows. Scaffolds erected with a split work and loading platform. Workers informed of requirements.	2	2	4	Low
	Climbing onto and working from unsafe scaffold platforms	Falling, injury to workers	3	3	9	Med	Only safe scaffolds to be used. Scaffold team to alter scaffolds where required. Suitable access ladders provided. Workers to be informed through toolbox talks. Supervision to monitor	2	3	6	Medium
	Flying particles being ejected from cutting of bricks	Injury to workers	3	2	6	Med	Gloves & safety glasses to be worn when cutting bricks with a hammer & bolster, no damaged chisels or homemade hammers. Trained operator to use brick cutting machine.	2	2	4	Low
	Contaminated water / spillages from mixing mortar	Environmental damage	3	2	6	Med	Mortar mixed on an impermeable surface. Spills cleaned up immediately. Drain inlets to be covered with bidum or other material.	2	1	2	Low
Plastering	Using faulty or damaged hand tools when mixing plaster	Injury to workers	3	3	9	Med	Daily inspections of tools before use.	2	1	2	Low

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	Exposure to cement dust when mixing plaster/screeds	Inhalation of excessive dust could lead to long term health problems	3	3	9	Med	Mixing to be carried out in well ventilated area. Dust masks to be worn	2	2	4	Low
	Prolonged exposure to wet cement	Dermatitis	3	3	9	Med	Workers to be informed of dangers. Gloves & overalls to be worn when mixing.	2	2	4	Low
	Climbing onto and working from unsafe scaffold platforms	Falling, injury to workers	3	3	9	Med	Safe access to be provided to work area. Only safe scaffolds to be used. Workers to be informed through toolbox talks. Supervision to monitor	2	3	6	Medium
	Contaminated water / spillages from mixing mortar	Environmental damage	3	2	6	Med	Plaster mixed on an impermeable surface. Spills cleaned up immediately. Drain inlets to be covered with bidum or other material.	2	1	2	Low
	Working over / above other contractors	Falling material, injury to workers & visitors	3	2	6	Med	Area barricaded, warning signs displayed. Process implemented to ensure work does not take place directly over other workers. Toolbox talks to inform workers.	2	2	4	Low
Use of hand tools	Usage of substandard/broken hand tools	Potential injury to workers and damage to property	3	2	6	Med	Daily inspections conducted and recorded by store man before issuing tools. No homemade hammers / chisels allowed.	2	1	2	Low
	Misuse of hand tools by untrained personnel	Potential injury to workers and damage to property	3	2	6	Med	Toolbox talks and DSTI's to communicate requirements, supervision / safety officer to monitor	2	1	2	Low
	Using the wrong tool for the work being carried out	Injury to workers	3	2	6	Med	Toolbox talks and DSTI's to communicate requirements, supervision / safety officer to monitor	2	1	2	Low
Use of electrical power tools	Portable electrical equipment damaged or electrical wiring exposed	Injury to people due to failure in portable electrical equipment	3	3	9	Med	Competent person (store man) to inspect and record condition of equipment daily & prior to issue.	2	2	4	Low

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	Plug and electrical cord damaged, uncovered or incorrectly wired	Electrical shock	3	3	9	Med	Competent person to inspect equipment daily. Toolbox talks, supervision to monitor.	2	3	6	Medium
	Extension cords causing tripping & other hazards	Cluttered working environment causing tripping or falling	3	3	9	Med	Toolbox talks and DSTI's to inform workers of requirements, supervision to monitor	2	2	4	Low
	Noise generated by grinding, cutting operations	Excessive noise emissions resulting in decline of hearing ability (Noise induced hearing loss)	3	3	9	Med	HIRA & method statement for activity, PPE as per assessment, employees informed.	2	3	6	High
	Operating portable electrical equipment without PPE.	Injury to eyes, hands and feet	3	3	9	Med	Toolbox talk, supervisor to monitor.	2	2	4	Low
Explosive powered tools	Is a tool that is activated by an explosive charge and that is used for driving bolts, nails and similar objects for the purpose of providing fixing Exposure to noise, dust, flying objects, repetitive injuries, work at height, work in elevated position Incorrect use of equipment, quality, state of repair and incorrect use and no use of PPE	fall from and result in minor cuts, bruises to more serious injuries requiring first aid or hospitalisation for stitches or amputation of digits. Environmental impact noise and dust, work quality will be affected	3	3	9	Med	Correct planning of operations Personnel trained Supervision Maintenance and inspection of tools Signage Issue of PPE	2	2	4	Low
Pneumatic tools	Includes but is not limited to jackhammers and paving breakers, lifting equipment. Exposure to noise, dust, flying objects and	cuts, bruises to more serious injuries requiring first aid or hospitalisation for stitches or amputation of digits. Environmental impact noise and dust,	3	3	9	Med	Correct planning of operations Personnel trained Supervision Maintenance and inspection of tools Signage Issue of PPE	2	2	4	Low

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	hazardous chemical substances Incorrect use of equipment, quality, state of repair and incorrect use and no use of PPE	work quality will be affected									
Plant and machinery	Includes but is not limited to excavators, digger loaders, compressors, dumpers, skid steer ECT. Machine malfunction, Collisions, Machine falls into excavation and possible fuel spill. Possible exposure to noise, dust, hazardous chemical substances (grease, oils and fuels) and machinery from machinery	minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring First aid and hospitalization or possible fatalities. Minor to major environmental impact. Fire hazards	3	4	12	High	Correct planning of operations Operators trained Supervision Maintenance and inspection of plant and machinery Shoring and bracing Demarcation and placement of barriers for excavation areas Signage Issue of PPE Availability of spill absorption kits and drip trays	3	3	9	Med
Construction vehicles	Means a vehicle used for means of conveyance for transporting persons or material or both such persons and material, as the case may be, both on and off the construction site for the purposes of performing construction work; includes but is not limited to bakkies, tipper truck ECT.	Machine malfunction, Collisions, Machine falls into excavation and possible fuel spill. Possible exposure to noise, dust, hazardous chemical substances (grease, oils and fuels) and machinery from machinery One or more of above incidents will result in the following: minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring First aid and	3	4	12	High	Correct planning of operations Operators trained Supervision Maintenance and inspection of plant and machinery Shoring and bracing Signage Issue of PPE Availability of spill absorption kits and drip trays	3	3	9	Med

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		hospitalization or possible fatalities. Minor to major environmental impact. Fire hazards									
Lifting machines and tackle	means a power-driven machine which is designed and constructed for the purpose of raising or lowering a load or moving it in suspension, and includes a block and tackle, hoist, crane, lift truck or jib-crane, but does not include an elevator, escalator, goods hoist or builder's hoist; Machine malfunction, Collisions, Machine falls into excavation and possible fuel spill. Possible exposure to noise, dust, hazardous chemical substances (grease, oils and fuels) and machinery from machinery	minor sprains, strains, cuts and bruises and repetitive injuries to serious injuries requiring First aid and hospitalization or possible fatalities. Minor to major environmental impact. Fire hazards	3	4	12	High	Correct planning of operations Personnel trained Supervision Maintenance and inspection of lifting tackle Signage Issue of PPE	3	3	9	Med
Persons exposed to electricity	Contact with live services	Electrocution, damage to property	3	4	12	High	Client to supply service drawings. Lock out system to be implemented when connecting / commissioning permanent power supply. Certified electricians to sign off installation and provide Certificate of Compliance.	1	4	4	Low
Carpentry and joinery	The use of hand, power tools, scaffolding, ladders.	cuts and bruises, electrical shock, burns and repetitive injuries	3	3	9	Med	Personnel trained Supervision	1	4	4	Low

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	Exposure to splinters, work at height, work in elevated positions, confined spaces, manual handling	to serious injuries requiring first aid and hospitalisation					Maintenance and inspection of hand tools				
Flammable substance and oil storage	Poor storage of flammable/ chemical products	Fire risk, injury to people & damage to property	3	3	9	Med	Competent person appointed to control flammable stores. Banded area to be provided. Weekly inspections carried out and recorded.	2	2	4	Low
	Accumulation of waste and debris in areas	Waste generation & disposal	3	3	9	Med	Competent person appointed to control flammable stores. Weekly inspections carried out. Waste materials removed. Appointed person and supervision to monitor.	2	1	2	Low
	Firefighting equipment, systems, etc. not inspected and maintained	Uncontrolled fires	3	3	9	Med	Competent person appointed to inspect all extinguishers. Weekly inspections carried out.	2	2	4	Low
	Spillages from paints. chemicals & wastes	Potential to cause environmental pollution. Damage company's reputation	3	2	6	Med	Materials stored in banded area. Minimum amount of materials to be stored on site. Maximum size of containers is 20 liters. Spill kits maintained on site. Spills cleaned up immediately	2	1	2	Low
	Incorrect usage of Personal Protective Equipment	Potential injury to people	3	3	9	Med	MSDS for materials identify required PPE and controls. Training given on how to use/wear PPE. Supervision to monitor.	2	2	4	Low
	Refuelling of construction vehicles from diesel bowser	Potential for spills leading to environmental damage	2	3	6	Med	Contractor to allow the use of their on-site diesel tanks to fill up construction vehicles	1	3	3	Low
Fire prevention	Inadequate firefighting equipment provided and not located at suitable locations	Injury to people and/or damage to property as a result of fire	3	3	9	Med	Fire risk assessment conducted. HIRA carried out, site layout plan developed, sufficient equipment provided.	2	2	4	Low
	Firefighting equipment not maintained	Potential injury to people due to failure of firefighting equipment	3	3	9	Med	Competent person appointed to inspect all extinguishers. Monthly inspections carried out and recorded.	2	2	4	Low

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	Firefighting equipment obstructed	Death and/or injury to people due to inaccessibility of firefighting equipment	3	3	9	Med	No materials to be placed in front of equipment.	2	1	2	Low
	Symbolic safety signs and notices not displayed	Location of equipment not visible	3	3	9	Med	Safety signs ordered & displayed, shown on site layout plan.	2	1	2	Low
	Misuse or damaging of firefighting equipment by employees	Potential injury to people due to failure of firefighting equipment	3	3	9	Med	Toolbox talks, disciplinary process implemented.	1	1	1	Low
	Emergency exists not kept clear and unobstructed	Death and/or injury to people	3	3	9	Med	Toolbox talks and DSTI's to communicate requirements, supervision / safety officer to monitor areas / conditions of emergency routes.	2	2	4	Low
	Emergency alarm system not present	Death and/or injury to people	3	3	9	Med	Safety Officer/Site Manager to order and make available siren.	2	2	4	Low
	Workers untrained & unfamiliar with emergency procedures	Death, injury to people, damage to property	3	3	9	Med	Training given during induction & toolbox talks, drills in consultation with Client. Fire marshals appointed.	2	2	4	Low
	Uncontrolled fires on site	Death, injury to people, damage to property	3	4	12	High	No fires allowed on site, site rules issued.	1	1	1	Low
	Emergency drills not carried out	Death, injury to people if a serious fire occurs	3	4	12	High	Site Manager/Safety Officer to co-ordinate emergency procedures / drills with employees and management	1	4	4	Low
Working outside normal working hours / night work	Unauthorized work	Potential for injuries	3	4	12	High	Project management to be notified should after hours work have to be conducted. Site management to ensure sufficient employees / resources are available to carry out activity safely.	3	2	6	Medium

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	Working alone	No notification if Injury to worker occurs	3	3	9	Med	Management to ensure no lone working takes place.	2	2	4	Low
	No access to first aid facilities	Delay in receiving medical attention	3	3	9	Med	First aid facilities & first aider to be on site.	1	3	3	Low
	No access to emergency numbers / telephone	Delay in receiving medical attention	3	3	9	Med	Emergency numbers displayed, supervision on site with access to telephone.	1	3	3	Low
	Poor illumination	Injury to workers	3	3	9	Med	Site Manager to ensure that suitable illumination is provided in all work areas. Supervisor / safety officer to monitor	2	2	4	Low
Subcontractor appointed and working on site	No safety documentation	Delays to work, Prohibition notices	3	2	6	Med	Startup meeting with contractors to discuss requirements. Documentation reviewed for compliance to specification.	1	1	1	Low
	Not registered with FEM / Compensation Commissioner / WCBIBC	Risk to workers	3	2	6	Med	Registration to be supplied prior to starting work on site. BIBC registration to be monitored by contractor.	1	1	1	Low
	Inadequate or incompetent supervision	Injury to workers, work delays, not complying with legislation	3	4	12	High	Startup meeting to communicate requirements. Contractor to ensure supervision appointed is competent and on site at all times. Ongoing monitoring of contractors performance	2	3	6	Medium
	Untrained / unskilled workers carrying out high risk & other work activities	Injury to people, damage to equipment	3	4	12	High	All persons working on site to be inducted and informed of HIRA / fall plan requirements. Toolbox talks conducted weekly. Only trained & authorized persons to operate equipment and machinery Competency certificates & appointments in H & S file	2	3	6	Medium

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	Illegal workers	Delays to work, injury to people	3	2	6	Med	Workers id's to be checked prior to them undergoing inductions.	1	2	2	Low
	Poorly maintained tools & equipment	Injury to workers	3	3	9	Med	Daily inspections of tools before use. Toolbox talks and DSTI's to inform workers. Ongoing monitoring by supervisor / safety officer	2	2	4	Low
	Insufficient waste removal from work area	Environmental damage, illegal dump sites used	3	2	6	Med	Requirements of site ECO to be complied with. Environmental induction carried out by clients environmental control officer. Contractor to remove waste from work area on a daily basis. Management to monitor. Central waste storage area established. Ongoing monitoring	2	1	2	Low
Health Hazards	Exposure to vapors and fumes in work environment	Inhalation resulting in breathing problems	3	3	9	Med	MSDS's for all chemical / flammable materials. HIRA & method statement for activities, workers informed of safe work procedures. Suitable ventilation at work / storage areas. Correct PPE to be worn.	1	3	3	Low
	Exposure to extreme temperatures in work environment	Dehydration, cold, sunburn	3	3	9	Med	Access to drinking water. Rain suits to be worn in wet weather conditions, DSTI's identify potential hazard.	2	2	4	Low
	Exposure to high noise	Noise induced hearing loss	3	3	9	Med	Noise survey of work activities to be carried out. PPE to be worn in noisy environments. Induction & toolbox talks.	2	3	6	Medium
	Exposure to dust	Inhalation resulting in breathing problems	3	3	9	Med	Dust masks worn when exposed to dust. When chasing into brickwork/plaster vacuum system to be used, wet down areas if required. Ongoing monitoring by supervisor / safety officer	2	2	4	Low

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	Exposure to vibration	Injury to people	3	3	9	Med	Equipment to be maintained. Gloves to be worn when using equipment that vibrates, handles to have rubber grips. Requirements communicated to operator through toolbox talks and DSTI's	2	2	4	Low
	Ergonomic hazards from manual handling & mechanical operations	Back strains, backaches, spasms, etc.	3	3	9	Med	Toolbox talk and DSTIS on manual handling. Job rotation to be implemented at discretion of site management. Workers to take sufficient breaks in between activities.	2	2	4	Low
	Covid-19 Pandemic	Possible contamination or exposure to employees who are Covid-19 positive or materials , objects that contain Covid-19 virus	4	5	20	High	Covid-19 Screening Covid-19 Induction Complying to Coid-19 guidelines & requirements Prompt action when employees are infected.	2	3	6	Medium

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Approval	
_____ **Client**	_____ **Date**
_____ **Client Agent**	_____ **Date**

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Annexure 3: 37(2) Agreement & Appointment of Contractor

Appointment Letter: Appointment of Principal Contractor by Client	
Reference	**CR 5(1)(k)**

Appointment:

I, _____hereby appoint_____as the PRINCIPAL CONTRACTOR / DIRECT CONTRACTOR responsible for the Mcgregor Sportsfield project to carry out the construction work of Langeberg Municipality(client's or company's name).

You shall ensure that you meet all the requirements in terms of the Act and in particular in terms of the Construction Regulations. You shall also ensure that all contractors appointed by yourself and reporting to you comply with the requirements as stipulated in the Construction Regulations and Health & Safety Specifications.

You shall also ensure that all the information and specifications to ensure the construction work is carried out in a safe manner are carried over to all contractors appointed and reporting to you.

You shall further ensure that all records, registers and required lists are maintained and that all persons appointed to carry out tasks as stipulated by these Regulations are competent and have the necessary resources to complete their tasks effectively in such a manner that health and safety is not in any manner compromised.

This appointment is valid from _____to the completion of the stipulated construction work.

You shall submit a written weekly report on all shortfalls that have not been met in terms of these Regulations.

Client's Signature:	**Date:**

Acceptance of Appointment:

I, _____understand the implications of this appointment as detailed above and confirm my acceptance.

Principal Contractor Signature:	**Date:**

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Mandatory Agreement	
Reference	**OSHA 37(2)**
Agreement:	

AGREEMENT WITH MANDATORY

WRITTEN AGREEMENT ENTERED INTO AND BETWEEN

Langeberg Municipality
(Hereinafter referred to as the CLIENT)

and

(Hereinafter referred to as THE PRINCIPAL CONTRACTOR)

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1. **Principal Contractor Details:**

Company Name:	
Company Registration Number:	
Postal Address:	
Contact Number:	
Compensation Fund Number:	
Name and Surname of Appointed 16.2:	
Contact Number of Appointed 16.2:	
Email Address of Appointed 16.2:	

2. **Scope of Work:**

_____

_____

_____

3. **Principal Contractor and Client:**

The Principal Contractor shall be deemed to be an employer in his own right while on the Client's premises or those of its affiliates/service providers/suppliers and contractors. In terms of Section 16(1) of the OHS Act, the Principal Contractor shall accordingly ensure that the requirements of the OHS Act are complied with by himself and/or his nominated Chief Executive Office.

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4. **Reporting:**

The Principal Contractor and/or his designated person appointed in terms of Section 16(2) of the Occupational Health and Safety Act 85 of 1993 ("the OHS Act") shall report to the Client before the commencement of any work. Work may only commence once written permission to work has been issued by the Client or his/her principal agent in respect of the activities being performed.

5. **Warranty of Compliance:**

5.1. In terms of this agreement the Principal Contractor warrants that he agrees to the arrangements and procedures as prescribed by the Client and as provided for in terms of Section 37(2) of the OHS Act for the purposes of compliance with the Act, provided that the Client has provided to the Principal Contractor a copy of the arrangements and procedures and their Principal Contractor has been afforded an opportunity to peruse, consider and implement same.

5.2. The Principal Contractor acknowledges that this agreement constitutes an agreement in terms of Section 37(2) of the OHS Act, in terms whereof the responsibility for all health and safety matters relating to the work that the Principal Contractor and his employees are to perform on the premises shall be the obligation of the Principal Contractor.

5.3. The Principal Contractor further warrants that he and/or his employees s

5.4. hall at all times comply with the OHS Act. Without derogating from the generality of the above, or from the provisions of the said agreement, the Principal Contractor shall ensure that the clauses as hereunder described are at all times adhered to by

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himself and his employees.

5.5. The Principal Contractor shall ensure that the health and safety of any other person on the premises is not endangered by the conduct and/or activities of all his employees while they are on the Client's premises.

5.6. The Principal Contractor warrants that it has made all the necessary financial provisions to ensure compliance with the OHS Act in respect of the work being performed on site.

5.7. The Principal Contractor warrants that it is well versed with the legal governance surrounding the use of Temporary Employment Services (TES) in respect of the OSH Act and COID Act.

6. Compensation Registration:

6.1. The Principal Contractor shall ensure that he has a valid registration with the Compensation Commissioner, as required in terms of the Compensation for Occupational Injuries and Diseases Act, 130 of 1993, and that all payments owing to the Commissioner are discharged. The Principal Contractor shall further ensure that the cover shall remain in force while any such employee is present on the premises. The Principal Contractor shall report progress surrounding the rehabilitation of injured employees to the Client upon request.

6.2. The Principal Contractor shall keep a record of all WCL 2 cases reported to the Compensation Fund on site of all incidents that occurred on the Client's premises.

7. Appointments, Training and Regulated Registrations:

7.1. The Principal Contractor shall appoint responsible persons as per Section 16(2) of the OHS Act. Any such appointed person shall be trained on any occupational health and safety matters and the OHS Act provisions pertinent to the work that is to be performed under his/her responsibility. Copies of any appointment made by the Principal Contractor shall upon request be provided to the Client. The contractor shall appoint a fulltime competent employee in writing as a supervisor with the duty of supervising the work being performed.

7.2. Notwithstanding the appointment of the 16(2) official, the Principal Contractor shall make any other legal appointment prescribed by the OHS Act.

7.3. The Principal Contractor shall further ensure that all his employees are trained on the health and safety aspects relating to the work and that they understand the hazards (risk assessment) associated with such work being carried out on the premises. Without derogating from the foregoing, the Principal Contractor shall, in particular, ensure that all his users or operators of any materials, machinery or equipment are properly trained in the use of such materials, machinery or equipment.

7.4. Notwithstanding the provisions of the above, the Principal Contractor shall ensure that he, his appointed responsible persons and his employees are at all times familiar with the provisions of the OHS Act, and that they comply with the provisions of the Act.

7.5. Should the activity performed by the Principal Contractor be classified as a listed activity or an activity that would warrant a professional or legal registration/accreditation as prescribed by municipal or national legislation (including national norms and standards), it will be the responsibility of the Principal Contractor to obtain and maintain such registration before the commencement of that activity. The Principal Contractor shall report forthwith to the Client the loss or potential loss of any such accreditation or registration.

8. Supervision, Discipline and Reporting:

8.1. The Principal Contractor shall ensure that all work performed on the Client's premises are done under strict supervision and that no unsafe or unhealthy work practices are permitted. Discipline regarding health and safety matters shall be strictly enforced against any of his employees regarding non-compliance by such

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employee with any health and safety matters.

8.2. The Principal Contractor shall further ensure that his employees report to him all unsafe or unhealthy work situations after they become aware of the same and that he in turn immediately reports these to the Client and/or his representative as soon as possible.

9. Access to the Occupational Health & Safety Act:

The Principal Contractor shall ensure that he has an updated copy of the OHS Act at all times and that this is accessible to his appointed responsible persons and employees, save that the parties may make arrangements for the Principal Contractor and his appointed responsible persons and employees to have access to updated electronic copy/copies of the Act.

10. Co-Operation:

10.1. The Principal Contractor and/or his responsible persons and employees shall provide full cooperation and information if and when the Client or his representative inquiries into occupational health and safety issues concerning the Principal Contractor. It is hereby recorded that the Client and his representative shall at all times be entitled to make such inquiry.

10.2. Without derogating from the generality of the above, the Principal Contractor and his responsible persons shall make available to the Client and his representative, on request, all and any safety, health and environmental systems information including but not limited to documented procedures, assessments, training and records required to be kept by him in respect of any of his materials, machinery, equipment, employees or processes. This can be in either an electronic or hard copy format also known as the "Health & Safety File".

11. Work Procedures and Permits:

11.1. The Principal Contractor shall be entitled to use the procedures, guidelines and other documentation as used by the Client for the purposes of ensuring a healthy and safe working environment. The Principal Contractor shall then ensure that his responsible persons and employees are familiar with and use the documents. The agreed use of the Client procedures, guidelines and/or documentation should be documented within the project safety, health & environmental and quality plan as compiled by the Principal Contractor and approved by the Client.

11.2. The Principal Contractor shall develop a safety, health, environmental and quality plan as prescribed by the Client and shall ensure that his responsible persons and employees are made conversant with and adhere to such safe work practices.

11.3. The Principal Contractor shall development, implement and maintain the following systems prescribed within the Health & Safety Specification document where applicable:

- Fall protection plan, when there is a risk of falling.
- Confined space entry plan, when excavation work is performed.
- Electrical lockout and isolation plan, when work on electrical installations are to be performed.
- Mechanical lockout and isolation plan, when work on any driven machinery are to be performed. This includes ongoing mechanical work applied within a mechanical workshop.

11.4. The Principal Contractor shall ensure that work for which a permit is required by the Client is not performed by his employees prior to the obtaining of such a permit.

12. Health & Safety Meetings:

If required in terms of the OHS Act, the Principal Contractor shall establish his own health and safety committee(s) and ensure that his employees, being the committee members, hold health and safety meetings as often as may be required and at least once every three (3)

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months. The Client may elect to permit the Principal Contractor health and safety representatives to attend the Client's health and safety committee meetings.

13. Medical Examinations:

The Principal Contractor shall ensure that all his employees undergo routine medical examinations as and where necessary, as prescribed by the OHS Act to determine whether they are medically fit for the purposes of the work they are to perform. An Occupational Health Practitioner, as contemplated in the OHS Act must conduct these medical examinations.

14. Hazard Identification and Risk Assessment:

14.1. The Principal Contractor shall prior to the commencement of any activity, compile an issue based risk assessment of each activity.

14.2. The risk assessment should be accompanied by a risk assessment methodology that amongst others address:

- The risk assessment team.
- The risk assessment grading systems (likelihood/probability, severity/consequence and frequency).
- The revision of risk assessments on a scheduled basis and after any serious incident.
- The appointment and competence of the risk assessor.
- The hierarchy of controls.

15. Incident Reporting and Investigations:

15.1. All incidents referred to in Section 24 and Section 25 of the OHS Act shall be reported by the Principal Contractor to the Department of Labour and to the Client. The Client shall further be provided with copies of written documentation relating to any incident.

15.2. The Client retains an interest in the reporting of any incident as described above as well as in any formal investigation and/or inquiry conducted in terms of Section 32 of the OHS-Act into such incident.

15.3. The Principal Contractor may not publish any incident related statistics and/or information to any third party without the written consent of the Client.

16. Sub Contractors:

16.1. The Principal Contractor shall notify the Client of any subcontractor he may wish to subcontract to perform work on the project.

16.2. The plan surrounding the management of subcontractors should be clearly defined within the safety, health and environmental plan of the Principal Contractor. The following minimum requirements must apply to any subcontractor:

- The rules imposed to any subcontractors must be aligned to the rules of this 37.2 agreement.
- The Principal Contractor shall sign a Section 37.2 agreement with each subcontractor.
- The subcontractor must be issued with a permit prior to any work being performed on site during which the minimum legal requirements and competence of the subcontractor must be assessed.
- No non-compliant subcontractors may be allowed to perform any work.
- The subcontractors shall comply with the Health & Safety specification of the Client at all times.

16.3. The Client retains the right to reject or block any such subcontractor from entering

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the Client's premises.

16.4. The Principal Contractor shall ensure that work performed by the subcontractor is done under strict supervision of the Principal Contractor.

16.5. The Principal Contractor shall inform the Client of any difficulty encountered regarding compliance by the subcontractor with any health and safety instruction, procedure and/or legal provision applicable to the work the subcontractor

17. Security and Access:

17.1. The Principal Contractor shall ensure that employees observe the security rules of the Client at all times and shall not permit any person who is not directly associated with the work from entering the premises.

17.2. The Principal Contractor shall ensure that all materials, machinery or equipment brought by him onto the premises are recorded.

17.3. The security service provider assigned by the Client or Principal Contractor reserves the right, to search any person and/or vehicle entering and exiting the facility.

17.4. The Client reserves the right to test any person(s) for alcohol or drugs.

18. Emergency Management:

The Principal Contractor shall ensure that it complies with the emergency management plan which is include in the approved Health & Safety Plan.

19. Working at Heights:

19.1. The Principal Contractor shall prepare a fall protection plan for any work where there is a risk of falling according to the requirements of the OHS Act.

19.2. The fall protection plan may only be developed by a person with the necessary competency certificate(s) and who have been appointed in writing.

19.3. The fall protection plan must be kept readily available on site and all employees that will be governed by the plan must be trained on the content of the plan.

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20. Construction Work:

20.1. The Principal Contractor shall ensure that any construction work performed is done within the parameters prescribed by the Construction Regulations (2014).

20.2. The Client must be notified of any construction work well before the commencement of such work.

20.3. A construction health and safety officer registered with SACPCMP must be appointed in writing for any construction work being performed.

21. Hazardous Chemical Substances:

21.1. The Principal Contractor shall keep a list of all Hazardous Chemicals Substances used by it on a register.

21.2. The register shall be kept readily available for inspection.

21.3. The Principal Contractor shall keep on file or on a system, the material safety data sheet (MSDS) of each chemical used on site.

21.4. The Principal Contractor shall ensure that the emergency team members have been formally made aware of the material safety data sheets.

21.5. The storage of any hazardous chemical substance shall be in accordance with General Safety Regulation 4 or as per the Construction Regulations (2014), as contemplated within the OHS Act (85 of 1993).

22. Duty not to interfere or Misuse Anything Provided in Terms of Occupational Health, Safety and Environmental Management:

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The Principal Contractor shall ensure that its employees, agents and contractors does not interfere or misuse anything provided by the Client in the interest of safety, health and the protection of the environment.

23. Management Reports and Management Meetings:

23.1. The Principal Contractor must supply the Client with reports on the performance of its safety, health and environmental compliance programs.
23.2. These reports must be done based on the requirements and content determined by the Client from time to time.
23.3. The Principal Contractor shall attend meetings in the interests of safety, health and environmental management upon the formal request of the Client.

24. Fire Precautions and Facilities:

24.1. The Principal Contractor shall ensure that an adequate supply of fire-protection and first-aid facilities are provided for the work to be performed on the Client's premises.
24.2. The Principal Contractor shall ensure that the work site and surrounding area is at all times maintained to reasonably practicable level of hygiene and cleanliness. In this regard, no loose materials shall be left lying about unnecessarily and the work site shall be cleared of waste material regularly and on completion of the work.

25. Hygiene and Cleanliness:

The Principal Contractor shall ensure that the work site and surrounding area is at all times maintained to a reasonably practicable level of hygiene and cleanliness. In this regard, no loose materials shall be left lying about unnecessarily and the work site shall be cleared of waste material regularly and on completion of the work.

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26. Transport:

26.1. The Principal Contractor shall ensure that all road vehicles used on the premises are in a roadworthy condition and are licensed and insured. All drivers shall have relevant and valid driving licenses and no vehicle shall carry passengers unless it is specifically designed to do so.
26.2. In the event that any hazardous substances are to be transported, the Principal Contractor shall ensure that the requirements of the Hazardous Chemical Substances Regulations 1995 are complied with at all times.

27. No Nuisance:

27.1. The Principal Contractor shall ensure that neither he nor his employees undertake any activity that may cause environmental impairment or constitute any form of nuisance to the surroundings.
27.2. The Principal Contractor shall ensure that no hindrance, hazard, annoyance or inconvenience is inflicted on any other party adjacent to the site. Where such situations are unavoidable, the Principal Contractor shall give prior notice to the Client and adjacent ptoperties.

28. Intoxication:

No intoxicating substance of any form shall be allowed on site. Any person suspected of being intoxicated shall not be allowed on the site. Any person required to take medications shall notify the relevant responsible person thereof, as well as the potential side effects of the medication.

29. Personal Protective Equipment:

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The Principal Contractor shall ensure that his responsible persons and employees are provided with adequate personal protective equipment (PPE) for the work they may perform and which must be in accordance with the requirements of General Safety Regulation 2(1) of the OHS Act. The Principal Contractor shall further ensure that his responsible persons and employees wear the PPE issued to them at all material times. PPE shall be issued free of charge to the employees unless otherwise provided for by law.

30. Plant, Machinery and Equipment:

30.1. The Principal Contractor shall ensure that all the plant, machinery, equipment and/or vehicles he may wish to utilize on the Client's premises is/are at all times of sound order and fit for the purpose for which it/they is/are intended, and that it/they complies/comply with the requirements of the OHS Act.

30.2. In accordance with the provisions of Section 10 (4) of the OHS Act, the Principal Contractor hereby assumes the liability for taking the necessary steps to ensure that any article or substance that it erects or installs at the premises, or manufactures, sells or supplies to or for the Client, complies with all the prescribed requirements and will be safe and without risks to health and safety when properly used.

31. Operation of Agreement:

This agreement shall remain in force for the duration of the work to be performed by the Principal Contractor and/or while any of any of the Principal Contractor's employees are present on the client's premises.

32. Headings:

The headings as contained in this agreement are for reference purposes only and shall not be construed as having any interpretative value in them or as giving any indication as to the meaning of the contents of the paragraphs contained in this agreement.

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Acceptance of Agreement:		
Signed at _____on the_____day of 20___		
Client:	**Signature:**	**Date:**
Principal Contractor:	**Signature:**	**Date:**

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Annexure 4: Acknowledgement of Receipt

As the authorised representative of The Principal Contractor, I _____ acknowledges receipt of these Health and Safety Specifications (HSS) for this project.

The above mentioned representative will study the specification and where applicable comply with the obligations, requirements and specifications as set out within this specification.

The said company representative further acknowledges that in complying with this document, it does not relieve The Principal Contractor from any other statutory requirements, regulations or standards that this specification may be silent on.

_____ _____
The Principal Contractor Date

_____ _____
Client/Clients Agent Date

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C4 Site Information

Site information is discussed in part C3.1

C5 Drawings

The Works shall be carried out in accordance with the following drawings which are included in Volume 4: Drawings and form part of the contract documents:

Drawing No	Drawing Title
2302584/C/100	Locality Plan
2302584/C/101	Nameboard
2302584/C/102	Sewer Details
2302584/C/103	Water Details
2302584/C/200	Civil Services Layout
2302584/S/001	Steel Frame Structure
2302584/S/002	Pavilion Roof Structure
D1 100	Floor Plan
D1 201	Section Pavilion
D1 202	Sections
D1 301	Elevations

INVICTUS Engineering Services

Client / Employer
LANGEBERG MUNICIPALITY

Project
NEW PAVILLION FOR SPORTGROUND, MCGREGOR

Plan Description
LOCALITY PLAN

	Name	Signature
Designed	ZM	
Drawn	ZM	
Checked	JS	
Approved	JS	
Pr. No.		

Scale: NTS (0 5 10 15 20mm) ORIGINAL SIZE A3

Contract No. 2302584

Drawing No. 2302584/C/101

Revision A

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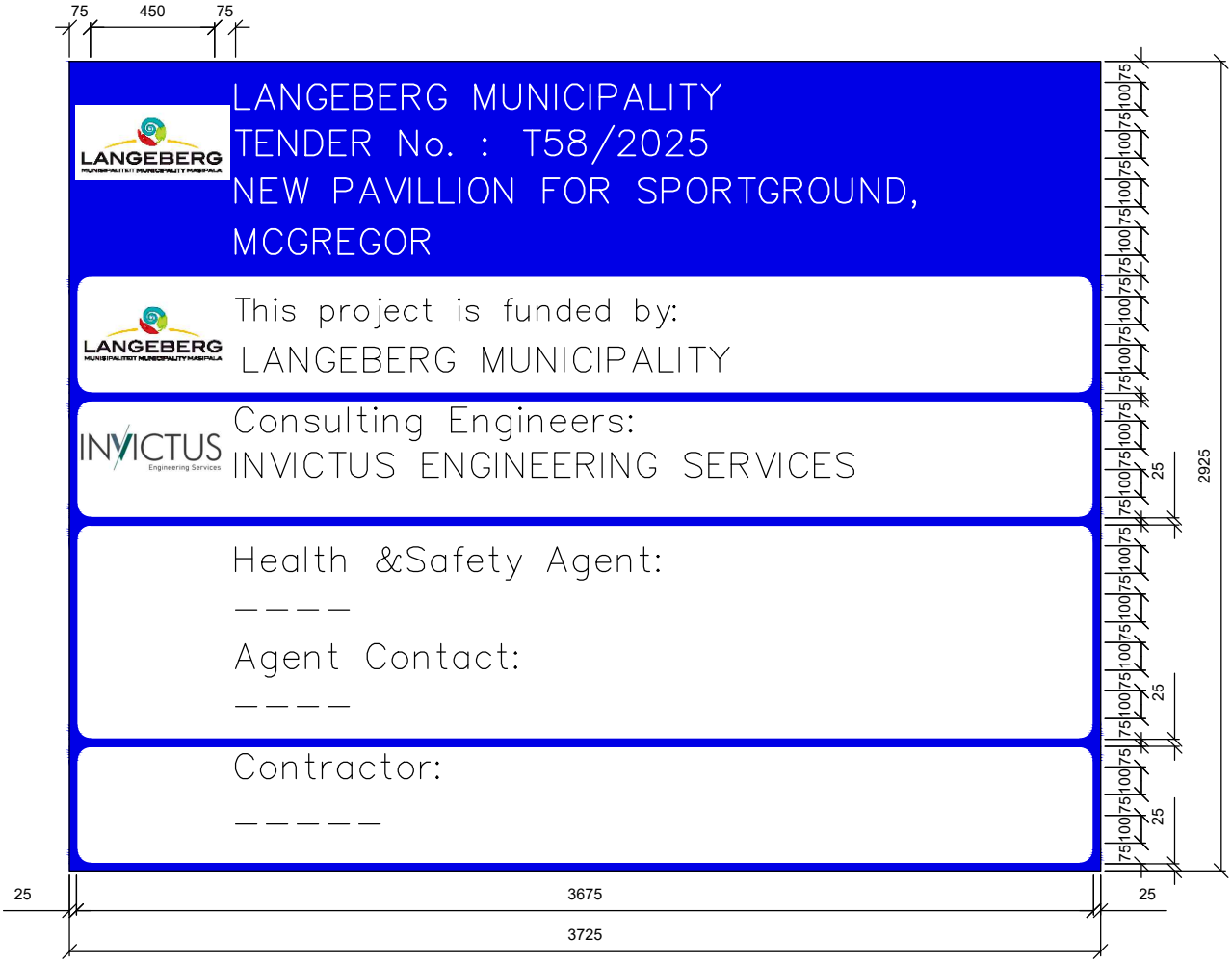

NOTES:

1. SIGN MATERIALS
   1.1. CONSTRUCTION
      1.1.1. SIGN BOARD TO BE MADE OF 1.0mm THICK RUST RESISTANT CHROMADECK WITH SUFFICIENT BRACING TO PREVENT WARPING
   1.2. SIGN FACE COLOURING, MADE WITH ADHESIVE MATERIALS AS PER MANUFACTURER'S SPECIFICATIONS
      1.2.1. PRIMARY BACKGROUND = OXFORD BLUE MATT FINISH CLASS SM
      1.2.2. SECONDARY BACKGROUND = WHITE MATT FINISH CLASS SM
      1.2.3. BOARD TITLE LETTERING = WIHTE MATT FINISH CLASS SM
      1.2.4. OTHER LETTERING = BLACK MATT FINISH CLASS SM
   1.3. FONT TYPES
      1.3.1. FONT = HELVETICA MEDIUM (SIZES AS SHOWN ON THE LAYOUT)
2. THE SIGN BOARD IS TO BE MOUNTED ON A STRONG SUPPORTING WOODEN OR STEEL STRUCTURE, APPROVED BY THE ENGINEER.
3. THE SIGN MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD TO ENSURE THAT IT REMAIN ERECTED AND CLEAN.

0 5 10 15 20mm

ORIGINAL SIZE A4

INVICTUS Engineering Services
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Website: www.invictuseng.co.za

Client / Employer	LANGEBERG MUNICIPALITY
Project	NEW PAVILLION FOR SPORTGROUND, MCGREGOR
Plan Description	NAMEBOARD
Scale	NTS
Contract No.	2302584
Drawing No.	2302584/100
Revision	A

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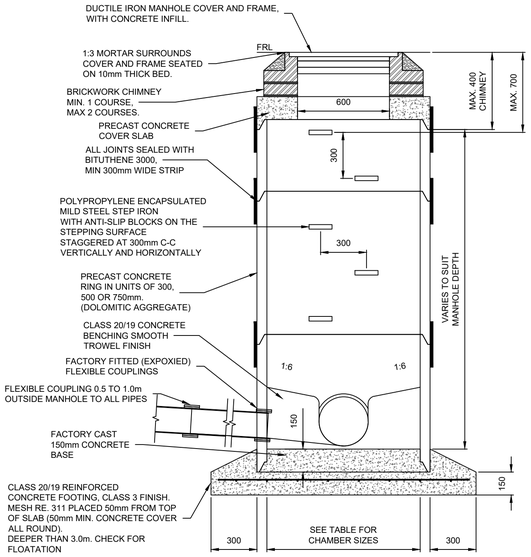
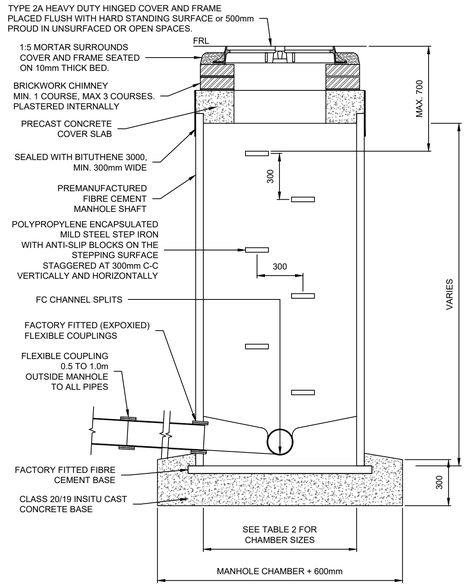


CHAMBER SIZE TABLE		
MAIN PIPE	JUNC. PIPE	CHAMBER SIZE
160 - 250	160 - 200	1000
275 - 325	160 - 250	1200
350 - 400	160 - 225	1200

TYPICAL SEWER MANHOLE DETAIL (PRECAST CONCRETE RING TYPE)

SCALE 1:20

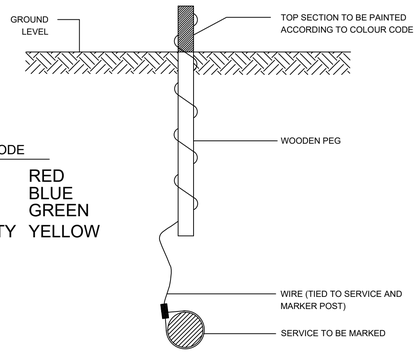


TYPICAL FC SEWER MANHOLE DETAIL

SCALE 1:20

TABLE 2

MAIN PIPE	JUNC. PIPE	MANHOLE DIA
Ø160 - Ø250	Ø160 - Ø200	1000mm
Ø275 - Ø325	Ø160 - Ø250	1200mm



COLOUR CODE

SEWER	RED
WATER	BLUE
TELKOM	GREEN
ELECTRICITY	YELLOW

SERVICE MARKER

NTS

Rev.	Date	Description	Rev. by
A	11/11/2025	FOR TENDER	ZM

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E-Mail: info@invictuseng.co.za
Website: www.invictuseng.co.za

Client/Employer: LANGEBERG MUNICIPALITY

Project: NEW PAVILLION FOR SPORTGROUND, MCGREGOR

Plan Description: TYPICAL SEWER DETAILS

	Name	Signature
Designed	ZM	
Drawn	ZM	
Checked	JS	
Approved	JS	
Pr. No.		

Scale: AS SHOWN — ORIGINAL SIZE A1

Contract No. 2302584

Drawing No. 2302584/C/102 — Revision A

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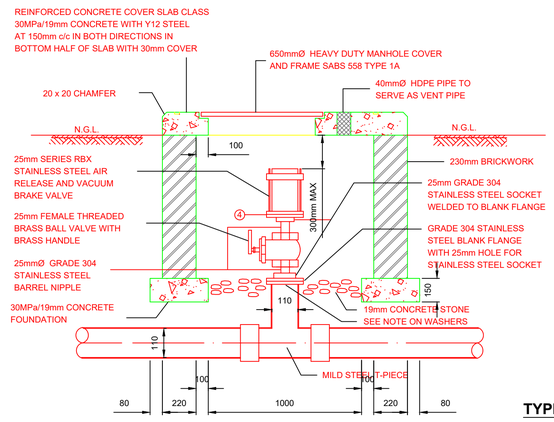
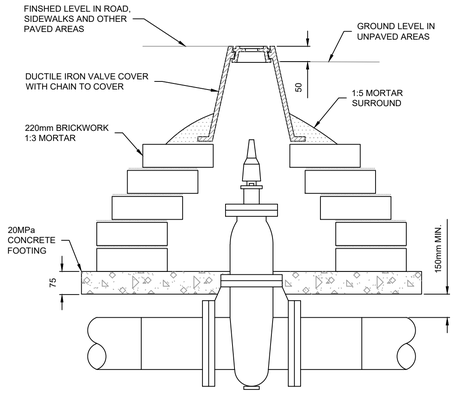


TYPICAL AIR VALVE DETAIL

N.T.S.

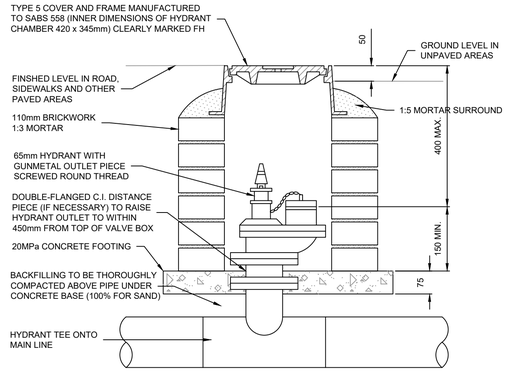
NOTES:

1. ALL MILD STEEL ITEMS SHALL BE COATED INTERNALLY AND EXTERNALLY WITH 3 COATS OF CARBOLINE 891, MINIMUM TOTAL THICKNESS OF 250 MICRON. SEE PROJECT SPECIFICATION FOR CORROSION PROTECTION OF ALL STEEL AND CAST IRON ITEMS.
2. WASHERS ON BOLTS AND NUTS TO BE FABRIC REINFORCED PHENOLIC RESIN, THICKNESS 3,1mm.
3. THIS DRAWING IS APPLICABLE WHERE NOT UNDER CARRIAGE WAY.
4. GRADE 304 STAINLESS STEEL BLANK FLANGE WITH 25mm HOLE TO SUIT AIR VALVE.



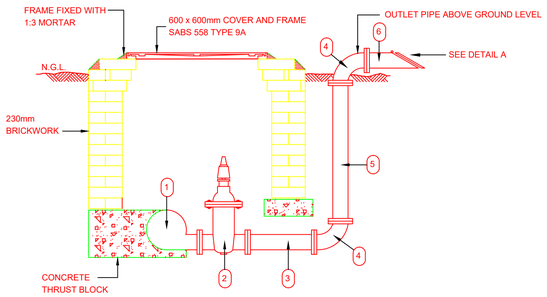
TYPICAL VALVE CHAMBER DETAIL

N.T.S.

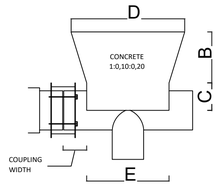


TYPICAL HYDRANT CHAMBER DETAIL

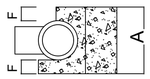
N.T.S.



TEE SIZE (mm)	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	MINIMUM FACE AREA (m{)	VOLUME (m})
100 x 100	330	250	110	640	200	75	0.21	0.039
150 X 100	330	250	140	640	200	75	0.21	0.043



NOTE:
THE SAME FACE AREA DIMENSIONS MUST BE USED FOR END-CAPS OR REDUCERS, BUT IT MUST BE ENSURED THAT NO COUPLINGS ARE ENCASED



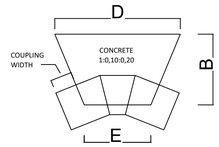
DESIGN CRITERIA
SOIL RESISTANCE - 100kPa (CLAY)
TEST PRESSURE - 18 BAR

THRUST BLOCKS FOR TEES

TYPICAL THRUST BLOCK DETAILS

N.T.S.

(mm)		A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	MINIMUM FACE AREA (m{)	VOLUME (m})
45 DEG BEND	100	300	350	50	400	175	0.115	0.026
45 DEG BEND	150	300	400	50	860	300	0.260	0.067



DESIGN CRITERIA
SOIL RESISTANCE - 100kPa (CLAY)
TEST PRESSURE - 18 BAR

THRUST BLOCKS FOR BENDS

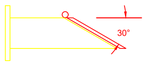
TYPICAL THRUST BLOCK DETAILS

N.T.S.

NOTES:

1. SCOUR OUTLET PIPE MUST BE ON THE SIDE WITH THE NATURAL GROUND SLOPING AWAY FROM CHAMBER.
2. SCOUR VALVE CHAMBER 800 x 800mm.
3. ALL STEEL PIPES MUST BE HOT DIPPED GAVLANISED.

1. CAST IRON SCOUR VALVE T-PIECE WITH 100mm[OUTLET
2. 100mm[FLANGED GATE VALVE
3. 100mm[FLANGED GALVANISED STEEL PIPE 500mm LONG
4. 100mm[FLANGED 90] BEND
5. 100mm[FLANGED GALVANISED STEEL PIPE. LENGTH TO SUIT OR 1000mm
6. 100mm[OUTLET - ONE END FLANGED - OTHER END SLANTED TO DETAIL A COVER AND GALVANISED HINGE



DETAIL A

TYPICAL DETAIL OF SCOUR VALVE AND CHAMBER

N.T.S

Rev.	Date	Description	Rev. by
A	11/11/2025	FOR TENDER	ZM

INVICTUS Engineering Services
Hybrid House, Modena Building
5th Floor, C/o Durbanville & Bella Rosa Rd
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Tel: (021) 975 1718
E-Mail: info@invictuseng.co.za
Website: www.invictuseng.co.za

Client/Employer: LANGEBERG MUNICIPALITY

Project: NEW PAVILLION FOR SPORTGROUND, MCGREGOR

Plan Description: TYPICAL WATER DETAILS

	Name	Signature
Designed	ZM	
Drawn	ZM	
Checked	JS	
Approved	JS	
Pr. No.		

Scale: AS SHOWN — ORIGINAL SIZE A1

Contract No. 2302584

Drawing No. 2302584/C/103 — Revision A

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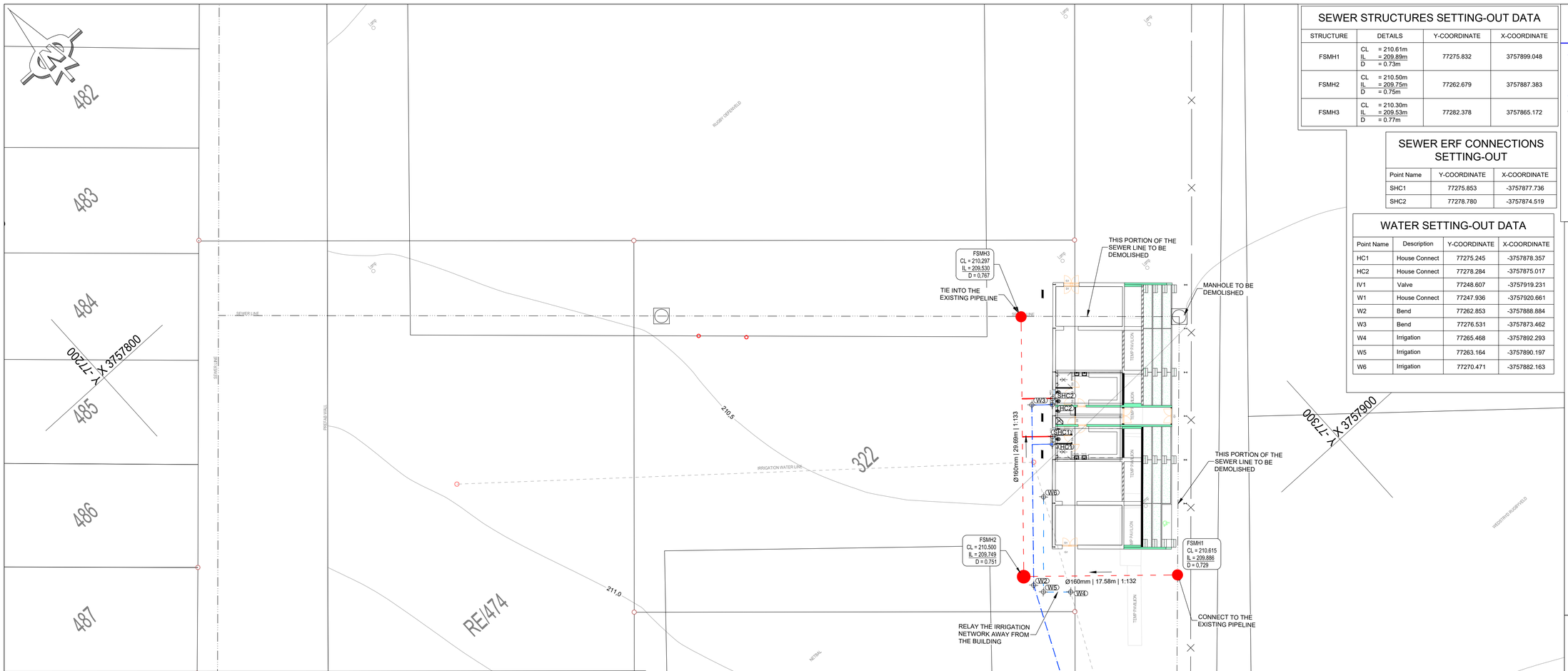


SEWER STRUCTURES SETTING-OUT DATA

STRUCTURE	DETAILS	Y-COORDINATE	X-COORDINATE
FSMH1	CL = 210.61m IL = 209.89m D = 0.73m	77275.832	3757899.048
FSMH2	CL = 210.50m IL = 209.75m D = 0.75m	77262.679	3757887.383
FSMH3	CL = 210.30m IL = 209.53m D = 0.77m	77282.378	3757865.172

SEWER ERF CONNECTIONS SETTING-OUT

Point Name	Y-COORDINATE	X-COORDINATE
SHC1	77275.853	-3757877.736
SHC2	77278.780	-3757874.519

WATER SETTING-OUT DATA

Point Name	Description	Y-COORDINATE	X-COORDINATE
HC1	House Connect	77275.245	-3757878.357
HC2	House Connect	77278.284	-3757875.017
IV1	Valve	77248.607	-3757919.231
W1	House Connect	77247.936	-3757920.661
W2	Bend	77262.853	-3757888.884
W3	Bend	77276.531	-3757873.462
W4	Irrigation	77265.468	-3757892.293
W5	Irrigation	77263.164	-3757890.197
W6	Irrigation	77270.471	-3757882.163

LEGEND

WATER

- PROPOSED Ø50mm HDPE PN 12 WATER PIPE
- Ø25 HDPE PN 12 WATER CONNECTION
- END CAP
- PROPOSE ISOLATION VALVE
- PROPOSE IRRIGATION PIPE
- EXISTING WATER PIPE (DRINKING)
- EXISTING IRRIGATION PIPE

SEWER

- Ø160mm SEWER uPVC PIPE
- SEWER MANHOLE
- SEWER CONNECTION PIPE
- EXISTING SEWER PIPE

WATER NOTES:

1. ALL STRUCTURE COVER LEVELS:
1.1. OUTSIDE ROAD RESERVE: 100mm HIGHER THAN FINISHED GROUND LEVELS.
2. ALL MATERIAL, WORKMANSHIP AND TESTING COMPLY WITH SANS 1200.
3. REFER TO THE STANDARD DETAILS AS BOUND IN THE DOCUMENT.
4. ALL HYDRANTS AND VALVE POSITIONS AS PER DRAWING.

SPECIFICATIONS:

1. ALL PIPES ARE INSTALLED AT A MINIMUM 1.0m FROM ANY BUILDING STRUCTURE UNLESS OTHERWISE SHOWN.
2. MINIMUM PIPE GRADIENTS: 0,3%.
2.1. MINIMUM PIPE COVER FOR PIPES 75 - 110mm: 0,8m AND 160-200mm: 1.0m.
2.2. CLASS C BEDDING FOR FLEXIBLE PIPES (SANS 1200 LB).
3. 110-350mm PIPES TO BE uPVC CLASS 12 (SANS 996) USING SPIGOT AND SOCKET RUBBER RING JOINTS.
4. ALL FITTINGS, ACCESSORIES AND SPECIALS ARE CLASS 16 (SANS AND ISO STANDARD) JASWIC APPROVED.
5. VALVES:
5.1. ALL VALVES ARE RESILIENT SEAL TYPE.
5.2. ALL VALVES ARE CLOCKWISE OPENING/LEFT HAND CLOSING.
5.3. DIRECTION OF OPENING ARE CLEARLY MARKED ON VALVE BODY OR SPINDLE CAP.
5.4. ALL VALVES ARE HEAVY DUTY, CLASS 16.
5.5. VALVES HAVE NON-RISING SPINDLES.
5.6. ALL VALVES ARE FITTED WITH DUCTILE IRON CAP TOPS, SECURED WITH RETAINING BOLTS.
5.7. VALVE BELL TOBIES ARE DUCTILE IRON CONFORMING TO EN 124.
5.8. VALVE COVERS ARE PAINTED BLUE.

6. FITTINGS AND SPECIALS:
6.1. ALL BRASS FITTINGS ARE DZR BRASS (SANS APPROVED).
6.2. ALL MILD STEEL PIPES AND FITTINGS ARE COATED INTERNALLY AND EXTERNALLY WITH PLASCOAT PPA 571 HES, TO A MINIMUM 0.25mm COATING THICKNESS OR CARBOLINE 891 (3 COATS, MINIMUM 250 MICRON/COAT).
6.3. ONLY STAINLESS STEEL BOLTS AND NUTS USED.
7. COMPRESSION FITTINGS FOR HDPE PIPES CONFORM TO ISO 7/1, ISO 3458, ISO 3503, ISO 3501, ISO 3459 AND ISO/DIS 14236.
8. HOUSE CONNECTIONS:
8.1. SADDLES ARE DUCTILE IRON OR CAST IRON, WRAPPED IN 'DENSO' TAPE OR SIMILAR APPROVED.
8.2. REFER TO THE DOCUMENT FOR ADDITIONAL STANDARD DETAILS AND SPECIFICATIONS.
9. ALL MATERIAL SPECIFICATION ARE CONFIRMED BY MUNICIPALITY BEFORE ORDERS ARE PLACED.

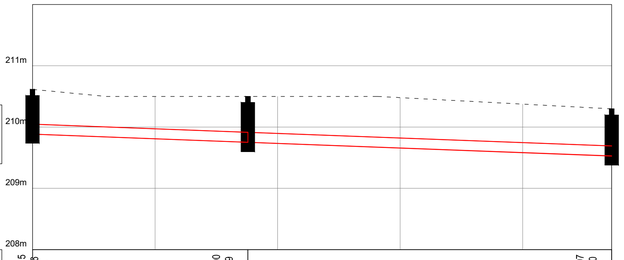
SEWER NOTES:

1. FINAL MANHOLE COVER LEVELS:
2. ALL ERF CONNECTIONS TO BE Ø110MM.
3. MANHOLE COVER OPENING ARE CENTRAL OVER MAIN PIPE ON THE DOWNWARD STREAM SIDE.
4. THE CONNECTIONS ARE PROVIDED WITH END CAPS AND MARKED BY MEANS OF A SERVICE MARKER AS PER THE DETAIL DRAWINGS.

SPECIFICATIONS:

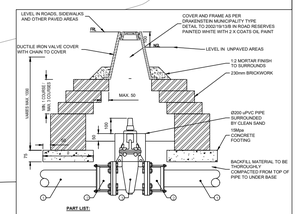
1. MINIMUM MAIN PIPELINE DIAMETERS ARE 160mm, CLASS 34 HEAVY DUTY (SANS 791) USING SPIGOT AND SOCKET RUBBER RING JOINTS.
2. CLASS C BEDDING FOR FLEXIBLE PIPES (SANS 1200 LB).
3. MANHOLES:
3.1. DOLOMITE AGGREGATE AND LOW ALKALI SULPHATE RESISTANT CEMENT TO SANS 471 ARE USED FOR ALL CONCRETE, MORTAR OR SCREEDING.
3.2. ALL JOINTS ARE SEALED WITH SIKAFLEX-PRO 2HP OR SIMILAR APPROVED.
ALL EXTERNAL JOINTS BETWEEN CONCRETE RINGS ARE SEALED WITH BITUTHENE 3000, MIN 300mm WIDE OR SIMILAR APPROVED.
3.3. ALL BRICKWORK TO BE PLASTERD INTERNALLY AND EXTERNALLY (MIN. 13mm THICK) AND SEALED EXTERNALLY WITH TWO COATS FLINTKOTE 3(ABE) AND ONE COAT SILVAKOTE(ABE).
3.4. CONNECTING PIPEWORK TO BE FITTED WITH FLEXIBLE JOINTS.
3.5. ALL MANHOLES IN MUNICIPAL ROAD RESERVE TO CONSIST OF COVERS AND FRAMES WITH CONCRETE INFILL.
3.6. ALL INTERNAL MANHOLES TO BE NORMAL DUCTILE IRON HINGED COVERS.
4. ERF CONNECTIONS:
4.1. SEWER ERF CONNECTIONS ARE 110mm NOMINAL DIAMETER AND IS EXTENDED TO 1m BEHIND KERB OR AS PER SETTING OUT INFORMATION.
4.2. ERF CONNECTIONS ARE TO BE PLACE 1.3m BELOW FINAL SURFACE LEVEL ON ERF.
4.3. THE POSITION OF THE ERF CONNECTIONS ARE MARKED ON THE KERB.

PROPOSED SEWER PIPELINE -FSMH1- FSMH3
SCALE:
VERTICAL 1:40
HORIZONTAL 1:200

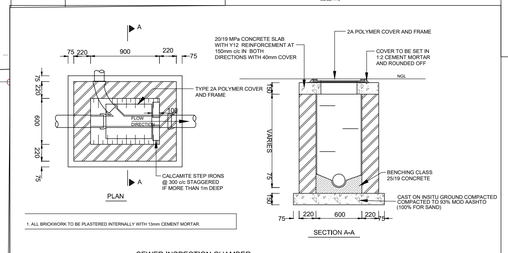


Datum:

	FSMH1 CL = 210.615 IL = 209.886 D = 0.729	Ø160 mm uPVC Class 34	FSMH2 CL = 210.500 IL = 209.749 D = 0.751	Ø160 mm uPVC Class 34	FSMH3 CL = 210.297 IL = 209.530 D = 0.767
REFERENCE					
DISTANCE (m)	0.000		17.580		47.268
GROUND LEVEL	210.615		210.500		210.297
PIPE INVERT LEVEL	209.886		209.753 / 209.753		209.530
SLOPE / LENGTH		0.8% (1:131.8) 17.58m		0.7% (1:133.4) 29.69m	



TYPICAL VALVE DETAIL
UNAPVE WIRE
SCALE: 1:10



1: ALL BRICKWORK TO BE PLASTERED INTERNALLY WITH 13mm CEMENT MORTAR.

SEWER INSPECTION CHAMBER
NTS

Rev.	Date	Description	Rev. by
B	17/11/2025	FOR TENDER	CM
A	14/11/2025	FOR APPROVAL	CM

INVICTUS Engineering Services

Client/Employer: LANGEBERG MUNICIPALITY

Project: NEW PAVILION FOR SPORTSGROUND, MCGREGOR

Plan Description: PROPOSED SERVICES LAYOUT

	Name	Signature
Designed	CM	
Drawn	CM	
Checked	JS	
Approved	JS	
Pr. No.		

Scale: 1:250 — ORIGINAL SIZE A1

Contract No. 2302584

Drawing No. 2302584/C/200 — Revision B

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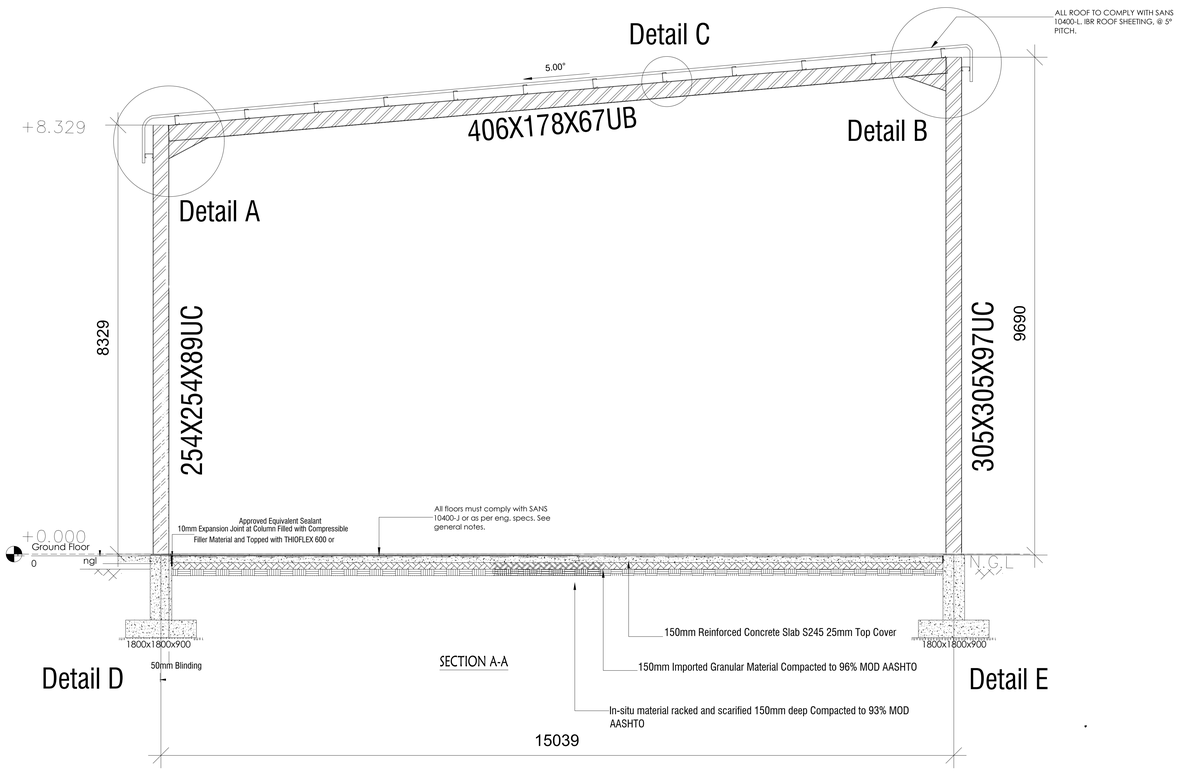
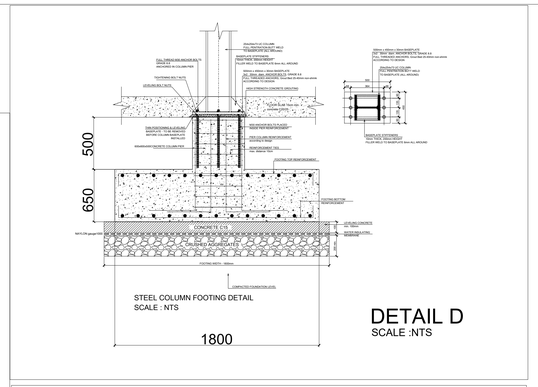
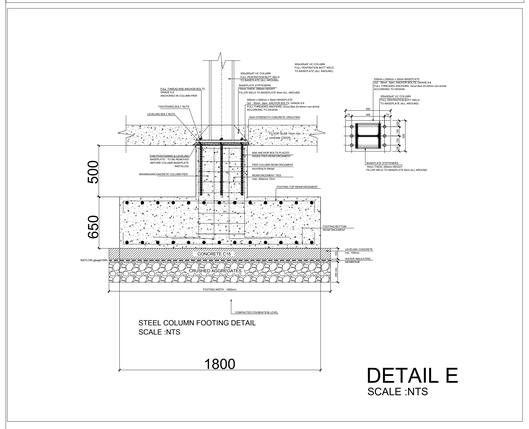




DETAIL D
SCALE :NTS



DETAIL E
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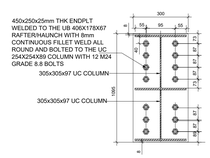
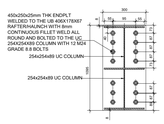
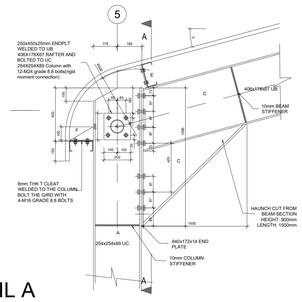
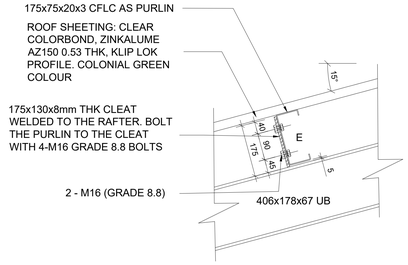


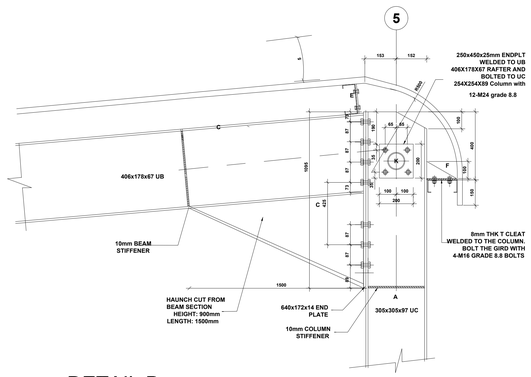




DETAIL A
SCALE :NTS



DETAIL C
SCALE :NTS



DETAIL B
SCALE :NTS

GENERAL NOTES

1. Design & Codes
- All work shall be carried out in accordance with the latest editions of the following standards:
  - o SANS 10100 – Structural use of concrete
  - o SANS 10162-1 – Structural use of steel
  - o SANS 10400 – National Building Regulations (all relevant parts)
  - o SANS 2001 Series – Construction works specifications
  - o SANS 10163 – The structural use of timber (if applicable)
  - o SANS 10145 – Reinforcement fixing and bending

2. Dimensions & Levels
- All dimensions are in millimetres (mm) unless otherwise stated.
- All levels are in metres (m) and are related to the NGL (Natural Ground Level) or as indicated on the drawing.
- The contractor shall verify all dimensions and levels on site before commencing work.
- Any discrepancies must be reported to the Engineer before construction begins.

3. Concrete Works
- Concrete strength classes unless otherwise stated:
  - o Blinding: C15
  - o Footings & Slabs: C20/25
  - o Columns & Beams: C25/30 minimum
- Reinforcement shall comply with SANS 920 and be clean, free of rust, oil, and scale.
- Minimum concrete cover to reinforcement shall be:
  - o Footings: 50 mm
  - o Slabs: 25 mm
  - o Columns & Beams: 40 mm
- Vibrate all concrete thoroughly. No honeycombing shall be accepted.
- Provide expansion joints at 10 m maximum intervals and as detailed.
- Curing to be as per SANS 2001-CC1 for a minimum of 7 days.

4. Steelwork
- All structural steelwork shall comply with SANS 1431 (Grade 300WA or equivalent).
- Bolts: Grade 8.8 high-strength bolts unless noted otherwise.
- Welds to comply with SANS 044 and be continuous where indicated.
- Welds and bolts shall be visually inspected and tested as per Engineer's direction.
- All exposed steel to receive one coat zinc-rich primer and two coats of epoxy paint unless galvanized.
- Erection tolerances as per SANS 10162-1.

5. Foundations
- Foundations shall rest on approved bearing strata as determined by the Engineer.
- If unsuitable material is encountered, notify the Engineer immediately.
- Compacted fill material shall achieve:
  - o 93% Mod. AASHTO for in-situ
  - o 96% Mod. AASHTO for imported granular material
- Provide damp-proof membrane (1000 gauge nylon) under all slabs on ground.

6. Structural Connections
- All baseplates and stiffeners to be 10 mm thick minimum unless shown otherwise.
- Grout all baseplates with non-shrink high-strength grout (e.g. Thioflex 600 or approved equivalent).
- All welds to be 6 mm fillet welds unless otherwise noted.
- Anchor bolts to be M30 Grade 8.8 full-threaded as shown in footing details.

7. Roofing
- Roof sheeting: IBR / Klip-Lok, 0.53 mm thick Zincalume AZ150, colour Colonial Green (or as specified).
- Roof pitch: 5° minimum.
- All roofing shall comply with SANS 10400-L.
- Provide proper flashings and sealants to prevent leaks.

8. General Requirements
- The contractor is responsible for temporary works, bracing, and safety until the structure is self-supporting.
- No structural element shall be altered without the Engineer's written approval.
- All setting out to be verified and approved by the Engineer.
- Shop drawings to be submitted for approval before fabrication.
- The contractor shall ensure that all work complies with the Occupational Health and Safety Act (OHS Act, 1993).

Rev.	Date	Description	Rev. by
A	10/11/25	FOR INFORMATION	DL

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Bellville 7530
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E-Mail: info@invictuseng.co.za
Website: www.invictuseng.co.za

Client/Employer
LANGEBERG MUNISIPALITEIT MUNICIPALITY MASIPALA

Project
MCGREGOR SPORTSFIELDS-NEW SPECTATOR PAVILION
WESTERN CAPE

Plan Description
STEEL FRAME STRUCTURE

	Name	Signature
Designed	DL	
Drawn	DL	
Checked	MJ	
Approved	MJ	
Pr. No.	201170169	

Scale 1:200
0 5 10 15 20 30 50mm
ORIGINAL SIZE A0
Contract No. 2302584
Drawing No. 2302584/S/001
Revision A

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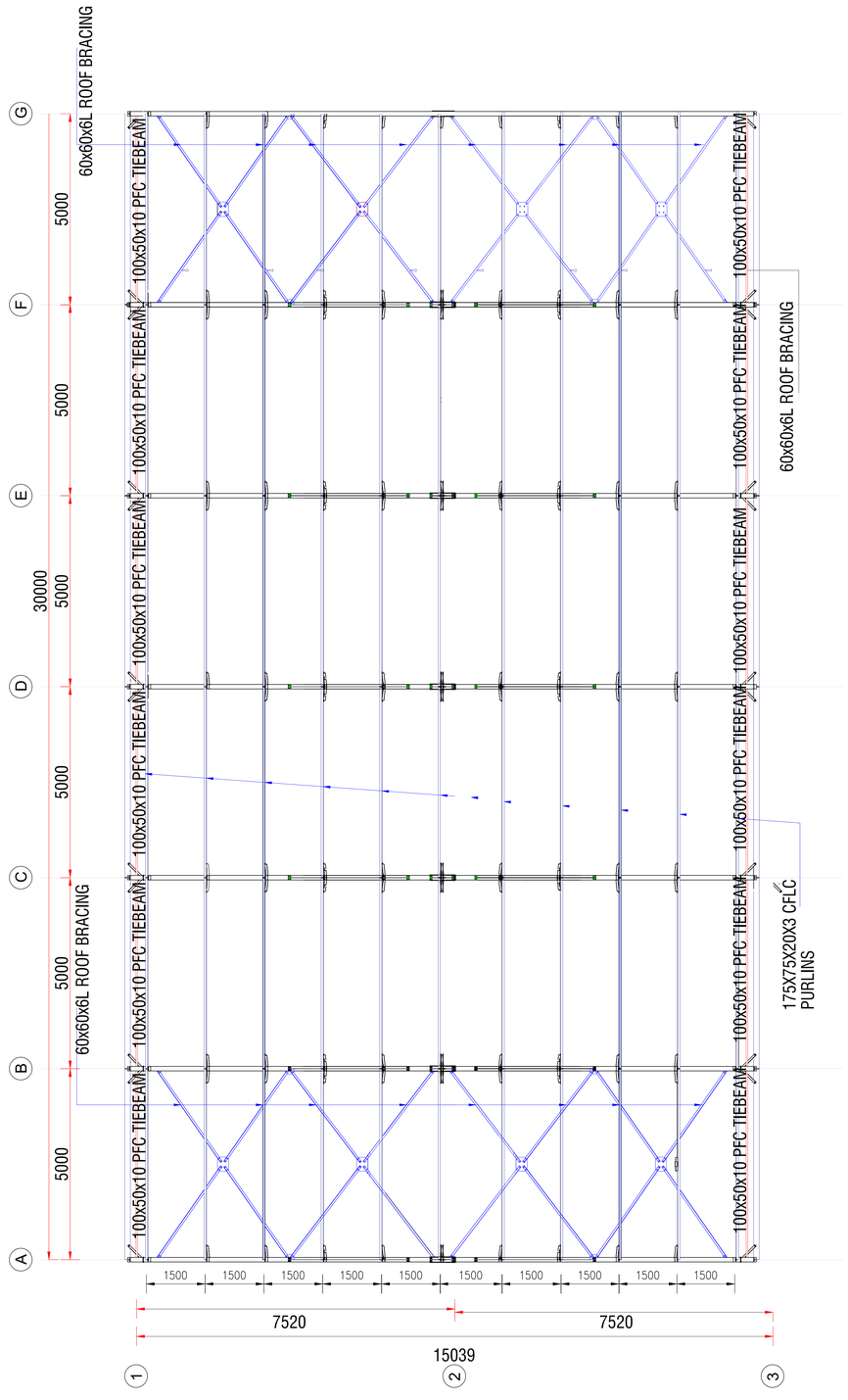
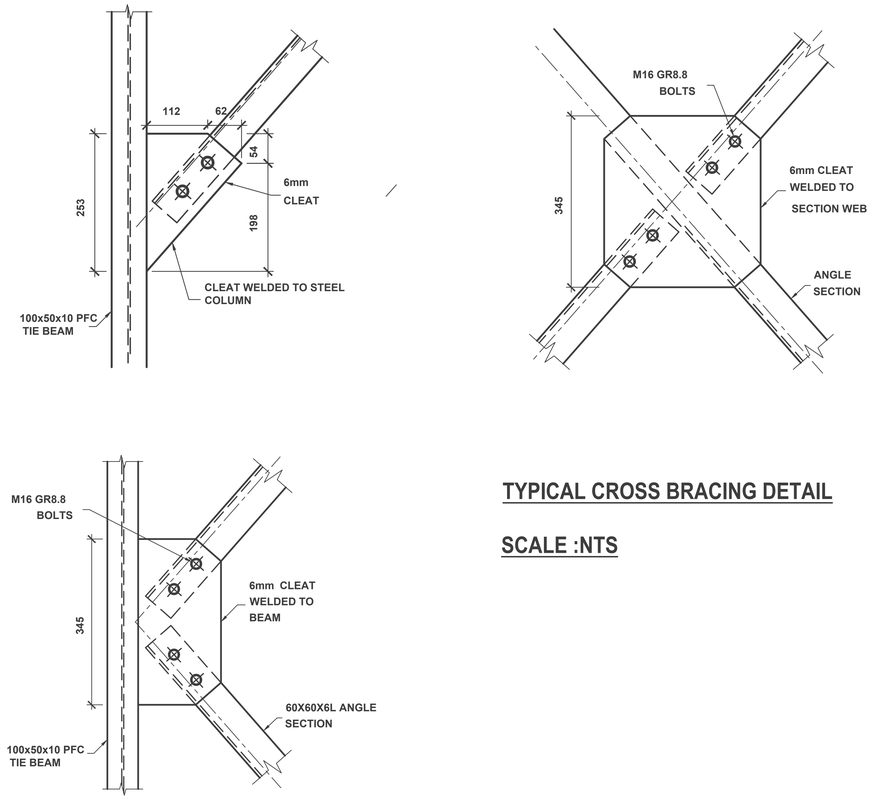


ROOF LAYOUT
SCALE 1:100



TYPICAL CROSS BRACING DETAIL

SCALE :NTS

GENERAL NOTES – STEEL ROOF STRUCTURE

1. **SCOPE**
- This drawing details the structural steel roof framing and bracing layout for the McGregor Sportsfields – New Spectator Pavilion.
- The roof consists of cold-formed purlins, angle cross-bracing, and PFC tie beams, all supported on portal frames shown on the structural framing drawings.
- All members, connections, and bracing shall be fabricated and installed as detailed herein and in accordance with the Engineer's specifications.

2. **STRUCTURAL STEEL MATERIALS**
- All steel sections shall be Grade 300WA to SANS 1431 unless otherwise noted.
- Bolts shall be Grade 8.8 high-strength to SANS 1700.
- Welding to comply with SANS 044.
- All steelwork to be hot-dip galvanized after fabrication to SANS 121 / ISO 1461, minimum coating 80 µm, or receive 1 coat zinc-rich primer + 2 coats epoxy enamel for internal steelwork.

3. **BRACING SYSTEM**
- Roof bracing: 60×60×6 mm equal angles in "X" configuration between rafters, fixed with M16 Grade 8.8 bolts through 6 mm cleats welded to the beam and column webs.
- Tie beams: 100×50×10 mm PFC sections connecting column bases laterally, fixed with 6 mm welded cleats and M16 bolts.
- Bracings shall be installed taut, with no slack, and tensioned evenly across the roof bays.
- Bracing bays are located as shown on the roof plan (grid lines A–G / 1–3) to provide longitudinal and roof-plane stability.
- Ensure all braces and tie beams are installed before the final sheeting is placed.

4. **PURLINS AND CONNECTIONS**
- Roof purlins: 175×75×20×3 mm cold-formed lipped channels (CFLC) spaced at 1500 mm c/c.
- Purlins to be fixed to rafters using 8 mm thick T-cleats and M16 Grade 8.8 bolts, 4 bolts per cleat connection.
- Provide anti-sag rods (M12) at mid-span for purlin stability if spans exceed 5.5 m.
- Fly-bracing from each purlin line to rafter compression flange using flat bars 40×5 mm.

5. **TIE BEAMS AND STABILITY MEMBERS**
- Tie beams act as horizontal ties to resist the thrust and lateral load transfer between portal frames.
- All tie beams (100×50×10 PFC) shall be fixed in line with roof bracing locations as shown.
- Ensure alignment and continuity through gusset plates for load transfer.

6. **ROOF SHEETING**
- Roof sheeting shall be 0.53 mm thick Zincalume AZ150, Klip-Lok profile, colour Colonial Green (or as approved by architect).
- Roof pitch shall be 5° minimum.
- Roof sheeting shall comply with SANS 10400-L for roofing.
- All fixings, flashings, and closures shall be installed per the sheeting manufacturer's specifications to ensure full weatherproofing.

7. **ERECTION AND ALIGNMENT**
- Contractor to ensure portal frames, tie beams, and bracing are plumb and square before fixing roof purlins and sheeting.
- Temporary bracing shall remain until all permanent bracing and sheeting are in place.
- Tolerances as per SANS 10162-1.
- All bolts to be fully tightened after alignment is confirmed.

Rev.	Date	Description	Rev. by
A	10/11/25	FOR INFORMATION	DL

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Client/Employer
LANGEBERG MUNISIPALITEIT MUNICIPALITY MASIPALA

Project
MCGREGOR SPORTSFIELDS-NEW SPECTATOR PAVILION
WESTERN CAPE

Plan Description
PAVILION ROOF STRUCTURE

	Name	Signature
Designed	DL	
Drawn	DL	
Checked	MJ	
Approved	MJ	
Pr. No.	201170169	

Scale 1:200
0 5 10 15 20 30 50mm
ORIGINAL SIZE A1
Contract No. 2302584
Drawing No. 2302584/S/002
Revision A

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Room Schedule

Number	Name	Area
1	Future Store Room	70 m²
2	Future Store Room	70 m²
3	Locker Room	25 m²
4	Locker Room	25 m²
5	Passage	11 m²
6	REF WC	4 m²
7	Covered Entrance	11 m²
8	Toilets	3 m²
9	Toilets	3 m²

Area Schedule

Name	Area
Store Rooms	82 m²
Proposed Pavilion	467 m²
Bathrooms & Locker Rooms	99 m²
Store Rooms	82 m²

Door Schedule

Qty	Type Mark	Model	Width	Height	Manufacturer
3	D1	SD2/1612	1760	2150	Swartland Doors
3	D2	SD2	961	2150	Swartland Doors
6	D3	Stall Doors	813	1800	Swartland Doors
3	G1	SD2/1612	1760	2150	Swartland Doors

Window Schedule

Qty	Type Mark	Model	Width	Height	Glass	Manufacturer
5	W01	PTI69	590	890	Single Clear - Safety Glazing	Kenzo - Swartland

Specifications

1.1 Shower Area

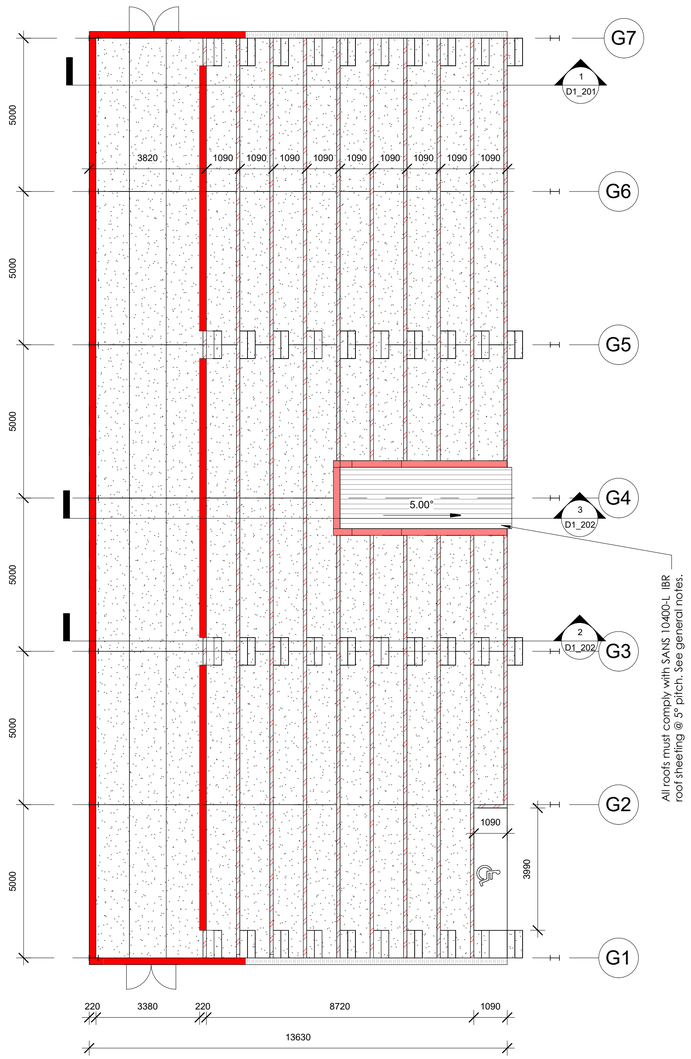
- Chase into brickwork and install new hot and cold-water piping to serve five (5) new Cobra vandal-proof shower heads complete with vandal-proof time-controlled taps.
- Prepare wall surfaces and apply 300 × 300 mm First-Grade Ceramic Tiles up to 1800 mm height.
- Prepare floor surfaces with proper screed falls to two (2) new stainless-steel shower outlets.
- Fit three (3) towel hooks on the outer face of each new brick partition wall, positions to be indicated on site.
- All plumbing to comply with **SANS 10252** and **SANS 10254** standards.

1.2 Toilet Cubicles

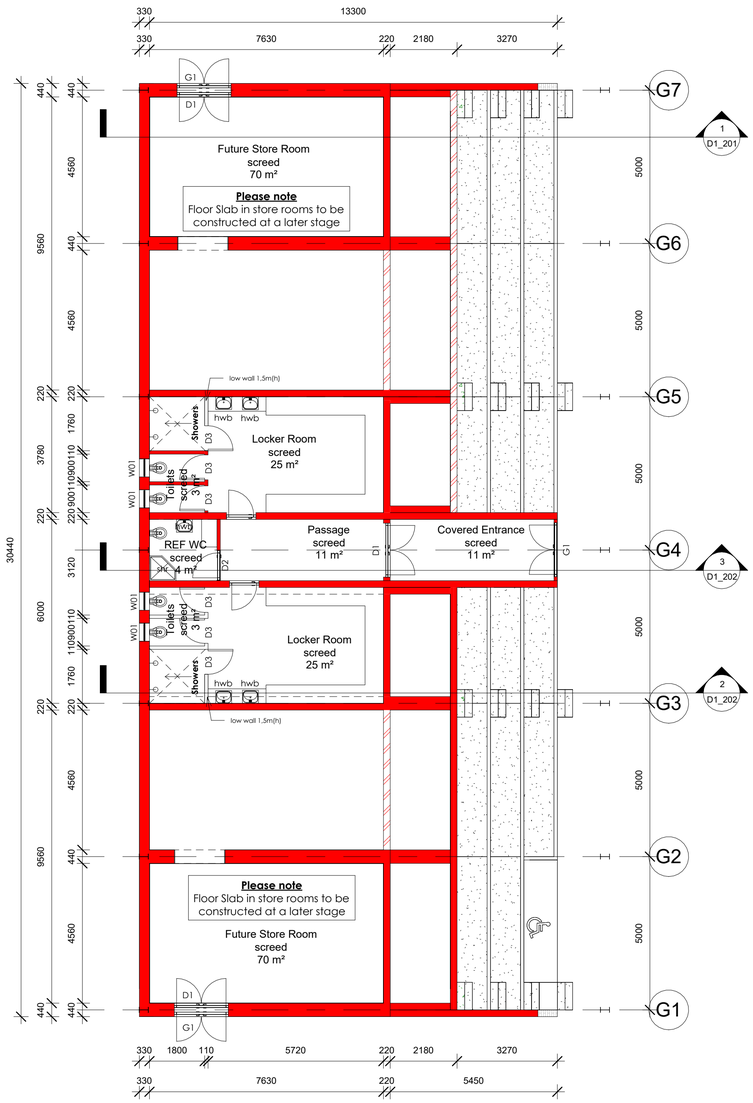
- All toilet seats and lids are heavy-duty units.
- Install flushing tanks complete with flushing mechanisms and all connections.
- Walls: 300 × 300 mm First-Grade Ceramic Tiles to 1800 mm height.
- Floors: 300 × 300 mm First-Grade Ceramic Tiles, laid to fall towards floor outlets.
- Fit semi-solid core doors with indicator bolts, door stops, and paint finish.
- Install one (1) coat hook on the inside of each door.
- Install vandal-proof toilet-paper holders at positions to be indicated on site.

1.3 Change Area

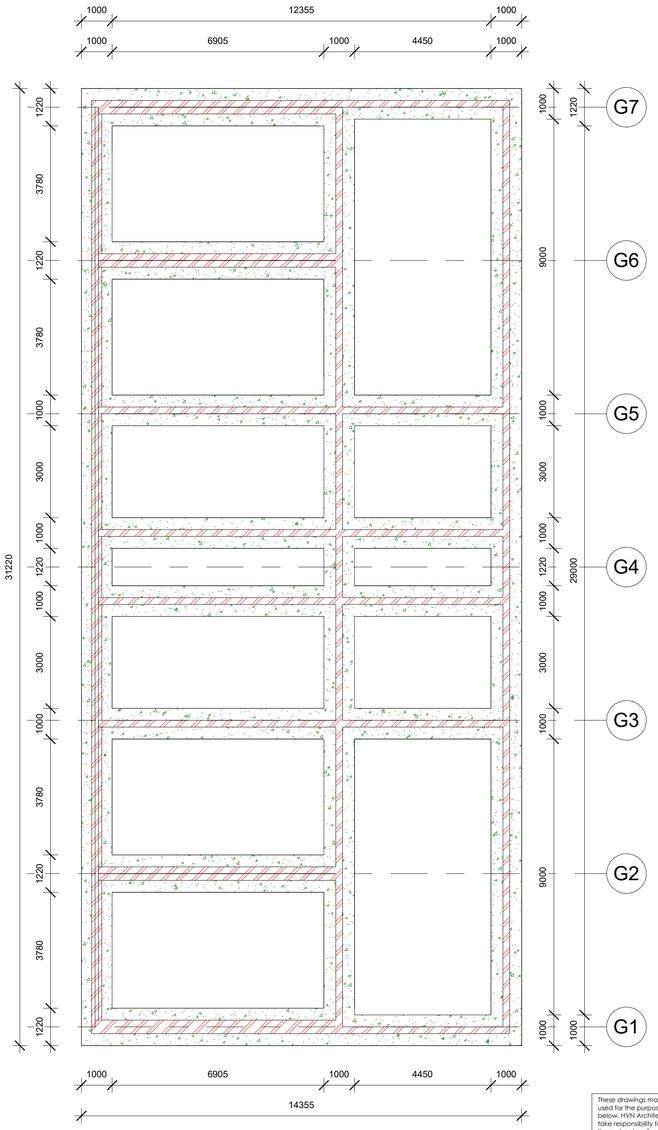
- Prepare walls and finish with 300 × 300 mm First-Grade Ceramic Tiles to 1800 mm height.
- Prepare floors to receive non-slip rubber carpet tiles.
- Construct 450 mm-wide hardwood benches mounted on 50 × 50 mm galvanized steel angle brackets fixed to wall using 12 mm galvanized coach screws at 500 mm centres.
- Bench slats to be 40 × 25 mm hardwood, screwed and countersunk to brackets; screw heads to be plugged. Varnish seat with marine varnish.
- Install hand-wash basins (HWB)
- Construct 2000 mm-long × 100 mm-thick reinforced concrete (RC) wash slab, fixed to wall with 5° fall towards wall.
- Provide 50 mm recess against wall to form channel with stainless-steel wash outlet.
- Install piping and Cobra vandal-proof time-controlled cold taps in positions to be indicated on site.
- Fit new solid-core door with "CHANGE ROOM" sign and 3-lever lockset.
- Prepare all painted surfaces to receive primer, undercoat, and two coats of high-gloss enamel paint.
- Install 200-liter Kwikot geyser complete with all valves, safety devices, and accessories in each Store Room



1 STANDS Canopy
1 : 100



2 STANDS Locker Room/Store
1 : 100



3 Foundation
1 : 100

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No.	Description	Date

Owner: Langeberg Municipal - Megregor

The owner of the relevant premises herewith confirms that he/she has studied the plans thoroughly, and that he/she understands the contents of the plans.

Megregor sportgrounds - Stands

Keerom Street, McGregor

Langeberg Municipal - Megregor

Floor Plan

D1_100

Date	10/11/2025
Project number	2343.42
Rev.	003
Ref.	D:\HVN - DATA\A_Projects\20.2343 - Element and Invicta\2343.42 - Megregor\2343.42 - Megregor Sportgrounds.pln
Scale	1 : 100
Size:	A1

Engineers Signature:

Drawn By: Maryke Krause
REG: PAD 49255345

Designed By: Henry van Nieuwenhuizen
REG: PrArch 3924

PROFESSIONAL ARCHITECT
LUKAS HENRY JANSEN VAN NIEUWENHUIZEN
11.07 HR (RHN)a Debenkerslaag ca 23 May 2025

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1	Information Only	
2	Concept Drawings	
3	Sketch Design	
4	Approval Drawings	X
5	Tender Drawings	
6	Working Drawings	
7	As-Built Drawings	

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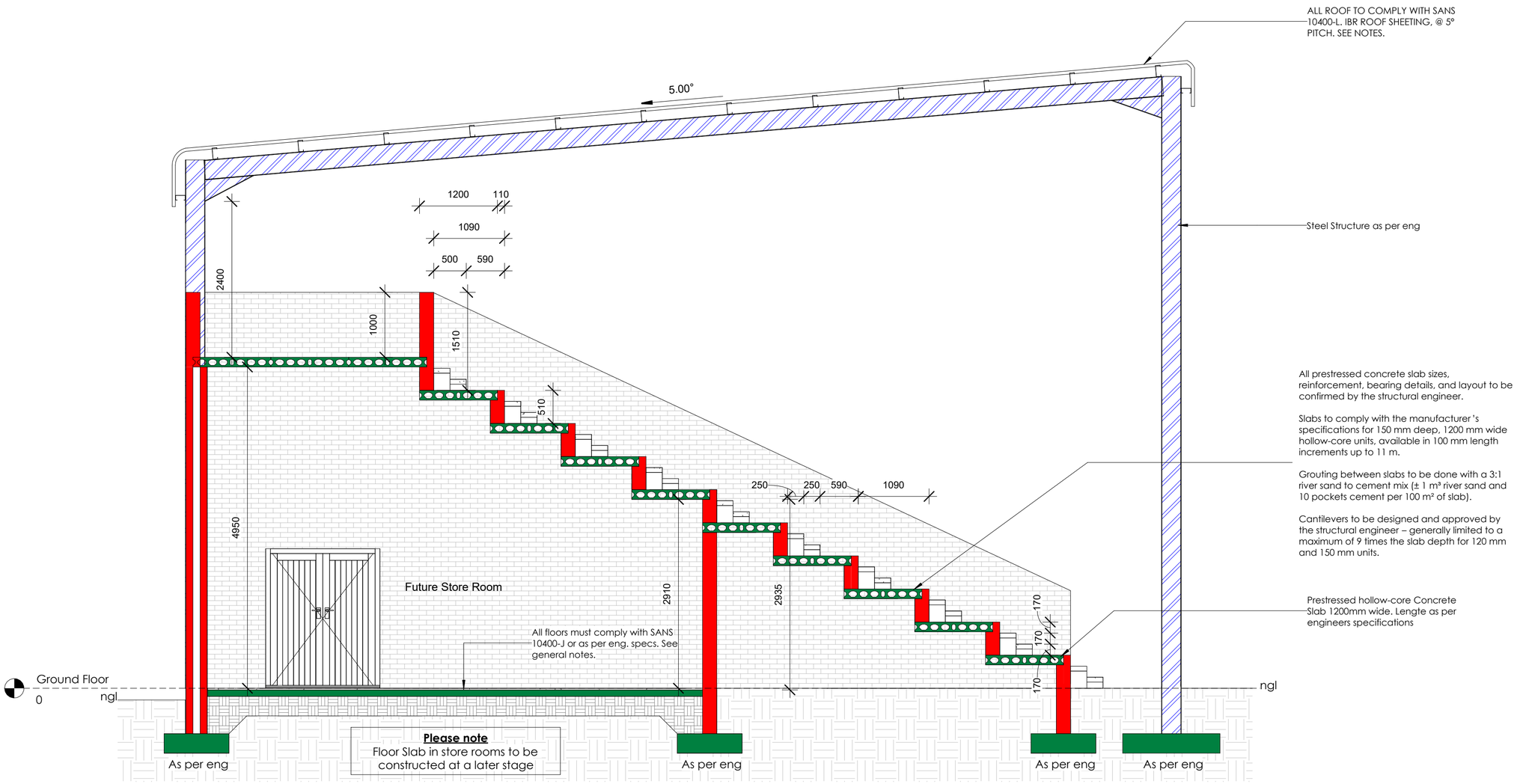
10/11/2025 11:15:44



All prestressed concrete slab sizes, reinforcement, bearing details, and layout to be confirmed by the structural engineer.

Slabs to comply with the manufacturer 's specifications for 150 mm deep, 1200 mm wide hollow-core units, available in 100 mm length increments up to 11 m.

Grouting between slabs to be done with a 3:1 river sand to cement mix (± 1 m³ river sand and 10 pockets cement per 100 m² of slab).

Cantilevers to be designed and approved by the structural engineer – generally limited to a maximum of 9 times the slab depth for 120 mm and 150 mm units.

Prestressed hollow-core Concrete Slab 1200mm wide. Lengte as per engineers specifications

1 Section_Pavilion
1 : 50

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No.	Description	Date

OwiLangeberg Municipal - Megregor

The owner of the relevant premises herewith confirms that he/she has studied the plans thoroughly, and that he/she understands the contents of the plans.

Megregor sportgrounds - Stands

Keerom Street, McGregor

Section - Pavilion

D1_201

Date	10/11/2025
Project number	2343.42
Rev.	003
Ref.	D:\HVN - DATA\4. Projekte\00.2343 - Element and Invictus\2343.42 - Megregor\2343.42 - Megregor Sprotgrounds.rvt
Scale	As indicated
Size:	A2

Engineers Signature:

Drawn By: Maryke Krause
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Designed By: Henry van Nieuwenhuizen
REG: PrArch 3924

PROFESSIONAL ARCHITECT
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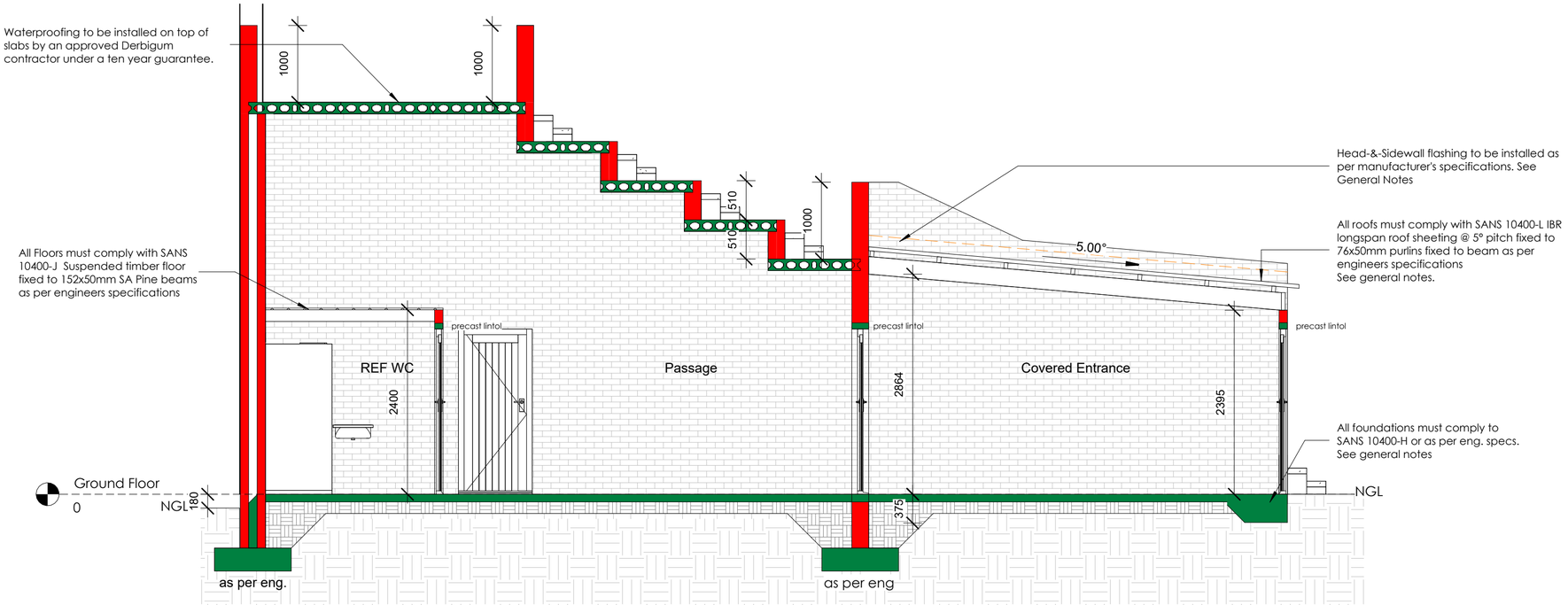
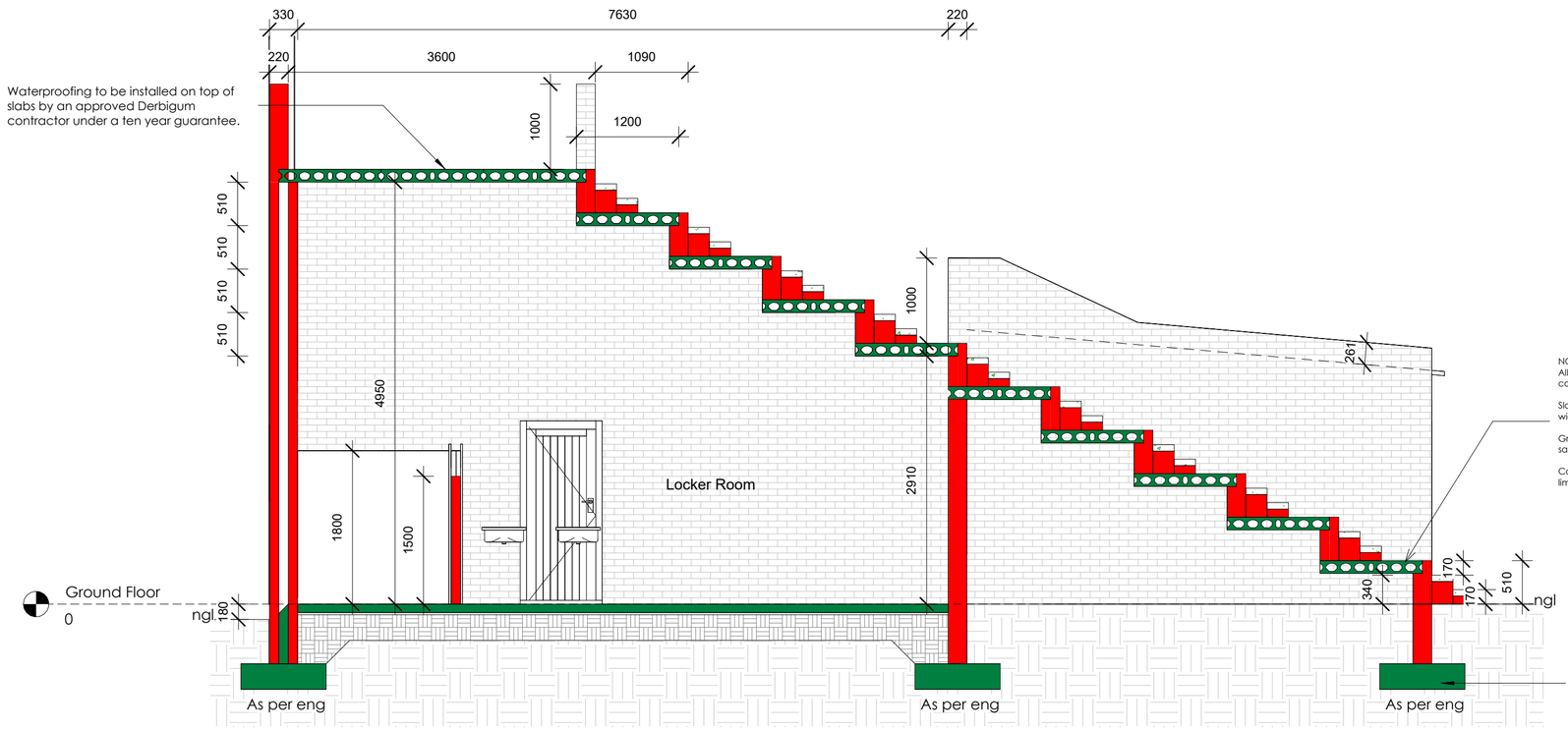


Section_Entrance to Locker Room

3

1 : 50



NOTE:
All prestressed concrete slab sizes, reinforcement, bearing details, and layout to be confirmed by the structural engineer.

Slabs to comply with the manufacturer's specifications for 150 mm deep, 1200 mm wide hollow-core units, available in 100 mm length increments up to 11 m.

Grouting between slabs to be done with a 3:1 river sand to cement mix (± 1 m³ river sand and 10 pockets cement per 100 m² of slab).

Cantilevers to be designed and approved by the structural engineer – generally limited to a maximum of 9 times the slab depth for 120 mm and 150 mm units.

Section_Locker Room

2

1 : 50

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No.	Description	Date

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Megregor sportgrounds - Stands

Keerom Street, McGregor

Sections

D1_202

Date	10/11/2025
Project number	2343.42
Rev.	003
Ref.	D:\HVN - DATA\4. Projekte\00.2343 - Element and Invictus\2343.42 - Megregor\2343.42 - Megregor Sprotgrounds.rvt
Scale	As indicated
Size:	A2

Engineers Signature:

Drawn By: Maryke Krause
REG: PAD 49255345

Designed By: Henry van Nieuwenhuizen
REG: PrArch 3924

PROFESSIONAL ARCHITECT
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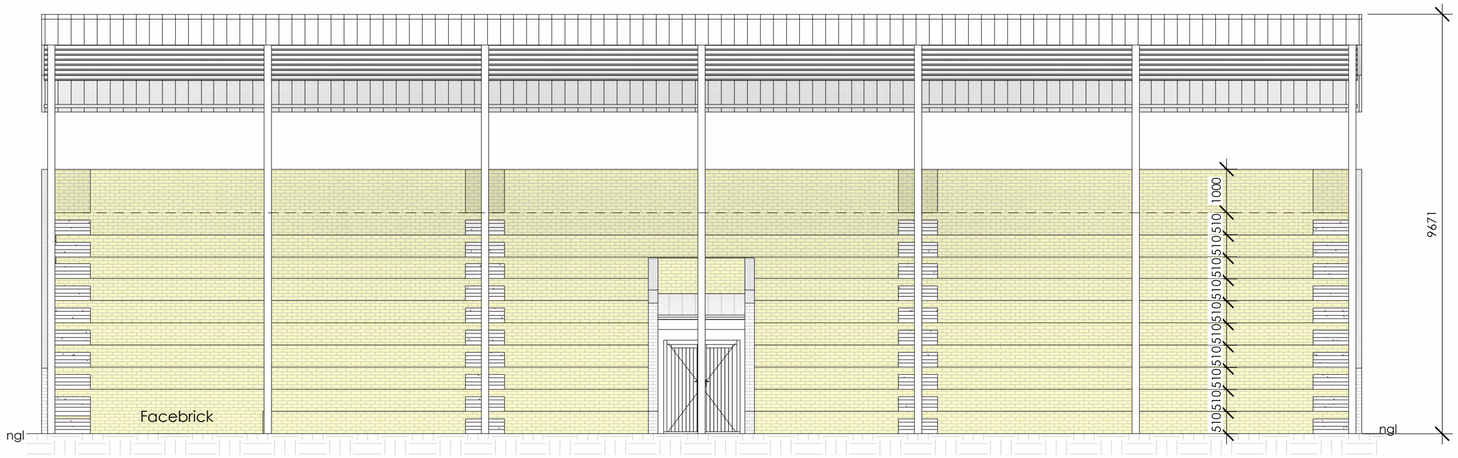
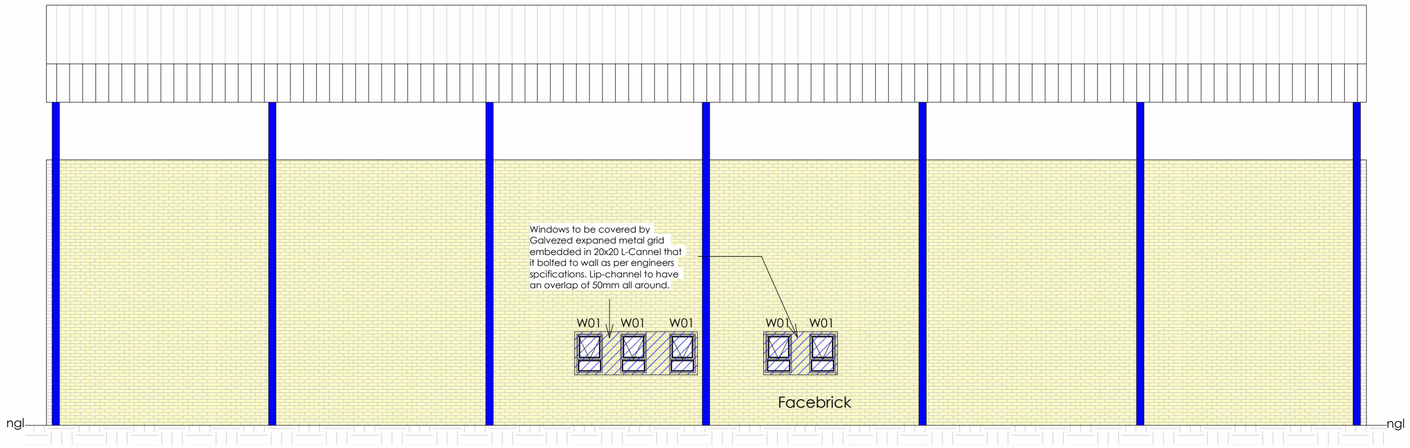
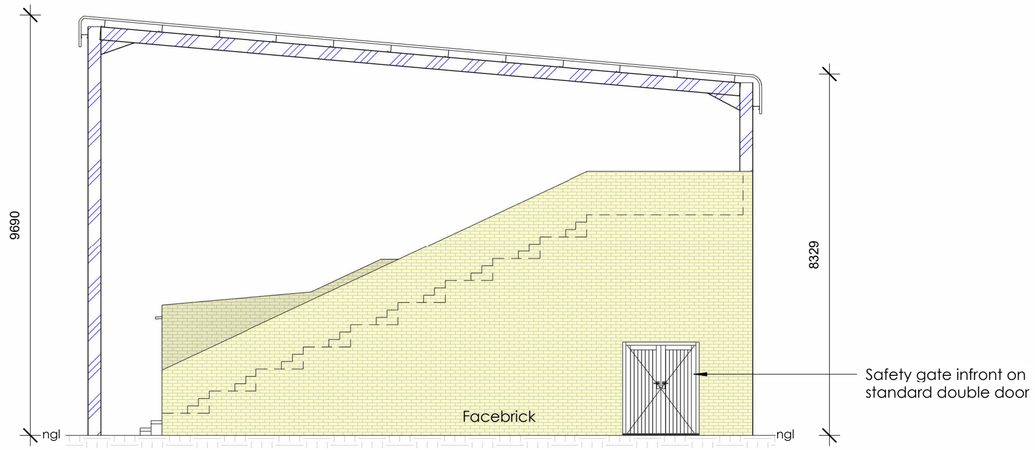


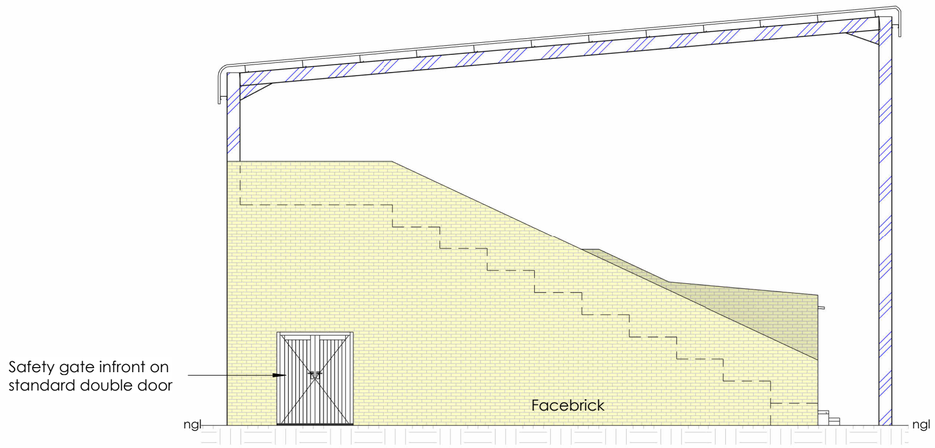
1 Front View
1 : 100



2 Back View
1 : 100



3 Side View
1 : 100



4 Side View 2
1 : 100

Door Schedule

Qty	Type Mark	Model	Width	Height	Manufacturer
3	D1	SD2/1612	1760	2150	Swartland Doors
3	D2	SD2	961	2150	Swartland Doors
6	D3	Stall Doors	813	1800	Swartland Doors
3	G1	SD2/1612	1760	2150	Swartland Doors

Window Schedule

Qty	Type Mark	Model	Width	Height	Glass	Manufacturer
5	W01	PTT69	590	890	Single Clear - Safety Glazing	Kenzo - Swartland

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Megregor sportgrounds - Stands

Keerom Street, McGregor

Elevations

D1_301

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Scale	1 : 100
Size:	A2

Engineers Signature:

Drawn By: Maryke Krause
REG: PAD 49255345

Designed By: Henry van Nieuwenhuizen
REG: PrArch 3924

South African Council for the Architectural Profession
PROFESSIONAL ARCHITECT
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